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RETHINKING POLICY INTERVENTION FOR THE
TRANSITION TOWARDS COMPETITIVE TRADE-LED
GREEN GROWTH

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**RETHINKING POLICY INTERVENTION FOR THE
TRANSITION TOWARDS COMPETITIVE TRADE-LED
GREEN GROWTH**

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मा नः पश्चान्मा पुरस्ताद्दिष्टा मोक्षरादधरादुत ।
स्वस्ति भूमे नो भव मा विदन्परिपन्थिनो वरीयो यावया वृधम् ॥३२॥

*Drive us not from the west or east,
Drive us not from the north or south
Be gracious onto us, O Earth: let not the robbers find us,
Keep the deadly weapons far away
(Atharva Veda, Prithvi Suktam, 12:32)
1200-1000 BC*

Abstract

A Neo-classical trade-led growth model, supported by rapid technological advancement and the WTO regime was instrumental to achieving higher growth and prosperity during the last few decades; however, it could not cope with new challenges such as environmental degradation, inequality, social disharmony, and poor quality of life. The adoption of a Green growth approach is gaining momentum to overcome these issues. Since two thirds of world production is traded, trade should also be competitive, inclusive and environmentally sustainable within a green growth regime. Through an extensive review of trade and competitiveness theories, human development, and environmental sustainability literature, a set of 'adaptive strategies' are explored that incorporate elements of competitiveness, inclusiveness, and sustainability in the trade sphere. A 'Green Box System Framework of Adaptive Strategies for trade-led green growth transition' has been developed which explains how those strategies may facilitate a trade-led green growth transition when catalysed by a number of policy instruments/incentives. The applicability of those strategies in a low-income economy has been tested in the Nepalese context with some executive interviews at both the policy and firm levels.

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Acronyms and abbreviations

AAN	Action Aid Nepal
ADB	Asian Development Bank
AfT	Aid for Trade
AFTA	International Fair Trade Association
AIMA	All India Management Association
APEC	Asia-Pacific Economic Cooperation
AS	Adaptive Strategies
BAU	Business as Usual
BCA	Border Cost Adjustment
BoP	Base of the Pyramid
BTA	Border Tax Adjustment
CAC	Citizen's Advisory Committee
CASs	Core Adaptive Strategies
CBOs	Community Based Organisations
CCICED	China Council for International Cooperation on Environment and Development
CEC	Commission of the European Communities
CFL	Compact Fluorescent Lamp
CMEPSP	Commission on Measurement of Economic Performance and Social Progress
CNI	Confederation of Nepalese Industries
CNRP	Cyprus National Reform Programme
CO ₂	Carbon Dioxide
COP	Communication on Progress
CSASs	Core Strategic Adaptive Solutions
CSR	Corporate Social Responsibility
CTC	Crush-Tear-Curl
CUTS	Consumer Unity and Trust Society
DANIDA	Danish International Development Agency
DRC	Development Research Centre of the State Council, China

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DTATs	Double Tax Avoidance Treaty
EC	European Commission
EFTA	European Free Trade Association
EIF	Enhanced Integrated Framework
EI	Energy intensity
EIP	Eco-industrial Park
EMS	Environmental Management System
EPZ	Export Processing Zone
ETS	Emission Trading Permit System
EU	European Union
F/Y	Fiscal Year
FDI	Foreign Direct Investment
FITTA	Foreign Investment and Technology Transfer Act
FLO	Fairtrade Labelling Organization
FNCCI	Federation of Nepalese Chambers of Commerce and Industry
FTA	Free Trade Area
FTF	Fair Trade Federation
FTOs	Free Trade Organisations
GATT	General Agreement on Tariff and Trade
GBSF	Green Box System Framework
GCN	Global Climate Network
GDP	Gross Domestic Product
GHG	Greenhouse Gases
GIEOM	Graphical Intelligence Electronics Operations Manual
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
GLOBECO	Global Economic Observer
GMOs	Genetically Modified Organisms
GNH	Gross National Happiness
GNP	Gross National Product
GoN	Government of Nepal
GPI	Genuine Progress Indicator

GSCM	Green Supply Chain Management
Gt	Gigaton or billion tons
GVCs	Global Value Chains
HDI	Human Development Index
HDR	Human Development Report
HRD	Human Resource Development
ibid.	ib'ĩ-dēm'
ICIC	Initiative for a Competitive Inner City
ICT	Information and Communication Technology
IEA	International Energy Agency
IES	Index of Economic Social Welfare
IFAD	International Fund for Agricultural Development
IFAT	International Federation of Alternative Trade
INGOs	International Non-Governmental Organisation
IPR	Intellectual Property Rights
ISEW	Index of Sustainable Economic Well-being
ISO	International Organization for Standardization
IUCN	International Union for the Conservation of Nature
ktoe	Kilo-tons Equivalent
KTE	Kanchanjangha Tea Estate
LDCs	Least Developed Countries
LSGA	Local Self-Governance Act
MBIs	Market Based Instruments
MDGs	Millennium Development Goals
MEAs	Multilateral Environmental Agreements
MNCs	Multinational Companies
MoCS	Ministry of Commerce and Supplies
MOFN	Ministry of Finance, Nepal
MoI	Ministry of Industry
MoSTE	Ministry of Science, Technology, and Environment
NBF	Nepal Business Forum

NGOs	Non-Governmental Organisation
NMIs	Non-Market Instruments
NO _x	Nitrous Oxide
NPC	National Planning Commission
NRG	Natural Resource Governance
NTB	Non Tax Barrier
NTCDB	National Tea and Coffee Development Board
NTIS	Nepal Trade Integration Strategy
NTT	New Trade Theory
ODA	Official Development Assistance
OECD	Organization for Economic Co-operation and Development
PCT	Patent Cooperation Treaty
PH	Porter's Hypothesis
PHH	Pollution Haven Hypothesis
PoI	Plan of Implementation
PPD	Public Private Dialogue
PPF	Production Possibility Frontier
PPP	Public Private Partnership
PSB	Phyto-Sanitary Barriers
PSDC	Private Sector Development Committee
PSWM	Participative sustainable waste management
R&D	Research and Development
SAP	Structural Adjustment Program
SASs	Strategic Adaptive Solutions
SAWTEE	South Asia Watch on Trade, Economics and Environment
SCM	Subsidies and Countervailing Measures
SEEA	System of Environmental and Economic Accounts
SEZ	Special Economic Zone
SMEs	Small and Medium Enterprises
SNA	System of National Accounting
SNV	Netherlands Development Organisation

SO _x	Sulphur Dioxide
SPC	Sanitary and Phyto-sanitary Measures
TBT	Technical Barrier to Trade
NTCDB	National Tea and Coffee Development Board (Nepal)
TEEB	The Economics of Ecosystems and Biodiversity
TPES	(in) Terms of Primary Energy Source
TRIPs	Trade Related Intellectual Property Rights
TRTA	Trade-Related Technical Assistance
UK	United Kingdom
UN	United Nations
UNCED	United Nations Conference on Environment and Development
UNCSD	United Nations Conference on Sustainable Development
UNCTAD	United Nations Conference on Trade and Development
UN-DESA	United Nations Department of Economic and Social Affairs
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UN-ESCAP	United Nations Economic and Social Commission for Asia and the Pacific
UNFCCC	United Nations Framework Convention on Climate Change
USA	United States of America
USD	United States' Dollar
USAID	United States Agency for International Development
VAT	Value Added Tax
WAVES	Wealth Accounting and the Valuation of Ecosystem Services
WBPRR	World Bank Policy Research Report
WCED	World Commission on Environment and Development
WEF	World Economic Forum
WFTO	World Free Trade Organisation
WSSD	World Summit on Sustainable Development
WTO	World Trade Organization
WWF	World Wide Fund for Nature
WWII	World War II

CHAPTER ONE

Introduction

1.1 Background

Within the last three decades, world economies- developed, less developed or least developed- are well integrated with international trade. In the 1980s, most developing countries abandoned import substitution models in favour of export-led growth which led to rapid global trade integration. Since 1990, annual export growth of low and middle income countries was 14 percent, where it was just eight percent in high income countries (Reis & Farole, 2012). The export-led growth model successfully graduated many lesser developed countries into developed ones mainly in Asia-Pacific, Africa and Latin America. Still more than two-thirds of the world's poor reside there, and the number has risen in the first decade of the 21st century in those countries (Sumner, 2010).

The secret behind strong export-led growth lies in the international competitiveness of the products and services. 'The idea that the economic success of a country depends on its international competitiveness took hold among business, political, and intellectual leaders in the late 1970s' - states Krugman (1996). However, what exactly determines the international competitiveness has been contested. For example, with empirical analysis of rapid trade-led growth of East Asian countries, Frankel, Romer and Cyrus (1996) conclude that investment in education were prominent contributors to export-led growth in Korea, Malaysia, Taiwan and Japan whereas openness played substantial role in Hong Kong and Singapore. Identifying the thrust determinants and catalysing them has been important to addressing the major policy concern of developing strategies to sell more goods and services abroad, making them internationally competitive and taking advantage of strength and opportunities. Therefore, the determinants of competitiveness have been the subject of discussion, investigation, and policy preference because competitiveness has been broadening its scope from firm level price competitiveness to industrial, territorial to national, price to socioeconomic competitiveness and international intra-firm competitiveness to global competitiveness.

However, competitive trade-led growth alone cannot be justified if it deteriorates peoples' rights, lives, jobs, and/or overall equity. Human Development Report 1996 clearly

states that economic growth, if not properly managed, can be jobless, voiceless, ruthless, rootless and futureless, and thus detrimental to human development. The quality of growth is therefore, as important as its quantity for poverty reduction, employment generation, human development and, both social and environmental sustainability. From this point of view, we emphasize that trade competitiveness encapsulated by sustainability and inclusiveness can be reliable, just and durable despite the growth rate being smaller. If any aspects among these three are lacking, socioeconomic as well as environmental instability is inevitable. In other words, quality of growth equally matters as quantity of growth does.

In this sense, not the growth alone but also an inclusive growth is a must for social justice and a harmonious society. Various forms of evidence indicate that gain from trade, lacking the addressal of social equity concerns, maybe useless for the bigger segment of the national population. One striking example of the issue of inclusiveness is the protest called 'Occupy Wall Street' with the slogan "We are the 99 per cent" that was conceived in Zuccotti Park of USA in 2011. The rhetorical slogan referred to the growing income inequality and wealth distribution in the U.S. between the wealthiest one percent and the rest of the population. This protest was represented a stance against social and economic inequality, high unemployment, greed, corruption and the undue influence of corporations on government. In the same year, as the data released by the US Department of Commerce shows, growth of goods and services exports was up by 15.5 per cent in the first 10 months of 2011. More ironically, slightly earlier in 2009 (the last year of financial crisis!), annual US export growth of 'arms and ammunitions' was up by 101.7 percent, compared to the previous year. It presents one example of how national prosperity ignited by exports may not lead an economy towards a just, inclusive and sustainable one despite being competitive in terms of exports. Such a scenario raises eyebrows over the so-called increase in monetary wealth.

Moreover, it is a big challenge to export competitively while simultaneously addressing issues of inclusiveness and environmental sustainability when many waves of economic crises are being observed. Despite the challenges, we are standing at the juncture of a time during which there is no escape from balancing the ecological, economic and human aspects of trade. To overcome such crosscutting issues like the economic crisis, race to the bottom problem of investment, environmental degradation and rising social disharmony arisen from inequality, we need to change our course of production, distribution, consumption, and trade in a sustainable

and inclusive way. For this very purpose, green growth concepts are floated and adopted with the goal of achieving competitive, sustainable and inclusive trade and growth. Korea, China, India, Brazil and the European Union have chosen such a course (UNESCAP, 2012). Europe 2020 has taken the 'green growth strategy to overcome such crises (CNRP, 2012).

The biggest question is how to translate green growth strategies into international trade so that competitiveness, sustainability and inclusiveness join hands. It is a dynamic and very complex issue, considering the interaction among firm level productivity, macroeconomic policies, networks and clusters, location, conflicting interests, institutional efficiency and so on. Many competitiveness theorists highlight the role of incentive regimes. For example, Lall (2000) recognizes incentive markets as one of three edges of the 'competitiveness triangle'. In view of (Hämäläinen, 2003), competitiveness and the growth of economic systems are influenced by institutional framework, the government's socioeconomic role, and system's external economic and social relationship. One macro requirement, among others, for export competitiveness according to Sakho and Welkenhorst (2008) includes – incentivising actual and potential exporters.

An incentive regime, in the context of this study, is an arrangement of a set of policy instruments that are employed to encourage a favourable course of trade, environment and growth. Incentives include- fiscal incentives (tax, subsidies, grant, allowance, exemption, account adjustments, charges etc.), non-fiscal incentives (stakeholder participation, trade agreements, and government facilitation), and semi-fiscal instruments (public procurement, double tax avoidance, regulations etc.). In short, a combination of trade policy instruments, environmental policy measures, voluntary compliance measures, competitive policy instruments and industrial policy measures are all taken into account.

However, government incentives in an open economy are principally challenged. Furthermore, incorporating environmental sustainability and inclusiveness components in trade regime is a bigger challenge. In this regard, with an extensive discourse on the interconnection among three fundamentals of trade-led inclusive green growth (trade competitiveness, sustainability and inclusiveness) this study explores synergies among determinants of trade competitiveness and elements of inclusiveness and sustainability, and proposes some adaptive strategies that have to be incorporated within the context of various policies (incentives) to

lubricate green growth transition. It also tries to explore the applicability of such strategies in Nepal- a trade dependent and low income country.

1.2 Motivation and Justification

Following a number of interconnected ideas led us to explore some adaptive strategies in which attributes of inclusiveness and environmental sustainability are yoked with trade competitiveness. Catalysed by some policy options, such strategies may facilitate the transition towards a competitive trade-led green growth.

Firstly, high economic growth alone cannot reveal the clear picture of the qualitative dimensions of people and the environment in the economy they live in. Therefore, many initiatives such as Human Development Indicator (HDI), GDP and Beyond, Europe 2020, Rio +20, and a number of others have been launched in the persistent advocacy of inclusive and green economic growth. Economic growth in recent decades has largely been generated by international trade catalysed with neo-liberal trade policies. The UNCTAD data source reveals that, in nominal terms, the world's average trade share to GDP was 18.8 per cent in the decade of 1980 which surged to 21.3 per cent during the 1990s and soared to 28.1 per cent during the first decade of the 21st century (UNCTAD Database, 2012). It is increasing with the rapid integration of economies into global markets. Therefore, trade as the main determinant of growth should be inclusive and green while exporting firms maintain competitiveness of their products. However, being competitive and taking human and natural capital into account simultaneously is a major challenge. For that purpose, adaptive strategies are needed. The first motive of this thesis is exploring such possible 'strategies'.

Secondly, some policy instruments should be employed and government cushions should be provided to correct the impaired course of development. Human Development Report (HDR) 1996 states that economic growth, if not properly managed, can be jobless, voiceless, ruthless, rootless and futureless, and thus detrimental to human development (UNDP, 1990). The quantity of growth is therefore, as important as its quality for poverty reduction, human development and sustainability. However, quality phenomena are hardly achieved through open market. UNDP report 2010 concludes that without complementary societal and state action, markets can be weak on environmental sustainability, thus creating the conditions for environmental degradation

(UNDP, 2010). Protecting environment and increasing income on a broad basis remains an important policy priority. Therefore, an incentive regime is taken as a subject of deeper study.

Choosing an incentive regime instead of various micro-fundamentals of productivity enhancement for competitiveness may be questionable. The logic behind the selection of incentive regimes as catalysts for a new course of trade rests in the support that this approach has received by various trade theorists. Some incentives, such as trade policy instruments are considered as one of the most important factors to influence national level trade competitiveness. Sakho and Welkenhorst (2008) focus on three elements for export competitiveness, and an incentive regime for actual and potential exporters is one among them. Sachs and Warner (1995) regard trade reform as the single most powerful element for trade-led growth. With case studies in East Asian and Caribbean economies, Wint (1998) argues that governments of these countries, and others seeking to enhance the international competitiveness of their economies, may well have to be capable of managing the process of selecting functional interventions [non-market intervention instruments], and of reducing the risks and improving the functioning of selective interventions [market intervention instruments]. Identifying appropriate policy instruments to accelerate each adaptive strategy is another major concern of this study.

In practice, trade and industrial policies should incorporate sufficient instruments to address competitiveness and social and environmental sustainability concerns. For example, the European Union (EU) and World Bank also have placed emphasis on a trade and industrial policy regime for competitive, inclusive and sustainable growth. In Europe 2020, strategic trade and industrial policy are considered important tools to increasing the EU's competitiveness and its core component- smart, sustainable and inclusive growth (European Commission, 2011). The World Bank's Trade Competitiveness Diagnostic Toolkit to assessing international trade competitiveness entails three major frameworks in which 'incentive framework' deals with trade and industrial policies as well as real effective exchange rate policy. This means that the use of an incentive mechanism (policy intervention) has been widely accepted in the pursuit of competitive and green (inclusive and sustainable) growth. Accordingly, the importance of policy incentives cannot be overlooked.

Thirdly, a research gap is apparent in competitive trade-led green growth literature, as competitiveness is hardly linked with social and environmental dimensions of development. Aranguren and Wilson argue that both a firm-based interpretation and a people-based

explanation of competitiveness (which centres on the process of rivalry, a natural extension of 'winners and losers', 'fitness or unfitness', 'deserving to live or deserving to die' phenomena), is stringent. They argue that nations and regions exist in a system of relations that constitutes a market, but in such a system market, success alone cannot capture the complexity of relationships and the aims of the people residing in those territories (2010, p. 57). These relationships are far more multifarious than survival and dominance, profits and prosperity. A new demand of melodious relationships that foster social equity, environmental sustainability and healthy competition has been emerging in the policy making arena. This study is an effort towards that direction.

They also argue that the current discourse among policy-makers and their advisors remains too narrowly focused on facilitating firm-level productivity as a route to territorial economic growth. Beyond the hitherto explanation of competitiveness and its understanding, they have emphasized that the objective of national competitiveness policy should be designed in such a way that the results of growth will be equitably distributed, social cohesion will be maintained, and future generation-seeking equilibrium between growth and long-run sustainability is taken into account (ibid, p. 59). Hence, they demand are thinking of 'economic' versus 'social' versus 'environmental' aspects that are inseparable and should not be overlooked, despite 'fundamentals of economic competitiveness' being very important. This study is a small effort to deal with human versus ecological versus economic phenomena in trade competitiveness with a system approach of policy analysis.

Lastly, the green growth path has been adopted as a better mode of trade-led growth in very recent years and a green economy framework is rapidly being embraced by many industrial economies; environmental well being remains a luxury in low income countries, however. Through case study findings, we argue that a green growth path may be effective and can be followed by all countries irrespective of their income level, as each country may benefit from its growth trajectory.

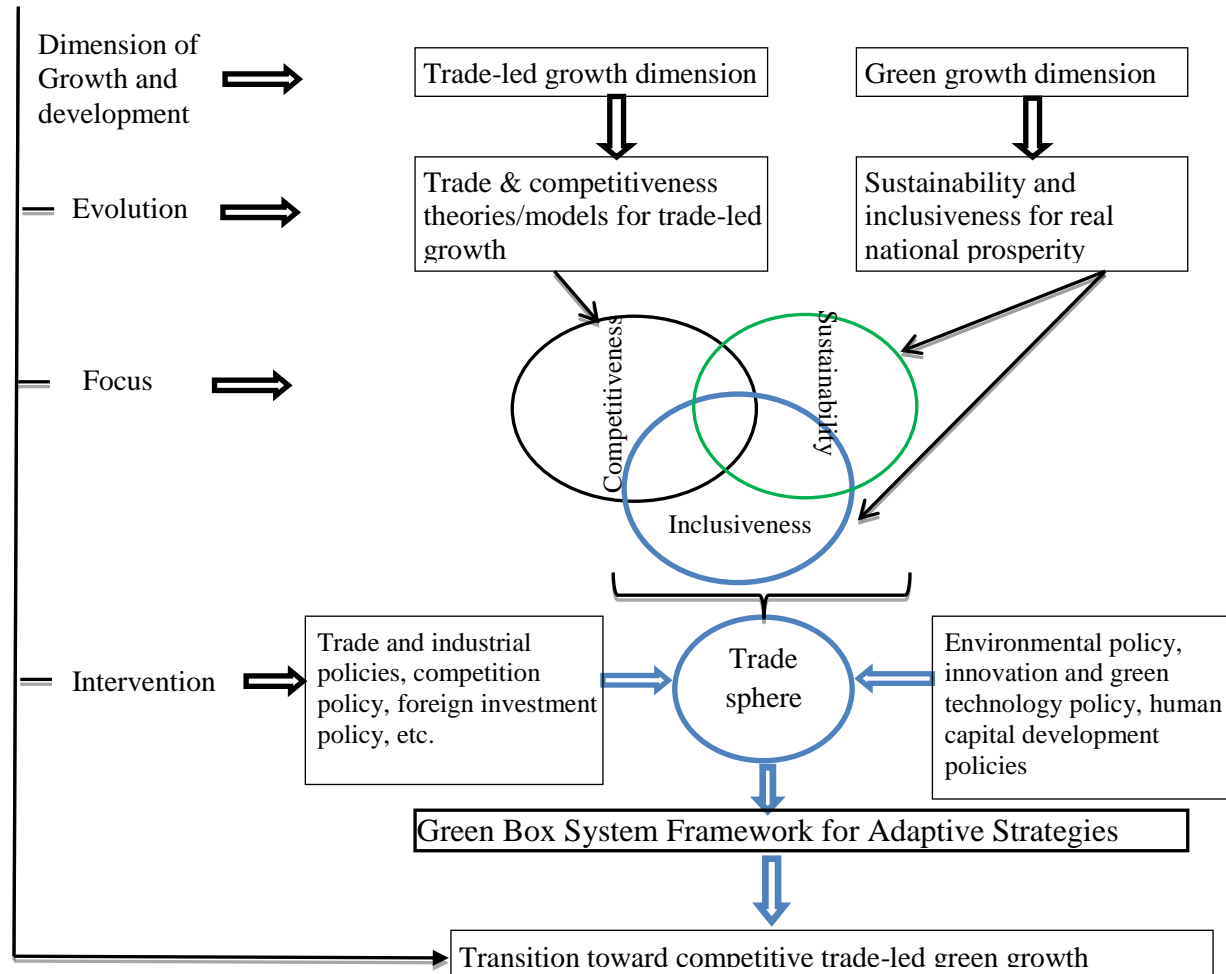
1.3 Analytical Framework

Explaining the evolution of development thought, Meier and Stiglitz (2000) state that the goal of development in the decade is achieving 'sustainable development, and the role of government is- "complementarity of government and market" (p. 3). Our framework is more

specific in terms of goal of development, i.e., green growth which is a strategic aspect of sustainable development (diagram in Annex 1). Regarding the role of government, we focus only on the trade dimension with trade, industry and environment related policy analysis and incentives.

The following diagram is the analytical framework that we follow throughout this study.

Figure 1.1: Analytical Framework



Source: Author's own elaboration

As depicted in the figure above, we begin with a brief analysis of trade-led growth, which is also a quantitative aspect of economic development, and then summarize the trade and competitiveness theories to accentuate why and how competitiveness is an unavoidable aspect in the context of trade-based growth and global competition. We summarize the essence of various initiatives that demand fostering inclusiveness (human development aspect) and sustainability for

real prosperity growth of a nation. Then we introduce green growth as the strategy for sustainable development- the qualitative aspect of economic development.

Next, we marry the competitiveness- the inherent element of trade-led growth with sustainability and inclusiveness dimensions of green growth. The blending of features of these three fundamentals produces more complex dimensions in trade sphere such as inclusive sustainability, sustainable competitiveness and inclusive competitiveness. In this complex interplay, international trade should follow a new course with a cautious consideration of human and natural capital from the very outset of the trading mechanism process. For this purpose, we extract the conclusion of various discourses and prescribe adaptive strategies. Such strategies start with democratizing policy cycle and end with learning from various strategies of production and consumption cycles, as well as business and trade cycles. Various policy incentives may weaken trade-offs and stimulate synergies. The interplay among adaptive strategies and incentive instruments is presented within the "Green Box System Framework" of 'core adaptive strategy mix'- a set of adaptive strategies. The expected outcome during this new course of trade is a successful transition toward competitive trade-led green growth.

1.4 Objectives

The following objectives are set to be achieved upon conclusion of this thesis:

1. To explore the evolution of development thought from trade-led growth to competitive trade-led green growth;
2. To enrich the discourse on sustainable competitiveness, inclusive sustainability and inclusive competitiveness to identify trade-offs and synergy areas;
3. To identify 'adaptive strategies' and 'core adaptive strategy mix' for trade competitiveness in the context of transition toward sustainable and inclusive trade-led growth;
4. To develop a system framework of 'core adaptive strategy mix' and explain how it may work for trade-led green growth transition if catalysed by appropriate incentives;
5. To test the applicability of 'core adaptive strategy mix' in the context of low income economy like Nepal.

1.5 Research Design

This thesis is divided into two parts. The first part of the thesis (chapters 2-6) is conceptual and draws on an in-depth analysis of different streams of literature to arrive at a framework (The Green Box System Framework of Adaptive Strategies) for identifying policy options for competitive trade-led green growth. The second part (chapter 7-9) of the thesis explores the applicability of these strategic policy options and conceptual framework in the case of Nepal followed by concluding chapter (Chapter 10). As the system framework includes some adaptive strategies (in addition to six common strategies for all kinds of economy irrespective to economic strength) that may be more applicable in low income economies, we have selected Nepal for case studies.

Case study method, as Yin (2003) suggests has five different applications as evaluation research, namely-

- (a) It is very useful to explain the presumed casual links between the real-life interventions that are too complex for the survey or experimental strategies;
- (b) The [case study] explanations would link programme implementation with programme effects;
- (c) Case studies can illustrate certain topics within an evaluation in a descriptive manner;
- (d) Case study strategy may be used to explore those situations in which the intervention being evaluated has no clear single set of outcome; and
- (e) The case study may be a meta-evaluation (a study of an evaluation study) (p. 15).

Methodology for case studies has been elaborated in Chapter Seven.

This thesis is designed to answer the following five research questions. The first part of the thesis tries to respond questions 1-4 and the second part responds question 5 and its specific questions as mentioned in Chapter Seven.

1. What do changes in national wealth concepts imply for trade-led growth strategies?
2. Does export competitiveness really deteriorate when sustainability and inclusiveness measures are incorporated? What are the debates and what are the evidences?
3. What might be an alternative trade-led growth paradigm and possible adaptive strategies that can address simultaneously the three fundamentals of trade-led green growth: competitiveness, environmental sustainability and inclusiveness?

4. How can such adaptive strategies, mainly 'core adaptive strategy mix' be catalysed by incentive regimes for a trade-led green growth transition?
5. What are the policies, problems and prospects in regard of the applicability of Green Box System Framework for a trade-led green growth transition in low income economies like Nepal?

1.6 Organization

This thesis is divided into two parts and 10 chapters. The first part of the thesis consists five chapters (Chapters Two to Six) and starts with the relevant segment of diagram of the analytical framework. Chapter Two introduces the literature on trade-led growth, trade and competitiveness theories and models. The review of trade theory literature is categorized on the basis of economic schools of thought. How competitiveness theories are inherent to trade theories is explained, and the latest research and competitiveness models are also summarized. In Chapter Three, we summarize the initiatives on human development indicators, Beyond GDP, regional growth strategies, and others that advocate for qualitative aspects such as environmental sustainability and inclusiveness as the indicators of the real wealth of a nation. The concept of green growth as the strategy for sustainable development is presented and its relevance in the context of foreign trade is explained. Chapter Four summarizes the literature on trade-environment-inclusiveness discourses and presents a Venn diagram approach to deal with the debates. In this chapter, we narrate the concepts of sustainable competitiveness, inclusive sustainability, and inclusive competitiveness and explore their adaptive strategies while presenting the government's role as a means to lubricate the cart of the three fundamentals of trade-led green growth. This chapter concludes with a need of a framework of some 'core adaptive strategies' and some other strategies to amalgamate all three fundamentals in the economic growth process.

Chapter Five deals with various policy instruments that can be used to catalyse adaptive strategies and core adaptive strategy mix whereas Chapter Six deliberately explains a system framework of core adaptive strategy mix (as developed in Chapter Four) that interacts with trade, environmental and industrial policy instruments (incentive regimes in another sense); learning process help modify and revitalize both further development of adaptive strategies and incentives. We have coined the phrase 'adaptive strategies' to denote innovative measures that

constitute the attributes of environmental sustainability, inclusiveness, and trade competitiveness in trade to address the issues raised by new national wealth proponents. These 'adaptive strategies' are essential for sustaining competitiveness along with the journey towards green growth, and are derived from literatures of trade, competitiveness, human development, and environmental economics.

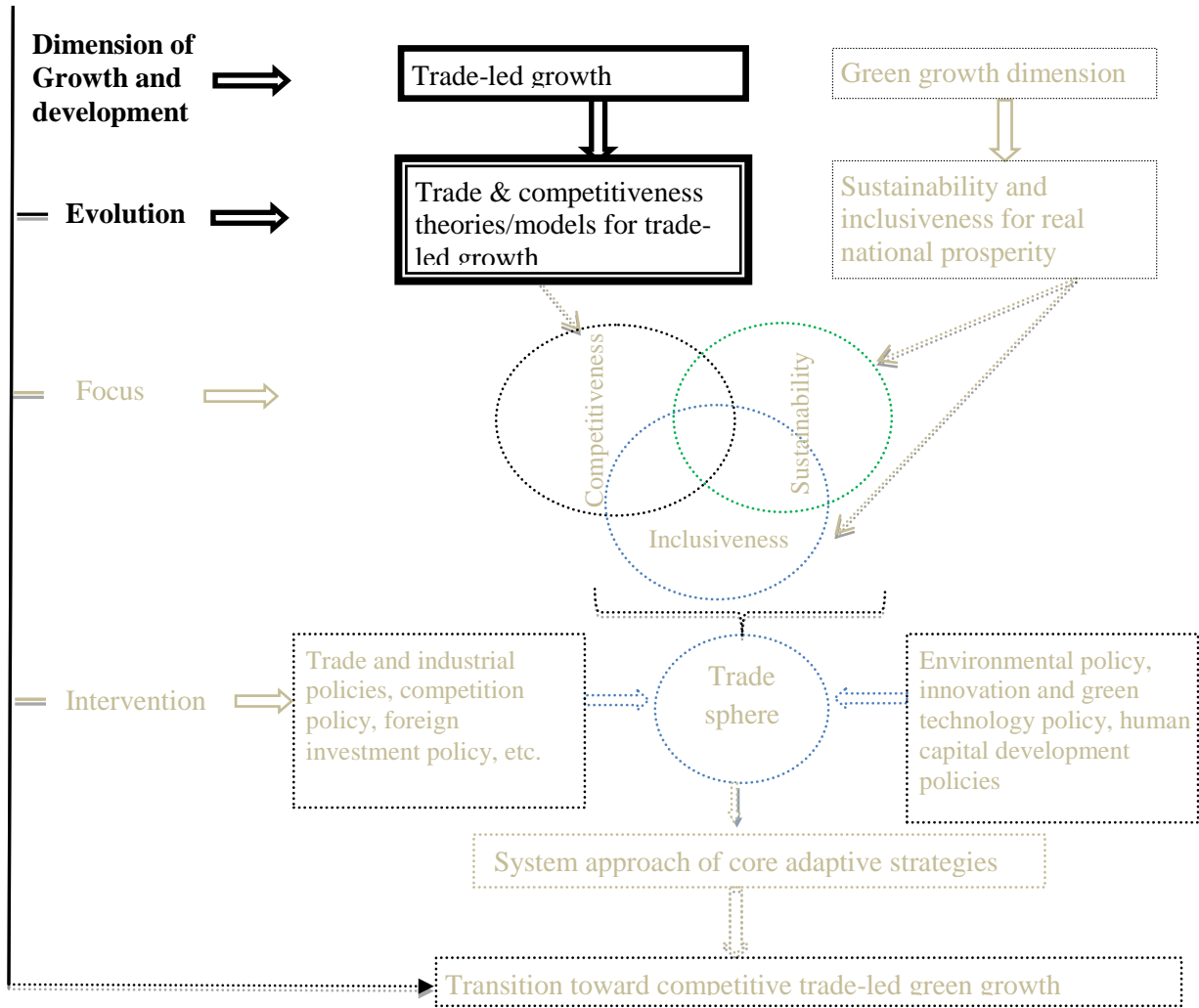
Part Two (Chapter Seven, Eight and Nine) deals with the applicability of the Green Box System Framework, as developed in Chapter Six, in the context of a trade-based low income economy, Nepal, with some case studies. Chapter Seven constitutes significance, case study methods, justification of case studies and, review of concurrent policies. The perception among Nepalese policy makers regarding 'democratizing policy cycle' and trade-led growth; relations between green growth path and policy democratization and; problems and prospects of policy democratization in Nepal are the contents of Chapter Eight that are explored under six findings and sub-findings. Moreover, two sets of findings related to each of 'inclusive eco-innovation', 'accessible and affordable green technology development and diffusion', and 'investment in human capabilities and productivity' are presented that accentuate the need of policy stimulus for those adaptive strategies.

Chapter Nine deals with case studies on 'greening production and consumption cycle' as well as 'facilitating business and trade cycle' at tea processing and trading firms in Nepal. It starts with a review of the overall Nepalese trade scenario and Nepalese tea production and export scenario followed by a case study report on applicability of some adaptive strategies at firm's level having different processing and trading modality. The report produces two sets of findings on 'accessible and affordable green technology development and diffusion', five sets of findings on each: 'efficient, accountable and affordable resource use', 'investment in human capabilities and productivity', and 'family business and SMEs', and eight propositions on 'alternative/ inclusive/ fair trade'.

The concluding chapter presents research findings, policy recommendations, research implications, and future areas for research, followed by references and annexes in the end.

PART I

CHAPTER TWO



Trade-Led Growth, Trade Theories and Competitiveness Discourse- An Overview

"In traditional neo-classical analysis, the dynamics of the economy are mechanical. By contrast, modern development economics tends to be influenced more by biological than physical models" (Stiglitz, 1999, p. 8)

2.1 Trade-Led Growth and Development

2.1.1 Introduction

As described in Chapter One, trade-led growth is important for economic growth but quality of life and environmental sustainability are the crosscutting issues that are yet to be addressed by hitherto trade-led growth models. In this context, we can categorize economic growth into two strands: (i) The trade-led growth model that solely takes into account of economic performance and; (ii) the green growth model that constitutes human and environmental dimensions in addition to the economic one. In this chapter, the former is analysed and in Chapter Three, the green growth strand is dealt with. This chapter summarizes literature on the relationship between trade and growth, open market (free trade) policies and growth, trade-led growth and inclusive development, and trade-led growth and environmental sustainability followed by a review of trade theories and trade competitiveness models. In the end, we propose an eclectic framework of trade competitiveness determinants.

2.1.2 Trade really matters for growth

During the 1980s most developing countries abandoned import substitution models in favour of export-led growth. This expedited global trade integration. Trade provides both static and dynamic efficiency gains. The former are derived from exploiting comparative advantage and reallocation of scarce resources whereas dynamic gains in more productive export sectors are generated by higher competition, greater economies of scale, knowledge flows, capacity utilization, and technological progress (Reis & Farole, 2012).

As such, foreign trade is considered as an engine of economic growth (Lewis, 1980; Riedel, 1984, Thirlwall, 2000), and many empirical studies show a strong correlation between a country's trade share and its economic growth performance (Edwards, 1992; Sachs & Warner, 1995; Frankel & Romer, 1999; Dollar & Kraay, 2004; Romalis, 2007; cited in Farole, Reis &

Wagle, 2010, p. 2). For example, Hallaert, Cepeda and Kang (2011), estimating a model on a database of 65 official development assistance recipient countries during the period 1981-2009, find that both imports and exports boost economic growth. Şeker (2010) argues that GDP is strongly correlated with export performance as is commonly supported by gravity models.

To reap benefits from trade, exports should be competitive in international markets. Various empirical evidences support the notion that exports really matter. For example, Krishna and Maliney (2011) explored the export quality (unit value) dynamics of goods exported to the United States over the 1990–2000 period, and found evidence that supports the conclusion of Hausmann, Hwang and Rodrik (2007) that exports matter for growth. They also found that such growth was partly driven by a higher growth rate of quality in the richer countries, independent of convergence effects, suggesting that other country-specific factors impeding overall convergence are at work. Ketels (2010) also claims that exports matter significantly for the economic growth of a country.

However, the widely argued version of export dependency for growth may be erroneous. Lawrence and Weinstein (1999), with their empirical evidence from Japan and Korea, suggest a reason why imports are important. With Japan's productivity growth and trade share data of 1960-1985, their analysis suggests that greater imports of competing products spur innovation; competitive pressure from potentially learning from foreign rivals are important conduits for growth. Their analysis with Korean data provided no evidence that exports promote productivity. In a nutshell, competitive trade is the propeller of economic growth despite some measurement problems. Exports and imports both play important roles for trade-led growth depending on the nature of traded goods and services.

2.1.3 Trade-led growth may not foster inclusive development

While there are significant evidences supporting exports as an engine of growth, there are doubts prevailing that trade-led growth necessarily guaranties inclusive development. Though trade-led growth is proposed as an effective strategy to fight poverty in developing countries, benefits of growth are not equally distributed so as to make poverty reduction possible through the reduction of inequalities (Gopalkrishnan & Soundararajan, 2007). Trade-led growth that does not help fight inequality or creates unwanted effects in the economy cannot be justified by inclusiveness point of view.

Even if trade contributes to reducing inequality and unemployment, the impact cannot be generalized. A 1990 UNDP report states that not all trades contribute to sustainable and equitable growth to the same degree or in the same way. For example, over-dependence on commodity exports can contribute to poor long-run growth, and there is a high possibility of jobless growth in the manufacturing sector (Farole, Reis & Wagle, 2010). The report gives an example of export-driven manufacturing output in East Asia where output increased by 180 per cent in the 1990s, but the associated employment increased by only three per cent. They conclude that we cannot leverage trade for broad-based economic growth since each country has their own path.

Some evidences show that there is no positive correlation between export growth and employment growth. In China, exports increased by 500 per cent in 15 years from 1992 (Amiti & Freund, 2008), but observing the same period, Dollar (2007) argues that the dynamic export sector is no longer an important source of job creation because it is too capital intensive and is too rapid for productivity growth. He also emphasizes a further drive up of incomes of urban and already wealthy Chinese in the long run if the export sector keeps on being stimulated through competitive exchange rates. However, Reis and Farole (2012) claim that exporting firms pay higher wages than non-exporters, though the effect of growth on jobs in the trade-based economy may be uncertain.

Extracting the ideas from these arguments we may conclude that trade growth contributes to GDP growth, but may not deal with income disparity and unemployment. Despite these arguments, we cannot imagine an economy without foreign trade in this rapidly globalized world. What policy-makers should focus on is making their nation's products competitive in the international arena and trading them in such a way that inequality, unemployment and other socio-ecological threats can be minimized.

2.1.4 Free trade policies may not always promote economic growth

Policies spawned by the Washington Consensus¹, widely known as open market policies, are considered as the central element of successful growth strategies. In an open market

¹Williamson (1990) has coined the word "Washington Consensus", with the following 10 propositions to define open market regime: (1) Fiscal discipline, (2) A redirection of public expenditure priorities toward fields offering both high economic returns and the potential to improve income distribution, such as primary health care, primary education, and infrastructure, (3) Tax reform (to lower marginal rates and broaden the tax base), (4)

economy, a cut in import tariffs still can boost export and import performance. In addition to trade policy instruments, education, governance, business environment, and macroeconomic stability affect factors (such as investment, labour productivity, and labour participation) have a large impact on trade performance and ultimately on economic growth (Hallaert, Cepeda, & Kang, 2011).

On the contrary, critically examining the openness and trade-led growth relationship, Balamoune-Lutz and Ndikumana (2007) reiterate that despite trade liberalization being expected to increase trades and contribute to raising the rate of economic growth, "the empirical evidence from the large and growing literature on trade and growth remains mixed" (Edwards, 1998; Rodriguez & Rodrik 2001; Balamoune 2002; Yanikaya, 2003; as cited in Balamoune-Lutz & Ndikumana, 2007, p. 1). Investigating the cases of developing countries, Chang (2005) stresses that despite adopting free-trade and other "good" policies, the developing countries have been doing much worse in the last quarter of a century.

Empirical evidence also shows that free trade policy may not be necessary for trade-led growth. For example; in the case of Japan, Lawrence and Weinstein (1999) reiterate the revisionist argument that Japan's spectacular growth during the 1950s and 1960s was not achieved by following laissez-faire precepts. During that period, Japan officially maintained a high level of protection. As they suggest, "Japanese trade protection has enabled the nurturing and development [of] internationally competitive firms- a lesson which today, developing countries ignore at their peril" (p. 403). Here, we should not have the misconception that protection means eliminating competition. The situation of Japanese trade protection during the above-mentioned period was such that "whole external competition was blocked [but] internally, there was fierce competition between rivals" (The World Bank, 1993, p. 22). During the period

Interest rate liberalization, (5) A competitive exchange rate, (6) Trade liberalization, (7) Liberalization of inflows of foreign direct investment, (8) Privatization, (9) Deregulation (to abolish barriers to entry and exit) and, (10) Secure property rights. However, we should be aware that this 'consensus' as it was conceived has been distorted and has come to be used to describe an extreme and dogmatic commitment to the belief that the market can handle everything (Williamson, 2000). In other words, this term has been used to signify neoliberal or market fundamentalist policies. Therefore, neoliberal openness is not equivalent to open market policies as conceived by its proponent.

between the 1960s and 1970s, which is also called the "miracle" period, per capita income in Japan (then still a developing country by any reasonable definition), South Korea, Taiwan and Singapore grew at 5-6 per cent per year, doubling the income in 12-13 years (Chang, 2005).

2.1.5 Trade openness and inclusive development

When all groups of people contribute to creating opportunities, share the benefits of development and participate in decision-making, the development process becomes inclusive. Vital elements of inclusive development are productive and gainful employment, equitable distribution of income, poverty alleviation and, social safety nets among others. Trade openness alone may not support poverty alleviation and/or income distribution. Basically, the impact of trade openness on growth and income distribution is contested on various grounds.

Market fundamentalists' view of trade openness does not contribute to poverty eradication because they rule out the notion of income redistribution. Williamson (2000) clarifies that the populist view of market openness fails to address the issue of poverty alleviation because it demands efforts to build human capital among the poor which they do not take into account. This means that trade openness should be accompanied by other policies and institutions. Analysing the panel data of 30 African countries over the period 1981-2010 to investigate the openness/trade liberalization and poverty relationship, Goff and Singh (2013) found that trade openness tends to reduce poverty if trade liberalization is accompanied by other supporting policies. Poor policies and institutions, limited financial development, and weak human capital have direct negative effects on liberalization benefits to the poor and on the overall welfare of the country. In another sense, more openness results in more poverty reduction when the financial sector is deeper, education levels are higher, and government is stronger.

Indeed, trade openness alone may be detrimental in the direction of growth if it is not accompanied with quality institutions. In the view of Stensnes (2006), openness promotes the efficient allocation of resources through specialization and comparative advantage; promotes competition in national and international markets; and facilitates knowledge and technologies across countries. With an extensive literature review and developing his own model, he concludes that the impact of openness to growth is influenced by quality of institutions. Strong institutions having the ability to manage conflict signify that countries can adjust adequately to shocks, and hence benefit from openness. On the contrary, weak institutions that are unable to respond to such shocks can stifle growth and generate further long-term losses for the economy.

Empirical finding by Krueger and Berg (2003) reveals that trade openness contributes greatly to economic growth despite deep measurement problems and difficulties disentangling the effects of policies and institutions². Their finding shows a high correlation between quality of institutions and openness, however, they found that trade openness does not have systematic effects on the poor beyond its effects on overall growth. They conclude that trade policy is one among many central determinants of growth and poverty reduction.

Beyond the supporting policies and institutions, the impact of trade openness on growth and income equality also depends on the level of income and trade behaviour of a country following liberalization policies. Kiyota (2012) employed a multiple-cone neoclassical growth model and found that countries that are labour abundant in a global sense may see increased income inequality and fall in GDP per capita with liberalization if they are capital abundant in the local sense.

2.1.6 Trade policy instruments for trade-led growth and welfare gain

The preceding paragraphs suggest that no policy instrument can be a peace-meal prescription. Rather, it depends on appropriate timing, institutional strength, trade-related infrastructure and, most importantly, learning from reforms. For instance, Ben-David (1993) found a strong link between the timing of trade reform and income convergence among countries whereas Sachs, Warner, Aslund and Fischer (1995) argue that trade integration (openness) alone is not sufficient to produce growth; macroeconomic policies, structural policies and institutions are equally important.

Experiences from Central American countries show that the same policy reforms may not produce similar outcomes. Resulting outcomes depend on prevailing characteristics, strength and weaknesses. In the 1990s and early 2000s, three Central American countries had widely used trade policy reforms to facilitate export-led growth aiming at growth trickle down towards the poor. As stated by Sánchez-Contillo (2009), with some empirical analyses aimed at relative profitability of exports, found that trade policy reforms in Costa Rica, El Salvador and Honduras have clearly favoured the relative profitability of export sectors. Fundamental trade policy

² It includes voice and accountability, policy stability and lack of violence, effective government, rule of law, absence of corruption and manageable regulatory burden.

reforms were import liberalization and deliberate export promotion. However, export-led growth and its trickle-down effects on the poor had been experienced only in Costa Rica.

They emphasize the need for export diversification, technological change, human capital, investment and productivity growth as the preconditions for reaping the welfare gains from trade openness. In other words, trade policy reforms alone cannot achieve trade-led growth trickle down that ultimately helps the poor.

Summing up preceding paragraphs of this section, we grasp the conclusion that trade matters for growth despite some measurement problems; trade openness may not be necessary for trade-led growth; such growth may not guarantee inclusive development; and trade policy measures may be employed for intended welfare gains in trade-based economy. In the following sections, we discuss trade theories and national competitiveness models to explain the theoretical foundation of the study.

2.2 Trade Theories Revisited: from Mercantilism to New Trade Theory

Mercantilism was the dominant economic policy doctrine of Western Europe during 16th to late 18th century and, accumulation of precious metals (gold and silver) was the measurement of national prosperity at that time. In the Mercantilists' point of view, foreign trade is a zero sum game (Smit, 2010). They regarded a large population as a form of national wealth.

On the trade policy front, domestic exports were subsidized but domestic consumption was discouraged by posing import barriers. However, their policies were criticized by David Hume and Adam Smith. Hume, in his "price-specie-flow doctrine" stated that favourable trade balance is possible only in the short run; in long run, it would automatically be eliminated (Toft, 2008). Smith, in his renowned book, *The Wealth of Nations* criticized the static view of wealth in Mercantilism and argued that international trade increases the level of productivity within a country; such productivity in every trading country finally increases world output.

In contrast to Mercantilism, the Physiocratic doctrine considered land and work force as the wealth of the nation. Gains from trade were mainly concerned with agricultural production. Physiocrats put a high emphasis on fertility of land and nature; in another sense, environmental sustainability (though this term was not used), which is quite relevant today in the environmental and inclusiveness policy sphere in a broader sense (Ando, n.d.).

Following the Physiocracy doctrine that criticized Mercantilists' view of ruler's wealth accumulation and gave emphasis on "land development" and productive work as the source of national wealth, Adam Smith (1723-1790) emerged as the founder of classical economic thought. His theory explains that trade is possible between two countries because each of them have absolute advantage of their product in terms of labour cost embedded into it. Each country has their country-specific advantages to produce particular goods and services. The goal of international trade, as Smith explains, is national profit maximization.

The gain from free trade results from absolute advantage in which each state benefits if it specializes in the goods it produce best and trades with others (Cohn, 2000). In terms of policy regime, Smith advocated laissez-faire, i.e., free trade policy in which trade flow should not be influenced by any barriers like tariffs or quotas. Unlike the mercantilists' approach of zero-sum game in trade, Smith opines that trade is positive-sum game because both trading countries gain from the exchange (Smit, 2010). This theory measures the nation's wealth by the living standards of its people, not by gold and silver as stated by Mercantilists. Since most of the income goes to labour, higher exports enhance the welfare of the nation.

As explained by David Ricardo (1772-1823), not only the absolute advantage as elucidated by Smith rather comparative advantage that is the comparison of the two countries in autarky price which depends primarily on their relative costs of producing two goods. As briefed by Deardorff (2007) this model describes a world in which goods are competitively produced from a single factor of production- labour; using constant-returns-to-scale technologies that differ across countries and goods. Additionally, it assumes homogenous and internationally immobile nature of the work force, perfect mobility of the labour force between industries with the same wage per hour, relative labour cost as the sole determinant of relative price or value of the product, perfectly competitive domestic markets full employment and, no transportation costs. Scale economies are the determinants of trade by allowing countries to specialize on few tasks.

There are some arguments for and against this model. Daly (1993) questions the assumption that capital is immobile internationally. The prediction of the Ricardian model that countries will specialize completely is not realistic since the opportunity cost of goods remains constant, but he does consider the more realistic prediction that countries will become more specialized when trade takes place. Bowen, Hollander and Viaene (1998) state that the Ricardian

model seems to raise more questions about sources of comparative advantage than it answers. Since the Ricardian model provides no guides as to how labour productivity and comparative advantage can be expected to evolve, it gives no explanation of differences in labour productivities across countries. Similarly, Hämäläinen (2003) argues that Ricardo did not consider the organizational determinants of competitiveness (p. 16).

In the Ricardian model, gains from trade are feasible by two ways- by maximizing its "real income" given its total resources used in production and, "reducing the real cost" of production with availability of goods in pre-trade level for lesser physical input of labour. By any means, it translates into increased welfare (Mikić, 1998.). This theory favours free trade regime and does not mention anything about sustainability while competitiveness is based on relative productivity.

This model has been the pivot for succeeding trade models despite many counter arguments. Heckcher-Ohlin model (or H-O theorem) tried to answer some of the questions that the Ricardian model could not answer (Bowen et al., 1998).

. Heckcher-Ohlin theory or factor proportion model explains a country's trade in terms of its factor endowment- labour and capital.

As they argue, a country can enjoy a comparative advantage in the exports of products in which country's most abundant factor is used relatively intensively. A country can be benefited with such imports in which factors of production are used that are relatively scarce within it. Also well-known as the $2 \times 2 \times 2$ model, it assumes a completely mobile factor of production domestically but immobile internationally; a homogenous production function everywhere and; new productions freely and instantly available in all countries (Gray, 1976; Hood & Young, 1979; cited in Hämäläinen, 2003).

However, this model was challenged by Wassily Leontief in 1954 in his work popularly known as "Leontief Paradox". With an empirical study of exports of the United States, he concluded that US exports were more labour-intensive despite the country being capital abundant. His study revealed that H-O model was abstracted from many factors that explain modern international trade (Leamer, 1980).

Sodersten and Reed (1994) consider that Heckscher-Ohlin goods, which have generally known relatively stable technologies, with comparative advantage resting largely on factor endowments, are not bound by the availability of specific factors such as textiles. Some problems with this

theory, as stated by Hämmäläinen (2003) are: unrealistic assumption of homogenous production function; entirely focused on generic factor of production which neglects quality and sustainability; does not address the differences in product market conditions; fallacious assumption of international factor immobility basically in globalized world; and, neglect of alternative organizational arrangement.

This model concludes that "trade can potentially make everyone better off compared to autarky despite strong distributional effects on factor owners" (Mikić, 1998, pp. 117-18). Therefore, we may conclude that factor endowment indirectly determines the economic performance of a trading economy.

Neo-factor theories included new factors of production such as human capital and natural resources in the factor proportion model (H-O model). Among those, two are more popular-

- (i) *Posner's Technology Gap Theory* (1961): This theory argues that trade will take place during the time lag when the rest of the world is imitating the innovation of a firm/industry in certain countries. As the technological advantage of the innovation, the leader firm is attributed to higher capacity or research and development. When such information/innovative ideas are diffused to other competitive firms, then the production function becomes homogenous. In this stage, pattern of output and trade depends on relative factor endowment (Hood & Young, pp. 140-141, as cited in Hämmäläinen, 2003).
- (ii) *Vernon's Product Life-cycle Theory*: According to Vernon's Product Life Cycle Hypothesis, producers in advanced countries are closer to the market than producers elsewhere. Raymond Vernon (1966) argued that domestic market conditions may provide firms with technological advantage that is initially utilized through exports (Vernon, 1966, Hämmäläinen, 2003). As a particular product gets matured, the location of sales and optimum production changes. This means that the very first production is facilitated for any commodity in developed countries. Technology and marketing factors jointly explain the standardization of a product, which in turn drives the locational decision for the production. With standardized products, the least developed countries may offer competitive advantages as appropriate production locations. This theory states that importing medium-income countries start developing their own locational advantage and imitate the production process to export into the third world, and even in the home country of innovation. In the standardization state of the product, low-income countries

start producing and exporting the product while the initial innovator country becomes the importer. However, this theory holds less significance in this globalization and integration stage of the world economy.

In brief, traditional trade theories included many important factors for competitiveness and growth such as productive resources, technology and some aspects of organizational efficiencies (such as learning and scale economies). However, classical trade theories that assumed perfect competition in the market could not explain rapidly increasing international trade after the Second World War (WWII). Classical theories could explain inter-industry trade clearly but failed to explain intra-industry trade (Grubel & Llyod, 1975; Smit, 2010). To explain intra-industry trade, some economists relaxed the classical assumptions of perfect competition and constant returns to scale, and proposed a new set of trade theories that assume increasing returns to scale and monopolistic or oligopolistic competition, competitive advantage related to learning economies, technology innovation, and dynamic scale economies as the source of specialization (Krugman, 1987; Hämmäläinen, 2003).. These theories, known as New Trade Theories (NTT), "opened up the debate around government intervention as an active policy to advance the international competitiveness of a country" (Smit, 2010, p. 111).

The most prominent new trade theorists include Krugman (1979), Lancaster (1980) and Helpman (1981), all of which contributed to the development of this theory, being motivated by the failure of more traditional theories to explain some most significant facts about post-WWII trade data (as cited in Bergoeing & Kehoe, 2003). Rapid globalization from the mid-1980s and faster technological development made new assumptions feasible– the scale and learning economies for international trade competitiveness and changing trade patterns. A great shift in technological paradigm led to international trade based on technological advantage. To address such issues, new trade theories used analytical tools that better fit in imperfect market and scale economy contexts.

Economies of scale give rise to the geographical concentration of particular production which induces international trade. If countries differ in size, the difference plays an important role in determining the pattern of specialization and trade (Mikić, 1998).

In traditional theory, comparative advantage arises from various sources but the attributes of a country determines what to produce whereas, in NTT, as Krugman (1996) clarifies, particular attributes of a location generate higher increasing returns of the given production, and

hence it is concentrated in that place. Analogically differentiating between traditional trade theory and NTT, he states- "Conventional trade theory views world trade as taking place entirely in goods like wheat [where] new trade theory sees it as being largely in goods like aircraft" (p. 22). This means that beyond classical trade theory, NTT introduces a whole set of possibilities and concerns. Geographical concentration of industries, economies of scale and increasing intra-industry trade are considered the main predictors of new trade theories. According to Smit (2010), the difference between traditional and new trade theories is that Ricardian theory becomes dominant to explain trade flows at the inter-industry level of trade whereas at intra-industry trade level, economies of scale dominantly explains trade flows in differentiated products.

Attributes of location, or the role of economic geography, also explained by the gravity model, indicates how rapidly distance reduces the trade volume between two countries. As economic geography influences trade flows and production structure, it also determines the well-off situation of the people in a particular geography. The impact of economic geography is due to not only the mechanisms of goods prices, diffusion of ideas and transport costs but also through spatial differences in institutions and in technology. In this way, there is a clear link between geography and trade flows, geography and income distribution, and geography and location of activity (Choi & Harrigan [Ed.], 2003, pp. 353-355).

The next attribute of NTTs is economies of scale. NTT explains that trade and gains from trade arise independently of any pattern of comparative advantage as firms exploit economies of scale and pursue a strategy of product differentiation in an imperfectly competitive environment (Markusen, 1995). Krugman (1996) has noted that if there are substantial economies of scale, and increasing returns to specialization in an industry, world demand may support only one or a very few firms. In such cases, for a firm to enter such an industry, subsidies may be required during a period of entry and growth, and justified for a nation. This theory seems at odds with the ideas of free trade.

However, it is debated whether NTTs can explain the role of trade policy on increasing the trade-to-income ratio in contemporary trade regimes. Bergoing and Kehoe (2003) claim that as non-tariff trade barriers have fallen significantly since the 1960s, a version of the new trade model that emphasizes trade policy may be capable of explaining large increases in the ratio of trade to income.

Oligopolistic competition based on new trade models supports a mercantilist idea which demands strategic trade policy, and hence governments have a major role to play in this competitive game (Smit, 2010). But strategic trade policy argument is criticized on the ground that new trade models are partial equilibrium models in nature, and hence, any favour to domestic firms through government policies may put foreign firms at a competitive disadvantage (Krugman, 1990).

How a trading country gains in this trade model is that "international trade enlarges each domestic market and enables the pro-competitive and rationalization effects to be realized. Consumers benefit from increased varieties and lower prices" (Mikić, 1998). The gain from trade is assured if the gains to consumers due to reduced prices are larger than the losses occurred to lower price producers (ibid. p. 192).

We can summarize the evolution of hitherto trade theories as presented in Table 2.1.

Table 2.1: Evolution of Trade Theories

Dimension	Traditional trade theories	Modern trade theories
Base of productivity	Natural productivity	Induced productivity
Competitiveness depends on	Labour productivity	Factor endowment, production geography
Factor of production	Labour as the single factor of production	Multiple factor market model
Market	Country as the single market	Space-based multi-markets in a single country
Interaction between demand and supply is based on...	Labour theory of value	General equilibrium
Scope	International trade	Internal trade perspective too
Focus	Gains from trade	Basis of trade
Theory	Normative (welfare gain) theories	Positive theories
Production function	Constant returns to scale	Increasing returns to scale
Policy sphere	Laissez-faire market model	Imperfect and policy-driven realism
Discourse	What makes trade happen?	How to make it happen

Source: Author's own synthesis

In other words, trade theories started to explain the nexus among factors of production, market, geographical space, institutions, networks, policies, and infrastructures that determines the exporting capacity. For the survival in the trade-based world economy, being competitive

became inevitable. In subsequent sections, we elaborate on the concept of competitiveness and summarize competitiveness models that explain 'how to make trade happen'.

2.3 Competitiveness for Trade-Led Growth and Competitiveness Models

2.3.1 Concept of competitiveness and its significance for trade-led growth

2.3.1.1 Concept development

Competitiveness (in this context, export-competitiveness) is often linked with factor productivity, degree of innovation, export sophistication, capital intensity in production, and a few strategic aspects of firms, as well as some macroeconomic policies. However, it is not only a material phenomenon, but also a combination of societal aspirations and objectives, environmental and geographical pressures, socioeconomic relationship and, cultural dimensions.

Institutionally, the concept of national competitiveness holds its strong foot with the establishment (within the United States' government) of a forum called Council of Competitiveness, one promoting the discussion, analysis and benchmarking of US competitiveness during the 1980s. The United Kingdom issued a series of competitiveness white papers during the mid-1990s that materialized into the formulation of competitiveness indicators since the year 1999. The same year, the European Commission published the European Competitiveness Report. In this way, competitiveness became a pillar of economic policy debate since the mid-1990s (Aranguren & Wilson, 2010). According to Krugman (1996), the World Economic Forum (WEF) began issuing its annual World Competitiveness Report in 1980 which became a major criterion to judge national performance thereafter. Essentially, as competitiveness became the norm to evaluate national economic performance in the post Washington Consensus policy regime, trade theories reincarnated in the form of competitiveness theories/models.

According to the OECD definition, export competitiveness is "the degree to which, under open market conditions, a country can produce goods and services that meet the test of foreign competition while simultaneously maintaining and expanding domestic real income" (cited in Reis & Farole, 2012, p. 35). It demands three components- open market conditions, competitive price and produce, and an increase in domestic real income.

The World Economic Forum (WEF) defines competitiveness as the set of institutions, policies, and factors that determine the level of productivity of a country (WEF, 2012, p. 4). The productivity level determines the level of prosperity and also the rate of return of investment

made which subsequently becomes the fundamental driver of its growth rate. The economy that can sustain growth is only in the competitive economy. Concept of competitiveness involves static as well as dynamic components. Thus, the WEF's Global Competitiveness Report 2012-2013 clearly states that competitiveness is the fundamental determinant of productivity which ultimately influences the national prosperity and economic growth rate.

The concept of competitiveness gained a clearer meaning when the OECD defined national competitiveness as "the degree to which, under open market conditions, a country can produce goods and services which meet the test of foreign competition while simultaneously maintaining and expanding domestic real income" (1992, p. 237). Further elaborating, the OECD states that competitiveness [should] be understood as the ability of companies, industries, regions, nations, and supranational regions to generate, while being and remaining exposed to international competition, high factor income and factor employment levels on a sustainable basis (cited in Lall, 1999).

The concept of competitiveness can be broadly categorized as microeconomic (firm level) competitiveness that is the result of basic infrastructures and accessibility, human capital and other factors (innovation, geography, R&D etc.); and macroeconomic (national level) competitiveness. National competitiveness intends to generate higher wellbeing that includes income as well as social and environmental goals (Martin, n.d.). However, some scholars like Krugman (1996) argue that competitiveness has less to do with the national level than the firm or industry level. Meanwhile others argue that it is not a mere issue of firm level competitiveness, for national governments have grave concerns concerning the promotion of their trade, and government interest is revealed in various policy instruments to make their produce competitive in the international market.

2.3.1.2 Significance

The importance of international competitiveness for economic growth is well recognized by policy makers, business people and researchers since mid-1980s (Hämäläinen, 2003). The diminishing relevance of neoclassical macroeconomic theories in the context of the globalized market is gradually shifting the economic policy debate toward microeconomic determinants of efficiency, competitiveness and growth (Hämäläinen, 2003; OECD 1997a; OECD 1997b).

Hämäläinen (2003) argues that when most of the parts of an economy are exposed to international competition and the demand of "remaining parts" depends on "major parts", the

aggregate productivity growth rate is mainly determined by the nature of competitive advantage of the internationally exposed sector. Competitive advantage is based on price and non-price factors. Real competitiveness is determined by non-price factors such as quality, design, speed, colour, taste, performance, environmentally clean and so on. If a country has a significant real competitive advantage in the sectors where productivity level is already high and growing faster, then it can help improve quality of life. He concludes that the nature and sectorial composition of a nation's competitive advantage is a crucial determinant of the level of growth of its aggregate productivity and, ultimately standard of living.

Nevertheless, trade competitiveness should not be taken as just a matter of business success in the international arena and the profits of incumbent firms. It is true that the benefit generated by competitive product is the incentive for those individual firms but the competitiveness concept is broadening in scope from its prototype firm-business-concern, to a government policy level. Aranguren and Wilson (2010) argue– "the [competitiveness] discourse often ignores the conceptual leap between the individual or firm level competitiveness and its parallel application to territories" (p. 54). However, beyond its etymological meaning, now, trade competitiveness is a matter of complex socioeconomic and ecological dimensions within trade.

2.3.1.3 Competitiveness in various schools of thought

In Chapter 2.2 we summarized various trade theories. We observed that competitiveness has been a directly or indirectly inherent to each theory/model of the trade. Krugman (1996) says– "[M]ercantilists have no problem with the concept of competitiveness; because to them, it seems obvious that countries compete with each other in the same way that corporation do" (p. 18); neither have they differentiated between comparative advantage and competitive advantage.

For classicists, the purpose of trade is- 'imports' rather than 'exports'. An export is an indirect way to produce an import which is worth doing because it is more efficient than producing our imports by ourselves. Therefore, they have nothing to do with export competitiveness (ibid.). However, product specialization, economies of scale and technological differentiation or productivity differentiation across nations are the basic components of classical theories related to national competitiveness (Martin, n.d.).

The Strategists want the government's active support for domestic firms wherever there is a chance for a 'winner-take-all' competition for future monopoly profit (Krugman, 1996). Such

support goes to those industries that pay high wages or are likely to generate strong spill-overs. They try to seek benefits from market imperfections. In reality, it is not easy to formulate strategic trade policies since identifying the root of market imperfection and its connections is a tiresome task.

The Realists are those who conceptualized and propagated NTT in the 1980s. They try to explain why classical trade theories may create new, more subtle arguments for intervention. In their view, practical prospects for strategic trade policies are less impressive since the potential gain by exploiting market imperfections is minimal. They are cynical about the possibility of subtle arguments for intervention being translated into productive policies in the real world (ibid, pp. 19-20).

Neo-liberalists advocate for free trade. Winters (1999) states that trade liberalization is a key component for economic growth under the neoliberal paradigm and gives the focus upon export-oriented economic growth. Summarizing the neo-liberalists' view, Rice (2010) restates that LDCs are encouraged to concentrate on export-oriented activities, such as exporting raw materials and labour-intensive manufacturing, in order to engage more competitively in the global market (Gereffi & Fonda, 1992; Bacchetta & Jansen, 2003; Harvey, 2005, cited in Rice, 2010). In other words, neo-liberalists believe that trade barriers such as subsidies to local producers and taxes on imports should be abolished (Pearson, 2003).

Earlier, we hinted that trade theories with macroeconomic perspectives have evolved into competitiveness theories with management strategy (a micro perspective). In chapter 2.3.2, we try to summarize some competitiveness theories/models.

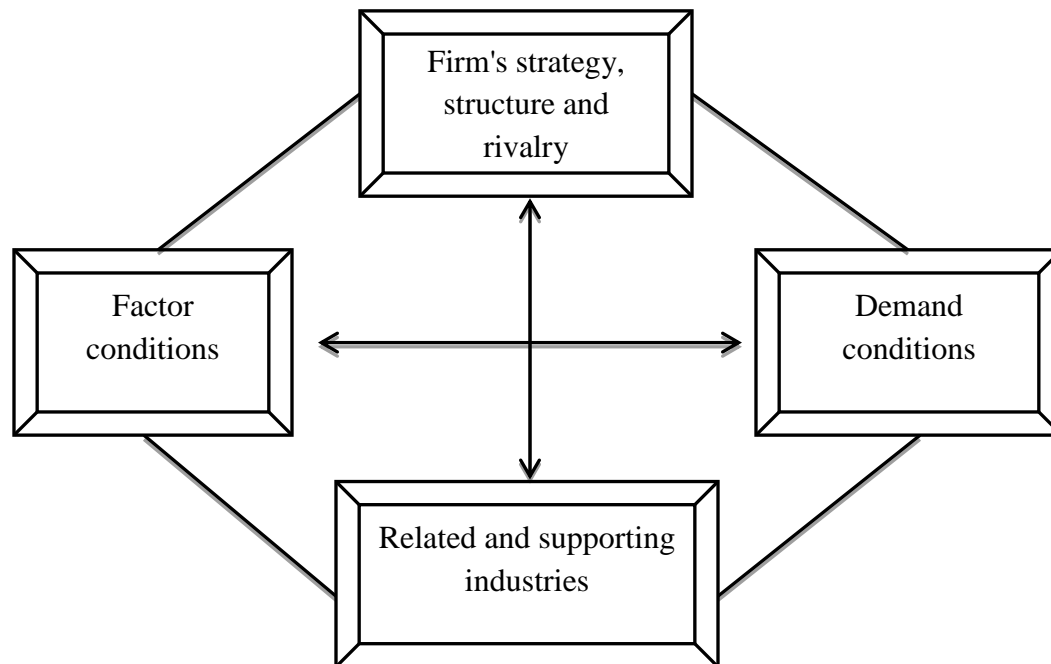
2.3.2 Competitiveness models, trade and growth

A. *Porter's Diamond Model*

In his book, *The Competitive Advantage of Nations*, Porter (1990) proposed a new framework to explain the determinants of national competitiveness. Arguing that the traditional trade theories that take the factor endowment (land, natural resources, labour and the size of the local population) as the determinants of comparative advantage of any country, Porter included skilled labour, a strong technology and knowledge base, government support and culture as advance factors, while taking into account basic factors from H-O theory for the competitive advantage of nations.

Why does a nation achieve international success in a particular industry? With the data of 100 industries in 10 nations, Porter tried to find answers through his 'diamond' model of national competitiveness. The four edges of the diamond are - firm's strategy, structure and rivalry (b) factor conditions (c) demand conditions (d) related and supporting industries. Success in exports or better international competitiveness occurs where these attributes are higher. This diamond is mutually enforcing - betterment in one attribute stimulates the betterment of others and vice versa. The diamond is presented in figure 2.1 below:

Figure 2.1: Porter's Competitiveness Diamond



Source: Porter (1990, p 78.)

Factor conditions: A country creates its own factor of production such as technology base, skilled workers etc. Upgradation and development of factors is more important than its original stock. Scarcity or weakness of factors and its disadvantage forces toward the development of new innovative methods of production (Porter, 1990). Factor conditions include the availability of human resources, physical resources, knowledge resources, capital resources and infrastructures (Smit, 2010).

Demand conditions: If the domestic market is greater for the demand of a particular product than international market, more firms pay attention to producing that product. It makes the product more competitive in the international market too. A strong and trend-setting local

market helps the local firms to anticipate global demand trends (Porter, 1990). Domestic demand conditions include size of home demand and sophistication of home country buyers (Smit, 2010).

Firm's strategy, structure and rivalry: The modality or local conditions affect a firm's strategy. This strategy or structure helps determine the business in which the nation's firms will excel more. The rivalry puts pressure onto firms for more innovation, to improve quality, and to thrive for cost competitiveness (Porter, 1990). These factors ultimately make firms competitive internally, but it is the international competitiveness of a country that shapes the international competitive advantage of firms (Smit, 2010)

Related and supporting industries: In the presence of local industries that are competitive, productive firms enjoy cost effectiveness and innovative outputs. When suppliers are strong competitors themselves, support from competitive local industries becomes more fruitful (Porter, 1990). Supporting industry clusters "represent an environment in which learning, innovation and operating productivity can flourish" (Smit, 2010, p. 118). As mentioned by Porter (1997, 1998), external economies generated from local clusters highly influence on learning and finally on ultimate scarcest resources and capability of firms (cited in Smit, 2010).

Government and chance: These are exogenous parameters in this diamond. The role of government in this model is to: (i) Encourage firms/industries to enhance their performance; (ii) Stimulate early demand for advanced product; (iii) To stimulate local rivalry and; (iv) To assist to specialization and factor creation.

Porter's diamond works as a system where the effect of one point depends on the other, that's why it is called the self-reinforcing system. This framework includes many variables to explain the competitive advantage of a nation such as productive resources, government policies, institutional framework (in the concept of 'strategy and 'structure'). Non-price dimensions such as 'pressure' and 'attention' are highly elaborated. This holistic approach puts emphasis on the dynamics of competition. On the significant novelty of this model, Teece (1996) states that the introduction of related and supporting industry clusters as a separate determinant of national competitive advantage has been viewed as one of the most important contribution of Porter's Diamond Theory.

As Aranguren and Wilson (2010) argue, Porter gives whole emphasis on productivity for competitiveness. Porter's framework is well put around the sole argument that "only a meaningful concept of competitiveness at the national level is productivity and mainly the

"capacity of companies to achieve high levels of productivity- and to increase the productivity over time" (p. 84).

Despite its holistic explanatory nature, this framework is criticized on various grounds. Krugman (1998) states that countries do not compete internationally as firms do with their rivals in the global marketplace. Kohler (2006) supports the idea arguing that trade is a positive sum game and thus, a country's welfare is determined by its absolute level of productivity, not by some international competitiveness ranking (cited in Smit, 2010). He further argues that the main risk of [Porter's Diamond framework] is that the "competitiveness of countries may be understood as a negative sum game, whereas, international trade theories consider it as a positive sum game" (p. 108).

As Davies and Ellis (2000) argue, "sustained prosperity may be achieved without a nation becoming 'innovation-driven', strong 'diamonds' are not in place in the home bases of many internationally successful industries and inward foreign direct investment does not indicate a lack of 'competitiveness' or low national productivity" (p. 1).

Hämäläinen (2003) criticizes Porter's diamond on the basis that determinants of organizational efficiency are haphazardly explained despite his attention to the coordination and upgrading benefits of industry cluster and motivational role of pressure. Additionally, Porter neglects the role of international business activities. As they state, "Government's role does not provide specific policy guideline on appropriate division of labour among the private, public and third sector organizations in developed countries" (p. 20). Critics like A. M. Rugman, J. R. D'Cruz, H. C. Moon and A. Verbeke not only found flaws in this model, but also expanded/modified it to Double Diamond model and Generalized Double Diamond model.

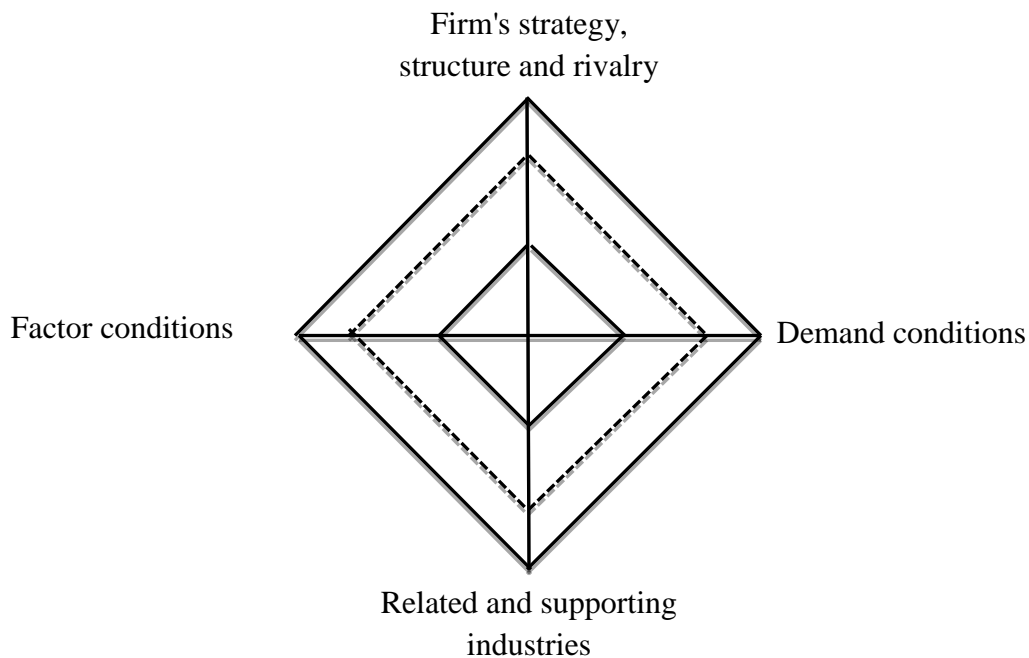
Going against the sporadic interpretation of Porter's Diamond as one of the latest trade theories, Smit (2010) denies Porter's model as a trade theory. He separates trade literatures with economic perspective and international competitiveness with management perspective at a country level, and conclude that Porter's theory does not hold as a new theory to replace the theory of comparative advantage, rather it is a useful framework that provides management with a tool to identify country sources of competitive advantage that firms can leverage as a tool to enhance the internationally competitive positions. Trade theories enhance the understanding of why there are country benefits from trade (trade as a positive sum game) which does not imply that an absolute or competitive advantage of a country over its rivals. But gain from international

competitiveness depends on firms' ability to have a competitive advantage over rivals (comparative advantage as a zero sum game) (pp. 123- 124).

B. The Generalized Double Diamond model of international competitiveness

With Porter's diamond model, Rugman (1992) figured out the problem with regard to multinational activity and the government's role. They found that Porter's exclusive home-based concept limited the locational advantage. The following year, Rugman and D'Cruz (1993), with Canadian experience, criticized Porter's 'diamond' model and state that "Porter's home-base diamond model of international competitiveness is seriously flawed when applied to a small, open, trading economy like Canada". Adapting the Porter's diamond model, they developed a double diamond model in the context of Canadian resource-based multinationals, foreign subsidiaries and access to the trade market of the US through the Free Trade Agreement (FTA). Their double diamond model suggests that "managers built upon both the domestic and foreign diamond to become globally competitive in terms of survival, profitability and growth" (p. 136). Moon, Rugman, and Verbake (1998) expanded it to Generalized Double Diamond Model so that it becomes applicable for analysing the competitiveness of all small economies. They depicted their model with a diagram as Figure 2.2 below.

Figure 2.2: Generalized Double Diamond model



Source: Moon, Rugman, & Verbake (1998, p. 116)

In Figure 2.2 above, the innermost diamond represents domestic diamond and the outermost diamond is the global diamond. Domestic diamond depends on the country's size and competitiveness whereas global demand is fixed within a foreseeable period. The middle dotted diamond is the international diamond which represents the nation's competitiveness as determined by both- domestic and international parameters.

What is added in this model is- firstly, international and multinational activities which include inbound and outbound foreign direct investment (FDI). Secondly, it easily allows the operationalisation of the competitiveness paradigm. In other words, a comparison of sizes and shapes of the domestic and international diamonds reveals major strategic differences. Thirdly, includes government as an important variable which influences four determinants of diamond model; in contrast, Porter's diamond considers the government's role as an exogenous parameter.

To test the validity of the model, Moon, Rugman, and Verbake (1998) used data for domestic and international variables in the case of Korea and Singapore. The evidence supported the generalized double diamond model and they also found that the domestic diamond of Korea was larger than that of Singapore but the international diamond of Singapore was found even larger than that of Korea. It signifies that Korea is more competitive if only domestic determinants were considered but Singapore is found more competitive when both domestic and international determinants were taken into account. Other parameters like productivity and manager's perception, Korea is found less competitive than Singapore. It means that domestic as well as international determinants are equally important.

C. Lall's Enterprise Competitiveness Triangle

Lall (1999) has put forward a 'competitiveness triangle' which is the basic analytical framework of dealing with trade competitiveness having theoretical underpinning of NTT. According to him, 'national competitiveness is not only the sum of the efficiency of individual firms in a country, but also the synergy and externalities generated by the learning process' (p. 20). Nelson (1990) states that the externalities and synergy generated by learning process, mode of doing business, knowledge and skills prevailing in related institutions generate a complete innovation system (cited in Lall, 1999, p. 21).

Lall's competitiveness triangle comprises two analytical levels, namely— firm level competitiveness and national competitiveness.

Firm level competitiveness: Reviewing traditional theories of comparative advantage, Lall (1999) evaluates theories that are noted as the foundations of government policy but are based on highly simplified models of perfect markets with no scale economies, costless and full information flows, free technology and, no risk and so on. There is no process of becoming efficient rather firms are 'born' efficient in a perfectly competitive market. No learning is necessary. Therefore, proponents of neoclassical models believe that government interventions cause inefficiency and distortion. But market imperfections are the realities of this globalized world. Government intervention assists to remove technological deadlock and market failure. On one hand, firms cope with uncertain conditions by developing organizational and managerial satisficing routing.

The learning process is very important for firms to increase their product competitiveness in developing countries. These countries import industrial technologies from developed countries. Such purchases generally come with asymmetric and incomplete information. Technology transfer has 'tacit' elements which necessarily require the recipient to invest in new external linkage, organizational change, information and skills. The development of such elements involves a vital learning process and technological mastery is possible only through conscious and purposeful effort.

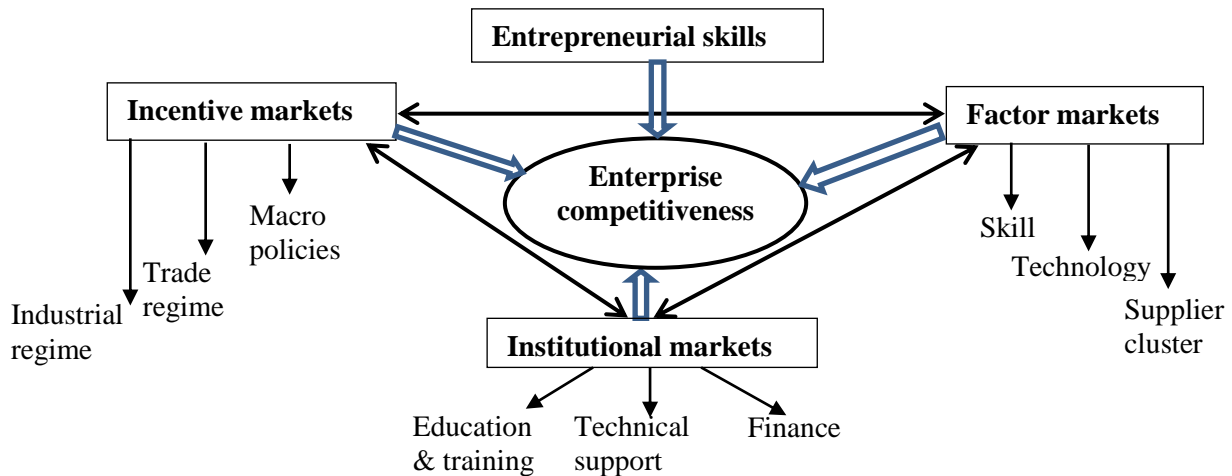
Learning is path dependent and cumulative. Technological trajectories are difficult to change rapidly and hence, specialization patterns prevail over a long period. On the other hand, situation of cost, risks, and information gaps within learning firms is at risk in the free market. Such failures are exacerbated by externalities in collective learning leading towards underinvestment in technology development. Government intervention should promote such investment gap. In the situation of multiple equilibria due to coordination problems in the market, government intervention is necessary. Additionally, the process of being competitive also demands support from factor market.

National level competitiveness: The development of national competition possesses many attributes of learning at the firm level such as- costly, uncertain, prolonged, unpredictable and inefficient learning processes; rigid specialization patterns, path dependent and cumulative learning; base of capabilities and learning determines the country's strength to cope with new technologies, etc. National technological maturity grows with the industrial sector's ability to

adopt complex technologies. Each stage of technological upgradation includes costs, risks, delays and externalities.

Figure 2.3 depicts the move from micro to macro level competitiveness. Firms interact with three sets of markets- incentives, factors and institutions. This framework includes most of the characteristics of Porter's Diamond except that it also places emphasis on the learning process from firms and the suffering from market failure. The government policy is in the centre, unlike the exogenous variable in Porter's diamond. Each determinant is further divided into three.

Figure 2.3: Trade Competitiveness Triangle



Source: Lall (1999, p. 21)

Incentives: Main incentives affecting investment in learning arise from a macroeconomic environment, trade policy, domestic industrial policy and domestic demand. Lall (1999), in this framework, does not follow that free trade is optimal and believe that there are good economic reasons for selectivity in government interventions in the form of subsidies or protections. Domestic demand plays an important role in national capacity building.

Factor markets: Skills, finance for technology and access to information are vital factors. Therefore, government intervention is needed to promote human capital; to curb under-financing on technological investment due to missing and asymmetric information and adverse selection; and acquiring and diffusion of technologies and skills, R&D incentives and exposures to international markets.

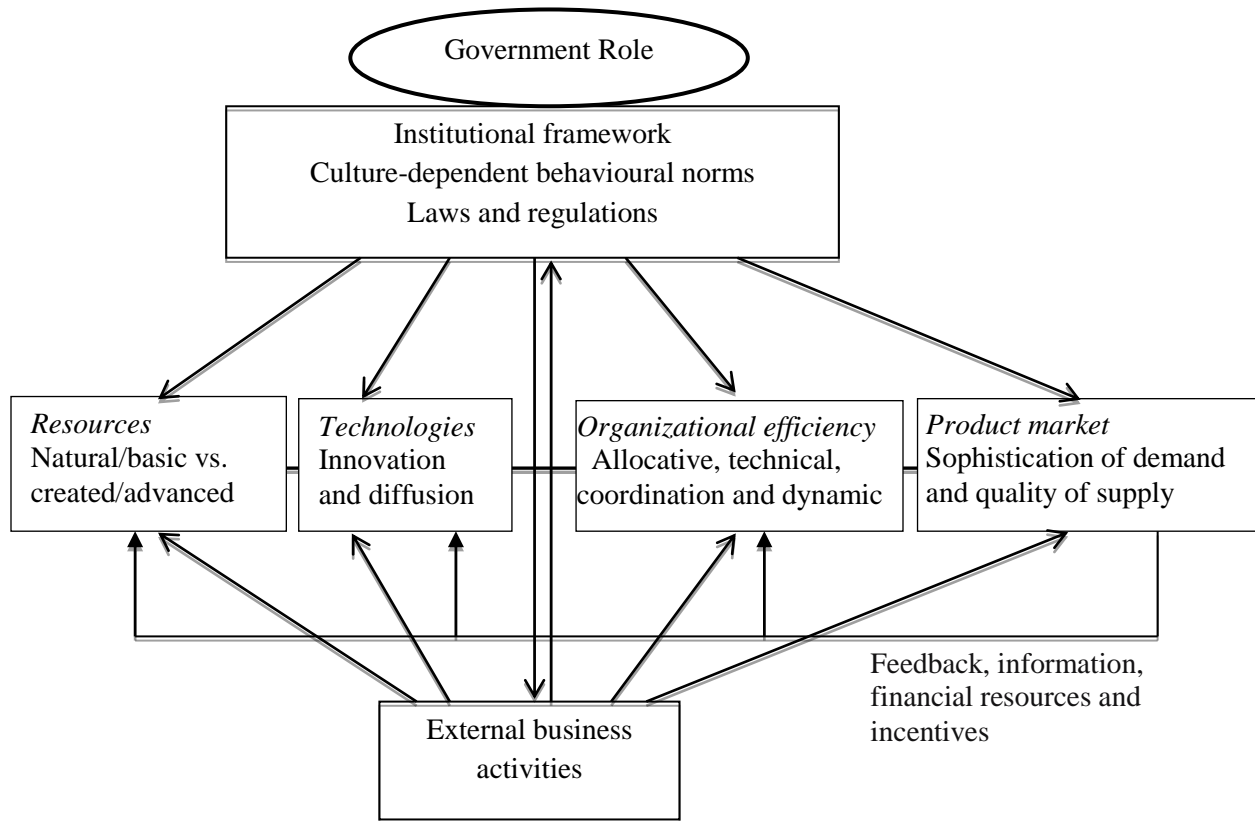
Institutions: In this framework, institutions are limited to bodies that support industrial technologies.

The outcome (level of national competitiveness) depends on the complex interaction of these variables on the firm level learning process. A legitimate and strong case for competitiveness policy is possible only if two conditions are fulfilled: (i) Markets must suffer from deficiencies that significantly constrain the competitiveness and can be improved by policy intervention; and (ii) Governments must be capable of designing and implementing remedial intervention.

If the government capabilities are not sufficient enough to intervene properly, the first remedy must be to improve upon those capabilities. He also argues that markets, particularly those of developing countries suffer from various types of failures that constrain competitiveness. However, government failure must be avoided.

D. System Framework of Economic Competitiveness and Growth

Hämäläinen (2003), in his book entitled *Determinants of Competitiveness and Growth* has presented a system framework that incorporates Porter's competitiveness diamond, but does so on the basis of deductive analysis. The deductive method gives the opportunity to go beyond the broad determinants of competitiveness and growth, while respecting established theories to adapt analytical tools. Figure 2.4 depicts his framework which is elaborated in subsequent paragraphs.

Figure 2.4: System Framework of Economic Competitiveness and Growth

Source: Hämmäläinen (2003, p. 26)

Techno-economic core of the system: In the above figure, productive resources, technologies, organizational efficiency, product market efficiencies, and external business activities- also known as 'productive core' - are embedded in the broader socio-institutional environment making 'framework conditions'.

Framework conditions: Framework conditions consist of the government policies and activities as well as formal and informal institutions that are the most important for competitiveness and growth (North, 1990; cited in Hämmäläinen, 2003). Framework conditions in the system create a techno-economic or productive core. Within techno-economic core, external business activities also influence system's other components- resources, technologies, product market arrangements and organizational arrangements, and even the institutional framework through government policies.

The logic of this framework is that the survival and competitiveness of firms are determined in product markets, whereas market characteristics strongly influence resource

creation, technology development, organizational renewal and the firm's internationalization process. International competitiveness is affected by both the demand and supply side characteristics of the market. Supporting Porter (1990), Hämäläinen argues that domestic markets are most important from the competitiveness perspective because the firms' operation is primarily intended for the domestic market and then they set their eye on international markets. However, case study findings in Chapter Eight reveal that many firms start production fully targeting the international market.

Hämäläinen's system framework also supports Vernon's concept of locational advantage³. In product market competition, firms use their own capabilities, organizational resources and operating environment. Firms in the more specialized economy, depend more on their own operating environment which provides them with a specific set of productive resources and their availability, quality and price. Such environments vary across nations and particular locations.

In the economic system approach, it is explained how productive resources materialize into finished products with the help of technologies and organizational arrangement. The specificity of technologies and institutional arrangement determine firm's overall productivity and competitiveness. They shape price competitiveness. In a broader milieu, "competitiveness and growth of economic system are influenced by institutional framework, the government's socioeconomic role, and system's external economic and social relationship. These three factors also influence techno-economic core (national resource base, technological capabilities, and organizational arrangement and product market characteristics). Government policies and subsequently institutional frameworks are also affected by system's external relationship, whereas external business activities are affected by government policies and institutional arrangements (Hämäläinen, 2003)

E. Other approaches on determinants of competitiveness

The foundation of trade competitiveness and growth models as explained earlier is Porter's Diamond. The difference is just the extension of the model or the augmentation of more

³ According to Vernon's locational advantage - "under the calculus of least cost, production need not automatically take place at a location close to the market, unless the product can be produced and delivered from that location at lowest cost" (p. 194). Therefore, firms invest in that location, where production and delivery cost is the lowest.

variables/determinants in various approaches. However, in the decade of late 2000, trade economists came up with some sophisticated empirical analysis of trade competitiveness and presented their conclusion in a slightly different way. Such findings are presented as follows-

- ☞ *Localized learning for regional competitiveness*: Contrary to theories that believe national competition possess many attributes of learning at firm level, and utilize locational advantage, Maskell and Malmberg (1995) argue that firms do not locate or relocate in order to make use of ubiquities, but to utilize appropriate differences in regional capabilities. They accentuate on unlearning process. According to them, regional capabilities are the combinations of available human and physical resources, structures and institutional endowment. Collective learning and tacit knowledge of the firms and market play crucial role to affect such capabilities and resulting competitiveness of firms. They also argue that as codified knowledge has been disseminated rapidly, tacit and spatially less mobile forms of knowledge are becoming more important as a basis for sustaining competitive advantage. In long run, such capabilities are decayed along with resource exhaustion, decaying structures, and out-dated institutions. This decaying process deteriorates competitiveness. For sustainable regional competitiveness, asset erosion process must be compensated by the formation of new capabilities through substitution of decaying resources, the rebuilding of obsolete structures or the renewal of out-dated institutions. The ability to adjust institutional endowments to meet contemporary demands of the firms requires 'un-learning'. Therefore, the adaptability of regions to unlearn (not following path dependency) is important for regions perpetual ability to participate in sustaining the competitiveness.
- ☞ *Product specialization at the higher quality spectrum*: Some research works reveal that product quality and product specialization are important for any produce to be competitive in international market. Hausmann, Hwang and Rodrik (2007), with their novel quantitative index that measures the 'quality of countries' export baskets, show the evidence that "countries that latch on to a set of goods that are placed higher on the quality spectrum tend to perform better" (p. 24). They argue that a country's fundamentals, i.e. endowment of physical and human capital, labour, natural resources and the overall quality of its institutions determine the relative cost and patterns of specialization. Specializing in some products pays higher than specializing in others.

Government policies in shaping the production structure of such products and trade have an important role.

- ☞ *Incentives, macroeconomic factors and backbone services*: Sakho and Welkenhorst (2008) argue, "a reallocation of resources from less productive to more productive exporting firms is inevitable to expand the market and to produce higher quality products" (p. 3). They focus on three elements for export competitiveness: Incentives for actual and potential exporters; macroeconomic factors such as business environment, inflation and exchange rate policies; and backbone services or life-lines such as energy and logistics, finance and security, information and communication technology, road and transshipment infrastructures. Appropriate trade policy, foreign direct investment policy, trade agreements and en-route facilitation are external factors for an exporting firm to be competitive.
- ☞ *Product sophistication and network of relatedness*: Hidalgo, Klinger, Barabasi, and Hausmann (2007) conclude that economies grow by updating the product they produce and export. Network of relatedness between products and the distance of its periphery determines the sophistication level of the product. Poor countries have a problem of developing more competitive exports due to poor productivity and scattered network of relatedness (p. 482).
- ☞ *Trade volume, diversification and sophistication*: Then, how do we know whether the trade of an economy is gaining or losing their export competitiveness? As indicated by Farole, Reis, and Wagle (2010), the outcomes of export competitiveness comprise three things- the level or volume/share of exports, diversification of exports; and export quality or sophistication (p. 4). If such indicators are toward the positive direction, we may claim that it is due the increased competitiveness. To sustain competitiveness, different economies may need to adopt different business strategies in accordance with their available strong alternatives. Though developed countries sustain their exports by product specialization and regular quality improvement, less and least developed countries, beyond the discovery stage of export cycle, face competitiveness challenges for export survival at the intensive margin remains significant (ibid, p. 5). To reduce volatility, product and market diversification is equally important. Sakho and Welkenhorst (2008) argue that in today's highly competitive economic environment

where exporters have no choice rather cut production and marketing cost to the minimum to attain a high degree of efficiency in production (p. 8).

- ☞ *Logistics, institutions and policies:* Cusolito (2010) considers logistics, quality of institution, innovation, and supportive trade policy (better market access) as the determinants of export competitiveness.
- ☞ *Inter and intra company competition:* Some of the latest researches on competitiveness regress toward Ricardian comparative advantage but with different perspective. Fujimoto and Shiozawa (2011) anticipate that Ricardian theory of comparative advantage will increase its importance in the globalized economy in the 21st century. Two mathematically equivalent inequalities namely- inter-industrial inequality and intra-industrial inequality - can be derived from four coefficients of unit labour requirement in Ricardian model. Inter-industry inequality represents the viewpoint of policy makers whereas intra-industry inequalities represent industrialists or shop-floor people making microscopic efforts for improving productivity and survival of international inter-factory competition. They write:

Variations and selections take place in this dynamic process of international competition. In this process, variations in the micro-level organizational capabilities, key technologies, and relative productivity lead to the selection of productive sites. And through this selection process, the semi-micro structure of industry changes and a new structure of worldwide prices and wages emerge. Exchange rates and relative wage -rates come to be determined by the macroeconomic dynamics but they form[s] an environment for firms and factories and induce them to further micro-level capability building efforts and decision-making. All this process composes a micro-macro loop (p. 229).

With such explicit dual interpretation of Ricardian theory, separating the micro and macro perspectives, present day phenomena characterized by global competition, international capacity building competition, competition by means of intermediate input goods, and intra-industry trade can be better explained.

- ☞ *Twelve pillars of competitiveness:* World Economic Forum defines competitiveness as the set of institutions, policies, and factors that determine the level of productivity of a country (WEF, 2012). WEF's Global Competitiveness Report 2012-2013 sets 12 pillars of competitiveness. They are- (i) institution (ii) infrastructures (iii) macroeconomic environment (iv) health and primary education (v) higher education and training (vi) goods market efficiency (vii) labour market efficiency (viii) financial market development (ix) technological readiness (x) market size (xi) business sophistication and,

(xii) innovation (Sala-I-Martin et al. (2012). Despite increasing popularity of WEF's pillars of competitiveness among trade analysts, Global Competitiveness Indices are not flawless. Lall (2001) states, "Its definitions are too broad, the approach biased and the methodology flawed. Many qualitative measures are vague, redundant or wrong. These weak theoretical and empirical foundations reduce the value of the indices for analytical or policy purposes" (p. 1501).

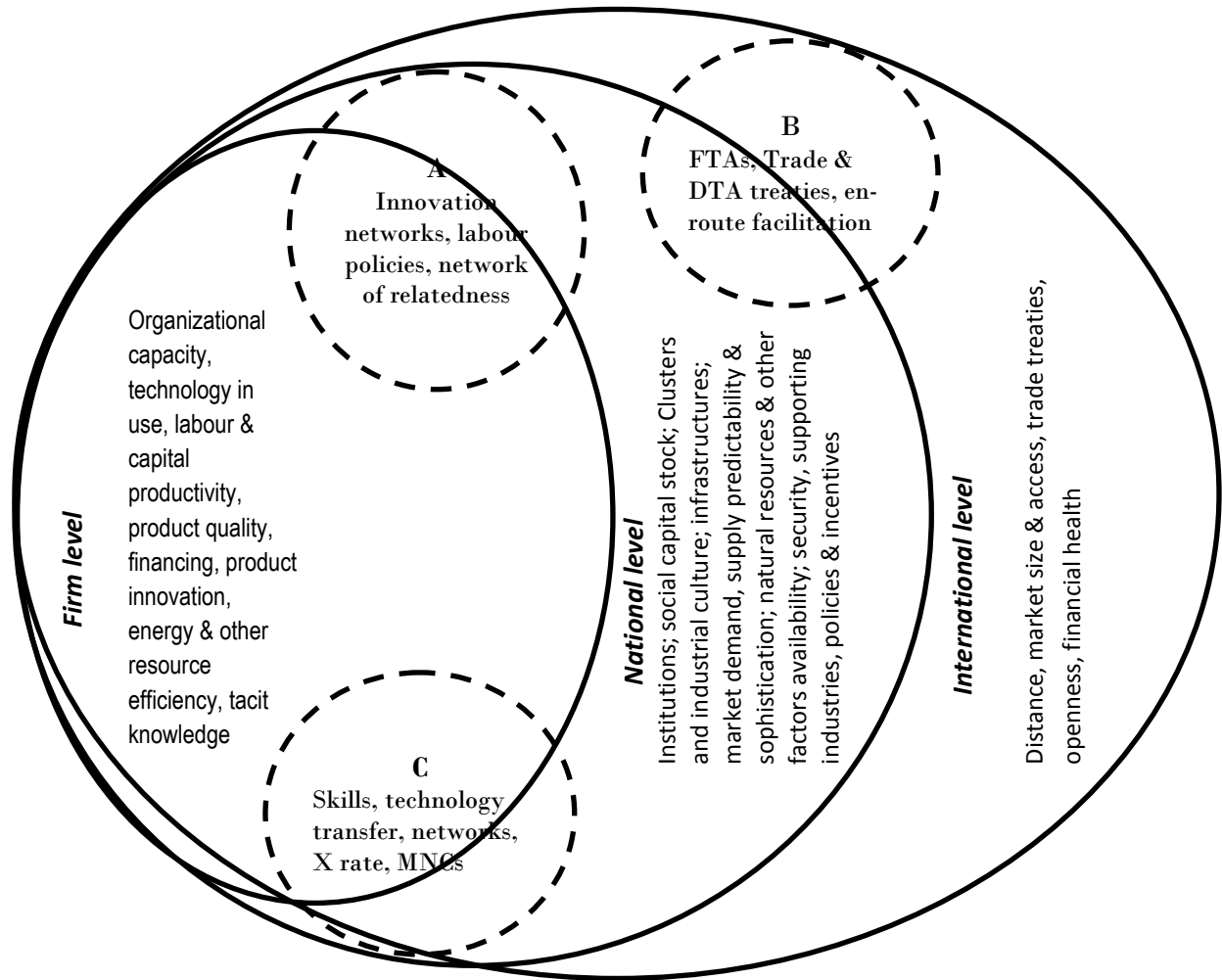
Annex 2 summarizes the determinants of trade competitiveness as mentioned in main trade competitiveness theories/models.

2.3.3 Synthesis: An eclectic framework of export competitiveness

Thus far, we have briefly summarized trade theories and, trade competitiveness and growth models. In other words, we dealt with some literatures on a quantitative strand of growth: trade-led growth and its relations with equitable development, trade and competitiveness theories, frameworks and models, and concept of competitiveness and its relevance in various schools of thought. Trade and competitiveness theories have immense significance since the trade, for any economy, is very important not only because of their inseparable integration into the global market, but also due to rapidly increasing share of trade in national GDP.

Although, reviewed trade and competitiveness theories/models have their significance in particular contexts, we are sceptic that they can address most of the competitiveness determinants in a single framework. Basically, not a particular theory or competitiveness model includes all the determinants of export competitiveness that begins with the decision of producing specific product intended to trade. Extracting ideas from various theories and models, we present an eclectic framework of export competitiveness of a certain product (because neither a firm or industry nor a country can be competitive at all its exportables since each product has its different trade value chain) or product category (rather than competitiveness of a country) as depicted in Figure 2.5. In the diagram, there are three tiers of competitiveness determinants- at firm level, national level and, international level.

Figure 2.5: Determinants of Export Competitiveness at Various Levels



Concept: Author's own elaboration

At the firm level, how competitive the product under consideration will be is determined by various factors such as organizational capacity including management, ICT level being employed, productivity (labour and capital) level, product quality, product innovation, cost of financing, energy intensity and other resource efficiency. As Martin (n.d) states, "Firm level competitiveness is based on the capacity of firms to compete, to grow and to be profitable" (p. 2-1).

At the macro level (national level), institutions, stock of social capital, life-lines or backbone services such as logistics and infrastructures, domestic market demand, its predictability and sophistication, abundance of natural and other resources, supporting industries, security condition, policies (competition policy, industrial policy, environmental policy, investment policy, trade policy) and other incentives influence the competitiveness of the

product. Equally important is the industrial culture. For example, Japan has proved to be a competitive exporter during many unfavourable situations; such as frequent capital destruction, currency appreciation, natural disasters, economic isolation and, even during open economic regime. It is due to the industrial culture of Japanese people.

Some cross-border elements at the international level also work as the determinants of competitiveness, mainly- distance, market size and access, trade treaties, free trade agreements (FTAs), the openness of importing country, the financial health of importing country, market demand, and bilateral relations, indirect favours (i.e., religious attachment), and government incentives. Later, we use these incentives or policy instruments to develop our '*system framework*' in which they are mentioned as '*catalysts*'.

Some determinants either are interconnected with another tier/s or work as the linkage. They are also categorized as '*micro-macro loop*' (dotted circle A), '*cross-border loop*' (dotted circle B) and the '*global loop*' (dotted circle C). Innovation policy, network of relatedness and labour policies fall within the micro-macro loop where innovation and labour policies have double dimensions because firm has its own innovation policy and labour policy whereas they are at country level too. The firm can benefit from the innovation of other firms, research institutions and innovation incentives. En-route facilitation, trade treaties, double tax avoidance treaties and free trade areas work as the cross-border loop whereas skills, international technology transfer (by FDI or sole technology transfer), international marketing network, foreign exchange rate and supply chain connected to multinational companies also determine the competitiveness of a particular product or product category.

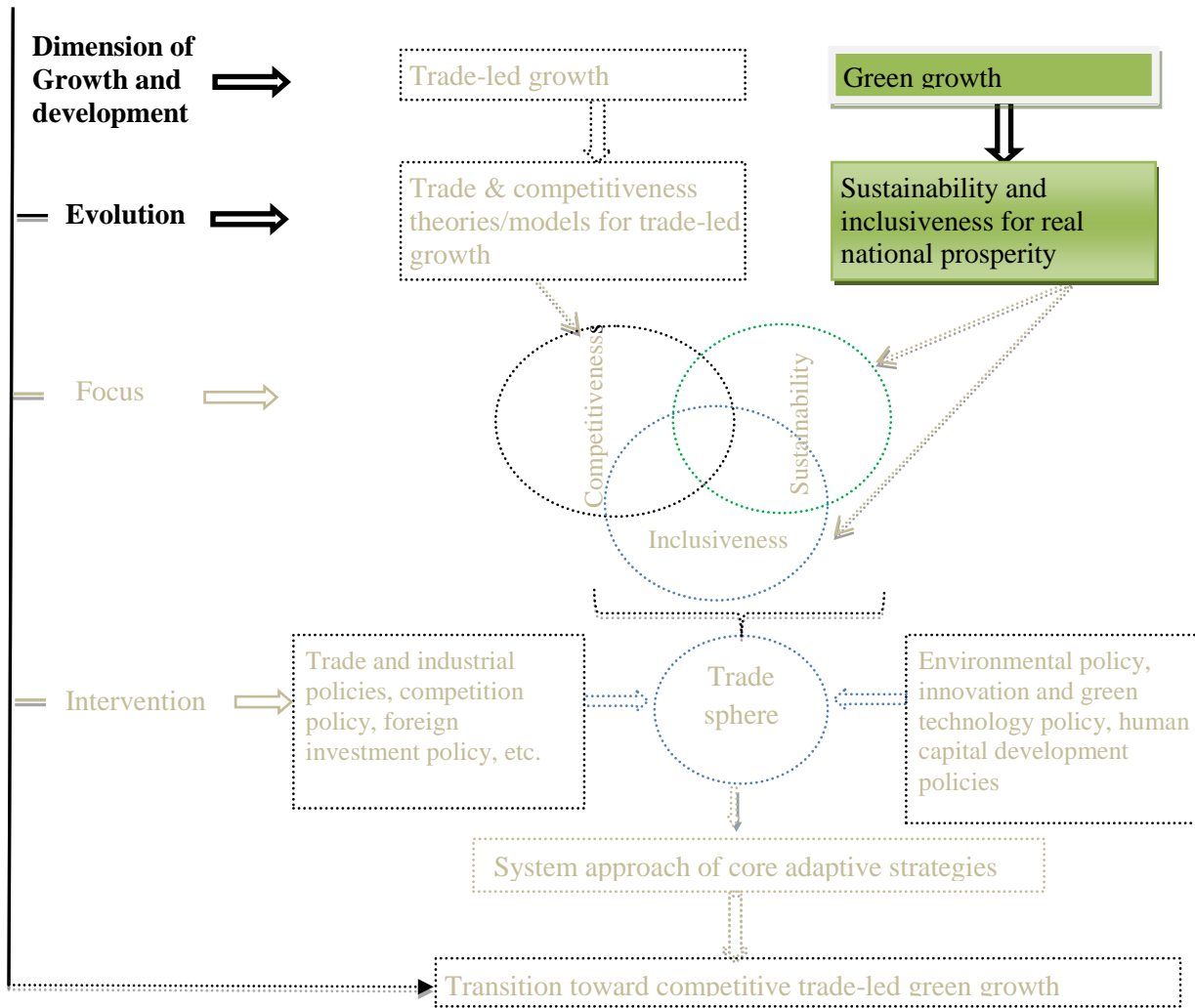
Trade has been occupying a bigger piece of any economy recently. We have mentioned earlier that world trade-GDP ratio has increased from 18.8 per cent during 1980s to 28.1 per cent in the first decade of the 21st century. It signifies how trading entities are getting a rapidly expanding pie of national income. In the meantime, we also came to know that finding the determinants that maintain and/or enhance competitiveness is at the heart of the latest theories and models, irrespective to their theoretical foundation. For a meaningful trade-led growth, enhancing competitiveness of the produce is must although tools to apply for this very purpose vary in accordance with the complexity of dynamics of various factors such as prevailing institution, geographical space, policy space, networks and markets, infrastructure, factor

productivity, research and development, prosperity level and others in the country under consideration.

Obviously, competitiveness is at the core of concurrent trade discourses, but a qualitative element is missing in the trade-led growth models. On one hand, wide acceptance of the Rio principles that takes into account the human development, quality of life, social cohesion, distributive justice and conservation of natural resources in national prosperity indicate a paradigm shift in production, consumption and trade pattern; on the other hand, frequent global financial instabilities have forced us to rethink the existing growth model.

In the subsequent chapter, we begin with the qualitative strand of the growth. We sum up how environment and qualitative human resources stood in the centre of growth discourse and a paradigm shift in real national prosperity measurement has taken place. Why social justice, equity, quality of life, and the preservation of natural goods and services cannot be neglected in trade-based growth regime and what kinds of initiatives are made in this direction is the content of Chapter Three. In subsequent section of Chapter Three, green growth' is taken as the supplementary economic course to be followed that deals both- the qualitative and the quantitative strands of trade-led growth.

CHAPTER THREE



Paradigm Shift in Understanding National Prosperity: Towards Real Wealth and Green Growth

*"Economic growth, if not properly managed, can be jobless, voiceless, ruthless, rootless and futureless, and thus detrimental to human development. The quality of growth is therefore as important as its quantity; for poverty reduction, human development and sustainability". — **Human Development Report 1996***

3.1 Introduction

"People are the real wealth of a nation" (UNDP, 1990, 2010, 2013). Recent paradigm shifts in national wealth measurement has vehemently drawn attention of environmental sustainability, social equity, social cohesion and overall human development. Renowned Dutch environmental economist Roefie Hueting, some decades ago, earnestly attacked the GNP version of national wealth measurement on the ground that "GNP accounts only for a very small fraction of the costs and benefits accompanying man's actions and the blind pursuit of short-term gains. GNP has led many nations to "seriously deplete the institutional, cultural, environmental, and mineral resources required for their long-term development" (Hueting, 1980, p. iii). This thought instigated policy makers to think to balance the benefits of immediate economic growth against the decline in national environmental wealth that in most cases accompanies material production. He concludes that economic theory does not call for continuing growth of production and, economic growth can mean nothing more than an increase in welfare. Welfare depends not only on goods and services produced but also on scarce environmental goods. If scarce resources are exploited today, nothing will remain for the future users.

After him, many scholars- economists, environmentalists and business scientists paid attention to the aspect of increasing welfare along with the sustainable use of resources. These efforts took on an institutional form and strong advocacy took place. Weaknesses in current national account measurement were discussed and, human development as well as environmental sustainability also taken into account. GDP has been criticized for its inability to appropriately address the degradation and depletion of natural capital, gross income inequalities, and economic

activity that is purely defensive in nature, such as expenditures needed to clean up toxic waste (Castaneda, 1999; Torras, 2003; Talberth & Bohara, 2006). Actually, such 'nullifying expenses' are just a waste of resources. Moreover, GDP does not count those goods and services that are not transacted in the marketplace such as the wide range of ecosystem service values associated with protected natural areas (Talberth & Bohara, 2006).

During the last two decades, series of UNDP's Human Development Reports, regional strategies, UN conferences, and initiatives on environmental sustainability have caused a paradigm shift of development thinking. These endeavours put people and environment at the centre of national prosperity. In the meantime, trade-led growth played a crucial role in many countries to achieve higher economic performance despite increasing income inequality and deteriorating environment. From the Rio conventions and other sustainability initiatives, the green economy concept emerged as a strategic agenda to achieve sustainable development. Recently, the need of a fusion between trade-led economic prosperity, human development and environmental sustainability has been realized.

The following sections present a brief review of human development and environmental sustainability initiatives, introduce green economy concepts, summarize inclusive growth literature, and synchronize inclusiveness and sustainability elements relevant to an international trade regime.

3.2 From Stockholm to Post-2015 Agenda

3.2.1 Stockholm Declaration 1972

In June of 1972, the United Nations organized a conference on Human Environment. This conference at Stockholm agreed upon a common outlook and principles to inspire and guide the peoples of the world in the preservation and enhancement of the human environment (UNEP, 1972).

This Declaration recognized 'human environment' as the benefactor of physical, intellectual, moral, social and spiritual growth opportunity and proclaimed the urgency of protection and improvement of the human environment for the well-being of people and economic development throughout the world.

This conference proclaimed that most of the environmental problems in less and least developed countries are caused by underdevelopment but the 'declaration' does not specify the

relationship between underdevelopment and environmental degradation. In developed countries, environmental problems are created by industrialization.

The Stockholm conference accentuated that the imperative goal for mankind is to defend and improve the human environment. To achieve this goal, it was concluded that an acceptance of responsibility that is equitably shared as well as common efforts by individuals, communities, enterprises, and institutions are necessary. Among 26 Principles of the Declaration, Principle 11 deals with the nature of environmental policy. It goes-

The environmental policies of all States should enhance and not adversely affect the present or future development potential of developing countries, nor should they hamper the attainment of better living conditions for all, and appropriate steps should be taken by States and international organizations with a view of reaching an agreement on meeting the possible national and international economic consequences resulting from the application of environmental measures.

In a nutshell, the Stockholm Declaration acknowledged the urgency of correcting environmental degradation that is caused by human beings. Environmental policies should not limit growth potential and living standards of people. While exploiting natural resources, it should not damage the environment beyond a nation's sovereign boundary. To cope with the environmental problem, all countries need to join their hands regardless of size and economic strength.

3.2.2 Brundtland Commission 1987

The Stockholm Conference on Human Environment of 1972 and the World Conservation Strategy of the International Union for the Conservation of Nature of 1980 became milestones on the path to the creation of an institution that is fully dedicated to raising awareness in the name of sustainable development.

Industrialization and economic growth fell under environmental scrutiny in developed countries; whereas cheap and pollution-intensive methods of production and unethical labour practices were employed in less developed and least developed countries for higher economic growth and enhanced international competitiveness. In such a situation, the UN realized the need for an organization that deals with socio-economically interlinked environmental challenges.

Proposed by UN General Secretary Javier Pérez de Cuéllar in 1983 and affirmed by General Assembly in 1984, an organization called the World Commission on Environment and Development (WCED), popularly known as Brundtland Commission, was established and

headed by Norwegian Prime Minister Gro Harlem Brundtland. The Commission published the main report of the organization in 1987 with the report head- "Our Common Future". This report was not only the working guideline of the WCED, but it also provided insight for the Earth Summit held in Rio de Janeiro in 1992.

This report deals with six major challenges- population, food security, ecosystem, energy, industry and the urban challenges of sustainable development. As the report suggested, we need to correct the failure arisen from poverty and short-sighted ways of attaining prosperity. Poor people are compelled to overuse environmental resources for their daily survival. Their inefficient way of exploiting natural resources makes them poorer when the resources dry out. The report also suggests that the world economy needs to expand five to tenfold without seriously damaging the environment in order to balance the rapidly growing population. Differentiating economic growth with development, the report states that economic development requires change in the content of growth- making less material- and energy intensive and having a more equitable impact on people.

The aim of sustainable development should be promoting "harmony among human beings and between humanity and nature". For sustainable development, as the report concludes, there need be- a participatory democratic political system, an economic system capable of generating surpluses and technical knowledge on a self-reliant sustained basis, a social system capable of keeping social harmony, a production system that highly values and preserves an ecological base for development, a technological system continuously finding new solutions, flexible and self-correcting administrative system, and an international system that fosters sustainable pattern of trade and finance (UN, 1987, Chapter 2 (Conclusion)). This means that international trade was considered as one of the important systems of sustainable development that is inseparable with other systems, as any system does in human system physiology.

How to link trade with environmental development? Brundtland Report states that trade had made nations, economically and ecologically more interdependent after the WWII. The major link between trade and sustainable development is in the use of non-renewable raw materials exported by less or least developed country to earn foreign exchange. Similarly, trade barriers against manufacturing exports limit the scope of trade diversification of less/least developed countries and confine them to traditional commodities. In this report, it is suggested that the reconciliation of rapid export growth and conservation of the resource base in less and

least developed countries is possible if they enjoy access to industrial countries' markets for non-traditional exports where they enjoy a comparative advantage. Equally serious is the high resource use by industrialized countries and the resulting resource depletion and environmental pollution. However, the scenario of the world market has changed drastically in the decade from 1990, specifically, in WTO regime. Moreover, this report was criticized on the ground that it comprised two conflicting goals, i.e., pleading for sustainability on one hand and focusing on production growth on the other (Hueting, 1990).

3.2.3 Human Development Indicators

On the basis that markets and economic growth are just means and human development is the ultimate end, various facets of human development have been explored in Human Development Reports (HDR) since 1990. In the first HDR, human development is defined as 'a process of enlarging people's choice' (UNDP, 1990), whereby sustainable development strategies should meet the needs of the present generation without compromising the ability of future generation to meet their needs. Economic growth and markets are just means and human development is the end. The main message of the report is that GDP growth is necessary to meet essential human objectives, but equally important is 'to study how this growth translates - or fails to translate - into human development since people are the real wealth' (UNDP, 1990, p. 42), a message that was reinforced twenty years later in the HDR 2010.

Enlarging people's choices is the basic objective of human development which can be achieved by: (i) equality of opportunity for all people in society; (ii) sustainability of such opportunities from one generation to the next, and; (iii) empowerment of people so that they participate in and benefit from development process; in another terms, through inclusive development (UNDP, 1995). Otherwise, economic growth may turn out to be jobless, voiceless, ruthless, rootless and futureless and detrimental for human development (UNDP, 1996). To avoid such lopsided economic growth and achieve inclusive development, bridging the technology divide, fostering politico-cultural aspects such as human rights and democracy, attaining of MDGs, ensuring cultural liberty, reducing inequality, freedom of mobility, and access to livelihood resources have all been argued as crucial (UNDP, 2000, 2001, 2002, 2003, 2004, 2005, 2009).

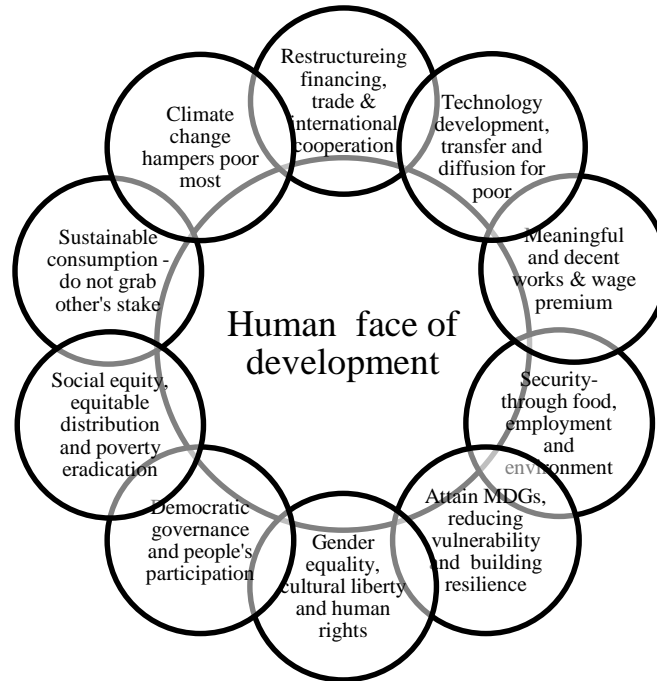
From an environmental perspective, the 'poorest countries and most vulnerable citizens will suffer earlier with highly damaging setbacks though they have contributed least for

environmental degradation' (UNDP, 2008, p. 3) because they 'depend directly on ecosystems for their livelihoods, their economic, social and physical well-being, and their cultural heritage' (UN/UNCSD, 2012, p. 5). For this reason, it is essential to generate decent jobs and incomes that decrease disparity in the standard of living in order to better meet people's need and promote sustainable livelihoods and practices, and, for the sustainable use of natural resources and ecosystems (UNCSD, 2012).

HDR 2014 enriches our understanding how reducing vulnerability and building resilience are essential for sustainable human development. As millions of poor and disadvantaged people are threatened by chronic vulnerabilities such as economic shocks, rights violations, diseases, conflicts, natural disasters and environmental hazards, some policy responses are needed that prevent threats, promote capabilities, and protect [mainly] most vulnerable people. States that are more responsive, better public policies, and changes in social norms can reduce such vulnerability. Similarly, everyone should be ensured to rights to education, health and other basic services and, equality of opportunities. Providing meaningful and decent employment opportunities to all (adult job seekers) should be a universal goal. Full employment should be an essential element of basic human dignity, social cohesion and an agreed societal goal. To achieve the goal, a global effort, better coordination and better institutions are needed (UNDP, 2014).

Critically evaluating HDIs from 1990 to 2000, Sen states that HDIs are useful indicators but the real meaning of the human development approach lies in the plural attention it brings to bear on development evaluation. Despite their popularity, they are not based on general theory. (Sen, 2000).

By synthesizing 23 human development reports (1990-2014), we can depict the human face of development as presented in the diagram 3.1 below-

Figure 3.1: Human Facets of Development

Source: Author

3.2.4 Rio Declaration on Environment and Development 1992

The United Nations Conference on Environment and Development met in Rio de Janeiro from 3 to 14 June 1992 and produced the Rio Declaration on Environment and Development. This declaration reaffirmed the Stockholm Declaration of 1972, which was aimed at establishing a new and equitable global partnership through the creation of a new level of cooperation. It promised to work towards international agreements that respect the interest of all, protect the integrity of the global environment and development system, and recognized the integral and interdependent nature of earth.

This declaration with 27 Principles proclaims that human beings are at the centre of sustainable development concerns. It focuses on healthy and productive human life in harmony with nature, which is also an integral part of sustainable development and poverty eradication.

Cooperation among States in a spirit of global partnership to conserve, protect and restore the health and integrity of earth's ecosystem is agreed upon (Principle 7). 'Common but differentiated responsibilities' are accepted. Principle 10 proclaims that environmental issues are best handled with effective participation of all concerned citizens, institutions, business

enterprises and public authorities. Effective access to judicial and administrative proceedings is equally emphasized.

Principle 12 stresses that trade policy measures for environmental purposes should not constitute arbitrary or unjustifiable means or any kind of disguised restriction on international trade. Liability and compensation for adverse effect of environmental damage to pollution victims should be ensured with necessary national and international law (Principle 13).

For environmental management and development, the role of women, youth and indigenous communities is taken as vital. States are obliged to recognize their identity, culture, traditional knowledge and interests and to enable their effective participation. This declaration on sustainable development was formally politically endorsed through the adoption of the Rio Declaration and Agenda 21 (Hugé, Waas, Eggermont, & Verbruggen, 2011).

In conclusion, common but differentiated responsibilities to conserve and restore the health and integrity of earth's ecosystem, poverty eradication, effective participation, appropriate trade policies, harmonious international economic system, compensation for pollution victims, the role of women, youth and indigenous people, recognition of identity, cultures, traditional knowledge and interests, are the main themes of this conference.

3.2.5 Lisbon Strategy

In March 2000, a meeting of the European Council in Lisbon launched a strategic framework for the development of the EU in the decade of 2000-2010, which is known as Lisbon Strategy. A new strategic goal set by the EU for the decade was -"To become the most competitive and dynamic knowledge-based economy in the world, capable of sustainable economic growth with more and better jobs and greater social cohesion" (Ivan-Ungureanu & Marcu, 2006, p. 74). To achieve the strategic goal, a set of sound macroeconomic policy is needed that can foster high economic growth, strong internal market, investment in human resources, higher employment and combat against social exclusion.

This strategy aimed to find solutions for the then economic stagnation in Europe, and concurred to implement policy instruments for that purpose by all member states. This ten-year reform program was designed with the expectation of increasing European competitiveness on the basis of a knowledge-based economy with domination in the field of information and communication technologies (Samardžija & Butković, 2010). The Lisbon Strategy mainly

focused on socio-economic and environmental renewal. In other words, economic and social reforms needed to take place in the context of a positive strategy that combines competitiveness and social cohesion⁴. This strategy includes a holistic approach of sustainable development.

After the midterm review in 2005, within the general framework of growth and jobs, the renewed strategy focused on- research and innovation, modernizing labour markets, energy/climate change, unlocking business potential (particularly small and medium size enterprises), and investment in people (EC, 2005, p. 4). Commenting on the overall success of the Lisbon Strategy, Samardžija and Butković (2010) conclude that the reform agenda agreed upon in Lisbon, could produce positive results - increased employment, more choices for consumers, more sustainable future, and dynamic business environment. Unfortunately, the delivery gap between commitments and actions was remained wide.

3.2.6 Johannesburg Convention

The seventeenth plenary of United Nations' World Summit on Sustainable Development (WSSD), held in Johannesburg of South Africa from 2 to 4 September 2002, reaffirmed the commitment to sustainable development. This summit adapted the Johannesburg Declaration on 4th of September, which consisted of a collection of general political statements of 37 articles.

This declaration highlights present challenges, underscores the importance of multilateralism, emphasizes the need for implementation, and reaffirms the Rio Principle. World leaders expressed their commitment to building a human, equitable and caring society and need for human dignity for all, and to hear the voice of children to save the earth (UNESCAP, 2002).

The plenary also recognized poverty eradication, changing production and consumption patterns, and protecting and managing the resources base for economic and social development as overarching objectives of and, essential requirement for sustainable development. The declaration recognized that sustainable development requires a long-term perspective and broad-based participation in policy formulation, decision-making, and implementation at all levels (Article 26) and, committed to effectively implement Agenda 21, the MDGs and the Plan of Implementation (PoI) of the declaration (Article 30). For successful implementation of the PoI, an inclusive process was agreed.

⁴ For further details, www.etuc.org/a/652

3.2.7 GDP and beyond

"The welfare of a nation can scarcely be inferred from the measurement of national income"- said Simon Kuznets in 1934 who was one of the pioneers of the Gross Domestic Product (GDP) concept of national income measurement (Hall, 2010, p. 151). Similarly, Stiglitz remarks that "gross domestic product, the leading economic measurement, is out-dated and misleading... It's like grading a corporation based on one day's cash flow and forgetting to depreciate assets and other costs" (WAVES, 2012, p. 3). It means that the measurement of national prosperity in terms of GDP was not intended to measure the well-being or the real wealth of a nation. Rather, it was invented to measure the monetary value of economic activities of a country in a year. In reality, GDP constitutes all productive, non-productive and even counterproductive economic activities in a country. The economic value of warfare, rescue from natural disasters, demolishing of an old building etc. also counted within the per capita calculations. In 2010, United Kingdom's Prime Minister David Cameron said- "It is time we admitted that there is more to life than money, and it's time we focused not just on GDP but on GWB- general wellbeing⁵".

To explore a better measurement of progress, true wealth and well-being of nations, a conference called "Beyond GDP" was organized by the European Commission, WWF, OECD, Club of Rome, and European Parliament in Brussels. Representing 50 countries, 650 delegates participated in that conference. At the conference, it was noted that GDP is an invaluable tool for economic policy, but it cannot reflect many contemporary challenges such as climate change, environmental and public health. The president of the conference stated - "We cannot face the challenges of the future with the tools of the past" (Beyond GDP, 2007, p. 10).

Similarly, the inadequacy of GDP to take into account sustainable consumption and production patterns was also noted, and the need to find some indicators was accentuated that can take into account social and environmental challenges, production, social cohesion, good governance and subjective well-being. Hans-Gert Pöttering, President of European Parliament noted- "Well-being is not just growth; it is also health, environment, spirit and culture" (ibid. p. 13). In the conference, focus was also given to ecological dangers that export-led growth puts on developing nations. Finally, they agreed to develop inclusive indicators that are equally appealing as GDP, but are a more effective measuring process that incorporates social and

⁵ More details at <http://www.theguardian.com/politics/2010/nov/14/david-cameron-wellbeing-inquiry>

environmental issues, as well as new crosscutting global challenges such as resource depletion, climate change, global poverty and equality. The conference became a milestone in the exploration of new GDP compliments, and was approached with dedication and great enthusiasm.

In 2009, the European Commission released its roadmap, "GDP and beyond: Measuring progress in a changing world," that outlined five key actions to improve the indicators of progress. They are-

- ☞ Complementing GDP with environmental and social indicators,
- ☞ Near real-time information for decision-making,
- ☞ More accurate reporting on distribution and inequalities (mainly, on renewed social agenda: opportunity, access and solidarity),
- ☞ Developing a European Sustainable Development Scoreboard: environmental scoreboard and threshold for environmental sustainability, and
- ☞ Extending national accounts to environmental and social issues: (i) Integrated environmental - economic accounting and; (ii) Increasing use of existing social indicator from national accounting (CEC, 2009, pp. 4-10).

Beyond GDP measures, the initiative covered environmental and social aspects of wellbeing that had not accounted for by GDP measures. Some alternative measures are- enlarged GDP indicators, social indicators, environmental indicators, wellbeing indicators, etc.⁶.

In a nutshell, beyond GDP, the initiative recognized the GDP as 'best single measure to explain how market economy is performing,' but points out its inability to accurately measure long-run economic and social progress, and tackle contemporary issues regarding climate

⁶ For detail information on this initiative, refer to <http://www.beyond-gdp.eu/>

- a. Enlarged GDP indicators start from the GDP figure of national accounts and adjust for its shortcomings to deliver a more comprehensive picture of the national wealth or wellbeing.
- b. Social indicators address a broad range of social issues, concerns, trends and progresses such as life expectancy, poverty rate, disposable income, education level, employment level etc.
- c. Environmental indicators deal with issues of natural resources, environmental pollution and waste, human health etc.
- d. Wellbeing indicators are concerned with people's general satisfaction with life, quality of life in relation to their jobs, family life, health condition, and standard of living.

change, social inclusion, resource efficiency and so on. Therefore, a deliberate effort to identify indicators that can measure progress in social, environmental and economic goals is made so that they will work as a complement to GDP.

3.2.8 Stiglitz-Sen-Fitoussi Commission

The Commission on the Measurement of Economic Performance and Social Progress (CMEPSP) was created in 2008 with an aim to identify the limits of GDP as an indicator of economic performance and social progress. French President Sarkozy showed earnest interest in addressing the increasing concern about the adequacy of GDP as a measuring rod of economic performance, and its relevancy of GDP based figures as a measure of social wellbeing and measure of economic, social and environmental sustainability. Hence, CMEPSP or Stiglitz-Sen-Fitoussi Commission or Stiglitz Commission materialized with the presidency of Joseph E. Stiglitz, advisory of Amartya Sen and, coordination of Jean-Paul Fitoussi. The commission held its first plenary meeting on 22-23 April 2008 in Paris⁷ and produced its final report on 14 September 2009. Three working groups were formed to work on classical GDP issues: sustainable development, environment and quality of life.

Stressing on its importance, the CMEPSP final report (2009) states-

... They believe that one of the reasons why the crisis [World Financial Crisis 2008-9] took many by surprise is that our measurement system failed us and/or market participants and government officials were not focusing on the right set of statistical indicators.

This report drew attention toward distorted market prices due to no charge imposed on carbon emissions and no adjustment of such emissions and other environmental costs in standard national income accounts. Our decisions/policies that guide our economy and societies depend on 'what we measure, how good measurements are and, how well our measures are understood'. For this purpose, we need better metrics (ibid, paragraph 9).

With regard to classical GDP issues, the report recommends to 'look at income and consumption rather than production', because GDP mainly measures market production which is mistakenly taken as a measure of economic wellbeing. The focus should be given to real income. Income and consumption should be considered jointly with wealth. A balance sheet of an economy should be constructed in such a way that it incorporates assets (capital- physical, human, social and natural) and liabilities (owed to other countries) (ibid., pp. 137-38). This

⁷ For detail information about this initiative, refer to stiglitz-sen-fitoussi.fr/en/index.htm

report also recommends a set of measures to incorporate the 'quality of life' dimension and the 'sustainable development and environment' dimension.

3.2.9 Europe 2020

The proposal for EU's new strategy was unveiled in early March 2010 by the European Commission and adopted in June 2010 to replace Lisbon Strategy is known as Europe 2020. It is the EU's new strategy for 'smart, sustainable and inclusive growth'. With these three mutually reinforcing priorities, the EU and its member states are expected to achieve high levels of employment, productivity and social cohesion in the second decade of this century. (Samardžija & Butković, 2010).

By 2020, five objectives are set to be achieved - innovation, education, climate/energy, employment and social cohesion. Three per cent of the EU's GDP will be invested in research and development for innovation. School drop-out ratios are expected to be reduced below 10 per cent, and at least 40 per cent of 30-34 year age group is expected to attain a tertiary education. Similarly, 75 per cent of 20-64 year-olds are expected to be employed. With regard to climate change and energy targets, greenhouse gas emissions will be lowered by 20-30 per cent than that of 1990 level, 20 per cent of energy will be acquired from renewable sources, while a 20 per cent increase in energy efficiency is expected⁸.

Europe 2020 has introduced seven flagship initiatives in the area of innovation, resource efficiency, skill and jobs, digital agenda, youth, industrial policy, and the fight against poverty. The new strategy places great emphasis on innovation and green growth as key areas for improving Europe's competitiveness.

3.2.10 Rio +20

The heads of State and Government and high level representatives, and civil society representatives, having met at Rio de Janeiro, Brazil, from 20-22 June 2012, agreed on the outcomes of the conference entitled, 'The Future We Want,' and renewed their commitment to sustainable development. The conference recognized that 'many people, especially, the poor depend directly on ecosystems for their livelihoods, their economic, social and physical well-being, and their cultural heritage'. For this reason, it is essential to generate decent jobs and incomes, decreasing the disparity in standards of living, in order to better meet people's need and

⁸ For further details, http://ec.europa.eu/europe2020/europe-2020-in-a-nutshell/targets/index_en.htm

promote sustainable livelihoods and practices, as well as the sustainable use of natural resources and ecosystems (UNCSD, 2012, paragraph 30). Promoting sustainability requires broad public participation. The UN conference at Rio +20 underscores the meaningful involvement and all-around active participation of people from different walks of life, stakeholders and states (paragraph 43).

This conference affirms that policies for a green economy in the context of sustainable development and poverty eradication should be guided by and in accordance with all of the Rio Principles. Agenda 21 and Johannesburg Plan of Implementation (paragraph 57). They consider the green economy in sustainable development and poverty eradication as one of the important tools available for achieving sustainable development, and that it could provide options for policy making but should not be a rigid set of rules. They emphasize that [green economy policy] should contribute to eradicating poverty as well as sustained economic growth, enhancing social inclusion, improving human welfare and creating opportunities for employment and decent work for all, while maintaining the health functioning of the earth's ecosystems (paragraph 56).

In addition to other provisions, green economy policy should promote sustained and inclusive economic growth, foster innovation and provide opportunities, benefits and empowerment for all, and respect all human rights (ibid, 58d). Such policies should enhance the welfare of indigenous peoples and their communities, other local and traditional communities and ethnic minorities, recognizing and supporting their identity, culture and interests, and avoiding endangering their cultural heritage, practices and traditional knowledge, preserving and respecting non-market approaches that contribute to the eradication of poverty (paragraph 58j). Such policies should address concerns about inequalities and promote social inclusion, including social protection floors (ibid, 58n).

UN Rio +20 recognizes good governance and the rule of law at the national and international level, essential for sustained, inclusive and equitable economic growth, eradicating poverty and hunger and achieving the MDGs in developing countries (Paragraph 106). Finance, international trade, technology and capacity building are reaffirmed as the means of implementation. Regarding international trade, this conference reaffirms that it [international trade] is an engine for development and sustained growth and also reaffirms the critical role that a universal rule-based open non-discriminatory and equitable multilateral trading system as well as meaningful trade liberalization can play in stimulating economic growth and development

worldwide (paragraph 281). The conference focused on achieving progress in addressing a set of important issues, such as trade distorting subsidies and trade in environmental goods and services.

3.2.11 Post-2015 Agenda

At Rio+20, world leaders agreed on new goals and targets that are needed to finish the job that MDGs started. With an extensive consultation in every region and across many sectors (as they claim), including listening to the voices and priorities of people living in poverty, the high level panel set by UN Secretary General, Ban Ki-moon submitted a report on 30 May 2013 entitled *A new global partnership: Eradicate poverty and transform economies through sustainable development*.

The crux of this report is eradicating extreme poverty from the face of the earth by 2030. Evaluating the progress of MDGs, the report concludes that "the MDGs fell short by not integrating the economic, social and environmental aspects of sustainable development as envisaged in the Millennium Declaration, and by not addressing the need to promote sustainable patterns of consumption and production" (UN, 2013, p. v). This report also concludes that the Post-2015 Agenda is a universal agenda that needs to be driven by five major transformative shifts as following-

1. Leave no one behind: move from reducing to ending extreme poverty in all its form;
2. Put sustainable development at the core;
3. Transform economies for jobs and inclusive growth: A leapfrogging in economic opportunities and significant economic transformation is needed to end extreme poverty;
4. Build peace and effective, open and accountable public institutions for all;
5. Forge a new global partnership: This is the most radical shift towards a new spirit of solidarity, cooperation and mutual accountability underpinning the Post-2015 Agenda. Fighting climate change, championing free and fair trade, technology innovation transfer and diffusion, and the promotion of financial stability are joint actions in this direction.

3.2.12 Other efforts

In the decade of 1970, Bhutan's King Jigme Singye Wangchuck coined the term 'Gross National Happiness (GNH)' based on Buddhist spiritual values. GNH stands on its four pillars namely- promotion of sustainable development, preservation and promotion of cultural values,

conservation of the natural environment, and establishment of good governance. A second generation version of GNH was proposed by Med Jones in 2006 in which he proposes GNH value to be an index function of economic wellness, environmental wellness, mental wellness, physical wellness, workplace wellness, political wellness and social wellness⁹.

Similar to Europe 2020, the Asian Development Bank (ADB) has put an initiative called Strategy 2020 forward. In the past few decades, Asia and the Pacific region have been experiencing rapid growth. But concerns regarding the inclusiveness, sustainability and environmental impact demands a new development approach, innovative thinking and cooperative actions. Considering these needs, ADB expects this strategy to be implemented between 2008- 2020, and that it will position itself within the evolving international aid architecture, defining operational focuses and set strategic operational and institutional goals. This strategy declares a slogan-'Working for Asia and Pacific Free of Poverty' with three complementary development agendas: inclusive economic growth, environmentally sustainable growth, and regional integration (ADB, 2008).

Some other similar initiatives related to qualitative growth phenomena are: the OECD's Better Life Initiative- Measuring Wellbeing and Progress, Calvert-Henderson Quality of Life Indicators (USA)¹⁰, Canadian Index of Wellbeing¹¹, Ecological Footprint¹², European Environment Agency's¹³ Core Set of Indicators, Yale University's Environmental Performance Index¹⁴, EU's Sustainable Development Indicators¹⁵, Findicators¹⁶, The Genuine Progress Index¹⁷, GLOBECO's World Happiness Index¹⁸, Siemen's Green City Index¹⁹, NEF's Happy Planet Index²⁰, UNDP's Human Development Index²¹, Friends of Earth's Index of Economic Social Welfare (IESW) etc. that are working in the field of qualitative growth and income measurement.

⁹ A detail information can be found at <http://www.iim-edu.org/associates/medjones/grossnationalhappinessgnh.htm>

¹⁰ For more details, Calvert-Henderson Quality of Life Indicators (USA)

¹¹ For more details, <http://uwaterloo.ca/canadian-index-wellbeing/>

¹² For more details, http://www.footprintnetwork.org/en/index.php/GFN/page/footprint_basics_overview/

¹³ For more details, http://www.eea.europa.eu/publications/technical_report_2005_1

¹⁴ For more details, <http://epi.yale.edu/>

¹⁵ For more details, <http://epp.eurostat.ec.europa.eu/portal/page/portal/sdi/indicators>

¹⁶ For more details, <http://findicator.fi/en>

¹⁷ For more details, <http://www.gpiatlantic.org/gpi.htm>

¹⁸ For more details, <http://www.globeco.fr/public/index.php>

¹⁹ For more details, <http://www.siemens.com/entry/cc/en/greencityindex.htm>

²⁰ For more details, <http://www.happyplanetindex.org/>

²¹ For more details, <http://hdr.undp.org/en/humandev/>

3.2.13 Synopsis- UN initiatives, regional growth strategies and new prosperity measures

The Stockholm Declaration agreed upon a common outlook and principles for the preservation of and urgency to enhancing human environment. Brundtland Commission identified six major challenges of sustainable development— population, food security, ecosystem, energy and, industrial and urban challenges. It declared that the aim of sustainable development should be to promote harmony among human beings and between humanity and nature. It applauded rapid export growth on one hand, and resource conservation on the other, and was criticized for its seemingly conflicting objectives.

Within the context of inclusiveness, HDRs focused on the people-centric single goal of development. The main theme of HDRs is— enlarging people's choices by equality of opportunity, sustainability of such opportunity, and empowerment of people. Recognition of identity, culture, traditional knowledge and interests, and effective participation are demanded for democratic world economic order. HDRs recognize the role of women, youth, and indigenous communities for inclusive and equitable growth and, social cohesion. Challenges such as depletion of institutional, cultural, environmental and mineral resources are taken as main causes that hamper future economic growth and the course of development. As HDRs suggest, technology should be accessible to all- rich and poor. Unrestrained and irrational consumption should be stopped. The rise of Global South in terms of economic growth, world trade, human development initiatives and South-South cooperation has been applauded. These UN initiatives have recognized sustained, equitable and inclusive growth as the key requirements to reduce poverty and hunger and to achieve the MDGs.

Regional growth and development strategies are also more or less consistent with the UN's development perspectives. The European community has launched strategies for competitive, smart, sustainable, dynamic and knowledge-based economy to ensure capable of sustainable economic growth, with objectives of promoting innovation, education, climate change remedies, energy efficiency, decent jobs and social cohesion.

With regard to the environment, HDR 2007/08 and 2011 stress that environmental degradation has placed a double burden of deprivation on poor countries and most vulnerable citizens. Hence, carbon-intensive growth should be replaced with a green one. HDR 2011 discusses the trade off and synergies between environment-improving measures and the equity,

and demands that the integration of equity have on environmental policies. Rio +20 presents the relationship between ecosystems and the livelihood of the poor. This also calls for the promotion of economic, social and physical wellbeing and cultural heritage of people; and affirms the need of green economy. Human solidarity is essential to fight climate change problems.

With regard to measurements, a general move toward a new growth paradigm requires revised indicators to measure the progress. Current economic growth measurement indicators are unable to address degradation and depletion of natural capital, eroding social cohesion, gross income inequalities, and increasing expenditure to clean up toxic waste. In this respect, Beyond GDP initiatives argued for incorporating environment and social aspects of wellbeing into the national prosperity measurement. Stiglitz-Sen-Fitoussi Commission presented a balance sheet of an economy with capital assets (human, natural, social, and physical) and liabilities. Various national accounting indicators are being modified and are widely and earnestly accepted and adopted by a variety of companies and economies.

With regard to trade and economic growth, competitive trade has been deemed as the best guarantee for efficient production (UNDP, 1992). HDR 1992 supports an open market accompanied by a skilfully crafted regulatory framework, supplemented by judicious social policy action. However, market and economic growth are taken as only a means, while human development is the ultimate goal. The restructuring of finance, trade and international cooperation is needed accordingly. As HDR 1996 suggests, economic growth should be accompanied by voice, rights, decent jobs, well-rooted, equitable distribution and hope for the better future. It should be inclusive and participatory.

3.3 A Move towards Green Growth

3.3.1 Sustainable development and the green economy

In the preceding section, we summarized some important initiatives toward sustainable development and hinted at the notion of green growth, which considers natural and human capital as the real stock of national wealth. The Rio+20 documents, HDR 2011 and HDR 2013 clearly indicated the need of time to move toward green growth paradigm– the strategic aspect of sustainable development.

The sustainable development approach is a very broad area of study as it incorporates complex interaction among ecology, economy and human beings. For a new course of

sustainable growth, it demands voice, rights, equity, decent jobs, protection of traditional knowledge and culture, resource efficiency, productivity, innovation and knowledge based growth. And on the economic front: a perfect harmony between human-being and nature, sustainable use of resources, resource conservation, bio-diversity and the effects of climate change. Finding a clear roadmap to follow this new course of growth is a major concern for today's economic policy makers. The green growth concept is one strategy in this very direction. Some scholars have also taken green growth strategy as a measure to alleviate the crises created by undisciplined liberalization. It is often interpreted as complementary, even if not a substitute for orthodox GDP growth regime. The following socio-environmental scenario, as stated in HDR 2011 shows why we should prompt toward the green growth path of development:

- (a) Forty per cent of land is degraded due to soil erosion, reduced fertility and overgrazing. Lost land productivity is as high as 50 per cent.
- (b) Agriculture that accounts for 70-80 per cent of water use has been estimated that 20 per cent of global grains use water unsustainably.
- (c) Desertification threatens dry land- the home to 1/3rd of global population.
- (d) Adverse environmental factors are expected to boost world food price by 30-50 per cent in real terms increasing price volatility.
- (e) Today, around 350 million people, most live in or near forest, rely for subsistence and incomes.
- (f) Many indigenous people heavily rely on natural resources and live in ecosystems vulnerable to the effects of climate change (UNDP, 2011).

Although we cannot demarcate between sustainable development and green growth policies, some principles of a green economy show the value addition over orthodox sustainable development norms. As stated by Allen (2012), the distinction between sustainable development and a green economy can be found by comparing 27 Rio Principles for sustainable development and 26 green economy principles identified in the publications of various green growth initiatives, as well as the Rio +20 outcome document. An area of potential added value rests in the additional green economy principles that it should: (i) Create decent work and green jobs; (ii) Promote resource and energy efficiency; (iii) Use integrated decision making; (iv) Drive innovation; (v) Facilitate education and skill development; (vi) Support human rights and worker's rights; (vii) Maintain economic growth; (viii) Measure progress using matrices and

indicates that go beyond GDP; (ix) Respect planetary boundaries, or ecological limits or scarcities; (x) Be low carbon and low emissions and; (xi) Be resilient²² to risks and shocks. Out of 11 added values, seven (from (i) - (vii) above) were agreed at Rio +20 and remaining and four are yet to agree upon.

3.3.2 Evolution of green growth/green economy concepts

Growth was taken solely as an economic phenomenon until a few decades ago. In the Stockholm Declaration, the environmental aspect was included and the concept of sustainable development was conceptualized. The Rio Principles deliberately explained the nature and mode of sustainable development giving high emphasis on the environment, and it is Rio + 20 that put more stress on inclusiveness aspect or the social dimension among three fundamentals of sustainable development.

The concept of green growth has emerged as the strategic policy to materialize sustainable development. Sustainable development and green growth are not substitutes. Rather green growth is a subset that sets strategies for and develops measurement indicators to track the progress towards sustainable development. This means that green growth includes the operational policy agenda of sustainable development that can help achieve concrete and measurable progress toward economy and the environment. Green growth strongly emphasizes the fostering of necessary conditions for innovation, investment and competition that stimulate economic growth without derailing resilient ecosystems (OECD, 2011). The concept of a green economy has been receiving worldwide attention in recent years- as a tool to address the 2008 financial crisis. Moreover, one of the thematic areas of cross-sectorial issues at Rio +20 was addressing a green economy in the context of sustainable development and poverty eradication (UNCSD, 2012, p. 18).

As defined in the OECD Green Growth Strategy²³ (2011), green growth is about being able to foster economic growth and development while ensuring that the earth's natural assets continue to provide the resources and environmental services on which our wellbeing relies. According to the OECD, green growth is a strategic concept that helps bring harmony and coherence to existing environmental and economic policy priorities. It stresses catalysing

²² Resilience has been defined as the capacity of a system to continually change and adapt yet remain within critical threshold (see <http://www.stockholmresilience.org/21/research/what-is-resilience.html>)

²³ More information available at <http://www.oecd.org/greengrowth/economicpoliciestofostergreengrowth/>

investment and innovation which will underpin sustained growth and give rise to new economic opportunities. Sterner and Damon (2011) recognize 'green growth' as a mantra in the global debate in recent years, and are optimistic that it may provide a way out of the stagnation that threatens the global economy in the wake of the recent financial crisis. They also foresee that green growth might better succeed in supporting the material aspirations of the poor, while still respecting general environmental concerns. However, green growth is no panacea: it is a new direction, not merely an instrument; instead, it will require innovative and stimulating policy directions and goals (p. 7172). To move towards a green economy, we need green growth strategies.

The green economy concept can be streamlined within the holistic framework of UNCEDs sustainable development, the Rio Principle and Agenda 21. In the green economy perspective, the link between economy and environment should be underscored in such a way that the equity dimensions, including the needs of the poorest segment of societies, specific needs of developing countries and justice for the future generation should be amalgamated. Green growth strategies are a means, whereas a green economy is the end.

United Nations Environmental Program (UNEP) defines 'green economy' as "one that results in improved human wellbeing and social equity, while significantly reducing environmental risk and ecological scarcities" (UNEP, 2010, p. 5).

The Rio +20 outcome document states that green economy policies (also understood as green growth strategies) should be guided by and in accordance with all of the Rio Principles, Agenda 21, and the Johannesburg Plan of Implementation. Further, that such policies should contribute to achieving relevant internationally agreed upon development goals, including the MDGs (paragraph 57). It should be a flexible set of rules that contribute to eradicating poverty as well as sustained economic growth, enhancing social inclusion, improving human welfare and creating opportunities for employment and decent work for all, while maintaining the healthy function of the Earth's ecosystems (Paragraph 56). Similarly, it should— foster innovation and provide opportunities; benefit and empower all and respect human rights; contribute to closing technology gaps; enhance welfare of indigenous peoples and ethnic minorities and support their cultural heritage; enhance the welfare of women, youths, disables, smallholders and subsistence farmers; promote social inclusion and social protection; promote sustainable production and

consumption patterns, strengthen international cooperation and avoid unjustifiable discrimination or disguised restriction on international trade (paragraph 58).

Further explaining the characteristics of a green economy, Rio +20 stresses that it should— enhance our ability to manage natural resources sustainably, efficiently and with minimum waste (paragraph 60); promote endeavours to drive sustained, inclusive and equitable growth and job creation (paragraph 62); use the best available scientific data and analysis; use a mix of policy measures including regulatory, voluntary and other instruments (paragraph 63); and, involve all stakeholders and their partnerships, networking and experience-sharing at all levels to identify appropriate green economy policies (paragraph. 64) (UN, 2012).

In this way, most of the definitions put a strong focus on the intersection between environment and economy. Recent publications have been incorporating the social dimension explicitly broadening the concept as inclusive green economy and inclusive green growth. To give their definition of green economy more clarity, they provide a set of guiding principles. The following are the most common green economy principles or characteristics (Allen, 2012, p. 13): that green economy-

- is a means of achieving sustainable development;
- should create decent work and green jobs;
- is resource and energy efficient;
- respects planetary boundaries or ecological limits or scarcity;
- uses integrated decision making;
- measures progress beyond GDP using appropriate indicators/matrices;
- is equitable, fair and just- between and within countries and between generations;
- protects biodiversity and ecosystems;
- delivers poverty reduction, wellbeing, livelihoods, social protection, and access to essential services;
- improves governance and the rule of law;
- is inclusive, democratic, participatory, accountable, transparent, and stable; and
- internalises externalities.

The foreground of the green economy is and will be the centre of policy debate for another few years. A summary report states that several UN agencies underscored the financial crisis that began a few years back as an opportunity to promote green economy initiatives in the

form of a stimulus package to support the recovery (UN-DESA, UNDP and UNCTAD, 2012). The concept of a green economic growth paradigm not only supports global ecosystem and possibly address such intermittent crises but also contributes to poverty alleviation that is one most important way of fostering equity in every society.

3.3.3 Why green growth - Some evidence and estimates

The Stern Review, considered as the most comprehensive economic review of climate change so far, refers to climate change as the greatest market failure the world has ever seen. The review argues that failing to take action on climate change will result in costs and risks equivalent to losing at least five per cent of global GDP each year (Weitzman, 2007).

What Stern warned was really visible in rapidly growing Asian economies - India and China. In recent years, the economic growth rate of India and China has been presented in such a way that they were gold nuggets of truths showing their unequivocal ascendance toward a great future (Bhattarai, 2012). But it is often overlooked that GDP growth does not tell anything about whether these economic activities are good or bad. The Kathmandu Post illustrates the report by the Ministry of Water Resources of India that was presented to the Indian parliament in April 2012 and reiterates that there is a high level of salinity in underground water in 158 districts out of 600 in India. Almost 50 per cent of districts have places with excess fluoride in their water levels. What we can say is that water contamination with arsenic and excessive levels of fluoride and nitrate, iron and heavy metals (i.e. lead, chromium, cadmium etc.) are serious threats not only for the health of existing generations, but is equally destructive for generations to come. This survey, consisting of 88 industrial clusters, showed that industrial units were in the 'red category,' indicating that they were severely polluted. Across India, tens of thousands of industrial units pour highly toxic effluents into the water bodies and onto the land (ibid.). What is the real success of Indian growth if the cost of water, air and land pollution and their subsequent implications are deducted?

There is a huge imbalance between population growth and the growth of economic output. In the last 100 years, the world's population increased by four times whereas economic output multiplied by 22 fold. During the same period, fossil fuel consumption increased 14 times. Despite rapid economic growth, widespread prosperity, and improved standards of living, even rich countries have realized that our system of production, trade and consumption has put people's life at risk (OECD, 2011). Therefore, there is no alternative other than to change the

existing patterns of production, consumption and trade and, divert towards sustainable green growth.

The inappropriate course of environmental management in the past has generated severe threats. The 'grow first, clean up later' approach of economic growth has proved a costly strategy, socially and ecologically, and a threat to the sustainability of growth itself (Thomas, 2000). He reiterates that the rapid economic growth rate of the 1990s and its subsequent unprecedented deforestation and environmental degradation are inherently unsustainable (p. 167). Along with the high rate of economic growth and liberalization, carbon dioxide emission tripled in China, Malaysia, and Thailand during the 1980s. Biodiversity is classified as highly threatened in 50 to 75 per cent of coastlines and protected marine areas in East Asia in the last quarter century. Several cases of methyl-mercury (MeHg) poisoning in humans who ingested fish and shellfish contaminated by MeHg discharged in wastewater from a chemical plant (Chisso Co. Ltd., a south western Japanese Company), has led to the death of 1043 and 2252 Minamata diseased patients (officially) between 1956 to 1991 (Harada, 1995).

Climate change has posed a serious threat to people's lives, ecosystem, productivity, and has debilitated future growth potentials. The Climate Vulnerability Monitor (2012) calculated and compared the vulnerability for 184 countries in four areas of impact using 34 climate and carbon related indicators. The findings are-

- Climate change and a carbon-intensive economy are considered as the leading cause of 5 million deaths every year. Among those, 4.5 million die of air pollution (carbon economy deaths) and another 400,000 due to hunger and communicable diseases aggravated by climate change.
- Neglect of climate change has already cost the global economy by 1.6 per cent (1.2 trillion USD) forgone GDP every year.
- Increasing global temperature and carbon related pollution will cost 3.2 per cent global GDP loss by 2030 if urgent action is not taken. Least developed countries will lose their GDP by 11 per cent in an average by that period.
- Economic losses will shrink the expenses on tackling climate change - just to 0.5 per cent of GDP in next decade.

- Major hits of climate change are upon big economies by value but life in less developed countries is highly threatened where 1.3 billion people are fighting against extreme poverty (p. 17).

The effects of climate change are more severe in poor countries and have jeopardized the life and productivity of the people that contributed in natural resource exploitation. The World Bank report, in its main highlights, warns that the world is on track to a '4⁰ C world', marked by extreme heat-waves and life threatening sea-level rise. It also calls our attention to the adverse effects created by global warming in 'many of the world's poorest regions' and that are likely to undermine development efforts and goals. Experiments show that crops are highly sensitive to temperature above certain a threshold. Drought affected areas would increase from 15.4 per cent of global cropland today to around 44 per cent by 2100. The Bank focuses on enhanced support for adaptation, mitigation, inclusive green growth and climate-smart development (World Bank, 2012).

The evidence mentioned above draws our attention to a possible abandonment of an existing ruthless course of growth, and a move toward a more sustainable one. New growth paths should address newly arising threats in economy, ecology and human survival and dignity. A transition toward a green economy is the possible alternative.

Why the transition to a green economy is important?

With the prediction of a macroeconomic model, the UNEP (2011) concluded that a greening economy not only generates increases in wealth, in particular, a gain in ecological commons or natural capital, but also produce a higher rate of GDP growth over a period of six years. In their modelling of a green investment scenario, channelling capital amounting to two per cent of global GDP to embark on a green economic transformation, one quarter (0.5 per cent of GDP) is allocated to the natural capital sector, i.e., forestry, agriculture, freshwater and fisheries. In addition to recognizing and demonstrating the value of natural capital, as a provider of human wellbeing, supplier of sustenance of poor households and as a source of decent jobs, green economy transition incept and builds up natural capital for sustainable economic progress (UNEP, 2011).

Next, a green economy is central to poverty alleviation; it creates jobs and enhances social equity, in the following ways:

- Greening agriculture in less and least developed countries focusing on smallholders can reduce poverty while investing in the natural capital on which the poor depend.
- Investment in clean water and sanitation services to the poor provides the biggest opportunities for the poor.
- Eco-tourism supports the local economy and reduces poverty. TEEB report (2009) shows that tourists are driving force in the greening of the sector, as seen by 20 per cent annual growth rate enjoyed by eco-tourism, about six times of the industry-wise rate of growth (p. 24).
- A shift to an economy creates as many as business-as-usual jobs and enhances social equity. In the energy sector, allocating a minimum of one per cent of global GDP to raise energy efficiency and promoting it creates additional jobs while delving competitive energy. Many jobs will be created in waste management and recycling sector despite challenges in terms of decent work.

Additionally, a green economy substitutes renewable energy and low carbon technologies for fossil fuels. It also promotes resource and energy efficiency. Lastly, a green economy initiative revitalizes the economy by addressing externality-created market failures, by eliminating environmentally harmful subsidies, through market-based incentives and regulatory frameworks and through stimulating investment and, green public procurement (UNEP, 2011).

Despite these convincing arguments, political inertia is the biggest barrier in the direction of green growth. Politicians are still buck-passing the responsibility of employing strict environmental standards in their countries in favour of a few profiteers. An editorial of The Kathmandu Post goes - 'The biggest man-made disaster in the history of mankind, climate change, is proving to be a test of human's capacity to destroy public goods over private interest' (2012, June 2, p. 6). The developed economies worry that their economies will be competitively disadvantaged if they alone commit to strict environmental standards and hence, a joint action is essential by all with the norm of common but differential responsibilities.

Then who is to blame- developing countries like China, India and others or developed countries? Of course, there is uninterruptedly growing pollution in developing countries, but the Kyoto Protocol²⁴ recognizes that developed countries are principally responsible for the current high levels of greenhouse gas (GHG) emissions in the atmosphere as a result of more than 150

²⁴ Cited from the official webpage http://unfccc.int/kyoto_protocol/items/2830.php (2012.06.06)

years of industrial activities. The protocol places a heavier burden on developed nations under the principle of "common but differentiated responsibilities". This protocol has set commitments for reducing GHG emissions by an average of five per cent against 1990 level after five years: 2008-2012. Now, it is not the time to buck-pass the responsibility of lowering environmental pollution, but to join hands to move toward a green economy by adopting greener technologies, greener production and greener consumption.

Before proceeding to analyse international trade within a green growth regime, let's briefly review the national wealth measurement indicators in the new growth regime. These indicators help derive the strategies and goals of international trade in the green growth paradigm as well.

3.3.4 Need of green growth accounting

3.3.4.1 Drawbacks of GDP measurement

As mentioned earlier, existing SNA (System of National Accounting) based GDP does not measure the following (WAVES, 2012):

- Wear and tear and depreciation resulting from use of produced assets such as factories, roads, and bridges;
- Loss of natural areas that provide ecosystem services to the economy, such as pollination;
- The extent to which renewable resources like forest and fisheries are being depleted;
- Depletion of minerals and mineral fuels;
- Future losses resulting from greenhouse gas emissions- sea level rising, extreme weather and agricultural losses;
- Future economic losses of human health due to pollution-led premature deaths and chronic diseases.

It is reiterated that economic growth is often defined as an increase in the monetary measurement of production figured as national income or gross domestic product. But as a matter of economics, economic growth means nothing than income in welfare, which depends more on more factors than on sole production. Welfare depends on 'employment, income distribution, labour conditions, leisure time and the scarce possible uses of non-human-made physical surroundings: the environmental functions' (Huetting, 2010). The myopic, theoretically wrong definition of economic growth, is threatening the current and future availability of environmental functions. The most fundamental and scarce economic goods at the disposal of

humanity fall outside the market and outside the measurement of national income/ gross domestic product (Huetting, 2011b).

Criticizing the GDP version of national prosperity measurement, Talberth (2007) says- GDP is merely a gross tally of products and services bought and sold, with no distinctions between transactions that enhance wellbeing and those that diminish it. Needless expenditures triggered by crime, accidents, toxic waste contamination, preventable natural disasters, prisons and corporate fraud count the same as socially productive investments in housing, education, healthcare, sanitation, or mass transportation (p. 1).

Casting light on the weakness in current national accounts and elaborating the rationale of the OECD's Better Life Initiative that accentuates the need of a new framework, Gjoksi (2010) argues-

The need of such framework is built on the current critique of the national accounts which are regarded as not a suitable measure of economic well-being due to shortcomings such as incomplete coverage of non-market activity; restricted coverage of assets and depreciations; and lack of information on the distributional generation of income, on life-cycle and inter-generational features (p. 15).

In this context, HDI is one of the major attempts among others to include inclusiveness in national prosperity whereas there are some efforts made to address environmental function. Various green growth accounting measures, sustainability measures and natural capital accounting methods are being developed and propagated. Green growth accounting takes into account both- human capital and natural capital into the existing system of national accounting (SNA).

3.3.4.2 Green growth accounting mechanisms and progress indicators

Green GDP as green growth accounting includes human capital and natural capital adjusted to the existing system of national accounting (SNA). In the words of Hanley (2000), the major objective of green GDP accountings is to provide more accurate measures of welfare and to gauge whether or not an economy is on a sustainable time path. The Index of Sustainable Economic Welfare (ISEW) and Genuine Progress Indicator (GPI) are two most popular green GDP systems (Talberth & Bohara, 2006) whereas the System of Environmental and Economic Accounts (SEEA) is an international statistical standard that incorporates natural capital accounting (WAVES, 2012). Environmentally sustainable national income (eSNI) takes into account the environmental functions that remain available for future generations, whereas adjusted net saving (ANS) measures the real saving of an economy. Some green growth indicators are also developed that indicate whether the economy is moving toward a green

growth path or not. The OECD green growth indicators are popular among them and are detailed in Annex 3.

(a) ISEW: As defined by Jackson, McBride and Abdallah (2007), "The Index of Sustainable Economic Well-being (ISEW) is an adjusted economic indicator which attempts to incorporate costs and benefits not traditionally measured in monetary terms. It brings together a wide range of economic, social and environmental issues into one analytic framework" (p. 1).

(b) GPI: Similarly, Genuine Progress Indicators (GPI) is a sum of consumption, investment and foreign borrowing adjusted with some values, services, losses and costs.

These green GDP indicators such as GPI and ISEW have policy implications that are demonstrated by various peer reviewed studies. They can provide useful insights for policy makers seeking to implement broader sustainability goals (ibid.). Talberth and Bohora (2006), using GPI and ISEW time series data for the first time, to analyse the welfare effects of policy change- the trade openness- find that there is a strong negative correlation between openness and green GDP and a strong positive correlation between openness and the gap between traditional and green GDP. It invokes us to rethink about the laissez-faire type of openness.

(c) Natural capital perspective and SEEA: With natural capital perspective, national wealth is taken as the combination of three kinds of capitals- manufactured capital, natural capital (water, forest, and other ecosystems), and social capital (entrepreneurship, innovation etc.). Together with GDP, natural wealth account gives a better picture of sustainability prospects of long term growth. Existing accounting called the UN System of National Accounts (SNA) provides an international standard for measuring national income, saving, some produced capital and other elements of growth.

(d) eSNI: Hueting (2011a) defines environmentally sustainable income (eSNI) as the maximal attainment of production level by which vital environmental functions remain available for future generations, based on the technology available at the time. It means eSNI gives the information about the distance between the existing situation and a sustainable situation. When the distance increases, it signifies that society is drifting farther away from environmental sustainability and, vice versa. This concept essentially indicates that an increase in production and consumption of environmentally less burdening products may lead to better eSNI growth. However, Hueting (2011a) advocates that social welfare can be enhanced without increasing nominal production growth that is measured in terms of popularly used GDP figures.

(e) **Adjusted Net Saving (ANS):** ANS measures the true rate of saving in an economy after the adjustment of investment in human capital, depletion of natural resources, and damage caused by pollution. This indicator aims to assess economic sustainability of an economy. ANS monitors whether depletion of natural capital, such as minerals and forests, is compensated for by investment in other assets, such as human capital or infrastructure (The World Bank, 2012b).

(f) **OECD green growth indicators:** The OECD has developed 18 green growth indicators under five broad categories that show the trend of green growth. Details in Annex 3.

3.3.5 Green growth initiatives and strategies in action

Green growth demands certain policy intervention in and a departure from contemporary micro and macroeconomic policy regimes. The green growth policy emphasizes ecologically sustainable economic programs to foster low carbon, and equally focuses on socially inclusive development. Some measures to green growth are- sustainable consumption and production, sustainable infrastructures, green tax and budget reform, the greening of business, investment in natural capital, eco-and resource efficiency and low carbon economy (UNESCAP, 2012). In other words, policy intervention is needed in production, emission, transportation, consumption and trade. In those aspects, how to maximize resource efficiency, how to stop the depletion of natural capital and, how to make economic growth more inclusive are the questions that should be sorted out with appropriate strategic policies. For this very purpose, comprehensive green growth strategy is needed.

Recently, many countries, regardless of their economic strength, have shown their strong dedication toward green growth. China's 12th five-year plan provides detailed policy guidelines and targets to cope with climate change. The South Korean government has followed its National Strategy for Green Growth (2009-13) by earmarking about two per cent of GDP to implement green growth programs and projects. Denmark, in its 'Agreement on Green Growth' (2009), has targeted modern and competitive farming and food sector that embraces environmental goals. The Government of the United Kingdom has planned to invest billions in low-carbon ventures through a 'green investment bank'. Japan plans to create 1.4 million environment related jobs. Antipollution taxes are proposed in Australia (OECD, 2011). The list goes on and on.

India has planned to reduce fossil fuel energy subsidies. Cambodia became the first least developed country to draft a National Green Growth Roadmap, which is the basis for a holistic

approach to development--mainly for poverty reduction and alleviating vulnerability to climate change. This roadmap prioritizes agriculture, forestry, transport, eco-villages schemes, water resource management and waste management. Indonesia, with its National Action Plan 2007, announced a voluntary target of reducing greenhouse gas emissions by 26 per cent by 2020. In 2010, the government introduced the Indonesia Climate Change Roadmap to guide central and local government planning and expedite a low carbon development plan for the next 20 years (UNESCAP, 2012). These are a just a few to mention.

3.3.6 International trade in green growth strategy

The proponents of green growth placed a notable emphasis on sustainable production and consumption, but literature on trade-led growth is lacking. Trade consists of almost all essential elements for sustainable development- production, consumption, sustainable transport, equitable distribution, decent jobs, human capital for higher competitiveness and productivity, harmony between human and nature, sustainable use of natural capital etc. More importantly, most environmental problems have cross-border and global scopes. And as such, international trade is becoming vital to this issue (Copeland, 2012).

Since the last few decades, many countries have become trade-dependent economies, along with rapid globalization. The UN-ESCAP's Green Growth Initiative²⁵, references the Asia-Pacific region and documents that rapid economic growth has been experienced there by taking advantage of the opportunities generated from globalization and the export-led growth model. The highest rate of economic growth has uplifted the life standard of millions, but it will not sustain if resource constraints and climate change are not adequately addressed. It indicates that export-led growth model cannot go further if does not make a shift toward a green export-led growth model.

Under a green trade-led growth concept, trade plays a vital role in the green economy transition. A joint study conducted by UNEP, ITC and ICTSD (2012) identified and assessed the international trade opportunities associated with the transition to a green economy. Particularly, how less and least developed countries can increase exports to respond to the demand for environmentally friendly goods and services in the international market, is an issue. For those countries, they identified six highly potential economic sectors: agriculture, fisheries,

²⁵ For more details- <http://www.unescap.org/sites/default/files/Full-report.pdf>

manufacturing, forests, tourism and renewable energy. They argue that well-managed trade has the potential to drive the transition to a green economy by fostering sustainable resource use, generating economic and employment opportunities, and by contributing to poverty eradication (p. 1). The IUCN (2010) guidebook summarizes various literatures on greening international trade stating that it is a fundamental driver of the increasingly integrated world economy, and is among the most important areas in which macroeconomic reforms could potentially lead to a more sustainable world economy. It is claimed that trade plays a critical role in any green growth transition (p. 19).

Trade can influence technology change and subsequent change in growth trajectory. Dasgupta and Heal (1980, cited in Swanson & Ziegelhöfer, 2011) state that natural resource economists usually assume that the increasing scarcity of resources results in incentives to search for new technologies or backdrop technologies that will rely on less scarce inputs. Governments are strong motivators to set the level of R&D, and through this influence, technological change and subsequent change in growth trajectory. With this growth trajectory perspective, less and least developed countries have a strong comparative advantage in green agri-products due to biodiversity and other favourable conditions.

Biodiversity products can play a crucial role in trade balance and in increasing employment. As they rarely need costly imported inputs but can increase exports of sustainable agro-products, it helps trade balance (UNEP, ITC & ICTSD, 2012). For example, aquaculture remains the fastest growing (6.6 per cent per annum since the 1970s) animal product. Exports of biodiversity products such as agriculture, pharmaceuticals, cosmetics, bio-pesticides, personal care and, food additives incentivize the sustainable management of forests. Such exports can be promoted with organic, fair-trade and bio-trade sustainability standards. Government regulation and public and private sector procurement policies, along with enforcing building standards, promote the use of legal or certified timber and provide continued access to local and international markets. A more efficient product cycle makes manufacturing products cheaper, increasing their competitiveness. Green innovation, design and technology development are more likely to create and retain new jobs (*ibid.*).

The Green energy sector is another prominent sector in green economy transition. In the renewable energy sector, countries can invest directly in the technology of the future and can "leap-frog" out-dated infrastructure and technologies. Less and least developed countries can

benefit from exports of RES (renewable energy sources) products such as bio-fuels, wind-power and hydro-power. Production of such goods not only reduces huge trade deficits incurred due to fossil fuel importing, but the local production also reduces transportation cost and increases employment. Preferential access to markets in developed countries or policy instruments such as feed-in-tariffs also encourage foreign trade.

Not only trade in the goods sector, but also trade in service sector has a big scope in the green economy. For example, in the tourism sector, international tourist arrival is soaring in recent years. International Eco-tourism Society claims that 83 per cent of developing countries rely on eco-tourism as a major source of export income (UNEP, ITC, & ICTSD, 2012). Further opportunities of income activities such as recreational fishing, scuba diving, whale watching, bungee jumping, rafting etc. are provided by eco-tourism industries.

However, a policy agenda for a particular sector or policies applied in specific country may enhance the risk of 'carbon leakage' per se in manufacturing sector. Supporting this argument, Sterner and Damon (2011) draw our attention on how stricter policies in an individual country may shift production toward pollution havens. A competitive advantage in countries with less strict environmental policies can lead to more carbon-intensive production in those countries because companies shift their production plants in such countries. Industries' concern with competitiveness, possibly caused by the detrimental effects of environmental regulation, becomes a headache for policy makers of those countries where climate policies are stricter and if they are forced to act alone (more details in Chapter 4.3.2).

In the meantime, to be competitive while addressing the issues of inclusiveness and environmental sustainability in an open trade regime is a big policy challenge. Before yoking these three fundamental objectives in a trade-led growth model (in the next Chapter), in the remainder of this Chapter we review the trade-environment interaction, the concept and elements of sustainability, and the concept of inclusive growth and its elements of inclusiveness in the trade-led green growth paradigm.

3.4 Environmental Sustainability and Inclusiveness in Trade-based Green Growth Paradigm

3.4.1 Introduction

A green economy demands social, economic and environmental fundamentals being in perfect harmony with each other and even among all, as much as is possible, for a successful transition toward green growth. Trade has been a major contributor of economic growth. With growth perspective, the elasticity of trade to the world income has grown from 2.0 in the 1960s to 3.7 in the 2000s (Freund, 2009; in: de Melo, 2012, p. 10). It shows how strongly trade is influencing the economic growth rate. Therefore, for a successful transition toward a green economy, trade must follow the strategies of green growth.

In Chapter Two, it is explained how competitiveness functions as the heart of foreign trade. We also synthesized the determinants of competitiveness. In this section, we explain how other two fundamentals— sustainability and inclusiveness— are inevitable considerations in a trade-led green growth regime.

3.4.2 Trade-environment interaction

The interaction between trade and environment can be analysed in two strands- (i) how trade affects environment and, (ii) how environment affects trade. How trade affects environment can be explained in two ways- direct linkage and indirect linkage. Indirectly, trade enters into the environment as the bi-product of negative externalities of production since close to half of world production is traded. The strength of such externalities are determined by scale of activity, income per capita, environmental policies, composition effect related to the pattern of specialization, and technique effect. On the one hand, scale effects lead toward the deterioration of the quality of the environment. On the other, trade helps accelerate the adoption of clean techniques of production; more open trade regime increases the adoption of clean technologies (de Melo, 2012).

Direct trade-environment linkages can be established in three ways: firstly, trade requires international transport which itself pollutes the environment; secondly, trade alters the profitability of harvesting natural resources; and thirdly, trade affects a country's ecology as invasive species and the spreading of disease are directly related to international trade. Additionally, rapid depletion of natural resources has been taking place in the multilateral trading

system in two ways- (i) by erasing borders, trade liberalization and other reduction in international transaction costs, (ii) obligation attached to WTO membership can hamstring governments in their attempts to manage their resources by disallowing trade restrictive measures (de Melo, 2012, pp. 8-9).

Similarly, the environment affects trade by virtue of its nature of public good and externalities. Externalities arise from various market failures and imperfections inherent to the nature of environmental goods and services. Trade among countries reallocates externalities, whereas environment regulation in many cases, seriously affect the net gains from trade. Regulatory measures to alleviate negative externalities make traded goods more expensive. It may be in production, consumption or even in transportation process. But externalities are not always negative. Knowledge externalities, for example, provide positive effects. In a free trade regime, the spread of environmental technology is easier and cheaper in that it generates positive externalities or beneficial effects (de Serres, Murtin & Nicoletti, 2010).

However, market mechanisms are not always effective in the realm of public goods. Environmental assets have the characteristics of non-substitutability and non-excludability that make them more public good natured. Even knowledge in innovation also reflects public good nature of ideas. Public goods monitoring and enforcement costs, market incompleteness and scale effects, informational asymmetry and split investment problems induce market failures even in innovation and financial services (ibid). In addition to public goods, market failures take place where there is poor attribution and enforcement of property rights. Contrastingly, proper enforcement of property rights and alternative 'clean' activities can have commercial appeal to compete with those that have negative externalities.

Beyond trade-environment interaction and with overall growth perspective, Harris and Roach (2013) claim that trade-led growth can have significant impacts on the environment. Equally important is that expanded global trade brings benefits in return of increased efficiency, technology transfer and the import and export of sustainably produced product. Trade-led growth may increase a country's capabilities to promote environmental protection, but avoiding unacceptable levels of social and environmental damage must be curbed by structural and policy transformations. "Governments will need to take into account the various costs, risks, benefits, and opportunities of different policy options in accordance with their institutional and governance arrangements, level of development and social, economic, and environmental

priorities" (Allen, 2012, p. 22). Even in the international arena, referring to the World Bank's review of trade and environmental issues, Harris and Roach (2013) argue that future trade agreements must take environmental sustainability more explicitly into account. Introducing sustainability measures into trade policies needs institutional changes at global, regional and local levels.

3.4.3 Concept of sustainability and elements of trade sustainability

Economic sustainability in terms of trade can be understood as the most efficient use of available resources with consistent returns or benefits for a long period of time whereas environmental sustainability depicts long-term maintenance and utilization of factors and natural resources in such a way that the functions of the future generation will be greater or equal to the present levels. Sustainable development is the means to reaching sustainability.

According to the standard theory of international trade, as Costanza, Audley, Borden, Ekins, Folke, Funtowicz, and Harris (1995) mention, every country has a unique comparative advantage and in line specialization, that maximizes world product. But not a single one among its five crucial assumptions - no externalities, stable prices, no coercive power in production and consumption, no international mobility of capital, and no dynamic differences- passes muster in the real world. Rather, most countries in the South continue to shrink by worsening terms of trade, high debt service costs, protected Northern markets and a rapidly deteriorating environment. Therefore, a fair and sustainable trade regime is inevitable in which social and environmental safeguards are included. The other way of sustainable trade is that social and environmental costs should be directly incorporated in trading operations.

Sustainable trade is one element of a larger exchange among people, communities and nations that involves goods and services, cultures and information as well as the natural environment. Each community has its own culture, values, social systems and attitude towards environment, and seeks to maintain its own set of values. By exchanging these symbolic values and making consensus among all affected groups, a common good that transcends individual interests can be achieved. Even if no consensus is achieved, it is important to respect the rights of local communities. By overcoming the challenges of developing methods of determining potential costs of uncertainty and to adjust incentives is very important so that the appropriate parties pay these costs. Accounting the full cost of damage and removing hidden subsidies and

incentives from those who profit from environmental degradation beyond sustainable levels is must to make international trade sustainable (ibid).

The HDR 2011 acknowledges international trade as the major contributor of environmental degradation, noting the impact from the use of subsistence exploitation. Equity-enhancing investment, such as access to renewal energy, water and sanitation, reproductive health etc., must be ensured to enhance human capabilities in order that international trade be sustainable. It demands that equity concerns be incorporated into environmental policies (UNDP, 2011). Fair and sustainable trade depends on a proper system of governance with a global consensus building, effective participation of citizens, interest groups and other stakeholders. In this harsh and increasingly competitive trading system, it is more difficult to benefit from trade because of the growing pressure to acquire competitive advantage by externalizing environmental costs. Of course, the world trading system permits countries to protect the environment, but not their industries. To realize environmental benefits from foreign trade, trading rules must recognize environmental externalities as distorting and unfair financial subsidies (Costanza et al., 1995).

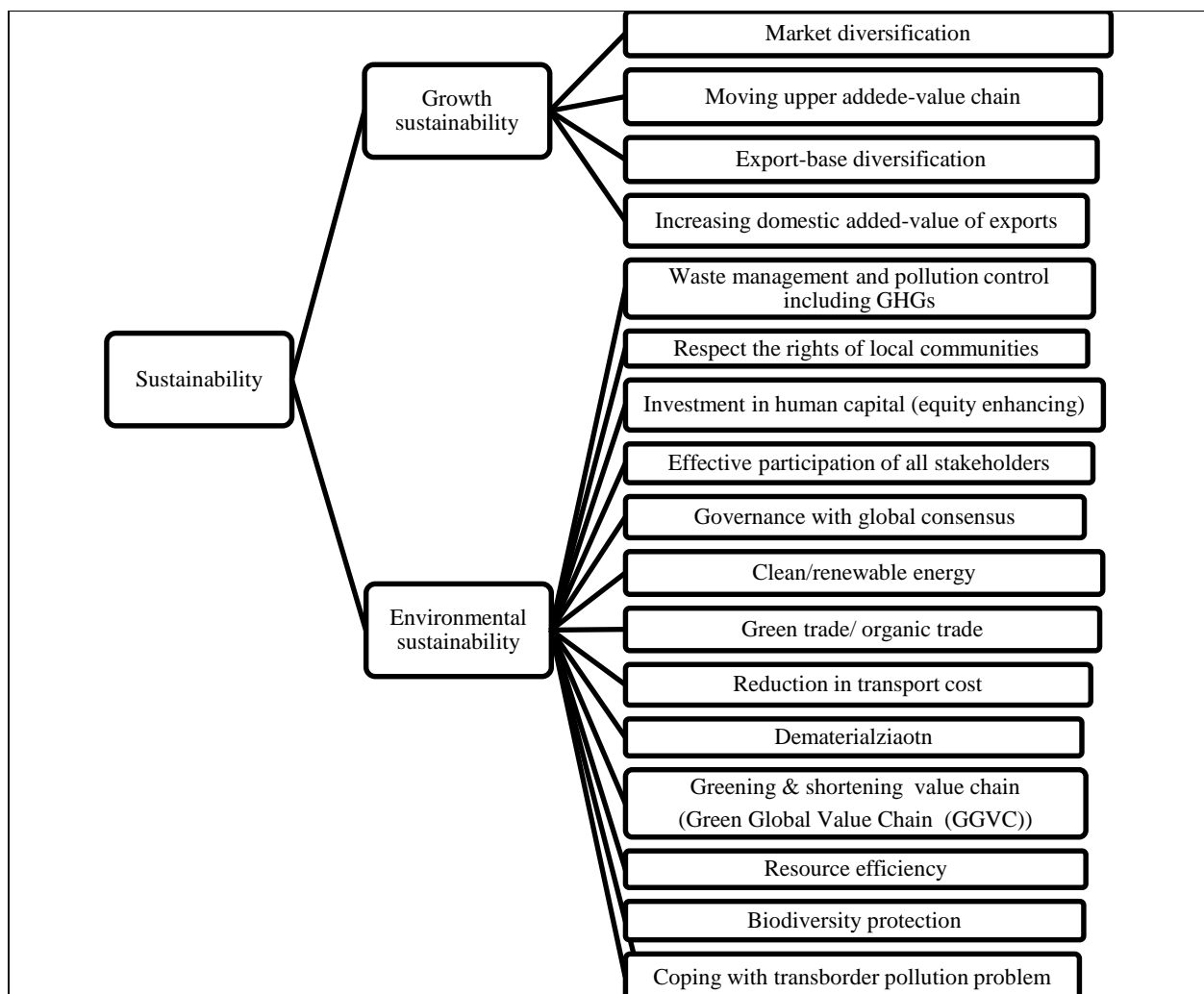
In addition to trading rules, greening global value chain (GVC) is essential to achieving sustainability in trade. Green supply chain management is defined as "the strategic and transparent integration of material, information and capital flows to achieve environmental and economic objectives through the systematic coordination of key inter-organizational business process" (Klassen & Vachon, 2012, p. 269, 271). This process includes cleaner technologies, products and services that optimize resource use and reduce environmental risks and pollutions. This is also a means of coping with cross-border environmental problems (WEF, 2012).

Competitiveness, employment and development while preserving environmental resources have become imperatives for any responsible government in today's world. Government regulation plays an important role in this direction but the globalization of business has been putting several polluting activities out of reach of regulators. Therefore, in order to deal with environmental problems effectively, the task of managing environmental resources should be shared with business firms, rather than simply sticking with coercive measures (Sinclair-Desgagné (2013). To foster environmental performance while maintaining individual competitiveness, incentives should be provided across the chain's members. Despite that, it needs

legal and political institutions, properly forced environmental regulations, some background elements such as stakeholders (including employees') culture, education and health level, transportation and communication infrastructures, ownership and price of energy and water, character and strength of competition etc.

Economic theorists and environmental economists contend each other's arguments despite the complementarity, positive synergies and mutual relatedness among the determinants of three fundamentals. However, abstracting ideas from the literature analysed so far, trade-led elements of sustainability are synthesized and presented in Figure 3.2 below-

Figure 3.2: Trade-related Elements of Sustainability



Concept: Author's own elaboration

3.4.4 Concept of inclusive growth

In order for growth to be sustainable and effective in poverty reduction, it needs to be inclusive (Berg et al., 2011; Kraay, 2004; cited in: Anand, Mishra & Peiris, 2013). As the report of Commission on Growth and Development (2008) states, inclusiveness is a concept that encompasses equity and equality of opportunity and protection in market. Inclusiveness can be instrumental for the creation of credibility and authority (Boström, 2006). It is inherently related to sustainable growth strategies, as employment transitions are essential ingredients of sustainable growth strategies.

Osmani (2008) features inclusive growth, in which the structure of production and employment that a growth process generates must be of a nature that offers opportunities to all segments of society, in order to benefit from economic expansion. In their words, "widespread expansion of opportunities is the demand of inclusive growth" (p. 381-82). Inclusive growth refers to the broader idea of growth process that ensures widespread expansion of freedoms [social, economic and political] for all segments of society over a period of time.

Lederman (2011) defines inclusive growth as one that focuses on long-term, sustained growth associated with productivity growth and employment opportunities for broad portions of households and firms within countries. Inclusive growth focuses on long term wage and employment outcomes rather than a non-employment source of income (in another sense, subsistence allowances etc.). Lederman concludes that the inclusive growth approach includes a long-term perspective of how economic growth- through productivity growth and employment generation- affects individuals and firms within countries. Ianchovichina and Lundstrom (2009) define the concepts of inclusive growth that consist distinct characters, focusing on both the pace and pattern of growth. It seems that their focus is on productive employment rather than income redistribution.

According to All India Management Association, inclusive growth "promotes economic growth partly by broadening the base for domestic demand and partly by increasing the number of people with a stake in reforms and in a stable government...[it] seeks to broaden the flow of benefits of globalization towards the currently excluded section" (AIMA, 2011, p. 3). They further argue that good governance and accountability should support diffusion of opportunities, so that inclusive growth can be achieved.

Inclusive growth is often used synonymously with pro-poor growth. Under its absolute definition, growth is considered pro-poor until poor people benefit in absolute terms, whereas under relative interpretation, growth is pro-poor if and only if the income of poor people grow faster than those of the population as a whole, i.e., inequality declines (Dollar & Kraay, 2002; IMF, 2011; cited in: Anand, Mishra & Peiris, 2013).

Pro-poor growth, shared growth, or inclusive growth captures the idea that both- quality and quantity matters for growth (HDR, 2005). Fairness and social justice are important aspects for distribution-neutral pro-poor growth (absolute definition). However, distribution matters for the conversion of growth into poverty reduction. In the latter approach, other things being equal, the bigger the share of any increment to growth captured by poor people, the faster the rate of poverty reduction. The progressive growth approach demands removal of structural inequalities that deny poor and marginalized people an opportunity to contribute and to participate in growth (ibid.). Green growth policies are in line with this structural shift.

In essence, inclusive growth accompanies some qualitative attributes— equity, employment transition, social justice, empowerment and participation— and avoidance of market and structural barriers in this respect; and quantitative aspects such as fairness, equality of opportunity, and equitable distribution in economic growth process. For resilient pro-poor growth, Lyakurwa (2009) acknowledges 'economic governance' as a very important aspect which benefits- peace, prosperity, innovation, efficiency, choice and industrial opportunities.

In recent years, inclusive growth has been a theme of international conferences on sustainable development. Paragraph 56 of the Rio +20 resolution adopted by UN's 123rd plenary meeting, clearly states that green economy policy can be a tool for poverty eradication, sustained growth, enhancing social inclusion, improving welfare, creating opportunities for decent works while maintaining health of the ecosystem. It should promote inclusive growth, foster innovation, provide opportunities and empower women and marginalized people.

Then how can we know whether the growth is inclusive? Assessing the dynamics and determinants of inclusive growth is vital since, "the goal of reducing inequality is not to hurt the rich at the expense of the poor" (Anand, Mishra & Peiris, 2013, p. 4). With qualitative judgment, the above qualities can be analysed but quantitatively, there are no sophisticated tools that can incorporate all of those qualitative aspects. Among various methods of assessing inclusiveness dynamics, Ali and Son (2007) propose a method to measure inclusive growth that is drawn from

the idea that social opportunity functions akin to a social welfare function. In this model, the growth to be inclusive should increase the social opportunity function which depends on - (a) average opportunities available to the population, and (ii) how opportunities are shared among the population.

However, the correlation between growth and equality is not unidirectional. For example, in China, high growth has eclipsed the growing inequality. In India, high growth has benefitted everyone, but equity has gone down. In contrast, the increase in inclusiveness in Brazil, Malaysia, Thailand and Mexico has come from both economic growth and as well as improvement in equity, but "growth has not been enough to benefit the entire population as much as in China" (Anand, Mishra & Peiris, 2013, p. 11).

Essential features or inclusiveness indicators that foster inclusiveness, as mentioned by McKinley (2010) are: growth of productive employment, generation of income, formation of essential human capability, social protection, playing field such as access to road, market, electricity, formal financial services, irrigation etc. Therefore, policy intervention should be in line with achieving those objectives, but it is a broad area that we cannot cover in this paper. Our focus will be in trade-led inclusiveness.

For a trade-led inclusive development, the inclusive process starts from inclusive policy making to inclusive gain from trade. If the voice of all stakeholders is not heard or not included in trade policy, inclusive development is hard to attain. CUTS International's report²⁶ on inclusive policy making states that inclusive trade policy making can significantly contribute to the empowering of people and persuade the government to design and implement policies that use trade as a mean to pursue economic equity and social justice (p. iv).

3.4.5 Elements of inclusiveness in international trade

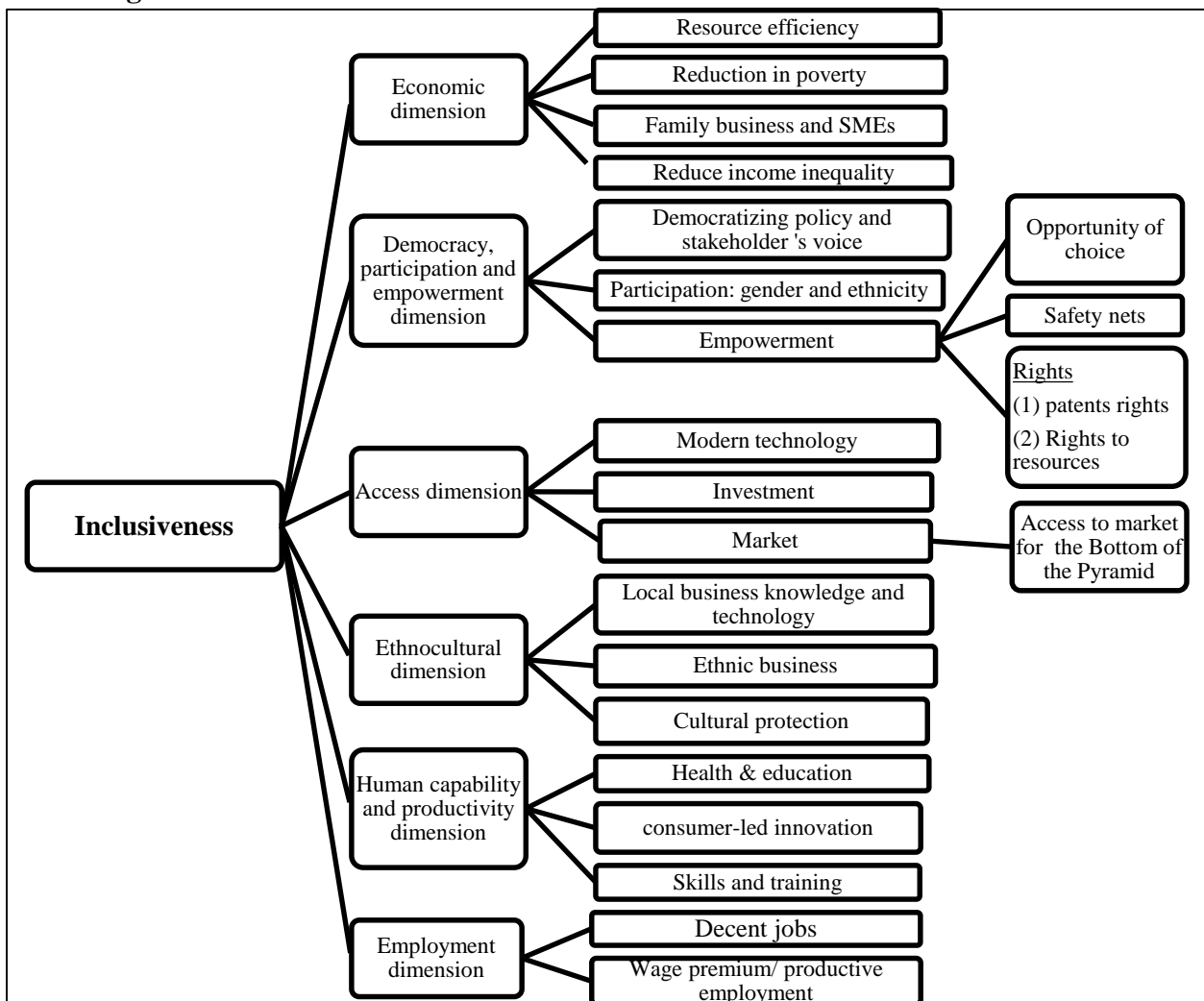
Adapting the concept and elements of inclusive growth, we can derive inclusiveness elements in international trade. Inclusiveness, in trade-led green growth context, means a meaningful people's participation in trade policy-making, production, marketing, transportation,

²⁶ CUTS International, in its full form, is Consumer Unity and Trust Society based in India. This report was in partnership with Malawi Economic Justice Network (MEJN), Malawi; Economic and Social Research Foundation (ESRF), Tanzania; Southern and Eastern African Trade Information and Negotiation Institute (SEATINI), Uganda; Africa Resource Centre, Lusaka, Zambia and; CUTS Africa Resource Centre, Nairobi, Kenya. Detail information is available at <http://www.cuts-international.org/ARC/>

and consumption chain. Inclusiveness, in this study, is used synonymously to social development, social equity and social cohesion. It signifies the situation of productive employment, economic opportunities, exports of the products produced by marginalized people, women benefitted by exports, reduced rural-urban income gap, reduced vulnerability of cultural extinction due to trade, exports of production produced by non-organized sector, etc.

Adapting from human facets of development (Figure 3.1 above) and inclusive growth literature (chapter 3.4.1) we can synthesize the ideas of inclusiveness in international trade sphere and identify its elements as depicted in the diagram (figure 3.2) below —

Figure 3.3: Trade-related Elements of Inclusiveness



Concept: Author's own elaboration

3.4.6 Synopsis: Trade in green growth and elements of inclusiveness and sustainability

Under green trade-led growth concept, trade plays a vital role in a green economy transition. A well-managed trade has the potential to drive the transition to a green economy by fostering sustainable resource use, generating economic and employment opportunities, and by contributing to poverty eradication. Trade can influence technology change and subsequent change in growth trajectory for strong comparative advantage. Biodiversity products, green energy sector and services sector are the most potential trade sectors to foster green growth in less and least developed countries.

Trade and environment influence each other. Trade affects environment in two ways- direct linkage and indirect linkage. Indirectly, trade enters into the environment as the bi-product negative externalities of production since close to half of world production is traded. In one hand, scale effects lead towards the deteriorating of the quality of the environment. In the other, trade helps accelerate the adoption of clean techniques of production. More open trade regime increases the adoption of clean technologies (de Melo, 2012).

Direct trade-environment linkages can be established in three ways: firstly, trade requires international transport which itself pollutes the environment; secondly, trade alters the profitability of harvesting natural resources; and thirdly, trade affects a country's ecology as invasive species and the spreading of disease are directly related to international trade. Similarly, environment affects trade in virtue of its nature of public good and externalities. Externalities are reallocated by trade among countries whereas environment regulation in many cases, seriously affect the net gains from trade.

To make trade sustainable, a human face is equally important. Sustainable trade is one element of a larger exchange among people, communities and nations that involves goods and services, cultures and information as well as the natural environment. Fair and sustainable trade depends on a proper system of governance with global consensus building, effective participation of citizens, interest groups and other stakeholders as well as greening global value chain (GVC).

Trade-related elements of sustainability can be broadly categorized into two groups- (i) trade growth sustainability and, (ii) environmental sustainability. Market diversification, moving upper added-value chain, export-base diversification, and increasing domestic added-value of

exports are main elements of the former one whereas GHG and waste reduction, respect the right of local communities, investment in equity enhancing human capital, effective participation of all stakeholders, environmental governance with global consensus, use of clean or green energy and technology, resource efficiency reduction in transportation cost, biodiversity protection, green/organic trade, greening and shortening global value chains (GVCs), and coping with trans-border pollution problems are related to environmental sustainability.

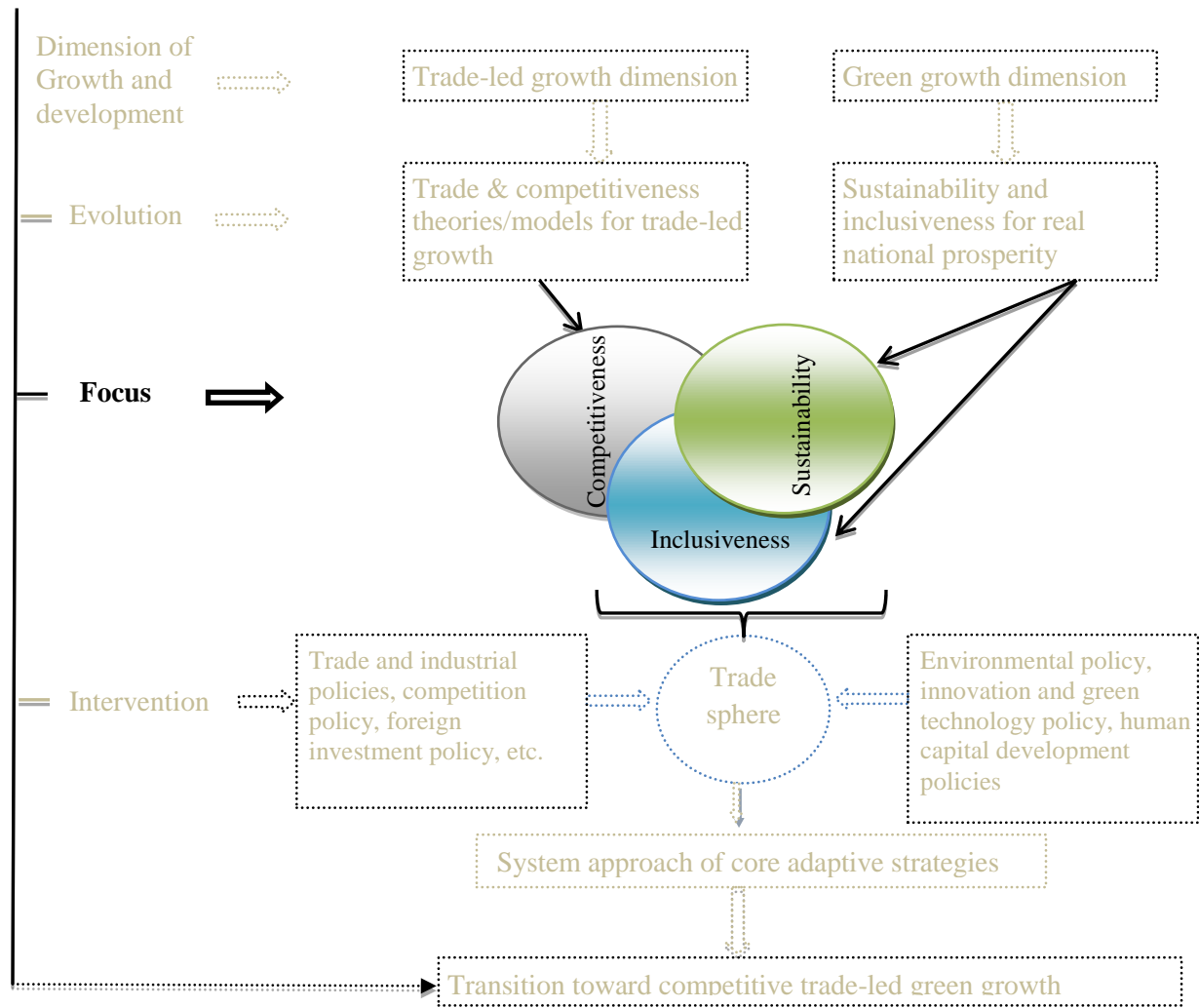
Similarly, adapting from the concept of– inclusive growth, foci given by HDRs, Beyond GDP initiatives and new growth strategies– elements of trade-inclusiveness can be categorized in the six broader groups–

- (i) Economic dimension: (a) resource efficiency, (b) poverty reduction, (c) family business and SMEs, (d) reduced income inequality.
- (ii) Democracy, participation and empowerment dimension: (a) democratizing policies and ensuring stakeholder's voice, (b) participation: gender and equity (iii) empowerment (safety nets, opportunities of choice and rights (patent rights and right to resources)).
- (iii) Access dimension: (a) modern technology (b) investment fund and, (iii) markets and (access to market at the bottom of the pyramid).
- (iv) Ethno-cultural dimension: (a) local business, knowledge and technology, (b) ethnic business and, (c) cultural protection.
- (v) Human capability and productivity dimension: (a) health and education, (b) consumer-led innovation and, (c) skills and training.
- (vi) Employment dimension: (a) wage premium and (b) decent jobs.

In this whole chapter, we discussed a qualitative strand of growth - initiatives for the wider concept of growth and development i.e. environmental sustainability and inclusiveness initiatives in national wealth accounting. Additionally, the green growth concept was introduced as the strategy for sustainable development or the qualitative strand of growth and development. Among the various components of green growth identity, we tried to entrench into greening trade for trade-led green growth. Finally, we synthesized the inclusiveness and sustainability literatures and found the elements of sustainability and inclusiveness that make trade-led inclusive green growth transition possible.

However, can we change these competing fundamentals- competitiveness, sustainability and inclusiveness- into complementary so that we can materialize trade-led green economy? As Allen (2012) says, "The need to ensure that the inclusive green economy address economic, environmental and social dimensions in an integrated way with appropriate flexibility in application can be ambiguous since it has to encompass all three dimensions of sustainable development in a balanced manner that many countries are doing to implement" (p. 22). In Chapter Four, by yoking both growth strands, we will discuss the interaction among competitiveness (from Chapter Two), inclusiveness and sustainability (from Chapter Three) and show how some strategies can create synergy for competitive trade-led green growth transition.

CHAPTER FOUR



When Competitiveness, Sustainability and Inclusiveness Shake Hands

"Debates about international trade are a study in confusion and misconceptions, in which the "experts" you see, hear, and read are usually misinformed about the most basic facts and concepts—and in which even those who are fairly sound on the economics do not understand the nature of the debate"- Paul R. Krugman (1996)

4.1 Introduction

In the previous two chapters, we came up with determinants of competitiveness and elements of sustainability and inclusiveness for trade-led growth. This chapter proposes a Venn diagram approach of adaptive strategies to find common determinants/elements of three fundamentals having alike attributes. We try to establish that those attributes inherent to determinants of three fundamentals, create synergies to lead towards green growth. In this and subsequent chapters, metaphorically, we use a concept of making and rolling a 'wheel'. As a wheel is constructed, lubricated and made drivable, we use this metaphor for the competitive, sustainable and inclusive trade-led growth driving to the green growth transition.

However, synergy effects induced by yoking elements of different *fundamentals* have been contested. With an extensive review of relevant literature and theories, we try to establish where and how synergies are dominant to trade-offs. We also define and/or explain three concepts— sustainable competitiveness, inclusive sustainability and inclusive competitiveness— that resemble synergies; and extract *adaptive strategies* and an *adaptive strategy mix* or *set of core adaptive strategies*.

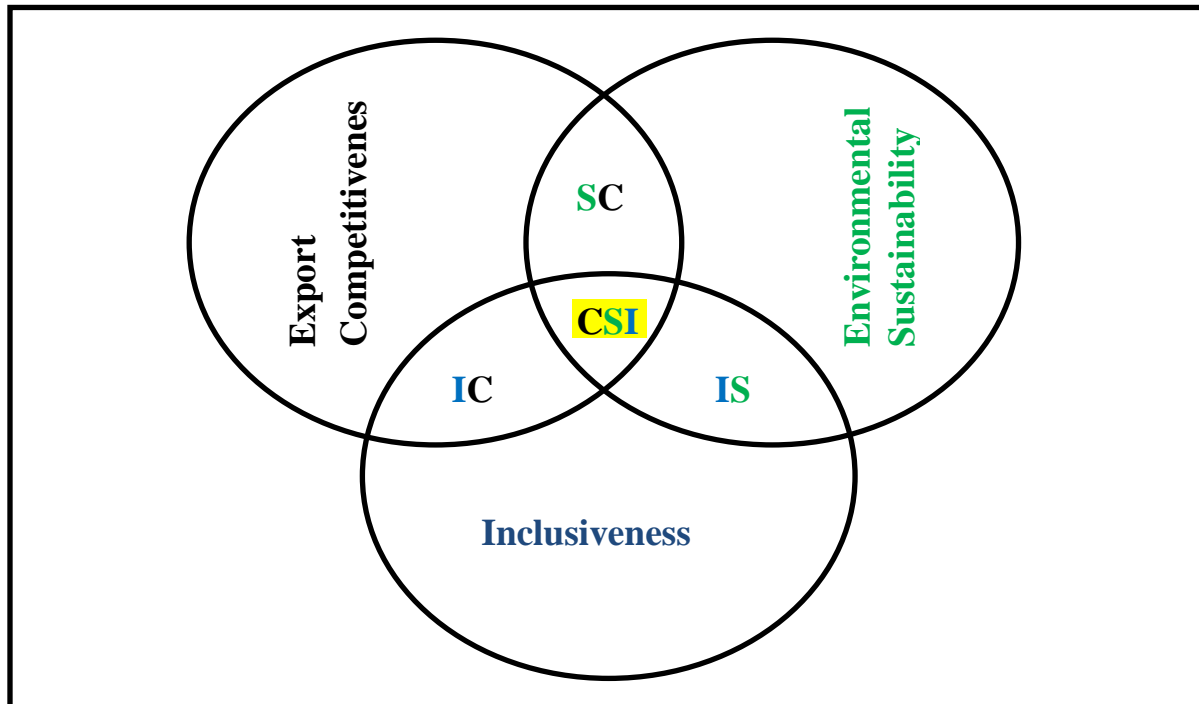
Each fundamental is the collective synergies of their determinants/elements. The logic behind yoking these three fundamentals is to find the common trade related attributes in-between and among fundamentals. In the context of this study, fundamentals are the essential factors for each strand of growth; for example, export competitiveness is the fundamental of trade-led growth and, inclusiveness and sustainability are fundamentals of sustainable/green growth. Each fundamental's dominance depends on the strength of its *determinants/elements*; for example; level of productivity, policy support, market access etc. (Chapter Two, Figure 2.6) determine the level of competitiveness. Those determinants/elements having the attributes that fit into two or more fundamentals are found to be accommodated as strategic adaptive solutions. These are the strategies that produce synergy effect of common attributes of elements/ determinants of each

fundamental. For example, energy cost is one of the determinants of competitiveness whereas 'green energy' is an adaptive strategy since it has the attributes of both- competitiveness and sustainability. We focus on such overlapping attributes because they have higher policy response to achieve an intended objective. As philosopher John Rawls has argued, "Policies that represent an overlapping consensus of interest groups are most likely to be fair and effective" (in: Costanza et al., 1995, p. 43).

4.2 Constructing the Wheel: A Venn Diagram Approach of Adaptive Strategies

Basically, *adaptive strategies* are innovative measures (that fit in the process or product, position or paradigm of innovation). How to roll the 'wheel' is explained in Chapter Six with a *Green Box System Framework of Adaptive Strategy Mix* before analysing various policy instruments as the catalysts (of those strategies) in Chapter Five. To present it mathematically, we present these three fundamentals (competitiveness, sustainability and inclusiveness) in the Venn diagram where CASs are core adaptive strategies and ASs are adaptive strategies

Figure 4.1: Fundamentals for Adaptive Strategies- A Venn Diagram Approach



Source: Author

Terms presented in the above diagram are defined as follows:

Adaptive strategies are exemplified in the previous paragraph. The abbreviations used are defined as—

CSI = Adaptive strategy mix which have the attributes of all the fundamentals-competitiveness, sustainability and inclusiveness (Competitive-Sustainable-Inclusive).

IC= Inclusive competitiveness solutions,

SC= Sustainable competitiveness solutions, and

IS= Inclusive sustainability solutions.

In mathematical term,

Adaptive Strategy Mix or Core Adaptive Strategies (CASs) $\rightarrow C \cap S \cap I$, and

Adaptive Strategies (ASs) $\rightarrow IC=I \cap C, CS=C \cap S, IS=I \cap S$

These solutions, upon being catalysed by policy instruments, are expected eventually, to lead an economy toward a competitive trade-led green growth transition. Upon finding these solutions, a *Green Box System Framework of Adaptive Strategy Mix* is developed to explain how these strategies can be catalysed. Adaptive strategies are not the panacea but supporting mechanism for competitive green growth. A broad range of strategies is needed to apply these solutions in practice. Therefore, it is a complex process and needs dynamic and continuous learning.

The determinants/elements of each fundamental are explained in previous chapters. Reiterating the determinants and elements of competitiveness, environmental sustainability and inclusiveness, we have —

- (a) **Determinants of competitiveness:** From literature review, it is revealed that not a particular theory or competitiveness model includes all the determinants of export competitiveness since it begins with the decision of producing particular product intended to trade. Extracting ideas from various theories and competitiveness models as reviewed in Chapter Two, an eclectic framework has been presented (Figure 2.6) that synthesizes various export competitiveness determinants of a particular product or product category in various levels (rather than competitiveness of a country).
- (b) **Trade-related elements of sustainability:** Concept of sustainability and elements of sustainability in trade has been presented in Chapter 3.4.2 (Figure 3.2).
- (c) **Trade-related elements of inclusiveness:** Inclusiveness, in trade-led green growth context, means the access of trade-stakeholders to opportunities, freedom and choice. A

meaningful participation of people in trade policy-making, production, distribution, transportation, and consumption chain is the essential element of inclusive trade-led growth. Inclusiveness, in this study, is used synonymously to human development, social equity and social cohesion. In Chapter 3.4.5 and Figure 3.3, trade related elements for inclusiveness in green growth are synthesized.

For the possible harmonization of determinants of competitiveness and elements of sustainability and inclusiveness, we can classify them in accordance with various facets of trade chains as presented in the table 4.1 below-

Table 4.1: Interrelated Determinants and Elements- Putting Together

Facets	Determinants of competitiveness	Trade-related elements of sustainability	Trade-related elements of inclusiveness
Resource efficiency and productivity	Resource efficiency	Resource efficiency	Resource efficiency
	Energy cost	Clean energy	Re-skilling jobs in alternative energy
	Capital productivity		
		Moving to upper added value chains	
Human face		Local community rights	
	Social capital stock	Effective participation of stakeholders	Democratizing policy and stakeholder's voice
	Human productivity	Investment in human capital	Investment in human capabilities: health, education, skill and training
			Wage premium and decent jobs, cultural protection, social safety nets, access to infrastructures
Entrepreneurship face			Access to investment
	Organizational capacity, industrial culture		
En-route facilitation and markets	Market demand and access to market		Access to market for BoP people
	En-route facilitating backbones and infrastructures, trade treaties, FTAs, DTATs, openness etc.		
		Market and export base diversification, first	

		mover's advantage	
Technology and innovation face	Product innovation	Eco-innovation	Consumer-led innovation/
	Advance technology	Green technology	Access to modern technology
	Product sophistication		Local knowledge and technology
		Dematerialization	
Environment face		Greening and shortening value chain	Fair trade/ inclusive trade
	Natural resources and other factors availability	Reducing GHG, control of pollution and waste	Responsive waste management
		Transportation cost reduction	
		Biodiversity protection	
Others	Financial health, network of relatedness, institutions, distance clusters and infrastructures, Policies and incentives, exchange rates, MNCs, predictability and security		
		Governance with global consensus	

Source: Regrouped from Figure 2.6, 3.2 and 3.3

Note: Determinants/elements highlighted with "Kellygreen" colour signify likely strategies to development core strategy mix (CSI); "dark blue": related to IC and, "fern green": related to SC.

How to harmonize all three fundamentals of development in trade-led growth is the main intuition of this study, because many determinants/elements of each fundamental seem more contesting than complementary. Many theoretical debates and much empirical evidence reveal that the objective of harmonizing these fundamentals is quite difficult in a business-as-usual model. In subsequent sections, we derive and propose some strategic adaptive solutions by combining some determinants/ elements from different fundamentals. We select such elements and determinants that have inherent qualities of 'unity among heterogeneity' and will work as complementary when catalysed by some policy measures. The theoretical discourses and some sets of policy intervention to harmonize the fundamentals are the contents of this chapter.

From Chapter Two and Three, it is concluded that sustainability, competitiveness and inclusiveness are becoming more inseparable for a balanced growth and development of an economy. We also mentioned that a trade-led growth model is not sufficient to overcome the

contemporary problems like widening income inequality, resource inefficiency, gender and ethnic issues, problems generated by climate change, biodiversity loss, pollution-borne problems, and intermittent financial crises and so on. Although there is no panacea for these problems, we argue that green growth policies can be complementary to economic growth. Unsustainable use of resources, neglect of inclusive trade and win-loss concept of competitiveness should be abandoned if we want to create safe, just and a harmonious society. For this very purpose, green growth policies are emphasized.

Despite various initiatives being launched in the direction of green growth paradigm, most explained green policies are limited to production and consumption. The trade, despite its rapidly growing contribution to national prosperity accounting, is being paid less attention and has been less discussed. Whatever has been discussed, its focus is on a green tax, emission trading and environmental standards. Although Europe 2020 has addressed most of such issues in their trade and industrial policy regime but there are no clear strategies for green growth regime. Moreover, there is no literature on trade-led growth that incorporates all three fundamentals of green growth. Following sections try to address this issue.

4.3 Reducing the Friction of the Wheel: Trade-offs to Synergies

4.3.1 Background

Putting together those 'fundamentals' of a trade-led growth strand and a green growth strand is a complex issue. Often there are policy debates among environmental scientists, trade economists and sociologists. The concern of trade economists is that greening economy is possible at the cost of competitiveness of trading firms/industries. Hence, they are reluctant to any cost addition in the production and trading process. Environmentalists are more serious on GHG (greenhouse gas) emission, loss of biodiversity and ecosystems and, climate change caused by the activities of trading firms. In this regard, this discourse limits its scope to the overlapping bubbles of three fundamentals: sustainable competitiveness, inclusive competitiveness and inclusive sustainability discourses.

Many determinants of three fundamentals are interrelated. The World Economic Forum, in its global competitiveness report 2012-2013 accepts that sustainability has three pillars- social sustainability, economic viability/sustainability and environmental sustainability. Among those, social sustainability includes intra-generational equity and inter-generational equity in the form

of peace, security and social justice. Intra-generational equity demands equal access to social resources and capital within the current generation whereas inter-generational equity means the equal or more access to social resources and capital for future generation as the current generation (WEF, 2012). Next section deals with the relations between the elements of competitiveness and environmental sustainability in terms of sustainable competitiveness debate.

4.3.2 Sustainable competitiveness versus sustainability- competitiveness trade off

Sustainable competitiveness is the capacity to generate growth not lowering the net-worth of natural and human capital. In this regard, the Global Competitiveness Report 2012-2013 states- "The central idea of sustainable competitiveness reflects the search for a development model that would balance economic prosperity, environmental stewardship, and social sustainability" (WEF, 2012, p. 51).

But competitiveness concerns are interpreted differently, as interests are different. Industrialists argue that relatively (than that of other countries) tough environmental policies negatively affect their ability to compete. Contrastingly, environmentalists worry that such competitiveness concerns of domestic firms in highly polluting sectors will lead to relaxation of environment protection. In presence of environmental regulation, government can distort trade policies to protect domestic firms (Brenton, Scott, & Sinclair, 1997).

Then, is there a real trade-off between environment and competitiveness? Can we yoke competitiveness with sustainability? To harmonize these two fundamentals, the formulation and management of environment and resource policies should be constantly balanced between cost effectiveness, international competitiveness of individual industries and regional development. But it is not straightforward because at the micro level, enterprise managers oppose stricter environmental and resource policies on the basis of potential cost increase. At the national level, developing countries also fear that their infant industries producing environmental goods will be less competitive in the absence of basic tariffs to those established companies in developed countries (ibid.). Environmental economists oppose this argument.

The sustainability- competitiveness debate began in the early 1970s following the publication of D.H. Meadow's book 'Limits to Growth'. Though the debate still remains open, the partial conclusion was that "economic development could be sustained on an unlimited basis provided that it was adapted to take into account that, at the end of the day, it depends on the

environment and that cleaner ways of consumption and production would be adopted (Carrillo-Hermosilla, del Rio González & Könnölä, 2009, p.1). This kind of debate has two streams—pessimistic stream and optimistic stream.

Pessimists- there is trade-off between environmental sustainability and competitiveness: The pessimistic stream believes in the pollution haven hypothesis (PHH) and/or compensatory 'beggar thyself' hypothesis. Beggar thyself²⁷ policies are such policies whose economic costs are mainly borne at home, though they might affect others as well (Rodrik, 2013). Under free trade, according to PHH, "multinational firms will relocate the production of their pollution-intensive goods to developing countries, taking advantage of the low environment monitoring in these countries. Over time, developing countries will develop a comparative advantage in pollution-intensive industries and become "havens" for the world's polluting industries" (Temurshoev, 2006, p. 2). In this situation, developed countries benefit from improved environmental quality, whereas the differences in the stringency of environmental regulation between the North and the South [less developed and developed countries] will provide the latter with a comparative advantage in pollution intensive production (Cole, 2004).

Similarly, maintaining the quality of environmental standards arises in the least and less developed countries' manufacturing sector is another issue. Being that the production plants and its process is less sophisticated, they are less competitive themselves and, the cost of quality maintenance and environment standard makes them less competitive. In such a situation, the governments of those countries may opt to attain a competitive advantage by being liberal with environmental standards that create a 'beggar-thyself' effect of globalization. To offset this effect, entrepreneurs can prioritize and afford more for a better environmental quality standard when their income rises.

Policies supportive of competitive advantage also seem dichotomous with sustainable competitiveness in less and least developed countries. The World Bank (2002) report restates that developing countries harness their comparative advantage in labour-intensive industries whereas developed countries have their comparative advantage in pollution-intensive industries despite their stricter environmental standards (cited in Sorsa 1994; Mani and Wheeler 1998;

²⁷ In contrary "beggar-thy-neighbour" policies create benefits by imposing costs on others and hence, need to be regulated at the international level (Rodrik, 2013, p. 2)

Albrecht 1998). The consequences are that developing countries import more pollution-intensive products, but export less-pollution intensive items. If this is the case and PHH also holds, less developed countries are doubly-disadvantaged by their domestic pollution-intensive firms and foreign firms that are shifted from developed countries as explained by the PHH assumption.

In this way, PHH is based on the premise that tighter environmental regulations drive up costs and shift the supply curve inward with perfectly competitive production industries. In case of imperfect competition, such regulations shift domestic firms at a strategic disadvantage than that of their foreign rivals. Producers seeking more cost-effective locations will decide to move.

There is also the possibility of labour consequences by 'carbon leakage effect'. As the purpose of environmental regulation is to correct for negative externalities and consequently, the market failure, burdening companies have to bear additional costs and they become less competitive (Wagner & Schaltegger, 2003). In such a situation, business managers try to resist the environmental regulations due to the fear of losing export competitiveness. The SAWTEE (2008) report on 'trade and climate change' elaborates their fear of the consequences of environmental regulations and argues that the loss of global competitiveness due to such regulations will put pressure to shift production where the emission control limit is not mandatory- causing 'carbon leakage effect'. This production shift will also create labour consequences, and would also frustrate the objective of the climate regime since overall global emission level remains constant or further increased.

If the pollution is generated during consumption (import trade context), the cost increased due the stringent environmental policy does not cause dirty production to relocate because such regulations are applicable to all- domestic or imported- consumables. This means that tighter environmental standards raise the cost of both kinds of consumer goods. In this context, the competitiveness of domestic firms depends on how the cost of complying with tighter regulations varies across producers (ibid.).

In this way, neoclassical environmental economists argue that there is a trade-off between environmental performance and competitiveness. The purpose of environmental regulation is to maximize social welfare, making polluting firms responsible for the cost of negative externalities generated by their produce, and hence, correcting market failure. The result is that environmental regulations may be adverse for business competitiveness due to added compliance cost.

But this argument is not without its weaknesses since production costs are affected by various factors such as labour costs, institutions, proximity to customers, other government regulations etc., and environmental policy is only one among them. Copeland (2012) argues that the pollution haven hypothesis (PHH) is being supported by a little or no evidence that highly pollution intensive industries shift their production to countries having weaker environment policies. He finds no evidence that environmental policy cause an exodus of firms to 'pollution havens'. More stringent environmental regulations may cause firms to relocate to the area where pollution abatement costs represent a smaller share of production costs and are more attractive with other factors such as the availability of capital, labour abundance, institutions and other agglomeration effects.

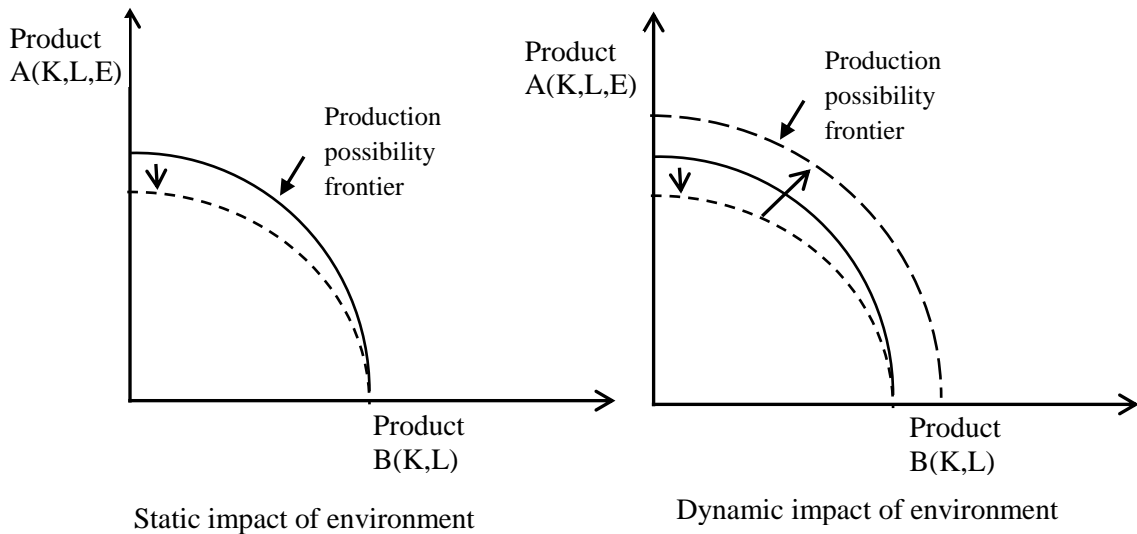
Similarly, referring studies by several economists, Harris and Roach (2013) restate that there is relatively little evidence to support the hypothesis that environmental regulations have had a large adverse effect on cost competitiveness and even a few evidences support pollution haven hypothesis; yet they think that the competitiveness pressure exerts a 'chilling' effect on countries considering strict environmental law.

Analysing net exports of pollution intensive goods relative to domestic consumption, for four developed- less developed trade pairs, Cole (2004) found little evidence of widespread pollution havens. Even if pollution havens have formed, they are likely to have been temporary and limited to certain regions although such havens are not completely ruled out (p. 79). It means weakening environmental policies have a little effect on the comparative advantage of a nation. These evidences draw our attention towards the optimistic strand.

Optimistic strand- There is no trade-off: Scholars of this stream believe that sticking to environmental standards does not deteriorate competitiveness, but rather that it enhances it for an extended period of time. According to them, the trade-off concept is based on the static relationship between ecology and economy that does not exist in the rapidly changing world. This strand is based on well-known Porter's Hypothesis. Porter and van der Linde (2008) criticize the trade off as an incorrect notion because in this static view of environmental regulation, only regulations themselves are taken as dynamic, not the nature of competition. But in the real world of dynamic competition, all (competitors, customers and regulators) constantly make efforts for finding innovative solutions to the problems in technology, product, process and customer needs. If the environmental standards are properly designed, innovation can be

triggered. Such innovation helps lower the total cost of production or increases the value of the product. In essence, environmental standards-led innovation enhances the resource productivity which makes firms more competitive. Figure 4.2 below depicts how static and dynamic impacts take place-

Figure 4.2: Static and Dynamic Impact of Environment on Production



Source: Swanson & Ziegelhöfer (2011), p. 16

As depicted in the given diagram, the society has given an endowment of physical capital (K), labour (L) and environmental resources (E) that are used to produce its entire national product in a closed economy. Good 'A' uses environmental resources, but good 'B' does not. In the absence of environmental regulation, firms use air and water without constraint, which maintain the production possibility frontier (PPF) at the highest possible level of goods production. Once the regulation is introduced, production of good 'A' goes down, good 'B' remains the same. But the dynamic impact of pricing environmental resources forces industry to use these resources more efficiently in their production systems that pushes the PPF outward. The aggregate impact depends on the offset of positive and negative impacts. According to Mohr (2002), dynamic effect can outweigh the static effects due to the external economies of scale in production. In his model, technological progress can offset the cost of production. However,

Jevons' paradox²⁸ warns that more resource efficient technology may result in increased pollution since it reduces per unit cost of resources and subsequently reduced per unit output and increased profit. It makes firms prone to use more resources (In: Swanson & Ziegelhöfer, 2011).

Revisionists approach this relationship with a more dynamic perspective and argue that a better environmental performance leads toward lower production cost and higher competitiveness through efficiency, productivity and new market opportunity. Technological change and innovation itself provides 'first mover advantages'. Appropriate environmental policies may help firms discover their inefficiencies and identify sources of comparative advantage, promoting innovation and sources of comparative advantages, providing innovative and creative thinking (Jaffe, Peterson, Portney, & Stavins, 1995; Carrillo-Hermosilla, del Rio González & Könnölä, 2009). Advocates of a green economy also argue that green growth can be competitive, but their sense of competitiveness is broader than the traditional version of 'winner and loser'.

Then why do firms like to stick with dirty technologies? Porter and van der Linde (1995) argue that in the world with incomplete information and organizational inertia, firms cannot see the numerous potential opportunities for technological innovation. Taking waste and pollution as inefficiencies and the need for government regulation to induce innovations to reduce those inefficiencies, they provide three practical recommendations for appropriate policy design: policies should not impose a particular standard but leave the industry the leeway to take an approach to innovate; incentives should be set such that continues improvement pays off; and policy should ensure as much possible certainty regarding the regulatory process (Porter and van der Linde, 1995; Swanson & Ziegelhöfer, 2011).

Reviewing theoretical and empirical literature in the Porter Hypothesis (PH), Ambec, Cohen, Elgie and Lanoie (2011) found that theoretical arguments that could justify the PH are becoming more solid recently than in the decade of 1990s. On the empirical dimension, the weak version of the hypothesis that 'stricter regulation lead to more innovation' is fairly established, whereas the strong version that 'stricter regulation enhances business performance' is mixed being better supported by more recent results.

²⁸ Javens' paradox or the 'rebound effect' is the proposition that as technology progresses, the increase in efficiency with which a resource is used tends to increase (rather than decrease) the rate of consumption of that resource (Alcott, 2005).

Then, how can producers in less developed countries survive? Producers in those countries want to avoid environmental standards and regulations arguing that such standards make their product less competitive, already having suffered with poor factor productivity and other logistic barriers. But Porter and van der Linde claim that developing countries that stick with resource-wasting methods and forgo environmental standards because they are 'too expensive' will remain uncompetitive, relegating themselves to poverty (p. 370).

Applicability of this hypothesis may be possible with green practices. As Wallis (2010) suggests, green business or green practices essentially materialize in three forms: (a) energy-saving and other cost-cutting measures which are advantageous to them in any case; (b) compliance with whatever regulations may be enforced by the government in which they normally have a large voice; and (c) public relations, most importantly (p. 34). To make their product more sustainable and competitive, two basic instruments to focus on include- technology and market. In the technology sphere, "maximizing labour productivity that is continually replenished by more miraculous applications and an unending proliferation of innovation should be the corporate goals that implicitly foster market competitions" (ibid, p. 35). In the market sphere, contributing for customer awareness (implicitly showing corporate social responsibility) for the green product, addressing the demand of quality green products, reducing packaging and transporting costs, employing alternative trade strategies etc. may be significantly important. Government policies directly or indirectly should support some such strategies because greening economy is a dynamic process with essential qualities of public goods. With these arguments, the government's role may be proactive to foster sustainable competitiveness. However, government incentives should be carefully selected to avoid overt biases towards certain enterprises.

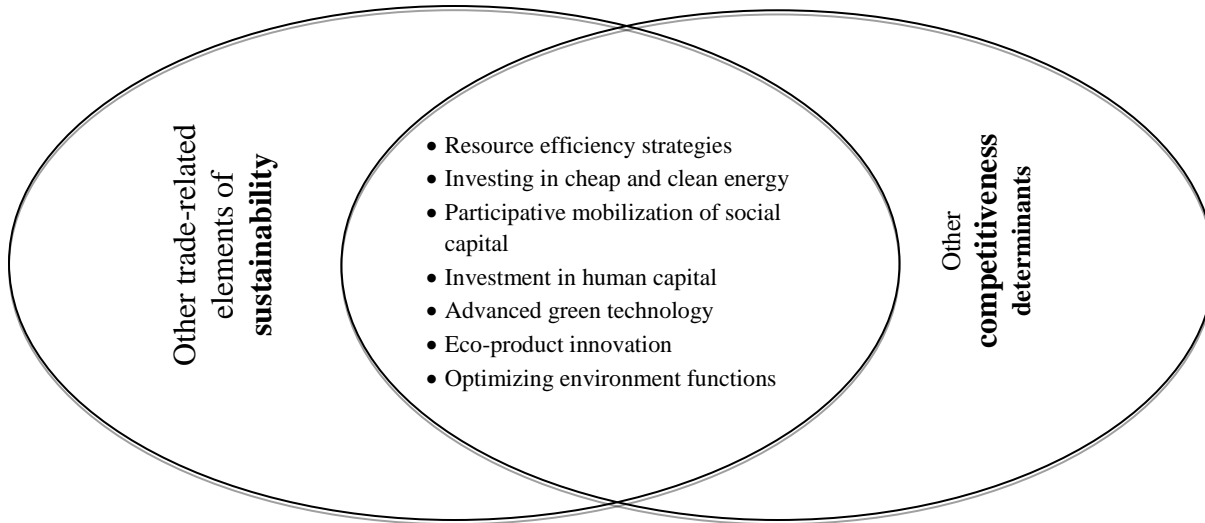
Copeland (2012) reiterates the conclusion of various research works on trade competitiveness versus environmental policy trade-offs, and states that there is no trade-off between international competitiveness and environmental policy in many sectors. Even if there is any, it is a short run trade off. In the case of production-generated pollution (not affecting income generating natural capital significantly), they present evidence from European data that constricted environmental policies do have a negative but a small effect on indicators of international competitiveness. Tightening consumption-led pollution control standards does not reduce international competitiveness. In some cases, it rather promotes local firms at the expense of import. Basically, high emission standards may enhance long run exports benefit because such

standards encourage local industry developing expertise to make domestic exports eligible in international markets.

Concluding remarks can be found in the arguments of Bilbao-Osorio et al. (2012). They argue that sustainability and competitiveness are interlinked in the following ways-

- (i) A high-quality and well-managed natural environment is related to robust competitiveness through multiple channels such as efficient use of resources, increased efficiency and human capital productivity;
- (ii) Environmental degradation directly reduces the productivity of some sectors like agriculture. It affects the quality of living conditions and climate change related productivity losses and hazards (infrastructure damage and so on).

In a nutshell, the pessimistic strand is based on PHH, whereas the optimistic strand is supported by 'Porter's Hypothesis'. The latter strand seems a stronger argument based upon the most recent literature. Despite some arguments in favour of the trade-offs between competitiveness and sustainability measures, we may conclude that environmental standards if supported by institutional and structural adjustments, can promote competitiveness due to the induced technology-based higher efficiency, innovation-led resource productivity and skill-based human productivity, new market opportunities and first mover advantage. Those very characteristics in the international trade sphere of an economy can create a competitive environment that we define as sustainable competitiveness. Governments should implement some strategies so that these characteristics prevail in their trade paradigms (explained in Chapter Six). The trade-related elements of sustainability and determinants of trade competitiveness (as in Table 4.1) that have common attributes may be adapted as the strategies in the overlapping part of two fundamentals (Figure 4.3). Supported by policy incentives and appropriate strategies, these determinants not only nullify trade-offs, but can be translated into adaptive strategies for sustainable competitiveness.

Figure 4.3: Strategies for Sustainable Competitiveness

Source: Author

Hence, Adaptive Strategies for sustainable competitiveness (SC) = $C \cap S$

= { Resource efficiency, energy cost, social capital stock, human productivity, product innovation, natural resources and other factors availability... } \cap { resource efficiency, clean energy, effective participation of stakeholders, investment in human capital, eco-innovation, control of pollution and waste... }

= { resource efficiency strategies, investing in cheap and clean energy, participative mobilization of social capital, investment in human capital, eco-innovation, ... }.

Later, in our system approach, the way in which incentive mechanisms can be used to enforce these strategies for sustainable competitiveness that promotes trade-led growth in green economy transition will be explored.

4.3.3 Inclusive sustainability versus inclusiveness - environment trade off

Inclusive sustainability is a new term that is used but poorly defined by a few business firms. As the GIEOM's web page²⁹ indicates, inclusive sustainability is based on the philosophy of 'including ourselves in the process of change and conservation first'. It means changing our lifestyle to be in harmony with the earth's ecosystem. It is the quality of life of the workforce and society being adherent to sustainability initiatives for a better future for existing and future generations.

²⁹ For further information, refer to http://www.gieom.com/inclusive_sustainability.html

Inclusive sustainability in business/trade denotes the compliance with environmental laws and regulations at both: locally and country of business, use of innovative techniques and methods so that doing more with less is possible, assisting for higher education and skill development, making employees environment-sensitive, incentivizing the use of public transport, using green vehicles, engaging in waste management, recycling and developing green space at work and at home.

However, we define inclusive sustainability as a set of behaviours that develop ownership of mitigation and adaptation efforts with an active participation and empowerment of all stakeholders; provides people's access to green energy, technology, investment and market; fosters local knowledge and culture for their prosperity and environmental protection; engages them in innovation for resource efficiency, waste management and green space creation; ensures better health, education, training and skill development opportunities to make them more productive; provides environmental safety and decent jobs; encourages transport cost saving, adoption of 3Rs (reuse, reduce and recycle) and smart consumption; and enhances corporate social responsibility. In a single sentence, inclusive sustainability is the behavioural capacity to lubricate human-centric growth through participative, empowered and environment-sensitive human resources.

Then, how does poor inclusiveness affect sustainability? Many structural reforms like land reforms, employment guarantee schemes, conditional and unconditional cash transfer for basic goods and services, green revolution (like in India during the 1970s), skill development and empowerment programs, financial inclusion and social protection programs etc. can protect the discriminated and marginalized groups of people. Discrimination on the basis of caste, gender, ethnicity, religion and origin has side-lined inclusive growth and made it unsustainable. That has forced them into highly inefficient use of natural resources for their survival leading to poor sustainability.

Adapting our definition of inclusive sustainability into trade, synergies may be created by: participative trade and industrial policy making and empowerment, utilisation of local knowledge, culture and technology in product specialisation, industrial safety and decent jobs; access to green energy, investment, technology and markets; and the increasing corporate social responsibility. Now, let's rebound to inclusiveness- sustainability discourse with respect to an international trade regime.

First of all, for trade to be inclusive we should help adjust people into the growth economic sector and make them able to adapt to new technologies. Trade offers such opportunities but existing capabilities and policy measures determine the extent and distribution of such benefits (Lederman, 2011). He favours subsidies for private sector innovation, but non-subsidy policy for technology adoption, because the aggregate innovation enhances a firm's ability to introduce a new product providing some sort of externalities from other innovation. Technology adoption, however, does not produce any aggregate spill over as it is fully internalized by individual firms. This argument needs a rigorous impact evaluation that is not the part of this thesis.

Secondly, inclusive sustainability demands skill development, training and awareness programmes to be adapted into a growing sector. Some measures to achieve inclusive sustainability may be: balanced development of all sectors, promotion of small business, tribal profession and SMEs, and access to micro-credits for economic sustainability and so on. To make them environment-sensitive, public awareness for environmental friendliness, employee reward for ideas on resource efficiency techniques, and providing incentives and subsidies for recycling, waste management, industry-cycle and green transport may be some examples of a way out.

How do stringent environmental policies affect inclusiveness? In the present context, inclusiveness means access to international trade in such a way that it does not seize the employment, voices and traditional rights, cultural heritage and, overall quality of life rather fosters them along with skill development, property rights, empowerment, access and innovation. Existing literature presents discourse in terms of skill (human capability aspect), employment (income opportunity aspect), equity, voice, income and overall wellbeing for the transition toward a green economy.

Skill premium and employment: It is argued that there will be a big loss of employment if 'business as usual (BAU)' type firms are forced to halt their production due to the lack of adaptive capacity. The logic behind it is that low-skilled labour cannot adapt itself into the new green production environment. The greening process is a long-term dynamic process in which unskilled labour becomes obsolete. For example, the results of study in the UK about the effect of environmental regulation on employment were that regulations had a slightly negative (though statistically less significant) impact on employment. This means that there was no evidence of a

trade-off between the job and the environment (Cole & Elliott, 2007). However, Hueting (2011a) refutes the argument that consideration of environmental sustainability causes the decrease in employment because–

(i) Environmental functions are scarce goods which require the use of production factors for their restoration, preservation and substitution. For the very purpose, labour is most important. With safeguarding the environment, the production and consumption of the same amount of goods require more labour than without safeguarding measures. Giving Netherland's examples, he reveals that 80 per cent of net domestic product is generated by labour income. If this is the case of a developed country, we can imagine the contribution of labour income in less and least developed labour-abundant countries (ibid).

(ii) With direct shifts to environmentally benign activities, attaining a certain goal requires more labour. The logic behind this argument is that if environmental conservation were to be achieved at the cost of employment, it must be true that clean production and consumption would require less time than the 'dirty' one because labour is the main cost factor. Therefore, the produce would be cheaper (with less jobs/ unit of labours). In 'green' product, the added value mostly is contributed by labour cost. The conclusion is that green production process neither reduces employment nor decreases rather enhance labour income with environmental consideration taken into account (Hueting, 1996).

Summarizing the results of jobs and environmental initiatives in the US, Bezdek, Wendling and DiPerna (2008) found that environmental protection, economic growth and job creation are complementary and compatible, which is contrary to traditional wisdom. They also found that environmental protection has grown rapidly to become a major sales-generating and decent job-creating industry, and the relationship between environmental policies and job/economic growth was positive at the state level.

However, maintaining jobs or relocation of jobs needs a thoughtful relocation of investment. In terms of trade, it is argued that the export of primary products is the base for inclusive development in poor countries. But an export-oriented primary product does not guaranty the inclusive and sustainable nature of exports. With her study on export-oriented aquaculture in developing countries, Rivera-Ferre argues that the promotion of export-oriented production can have detrimental results for the livelihood of local people and the environment if the production is in the hand of big corporation (2009).

In this context, the Report by a Panel of Experts on the Transition to a Green Economy claims that a strategy of relocating investment toward the green economy may lead to a slower growth in the some sectors (as renewable natural resources are replenished), but will result in faster economic growth in the long run. Such investment also results in increased employment in the long run because green investments are generally more employment intensive, and have direct benefits in terms of poverty reduction. Green investment today can help increase economic activities and employment even in the short-run. This is of even greater importance in industrial countries where the unemployment rate is very high (UN-DESA, UNDP, & UNCTAD, 2012).

Equity concern with environmental measures: The next strand of growth sustainability trade-off is whether it ensures equitable growth when sustainability consideration is taken into account. Green growth is recognized to be a sustainable growth that is required for poverty reduction while ensuring internalize environmental costs (Dercon, 2012). However, they argue that green growth could bring negative consequences for the poor particularly due to environmental pricing and regulation as the poor are also consumers. To avoid such consequences specific social protection may be needed. Secondly, they may also suffer as producers if they do not have sufficient access to the wealth and human capital required to substitute energy that is more expensive and other natural resources needed in the production mechanism. The technology oriented and capital-intensive green growth may not benefit the poor, because they possess only semi-skilled or unskilled labour as per production. Additionally, subsidies and/or green domestic investment may crowd-out more pro-poor government spending and other economic assets. In this context, higher technology orientation and capital intensity of green growth may not benefit the poor because they possess only semi-skilled or unskilled labour as the factor of production. However, appropriate technology diffusion strategies in the production sector and targeted social safety nets in the consumption sector may curb this problem.

Voice (participation) and sustainability: Poor people's survival is based on environmental resources. Therefore, centrally imposed (undemocratic) environmental regulations may jeopardize their voice and rights. Only when people take ownership and feel accountable for the use and preservation of natural resources does it become sustainable. As Salkin (2009) claims, local governments that represent the voice of local community are critical to the effective implementation of state climate action plans. People's ownership of locally enforced

environmental laws makes the development and integration of local environmental plans and subsequent implementation of local programs easier. Local governments that are encouraged and supported by a central government with incentive programs can strengthen people's voice and accountability towards the environment.

Overall income and welfare versus environmental sustainability: If correcting the externalities improves welfare and proved desirable, there would be no trade-off between promoting wellbeing and environment, but we should keep in mind that costs and benefits of actions are generally distributed unevenly across countries, individuals, and more significantly- across generations. As de Serres and Murtin (2011) describe, the welfare impact of a massive reduction of GHG emissions would have two opposite impacts— a reduction in GDP per capita relative to business-as-usual scenario in the short run, but an improvement in local air quality and the associated increase in life expectancy (which substantially offsets the welfare losses corresponding to the GDP cost of mitigation policies).

Abstracted from the literature review in previous chapters and Table 4.1 above, the following diagram may depict what strategies can lead toward inclusive sustainability for a green economy transition and ameliorate the debate —

Figure 4.4: Strategies for inclusive sustainability



Source: Author

Adaptive Strategies for Inclusive Sustainability (IS) = I ∩ S

= { Re-skilling jobs in alternative energy, Democratizing policy and ensuring stakeholders voice, investment in human capabilities, consumer-led innovation, fair trade/inclusive trade, responsive waste management...} ∩ {clean energy, effective participation of stakeholders, investment in human capital, greening and shortening GVCs, GHG reduction and pollution control and waste management...}

= { Democratizing policy and effective participation of stakeholders, investment in human capabilities: education, training and re-skilling jobs, greening GVCs and fair trade, consumer-led innovation and easily adaptable technology, participative pollution control and waste management...}

The problem with this discourse is the lack of economic models that properly reflect the physical and ecological basis of economic activity, identification of dominant factors, lack of sufficient data, and estimation of a structural model (Dinda, 2004). Moreover, the latest evidence opposes employment- inclusiveness debate but a political debate, in recent years, is germinated with the idea that certain environmental regulations result in unacceptable job losses (Harris & Roach, 2013). But this argument is not well founded because such regulations may also create jobs in some sectors. For example, environmental restrictions relevant to fossil fuel plants may lead to the expansion of green energy plants where new jobs will be created.

We may conclude that although the sustainability inclusiveness trade-off seems inconclusive in many cases, it is clear that job losses due to the paradigm shift towards a green economy can be substituted with green jobs if governments and companies train their employees to adapt to new production technologies. Additionally, many green exports create additional jobs. A careful relocation of investment into employment intensive green sectors, some targeted social safety nets, facilitating green technology diffusion in the production sector, and democratizing environmental policy can ameliorate the transition.

4.3.4 Inclusive competitiveness versus inclusiveness-competitiveness trade off

The discourse of inclusiveness and competitiveness stems from the argument that only the best talents and highly skilled human force can make their produce competitive. But, every segment of society (irrespective of tribal minorities, gender, ethno-linguistic/cultural groups)

inherits certain creative forces and holds a command over specific knowledge and skills. If such skills are streamlined in an innovating ecosystem, it may strengthen competitiveness.

The concept of inclusive competitiveness is quite new. J.M. Holifield, Vice President of Inclusive Competitiveness at NorTech, claims that he has developed the concept of inclusive competitiveness. In his words, inclusive competitiveness is putting the right people on the playing field to take advantage of economic opportunities to be had. He further elaborates that inclusive competitiveness is the practice of improving performance of diverse populations within innovation ecosystems, emerging industry clusters and other areas critical to overall economic competitiveness. Inclusive competitiveness practices neither alter nor replace, but rather complement and enhance market-leading competitiveness strategies, with a lesser focus on connecting diverse population with opportunities in the 21st century innovation economy (ICIC and Holifield, 2012).

In the interview with ICIC (Initiative for a Competitive Inner City) representative, he reiterates the Packard's Law of inclusive competitiveness which goes-

No city, region, state or nation can sustainably increase economic competitiveness without growing enough of the right people to create and take advantage of that increased economic competitiveness. If your city, region, state or nation's economic competitiveness goals do not focus on inclusion, you simply will not – indeed cannot – grow enough of the right people to sustainably increase economic competitiveness.

However, his concept of inclusive competitiveness is not enough to address the contradiction between elements of inclusiveness and determinants of competitiveness. As such, we define inclusive competitiveness as a state where an excluded segment of society that inherits or is capable of certain skills or creative forces have been brought into the mainstream innovation ecosystem, industry clusters or other areas where they can demonstrate their capacity and contribute to competitiveness. Concerning the inclusive competitiveness debate, employment (inclusiveness)-competitiveness and equity-efficiency trade-offs have been presented here.

Employment- competitiveness trade off: This debate is based on the view that unskilled people cannot foster competitiveness and resulting growth. Chhibber (2011) states, for example, that in the globalization process, as skilled labour are favoured for trade, foreign direct investment and technology upgrading, unskilled workers are marginalized. Such "pick only the skilled approaches", however, leave behind more people in unemployment and cause higher

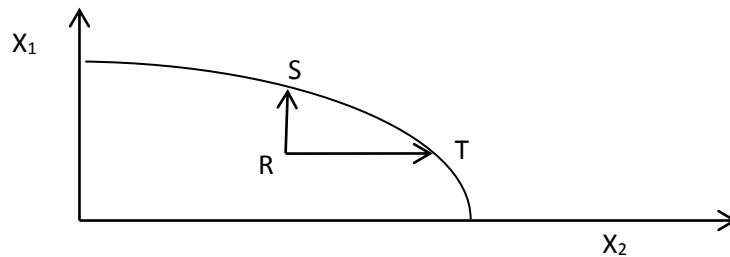
inequality across income groups and sectors, damaging competitiveness. Rising inequality and jobless growth ultimately cause lack of effective demand, which lowers scale-based competitiveness. Moreover, uneven growth across sectors and locations widens income inequality gaps and accentuates the problem further. The lack of job opportunities and skills, income inequality, and unbalanced growth across sectors thus create a vicious cycle that weakens competitiveness and presents a strong argument for greater degrees of inclusiveness.

Equity- efficiency (competitiveness) trade off: This trade-off is linked to the idea that government interventions to raise one of these items may result in decreasing the other. For instance, a social security system that reduces poverty, thus promoting greater equity, may also reduce an individual's incentives to work or to save; ultimately creating inefficiency³⁰ (Grand, 1990). He concludes that the relative complacency between efficiency and equity are misplaced. The interpretation of efficiency is as much of a complex and value-laden business as the interpretation of equity, a fact that further complicates the interpretation of the trade-off between them.

Contrastingly, Okun (1975) who conceived this trade-off concept argues that the bottoms, if granted better equality of opportunity, will get on their own feet, which permits decentralized management and encourages experiment and innovation. 'Most importantly, the prizes in the market-place provide the incentives for work effort and productive contribution (p. 15)'.

Another argument is that "Objective Possibility Frontier" nullifies the equity-efficiency trade-off (Grand, 1990). In the diagram below (Figure 4.5), point R represents a combination of indices that are inside the frontier and hence, this point R is an inefficient combination since there are possibilities to increase the value of one index without reducing the value of other. Here, it is possible to reallocate resources so as to move society to S (keeping X_2 constant and increasing the value of X_1) or point T (keeping X_1 constant and increasing the value of X_2). Any point along S to T represents an efficient combination of objectives (two indices- X_1 or X_2). With this interpretation of efficiency, the notion of trade-off is meaningless.

³⁰ Efficiency is defined as "an allocation of resources is efficient if it is impossible to move toward the attainment of one social objective without moving away from the attainment of other objective (Grand, 1990, p. 559_

Figure 4.5: The Equity-Efficiency Trade-off

Source: Grand (1990), p. 560

Similarly, Blank (2002) explores three policy situations in which equity and efficiency need not trade off against each other: providing public assistance (social safety net etc.) to the segment of society that have no capacity to change their behaviour, transfer giving to the program that combine behavioural mandates which transfer payments, term investment. If this is the case, investment in human capital (skill, training and re-skilling) will definitely nullify the so called trade off. Bejakovic and Meinardus (2001) also support this notion and argue that equity and efficiency may be reconciled by expanding people's capacity by investing in their education, health, employment and professional advancement.

Osberg (1995) also claims that the main theme of recent literature on endogenous growth³¹ (which assumes that greater equality leads to faster growth) is that there is no efficiency equity trade off, basically, due to three reasons: (i) recognition of intergenerational transmission of human capital, (ii) small wage elasticity of labour supply (and hence, smaller deadweight loss of income taxation) and, (iii) dynamic efficiency in output growth over time.

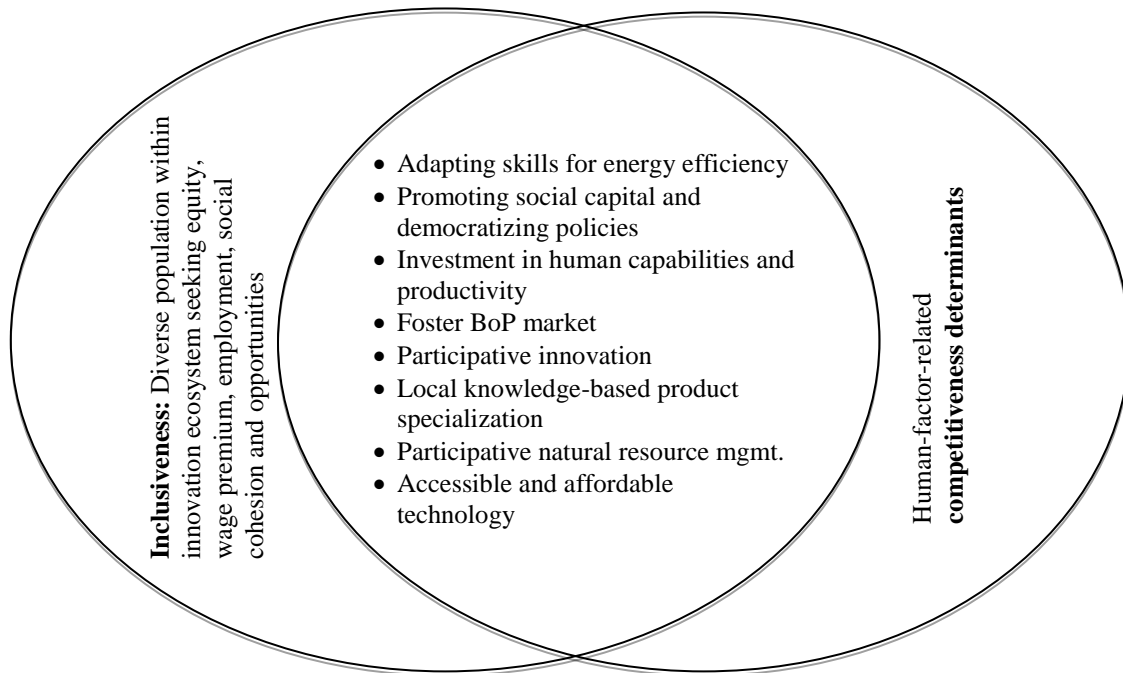
Finally, local knowledge-based products, in many cases, become competitive. A certain group of people has an inherent competitiveness (by traditional knowledge and skill transfer). Even in a low income economy like Nepal, we can observe such capabilities of certain ethno-

³¹ "The key assumption of indigenous growth theory is that accumulation of knowledge generates increasing returns" (Martin, n.d., p. 2-8). Knowledge and technological know-how are not disseminated instantly but government should try to balance between knowledge dissemination and protection of IPR to keep investment in R&D profitable.

linguistic/cultural people. For example, woollen carpet and Thangka paintings³² of Nepal have been major competitive export items for decades. Both goods flourished in the international market, in which creative skills were utilized by people of Tibetan origin. Similarly, Mithila Art which is created by women of Janakpur city and the catchment area in Nepal, have been popular export items in recent years.

Figure 4.6 depicts possible adaptive strategies for inclusive competitiveness that my synergies create when supported by appropriate incentives.

Figure 4.6: Strategies for Inclusive Competitiveness



Source: Author

Adaptive Strategies for Inclusive Competitiveness(IC) = $I \cap C$
 = {Energy cost, social capital stock, human productivity, market demand and access to market, product innovation, advance technology use, product sophistication, availability of natural resources and other factors of production...} \cap { re-skilling job for alternative energy, democratizing policy and stakeholders voice, investment in human capabilities, BoP market, consumer-led innovation, participative waste management ... }

³²

A Tibetan silk painting with embroidery, usually depicting a Buddhist deity, scene, or Mandala of some sort.

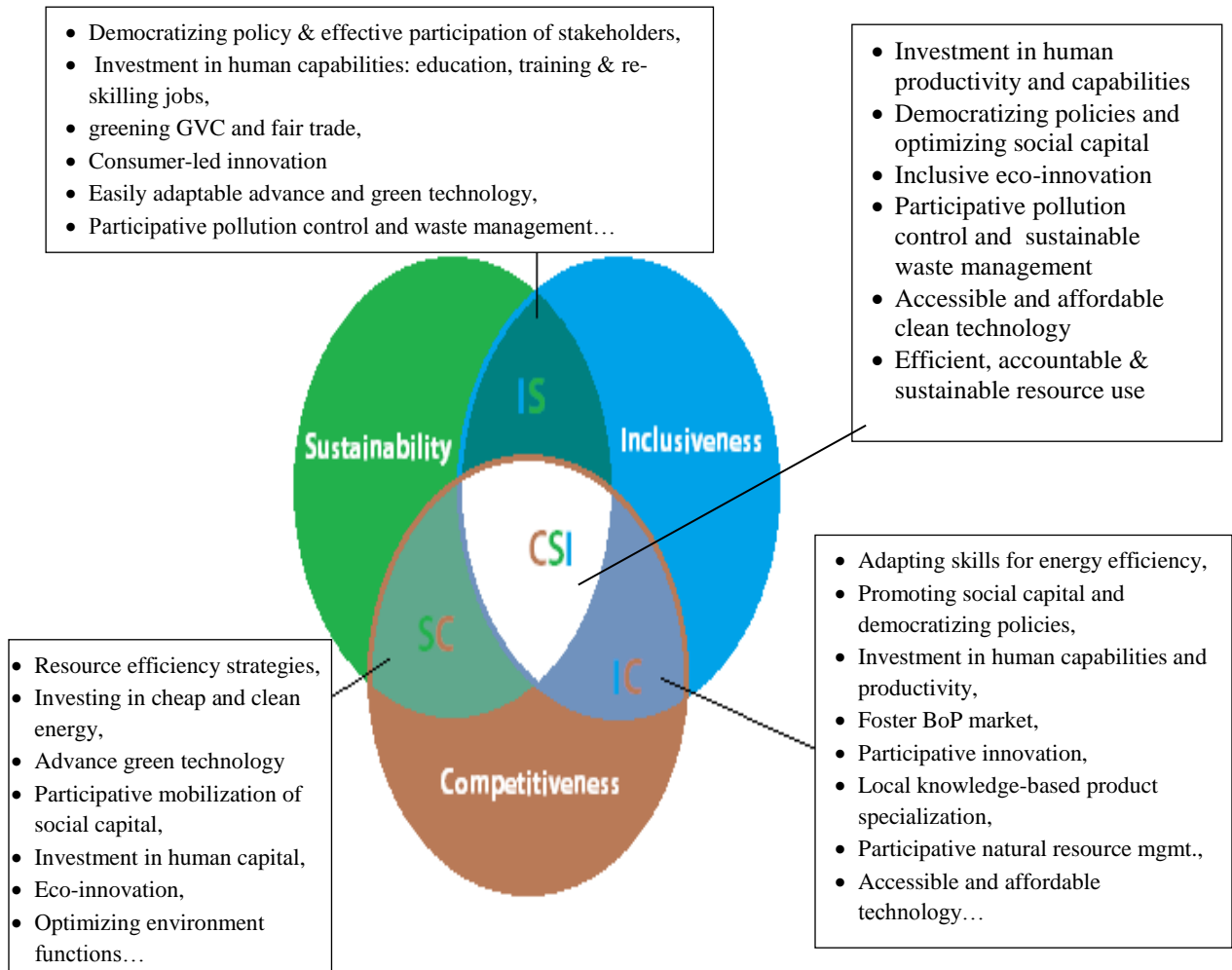
= { Adapting skills for energy efficiency, promoting social capital and democratizing policies, investment in human capabilities and productivity, foster BoP market, participative innovation, local knowledge-based product specialization, participative natural resource mgmt., accessible and affordable technology...}

The mechanism inside the overlapping field is explained in Chapter Six.

Within the context of intervention, this debate can be nullified with some policy incentives such as taxes, subsidies; public procurements etc. that help bring competitiveness and inclusiveness (in terms of employment) simultaneously. In the context of trade policy, reducing trade costs and facilitating transits are two key approaches to achieve a more inclusive growth through trade (De, 2009).

4.3. 5 Proposing core strategy mix

From the analysis in previous sections, we come up with a new diagram that depicts some core adaptive strategies (in the common centre of three overlapping circles). Synchronizing the ideas from table 4.1, figure 4.3, 4.4 and 4.6 we found some common strategies that are embedded into elements of sustainability and inclusiveness as well as the determinants of competitiveness.

Figure 4.8: Core Adaptive Strategy-Mix or Core Adaptive Strategies

Source: Author

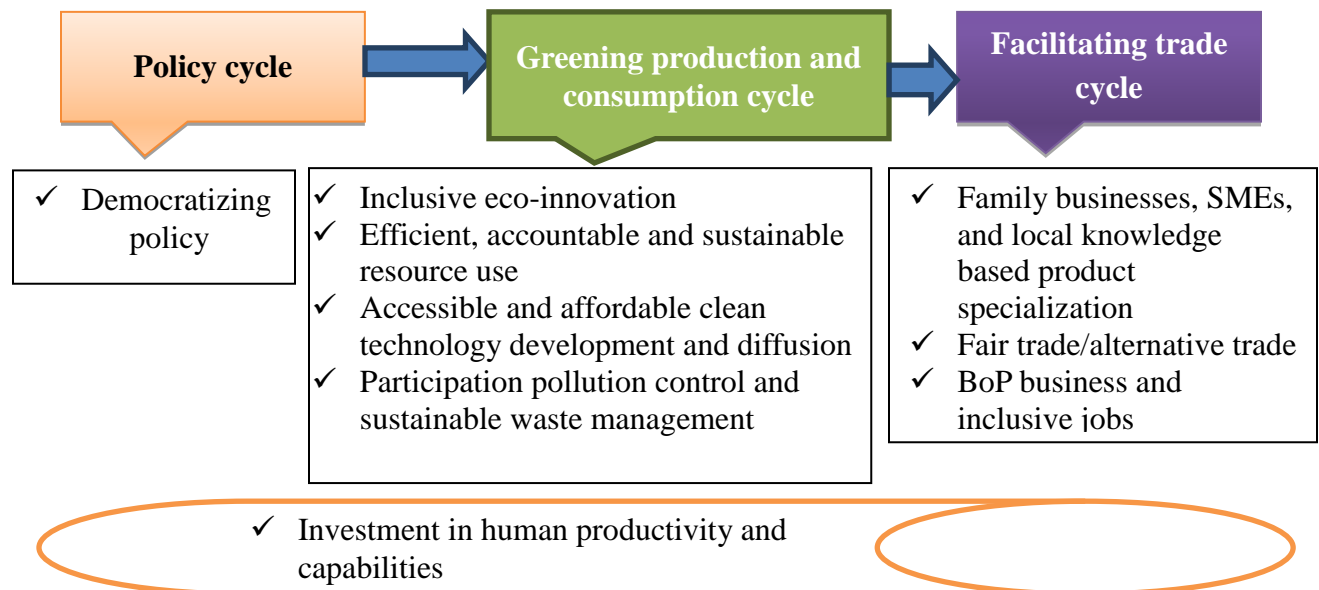
Core Adaptive Strategy-Mix or Core Adaptive Strategies (CASs) or CSI → C∩S∩I
 = {Investment in human capabilities and productivity; Democratizing policies and optimizing social capital; Participative eco-innovation; Participative pollution control and sustainable waste management; Accessible and affordable clean technology; and Efficient, accountable and sustainable resource use }

Figure 4.8 depicts a diagram that shows possible core adaptive strategies. In the policy process, strategies alone can do nothing until they are supported by some incentives and infrastructures to put into action. Before putting these strategic adaptive solutions into a 'Green Box System Framework' in Chapter Six, most of the possible incentives are reviewed in Chapter

Five that are in the form of environmental policy and trade policy instruments. Although, trade is influenced by a broader set of policies, the scope of this thesis necessitates a focus mainly on trade and environmental policy.

CASs have complex and multidimensional relationships among them and with other strategies. These strategies may not always directly and immediately affect the trade chain and hence, should be used in a plan of trade. Other adaptive strategies also should be employed simultaneously, though they may not incorporate the attributes of all three fundamentals. For example, we use three adaptive strategies: (i) promoting family business, SMEs and local knowledge -based product specialization (IC), (ii) Inclusive /fair/ alternative trade (IC), and (iii) BoP business that play significant role in greening trade and business cycle. Core adaptive strategies or CSI strategies are mainly applicable in production and consumption cycle; however, we argue that trade-led growth should have adaptive strategies also at policy cycle as well as trade and business cycle. Therefore, Chapter Six will include adaptive strategies as we have elaborated as in Figure 4.9. The Green Box System Framework presents the interaction between these adaptive strategies and incentives within national and international environments.

Figure 4.9: Classification of Adaptive Strategies

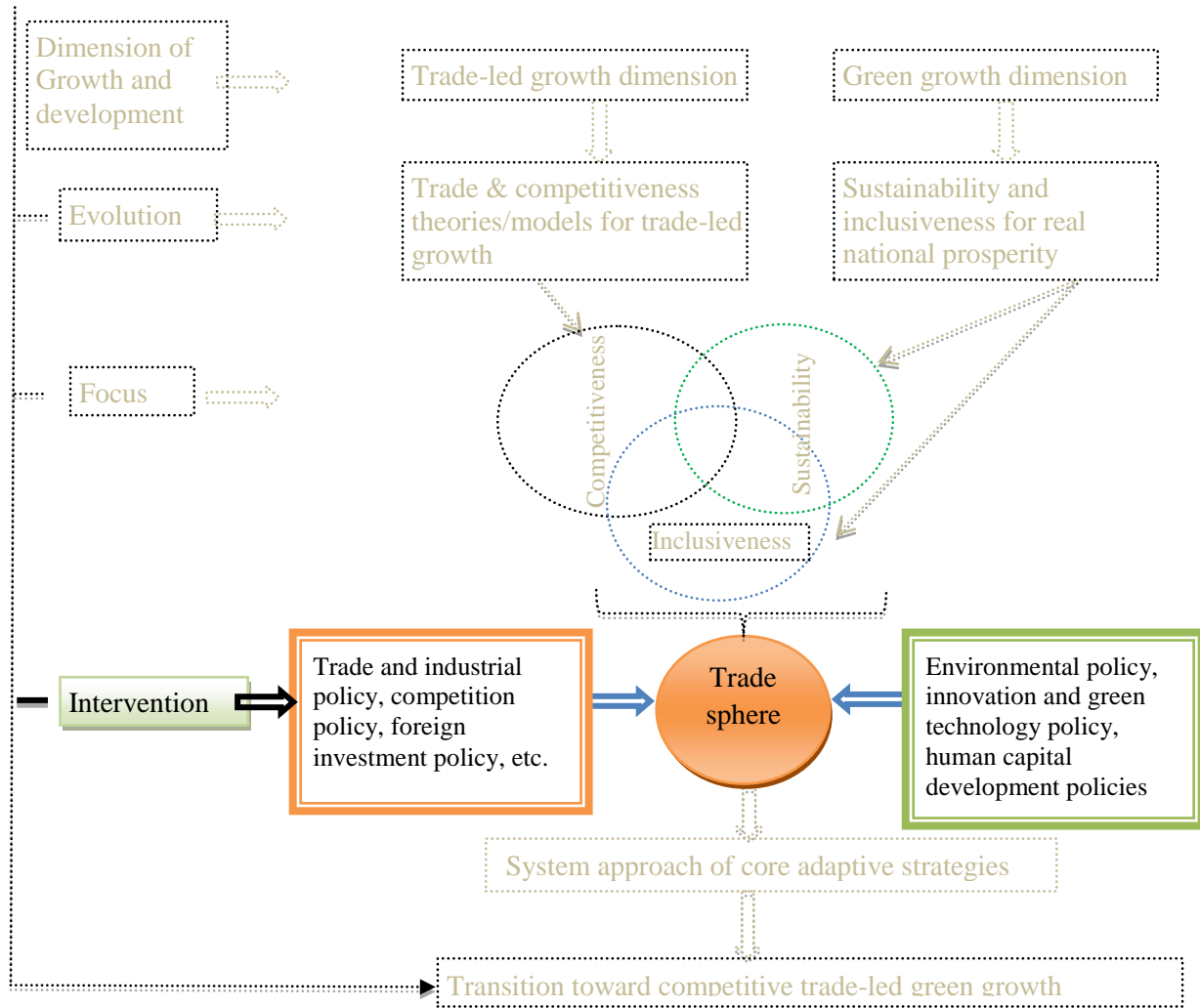


4.4 Synopsis

In this section, we elaborated three strands of debates: sustainable competitiveness, inclusive sustainability and, inclusive competitiveness and concluded that either there is no trade off at all or even if there has been any, synergy prevails over trade-offs. The competitiveness-

sustainability debate is based on two strands: the pessimistic strand and the optimistic strand. Pessimistic strand is mainly based on the 'pollution haven hypothesis' and/or 'beggar-thyself', that supports the notion that less developed countries have a comparative advantage in pollution-intensive product due to their weaker environmental regulations. The optimistic strand is based on Porter and van der Linde's hypothesis that assumes a world of dynamic competition and claims that all (competitors, customers and regulators) constantly make efforts for finding innovative solutions of the problems in technology, product, process and customer needs. These environmental standards-led innovations enhance the resource productivity that makes firms more competitive. The inclusiveness-sustainability debate is based on the ground that stringent environmental regulations into trade lead to job losses, and deterioration of equity, making the voice weak and deteriorates welfare. The conclusion of the debate is that although the sustainability inclusiveness trade off seems inconclusive in many cases, job losses due to the paradigm shift toward a green economy can be substituted with green jobs, proper re-skilling and up skilling with the adoption of new production technology. Many green exports create additional jobs for which a careful relocation of investment is needed. Inclusiveness-competitiveness debate is divided into employment-competitiveness trade off and equity-efficiency trade off. The former seems imperative since lack of job opportunity and skills, income inequality and unbalanced growth across green sectors create a vicious cycle that weakens competitiveness. Proper green growth policies are needed to make labours adaptive to the green growth sector. However, the equity-efficiency trade off will definitely nullified if the investment is made in human capital (skill, training and re-skilling) and unproductive social safety nets are revitalized into a productive one. All in all, synergies are found stronger in the latest growth-environmental literature. Upon an extensive review of trade-offs between three fundamentals as well as the trade-off between neoclassical trade-led growth and green growth concept, we may reach the conclusion that some strategies can lead toward green growth transition avoiding trade-offs. For this purpose, we adapted synergy areas and identified a core adaptive strategy-mix from three main debates: sustainable competitiveness, inclusive sustainability and inclusive competitiveness.

CHAPTER FIVE



Government, Incentives and International Coordination

5.1 Lubricating the Wheel: The Role of Government in the Trade Policy Sphere

5.1.1 Theoretical background

Classical school: For classical economists and their followers, openness is a way for faster and efficient growth of an economy, but for them, openness did not mean free trade. As Adelman says, they believed that initial import substitution to protect infant industries, combined with selective export promotion, was needed to initiate development (Adelman, 2000). It means they were not in favour of absolute openness.

Classical trade theories including the Ricardian model assume that two trading partners will gain from trade if they have different relative costs of identical product in autarky. The difference of cost may be embedded with negative externalities such as pollution in the produced good. Countries that do not care about pollution may gain from specializing in dirty products.

But if they impose environmental protection measures, the scenario differs. The Ricardian model, in which trade is supposed to be driven by differences in technology, Swanson and Ziegelhöfer (2011) found that home may suffer a negative static impact of environmental regulation on trade since such regulations imply restriction on the production technology of the country. This means there will be a reduction in production and exports as well, if comparative advantage of the home country was on pollution intensive goods. Contrastingly, if the advantage was in clean technology, the production technologies at home and foreign countries become more dissimilar and environmental regulation enhances trade despite output being reduced.

Still, the choice of instruments determines the welfare gain and the level of comparative advantage or disadvantage. Such instruments can be broadly categorized into three categories- (i) regulatory measures (energy efficiency, standards, labelling requirements etc.), (ii) market based incentives (carbon taxes, emission trading systems, preferential government procurement etc.) and, (iii) fiscal measures: tax incentives or outright subsidies.

Structuralists: They believe that "the structural characteristics one finds in developing countries ensure that unfettered markets cannot be relied upon to allow developing countries to gain from trade in the same way as industrialized country can. Market failures ensures that the vital signalling function performed by the market mechanism not only operates imperfectly, but may even emit signals that are quite misleading" (Greenaway & Milner, 1993, p. 45). Some of

the market imperfections, accordingly to Structuralists are: terms of trade decline, export instability, pervasive infant industries and mal-distribution of the gains from trade, that should be addressed by government.

Neoclassical trade economists: The Regan-Thatcher era of neoliberalism was in favour of no government intervention. The 'trade is enough' school opposed government intervention on the basis of its rent seeking impact through their discretionary powers, and argued that trade liberalization can induce development, yield economies of scale, and make industries internationally more competitive (Adelman, 2000. p. 113). According to her, "the emphasis of neoclassical trade theorists for an autonomous and sustained growth of an economy is to remove barriers to international trade in commodities" (ibid, p. 112).

However, many countries achieved high economic growth during the neoliberal era without following neoclassical restructuring. For example, evaluating neo-liberal restructuring in post-crisis Korea, Crotty and Lee (2002) concluded that such restructuring was a total failure and suggested that "Koreans should reject radical neo-liberal restructuring and consider instead reforms to democratize and modernize their traditional state-guided growth model" which was reaffirmed by evaluation of IMF-imposed 'extreme structural conditionality' for post-crisis recovery (Crotty and Lee, 2009). In this regard, Stiglitz (2008) asserts the global failure of neo-liberalism and writes-

The world has not been kind to neo-liberalism, that grab-bag of ideas based on the fundamentalist notion that markets are self-correcting, allocate resources efficiently, and serve the public interest well. ...For a quarter-century, there has been a contest among developing countries, and the losers are clear: countries that pursued neo-liberal policies not only lost the growth sweepstakes; when they did grow, the benefits accrued disproportionately to those at the top (webpage³³).

On one hand, neoclassical trade theorists and neoliberal political ideologists are against any kind of government intervention; on the other, most of the trade competitiveness theorists in the same era, such as Porter (1990), Rugman, Moon and Verbeke (1998), Lall (1999), Hämäläinen (2003), Reis and Farole (2012) and others recognized the government's role very important for trade-led growth.

New trade theorists: The NTT that emerged in the 1980s opened up the possibilities of analysing environmental regulation with regard to intra-industry trade in non-competitive market. In their seminal work, Brander and Spencer (1985) have analysed a setting of two

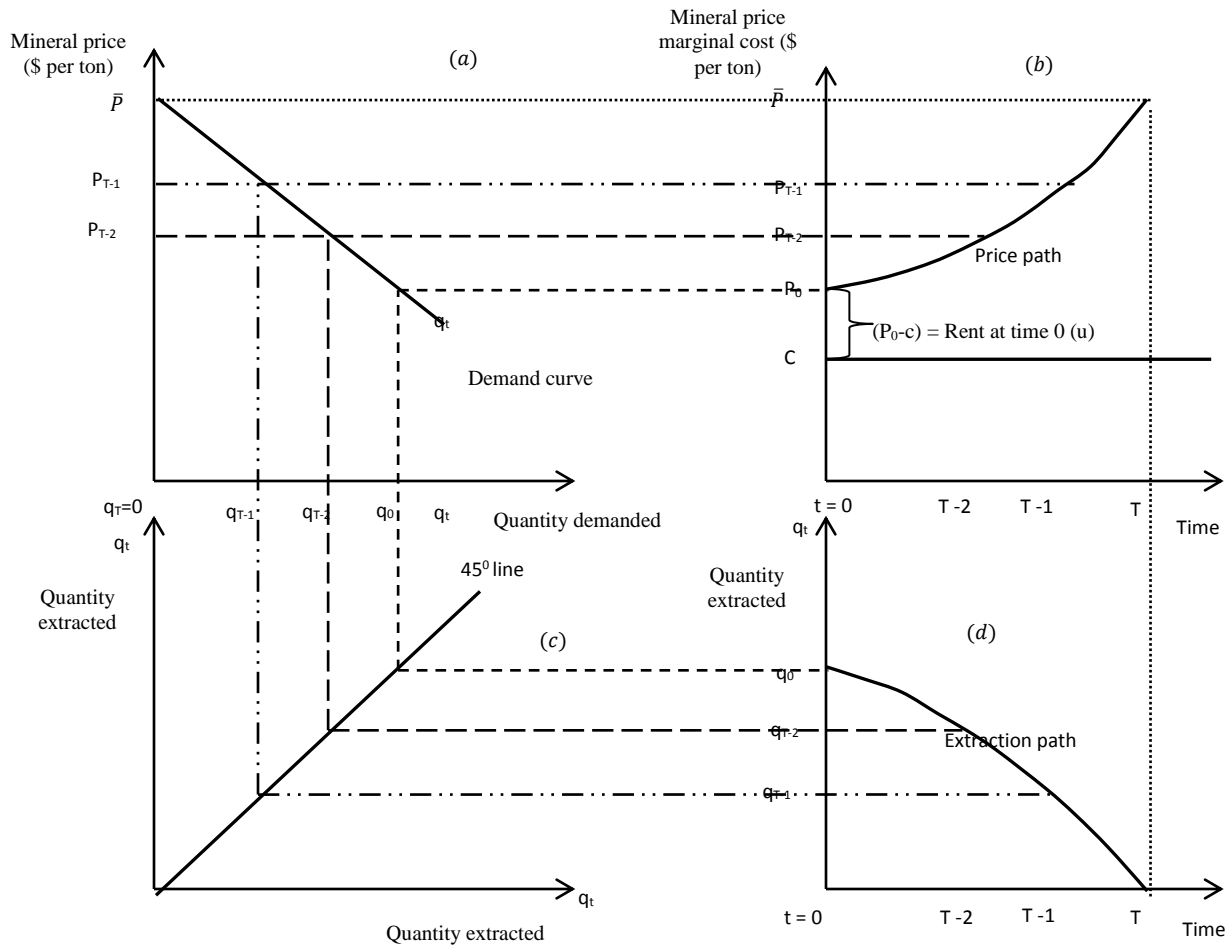
³³ For details, <http://www.project-syndicate.org/commentary/the-end-of-neo-liberalism->

(domestic and foreign) firms competing in quantities in a third foreign market. They show that a firm increases its production if they can be benefited by increased research and development (R&D) expenses and export subsidies. Trade and environment literature imply this theory for analytical purpose since R&D policies and government subsidy variables are substituted by the effects of environmental policy on the strategic interaction of producers (Bommer, 1998). NTT regards trade policy as an important factor that influences trade performance.

The policy implication of NTTs challenged the non-interventionist free trade argument that traditional trade theories were based on (Hämäläinen, 2003). NTTs emphasized on government role to increase national welfare by employing appropriate trade policies. But NTTs are not out of criticism. Government intervention in the form of incentives (import tariff and export subsidies) tends to distort economic incentives and add cost in non-favoured sectors. Such incentives may be captured by certain interest groups, inviting retaliation from other governments (Krugman 1987b, cited in Hämäläinen, 2003).

Environmental economists believe that firms producing green goods need government support in their initial period so that they can grow and survive in the competitive global market. Such kinds of support are more or less related to Mercantilist's concept of infant industry protection. Actually, except in neoliberalism, the government's role is taken as a crucial one to facilitate foreign trade. When the trade is embedded into environmental functions, government regulations and incentives as well as international cooperation is needed.

Why government intervention is needed to sustain non-renewable resource is explained in Figure 5.1 below. As depicted in the diagram, if marginal extraction costs fall over time, possibly, due to improved technology, net price may rise while the market price of the resource declines. In case of stable extraction costs, the market price is expected be raised along with the exhaustion of the resource. The rent is high for exploiting high-grade resources first, and limited resource stocks will be exploited to exhaustion. Until the price keeps rising, delaying some product will remain profitable but every product has the choke price at which the demand quantity falls to zero. By the choke price is reached, producer exploit and sell all economically viable reserves. Figure 5.1 (a) shows the price path while 5.1(d) shows the extraction path for a resource stock being exploited to exhaustion (Harris & Roach, 2013).

Figure 5.1: Non-Renewable Resource Use and Government Intervention

Adapted from: Hartwick & Olewiler, 1997; Swanson & Ziegelhöfer, 2011; and Harris & Roach, 2013)

The increasing scarcity of resources results in incentives to search for new technologies. It signifies that investment in technological change is a must to compensate for increasing scarcity, and they must take a precise form of moving the economy less reliant upon increasingly scarce natural resources and, the technology change must be resource augmenting enough to compensate for the declining prevalence of resources in the economy. Such investments may be directly made by the government or induced by incentive mechanisms. State intervention is critical to optimal innovation too. The timing of such intervention is a matter of fairness within the society concerned (Swanson & Ziegelhöfer, 2011).

5.1.2 Environmental issues in trade and justification of the role of government

When the Mexican government, in 1991, challenged a US law that banned tuna imports from Mexico, the issue of the environment entered into foreign trade. The US Marine Mammal Protection Act was the first government policy intervention that restricted the imports of environmentally-unfriendly practices of aquaculture trading. Although the US lost the case on the basis of extraterritorial jurisdiction, this case introduced a major controversy over issues of trade and environment (Harris & Roach, 2013).

Expanded global trade brings benefits in return of increased efficiency, technology transfer and the import and export of sustainably produced product, but we should also evaluate the effects of trade in terms of social and ecological impacts. Trade reallocates externalities among countries and environmental costs, in many cases, seriously affect the net gains from trade. Not only product-based externalities, but during its transportation, there are also air pollution and other environmental consequences apparent due to fuel consumption. Trade as the scale effect allows depletion of natural resources, increased pollution and carbon emission while it drives the transition to the green economy by fostering sustainable, resource management, disseminating green technologies and creating jobs and reducing poverty (ITC, UNEP, & ICTSD, 2012). In a free trade regime, the spread of environmental technology is easier and cheaper, in that it generates positive externalities or beneficial effects (Harris & Roach, 2013.).

Government regulations and incentives can play a significant role to removing negative externalities and promote positive externalities. However, they need to take into account various costs, risks, benefits, and opportunities of different policy options in accordance with their institutional and governance arrangements, level of development as well as their social, economic, and environmental priorities (Allen, 2012).

The following are some arguments in favour of government incentives and regulations—

- ☞ *Government can promote investment in green technology.* Sterner and Damon (2011) clarify why companies are not eager to invest more in greener technologies. According to them, considering the gravity of climate change, companies should be investing more on solution oriented research but they do not because there would be no way to fully capture the reward on major innovations. Therefore, the government should come up with strong incentives for research and development (R&D) to compensate for this lack of incentive for private sector investment in green technologies or R&D for solutions. But, when

government provides such incentives, technology lock-in and selection bias (picking the winner) should be avoided.

- ☞ *Government can set widely acceptable standards of exportable.* From the demand side, in the globalized world, exporters should also be conscious about the demands of regulators and the consumers in destination countries. Therefore, the government has to apply the highest prevailing standards (such as environmental standards, work safety and decent jobs) in the export markets so that access to greater foreign market may outweigh the negative static impact of environmental regulation. For example, following the collapse of the garment factory in Bangladesh that killed more than a thousand and left thousands injured³⁴, European Union- the destination of 60 per cent of Bangladeshi garments, has threatened to reconsider the generalized system of preference (GSP). All corresponding supply chains and related garment brands are under pressure (As-Saber, 2013).
- ☞ *Government can protect domestic firms from undue foreign competition induced by weaker environmental policies in trading partners.* Even in an open market economy, as Copeland (2012) argues, export work as a powerful engine of economic growth but in such an economy, competition from foreign producers can displace local production. This leads to pressurize government for policies to shelter firms from foreign competition. Such pressure increases the temptation to manipulate environmental policies to remain internationally competitive. If environmental policies are made weak, they work as a subsidy to pollution- intensive activity. Fiscal measures such as export subsidy may be an alternative instrument to address carbon leakage concern to nullify the price competitiveness of 'dirty product'. Subsidies in the form of free permits are inefficient in such situation rather carbon-consumption-charge added pricing mechanism such as Border Cost Adjustment (BCA) works properly even when long-term de-industrialization process in developed countries continues (Helm, Hepburn, & Ruta, 2012).
- ☞ *Government can catalyse the structural change induced by technological revolution needed to move towards green growth.* Ocampo (2012) characterizes the economic

³⁴The collapse of eight-storey garment factory in Rana Plaza on the outskirts of Dhaka, Bangladesh on 24th April 2013 killed more than 1000 workers. At the moment, Bangladesh is the second largest garment exporter of the world. For detail, theconversation.com/bangladesh-disaster-shows-why-I-must-urgently-clean-up-global-sweat-shops-13899

growth itself as a process of structural change. In his view, economic growth can be observed as significant changes in production and consumption patterns- one in which certain activities expand based on new technological knowledge, while other contract. He emphasizes the transition to the green economy no less than a new technological or industrial revolution. Such revolution surrounding the green economy has three typical characteristics-

- i. Government policy is going to play a stronger role than in past industrial revolution;
- ii. Associated technological change is going to be essentially "global process" with specific international institutions playing a fundamental role in coordinating international cooperation;
- iii. It will take place under the prevalence of IPRs which are stronger than any global protection under the TRIPs agreement of the WTO.

☞ *Government has a crucial role to support national innovation systems.* Ocampo (2012) argues, government support is must to create a national innovation system so that developing countries can absorb, adapt, diffuse into the domestic economy and eventually design new technologies. A strong mechanism to disseminate technology should be enforced by the government. Similarly, the government should be there when there is under-investment in greener technology.

☞ *Government can use its policy instruments to internalize climate change externalities.* Using regulatory trade measures to judge the production mode (for example, with green energy or fossil fuel) seems contrary to the principle of economic efficiency because it is assumed that inputs are properly priced. But climate change externalities are not properly priced and inability to internalize negative impacts of carbon emissions materializes into de facto subsidy to the cost of production. In the absence of correct carbon pricing, we are in the second-best world with no guarantee of welfare gain by free trade (Chichilnisky, 1994; Copeland and Taylor, 1995; cited in Helm, Hepburn and Ruta, 2012). Therefore, the first-best solution is free trade coupled with a common global carbon price, which is yet to be materialized in the real world.

☞ *Government is an international player to harmonize sustainability measures in international trading system by negotiations.* Beyond the country-specific instruments, in multilateral negotiations on environmental agreement, trade measures have been agreed

mutually. Referring to the World Bank's review of trade and environmental issues Harris and Roach (2013) argue that future trade agreements must take environmental sustainability more explicitly into account. Introducing sustainability measures and green economy instruments into trade policies needs institutional changes at global regional and local levels.

- ☞ *Government can strive to reallocate the externalities.* Trade reallocates externalities among countries and environmental costs, in many cases, seriously affect the net gains from trade. Such externalities should be avoided. In free trade regime, spread of environmental technology is easier and cheaper that generates positive externalities or beneficial effects instead (ibid).
- ☞ *An effective governmental framework for an efficient market.* Some proponents of free market recognize that efficient markets need effective governmental frameworks (Costanza et al., 1995). The single-minded focus on reducing protectionism does not address the social and environmental objectives. World trading system should move towards such system in which basic norms of social justice and environmental sustainability are enforced, promoted and civil, economic, political and social rights are ensured.
- ☞ *Properly designed environmental regulations generate innovation offsets:* Porter and van der Linde hypothesis (1995) suggest that appropriately designed environmental regulations will fuel innovation that may partially or more than fully, offset the compliance cost of regulations. Such 'innovation offsets' improves the product quality and value in one hand and, lowers the total cost by promoting an efficient use of inputs in production in the other. The ultimate result, according to this theory is that this enhanced resource productivity makes producers - and the country, more productive. This hypothesis presents an argument against the struggle between ecology and economy arisen from a static view of environmental regulation.

5.2 Trade-led green growth and trade policy

5.2.1 Trade policy for green growth transition

In the macroeconomic policy dimension, trade policy is regarded as an important measure to lead the economy towards green growth. Although Shrinivasan (1995) noted that trade policy and growth are both endogenous variables and hence, it is difficult to establish

causality and making trade into an engine for growth required a resort to vague externalities (cited in: Sach & Warner, 1995). However, Sachs and Warner (1995) regarded trade reform as the single most powerful element for trade-led growth.

In a green growth regime, "trade has the potential to drive the green economy by fostering the exchange of environmentally-friendly goods and service, increasing resource efficiency, generating economic opportunities and employment, and contributing to poverty eradication" (UNEP, 2012b, p. 1). Even a significant increase in green exports has been seen in recent years. For example, in the Greater Copenhagen Area³⁵, industrial turnover and exports have been increased significantly between 2004 and 2009 by 55 per cent and outperformed other sectors of the economy. During the same period, green technology exports grew by 77 per cent outperforming welfare technology (30 per cent) and manufacturing (-12 per cent). However, greening trade does not take place automatically. As the UNEP report (2012b) states, the impact of trade on a green economy transition largely depends on how trade policies are designed and applied and whether an adequate national institutional infrastructure exists to manage the impact of trade liberalization (p. 1). It also cautions us that green economic policy measures might be used to restrict international trade, and hence, green policy design and their implication have critical importance.

Trade policy can be an effective policy instrument in a green growth regime by the implementation of the following mechanisms —

Removing distorted subsidies: Many countries allocate a big sum of their budget to agricultural subsidies; for example, chemical fertilizer, pesticides and other environmentally hazardous items. In terms of international trade policy reforms, as Khor (2012) suggests, the green growth concept helps sufficiently reduce or remove harmful agricultural subsidies in the developed countries, while enabling to have special treatment and safeguard mechanism for less and least developed countries to promote their small farmers' livelihood. This fosters equity and competitiveness in trade.

³⁵ Greater Copenhagen Area consists of many different suburbs, such as Ishøj, Roskilde, Farum, Helsingør Bispebjerg, Hvidovre and Hellerup

Generating employment: Trade policy favourable to green growth is considered useful to lubricate the stagnant economy and to generate employment. Karel De Gucht³⁶, European Commissioner for Trade, applauds trade policy as a core for EU 2020 and reiterates that thirty-six million jobs in Europe depend today, directly or indirectly, on trade. He emphasizes that the top priority of trade policy is job creation (2010).

Reducing trade barriers against eco-products and green technologies: Removing trade barriers against eco-products is very important to combating climate change. As of SAWTEE report (2008): (i) reducing trade barrier of eco-products and, (ii) subsidies to combat climate change, are two most promising tools that are also relevant to the WTO. Reducing trade barriers to climate-friendly technologies is necessary in order to stimulate the global flow of these technologies that also strengthen WTO rules on subsidies. Cosbey (2012) argues that lowering tariff and non-tariff barriers are important tools to support green technologies such as wind turbines, efficient light bulbs, and services such as environmental engineering.

Technology liberalization and subsidies: Trade policy, in the context of liberalization, can assist promotion of green economy mainly by two ways- technology liberalization and subsidies. Technology liberalization was applauded in UN- climate change forums too. Bali Action Plan called for the removal of legislative and market obstacles to the development and transfer of technology (UNFCCC, 2008). Reducing tariff and non-tariff barriers, an important trade policy measure for environmental goods and services, is very important. Nonetheless, without transfer of know-how and building local capacity, technology flow becomes helpless. Liberalization of technology transfer alone is biased towards the developed countries. Until green export goods of developing countries are facilitated, less developed countries cannot get the advantage in green growth regime.

For developing countries, the green growth transition provides numerous trading opportunities mainly in agriculture, biodiversity and business, and certified timber and others. Therefore, identifying such opportunities and approaching those with appropriate policy reforms and policy instruments is very important (UNEP, 2012b). The growing global market for sustainable agriculture/ organic agricultural product provides opportunities to export these products in developed countries where demand for organic products is growing at rates of

³⁶ Foreword by Karel De Gucht, European Commissioner for Trade in the document "Trade Growth and World Affairs, Trade policy as a core component of the EU's 2020 strategy".

between 10 and 20 per cent per year (ibid.). Similarly, the demand for biodiversity based products (such as natural cosmetics, herbal medicines, foods and ingredients etc.) and services such as eco-tourism have generated considerable potential for trade-led growth. The expanding market for certified wood in the United States and the European Union has generated more export opportunities.

5.2.2 Selecting trade and environmental policy instruments

Trade policy instruments have their own strength and weaknesses based on other supporting policies, institutional efficacy, and integration of economy and interconnection among various sectors. Removing distortion is taken as the best instrument in an open economy. However, dealing with environmental standards, certain regulatory and market-based measures are needed. In a broader sense, they are called incentives. Selection of the incentives depends on the goals, objectives and strategies of national trade and industrial policies.

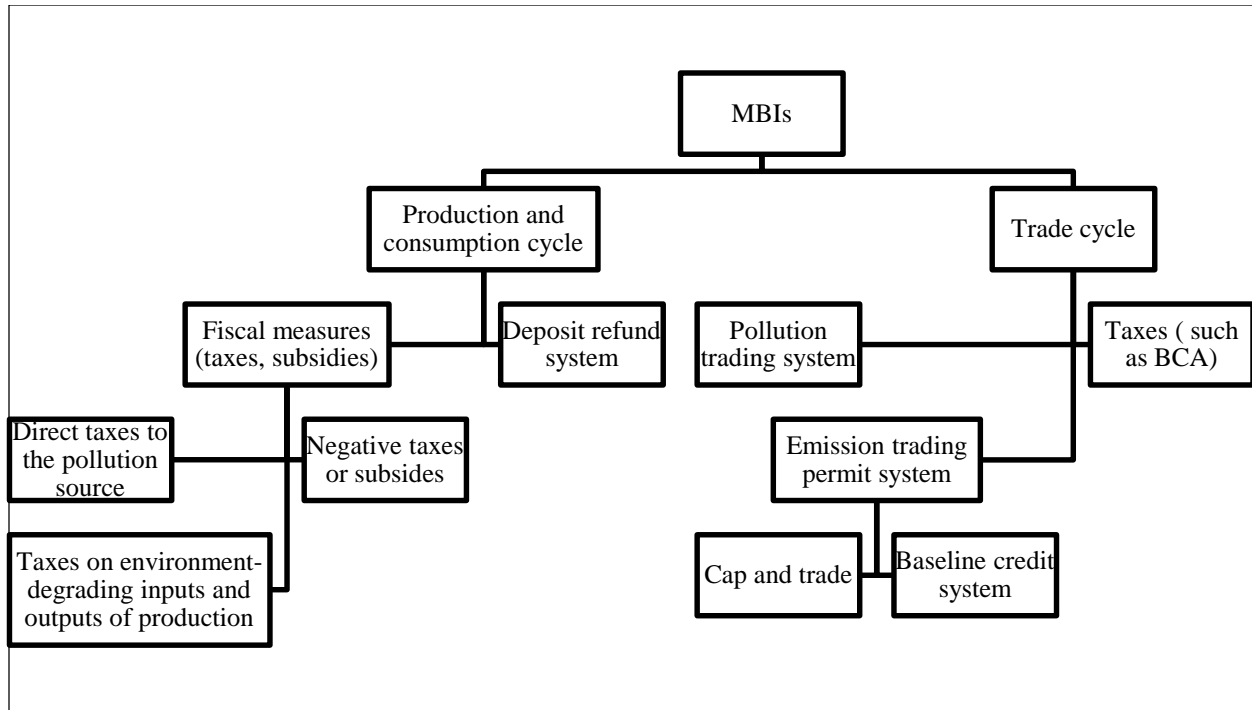
As mentioned in Chapter 5.5.1 trade theorists have different views on trade policy instruments. Regardless of their propositions, competitiveness models agree that government's role is inevitable when the environmental goods and services are embedded in trade. In view of van den Noord and Vourc'h (1999), the environment is largely a public good that is available to all despite its exhaustible character. According to them, ensuring cost-effectiveness, to some extent is a function of the choice of environmental policy instrument. Copeland (2012) considers subsidy as the best policy to promote expansion of abatement. If subsidy is unable to internalize the spill-overs, then a second best policy may be 'differentiated emission policy'.

Despite the concurrence on government intervention for green growth policies, applying instruments such as regulatory standards or market-based instruments is not straightforward. The selection of a policy instrument depends on the expected policy outcome. For example, if the government's priority is to reduce heavily toxic substances, direct regulation may be appropriate which relies on emission, process, and product standards. Contrastingly, the use of economic instruments such as taxes, subsidies, auctioned quotas etc. help government to raise revenue on one hand, and provide more freedom for economic actors to seek the cheapest method of abatement and contribute to continuing innovation on the other. In the following sections, we introduce various policy tools and summarize their applicability and effectiveness.

5.2.2.1 Market-based instruments (MBIs)

These instruments, also known as market incentives mainly include fiscal measures, tradable permit systems, subsidies, deposit-refund schemes (product trackback regulations) and awards. Tyrole (2009) claims that the use of such MBIs gives a single clear price signal for environmental sustainability to all countries and sectors. This argument is true if the costs of abatement are heterogeneous. Due to the difference in abatement costs, MBIs can save a large share of total costs by shifting abatement to the cheapest locations (Sterner & Damon, 2011). MBIs also give clear price signals to stimulate R&D for effective emission reducing new technologies. Figure 5.2 depicts a clear picture of various MBIs-

Figure 5.2: Classification of MBIs



Source: Author

MBIs at production and consumption cycle

(I) Taxes: Taxes, as stated by de Serres and Murin (2011), can be categorized in three groups on the basis of their application in the production cycle.

- i. Taxes and charges directly applied to the pollution source: example, taxes on emissions from incinerators, charges on sewage and solid waste, specific effluent charges on water pollution, taxes on direct CO₂ emission (as employed in Norway and Aragon, Spain), direct tax on NO_x (as in Sweden).

- ii. Taxes and charges applied on input or output of a production process causing environmental degradation: taxes and charges on water uses, packaging, transport, pesticides and fertilizers.
- iii. Negative tax or subsidies for environmentally friendly activities that encourage a system towards activities that causes smaller or no negative externalities.

Among MBIs instruments, Sterner and Damon (2011) argue that a 'tax' is the most straightforward way to send a unified price signal. Such signals may also come from an international agreement that limits emissions for each country and permits them to trade. This enhances economic efficiency. Environment-related taxes are called green taxes or eco-taxes.

Impositions of taxes parallel to behavioural change initiatives are very effective. Governments can force polluters - producers and consumers to be sincere about the costs of pollution and can help to reduce the demand for harmful commodities. For example, Ireland's 'plastax' in 2002 led to a 90 per cent reduction in the use of plastic bags. Similarly, effective measures are very efficient that not only lessen the consumption and production of environmentally hazardous products, but also generates government revenue.

Similarly, fossil-fuel tax is highly effective to reduce carbon emission. More significantly, such taxes themselves in low-income countries are strongly progressive, even without considering the use of the proceeds (Sterner & Slunge, 2009; Sterner & Damon, 2011). However, as they argue, fuel taxes are often unpopular and hence, typically characterized as costly or difficult to implement.

Ensuring an effective imposition of environmental tax without reducing competitiveness is a very crucial issue for policy makers. According to OECD (2011) report, to maintain competitiveness while imposing environmental taxes, broader fiscal reforms should be accompanied by environmentally motivated reforms. Such reforms may be gradually phasing out existing rebates/exemption, announcing new taxes or tax rate increase well in advance, channelling part of the revenue back to the industry in such a way that marginal abatement incentives are maintained, ensuring stringent mitigation measures on benefitting firms to avoid negative environmental effect of exemptions and reduction, and imposing a two-tier tax rate with lower structures for more internationally exposed sectors.

Sometimes, a combination of tax instruments with other tools may be more effective. D'Amato and Spisto (2012) emphasizes on emission taxes coupled with emission trading

schemes to reduce CO₂ emission in the atmosphere. However, Bohringer et al (2008) cautions that overlapping regulation or using several environmental policy instruments simultaneously to control for pollution emission may generate an efficiency loss.

Negative taxes or subsidies: Government subsidies for making a green economy and its impact on competitiveness can be dealt with two ways- (i) removing the existing subsidies given for the use of polluting substances (such as fossil fuel consumption subsidies) and, (ii) giving subsidy for R&D on green technology promotion and development, greener production and consumption as well import and export of cleaner products.

Government subsidies have both-positive and negative implications in the making of a green economy. Simmons (2008) argues that subsidies can work as a powerful tool for promoting alternative energy sources, supporting energy research and development, and stimulate climate mitigation and adaptation efforts. According to him, subsidies may be frustrating for climate change efforts by promoting excessive consumption levels encouraging a disproportionate use of fossil fuels, and discouraging to move to cleaner fuels and renewable resources. Therefore, subsidies should be used carefully.

(II) Deposit refund systems: It is a method of providing an incentive to decrease waste and increase recycling. In such a system, a certain amount of money incurred into goods purchase is given back to the buyer in exchange for the return of recyclable items/part of the good after consumption. When purchasing a product, the consumer pays an extra amount (deposit) for the part of the good that cannot be consumed but is needed for sale the product. Beer can be an example.

MBIs at trading system

(I) Taxes

In the trading system, taxes are imposed at the border. Border-Carbon Adjustment (BCA) is the environmental-policy-led trade instrument used for pollution control and mitigation. Among MBIs taxes are the most widely used tools to reduce environmental damage. Internally or at production system, plastic tax and fossil fuel tax are widely used, whereas in trading system BCA tax is used.

In terms of mitigation and competitiveness, it is possible that BCA may shift the emission cost and even BCA itself may not be optimal or may be manipulated. As Copeland (2012) finds, several studies have concluded that border taxes would mitigate carbon leakage, but the major

impact of such policies is that "some of the emission reduction cost will shift from developed to less developed countries through term of trade effects" (p. 4.). Additionally, the possibility of intentionally reducing the environmental protection below the socially optimal level is equally likely in order to provide domestic firms a competitive advantage in domestic as well as foreign market (Brenton, Scott, & Sinclair, 1997).

In terms of the effectiveness of BCAs for welfare, mitigation and competitiveness, the absence of carbon price signifies an implicit subsidy to dirtier production in non-regulated markets. BCAs should be regarded as correcting measures of market failures generated by such implicit subsidy (market imperfection). Even if trade volume is reduced due to such BCAs, it does not mean that welfare is reduced because in its absence, incorrect factor prices create 'too much trade' resulting 'too much pollution' that reduces welfare instead. Helm, Hepburn and Ruta, (2012) argue that properly crafted BCAs could help reduce trade distortions, limit the competitiveness effects, and help build a broader coalition of interest supporting more global actions.

This instrument has a political dimension too. The Durban Conference of the Parties in December 2011 was challenged to try to reach an agreement by 2015 about emission caps after 2020. The Kyoto Protocol has not seen successful during the last 20 years, and provides a bleak picture of future progress emission control since main polluters have acted in a glacial pace in this regard. There is a high probability of trade distortion due to the uneven adoption of carbon policies leading to a negative feedback on climate policy (Helm, Hepburn and Ruta, 2012). Attempts to mitigate trade and competitiveness concerns in Europe and Australia have created further distortion and rent seeking activity. As Help, Hepburn and Ruta suggest, a better response to trade distortions may be the adoption of BCAs that constitutes three measures, namely- (i) border taxes (tariffs on imports and sometimes, rebates on exports), (ii) mandatory emission allowance purchase by importers, and (iii) embedded carbon product standards (ibid, cited from Wooders et al. 2009).

(II) Emission trading permit systems (ETS) are divided into cap-and-trade system and baseline-credit system:

- i. Cap-and-trade: An overall limit on the amount of a particular pollutant is set by a central authority, which then issues pollution rights or permits equivalent to the ceiling.

- ii. Baseline-credit system: imposing a minimum performance commitment relative to some pre-set baseline profile of emission usually defined for each participant by the regulator. Most widely used is— Clean Development Mechanism (CDM).

Cap-and-trade systems at the domestic level can be- (i) schemes where the total level of emissions is fixed (absolute cap-and-trade), (ii) schemes where the allowable level of emissions per firm is related to some firm-specific indicator (relative cap-and-trade), and (iii) mixed schemes which combine elements of the above alternatives (Kuik & Mulder, 2004). Absolute cap-and-trade leads to efficient emissions reduction; however, its overall macroeconomic costs may be significant while implemented at the national level (ibid.). The European Union's ETS is the world's first multinational cap-and-trade system for greenhouse gases.

Relative cap-and-trade may avoid competitiveness problems, but it would not be the cheapest way to reduce emissions. The mixed scheme cannot treat firms equally and leads to high administrative costs. It means that these systems alone cannot reduce additional emission and hence, should be combined with other policy measures, such as energy taxes, in order to realize further reduction. Therefore, attempts should be made "to introduce emission trading schemes as a climate policy instrument in as many countries as possible to avoid negative economic consequences" (ibid, p. 744). More than 20 per cent of global greenhouse gas emissions are under carbon pricing system. Carbon cap-and-trade programs align environmental goals with market incentives (Forrister & Bledsoe, 2013).

However, firms may fear of losing their competitiveness due to ETS. Van Asselt and Biermann (2007) recommended instruments such as direct support for energy-intensive industries, restriction of energy-intensive imports into the EU through BCAs, quotas or technical regulations, and cost reimbursement of affected less developed countries, to avoid loss of competitiveness by ETS. But, quantifying the impact of the European ETS on production and profitability dimensions of competitiveness of the Iron and Steel industries (the most highly CO₂ intensive as well as the open sector of international trade), Demailly and Quirion (2008) conclude that competitiveness losses are small in this sector. It means product losses incurred by stringencies of ETSs are weak. Profitability depends on the amount of allowance allocated for free.

(III) Pollution trading systems: These systems mainly have been used to reduce air pollution— previously, SO_x and NO₂ level, and recently greenhouse gases such as CO₂ level, as part of policy strategies to mitigate climate change.

Summing up the MBIs, the weakness of the market mechanisms is that they may be unable to deliver the development of clean technologies. For instance, many innovation externalities can be addressed by a combination of pricing mechanisms and general innovation policies whereas more direct public support to green technology development and diffusion in some areas could be justified by the presence of additional market failures such as learning-by-doing and market size effects (de Serres, Murtin & Nicoletti, 2010, p. 6)

5.2.2.2 Non-market instruments (NMIs)

"Non-market instruments such as command-and-control regulations and voluntary approaches are appropriate when pollution emissions cannot be adequately monitored at the source and there are no appropriate proxies of input and output to monitor"- say de Serres, Murtin and Nicoletti (2010, p. 6). NMIs can be categorized into three broad categories, namely: (i) Command and control regulations, (ii) Active green technology support policies and, (iii) Voluntary approaches.

(I) Command and control regulations: These regulations directly affect decisions on business choices and operations. Fuel tax over certain consumption level, CO₂ limits, obtaining special permits and control certificate for operation are the main instruments under this category. These standards are further divided into technology standards and performance standards. Government regulatory mechanism in the form of environmental standards promulgated to ensure successful transition towards the green economy has major implication for developing countries' exporters.

How the government employs regulatory standards? The role of government as Cosbey (2012) states, are-

- (a) Enabling exporters to meet such standards, working with private sectors to well disseminate the regulations and, to help firms identify, acquire and assimilate the technologies needed to meet them;
- (b) Accredited national and regional capacity to test and certify goods whether that are environmentally compliant (including building laboratories, working with international accrediting bodies, supporting technical training etc.);

- (c) Design domestic standards compatible to international one; and
- (d) Harmonizing product energy preference standards, testing procedures and labelling requirements.

Regarding the appropriateness of regulatory standards, Porter and van der Linde (1995) argue that properly conceived regulations not necessarily increase the cost of production. They postulate some principles of regulatory design that help promote innovation, resource productivity and competitiveness. Those principles are: (a) focus on outcomes rather than technologies, (ii) enacting strict, predictable and stable regulations, (c) using market incentives, (d) encouraging upstream solutions, (e) harmonizing and converge regulations, (f) requiring industry participation in standard setting, (f) developing strong technical capabilities among regulators, and (g) minimizing the time and resources consumed in the regulatory process itself.

Differentiating the effectiveness of technology standards and performance standards, Rothwell (1992) mentions the widespread belief that technology-based standards provide weaker incentives for eco-innovation than performance-based standards. The supporting logic is that the latter allows for a greater scope in determining how to achieve the regulatory goal. However, performance-based standards are not flawless. Norberg-Bohm (2000) try to justify that performance standard have limited strength for green innovation because- first, they are based on existing technology and, promote diffusion rather than innovation; secondly, they are implemented by requiring polluting entities to obtain a permit to pollute. Therefore, performance standards work as de facto technology standards.

(II) Active green technology support policies: This category includes a range of policies designed to promote the development and deployment of technologies through R&D or adoption of incentives. Main instruments are: innovation policy measures, investment in R&D, public funding on private R&D, public procurement, green certificate, feed-in-tariff, instruments targeted at SMEs and establishing a long term vision, and Environmental Management System (EMS).

Innovation policy measures include government funding of R&D, technological assistance programs, training in new technologies, strategic niche management, foresight exercise (building common visions of further development across the policy field and industrial sectors) and the creation of a network of actors involved in eco-innovation. Public procurement

policies, green certificates and feed-in-tariff policies not only create motivation to green production, but also green consumption and trade too.

While supporting green technologies, a careful consideration of their opportunity costs should be taken into account. Swanson and Ziegelhöfer (2011) place two issues that may explain opportunity costs– (i) innovation subsidies or policies in favour of green technology may crowd-out innovation in other sectors; (ii) innovation that are potentially crowded out may have higher spill-overs than that one induced by green innovation policies (p. 39). However, Popp and Newell (2009) found no empirical evidence that R&D in unrelated sectors may be crowded out due to induced environmentally friendly innovation. Analysing the performance of energy refinery companies, they found that the increase in alternative energy R&D comes at the expense of R&D expenses in fossil fuel technology. Therefore, induced environmentally friendly innovation not only fosters green innovation but also seems to crowd-out R&D in dirty technologies (p. 39).

EMS is assumed to provide an incentive for firms to correct their environmental impacts through eco-innovation. Such instruments encourage firms to adopt cleaner technologies, and firms are likely to adopt these just because they are proactive one. It means, providing incentive for firms to adopt an EMS may not be an effective instrument for eco-innovation. In such cases, some voluntary approaches may be effective.

(III) Voluntary approaches: The intention of applying such approaches is to improve consumer awareness about the environmental impact of products and practices, the use of or their alternative availability that has less environmental impact. Rating and labelling and voluntarily negotiated agreements between government and firms are such tools.

Voluntary approaches can be useful in propagating information about abatement costs and environmental damages. They prove effective when the authorities are strong enough to put pressure on polluters. As R&D subsidies, information-based instrument cannot work in isolation rather work better as the complementary tools with other non-voluntary measures.

Voluntary Agreements: Voluntary agreements are the agreements between polluting firms and regulators. The threat of a regulation in case of non-compliance of pollution standard is the basic incentive for firms to comply. In this situation, an agreement between firms and regulator may take place with the commitment of firms to reduce pollution level to the given standard within the stipulated time frame. It provides time for firms to plan for the long-term.

However, such agreements are totally based on voluntary participation. Such participation is not an effective tool on the following ground-

- Voluntary mechanisms are not ideal for the public good;
- Ambitious carbon reduction goal demands 'decisive' way to make the deal 'binding';
- A poly-centric approach as suggested by Ostrom (2009) may be needed for coordination of policies at the local, national and international levels because different levels have different potentials and constraints;
- When voluntary mechanisms such as 'pledges' are not binding, there is no guarantee that they will be met, and no certainty of incentives to over-fulfil a pledge because there are no abatement credits that can be traded.

Information disclosure schemes: these schemes oblige firms disseminate the information about their environmental outputs to their community and to the general public. It enhances not only environmental awareness within the firms but also supports to create public pressure to reduce environmental impacts of firm's products.

Product related policies: these include various instruments that aim to reduce the environmental impact of products. Some of such policies let firms learn more about the environmental impact of their product throughout product-cycle and others help consumers to know about the product having shorter life-cycle environmental impacts. Such policies are combined with other instruments.

Annex 4 summarizes trade policy and environmental policy instruments applicable in green growth regime in an open economy, and their respective strength and weaknesses.

5.2.3 Assessment criteria while selecting specific policy instrument

Each policy instrument has its pros and cons in various stages of the international trade value chain. Therefore, the decision making process may be quite complicated when it has to include inclusive concerns along with sustainability and competitiveness concerns. The set of policy mix is determined as per the objective of policy intervention. The following general assessment criteria are advised to be taken into account:

(a) Cost effectiveness

If cost abatement is the objective, abatement should first be made where it is cheapest to do so. MBIs such as taxes and pollution trading systems are cost-effective tools until they provide alternative ways to put a price on the negative externality. The problem is that imposing

taxes on input or output from an environmentally harmful production process creates loss of efficiency. Similarly, cost effectiveness of subsidies depends on the degree of substitution between the subsidized clean activity and the dirty one that is supposed to be replaced by the clean activity. Since NMIs are mainly concentrated to supply side, they neither raise revenues nor provide opportunity cost over the negative externality; hence, there is no chance of double dividend. Moreover, NMIs are inefficient and are only appropriate where market based policies do not work, or there where they are complementary instruments with market based tools. Whatever is the instrument, the administrative and compliance costs should not be greater than the net positive impact created by instruments OECD (2011).

(b) Adoption and compliance incentives

Compared to subsidies, both taxes and the pollution trading system entail higher costs for producers and consumers. Therefore, political obstacles are high for price-based instruments because they raise concerns of income distribution and competitiveness. However, these instruments provide incentives for adoption in the international context which is desirable for climate change mitigation. Some harmonization of the tax base and rates is needed to ensure maximum efficiency. Emission trading system provides a natural mechanism for financial transfer and, is favourable for less and least developed countries. Among NMIs, performance standards give firms more flexibility to search cheaper options than technology standards do, and hence, are more efficient than the latter (ibid.).

(c) Ability to cope with uncertainty

Among MBIs, as Duval (2008) states, that pollution trading systems can replicate the advantage of the tax system to some extent by including some features like price floors and ceilings, and banking provisions which could all contribute to limit price volatility. However, in the long run, a policy instrument can be adjusted in response to re-assessment of environmental target. Even in this situation, predictability of adjustment in the tax profile may be lower in permits. NMIs are basically unable to cope with uncertainty effectively.

(d) R & D technology diffusion incentives

As claimed by Johnstone and Hascic (2009), the effectiveness of an environmental policy instrument in fostering green innovation can be evaluated on the basis of some properties like dynamic efficiency, stability, flexibility and incident. Tax and pollution trading schemes provide incentives to firms to find cheaper abatement solutions in order to keep the marginal abatement

cost below the emission price set by tax or the permit market (de Serres, Murtin & Nicoletti, 2010, p. 23). Hence, both instruments satisfy the dynamic criterion and flexibility criterion but they differ with respect to stability criterion. As noted in OECD (2007), closer to the externality, a tax is applied; the more likely innovation will be focused on reducing emissions or discharges causing the externality. Some technology support policies used to raise incentives for technology adoption has a similar effect that of a subsidy for eco-friendly activities.

(e) *Facilitating international cooperation:* Permit systems are appropriate when cross-jurisdictional spill over effects are obvious and the coordination is required to reach maximum efficiency.

In concluding words, the best selection of a policy set varies according to the nature and size of predominant market failures and differences in the institutional capacities of respective countries. To cope with multiple and varied source pollution, a combined set of instruments—taxes, permit systems and/or performance standards—can be useful and effective, but we should always carefully analyse the impacts of policy mixes so that counterproductive overlaps can be avoided (de Serres, Murtin & Nicoletti, 2010, pp. 13-29).

5.2.4 Specific policy tools for each trade-related fundamentals

Policy tools to support inclusiveness

One of the fundamentals of competitive green growth is inclusiveness. Some crucial aspects of inclusiveness in trade are equity, decent jobs, human capabilities, safety nets and access to finance and technology.

Enriching human capital or enhancing human capability is possibly the most important part of inclusiveness that can be promoted with trade policy instruments. For example, Andrew (2011) accentuates toward the need to invest in research and development (R&D) using subsidies and other incentives when a country faces technological blockage. In addition to R&D, improving skill is equally important. Hämäläinen (2003) argue that the most sustainable way to increase the demand in the world economy is to improve the skills and productivity of the least skilled individuals. These people are most likely to increase their consumption as their training and skills are improved. Actually, green growth strategies do not encourage more consumption but least skilled people are generally under-consuming people, and hence, to a certain standard, sustainable consumption should be maintained. Skill development in green technology can be

promoted with fiscal instruments. Investment in re-skilling, training, education and R&D not only make labour force adaptive to green jobs but also assist local level innovation.

Some regulatory measures also help with income distribution. Adoption and adaptation capacities can be enhanced through education and training whereas some trade and industrial policies such as local content requirements can retain money within local suppliers and small-business holders.

Access to investment funds is very important for SMEs. A well-designed public finance mechanism can help mobilize private investment in energy efficiency and renewable energy helping SMEs reduce their pollution and resource use. Some way-outs that have the greater leverage are— (i) credit lines or guarantee instruments to private banks, (ii) 'fund of funds' under which the government invests relatively a small amount of long term capital in a range of private professionally managed funds, and (iii) public fund to reduce interest rate for consumer financing (UNEP, 2012).

To reduce income inequality, the recycling of environmental taxes into other taxes will help to minimize the adjustment costs and maximize benefits (*ibid.*). Taxing energy-intensive consumables, sometimes, may not be favourable for low-income groups since it broadens income inequality. Some low-income groups or skills category people spend a large share of their disposable income on energy-intensive products (at least in OECD countries). The majority of cases show that payment of green taxes has regressive direct impacts (West & Williams, 2004; Brännlund & Nordstrom, 2004; Bork, 2003; and de Serres, Murtin & Nicoletti, 2010).

To compensate poor households for the impact of environmentally related taxes, non-wasteable tax credit (i.e., the excess of the tax credit over the tax liabilities paid back to the taxpayers) is preferred, followed by income-tested compensation³⁷ or the reduction of the taxes; and the reduction of tax shifting³⁸ (OECD, 2011).

Poor and vulnerable segments of society need social safety protection. Though safety nets are not directly related to inclusive trade-led growth but have direct impact on imported goods.

³⁷ This compensation mechanism has two options- (i) calculating compensation amount on the basis of green tax due by average energy users or polluters against household income; and (ii) calculating the compensation by comparing actual green tax payment of households to household income.

³⁸ The regressive impact of an environmentally-related tax is partially offset by a reduction in the marginal rates of other taxes specially taxes on labour (OECD, 2011, p. 23)

For example, some subsidy removals such as fuel subsidy become regressive since it deteriorates their purchasing power. Better-targeted transfers, at a fraction of the cost, may be instruments that can replace fossil-fuel subsidies. To avoid trade-led inequality, it is an important tool in many less income countries where the pie of people below poverty line is big. Similarly, reducing trade barriers to accelerate technology diffusion is very important for the better access of global commons to advance towards green technology.

Tools to sustain competitiveness in the green economy

Green growth policy instruments are subject to inherent concerns about the effects on international competitiveness and income distribution. Getting political support and maintaining environmental integrity and economic efficiency of green growth policies are the major challenges.

The impact of instruments taken to address firm's externalities on production costs may be an issue of politician's strong opposition on the ground of competitiveness. When externalities have cross-border dimension and demand policy coordination, the government may hesitate to take bold action against the trade-exposed sectors in the fear that domestic firms will suffer from poor competitiveness if other countries do not follow similar policies.

In the case of domestic political opposition, we propose a democratizing policy cycle that may help understand the real situation and find appropriate strategies. As policy instruments, border tax adjustment (BTA) and free allocation of cap-and-trade system may be proved effective as it provides playing field between domestic producers facing costly climate change measures and foreign producers facing only a few (Cosbey, 2008) and ease the pressure on political parties domestically.

However, BTA has its limitations. While it would address the competitiveness concern by imposing a similar price on foreign producers, it would not necessarily reduce output losses incurred by domestic firms as a result of the mitigation measures adopted at home (OECD, 2009). The border-tax induced increases cost of imported intermediate goods and raises the price of outputs, lowers demand and profitability. But waiving carbon tax or employing cap-and-trade system is also expensive in the sense that exempting energy-intensive industries from the application of carbon tax or cap-and-trade system could raise the global cost of achieving a given emission reduction target by as much as 50 per cent.

Free allocation of permits is preferred so far by governments to minimize the impact of emission cuts on the competitiveness of domestic firms. The problem with this instrument is that competitiveness can be maintained at the expense of incentives to reduced production of carbon-intensive goods. Additionally, this would be fiscally unsustainable since the government relinquishes significant revenue that is needed to invest in R&D to promote green technologies.

To sustain competitiveness, other green economy tools are also needed. Swanson and Ziegelhöfer (2011) prescribe some measures such as skill development, access to information, availability of finance, green investment, and incentive mechanism to enhance the competitiveness in the green economy (p. 48).

5.2.5 Setting the clock for policy stimulus

Policy instruments should be employed at all stages of technological change, i.e., invention, innovation and diffusion because supporting one particular stage may have synergic effects on the other stage as all stages are interrelated. It is equally important to consider appropriate timing to implement these policies. Accordingly, policy makers should take the capital cycle of the firm to adapt to this 'window of opportunity' when proposing measures (Sartorius, 2008).

However, de Serres, Murtin and Nicoletti (2010) state that the scope, timing and magnitude of the required intervention are generally hard to establish (p. 38). It is quite difficult to break the path dependency of the learning process, and hence, a significant thrust of R&D expenditure is needed that can ultimately encourage and streamline onto a new path dependency, i.e., the green path.

Regarding the appropriate timing, technology-push measures (subsidies for R&D and so on) are more effective at earlier stages of technological change or eco-innovation process whereas demand-pull measures (i.e. eco-labelling, public procurement etc.) would be better at the later stage (Oosterhuis, 2006, cited from Carrillo-Hermosilla, del Rio González & Könnölä, 2009). Public procurement (such as green energy cars) should be used to promote the demonstration effect and network externalities. Such tools can be employed until private sector demand is not stimulated. In any situation, public policy instruments should avoid lock-in to suboptimal technologies.

Application of sector specific perspectives may be more important because different policy mechanisms may be more effective in promoting eco-innovation in specific industries

than other instruments do (Norberg-Bohm, 2000, cited from Carrillo-Hermosilla, del Rio González & Könnölä (2009). Carrillo-Hermosilla, del Rio González & Könnölä (2009) referring empirical studies on the relationship between public policy and innovation argue- 'success of the policies aimed at eco-innovation is not depends only on specific policy instrument used but, also, on whether the instrument has been designed, implemented and coordinated in an accurate manner" (p. 63). Therefore, the government should choose appropriate policy measures in accordance with its role and timing.

In a nutshell, scope, timing and the magnitude of the required intervention are not universal, but rather depend on various factors such as private demand and supply situation, the rigidity to path dependency, sector-specific needs, prevailing technology, and others.

5.3 Smoothing the Surface: Harmonizing with International Standards

5.3.1 Multilateral Environmental Agreements (MEAs)

For environmental sustainability, more than 200 multilateral environmental agreements (MEAs) have been already concluded. *Convention on International Trade in Endangered Species (CITES)* bans, regulates and monitors commercial trade of endangered species with permits, quotas and other restrictive measures. Similarly, *Montreal Protocol on Substances that Deplete Stratospheric Ozone Layer* bans or controls the trade of goods containing ozone depleting substances. *Basel Convention on the Control of Trans-boundary Movement of Hazardous Waste and Their Disposal* allows parties to export a hazardous waste to another party that formally agrees to import such substances whereas *Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade (PIC)* makes arrangements for parties to decide the chemicals and pesticides, from the Convention agreed list, to produce and trade that can be managed by the relevant parties. *Cartagena Protocol on Bio safety* restricts imports of some living genetically modified organisms (GMOs) as a part of carefully specified risk management procedure, as the respective parties determine.

Such agreements provide legal measures to tax on dirty (environmentally low grade) products to foster environmentally sustainable trade. When production and consumption decisions of a country impose negative environmental externalities to other countries, MEA

should be there to tax unwanted emission or find appropriate technology or institutions to cope with (World Bank, 2002).

5.3.2 WTO and green economy supporting policies/agreements

In the international regime, border-tax adjustment (BCA) is a crucial market-based instrument that is directly related to WTO agreements. BCA not only changes competitiveness and trade pattern they are also subject to compliance of WTO and general international law (Helm, Hepburn and Ruta (2012). WTO rules do not provide clarity whether border adjustments are compliant but it may be dealt with article XX(g) that provisions exemptions regarding the conservation of natural resources (p. 388).

BCA and Article XX: Under Article XX, the WTO recognizes general exceptions to trade rules. According to Article XX (a), the WTO's contracting party can restrict the imports of goods that are hazardous to human, animal or plant life or health. Similarly, Article XX (g) allows banning imports goods relating to the conservation of exhaustible natural resources if such measures are in conjunction with restrictions on domestic production and consumption' (GATT, 1986).

Similarly, some other policies/agreements related to the green economy as UNEP (2013) specifies, are– TBT (Technical Barriers to Trade) and SPC (Sanitary and Phyto-sanitary Measures), SCM (Subsidies and Countervailing Measures), TRIPS (Trade-Related Aspects of Intellectual Property Rights), and GPA (The Plurilateral Agreement on Government Procurement).

Agreement on TBT and SPS: Among these two, TBT rules deal with technical regulations and product standards, whereas SPC rules deal with food safety and human, animal and plant health. With these agreements, WTO members can put in place some regulatory measures to protect the environment and can advance towards a green economy. At the same time disciplinary measures can be imposed to avoid unnecessary restrictions on international trade.

Agreement on SCM: This agreement prevents member countries from providing trade-distorting subsidies. However, this agreement leaves members with policy space for, among other things, supporting the deployment and diffusion of green technologies provided that certain basic disciplines are respected.

TRIPS agreement: "This agreement provides a framework for applying the intellectual property system to promote access to and dissemination of green technologies, and provides policy space to promote public interest in sectors of vital importance to socioeconomic and technological development" (ibid., p. 33). It also provides specific incentives for technology transfer, and encourages excluding environmentally damaging technologies being protected by intellectual property rights.

The multilateral GPA: Applied only to the ratifying members, GPA aims at opening up procurement markets to international competition on a transparent and non-discriminatory basis; in which parties and their procuring entities may prepare, adopt or apply technical specifications aimed at promoting green procurement.

Sometimes, it is debated whether market integration via WTO agreements provides room for sustainability issue of trade. In this context, the WTO Charter clearly strives for 'the optimal use of the world's resources in accordance with the objective of sustainable development' and clearly states that WTO members will not intervene in national and international environment policies. This is an issue that is to be addressed: 'members should be encouraging environmental protection policies within and amongst member as well as non-member countries'.

In this regard, WBPRR 2002 reiterates the concluding remarks on WTO rule by Greenpeace- "WTO policies fail to acknowledge that the... ecosystem imposed fixed limits on the amount of resources human being can consume... without creating... an ecological catastrophe" (p. 140).

Greenpeace additionally demands an assurance that WTO rules and decisions support rather than interfere with the objectives for effective implementation of MEAs. A new initiative from WTO, for a sustainable and competitive trade, is desirable that can incorporate the provisions of MEAs in its charter and subsequent clauses.

Moreover, the WTO perspective of placing the responsibility for environmental policies on national governments not only fails to consider the competitive pressures which possibly encourage international trade partners to reduce environmental protection, but also condone the problem of weak regulatory institutions in many less and least developed countries (Harris & Roach, 2013). Such an approach is unable to deal with trans-border or global pollution problem. Additionally, in order to reduce the conflicts between industries of rich country and local people (in less developed countries where the production plant is established) based on industrial

hazards; a universal environmental regulation is inevitable. More the world globalizes, more the problems become of a global nature. To solve the multilateral problems, a global solution is required. Some possible solutions as UNEP (2012b) briefing paper on 'trade' suggest three way outs to harness trade opportunities in a green economy and mitigate potential risks. They are-

- (i) *Conclude the WTO Doha Round*: This may offer potential opportunities to support the green economy transition by agreeing on reduction or elimination of harmful subsidies on fisheries, reduction of tariff and non-tariff barriers on environmental services and harmonizing WTO rules with multilateral environmental agreements.
- (ii) *Harmonizing environmental standards*: International community should work towards harmonizing environmental standards and labelling so that consumers from lucrative markets in developed countries will be assured by the producers from less and least developed countries.
- (iii) *Trade facilitating and capacity building*: To seize export opportunities provided by the green growth transition, the most effective means is by strengthening domestic institutions and regulations that govern and manage the trade liberalization process.

Still, the developed countries are hesitant to make an international deal on universal environmental regulations. They are the biggest contributors of GHGs. The World Bank Policy Research Report 2002, states that E-7 countries account for 70 per cent of CO₂ emission. The United States alone, with only four per cent of the world population, emits nearly 25 per cent of greenhouse gases (p. 153). In this scenario, a question of maintaining quality of environmental standards arises in less and least developed countries' manufacturing sector. Being that the production plants and its process less sophisticated, they are less competitive themselves and, the cost of quality maintenance of environment standard makes them more uncompetitive. In such situation, the governments of those countries may opt to attain competitive advantage by being liberal to environmental standards that create 'beggar-thyself' effect of globalization. To offset this effect, until an international regulation is not enforced, one option is that entrepreneurs can prioritize and afford more for a better environmental quality standard when their income rises; and another option is the government support to maintain such standards. The Doha Round should conclude by formulating an accord on these contentious issues.

Another big issue of trade in green growth is that the national green economy may cushion unjustified protectionist measures or restrictions as international trade for particular

goods and services if it is deemed 'green'. The next concern is the aid flow towards less and least developed countries with conditionality on various forms of public financing and development aid (UNEP, 2012b). These issues were also discussed during Rio+20 preparations.

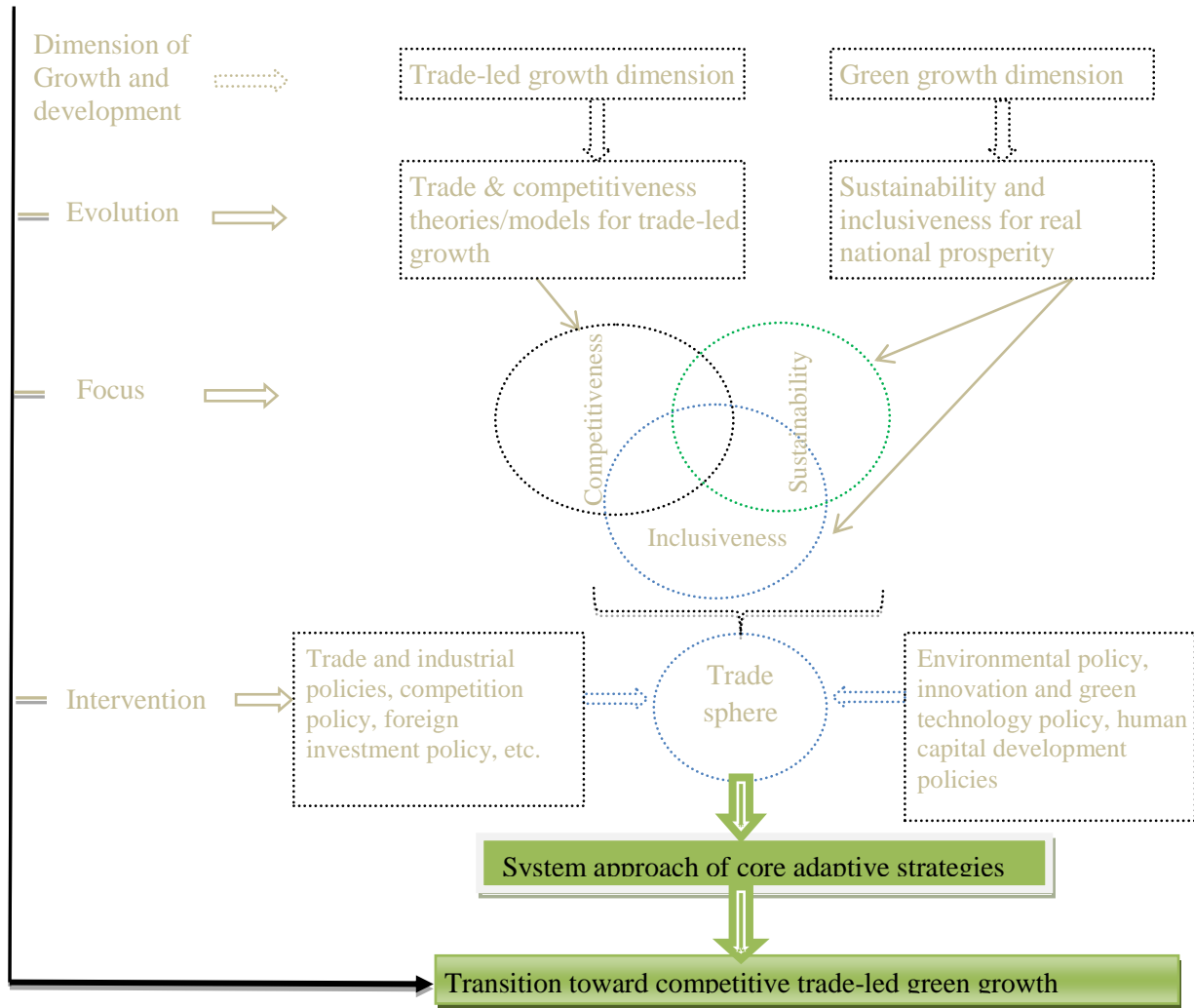
There are some sporadic institutional efforts made to include environmental regulations in trade regime. The European Union has the power to make environmental 'harmonization of environmental standards'. Kyoto protocol encourages the subsidized transfer of energy-efficient technology to less and least developed countries although this provision is feared to violate WTO's prohibitory clause against export subsidies. Such efforts should be coordinated to create synergy until a universal regulation is not adopted.

5.4 Conclusion

In this chapter, we discussed why government intervention is needed and what tools governments can use to lubricate the wheel, or to make adaptive strategies function well. We started with theoretical underpinnings, various market-based, regulatory, and fiscal as well as non-market instruments. Some evaluation criteria are recapped for the applicability of policy tools. Then, we reviewed whether the use of these instruments is consistent with international law and how international coordination can be promoted.

But the story does not end here. How to move the cart is the most complex part when somehow conflicting gravities— competitiveness, sustainability and inclusiveness— are there to put inertia over the cart. Adaptive strategies that we proposed in chapter four may change the course of trade towards a competitive and inclusive green growth if they are carefully employed. In chapter six, we propose a 'system framework' in which how each strategic adaptive solution can be employed is explained, in the presence of incentives, to achieve the goal of competitive trade-led green growth transition.

CHAPTER SIX



Rolling the Cart: The 'System Approach' of Adaptive Strategies

"Green growth is necessary, efficient and affordable."

- Rachel Kyte, Vice-President, The World Bank

6.1 Turning Every Stone- Greening Global Value Chain of Trade

International trade, to be competitive, sustainable and inclusive, should encompass through the green global value chain (GVC). This greening process begins at the conception stage of the product life cycle and ends at the complete disposal of the product (reuse or recycle). GVC not only includes green supply chain management (GSCM) in production cycle but also incorporates transportation cost reduction from production plant to the basket of consumers abroad along the border. However, there are many implementation challenges, as conflicting interests of producers, policy makers, lobbyists, competitors, and service providers influence GVC. In this section, we present frameworks of GSCM, trade costs diagnostic and implementation challenges followed by "Green Box System Approach" and its detail explanation in 6.2.

A. Greening supply chain management (GSCM)

GSCM is the part of firm/industry within GVC. The government can stimulate and support GSCM by employing various policy tools and strategies that we name as strategic adaptive solutions in the present study context.

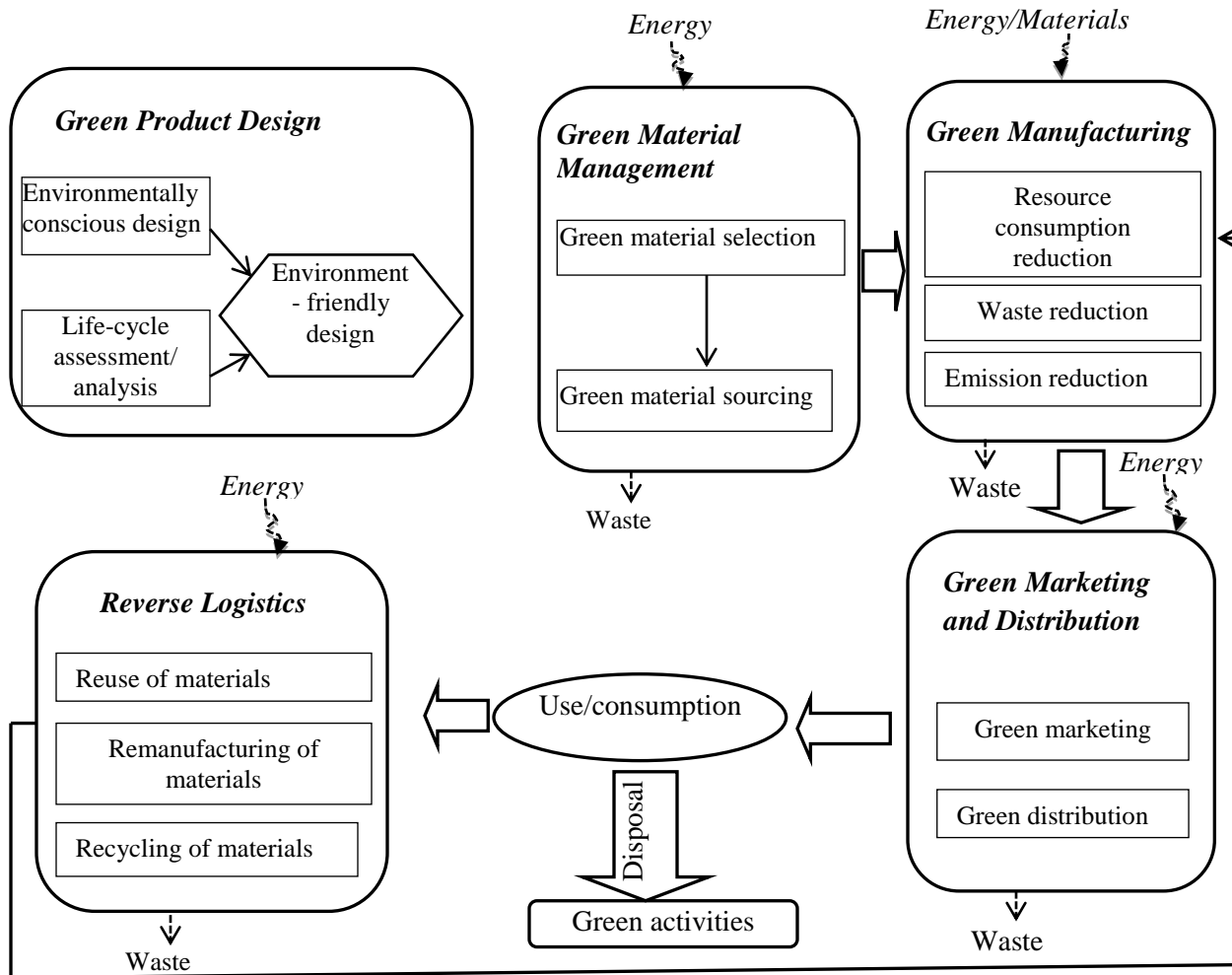
"Greener supply chain management is defined as the strategic and transparent integration of material, information and capital flows to achieve environmental and economic objectives through the systemic coordination of inter-organizational business process" (Sinclair-Desgagné, 2013, p. 3). GSCM can reduce the ecological impact of industrial activity without sacrificing quality, cost, reliability, performance or energy utilization efficiency (Shrivastava, 2007; Markovits-Somogyi, Nagy, & Török, 2009; Dube & Gabande, 2011; Ghobakhloo, Tang, Zulkifli, & Ariffin, 2013). It is a paradigm shift from end-of-pipe control mechanism to consideration in each stage of industrial ecology that not only abide the environmental regulations but also enhances overall economic benefits (Shrivastava, 2007).

The perspective of GSCM has been converted from "greening as a burden to greening as a potential source of competitive advantage for businesses"(Ghobakhloo, Tang, Zulkifli, & Ariffin, 2013, p. 86). For an effective green supply management, manufacturing organizations

must follow the basic principles established by ISO 14001 (ibid.). Organizations should develop procedures that concentrate on operational analysis, continuous improvement, measurement, and objectives. In essence, GSCM is the sum total of green product design, green material management, green manufacturing process³⁹, green distribution and marketing, and reverse logistics. As suggested by Ghobakhloo, Tang, Zulkifli, and Ariffin (2013), an interactive framework of green supply chain process has been presented in figure 6.1 in the next page.

As depicted in the diagram, *green product design* includes both- environmentally conscious design and life-cycle analysis of the product under consideration. Green material management handles green material selection and its sourcing. In the green manufacturing process, reduction of- resource consumption, waste and emission- are taken into account. Reverse logistic loses the loop of generic supply chain by reusing, remanufacturing and recycling of materials into new product or material that have value in marketplace. Green marketing and distribution demands a paradigm shift in marketing modality and marketing behaviour that includes- product modification, changes to the production process, change in packaging and labelling, and promotion of environment- friendly products.

³⁹ Main objectives of green manufacturing process is to reduce the use of virgin material and other resources/ energies (Ghobakhloo, Tang, Zulkifli, and Ariffin, 2013).

Figure 6.1: Interactive Framework of Green Supply Chain Process Implementation

Source: Ghobakhloo, Tang, Zulkifli, and Ariffin (2013, p. 87)

A greener supply chain has extended its scope globally through the international trade of goods and services. Foreign trade has globalized the green value chain that is motivated mainly by the goal of efficiency enhancement. Sourcing inputs from most cost-efficient producers from anywhere of the world is one way to achieve this goal. As domestic products rely on foreign outputs, trade in intermediates is also growing. Such globalization of value chain has also offered new opportunities to SMEs by enabling them to expand their business opportunities across border (OECD, 2008b).

B. Reducing trade costs

To remain competitive in the international market, cost factors across the entire trade value chain should be taken into account so that appropriate policy interventions can be designed

to reduce these costs. The OECD Working Party of the Trade Committee has developed a framework of trade cost factors into three categories- (i) factors located before the border (hard infrastructures, trade financing, and logistic services in terms of competition policy and private sector participation); (ii) crossing the border (direct costs such as tariffs and restrictions, indirect costs such as documentation and customs compliance requirements, red tape in administrative procedures and other delays, and hidden costs); (iii) behind the border such as institutional structures, services in trade and various regulations. In all stages of the international trade chain, transport infrastructure and logistics are included.

Transport infrastructures are the most costly and most prominent components of transport costs. Maritime transport incurs six percent of import value. But without pro-competitive and efficient logistics, high quality infrastructure cannot reduce transport costs. "Cross the border" costs include documentation and customs compliance requirements, lengthy administrative procedures and other delays. Such costs increase transaction costs by 2 - 24 per cent of trade volume. At the same time, revenue losses from inefficient border procedures, in some countries, may exceed five percent of GDP. The strong interdependencies between cost factors, magnified by the prevalence of global value chains mean that policies to address costs and facilitate trade need to be undertaken in a comprehensive manner (OECD, 2013a). Therefore, border is the best point of trade value chain where target interventions are easier, cost-efficient and immediately effective.

With trade policy in mind, the global value chain magnifies the cost of tariff protection. Tariffs are cumulated when intermediate inputs cross the border many times. Downstream firms have to pay tariffs on their imported inputs and face them again on full value of their exports in which imported inputs were embedded into. The larger the share of imported inputs in production, the higher the relative costs faced by exporters incurred by tariffs. Basically, tariffs and other protection measures on imports are a tax on exports which deteriorate the export competitiveness.

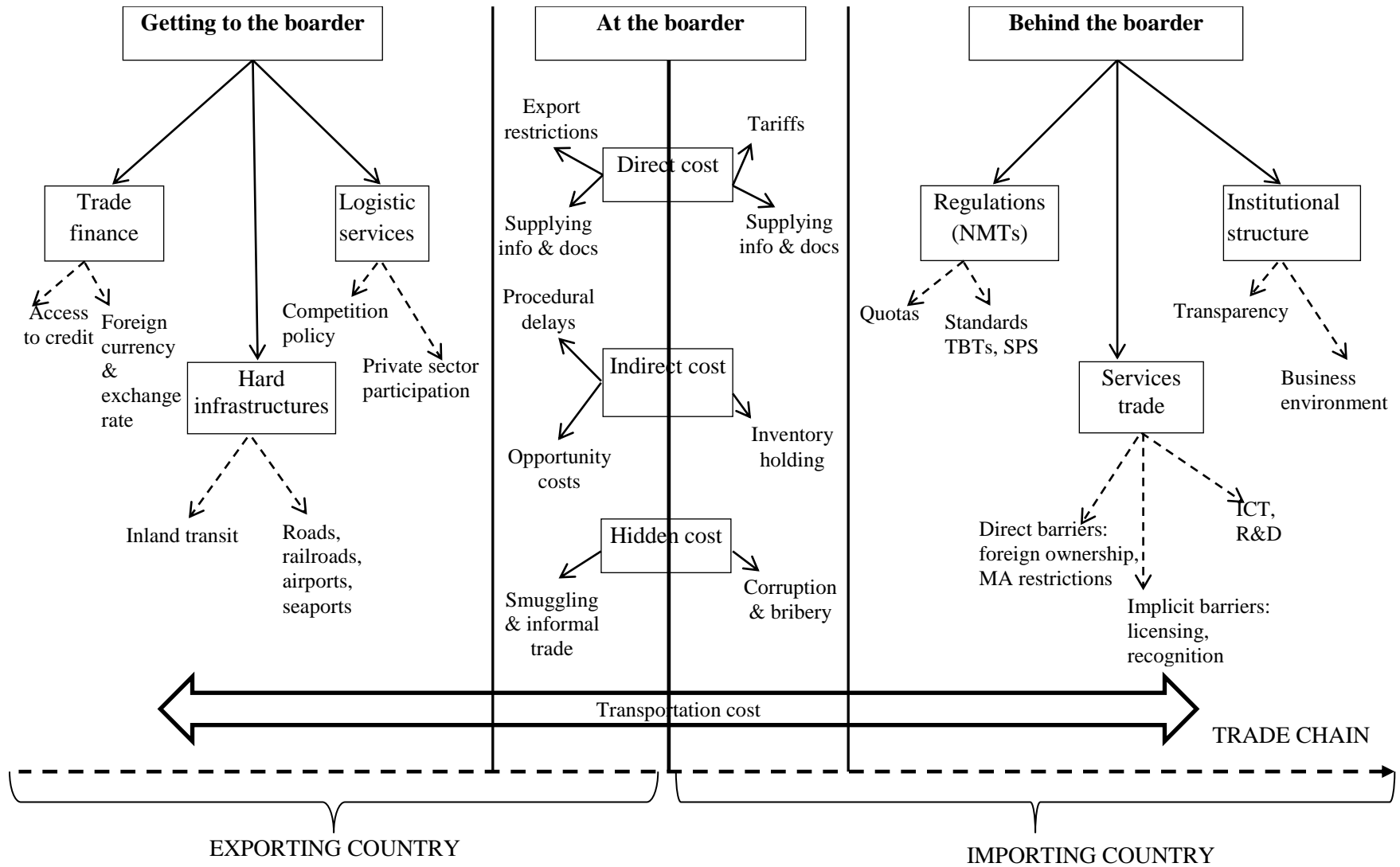
At the border, trade facilitation such as fast and efficient customs and port procedures are necessary for the smooth operation of supply chains. To maintain lean inventories and to meet the demand quickly, their intermediate products should cross the border without any delay. Streamlining administrative procedures, setting quality and quantity standards, promoting conversation of those standards and encouraging mutual recognition of agreements are some

way-outs to alleviate border hurdles and to enhance the competitiveness of small-scale exporters. Similarly, efficient service markets are needed to improve competitiveness behind the border. This includes well-functioning transport, finance, logistics, communication and other services that should remain in a smoothly coordinated manner. Reciprocal concessions to a unilateral response, multilateral and plurilateral agreements that cover goods, services, competition, investment, temporary labour movement across border, intellectual property rights etc., can build efficient supply chains (OECD, 2013b).

Behind- the- border costs for both exporting and importing countries are concerned mostly with domestic, regional or international regulation and standards for goods and services whose trade and welfare impacts can be equally significant. With the integration of modern global value chains and the possibility of goods and services crossing border multiple times, interaction among the cost components are more important (OECD, 2009, cited in: Moisé & Le Bris, 2013).

Figure 6.2 depicts various factors that are the parts and parcels of global value chains that determine trade costs while exporting/importing tradable product. While promoting green global value chains, these impediments should be properly addressed with appropriate policy design so that competitiveness, sustainability and inclusiveness also would be enhanced.

Figure 6.2: Trade Cost Diagnostics

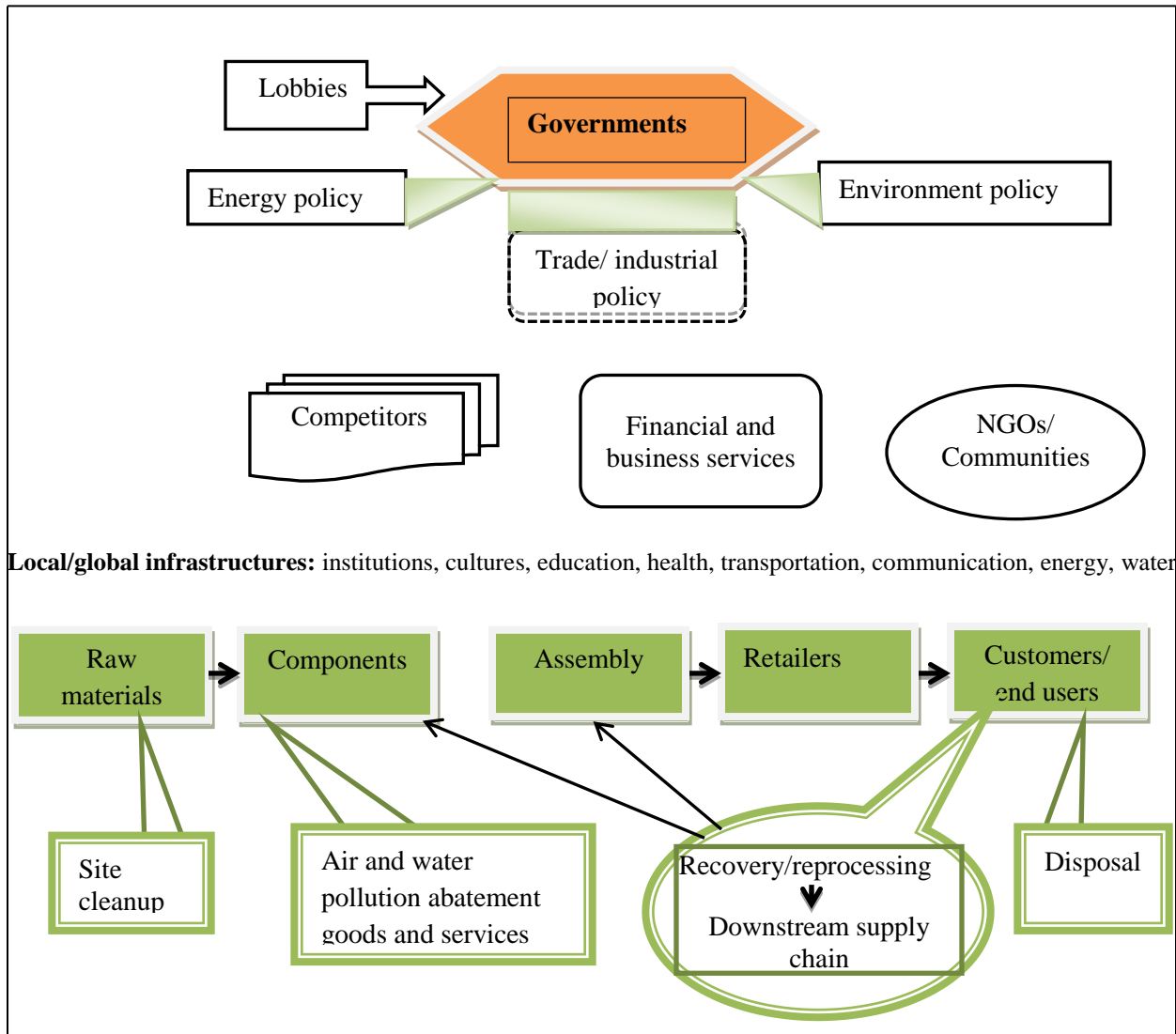


Source: OECD (2013a, p. 12)

C. A general framework of GVC: Implementation challenges

From figure 6.1 and 6.2, we observed that the greening global value chain starts with product design, and encompasses various processes in production, transportation, and finally to the consumption by the final consumers across the border. Government policies play a crucial role in moderating and greening these value chains. Sinclair-Desgagné, (2013) proposes a general framework that shows how various government policies, competitors, lobbyists, NGOs and communities, financial and business services as well as global and local infrastructures influence GVC.

Figure 6.3: A General Framework to Consider Greening a Global Value Chain



Source: Sinclair-Desgagné, (2013), p. 1

This framework clearly shows the implementation challenges of making international trade competitive, inclusive and sustainable. To cope with those challenges and achieve the goal of greening value chain further making it inclusive and competitive, some adaptive strategies are needed that may lead towards a successful green growth transition.

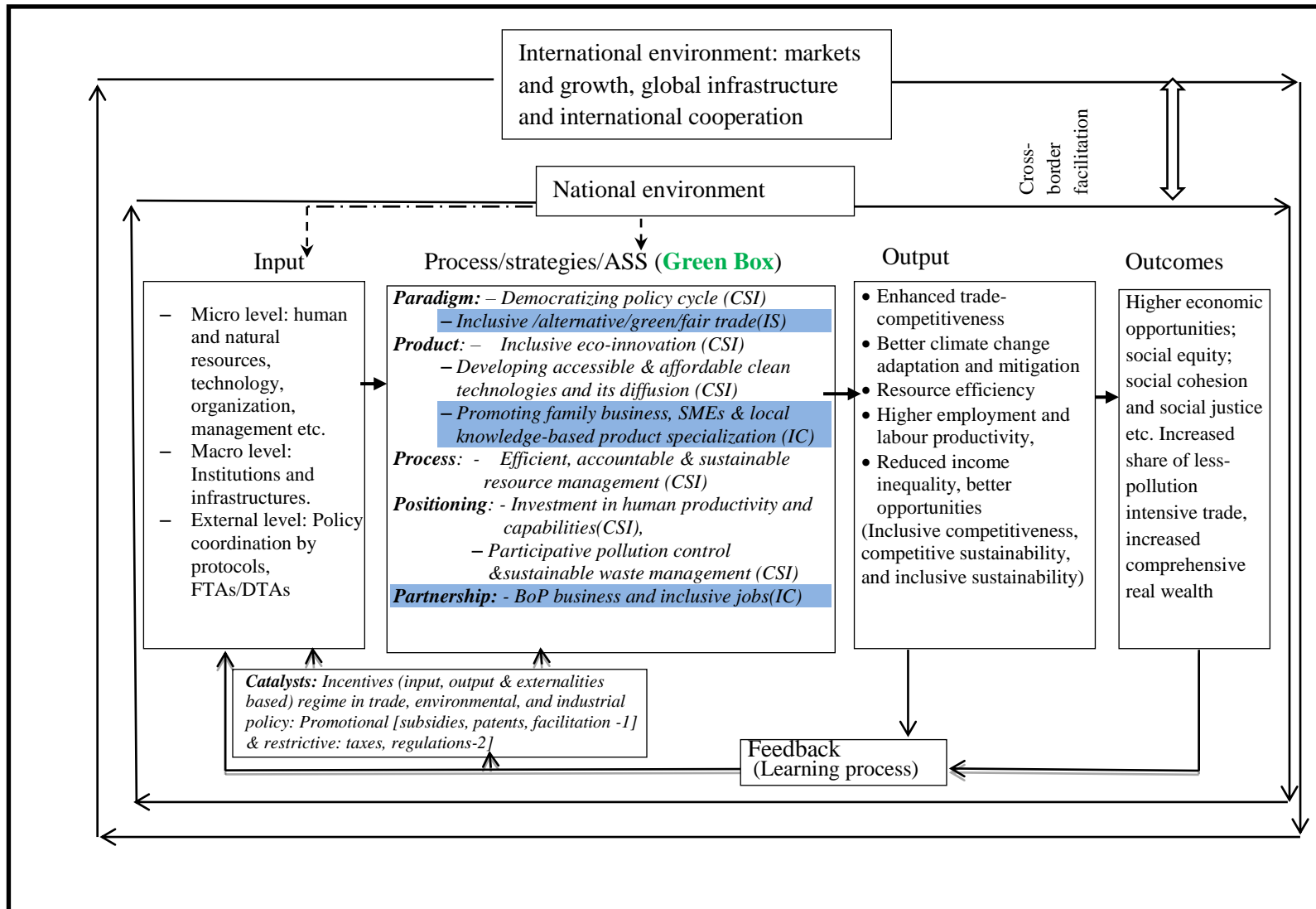
In previous chapters, extracting the ideas from trade theories, competitiveness models and green economy literature, we identified possible adaptive strategies (in Chapter Four) and reviewed possible policy incentives (in Chapter Five). These incentives may be used to catalyse those strategies that help make the trade green, competitive and inclusive by affecting each stage of global value chain. Incentives (as in Chapter Five) that interact with CASs/ASs make a complete 'Green Box System Framework' supported by feedback and regular learning. In the next section, we develop the framework. We focus on strategies, not on greening mechanism.

6.2 Developing System Framework

Identified CASs/ASs in Chapter Five, as we explained earlier, are reinforcing each other rather than contesting and contradicting, and are expected to bring paradigm shifts in the overall process of trade and growth system. We assume that solutions that contain the attributes of all three fundamentals should be promoted mostly with government incentives in the form of trade policy, industrial policy and other relevant policies. We also assume that the more specific the indicators of CSI, the faster the pace toward trade-led green growth. This means that the instruments of trade, environment and industrial policies should be favourable to enlarge the central triple-intersection-bubble first, and then the remaining overlaps. This section proposes a single framework that explains how trade-led green growth may be possible with a systemic interaction among CASs/ASs, incentives, feedback mechanism and international coordination.

In the Green Box System Framework for Adaptive Strategies as presented in figure 6.4, our major focus is on *process* (Green Box) where CASs/ASs are proposed and explained. In every strategic solution, we take into account the economic (competitiveness aspect only), environmental sustainability and inclusiveness (the human face of trade) and explain how incentive can be used to foster them. Outputs are sustainable competitiveness, inclusive sustainability, and inclusive competitiveness; where ultimate outcome is the successful transition towards competitive trade-led green growth. Figure 6.4 depicts the proposed framework.

Figure 6.4: A Green Box System Framework for Competitive Trade-led Green Growth Transition



Concept: Author

In the above diagram, we present an eclectic framework of a Green Box System Framework (GBSF) by amalgamating trade and competitiveness theories, sustainability features and inclusiveness attributes into trade sphere. We neither explain the *input* part of this framework nor *outputs* and *outcomes*. Rather we focus only on the *green box* or process. We assume that national competitiveness is influenced by all- microeconomic, macroeconomic, and external environment. Unlike hitherto competitiveness models, our framework demands human face in competitiveness. A continuous learning process in the form of *feedback* helps redesign firm level and macro strategies for competitive trade-led green growth. A brief introduction of GBSF –

A. Inputs

Input components in this model are:

- Micro level: Factors of production (human and natural resources), technology, organization, management etc.
- Macro level: Institutions and infrastructures.
- Global level: Policy coordination, FTAs, DTATs.

B. Process (green box)

In the green box, all the greening process takes place. From trade policy making, to a firm's strategy setting: stakeholders have crucial role. Five innovative dimensions⁴⁰ are active in the goal setting, resource managing, product designing, technology selection, production, trading and the waste management process. The dynamic and mutually reinforcing component create a synergy for competitiveness, resource efficiency, inclusiveness and sustainability of growth. Table 6.1 presents categorization of adaptive strategies and core adaptive strategies.

⁴⁰I have adapted the category of innovation into our green box classification of adaptive solutions. As stated by Tidd et al. (2005) and extended by Krämer and Belz (2008:216), innovation can occur in five areas (cited in Waibel, 2012). They are-

1. Process innovations: change the way in which products and services are produced and delivered;
2. Product innovations (it includes soft and hard products): refer to changes in products and services offered;
3. Position innovations: change the way and context in which products and services are introduced to the market;
4. Paradigm innovations: represent changes in the underlying mental maps that frame what the organization does; and
5. Partnership innovations: are changes in the way an enterprise cooperates with partners and networks to acquire knowledge and technology to innovate (p. 61).

Table 6.1: CASs/ASs under various innovative dimension

Innovation dimension	Adaptive strategies	Strategy type	To address:
Paradigm	Democratizing policies and optimizing social capital	Core Adaptive Strategy (CAS)	CSI
Product	Inclusive eco-innovation	CAS	CSI
Product	Developing and diffusion of accessible and affordable clean technologies	CAS	CSI
Process	Efficient, accountable and sustainable resource management(CSI)	CAS	CSI
Positioning	Participative pollution control and sustainable waste management (CSI)	CAS	CSI
Positioning	Investment in human productivity and capabilities	CAS	CSI
Product	Promoting family business, SMEs and local knowledge-based product specialization	Adaptive Strategy (AS)	IC
Paradigm	Inclusive /alternative/green/fair trade - (typically for low income economies)	AS	IS
Partnership	BOP business and inclusive jobs- (typically for low income economies)	AS	IC

Source: Author

- C. Output and outcome:** Enhanced trade-competitiveness, pollution control, adaptation, mitigation and abatement, social equity, diversified trade, fostered tribal professions, decreased transportation cost etc. are the outputs that resemble the competitive trade-led green growth. These outputs are measured with some widely accepted indicators. In another sense, fostered inclusive competitiveness, inclusive sustainability and sustainable competitiveness are outputs of the system that leads towards green growth.
- D. International/ external environment** includes the characteristics such as foreign market demand, international trading arrangements and legislations, externalities and cooperation. For example, international cooperation can assist greening trade by financing for appropriate training, policy reforms, information collection and sharing, public environmental education, and research programs. (Dasgupta et al., 2002; Dinda, 2004).
- E. Cross-border facilitation** consists of all measures that reduce resources in trade and makes the exportable cost competitive.
- F. Feedback or learning process:** Being a dynamic and changing process, system framework for green economy gives high emphasis on continuous learning. Learning from past experience and quickly adapting new useful technologies leads to regular

modification and readjustment in innovation paradigm, and this process helps keep the trade competitive even in the long run.

How does the learning process take place? In his competitiveness triangle, Lall (1999) claims that the development of the national competitiveness share many features of learning at the enterprise level. National learning is path dependent and cumulative. Therefore, government policy becomes crucial to overcome market failure that includes tackling learning costs, coordinating factor market improvements in technology, developing institutions and promoting externalities.

National and international environments are always important to prioritize particular adaptive solutions. For example, the promotion of green energy becomes more successful in mountainous countries like Nepal and Bhutan rather than in Arabic countries. However, CSI solutions (core policy-mix or CASs) should be and can be promoted everywhere by giving emphasis on the competitive growth trajectory of an economy. Unsupportive to business-as-usual type of classical and neo-classical trade-led growth model, we argue that contemporary problems of inclusiveness, sustainability and competitiveness need a radical departure in structural management. It demands greater but very cautious government intervention in the form of *catalysts*.

In addition to the specified elements in framework, some intangible aspects are equally important. We cannot expect inclusive and sustainable growth in the absence of ethic-based production, consumption, and trading behaviour. As such domestically appropriate trade policy instruments should be honestly followed by each country. Such behaviours might be beyond any prescribed structure of the economic policy paradigm. Ethic-based trade and even some adaptive strategies that we have proposed in our framework seem more idealistic in view of rational economic perspective. But we believe that social justice, social cohesion, social equity and environmental considerations are beyond the myopic and materialistic monetary calculation of wins and losses. Such social and environmental prosperities, once de-embedded, eroded or even lost, become either irreparable or reparable at very high cost. Trade, by which the world has turned into a global village, should respect these socio-environmental attributes, and hence, it is better to employ preventive measures rather than post-crisis hue and cry.

6.3 Interplay between Adaptive Strategies and Incentives

6.3.1 Democratizing policy cycle

6.3.1.1 Why policy democratization?

For an inclusive development, the inclusive process starts from inclusive policy making and ends with equitable distribution of policy outcomes. Each stage of policy cycle (problem definition, agenda setting, policy development, policy implementation and, evaluation) should be meaningfully participative. If the voice of all stakeholders is not heard or not included in trade, environment, and industrial policies, inclusive development is hard to attain. On trade related inclusive policy making, CUTS International's report⁴¹ states that "inclusive trade policy making can significantly contribute to the empowering of people and persuade the government to design and implement policies that use trade as a mean to pursue economic equity and social justice"(p. iv). Meaningful participation ensures voices, opportunities and accountabilities. On enabling voice and participation, UNDP Report 2013 states–

Unless people cannot participate meaningfully in the events and process that shape their lives, national human development path would be neither desirable nor sustainable. People should be able to influence policy making and results, and young people in particular should be able to look forward to greater economic opportunities and political participation and accountability (p. 9).

As meaningful participation is important, equally important is the ensuring of the rights of rural communities to a clean environment that enables them to have a sound basis for their livelihoods and their living conditions. In the agricultural sector in which mostly rural people are involved in, sustainable production methods not only provide great mitigation and adaptation potential but also multiple dividends to farmers. For example; Ocampo, Cosbey and Khor (2012) argue that paying farmers for carbon sequestration not only help remove the carbon dioxide from the atmosphere (mitigation), raised organic matter and moisture level in soils that enhance their resilience (adaptation) and better crops yield occurs by improved organic matter in the soil (production). Here, stakeholders should be clearly identified.

⁴¹ CUTS International, in its full form, is Consumer Unity and Trust Society based in India. This report was in partnership with Malawi Economic Justice Network (MEJN), Malawi; Economic and Social Research Foundation (ESRF), Tanzania; Southern and Eastern African Trade Information and Negotiation Institute (SEATINI), Uganda; Africa Resource Centre, Lusaka, Zambia and; CUTS Africa Resource Centre, Nairobi, Kenya. Detail information is available at <http://www.cuts-international.org/ARC/>

Identification of genuine stakeholders and ensuring their participation in the trade policy process is a difficult task due to the growing complexity and diversity of trade mechanism. Ritchie (1994) argue that bundling together all exciting ideas that people have about how to foster environmentally sustainable employment and self-employment and bringing it to a state-legislature and in local government is necessary. For this purpose, they propose state-wide or citywide conferences sponsored by local environmental groups as an excellent way to gather ideas and to get other groups involved in such campaigns.

As a greening economy is possible only through a responsible behaviour by all stakeholders, the greening process faces various obstacles from political and behavioural inertia, to the lack of financing instruments. Moreover, there are internal as well as external factors that weaken the effectiveness of democratizing policies. Internal factors include political leverage, assuring just representation of stakeholders, factor conditions and institutional capacity among many others. External factors are international standards or the policy regulations in the export destination countries.

Internal political leverage and government priorities dictate the course of policy and its outcomes. Ben-David, Nordström and Winters (2000) argue that one of the main causes of poverty is that the poor often lack the political leverage to influence the policies and priorities of government. What they claim is that countries are more affected by their own policies than by their partners in almost all circumstances.

Among various external factors, environmental standards, and product quality standards seriously limit the benefit from exports despite a democratic policy making in the country under consideration. A slow income country imports pollution-intensive machinery and other products from developed countries and exports relatively less pollution- intensive products in contrary. It has transferred the environmentally hazardous products to those countries that contribute relatively very low in environmental degradation. Ironically, the exports from low-income countries are often scrutinized under the environmental standards set by developed economies. UNEP (n.d.) *Report on Sustainable Trade and Poverty Reduction* presents an example of Lebanon's Association Agreement with the EU that has provided increased market access for the country's agricultural products, but the challenge is to meet EU's environmental standards and to ensure that the rural poor will share the benefits of increased trade. Therefore, democratizing policy process should address the issues of international standards, quality spectrum, legality, and so on. A blend of economics, political science and social psychology solutions are needed to cope with such problems (The World Bank, 2012a, p. 1).

Even the traditional technocratic approach of trade and other public policy making that has been a process of materializing political will by technocrats, cannot address the problem of all trade stakeholders. Ritchie (1999) has stated-

There are many areas where the expertise of non-governmental and citizen organizations could make a significant positive contribution to the negotiating process: sustainable agriculture, energy, compensatory financing mechanism, packaging, labelling and waste, technology transfer, intellectual property rights, sustainable forestry, biotechnology and biodiversity, and global governance and policy-making... (p. 1).

As they argue, democratizing trade policy is not only important for better trade performance, but also equally crucial for employment generation, knowledge transfer, and efficient use of natural resources etc. To address economic and ecological sustainability, and people oriented trade, democratic trade policy seems essential in any democratic countries.

Likewise, environmental policy making needs an inclusive approach for its effectiveness and successful implementation. Renn, Webler, and Wiedemann (1995), referring the meeting on the environmental policy design at Moschach in 1992, summarize the agreed fundamental principle that involving the people who are affected by the outcomes of environmental policies is must to make such policies effective and legitimate. A technocratic solution is not available. Without public involvement, the fate of environmental policy is a total failure.

In the absence of democratic policymaking, the general public lacks an in-depth understanding of the key issues in trade and environment, and their possible solutions. Additionally, getting public support on trade treaties, getting public input for better policy alternatives and bringing public on the board of some crosscutting issues like bio-diversity, environmental regulations and social accountability are very difficult. Policy implementation is jeopardized in such a situation. Basically, if there is disregard and disrespect toward an enacted trade policy, sustainability and inclusiveness dimensions of trade becomes precarious.

Despite these arrangements, trade policy making in labour-intensive countries is more difficult, in that such countries may not necessarily reduce income disparity by exporting labour-intensive goods. Bensidoun, Jean and Sztulman (2011) found evidence that "an increase in the labour-intensive exports, in comparison to the capital-intensive one, increases income inequality in the poor countries, but tends to reduce inequality in the developed economies" (p. 610).

6.3.1.2 Democratizing trade and environment policy within system approach

In the previous section, we elaborated why policy democratization takes place and what may be its major obstacles. This section deals with possible ways to make policy democratization effective. In standard representative policy making, elected and appointed officials get involved in policy making on behalf of their constituencies whereas direct binding policy making by citizens materializes with referenda. In non-binding direct involvement process, citizens provides inputs to the deliberative process through public hearings, comments, open meetings and some citizen advisor commissions. An administrative or legislative body mediates the outputs/outcomes. In binding direct policy making by non-governmental representatives, policy decisions are made by citizens or group representatives (stakeholders' representatives) but they operate within structures provided by elected or appointed officials (Steelman & Ascher, 1997).

However, policy attributes such as accountability, efficiency and flexibility seem contradictory to both participatory decision making approaches. Vari (1995) has developed a model called Citizens' Advisory Committee (CAC) model of public participation that possibly addresses such issues. CAC includes representatives of interested citizen's organization and the general public, and other institutions affected by policy decisions. They categorize the decision making process as: goal-centred process, data-based process, participative process and adaptive process. In our system framework, we adapt CAC approach and propose that democratizing policy-making process should be designed in the following way:

Goal-centred process: First, the goal of trade and environmental policies for trade-led green growth should be deliberately specified. The outcome of the process is efficient decisions. This process helps to make an efficient decision that can be achieved with relatively few resources (ibid, p. 110). To reach the goal of competitive green growth, targets on employment generation, narrowing income inequality, reducing environmental pollution/degradation and protecting biodiversity, increase in exports or import reduction by certain percentage are some examples of goal setting. Goal setting provides clear guidance to fix programs, strategies and action plan. Accordingly, the respective implementing, monitoring, and evaluating mechanisms should be stipulated, involving stakeholders in each process.

Data-centred process: Policy formulation needs reliable and appropriate data set. It leads towards accountable decisions. Decisions made in line with this process are driven by data to make accountable decisions which are transparent, well-documented and easily

justifiable (ibid., pp. 110-111). Technical evidences are sought to convince the conflicting parties. As we know, it is not so easy to convince business managers to adopt greener technologies and easily grasp environmental policy regulations; they should be persuaded with sufficient and reliable data that depicts the hazards created by their production plant or similar business activities. In turn, to change the consumption behaviour in favour of green products, public education programs should be conducted with convincing data and proofs.

Participative process: This means meaningful participation during the inclusive policy making process. It helps get a supportable decision in the end. Improved communication can facilitate the participation of all stakeholders in the decision making process. Participation of affected or to be affected parties should be ensured in each stage of policy decision, i.e., policy design, policy coordination, implementation, signalling possible problems and suggesting possible policy accommodation and evaluating the policy outcomes.

Adaptable process: This process translates citizens' decisions into legitimate decisions. The decision process is considered adaptable if it can be easily modified or changed in response to unexpected events and interventions. When new innovations, exploration and technology development can prove existing policy decisions obsolete policy modification should be made to adapt more efficient and sustainable technology that ensures real gain. Hence, the learning process is a vital component that also assists capacity development in policy impact evaluation.

Government incentives: Democratizing the policy process is validated with government incentives such as providing legal framework and recognizing the public participation. Unlike other CSASs or SASs in our framework, incentives are not in any concessions or monetary rebates or supplements as the tool of trade and industrial policy as well as measures of environmental policies. Therefore, incentives for this purpose are recognition and validation.

Outcomes of the democratizing policy process are - efficient decisions, accountable decisions, supportable and legitimate decisions that are expected to directly or indirectly lead the trading process toward a competitive, inclusive and sustainable trade-led growth.

6.3.2 Inclusive eco-innovation

6.3.2.1 What is eco-innovation?

Eco-innovation, also known as sustainable innovation or green innovation, is developing a new product, process, or service that provides customer and businesses value, but significantly decreases environmental impacts (Fussler & James, 1996). Charter and Clark (2007) define sustainable innovation as "a process where sustainability considerations

(environmental, social and financial) are integrated into company systems for idea generation through to research and development (R&D) and commercialization; this applies to products, services and technologies, as well as new business and organizational models" (p. 9). As of the European Commission's Competitiveness and Innovation Framework Program (2007-13), eco-innovation is any form of innovation aiming at significant and demonstrable progress towards the goal of sustainable development, through reducing impacts on the environment or achieving a more efficient and responsible use of natural resources, including energy.

Foxon and Pearson (2008) define sustainable innovation as "innovation towards more sustainable technological and institutional systems and processes-broadly understood as system for which resource use and waste production remain within appropriate environmental limits and socially accepted levels of economic prosperity and social justice are achieved" (p. S148).

Carrillo-Hermosilla, del Rio González and Könnölä (2009) define eco-innovations as such innovations that are a special form of technological knowledge, one that leads to a reduction of the environmental impacts of the company while simultaneously enhancing its competitiveness.

In brief, eco-innovation is such an innovation that changes an existing course of development (technological and behavioural) and leads towards the sustainable, efficient and effective use of resources that enhance the quality of goods and services without deteriorating the natural environment, and ultimately leads towards sustainable development.

6.3.2.2 Classification of eco-innovation

According to Anderson(2008), eco-innovation is categorized based on industrial dynamics; they are- (i) add-on eco-innovation (pollution and resource handling technologies and services) (ii) integrated eco-innovation (cleaner technological processes and cleaner products), (iii) alternative product innovation (new technological paths), (iv) macro-organizational eco-innovation (new organizational structures) and, (v) general purpose eco-innovation. Andersen proposes to treat the company as 'innovator' rather than a polluter. How to incorporate competitiveness and sustainability together, in other words, green competitiveness is the major concern. Their fundamental argument in this regard is- "a stronger focus on knowledge based competitiveness and its relations to eco-innovation is needed in order to understand the nature and scope of green competitiveness and the rising role it plays in the global economy" (p. 1).

Carrillo-Hermosilla, del Rio González and Könnölä (2009) classify eco-innovation in four broad categories, namely- design, user, product service and governance dimension. These dimensions are summarized below.

Design dimension: The 'design stage', a key for determining costs and profitability is the early stage of product and process development, which is also an opportunity window to address environmental objectives. The decision made for key materials, process and energy source at this stage highly determine the environmental impacts of a product for its entire life-cycle. While designing innovation, we should consider human actions incompatible with the natural environment (i.e. remaining negative impacts of human-made system) as 'design failures' and focus on the environment and the society. Three different approaches are: (a) 'component addition' such as end-of-pipe technologies; (b) 'sub-system change' that reduces negative impacts by creating more goods and services while using fewer resources and creating less waste and pollution (eco-efficiency); and (c) 'system change' intended toward eco-effective solutions. Changes in the system and its components and subsystems are designed considering both- their negative and positive impacts on the eco-system.

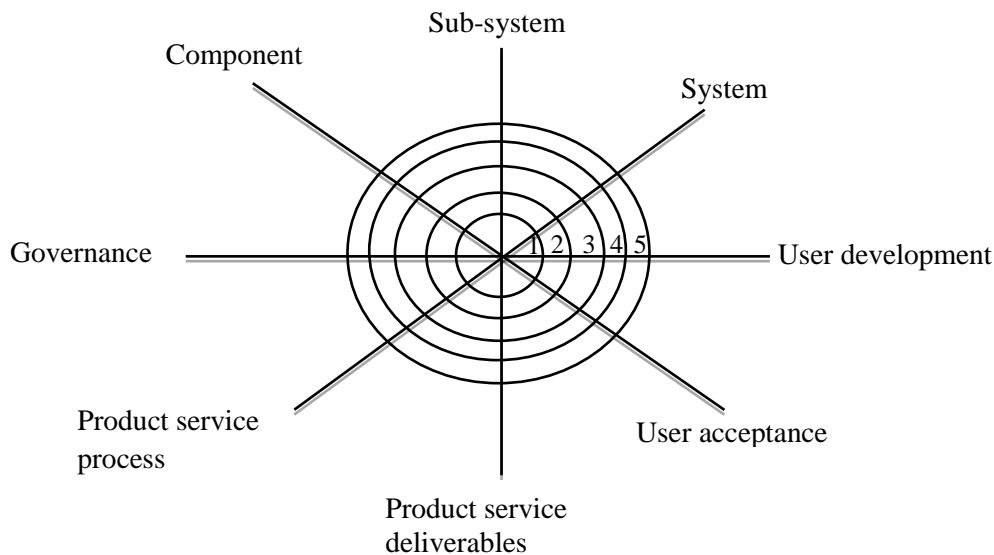
User dimension: Involving users to develop eco-innovation and get benefits from their creativeness is desirable because it makes them accept and take-up the new products and services. There are two dimensions of user innovation- development dimension and acceptance dimension. There is less chance of radical nature of user-driven innovation due to cognitive limitation and/or the lack of motivation stemmed from high anticipated switching costs and the fear that existing knowledge being obsolete. Identifying lead-users and involve them in idea generation and development phase is very crucial because they realize the need of innovation in advance.

Product service dimension: Those innovations that are successful are those that can either reduce cost or provide higher value ultimately creating higher revenues from existing and new consumers. Application of product service system is proposed for developing sustainable business model that refers to "a system of products, service, supporting networks and infrastructure that is designed to be: competitive, satisfy customer needs and have a lower environmental impact than traditional business model" (ibid, p. 20). What a product service eco-innovation demands is- a specific consideration of overall business strategy and logic with much stress on supply chain convergence.

Governance dimension: Radical innovations that demand a techno-institutional system change are difficult to pursue due to the prevailing system that may oppose creation and diffusion of new innovation system. For the systems that have been pervasive socially

and economically or are crucial for national security, government intervention and encouragement through various incentive mechanisms like subsidies; outright ownership etc. becomes important for system's expansion. While doing so, lock-in conditions should be avoided by better governance in both- private and public sector.

Figure 6.5: Dashboard of Eco-innovation



Source: Carrillo-Hermosilla, del Rio González & Könnölä (2009)

This dashboard characterization provides support for management and policy to understand the nature of eco-innovation, prioritization, and stakeholder's engagement for crucial success. Management may get guidance to identify required competencies. As Carrillo-Hermosilla, del Rio González & Könnölä (2009) argue, design dimension may place emphasis on science and engineering, user dimension on marketing and communication, product/service dimension on business management and strategy, and governance dimension on policy expertise and corporate governance.

6.3.2.3 Why eco-innovation?

To enhance competitiveness in international market: Carrillo-Hermosilla, del Rio González and Könnölä (2009) argue that a firm's competitiveness could be enhanced with the adoption of eco-innovation. As the market itself (with some exceptions) does not attract the diffusion of eco-innovation, those that are not inspired by the market with business perspective need certain stimulus. Market failures (in terms of negative externalities of pollution and other environmental hazards) and positive externalities of R&D (spillovers that create free-riders problem sometimes) both may work as the barrier preventing the uptake of eco-innovation.

Policy measures are essential to remove such problems generated by both kinds of externalities. Indeed Swanson and Ziegelhöfer (2011) argue that:

Governments can create a competitive advantage for their economy by inducing technological innovation through environmental policy... If similar regulations are adopted by other countries with, with same resource value, the country which first developed the technology for particular resource price strategy has a competitive advantage and captures the environment for the technology in demand (p. 30).

For the health of natural system and quality of life: Putting light on the importance of eco-innovation, Larson (2000) states-

With so many commercial products and industrial process at odds with sustainability goals, this area [sustainable innovation] represents an open frontier for innovation. The health of natural system on which the economy depends also argues for a rapid evolution of environmentally appropriate technologies as the means by which adequate quality of life is assured (p. 12).

To enhance productivity: Innovation has a great role in enhancing productivity of exporting firms. Exploring the relationship between innovation activity, productivity, and exports by using a panel of Spanish manufacturing firms for 1990-1998, Cassiman and Golovko (2007) found a significant positive correlation between the export variable and productivity of the firms engaged in process innovation. Using firm level data set from developing countries, Şeker (2009) found that two-way traders (export-import) are the fastest and most innovative group followed by only-exporters. R&D investment in innovation contributes to growth of traders significantly higher than to non-traders, and globally engaged firms are larger, more productive, and grow faster than non-traders grow.

Eco-innovation saves resources, creates jobs and reduces pollution. According to a survey of 125 projects in the EU, indicated for two years after their completion, it is estimated that the total global environment and economic benefit will reach 1.6 billion euro; eight full time jobs will be created per project, including the whole supply chain. Similarly, 14 million tons raw material will be saved that is enough raw materials to build 200 Eiffel towers. Every euro of funding for eco-innovation is expected to generate 20 euro revenue per project. Around 11.6 million tons CO₂ will be saved that is equal to carbon emissions from the annual electricity use of 1.7 million homes in the EU. Similarly, 170 million cubic meter water will be saved equivalent to the annual water consumption of an EU city of 350,000 people. About 609, 000 tons less waste will be generated equivalent to the annual waste generation of the EU city of 125,000 people. Among the projects under consideration, 70 per cent were SMEs (European Commission, 2013).

6.3.2.4 Policy instruments for eco-innovations

Socio-economic and institutional actors such as public policy, the general state of an economy, information suppliers, final customers (private/public), competitors, industrial associations, civil society, research centres etc. play an important role in the process of eco-innovation. Among those, public policy has been attributed as the major driver or barrier for eco-innovation.

Public policy, in the form of environmental policy and innovation policy (i.e. R&D support and subsidies for cleaner technologies) provides stimulus for eco-innovation. Environmental policies can be materialized in specific command and control regulations or standards i.e., technology standards, environmental standards, and emission standards. Similarly, market-based or economic incentives (that include taxes, emission permits and subsidies) and educational and information measures are also policy instruments that can be targeted to general public, consumers and/or firms.

Some considerations should be taken into account while selecting appropriate innovation policy/incentives for eco-innovation.

Firstly, a cautious selection of public promotion incentives is needed because they may lead to technology failures or crowding out of 'normal' innovations that are social-welfare enhancing. Carrillo-Hermosilla, del Rio González and Könnölä (2009) envisage economic instruments as better instruments than direct regulations. However, they agree that pushing specific eco-innovations to enforce public adoption of cleaner consumer product with short payback period may not get adopted into the market.

Secondly, acknowledging the barriers to environmental techno-institutional change is a challenge for policy makers to select from various instruments. An effective policy to promote eco-innovation could be that one which takes into account various barriers that are preventing adoption of eco-innovation so that 'picking the winners' bias can be avoided. After finding different kinds of barriers it is preferable to choose policy combination or 'instrument mix' approaches because specific instruments interact between one another leading to synergies and conflicts.

Thirdly, innovation policy should promote technology promotion while protecting the environment and coordination is thus needed. Del Rio (2005) and, Kivimaa and Mickwitz (2006) suggest the necessity to include environmental protection consideration in innovation policy and technology promotion concerns in environmental policies. They demand for a better coordination between public agencies with environmental and technological responsibilities.

Fourthly, eco-innovation instruments should foster cost effectiveness. To make static and dynamic efficiency of policy instruments compatible, Carrillo-Hermosilla, del Rio González and Könnölä (2009) suggest that while identifying better policy instruments that encourage cost effective environmental protection and eco-innovation, it should not be forgotten how eco-innovation could be promoted in a way that contributes to cost effective environmental protection.

Fifth, the governance problem should be removed. Such a problem hinders the incentives to innovate. This means that a government may intervene to remove those hindrances and promote firm level innovation with the help of microeconomic policies such as IPRs and R&D though IPR is more contestable. The controversy with IPR is fourfold— firstly, when there is a lack of competition, patents can be used strategically; secondly, patents may inhibit further innovation; thirdly, it may hinder entry for start-up and constrain small firms; and lastly, competition to obtain a patent first may lead toward inefficient R&D spending (Greenhalgh & Rogers, 2010; in Swanson & Ziegelhöfer, 2011, p. 37). Therefore, IPRs should be carefully handled.

Lastly, government regulations are not the panacea. Sometimes, government regulations become ineffective for environmental technological change. The reasons being— (a) the design of environmental regulation depends on the existence of technological alternatives and hence, no sufficient incentives to develop radical type of eco-innovation and, (b) there might be a problem of regulatory capture (existing interest group may influence environmental regulations). In other times, regulations may not be needed because social pressures and other factors are more effective.

6.3.2.5 Lesson learnt: Making eco-innovation policy effective

Guiding principles: Foxon and Pearson (2008) call for environmentally appropriate limits for resource use and waste production, though the appropriate limit is unanswered. They have included ecological, economic and social equity aspects in sustainable innovation and proposed and elaborated two guiding principles for improving sustainable innovation policy process; they are:

- i. Stimulating the development of a sustainable innovation policy regime, bringing together innovation and environmental policy regime;
- ii. Applying systems thinking, engaging with the complexity and systematic interactions of innovation system and policy-making processes, to promote a transition to sustainability.

Integration of environmental policy and innovation policy and providing direct support: Traditional economic argument for sustainable innovation policy measures has been based on correcting for two-principle market failures-

- a. Social returns to innovation exceed private returns because knowledge can be easily copied once it has been created. Due to less chance of grabbing full benefits from investment on innovation, private firms are discouraged and hence public support for research and development (R&D) is needed;
- b. To 'internalize' negative externalities of environmental hazards it is justifiable to employ economic instruments (i.e., tax, emission trading scheme etc.) and regulatory instruments such as emission or technology standards (Anderson, Clark, Foxon, Gross, & Jacobs (2001); Gross, & Foxon (2003)).

Therefore, they suggest that the bringing together the innovation and environmental policy regime is very important. Direct policy support is needed for innovation to achieve environmental ends.

Situation of innovation failure: In case of innovation failures, cost-effectiveness can be challenging. "When eco-innovation is hampered by specific innovation failures, overall cost-effectiveness can be improved by combining pricing instruments with R&D and technology adoption policies" (OECD, 2011, p. 13).

Resource/carbon pricing as an investment strategy: To cope with the problem of investment in innovation, resource pricing strategy should be combined with innovation subsidy. As Swanson and Ziegelhöfer (2011) argue- "Resource pricing may be adequate to drive investment in the right direction but it does not correctly determine the investment amount. Combining a resource pricing strategy with innovation subsidy may be important in order to optimally achieve the direction and level of investment (p. 25)".

Imposing a carbon or similar price provides twofold benefits: allowing the external cost of emissions to be embedded in pricing causing consumer firm behaviour to adjust; and driving innovation in environmentally friendly technologies (Gans, 2012). Carbon pricing provides an incentive to invest in carbon-reducing newer technologies (Stern, 2006). Gans (2012) finds that more stringent carbon pricing policies cause reduced investment in fossil fuel augmenting technologies but such policy may not increase incentives to adopt and develop alternative-energy-augmenting technologies. The incentives for innovation are due to expected profits associated with technological improvement that depends on scarcity of fossil fuel and the size of the economy. If climate policy rewards carbon pollution offsetting or carbon sequestering activities, more stringent policy will likely to increase innovation in

offset technologies. If the policy provides no credits for carbon offsetting, independent bodies have no incentives to invest in emission reduction technologies (ibid. p. 127-128). Only those technologies that directly abate carbon pollutions may unequivocally have a positive impact on innovation.

Acknowledging the importance of service sector: Government should also consider the service sector as a relevant actor when designing innovation and trade promotion policies (Iacovone, Mattoo & Zahler, 2013). A wider range of firms should be addressed by policy agenda. Most importantly, government support should be directed towards skill upgrading at the firm level and in upstream technical education and training for skills that matter a lot for service firms- for exports and innovation.

In brief, accommodating innovation policy with environmental policy, using direct policy support for eco-innovation; providing public support for public and private R&D; using economic instrument, regulatory standards and technology standards to internalize negative externalities of environmental hazards; combining price instrument with R&D and technology adoption to enhance cost effectiveness, resource pricing for fostering investment in innovation are some ways to promote eco-innovation. International community can support financing and policy coordination for inclusive eco-innovation.

6.3.3 Accessible and affordable clean technology development and its diffusion

6.3.3.1 Green technologies may not be always expensive

Trade-led green growth highly depends on technological transformations, i.e. from grey technologies to green technologies. The goals of green technology development include– sustainability, cradle to cradle design, reducing waste and pollution, innovation (developing alternatives to existing grey technologies through efficient technologies), and viability. It is also a mean to attain competitive advantage in trade.

Green technology supports competitive advantage. As the Danish Environmental Protection Agency has identified, environmental-based competitive advantage can be gained by green technology. It includes immaterial technology (such as software), biotechnology and biological process, and nanotechnology (that potentially reduces resource consumption or environmental impact due to tiny dimensions of devices) (Danish Ministry of Environment, 2006). Being specific, some study areas of green technology are – green energy (alternative energy and energy efficiency), green building, green chemistry, green nanotechnology, and environmentally- preferred public procurement etc. In our strategic adaptive solutions, we consider most of them complementary to each other.

Investment in green technology may be expensive in the short run, but it definitely pays back in the long run. Green energy is one of the highly emphasized sectors of green/clean technology development. In some cases, investment in green technology may be expensive for short run but it definitely pays back in the long run. Vandycke (2013) claims that green energy allows countries to benefit from- "natural endowments, providing secure and efficient supply of electricity, coal, gas, oil and alternative energy" (p. 9).

Green technology transformation may not always be expensive. If proper strategies are employed, it may be quite cheap to transform the grey technology paradigm into green one and to curb environmental degradation. A study from the Asian Development Bank has found that five South Asian countries⁴²- where 200 million people are residing could slash greenhouse gas emissions by 20 per cent by 2020 at a little cost of introducing various clean technologies. Such technologies include some cost saving measures including replacing fossil fuel generation with renewable or cleaner technologies with renewable or cleaner energy, using greener products such as solar cook-stoves, using electric or more efficient diesel vehicles etc. Such large and small technologies are projected to cut 20 per cent of 2020's energy-related annual emissions. To make it happen, number of challenges such as making sure information, financing and incentives are available to encourage users to shift to cleaner technologies including the phase-out of direct and indirect fuel subsidies, introducing carbon tax etc. ("Clean Technologies", 2013, March 6).

Industrial policy should incorporate clean technology development strategies to remain competitive. Studying industrialized European countries' case, Aiginger (2013) argues that cheap energy prices in industrialized country can be seen to lower competitive pressure for the first time but have negative consequences in the long run. Hence, new industrial policy should support Europe's competitive advantage in clean technology. Strategy to boost higher energy efficiency, boost clean energy and, to stick to the EU's 2020 goals by improving education and innovation systems will help competitiveness in the long run. For the very purpose, European Commission has initiated research programs such as ultra-low carbon technology. They also argue that industrial countries in the long run can compete only on skilled technology intensive products and demand a new industrial policy that supports long run societal goals and makes synergies out of conflicting policy strands. This policy should promote clean energy technologies, ultra-low carbon technologies, and higher energy efficiency as the superior strategy in the long run.

⁴² Include Nepal, Bangladesh, Bhutan, Shri Lanka, and Maldives.

6.3.3.2 Green technology development and diffusion

Green growth demands green technology diffusion. Newly emerging countries may "leap-frog" past the developed countries and quickly reach the green technology frontier, because the cost of abandoning old less productive and pollution-intensive technology is relatively little and new technology adoption becomes cost effective. Copeland (2012) reiterates many evidences that show the pace of cross border technology diffusion being accelerated in recent years. In the meantime, 'technological lock-in' effect takes place when there are long lags in newer technology adoption. It may be due to skill-set of workers, network effects, infrastructures and so on. In such a situation, lock-in with older pollution-intensive technologies may provide short-term benefits but in the long run, competitiveness becomes weak with increased cost since such lock-ins provide disincentives to adopt greener technology.

Economies that are not situated at the technology frontier can also benefit from the choosing of appropriate technology and its diffusion. Keller (2004) identifies international trade and foreign direct investment as two important channels for technology transfer. Imports are stronger channel of technology transfer than exports. Additionally, geographical proximity also matters for technological diffusion. Human capital and R&D expenditure are the most important factors to enhance adaptive capacity for technology adoption. Market based instruments (basically energy taxes and adoption subsidies) perform better than conventional environmental policy in enhancing technology diffusion (Stavins, 1995; cited in Swanson & Ziegelhöfer, 2011, p. 43).

6.3.3.3 Role of government in green technology diffusion

As found by del Río González (2005), three sets of interrelated factors are responsible to influence the widespread adoption and diffusion of green technology– (i) characteristics of the environmental technology, (ii) condition of potential adopters, and (iii) firms internal and external factors. Empirically, they show that clean technology adoption decisions are the result of an interaction between these three factors. Therefore, governments should play a vital role in technology inducement and promotion of new green necessary to promote green technology.

In a trade regime, in addition to technology flow-in through the imports of capital goods and MNCs technology transfer to their franchise and subsidiaries abroad, further technology transfer can be pushed by strengthening other measures such as intellectual property rights, lowering barriers to trade and investment and improving technological

absorption capacities. But these measures are not sufficient for green innovation. More stringent environment policies, standard tools for innovation policies, public and private (but supported by government) research and development, and better access to finance are necessary. International diffusion of knowledge and technologies can be promoted through "the development of international FDI and international circulation of skilled individual" (Glachant, Dussaux, Ménière, & Dechezleprêtre, 2013, p. 4). In least developed countries, technology capacity building should be prioritized first (ibid).

Technology diffusion programmes should be intended to enhance technology absorption capacity, rather than focus on supply. Governments should remove uncertainty of tax, regulatory and macroeconomic environment, encourage human mobility, help explore market for specialized services, and make business framework conditions favourable (OECD, 1997).

Governments can promote green technology by green innovation (eco-innovation). Environmental regulations inducing innovation may turn transform into a competitive edge for domestic industries. Innovation policies encourage generating new forms of capital that push industries to advance in a certain direction or change the course of existing technology. It also helps a country to attain technological leadership. Resource pricing policies foster green technological progress by influencing the magnitude and direction of investment in innovation (UNEP, 2012).

In essence, technology should be accompanied by skills and absorptive capacity, whereas intervention should be injected with environmental policies, R&D, IPRs, capacity building, and investment in eco-innovations. Such policies not only address the issue of competitiveness but also address inclusiveness issues by skill development, decent jobs in newer sector and making green technologies accessible and affordable to the poor segment of societies.

6.3.4 Efficient, accountable and sustainable resource management

6.3.4.1 Resource efficiency/effectiveness for cost reduction

Cost reduction is at the core of cost competitiveness in international trade while efficient resource use not only cuts cost of tradable goods and services but also maintains environmental sustainability. Overall strategies of policy interventions should be directed towards cost reduction in each stage of the international trade chain so that exports can be competitive. Costs can be reduced mainly in two stages– (i) within production cycle and, (ii)

within trade cycle. In production cycle, resource efficiency, advance green technology, high skills and other process innovations contribute to reduce the production costs. In this section, we mainly focus on resource efficiency. All the resource efficiency measures should be motivated by resource accountability.

A. Cost reduction within production cycle

The popular notion among environmental economists that 'pollution equals inefficiency' (as stated by Porter and van der Linde (1995)) has significant implications. They think that pollution is a form of economic waste. The discharge of scraps, harmful substances, energy leakage/loss into the environment in the form of pollution signify that resource have been used inefficiently, ineffectively and incompletely. Resource inefficiency occurs due to incomplete material utilization, lavish packaging, poor control in process and other hidden cost in product life cycle that ultimately leads to waste, defects, dumping and higher production costs. Therefore, an efficient and effective use of resource is directly related to decrease in production cost while optimizing inputs. In essence, efficient and effective utilization of resources not only makes the product cost-competitive but also help environmental sustainability in two ways— (i) lowering the waste management cost, and (ii) lowering the unit of inputs.

Resource efficiency in the production chain can be achieved through various means such as: 3R (reduce, reuse and recycle), material substitution and dematerialization, localization, cradle to cradle⁴³, biomimicry⁴⁴ and eco-industrial park. As defined by the World Business Council for Sustainable Development, resource efficiency can be ensured by the reduction in material and energy intensity and increase in skill/service intensity in production of goods and services, reduced dispersion of toxic materials, improved recyclability, maximum use of renewable resources, and greater product durability (in: Saling et al., 2002). Resource efficiency is almost used synonymously with eco-efficiency.

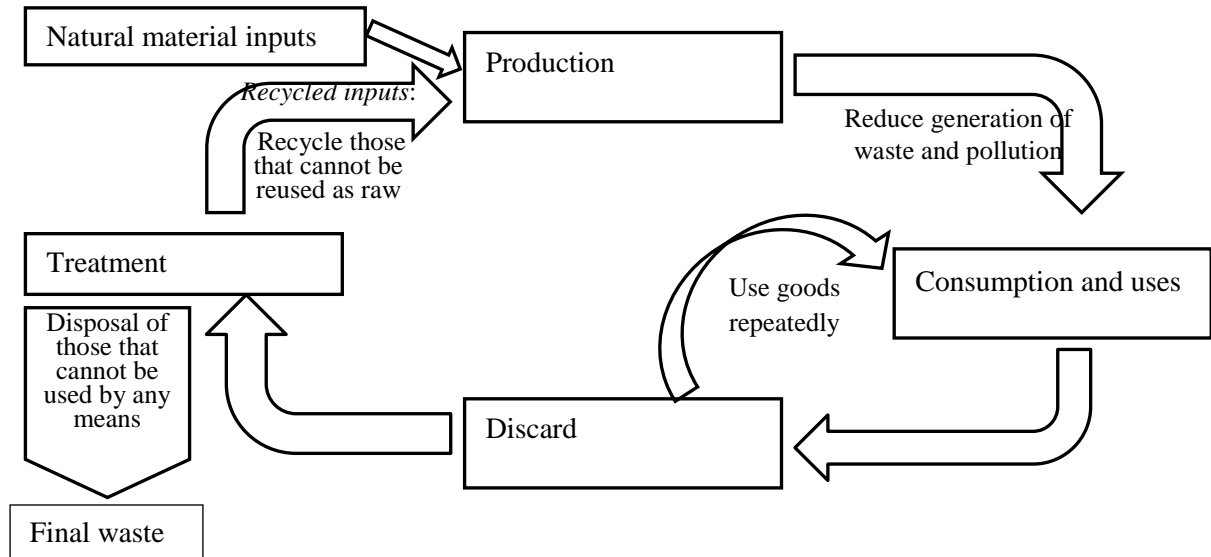
Let's briefly describe the means of resource efficiency.

⁴³ It is a concept with the idea that old products should be reconditioned into new products, since that process uses much less energy than the process of turning 'virgin' materials into new products. It is estimated that 75 percent of energy used in industry is consumed for mining or production of basic materials and remaining 25 percent for actual refinement of material into finished goods. Conclusion is that in reconditioned old products both the energy usage and employment issues could be addressed.

⁴⁴ Biomimicry is a concept based on following nature's lead, that we can learn from the way nature manufactures and process things and implement that into our own manufacturing processes.

The 3R process: Reducing the generation of pollution and waste, reusing consumption goods repeatedly and, recycling those goods that cannot be used as raw inputs is a cyclic process to minimize waste disposal and maximize resource use. The 3R process can be depicted as in figure 6.6 below-

Figure 6.6: The 3R Process



Source: Adapted from <http://gdrc.org/uem/waste/3r-understanding.html>

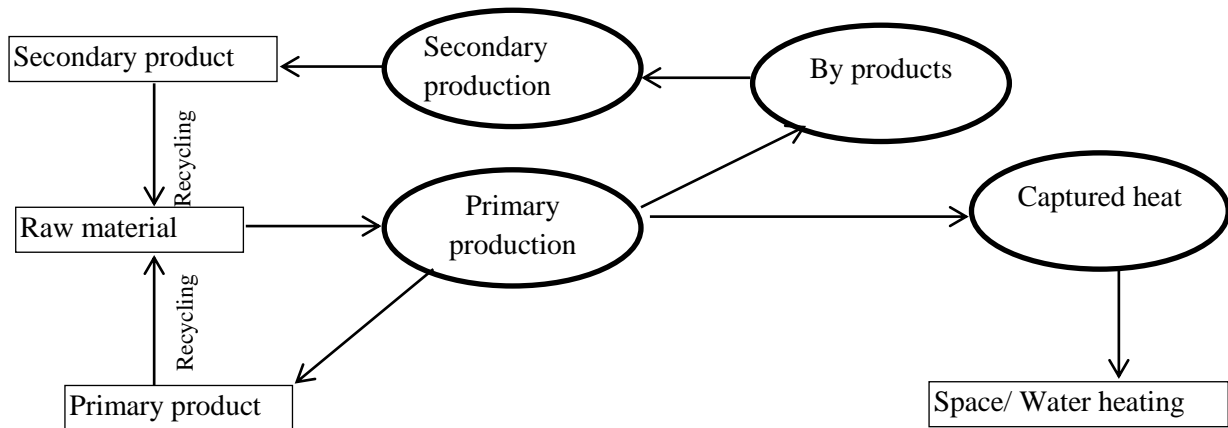
Material substitution and dematerialization: Dematerialization signifies achieving the same economic goal with a reduced use of material. There are benefits at every stage of production, consumption and trade. Dematerialization benefits suppliers, cuts resource use and transportation costs, reduces waste and protects the environment, and even recycling becomes more feasible. For example, aluminium beverage cans now use 30 per cent less material than that of the 1970s. They also substituted heavy metals that were in use earlier and even more, could be easily recycled. This kind of material substitution not only plays an important role in resource efficiency but also improves industrial safety and alleviates health hazards. For example, in green trade-led growth, government regulation to the partial replacement of metal-based pigment paints with organic paints not only reduces the danger of lead poisoning but also reduce the big waste stream of heavy metals (Harris & Roach, 2013). Industrial ecology provides ground for recycling and dematerialization.

Localization/green transportation: Transportation cost adds value of the export goods significantly. In addition, it is the big contributor of carbon emission. Harris and Roach (2013) state that the flowers flown from Kenya to Europe by jet consumes as much transportation energy as it approximately equals the energy needed to grow similar flowers in

heated greenhouse in Europe although "fair-trade flower under a code that reduces the use of pesticides and water, and guarantees high wage to workers giving them a steady and reliable income" (p. 422). If long transportation is inevitable, government should invest in green transport infrastructure. Concluding from the cases of resource-abundant economy of Eurasia⁴⁵, Vandycke (2013) has found that interlinked, environment-friendly transport networks with road, rail, sea and air links promote investment and trade within the region as well as in global market and also broadens access to market and public services.

Industrial ecology and eco-industrial park (EIP): Manufacturing industries are responsible for 36 per cent of the CO₂ emissions. It is primarily due to the high use of energy as these industries account for one third of global energy consumption (Engquist & Lin, 2008). Therefore, restructuring industrial ecology is essential for resource efficiency and effectiveness. Some decoupling measures within production firms and construction of eco-industrial parks are such restructuring measures of industrial ecology. Harris and Roach (2011) suggest the following diagram to depict industrial ecology.

Figure 6.7: Cyclical Production Process of Industrial Ecology



Source: Harris and Roach (2013), Figure 17.6

Eco-industrial Park (EIP) facilitates the resource efficiency and effectiveness. The EIP or industrial symbiosis is considered as one of the main bodies of industrial ecology (Wang et al., 2010). As defined by Côté and Hall (1995) an eco-industrial park is-

"an industrial system which conserves natural and economic resources; reduces production, material, energy, insurance and treatment costs and liabilities; improves operating efficiency, quality, worker health and public image; and provides opportunities for income generation from use and sale of wasted materials" (In: Côté & Cohen-Rosenthal, 1998, p. 182).

⁴⁵ This refers to five countries- Russia, Azerbaijan, Kazakhstan, Turkmenistan and, Uzbekistan in this context.

As Ayres has suggested, an industrial eco-system involves at least one major firm exporting raw or processed materials, and is connected to one or more firms capable of utilizing significant portions of the major waste streams of the 'anchor' industries. These industries are linked to several 'satellite' enterprises converting waste into usable production. Coordination mechanism and information sharing is very important (Ayres, 1994; cited in: Côté & Cohen-Rosenthal, 1998). It means that EICs are also based on these systematic arrangements.

In recent years, eco-industrial parks have materialized in many countries. China included the concept of EIP in their 10th Five-Year Plan on National Environmental Protection to promote cleaner production in China. From Chinese experience, it is clear that government can play an important role to promote EIPs at various levels. At the central level, the government acts as a guide and advocate through establishing policies and providing financial and information support whereas the local government, as a main stakeholder, can be involved as an investor, a manager and even a designer. While designing and developing a successful EIP project, economic, social, technical aspects and other factors should be taken into account. (Wang et al., 2010).

Innovation: On the innovation and technology front, industries must be structured and, existing and breakthrough technologies must be more innovatively applied to realize green growth (Michiba, 2011). He also believes that raising resource and energy efficiency and engaging in a broad range of innovation not only improve environmental performance but also helps create new industries and jobs.

Decoupling is an important issue of efficient resource use and waste management. In view of Machiba (2011), resource efficiency demands two types of decoupling— relative decoupling and absolute decoupling. For relative decoupling, industry should delink environmental degradation from sales growth by reducing resource use per unit of value added whereas, for absolute decoupling, industry should delink the use of energy and material level to sustainable level.

B. Cost reduction strategies at the trade chain for resource efficiency

In the trade chain, cost reduction strategies make the exports competitive. It is the institutional and administrative part of a cost reduction strategy, unlike natural resource efficiency as explained in previous paragraphs. In the trade chain, as we explained in chapter 6.1, costs can be reduced at various stages of production and trade cycle. As depicted in figure 6.2, trade costs occur in three states: getting to the border, at the border and, behind the

border. Institutional effectiveness and administrative efficiency play important roles to cut costs and make the exports competitive. Many activities within 'getting to the border' can be greened.

The OECD (2009) estimate reveals that a border-related cost reduction equivalent to one per cent of the value of world trade would generate welfare gains amounting USD 40 billion worldwide. Indirect costs (procedural delays, inventory holding and opportunity costs) for trading firms is estimated to reduce the cost of traded goods by ranging from one per cent to 24 per cent representing pure efficiency gains at the border. Similarly, hidden costs (smuggling, informal trade, bribery and corruption) at the border create a loss of more than five per cent in less and least developed countries. Such costs are circumscribed and recouped a significant loss of productivity, competitiveness and public revenue (cited in: Moisé & Le Bris, 2013, p. 9).

6.3.4.2 *Natural resource accountability*

All the stakeholders— government, business firms, organizations and individual should be accountable for the use and abuse of natural resources they are involved in. In the trade sphere, producers and consumers should be accountable for the damage they make on the environment. Resource accountability has two parts: being accountable for environmental degradation that occurred due to unsustainable natural resources extraction, and accountable for the environmental hazards that occurred due to poor waste management. Profit making by illicit exploitation of resources and haphazard waste disposal should be penalized by effective regulatory framework.

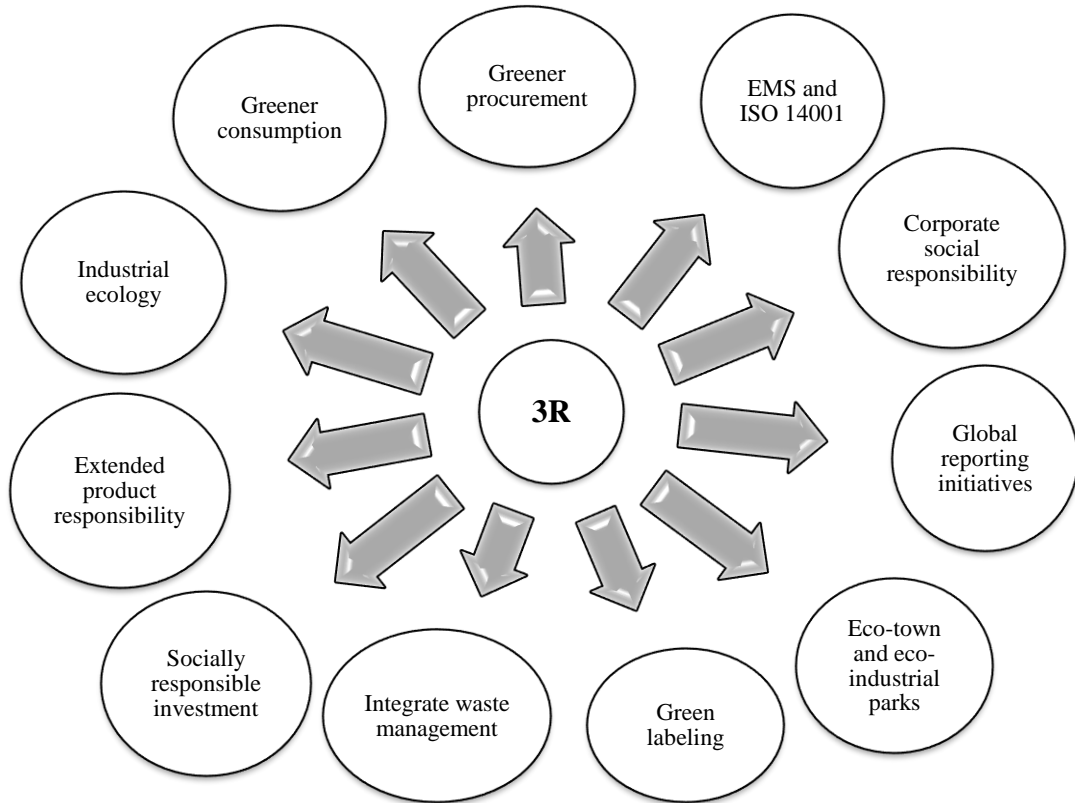
Natural resource accountability in the industrial sector should be ensured by *natural resource governance* (NRG). According to Acosta (2010), NRG is the 'set of strategies aimed at transparency and accountability of governments and private companies during the licensing, exploitation, contracting, extraction, revenue generation and allocation of resources" (p. 1). NRG promotes the voice and participation of multiple stakeholder groups including government officials, private company members, and the civil society representatives. Voluntary resource accountability is equally important in this regard.

6.3.4.3 *Areas of policy intervention for efficient, accountable and sustainable resource use*

Government plays a big role in greening the trade chain, including sustainable production and consumption. Sustainable consumption has a few things to do with competitiveness but it has a crucial role in supporting inclusiveness and environmental

sustainability. Briefly put, government can intervene in the following aspects as depicted in figure 6.9). Basically, it is assumed that government can promote 3R in each aspects of trade chain and greening economy process.

Figure 6.8: The 3R in Action: Areas Where Government Can Intervene



Source: Adapted from <http://gdrc.org/uem/waste/3r-understanding.html>

Some areas of urgent policy attention are: legal and regulatory regimes, expanded use of indigenous autonomy regime, taking principles of corporate responsibility, and south-south knowledge sharing platform (Khoday & Perch, 2012).

6.3.5 Participative pollution control and sustainable waste management

6.3.5.1 Pollution prevention/control and waste management in a circular economy

Resource efficient cleaner (green) production itself entails pollution prevention and control. Both green production and pollution prevention/control focus on strategy of continuously reducing waste within production process rather finding end-of-pipe solutions. Pollution prevention and control is done at the sources, processes, products, practices, materials and energy that avoid or reduce the creation of pollutions and wastes that ultimately reduce the overall risk to human health and environment. In essence, pollution prevention and control materializes by reducing production input at source and preventing or reducing

wastage where it originates. Its results are conservation of natural resources, reduction of pollutants and waste and enhanced efficiency in the use of raw materials, energy, water and land (UNEP portal⁴⁶). With 'circular economy' principle, 'waste is treated as secondary resource and recycled and recovered materials and energy are returned to the general economy' (SITA UK, 2012, p. 4).

Greening the industrial ecology helps waste control by imitating the material recycling aspect of an ecosystem where material management is the crucial. Material recycling and energy recovery can significantly reduce industrial energy use. Waste can be converted into reusable product, input of new product, and energy. Through increased recycling, additional energy efficiency potential is increased by 3.3 to 5.1 EJ per year and 3 to 4.5 per year in energy recovery in primary energy terms. Potential to reduce CO₂ emission is 0.16 to 0.42 Gt CO₂ per year, if gas or coal was replaced on a thermal par basis (OECD/EIA, 2007).

With regard to the UK, SITA UK (2012) claims that energy recovered from waste could help the UK become more self-sufficient in reliable green energy supply. Reuse of recyclables to manufacture new goods has significant potential to help reinvigorate UK's economy by creating 'remanufacturing sector' where employment potential is very high. They estimate that UK waste management sector, by 2020, could: (i) provide investment opportunity for £20-25 billion in new infrastructure creating 19,000 to as many as 36,000 direct jobs and further 25,000 to 48,000 new jobs created indirectly, (ii) create up to 84,000 new high skilled and semi-skilled jobs, (iii) bring tens of millions of tonnes of valuable and useful secondary commodities in the market potential reducing virgin material imports and improving trade balance and, (iv) potentially increase waste-derived renewable electricity between 11 and 16 terawatt hours and supply of one third of country's residential gas demand from the waste.

Similarly, decoupling waste from economic growth and raising living standards is central to resource efficiency (UNEP, 2011b). Recycling and energy recovery from waste are becoming more profitable while waste materials are being more valuable resources. Increased efficiency and reduced waste in agricultural and food system contributes securing food security. A 50 per cent reduction in losses and wastage in the entire food chain is possible (ibid.).

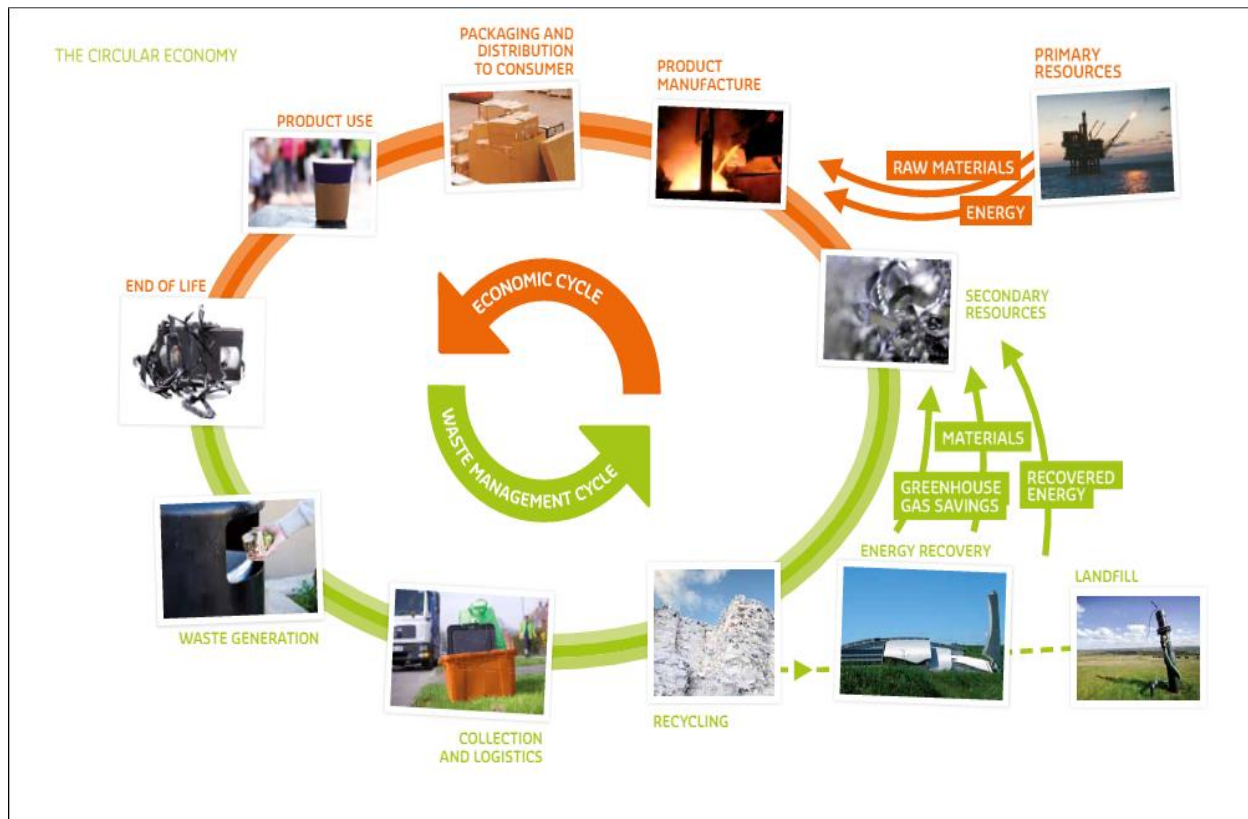
⁴⁶

Abstracted from

<http://www.unep.org/resourceefficiency/Business/CleanerSaferProduction/ResourceEfficientCleanerProduction/UnderstandingRECP/RelatedConcepts/tabid/78838/Default.aspx>

The waste management cycle in a 'circular economy' is presented in the following diagram:

Figure 6.9: Waste Management in Circular Economy



Source: SITA UK (2012, p. 6)

6.3.5.2 Participative sustainable waste management (PSWM)

PSWM is a way of putting the community in control of their urban environment, and strengthening their resources to improve it; involving people in the policy decisions that affect their lives; equipping them with environmental knowledge for sustainable consumption and waste reduction; and involving them in recycling and income generation process. For this purpose, putting people and their knowledge first, involving them in policy decisions, empowering marginalized and resource-poor communities through collective commercialization and addressing their voices, and protecting them from detrimental environmental impacts is needed. As stated by Gutberlet (2011), PSWM 'translates into the networking among different stakeholders and the construction and strengthening of solid waste management policies with the inclusion of the recyclers, aiming at social equity and environmental sustainability' (p. 234). Basic principles of PSWM are: social economy, valuing and empowering the recyclers, aiming at reducing, reusing and recycling; addressing responsible consumption and refusing the waste resources.

Along with the consumption oriented lifestyle and wasteful lavish packing practices, widespread waste generation represents a big threat to the health of people and nature, as well as the government treasury (due to costly waste management). This undesirable waste often ends up in the hands of poor people. By collecting waste and recyclable materials, those people are not only winning bread for their families but also contributing a healthier local environment. Recycling not only generates large amount of employment but also contributes to resource conservation. As recovering recyclable materials generates net carbon credits, as a part of PSWM, it should be redistributed to those who are engaged in the collection, separation and recycling of the waste (ibid.). As organized institutions, recycling cooperatives can contribute achieving important energy savings and reductions in the GHG emissions. King and Gutberlet (2013) suggest that there is an opportunity for recycling groups to participate in the carbon credit market.

However, to achieve these benefits, a participatory process is needed in effective pollution control and waste management. Increasing awareness, adding value to recyclables by increased effective and the safety during the collection, separation, stocking and collective sale of recyclables, and strengthening their organization structures may be some ways to improve PSWM⁴⁷.

6.3.5.3 Role of government

Governments should provide sufficient vision, opportunity and targeted incentives to make market conditions favourable towards the use of recycled materials and recovered energy in preference to primary sources. As SITA UK (2012) suggests, government can-

- (i) Treat waste management sector a part and parcel of broader economic base; encourage planning, processing and siting of waste management facilities within general economy and by local community.
- (ii) Support the development of an appropriate industrial infrastructure.
- (iii) Create market signals and give confidence to encourage manufacturing of waste-derived goods.
- (iv) Engaging local authorities and communities on the detail of community buy-in (use of community fund and personal incentives such as utility discounts) to encourage the public to be more acceptable of waste management infrastructure.

⁴⁷ - See more at: <http://pswm.uvic.ca/#sthash.IzvvDbah.dpuf>

To make it participative, governments can organize, strengthen and mobilize cooperatives and community groups involved in PSWM by training, generating knowledge and experience, providing micro-credit, and aiming toward a solidary economy.

Particularly, volume-based fees for waste, increased curb side recycling, expanded bottle bills and others are some examples of personal incentives whereas landfill methane recapture, waste to energy facilities, waste water treatment plant methane recapture, composting etc. are some areas of intervention.

6.3.6 Investment in human productivity and capabilities

6.3.6.1 Interaction of human capital with 'fundamentals'

The route to poverty alleviation and human development involves building up basic capabilities and enhancing the productive abilities of people. As mentioned in UNDP (2014) report, 'inclusivity is best anchored in fair and comparable distribution of productive abilities' (p. 5). This statement justifies why investment in human capabilities is at the core of inclusive growth.

Theoretically, indigenous growth theory formalizes the importance of human capital. Martin (n.d.) states- "As high skilled workers tend to be more productive and innovative both the companies and governments have an incentive to invest in education for entire population and training for employees" (p. 2-8).

For trade-led inclusive growth, capabilities of both- households and workers as well as capabilities of firms should be strengthened. For the former, their skills, location and industries of employment might affect all their capacity to adjust to trade shocks to maximize the potential benefits of international integration. For firms, "their technological capabilities might determine their ability to innovate in the face of international competition, and their current (initial) degree of global integration might determine the sign and magnitudes of the effects of trade shocks on their profitability" (Lederman, 2011, p. 13). In this section, we briefly discuss on workers capabilities or the stock of human capital, its relations with natural capital, inclusive growth and competitiveness.

The level of human capital development determines the absorption capacity of technologies. In developed countries, the investment in innovative technology and resulting technological accumulation has been possible due to highly educated and trained people. Base of capabilities and learning determines the country's strength to cope with new technologies (Lall, 1999). In less developed countries, the stock of human capital with secondary and tertiary education play a key role in determining the development of

information and communication technology. With cross countries regression, Lee (2001) found that the interaction of human capital with the inflow of foreign technology embedded in machinery imports and FDI contributes technology growth in less developed countries. Higher the human resource capabilities, higher the capabilities to facilitate the new technology and to higher the total factor productivity. It means enriched human workforce can foster factor productivity, absorptive capacity of technology, innovations and hence, competitiveness in various sectors.

Empirical evidence from Indian data reveals that there is positive correlation between quality of labour and poverty reduction as well as quality of labour and inclusive growth. Ananda, Tulin, and Kumar (2014) conclude -

A better educated labour force provides a foundation for robust and inclusive growth, as well as for continued poverty reduction...raising the quality of labour force through better access to education can help unlock a virtuous cycle of potential growth (p. 30).

Similarly, environmental quality is positively associated with the rate of human capital accumulation. It means that environmental quality and human capital accumulation are mutually positively correlated (Gupta & Chakraborty, n. d.). For example, higher education makes people aware of environmental problems and educated people know the scientific way to preserve it. In contrary, environmental degradation deteriorates human health and increases the cost of living. An empirical analysis by Goetz, Devertin and Pagoulatos (1998) after controlling variables such as income, population density and industrial composition, reveals that states with highly educated population have better environmental conditions. Increasing human capital has intangible economic benefits too. Strategy of increasing human capital fosters cost effectiveness whereas highly educated human capital protects environment.

6.3.6.2 Adaptation issues of human capital into green economy regime

By virtue, green growth advocates the quality of life and human capability development. Basically, green growth strategies put highest emphasis on natural and human capital. Human capital can be enriched with adequate health, education and training facilities that are the basis of better employment opportunities. Better wage premiums, higher rate of employment, safe working environment etc. are not only the objectives of human capital formation for growth, but also are the characteristics of inclusiveness.

However, in green economy context, there is the possibility of human resource being obsolete with new green technology and greener course of production of tradable goods and

services. But the transition towards sustainable and green economy is indispensable to address the high unemployment and surging cost of resource utilization (APEC, 2013.). In a green growth regime, the efforts placing sustainable technologies create broadly distributed set of employment opportunities.

The potential for 'green economy' to drive growth and create new employment opportunities was first acknowledged by Heads of States across the world, basically, in the aftermath of 2008 financial crisis. This crisis triggered many economies to incorporate green job provisions, a Green New Deal and a green economy in their stimulus package (UNESCAP, 2012).

The adaptation of human capital into the green trade regime is the major concern. It means, human capital in green growth policies demands educating human resources, providing work safety and healthy environment, new job creation, re-skilling and chances of wage premium.

Education: Education is the central element of human capabilities. Minimum education is a must to enable young people to develop their human potential. Public education plays a pivotal role in maintaining the fabric of the society and sustaining political and cultural heritage. Education is necessary to prepare citizens to participate effectively and efficiently. It is essential to maximize individual opportunity. Deprivation of education results in an inestimable toll on to the social, economic, intellectual and psychological well being of the individual, and poses an obstacle to individual achievement (Nussbaum, 2009).

Skilling/deskilling, up skilling and re-skilling: Skills are inherently individual qualities. They are the bundle of knowledge, attributes and capacities that can be learnt and enabled individuals to perform activities and tasks. Green skills simply refer to "the knowledge, abilities, values and attitudes in the general population needed to live in, develop and support a society which reduces the impacts of human activities on the environment" (Cedefop, 2009, p.2).

If green skill needs and labour force gaps are not addressed, there will be skill bottlenecks. Such bottlenecks further increase the cost of society for mitigation and adaptation. Therefore, national green economy policy should emphasize on- gearing up education for training and growth; adoption of 'enterprise approach'; empowering workforce (licensing, certification, technical and management skills etc. for overall job quality); and integrating skills into local development strategies for green job creation (ibid).

Wage premium: Measuring the impact of international trade on the stock of capital equipment and the skill premium (through capital-skill complementarity), Burstein, Cravino

and Vogel (2013) find that international trade can have a substantial impact on the skill premium through its impact on equipment accumulation. This takes place mainly in equipment (as a large share) importing countries. Therefore, skill-based technologies should be promoted to be competitive in open trade regime. Multinational production plants can also diffuse such technologies along with skill-based migration, but such ways hardly address the issue of inclusive competitiveness.

Taking into account the trade in capital goods and the capital-skill complementarity, Parro (2013) argues that both can increase the skill premium across countries. They conclude that with capital-skill complementarity, reduction in trade cost leads to an increase in skill premium. Both skilled and unskilled labour gain from trade; and that larger gain from trade are associated with larger increase in skill premium⁴⁸.

Job creation: Reviewing literature on green growth and its impacts on job creation, we conclude that a transition toward green growth creates more jobs than in business-as-usual model of growth. Table 6.2 presents some research findings in this direction.

Table 6.2: Job Creation in New Green Growth Sectors

S.N.	Country	Green sector	Research findings / estimates	Researcher(s)
1	Australia	Green economic recovery programme in energy efficiency and renewable energy sector	two million green jobs will be created	UNEP (2009)
2	China	Environmental protection, replacing of polluting industries with high-tech firms, energy saving	10 million jobs will be created; Green goods exports will create another 4-8 million jobs	CCICED (2011), World Bank & DRC (2012)
		Shifting economy from heavy industry to service sector	Possible job losses from planned sharp reduction in the energy intensity in industries are expected to be outweighed by the jobs in renewables	Global Climate Network (2010)
3	Japan	Green growth policies- all sectors	1 million green jobs	UNESCAP (2012)
4	S. Korea	Green growth policies- all sectors	960 thousand green jobs	UNESCAP (2012)
5	South Africa	Energy revolution (strong transition towards renewable energy)	27 per cent more jobs and 5 per cent more growth than in business-as-usual scenario	Rutovitz (2010)
6	India	Renewable energy sector (solar power, wind power, off-grid power, biomass), green transport and public works in water and forest management	New green jobs in a significant number and other co-benefits	Global Climate Network (2010)

⁴⁸ Skill premium is defined as the wage of skilled labour relative to the unskilled labour (Parro, 2013).

7	Brazil	Renewable energy sector	Contributing to CO ₂ mitigation and creation of more jobs	Global Climate Network (2010)
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Despite such appealing estimates, it is not easy to achieve such job creation if there is the scarcity of skilled labour force or inefficiencies in labour market. Bowen (2012) argue that better regulations to support research and development (R&D) and tax recycling (using revenue from environmental taxes to reduce other taxes) will maximize the co-benefits of employment and competitiveness reducing risks posed by green growth policies.

As we have discussed in Chapter 4.2.3, a fear of competitiveness-employment trade-off may arise from green growth policies. The assumption is that tightening environmental standards could relocate industries in pollution havens, which might ultimately incur great job-loss. This argument is centred on the old sustainability competitiveness debates (Bowen, 2012). However, UNEP (2011b) supports that green policies are 'a new engine of growth' and 'net generator of decent jobs'. It means green-policy-led jobs may contribute to enhance competitiveness.

Bowen (2012) concludes that employment consequences of green policies differ according to 'time horizon'. There may be short term employment losses in energy-intensive sectors, but gains in other industries would fully offset these losses in the long run. Table 6.1 above presents some evidences in this direction.

Moreover, we reiterate that the effect of green policies on employment depends on labour market structure. The most important aspect is the sluggishness of labour mobility (against neo-classical version of labour mobility in open market economy) in new sector. If the labour force quickly adapt the skills needed to new green business firms, the transition becomes easier. Hence, investment in human capital (skills and training) is very important. Most of the green jobs need medium and low skill (basically in renewable and waste management sector). To capture emerging markets with higher quality product, some countries have successfully relocated their resources towards more skilled activities and moved up the value chain (Henn, Papageorgiou, & Spatafora, 2013). They also argue- "Some more mature Asian countries may require horizontal diversification to enable more quality upgrading (p. 11)".

6.3.6.3 Incentivizing human capital for trade-led green growth

Selecting the appropriate incentive to make a labour force more adaptive toward the green economy sectors is a crucial issue. Some support policies are needed to provide quality

education and training (skill development). Research and development (R&D) activities are needed to drive and foster innovation. In addition to compulsory and qualitative education, government policies can regulate for the strong co-operation between research laboratories/institutions and innovation clusters (APEC, 2013).

Bowen (2012) suggests that employment subsidies can be useful if made conditional on working in the export-oriented green sector (a form of industrial policy). Additionally, we opine that imports of green technology should be subsidized and knowledge transfer should be facilitated with appropriate incentives, so that human resources can be a component in export competitiveness.

Improving human skills is pivotal to reduce global disparities. Until the skill gap is eliminated, it is not possible to remove the technology gap. High skill-complementary jobs demand a higher education. Therefore, governments should improve the quality as well as quantity of secondary education (Lee, 2001).

6.3.7 Family business, SMEs and local-knowledge-based product specialisation

6.3.7.1 SMEs: Roles, problems and prospects

Small and medium size enterprises are vitally important for a healthy business of an economy (Hillary, 2004). They are considered as the engine of economic growth throughout the world for they contribute in providing job opportunities and act as the suppliers of goods and services to the big business organizations (Singh, Garg, & Deshmukh, 2008). "SMEs typically represent about 95 per cent of all private sector firms in most modern nations, and so form a major portion of all economic activity"- says Schaper (2002, p.527). As Greenan, Humphreys, and McIvor (1997) argue, SMEs dominate the industrial and commercial sector infrastructure in EU with 70 per cent of workforce located in enterprises having fewer than 500 employees. This shows how important SMEs are for inclusiveness in terms of employment.

In regard to job creation by SMEs, the UN report on Post-2015 Agenda predicts that small and medium-sized firms will create most of the jobs that will be needed to help today's poor escape poverty and for the 470 million who will enter the labour market by 2030. Beyond corporate social responsibility business firms should use innovation to open up new growth markets and address the demand of poor consumers, stay cost-competitive and promote sustainable practices by conserving land, water, energy, and minerals and eliminating waste, and attract highest calibre employees and promote labour rights (United Nations, 2013).

However, SMEs are highly responsible for pollution. Hillary (2000) estimates that SMEs may collectively be responsible for as much as 70 per cent of all global pollution. But SMEs are yet to spontaneously accept and adapt the environmental concerns on the product that they trade. The survey study by a researcher at the University of Ulster found that environmental issue is taken as a threat rather than opportunity to enhance competitiveness, and hence, they react with the environmental legislation (Greenan, Humphreys, & McIvor, 1997). Similar evidence was found in UK screen-printing sector SMEs. Worthington and Patton (2005) found that environmental response of this sector tended to be reactive, defensive and driven by legislative compliance despite their acceptance that there were potential commercial gains be generated from environmental action. This confusion is due to the lack of knowledge about internalizing environmental management and the lack of strategic mindset. However, for some forward-looking organizations, environmental consideration has become an integral aspect of the search for total quality (Welford, 1992; in: Greenan, Humphreys, and McIvor, 1997). Despite positive environmental attitudes, many SMEs have limited awareness of business issues relating to environment (Tayler et al; in: Worthington & Patton, 2005).

6.3.7.2 How SMEs interact with competitiveness, sustainability and inclusiveness?

SMEs face various constraints on the exporting front due to the lack of resources, adequate technologies, effective marketing techniques, information gaps between marketing and production functions, and poor innovation capabilities. In comparison to larger firms, as Schaper (2002) states, most SMEs tend to be somewhat reactive to environmental issues, and limited to small-scale, ad-hoc changes in business activities (p. 525). Despite their simple systems and procedures that allow short decision making chain, higher flexibility, immediate feedback and response, they face a big pressure to maintain competitiveness in the market (Singh, Garg, & Deshmukh, 2008). They reviewed 133 research papers and SMEs competitiveness strategies and recommended, for sustaining competitiveness that they need to benchmark their assets, processes and performance with respect to the best industry.

On the competitive sustainability front, clean production and safety measures for environment are not only the parts and parcels of SMEs for green economic transition but also essential criteria to compete in the market. A green supply chain is essential to improve competitiveness (Rao & Holt, 2005). As Laugen, Boer, Acur, and Frick (2005) state, increasing equipment productivity and environmental compatibility make SMEs more competitive.

Greenan, Humphreys and McIvor (1997) argue that environmental issues in business should be viewed as an extension of the quality dimension of product and services delivered. The more green attributes are added, higher the quality enhanced and finally, resulting in improved performance of the organization. Recent increasing demand for higher quality and green products has made SMEs producing such goods and services more competitive in the international market.

Applauding the importance of environmental good practices, Simpson, Taylor, and Barker give example of many manufacturing SMEs and argue that they were able to gain a competitive advantage by improved energy efficiency, quality improvement, reduced wastage, better environmental credentials, higher customer satisfaction, exploring new business opportunities, getting support from local community and staff commitment, relations with positive pressure groups, improved media coverage and the combination of all (Welford, & Gouldson, 1993; Simpson, Taylor, & Barker, 2004). However, they caution that over-reliance on voluntary approach to adopt such good practices cannot be succeed everywhere.

With inclusiveness in perspective, SMEs are very important as they create significant amounts of employment and work as the on-the-job training hubs. Women, indigenous people and youngsters have opportunities of employment and self-employment in SMEs and family-run businesses. Inclusion of indigenous people is also one of the possible measures of ideologist abridgement. Masurel (2007) claim that why SMEs invest in environmental issues is to improve the working condition within the firm. Other reasons are satisfying legislation, fulfilling moral duties, serving order and cleanliness, serving the needs and expectations of employees and clients, improving image of the firm, motivating the employees, making clear the values, vision and clear strategic direction of the firm. Therefore, employment-related reasons are considered most important. It signifies that environmental considerations are directly related to employees.

Beyond the employment aspect of inclusiveness, environmental awareness is not only the issue of production, marketing and consumption; rather it is gradually growing as a 'right-based' concern of peasants and ethnic people. Wallis (2010) describes such awareness as the sign of mass movement for ecological socialism, and mentions that "most massive expressions of radical environmental awareness have arisen among the peasants and indigenous people of the global south'. The voice of 300 million (5 per cent of world population) indigenous people seems negligible in terms of a demographic view, but in terms of their collective measures, as Wallis stresses, is an epoch of environmental breakdown they express more completely than any other demographic group, the common survival interest of

humanity as a whole (Gerardo, 2009; cited in: Wallis, 2010). It signifies that ethnic people are more environmentally responsible while running their SMEs and family-run businesses.

Wallis (2010) applauds the reverence of ethnic people for the natural world, their material self-sufficiency, their rejection of intellectual property rights, their egalitarianism, and their sense of mutual accountability. Therefore, their involvement in international trade mechanism should not be undermined. However, such movement may be much politically coloured but we should not forget that these voices toward progression from a competitive to cooperative or solidaristic mind-set is a cultural shift, and current day business cannot be aloof of such cultural shift.

6.3.7.3 SMEs and local knowledge

"Indigenous knowledge and innovations are the result of a continuous process of experimentation, innovation, and adaptation" (IFAD, 2004, p. xxi). Blended with knowledge-based science and technology, such knowledge and innovation can be complementary to scientific and technology efforts of socio-economic development.

Rural people boast a creativity that is revealed in the form of local knowledge-based goods, practices and innovation. IFAD report reveals how local knowledge has shown prominence in sustainable agriculture and natural resource management in Vietnam. The report states-

A Vietnam study gives explicit prominence to 'local knowledge' and ethnic tradition in the choice of crops, cropping patterns, use of fertilizers and pesticides, livestock development, utilization of natural resources, land tenure systems, conservation of biodiversity, the management of natural resources and the nature of support services (p. xxii).

Herbal medicines, the art of certain civilizations, forest products etc. enjoy a competitive advantage in various countries. For example, hand-knitted carpets, Mithila Art, medicinal herbs are some products that Nepal possesses competitive advantage in. Local knowledge-based SMEs not only generate employment for rural people and marginalized society, but they also preserve the natural environment, since local people think about resource sustainability while extracting the resources as it is the way of their survival.

Government should provide adequate resources and formulate strategic objectives to ensure the mainstreaming of local knowledge and innovation. To promote this, people's participation supported by community-based organizations may be effective if they are given greater management responsibility and control over resources. "Capturing local knowledge and innovations may best achieved by enabling local people to come up with their own solutions" (ibid, p. xx). An interactive education system designed to enhance local skill and

knowledge becomes very important to make local and small-scale product competitive in the international market. They need comprehensive marketing information and collective bargaining power, and possibly, well-developed tribal/indigenous markets.

6.3.7.4 Incentivizing SMEs

The government can play a vital role through its agencies and regulations to facilitate the creation of environmentally responsible firms (Schaper, 2002). Appropriately framed government legislation often provides an incentive to improved environmental performance and innovation (Porter and van der Linde, 1995). Government should promulgate enforceable compliance measures, increase assistance with technology and process change, and invest in business training and raising environmental awareness for all SME managers (Simpson, Taylor, & Barker, 2004). OECD green growth strategy takes small business as harbingers of innovation and accentuates the need of support from government, i.e., in improving access to finance and enhancing communication infrastructures so that such business can flourish (2010).

Governments should invest in environmental education. In universities, technical colleges and further education institutions, professional institutions and training centres, environmental information or eco-literacy should be included within their courses so that it can help develop a greater sense of environmental awareness amongst students- the future entrepreneurs- and encourage them to apply this knowledge to improving processes within their own firm (Schaper, 2002). SME entrepreneurs should be trained about entrepreneurship and environmental sustainability. Educating SME managers/owners about the commercial advantage of environmental consideration can encourage a more strategic thinking of environmental performance at firm level.

The provision of funding for environment management training, environmentally-related product development, setting up effective regional environmental advisory centres that provides information on legislation and business opportunities and, placing a legal obligation to firms for periodic reporting on their environmental performance are some ways of government intervention (Greenan, Humphreys, & McIvor, 1997).

In Khor's opinion, issues of regulation, pricing policies, taxes and subsidies to limit pollution and emission, controlling over-exploitation of natural resources and mainstreaming environmental criteria in government procurement policies are some very important strategies for green growth (2012). Initiatives to increase market pressures from customers/ suppliers

can help encourage a more proactive and innovative environmental response. Government also can directly influence by public procurement system.

Self-regulatory initiatives are some ethic-based measures that can be adopted by SMEs for environmental consideration. Hillary (2004) argues that voluntary self-regulatory initiatives such as the eco-management and audit system and the international environmental management system and system standard ISO 14001 provide ground to develop systemic approaches to improve environmental performance. Government can motivate SMEs to follow greening strategies by providing financial support towards achieving ISO 14001 or national environmental standard.

Encouraging SME managers to adopt a more strategic orientation in green issues is a challenge for policy makers. Regulatory standards help encourage environmental action at company level and they also boost up 'compliance mentality'.

6.3.8 Inclusive Trade/ Fair/Sustainable/Green Trade

6.3.8.1 Introduction

Adapting from inclusive growth approaches we can define inclusive trade as trade that takes place with improved capabilities; respects voice, choice and opportunities of small producers, women, marginalized and ethnic community in trading process; emphasizes productive employment; assures competitive wage without compromising the employment opportunities for women and marginalized segment of the society; and respects the environment. In other words, it emphasizes on human facet of trade such as human productivity, capacity enhancement, non-discrimination on the basis of gender, race or ethnicity, competitive wage, equal opportunities and their right of choice accompanied with fair environmental practices. Inclusive trade is an alternative trading mechanism for the small producers out of mainstream trading process in the globalized world. Fair trade, popularly known as an instrument of alternative trade can be taken synonymously as the inclusive trade in a parochial sense.

FLO, IFAT, the Network of European Worldshops, and European Fair Trade Association agreed in 1998 to define fair trade as following-

Fair Trade is a trading partnership, based on dialogue, transparency and respect that seek greater equity in international trade. It contributes to sustainable development by offering better trading conditions to, and securing their rights of, disadvantaged producers and workers— especially in the South... Fair Trade Organizations, backed by consumers, are actively engaged in supporting producers in awareness raising and in campaigning for changes in the rules and practices of conventional international trade (WFTO, 2009, p. 6).

The first fair trade organization (named SOS Wereldhandel) was established in the Netherlands in 1959. Max Havelaar was the first to certify fair trade coffee (Witkowsky, 2005). Oxfam, one of the Britain's largest aid agencies established their alternative trading organization called- Oxfam trading in 1965. Along with the globalization process, the value of fair trade has been increasing rapidly. By the end of 2010, World Free Trade Organization (WFTO), the central coordinating body of fair trade organizations had 472 member organizations and individuals in 74 countries (WFTO, 2011). The major concentration of such fair trade organization is in Europe. By the end of 2012, around three dozen fair trade initiatives are active in Europe only. One among various free trade organizations (FTOs), Oxfam, claims that it has networked in more than 90 countries (Oxfam International, 2013).

6.3.8.2 How it works

Fair trade mechanism takes place with four major components and ten main principles and organization-specific principles coherent to those main principles. The essence of alternative trade is reducing the exploitation of poor producers by middlemen. It is an effort against the denial of fair price to the produce of producer under existing international trading system. For this purpose, four major components of fair trade are involved in this process- *fair trade supply chains, labelling initiatives, branding and umbrella associations*. As explained by Witkowsky (2005), labelling initiatives stress standard for environmental stewardship, working condition and minimum wages. Fair trade organization bypass exploitative middleman and work directly with producers' stress on ethical trading, and ethical consumerism (being sincere to environmental protection by avoiding fancy packaging and waste, industrialized agriculture, animal testing and genetically modified foods).

Various fair trade organizations have set their own goals and principles regarding fair trade, and they work accordingly. However, common principles include environmental protection, capacity development, paying fair price for producers and fair wage for workers, respecting cultural traditions, and educating consumers to use fair trade commodities. They should comply with ten main principles prescribed by WFTO. It carries out monitoring to ensure whether FTOs have been following these principles in their day-to-day work. These principles are: (i) creating opportunities for economically disadvantaged producers, (ii) transparency and accountability, (iii) fair trading practices, (iv) payment of a fair price, (v) ensuring no child labour and forced labour, (vi) commitment to non-discrimination, gender equity and freedom of association, (vii) ensuring good working conditions, (viii) providing capacity building (ix) promoting fair trade, and (x) respect for the environment.

Including these common principles, there are some deviations. For example, Ten Thousand Villagers (TTV) put forth the principle of justice and hopes for the poor, marketing quality products, sustainable operations, and using resource carefully. Fairtrade International claims that producers gain from stable prices, fair-trade premium (such as education, healthcare, improved processing facilities fostered by improved income level), partnership with fair trade institutions, and due to the empowerment of farmers and workers. For many of their products, farmers are assured a higher price than the conventional market price which protects them from price volatility. Consumers have greater freedom of choice. Traders/companies are ensured the credibility of product with fair trade mark, and environmental sustainability can be ensured in production, handling and waste management process.

6.3.8.3 Achievements

Product sophistication: Fair trade movement, by their supply chains and branding, has succeeded in managing the great deal of sophistication and promotional fairs. This has helped reduce the misconception that fair trade goods are not standardized products. Additionally, they are applying the social marketing concept.

Trade premium and income stability: Additional amounts received from fair trade (than that of regular sale through traditional market mechanism) help reinvest in productive assets, to improve quality and yields, ultimately, improving the lives of rural communities. It provides better income stability and reliability among small-scale producers. Such stability is provided by guaranteed prices, long-term contracts and availability of credits and resulting investment by farmers in their land, domestic facilities and children's education. Fairtrade Foundation Report claims that fair trade through the minimum price guarantee- is helping to make farming communities more income- secure and income-stable and thereby less-vulnerable to poverty (2012).

With an extensive review of literature on the impact of fair trade- reviewing more than 80 studies, 23 reports containing 33 case studies, Nelson and Pound (2009) concluded that fair-trade-small-producers receive more stable incomes to take a more long term view in relation to expenditure and investment, compared with their counterparts in conventional trading chains. Giving example of fair trade coffee cooperatives during the coffee crisis in 1989, they claim that fair trade plays critical role not only in supporting individual producer during hard time but also enabled cooperatives to survive economic shocks and stresses.

Democratizing trade and environmental protection: Fair trade organizations are also jointly working with producers for climate change and democratizing policy-making process. For example, the Fair Trade Foundation has been working since 2011, under the leadership of Durban Climate Conference (COP 17) to influence democratizing policy in favour of small farmers, promote the authoritative voice of African producer in the global system on issues such as standards, prices and social issues, and working in partnership with the Alliance for Responsible Mining (FTF, 2012). As the report claims, the foundation supports to community development and responsible environmental management practice initiatives. Nelson and Pound (2009) found strong evidence that fair trade support leads to a strengthening of producer organizations, in terms of their internal democratic working style and participation despite some weaknesses. They also find evident that fair trade is promoting good environmental practices in agricultural production. Additionally, fair trade participation positively empowers individual producers and producer-organizations.

Working strategically: FTOs are working strategically to achieve their goals. For example, Fair Trade International, the umbrella of 25 organizations and headquartered in Germany, has formulated a Three Year Strategy (2013-2015) and committed to work as a partner of global grassroots movement and cutting edge reformer of global trade in favour of justice, unlocking the power of disadvantaged producers and workers. Four 'unlocking' strategic directions are agreed upon as - unlocking the power of smallholders, workers, citizens and companies, and the people in global fair trade system. Fair Trade Foundation aims to relieve poverty and promotes research on its causes and effects by bringing together producers, business, communities, and individuals in a powerful citizens' movement for a change to tackle poverty and injustice through trade. They envision a world in which justice and sustainable development remain at the heart of trade structure and practices. Fair Trade Foundation Annual Report for the year 2011 claims that fair trade contributes to sustainable development for marginalized producers, workers and their communities.

Providing opportunities for small firms: The World Bank panel for Post-2015 Agenda states- "...it is clear that some growth patterns- essentially those that are supported by open and fair trade, globally and regionally- offer more opportunities than others for future growth" (United Nations, 2013, p. 9). Fair trade also provides right business linkage to small firms through supply chains.

How to guarantee better wages of workers and freedom of association, and how to empower them to effectively participate in and benefit from fair-trade is an important issue to deal with. More needs to be done with regard to small farmers' access to climate change

adaptation technical support and finance, as well as to strengthen the voice and role of women. It has helped draw attention to remove the trade-distorting subsidies in EU and US (Fair Trade Foundation Report, 2011).

6.3.8.4 Problems

Hitherto versions of fair trade favour communalism and cooperation over competition. Witkowsky (2005) states that fair trade may not be a panacea to solve the anomalies generated by globalization but it may be a better way to marketing agents to fulfil the corporate social responsibility. Objectives of fair trade seems dichotomous and problematic in the following ground-

- Dichotomous marketing objective: consumer sovereignty and satisfaction vs. supporting the disadvantaged producer. It is a concept of helping producers and developing nations rather than accepting the alternative trading mechanism in a globalized market.
- Sale the ethics or sale the brand?
- Creation of market vs. instances of market failure i.e., how isolated farmers lack access to transportation, price and quality information, future options and contracts, and formal credit system - and their social impacts (Witkowsky, 2005, p. 26).
- Labelling versus minimum price guarantee: Labelling initiatives do not set minimum producer price requirement and hence allow companies to allay the concerns of ethical consumers to assure the reasonable price for fair trade goods (Nichollas, & Opal, 2005). In contrary, in some fair trade goods, fair trade organizations are taking advantage of fair trade labels through excessive high pricing of coffee and bananas (Witkowsky, 2005).
- Ethical dilemmas confront social marketing program (Brenkert, 2002).
- No reliability ensured for supply chains due to poor transportation and distributional arrangement in remote location.
- Fair trade might undermine local cultures because cultural colonization has influenced the consumption behaviour. It also faces cultural and political impediments. For example; "the U.S. has a long tradition of private giving and its people love to express their political and religious sentiments through shopping, whether for patriotic symbols (flags) or Christian-themed merchandise" (Witkowsky, 2005, p. 30).
- Problem of selection bias while selecting fair trade goods.

6.3.8.5 *Ways ahead*

Abolishing the concept of mercy-based trade: Fair trade is growing rapidly but its conception remains a sort of philanthropic trade. In the UK in the decade of 2000, year-on-year growth rate of retail sale⁴⁹ of fair trade was 43.7 per cent (Fair Trade Foundation, 2012). Around 1.15 million small farmers and workers in 63 producer countries are benefiting with the fair trade mechanism of this foundation only. However, the ideological misunderstanding is that fair trade is a mechanism to provide consumer platform for the poor of global south in the market of rich global north. This may be true in the sense of alternative trade initiatives in global north and share of fair trade in developed countries. The necessity of fair or alternative trade is on the ground that conventional North-South trade is surrounded by obstacles, and has so far yielded, few benefits for most people in developing countries. It is basically, not purely philanthropic rather a different mode of trade currently supported by various benevolent organizations.

Small-scale farmers and artisans produce excellent food and crafts, and fair trade provides secure income. Fair trade has shown that trade can be based on respect, dialogue and transparency (EFTA, 2012). There is not the case of mercy or charity rather it can be little bit coloured with ethical entrepreneurship. Wempe (2005) concludes that there is lack of communication about whether fair trade is a philanthropic initiative or normal business that also serves a social purpose. Actually, producers do not receive charity but supply quality products at a keen price. Similarly, consumers are not philanthropists in the sense that they simply obtain good value for their money. In such a way, being a business, it should respect and has been following the laws of market place.

To raise fair trade's status from a mercy-embedded trading arrangement to a more profit-centred exploitive trading system, steps should be taken to adopt competitive measures. Additionally, fair trade should be rescued from charity based trading mechanism to a self-competent trading mechanism.

Toward democratizing business: From charity-based trading processes, inclusive trade (the broader aspect of fair trade) should be dealt with in such a way that it can alleviate most of the dichotomies hinted at earlier. Inclusive trade denotes the active participation, and contribution of the entire stakeholders according to their creative force in the production and consumption process. In the words of business scientists, it is called democratizing commerce. It is also a strategy of a greening economy, which is only possible through

⁴⁹ Author's calculation from the available database of Fair Trade Foundation, UK

participative processes and the active collaboration of all stakeholders. Prahalad (2010) defines 'democratizing commerce' as bringing the benefits of globalization to all micro-consumers, micro-producers, micro-innovators, micro-investors and micro-entrepreneurs (p. 20). It is the access of every person to the benefits of the global economy in which every person as a consumer affords world class products and services; and every person as a producer/entrepreneur have access to global market.

This means that the marginalized group of people who are taken just as consumers also have a significant role in the innovation process for the competitiveness. All the producers should be given an opportunity to trade their products without undue exploitation between the production and consumption process.

6.3.8.6 Fairtrade/ inclusive trade into Green Box System Framework

The four major components: fair trade supply chains, labelling initiatives, branding and umbrella associations, fall within the 'Green Box' of our framework. Labelling initiatives help enforce standards for environmental stewardship, working conditions and minimum wages, ultimately leading to inclusive sustainability. Branding and supply chains help cost reduction, product specification and market access.

Regarding the government's role, as we concluded that fair trade is just a business coloured by ethical channelling and consumption of goods, the government should include fair trade rules in their trade policy. Fair trade needs to be supplemented by changes in development policies and coordination with other development actors (Nelson, & Pound, 2009). Joining hands with fair trade initiatives, government can promote campaigns so that informed consumer choices change business behaviour (EFTA, 2012). The most important role of government intervention is prioritizing fair trade goods in public procurement system with sufficient legal facilitation by public procurement law. Learning process takes place within free trade mechanism. Fairtrade is committed to an on-going cycle of review and learning (Fairtrade Foundation Report, 2012). Feedbacks from free trade supply chains are always very important that gives information for better democratizing trade, empower producers and inform consumers.

However, the government's role in this context seems contradictory to the open trade policy and WTO standards. So, alternative trade has been considered as a way to reduce the negative impact of globalization, Rice (2010) states that fair trade is typically viewed as an alternative to free trade that will reduce global inequality and improve quality of life for some of the poorest in less developed countries. However, fair trade is neither an alternative nor a

rival but a way to make free trade more efficient by improving the market access and providing more perfect information to producers and consumers. It is not against free trade since it does not demand any government regulations but an effective facilitation. The government can facilitate fair trade by making necessary arrangements for better information to producers and awareness to consumer to consume fair trade goods. It will be also equity based since small producers cannot afford a single penny on advertisement, which in many cases has brainwashed the consumer at their own indirect cost in conventional trade promoting mechanism.

The following statement by Wempe (2005) may be relevant-

Ethical entrepreneurship requires that, within the boundaries imposed by market economy, attention is devoted to improving terms of employment, to offering those entrepreneurs who do not yet find it possible to produce goods for the international market an opportunity to do so, and enabling Western consumers to make contribution toward poverty alleviation through their spending patterns (p. 219)

The learning process takes place within a free trade mechanism. Fairtrade is committed to an on-going cycle of review and learning (Fairtrade Foundation Report, 2012). Feedback from free trade supply chains are always very important, and offer insight for better democratizing trade, empower producers and inform consumers.

With better coordination among producers, consumers, FTO, incorporating government role, we argue, we can move toward inclusive trade from fair trade.

6.3.9 Base of the pyramid (BoP) business and inclusive jobs

6.3.9.1 BoP approach and its relations with competitiveness, sustainability and inclusiveness

As Prahalad (2010) has stated, the distribution of Wealth and the capacity to generate income in the world can be captured in the form of an economy pyramid. The top segment of the pyramid represents those wealthy people having numerous opportunities to generate further higher level of income. At the bottom are more than four billion people who live on less than \$2 per day. Therefore, 'Base of the Pyramid' (BoP) strategies are subject to more than 50 per cent people of the world.

The poor represent a 'latent market' for goods and services. When private entrepreneurs actively engage in the BoP that creates inclusive capitalism for private sector competition, the BoP market fosters attention to the poor as the consumers. Free and transparent private sector can transform the poor into producers. BoP as a market provides private sector a new opportunity of growth and a forum for innovation because they can start

their business with leap-frogging technologies. Successful creation of BoP market creates change in the functioning of MNCs (ibid., pp. 5-6).

BoP and inclusiveness: To mainstream the BoP people, an approach is needed that involves partnering with the poor to innovate, create sustainable win-win situation where they are actively engaged in, and companies providing them profitable products and services. For this purpose, collaboration between the poor population, large-scale business firms, civil societies, and government can create the largest and fastest growing market in the world. All innovative marketing approaches intended to BoP people create opportunities to them by offering choices and self-esteem. Ethno-cultural dimension of inclusiveness is equally important as socioeconomic and political dimensions are. Whatever the initiatives are, "only locally-based initiatives can be truly culturally-appropriate and embedded in the local economy and landscape" (Simanis & Hart, 2008, p. 5).

Creating the capacity of BoP people to consume should be the foremost priority of manufacturing and trading firms. For domestic firms, enhanced capacity expands domestic market and also enhances demand predictability and work as import substitution. This capacity development should not be charity based. Thinking about their purchasing power, de-bundling of products or making affordable units, making single-serve units has been proved an effective measure in India and other developing countries' poor consumer's capacity to purchase. In brief, consumer's capacity should be enhanced by three 'A's- affordability, access and availability.

Additionally, producers can produce new products and services intended for the BoP market. Newer technological innovations can facilitate the marketing behaviour of illiterate people. When they are converted to 'producers' from 'consumers', they acquire dignity of attention and choice.

Lastly, BoP people should not be taken as sole consumers. Prahalad's BoP concept is mainly based on poor as the consumers. Jaisawal (2008) gives examples of two well-known firms in India and claim that BoP people contribute to economy as the producers too. Amul, the famous dairy products firm collects milk from about 2.6 million farmers and converts it into value-added milk products. This is an example of partnership between professional managers and milk farmers that has transformed the lives of rural people. Similarly, Shri

Mahila Udyog Lijjat Papad⁵⁰ - a collective ownership firm that involves more than 40,000 women is an example of completely decentralized business model.

BoP and sustainability: BoP people have been using natural resources just for their survival. In most cases, they are unaware of environmental protection; their survival takes priority over environment protection. As we have mentioned earlier BoP poor are the segment of society that suffer the most from environmental hazards and climate change. Therefore, their way of living must be changed. BoP marketing strategies may change their production and consumption behaviour by their active participation. The ethnic people are seen the most conscious on environmental protection because they highly depend on that. Therefore, the pressure to serve an additional three to four billion and at the same time protect the environment will focus attention on sustainability that happened never before. Simanis and Hart (2008) argue- "Learning to close the environmental loop at the BoP is one of the fundamental strategic challenges- and opportunities- facing MNCs in the days ahead" (p. 5).

BoP and competitiveness: Although BoP business has less to do with competitiveness but it is also possible with product redesign and making them affordable. BoP people are considered as the consumers having lowest purchasing power. So, many multinational companies do not regard them as their consumers. However, contrary to the fear of large firms and MNCs about access to BoP market, a rapid urbanization and emergence of new cities around the globe, around two billion city dwellers, the potential consumers, will be added by 2015. Additionally, BoP consumers are very brand-conscious and extremely value-conscious by necessity. What the firms need to do is making aspirational product affordable to BoP consumers. They are also rapidly exploiting the benefits of information networks. Therefore, producing competitive products targeted to those people is the necessity of the time (Prahalad, 2010).

Next, high-tech manufacturing firms think that BoP people are not their consumers because they are unable to use the technology embedded to their products. Contrary to the perception that BoP people cannot easily adopt advanced technology, the spread of wireless devices, PC Kiosks and personal digital assistants has made it possible (ibid.). It means that BoP market can be an appropriate consideration to think about technology-based product competitiveness.

⁵⁰ 'Papad' is an Indian ethnic product made of flour and spices which can be eaten roasted or fried as a meal accompaniment, snack or an appetizer.

6.3.9.2 Incentivizing BoP market

For BoP people, the government has fewer things to do than do producers. Despite that, policy makers should take the following into consideration-

- BoP market brings a paradigm shift in the government's perception/treatment towards poor by taking poor as active consumers and entrepreneurs instead of wards of the state. Government should provide plenty of information about entrepreneurship and can promote the creative bonding of the most advanced technologies with local flavour. These people are the base for leap-frogging and innovation because they can start their business with latest technology as the first time investment.
- Poor people lack sufficient income to finance a technical education which is the key to productivity and higher economic growth. Government's human capital development programmes such as free education, education loans and subsidies for higher and technical studies, and coordinated training program with private sector institutions become supportive to make BoP products competitive in international market.

Despite many positive opportunities, BoP business may not be able to streamline billions of people into business and trade with double objectives of eradicating poverty while making higher profits of business/trading firms. Firstly, entrepreneurship may not be a panacea for inclusive growth in underdeveloped BoP regions if entrepreneurship policies are not carefully handled. Policies solely based on economic indicators may lead to unanticipated negative outcomes such as crimes and social exclusion. Hall, Matos, Sheehan, and Silvestre (2012), drawing on data collected from Brazilian tourism destinations with varying entrepreneurship, innovation and social inclusion policies, argue that weak institutions coupled with alert entrepreneurs encourage destructive outcomes if entrepreneurship policies emphasize economic indicators only and neglects social one. Secondly, the higher unit price and the single-serve packaging intended to BoP (Bendell, 2005; Hopkins, 2005; Rost & Ydren, 2006; Jose, 2006, Karnani, 2006; as cited in: Landrum, 2007). Thirdly, Prahalad emphasizes on role of MNC to serve BoP but without MNCs' location in BoP economy, the distribution alone has little impact on poverty reduction; and the size of BoP market and opine that their purchasing power is also overestimated (Landrum, 2007).

6.3.10 Synopsis of adaptive strategies under consideration

Table 6.3 summarizes the processes, incentives, learning and outcomes of adaptive strategies.

Table 6.3: Summary of adaptive strategies under Green-Box system framework

S.N.	CSASs/SASs	Process	Incentives	Learning	Outcomes (by)			Remarks
					SC	IS	IC	
1	Democratizing policy cycle	Approaches: Goal centred, data-centred, participative and adaptable	Recognition and validation	Regular feedbacks from stakeholders	Efficient and accountable decisions	Supportable decision	Legitimate decision	
2	Inclusive eco-innovation	Intended to remove harmful externalities, enhance competitiveness, protect health of natural system and quality of life, enhancing productivity of exporting firms.	Command-and-control regulations (technology, emission and environmental standards), market based incentives (taxes, emission permits, subsidies for clean technology), R&D support	Need guiding principles; Integration of policies and direct policy support; Innovation failure jeopardize cost effectiveness; Resource/ carbon pricing as investment strategy	Enhancing firm's productivity, inducing technological innovation, saving resources, reducing pollution	IPRs	Creating job, user-led innovation	Strategies to cope: winner picking, innovation crowd-out, technology failures; poor coordination among public agencies; IPRs handling; choosing cost effective instruments.
3	Accessible and affordable green technology and its diffusion	Energy efficiency; clean , and ultra-low carbon technologies; green building, green chemistry, green nanotechnology etc.	Market-based instruments, IPRs, green innovation, technology imports, FDI, enhancing skills and technology absorption capacity, environmental standards, environmentally- preferred public procurement	Precarious effects of pollution intensive technology and people's awareness & demand for green goods accentuated need of clean technology	by cheap clean energy, higher energy efficiency, green technology transfer	through better access and cheaper cost of clean technology, skilled technology intensive products	by reducing greenhouse gas emissions, by reducing resource use	Promote technology leap-frogging and avoiding technology lock-ins, link with industrial policy
4	Efficient accountable and sustainable resource use	<i>Production cycle:</i> advance green technology, high skills, 3R, industrial ecology, decoupling, reducing material and energy intensity <i>Trade cycle:</i>	Green procurement, EMS and ISO 14001, CSR, Global reporting initiatives, green labelling, socially responsible investment	Biomimicry	efficient and effective use of resources, localization and green transport, eco-industrial parks,	Cradle to cradle	Eco-industrial park, increased service/skill intensity	Two ways-lowering waste management cost and, lowering units of inputs, natural

		Institutional and administrative cost reduction strategies		material substitution & dematerialization,		resource governance for resource accountability
5	Participative pollution control and waste management	Material recycling GHG saving and energy recovery. Converting waste into reusable product, input of new product and energy. PSWM.	Siting waste management facilities (such as , waste to energy waste management trainings, micro-credit, engaging local authorities and community in community buy-in, creating market signals for creating remanufacturing sector, personal incentives and disincentives such as: volume-based fees for waste, expanded bottle bills etc.	by increased resource efficiency, refusing lavish packaging	improved food security, participation in carbon credit market	by creating high and semi-skilled jobs, collective commercialization
6	Investment in human productivity and capabilities	Human capital development determines the absorption capacity of technology, innovation, and enhances total factor productivity	Secondary and tertiary education and training, R&D to foster innovation, cooperation between firms, universities and research institutes, making industrial policy adaptive, removing skill gap	Higher human productivity and total factor productivity with environmental awareness	Environment conscious skilled human capital	Wage premium, job opportunity, educating, skilling, deskilling, upskilling and re-skilling,
7	SMEs and family business	Biggest source of jobs, biggest contributor of pollution, supplies goods and services to big businesses firms, address demands of poor consumers, work as on-the-job-training hub.	Interactive education system to enhance local skill and knowledge; training for comprehensive marketing information and collective bargaining powers, tribal markets, assistance in technology and process change; investment in entrepreneurship training, eco-literacy, improving	Using local knowledge and technology	Benchmarking assets, processes, performance, and quality; green products; reduced wastage.	Attracting highest calibre employees, right-based approach of peasants and indigenous people, cooperative, and solidarity mind-set of Promoting sustainable practices by conserving land, water and other resources, improved environmental credentials, support from local community,

			access to finance and infrastructure; public procurement; and self-regulatory initiatives.			ethnic family-run businesses.	invest in work safety, indigenous knowledge-based good practices and innovation	
8	Fair trade/alternative trade	Four components (FTSC, labelling initiatives, branding and umbrella associations) and ten common principles.	Fair trade rules in trade policy, campaigns for informed consumer choices, public procurement, legal facilitation	Feedbacks from trade supply chains	Product sophistication, Improving access to market and information	Working with producers for climate change and democratizing policies	Fairtrade price premium, removed small producers' exploitations, higher wage premium	Main theme: bypassing exploitative middlemen.
9	Base of the Pyramid (BoP) business	Partnering with poor to innovate, create sustainable win-win situation where they actively engaged in, and providing them profitable products and services; consumer's capacity enhancement by affordability, access and availability	Entrepreneurship development programmes, education loans and subsidies, supporting technology leap-frogging and innovation.	Policies should address economic and social perspectives for more productive entrepreneurship outcomes.	Product redesign	Locally-based initiatives	partnership between professional managers and local people	

6.4 Developing Indicators for the System Framework

In this chapter, we introduced the mechanisms of greening the global value chain of trade and explained how GSCM and trade cost reduction strategies are the parts and parcel of GVC in international trade. We also presented a framework of implementation challenges and showed the complexity of greening trade value chain. Then we came to the crux of this paper with presenting "Green Box System Framework (GBSF)" and tried to elaborate how each strategy may translate the aim of making international trade inclusive, sustainable and competitive to facilitate green growth transition when catalysed by appropriate incentives. Finally, we presented a summary table that synthesizes the interplay of main components of the framework.

In sum, we concentrated the study mainly on the "process" aspect of the framework. However, we lack the indicators to help monitor whether we are following the appropriate strategies and correct path toward a green growth transition.

Developing green growth indicators is a way to track the progress towards green growth transition. Emphasizing the major advantage of indicators, UNEP (2012) states that "using indicators representing policy intervention is the support they provide in estimating and assessing the adequacy of the potential cost and performance of various policy options that could be used to solve the issues at hand (p. 17)". We need indicators to evaluate and monitor the existence and outcomes of policy incentives. They are equally important to understand the social dimension, vulnerability and other development opportunities. Indicators can be used to evaluate the effectiveness of the best policy option in certain sectors (ibid, p. 16-17).

However, there are numerous indicators under development in each aspect of green growth such as climate change, inclusiveness, biodiversity and others. We try to accommodate some indicators that are related to our proposed 'Adaptive Strategies' for trade-led green growth transition. In Annex 5, we present some indicators developed in regard with various adaptive strategies and outcome (national wealth and wellbeing).

Following two chapters of the thesis, we aim to explore the applicability of the GBSF in the specific context of Nepal.

PART II

CHAPTER SEVEN

Application of "Green Box System Framework" in the Context of Trade-led Green Growth Transition in Nepal

7.1 Introduction

7.1.1 Significance of adaptive strategies for trade-led green growth transition

In Chapter Four, we identified six CSI strategies and three adaptive strategies (and elaborated in Chapter Six) that may accelerate green growth transition. However, all strategies may not be equally and ubiquitously applicable. As the discourses between three fundamentals (Chapter Four) hint, a green growth transition in low-income economies is more cumbersome due to the poor institutional arrangements, logistics, infrastructure and incentives. In this context, we try to investigate the applicability of these strategies in a trade-dependent but low-income country, Nepal.

7.1.2 Problems of trade-led green growth transition in Nepal

The Nepalese economy is a trade dependent, liberal and low-income economy. Total trade to GDP ratio that was 32 per cent in 1990 rose to 64 per cent (the highest so far) in 1997—doubling the ratio just within seven years once it embarked to liberal economic policies in the early 1990s. However, Nepal gradually lost its trade competitiveness as this ratio could not be sustained, and began to decline after 1997 along with the fall of Nepalese exports and the rebound of trade concentration to India. This tendency has been prevailing not only during the decade long armed conflict (1996-2006), but also the afterwards of its settlement in 2006. Table 7.1 shows how Nepal's trade competitiveness has been poorer every year in terms of global competitiveness indices in recent years:

Table 7.1: Nepal in Global Competitiveness Ranking

Pillars of competitiveness ↓ Years →	2008/9	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15
Basic requirements	120	119	125	121	121	105	100
Institutions	120	123	130	124	123	127	120
Infrastructure	132	131	139	141	143	144	132
Macroeconomic stability	90	86	86	50	56	41	37

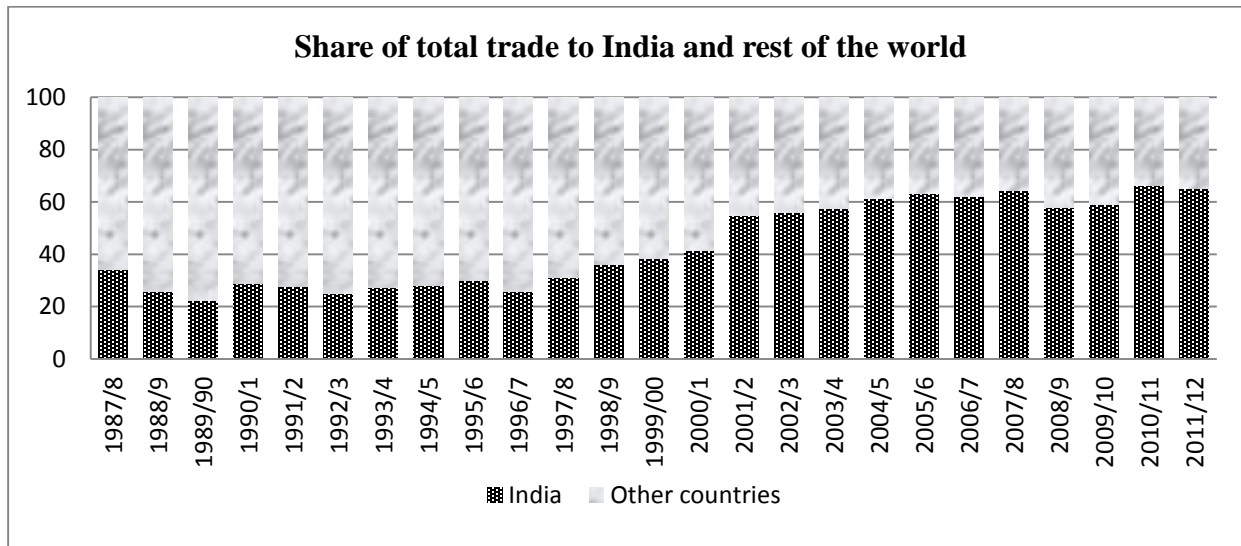
Health and primary education	107	106	109	115	109	88	75
Efficiency enhancers	126	125	131	127	126	128	115
Higher education and training	125	124	131	129	128	130	113
Goods market efficiency	113	117	122	125	121	127	121
Labour market efficiency	124	122	126	128	125	133	114
Financial market readiness	105	99	106	100	91	95	75
Technological readiness	130	132	134	130	129	133	128
Market size	99	96	100	98	95	100	98
Innovation and sophistication	121	129	133	132	133	132	124
Business sophistication	117	126	132	125	127	129	126
Innovation	126	130	137	134	133	129	126
Rank	126	125	130	125	125	117	100
Total countries	134	133	139	142	144	148	144

Source: Global Competitiveness Index Reports of various years

In terms of poverty, disparity has been raised due to the limited opportunities, low agricultural wage rate, rise in the number of internal conflict displaced people and others (MoF, 2014).

Additionally, the gap between exports and imports has been further widening every year. In 2011, imports were four times higher than that of exports despite the fact that trade to GDP ratio was at its lowest level (41.58 per cent) after 1997. Moreover, trade dependency with India rose from 22.5 per cent in F/Y 1989/90 to 66.29 per cent in F/Y⁵¹ 2010/11 (Figure 7.1).

Figure 7.1: Increasing Trade Concentration Towards India

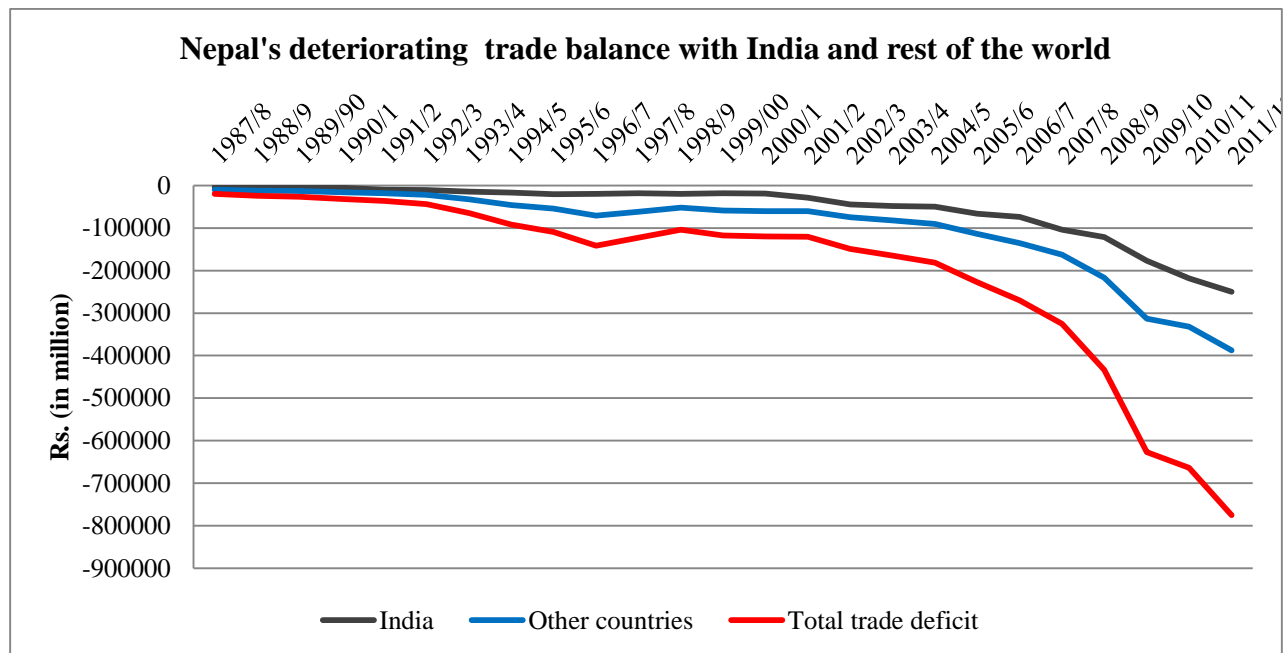


Source: Economic Survey, Ministry of Finance, Nepal

⁵¹ Nepalese fiscal year (F/Y) ends on 14 July. The ratio is more or less same even in 2012/13 and 2013/14

Such soaring imports, declining exports and high trade convergence to India has also caused the soaring trade deficit with India. Figure 7.2 shows a trend that once the trade to GDP ratio started to decline, trade deficit started to soar. It means that the positive impacts of trade liberalization could not be sustained even for a decade, despite Nepal's accession to WTO in 23 April 2004 as the first LDC to join WTO through full working party negotiation process. Within a decade of its accession, the trade deficit has increased by seven times. Contribution of exports to GDP has reduced from 10 per cent in 2003/4 to 5 per cent in 2013/14.

Figure 7.2: Soaring Trade Deficit with India and the Rest of the World



Source: *Economic Survey, Ministry of Finance, Nepal*

The trade deficit was nominal in 1967. Thereafter, imports amounted to double that of exports in 1989. Once Nepal adopted liberal economic policies in 1991 the ratio started to decline and reached its lowest level in 1999. It was considered that trade-led growth would continue to flourish with the improvement in exports and broadening of access to the world market. But the trend reverted and the total value of exports remained just one fourth of imports. Surprisingly, the export share to GDP fell to its lowest level to just 8.85 per cent in 2011, the lowest after 1975 (8.9 per cent). The year 1997 was the peak year for all- exports, imports and total trade.

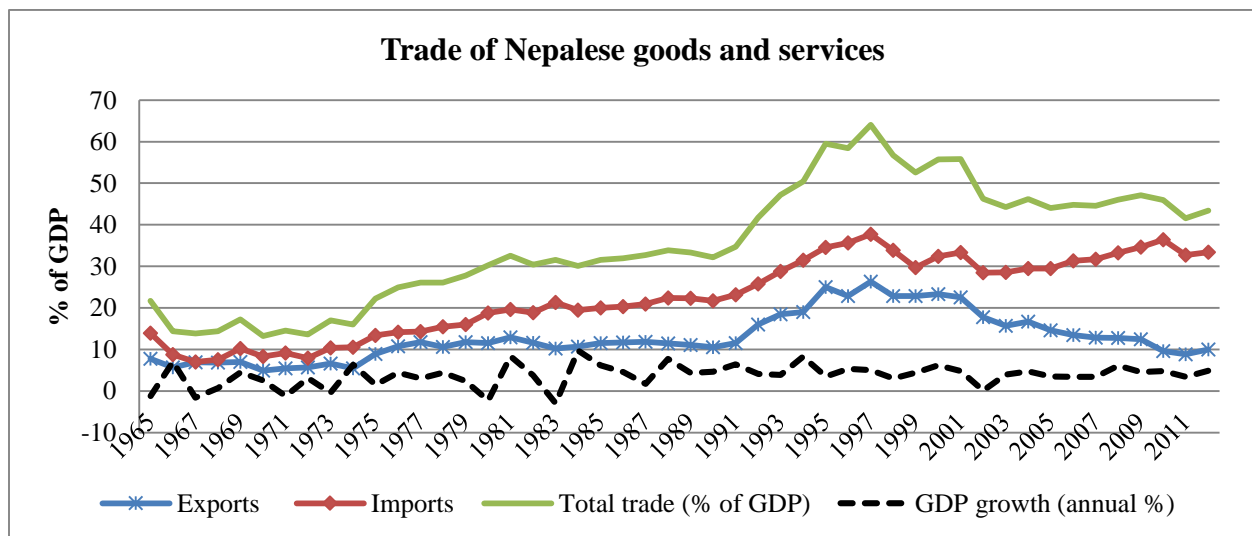
Despite the scenario that Nepalese export performance has been deteriorating since 1997, it is obvious that economic growth is not fluctuating (except in year 2002 when Maoist war was

in its peak) as it used to be in pre-liberalized years (Figure 7.3). As per Awasthi (2014) political instability, deteriorated internal industrial environment, a poor power supply and massive out-fluxes of the workforce during the armed conflict and afterwards are some cause to blame. WTO report (2012) also supports this argument and mentions that Nepal's access to WTO in 2004, April 23 could not result in economic performance due to 1996-2006 internal conflict and some crucial supply-side constraints such as energy shortage, poor infrastructures, and poor labour relations.

As SAWTEE and AAN (2007) paper claims, Nepal's meagre export performance significantly weakened with the expiry of quotas on textile and clothing beginning the 1st January 2005. Though Nepalese cottage industries were incentivized considering the low level of technological development, no significant improvement was seen in exports sector. As in less developed countries, Nepal also encountered with implementation related and supply side constraints that led to bottlenecks in value chain and raised the cost of doing business.

However, in the liberalized economic policy regime, overall economic growth has been consistent and hence, trade may be a reliable growth sector but with a paradigm shift that removes the hurdles of existing trade-led growth regime. Such a shift should address the multiple challenges that Nepal has been facing in improving trade balance, fostering economic growth and making trade more inclusive, competitive and environmental sustainable.

Figure 7.3: Trend of Nepalese Exports, Imports, Total Trade and Economic Growth



Source: World Development Indicators, the World Bank (2014)

Combating trade-related barriers and achieving higher growth is not a sole desirable outcome rather it should contribute to alleviate the quality of people and nature. Learning lessons from both state-led development and market-led development practices in various countries, a new paradigm called Post-Washington Consensus has been evolved that advocates a decisive role of government to play in the development process by using trade as a means to address problems germinated by poverty, hunger and unemployment (SAWTEE & AAN, 2007).

In this regard, the government's role is spoken out through policies. In Nepal's case, trade related policies are being seen as more and more favourable for open markets. Nepal adopted liberal economic policies in the late 1980s with twin objectives of getting macroeconomic stability and economic prosperity. In last two and a half decades, basically after the restoration of democracy in 1991, Nepal went through a series of policy reforms and legislations including Privatization Act, Industrial Enterprise Act, Foreign Investment and Technology Transfer Act, Industrial Policy, Trade Policy and other sectorial policies. Liberalizing its trade and investment regime unilaterally in 1992, Nepal became the first least developed country to join the WTO in 2004. However, such a shift toward openness has facilitated the transformation of Nepal into an imports and consumption based economy, highly relying on remittance income. As remittance is very sensitive to external shocks, there is no option but to make the export industries more resource efficient, employment oriented and competitive.

Taking into account the productivity and competitiveness of Nepalese exports, in addition to a few mentioned in earlier paragraphs, it has been suffering from poor efficiency of backbone services, lack of neutral incentive regimes and various impediments to cross-border trade. Incentives alone cannot do magic until assisted by other backbone services and political support. For example, The World Bank's study report on Bolivia, a landlocked country like Nepal, concludes that a neutral incentive regime is essential to the growth of non-traditional exports; efficient backbone services are vital for reducing exporters' costs, and the government should be proactive in addressing impediments to cross-border trade (2009, p.xii-xvii). However, such trade impediments cannot be avoided overnight except cross border facilitation. In such a situation, a paradigm shift in policy sphere may revitalize the economy.

As a paradigm shift, we have proposed a green growth path and its adaptive strategies that we developed in previous chapters to enhance competitiveness, inclusiveness and environmental sustainability through trade. The applicability of adaptive strategies presented in

'system framework' in Chapter Six has been tested in two levels: policy executives (Chapter Eight) and firm executives (Chapter Nine). We argue that trade competitiveness within an inclusive green growth paradigm is the resulting outcome of democratizing the policy cycle, greening production and consumption cycle and, facilitation/greening trade cycle. In this regard, we focused policy democratization at policy level and other production and trade strategies at firm's level. In essence, we investigated, among policy makers, the perception on green growth transition and the need of policy cycle democratization. Similarly, we conducted a comparative study of firms embracing business-as-usual model, parallel model and totally green business model. Finally, we have concluded with the problems and prospects of policy democratization for green growth path at macro level and effectiveness of green business model for trade-led green growth transition.

7.1.3 Methodology

Robert Yin, the renowned case study methodologist, has suggested five components of case study strategy: (i) The study's questions, (ii) Unit(s) of analysis (the event, entity, or individuals noted in the research questions), (iii) Propositions which reflect on a theoretical issue, (iv) The logic linking the data to the propositions, and, (v) The criteria for interpreting the findings (Yin, 2003). In the present context, we have tried to incorporate component (iii) to (v) in data analysis sections.

7.1.3.1 Case study questions

We try to answer the following research questions with the help of case studies at two different levels -

- (i) Can green growth path be a better policy paradigm for least developed trade-based economy like Nepal?
- (ii) How democratization of policy cycle supports foster trade competitiveness, environmental sustainability and inclusiveness in trade sphere? What are the problems of policy democratization in Nepal?
- (iii) Do 'core adaptive strategy mix' works for green growth transition in least developed economy like Nepal?
- (iv) How green business model is more effective than business-as-usual model for trade-led green growth transition?

(v) What are the impediments of greening tea sector business/trade in Nepal?

7.1.3.2 Units of analysis for case studies

Broadly speaking, the case study consists of two units: (i) policy making executives and, (ii) tea firm executives. As trade-led green growth should encompass three cycles, namely, democratizing the policy cycle, greening production and consumption cycles, and facilitating business and trade cycles - the first unit of analysis is top level policy making bureaucrats. Interviewing policy level executives with regard to macroeconomic policies for trade and trade-related sectors, we intend to identify their experience with regard to the policy democratization process and their perception on the green growth path as an alternative for trade-led growth.

Similarly, interviewing firm's executives- the second unit of analysis that is the tea subsector of agriculture sector- reveals how greening business practices help ensure greater trade competitiveness, environmental safeguards and inclusive growth through trade. Moreover, it is employed to examine the propositions of various adaptive strategies that we propose in chapter six. This unit also reveals the effectiveness of existing policies in their respective business. In second unit, five subunits are included to compare and contrast the outcomes of propositions. As Yin (2014) suggests, within the case study design, "the subunits can often add significant opportunities for extensive analysis, enhancing the insights into the single case" (p. 56). Yin (2009) also reiterates the notion of Herriott and Firestone (1983) that "the evidence from multiple cases is often considered more compelling, and the overall study is therefore regarded as being more robust" (p. 53).

7.1.3.3 Research method

To evaluate the relevant policy implications, we conducted some case studies. "In the field of qualitative research methodology, case study is discussed as a significant qualitative strategy or tradition along with phenomenology, ethnography, biography, and grounded theory" (Crotty, 1998; Creswell, 1998, 2003; Denzin & Lincoln, 2005, 2008; Guba & Lincoln, 1994; Mertens, 2005; Hatch, 2002; Patton; 1990, cited in: Brown, 2008, p. 2). Case study methodology has been developed and proven to be a strong strategy for research in the qualitative paradigm (ibid., p. 6). Yin (2003) concurs that 'case study method allows researchers to retain the holistic and meaningful characteristics of real-life events' (p. 2). Merriam (1998) has comprehensively overviewed case study as an application of qualitative research and noted that the 'case' may be

delimited 'on the number of people to be interviewed, a finite time frame for observations, or the instance of some issue[s], concern or hypothesis'.

We employed embedded case study methods supported by statistics. Although a single method is inadequate for policy evaluation, the case studies provide "a rich detailed portrait of a particular social phenomenon" (Hakim, 2000, p. 59). Qualitative data collected through case studies was backed by quantitative data as far as its applicability, relevancy and availability. Such mixed method research, as Yin (2009) suggests, can permit investigators to address more complicated research questions and collect a richer and stronger array of evidence than can be accomplished by any single method alone.

In case study research, interviews are the most common source of case study data (Merriam, 1998; Yin, 2003). To understand inception, attitudes, opinions, motivations and habits, interviews are appropriate (Sánchez, 2008). Such research emphasizes words rather than numbers and it can better explain the particular process. The interview method is a good way to layout the precise information from the stakeholders that are really part and parcel of any green growth transition.

Focused executive interview was the main instrument to conduct case studies. In such interview, the respondent is interviewed for short period of time, for example, an hour. In regard of conducting interviews, Merriam (1998) has suggested two levels of sampling in case study design; firstly, the selection of case to be studied, and secondly, the sampling of the people within the case. We selected central level policy making/ influencing institutions and then presumably the most accountable respondents at policy level. To explore the relevancy of system framework of adaptive strategies (set of core strategy mix) with *focused executive interviews* at the policy and firm levels, policy making executives from the Ministry of Commerce and Supplies (MoCS), the Ministry of Industry (MoI), the Ministry of Environment, Science and Technology (MoEST), and the Federation of Nepalese Chambers of Commerce and Industries (FNCCI) – the private sector representatives were interviewed to explore the situation of policy democratization, possible causes of existing policy failures, and the possibility of adopting green growth policy as a future course of action.

Similarly, to trace out the implication of existing policies and find out the possibilities of applying an 'adaptive strategy mix' at the firm level, we selected Nepalese tea firms located in the eastern part of Nepal. Firms having different production modalities were selected to compare and

contrast the applicability of adaptive strategies and the implication of existing policies. Moreover, tea is among the 19 export potential items identified by Nepal Trade Integration Strategy (NTIS), 2010. For comparative analysis, we chose a business-as-usual (BAU) firm, a central cooperative of tea producers (CooP), a firm processing conventional and organic or parallel processing (PP), a fully organic firm (ORG), and an organic fair trade (OFT) firm participating in fair trade—namely, one of each category.

The logic behind conducting case studies at two levels is to evaluate the effectiveness of existing policy and intended policy recommendations. The system framework of core strategy mix for trade-led green growth demands an extensive policy analysis at three levels - (i) democratizing policy cycle, (ii) greening production and consumption cycle, and (iii) facilitating business and trade cycle. These three cycles are the parts and parcels of trade-led green growth transition. 'Core strategies mix' of adaptive strategies identified in Chapter Four and elaborated in Chapter Six are categorized under different cycles.

While opting *case studies* as research method, some criticisms should be taken into account. Traditional prejudices against case study strategy, as Yin (2003, 2009) suggests, are based on the arguments that it - (i) lacks the rigor, (ii) has little basis for scientific generalization and, (iii) is a lengthy process that results in a massive, unreadable document. Addressing those concerns, Yin claims that it becomes rigorous if the investigator follows specific procedures and, case studies are generalisable to theoretical propositions and not to propositions or universes. Case studies can be conducted 'to arrive at broad generalisations based on case study evidence' (Yin, 1994, p. 15, Montero, 2011). Addressing the third concern, he claims that it can be made valid and high quality without leaving the library (depending on the nature of case being studied).

The applicability of case study as research method has been beautifully phrased in the words of Brown. He states -

Qualitative case study research is supported by the pragmatic approach of Merriam informed by the rigour of Yin and enriched by the creative interpretation described by Stake...Case studies do provide a humanistic, holistic understanding of complex situations, and as such are valuable research tools (Brown, 2008, pp. 9-10).

7.1.3.4 Data and variables

Primary data was collected through executive interviews equipped with different sets of semi-structured questionnaires for both units. At the policy level, high ranking policy making

executives (secretary, joint secretary, under- secretary) at MoI, MoCS, NPC and MoEST and senior consultant at FNCCI were interviewed. Since they are the authority of their respective institutions, their opinion is expected to reflect the institutional voice.

At the firm level, chairman/managers of firms and secretary of Central Tea Cooperative Federation of Nepal were interviewed. Different kinds of firms were selected to compare and contrast their views and practices.

While taking interviews, some cross-validating questions were used at both levels. The response was transcribed and sent back to respondents for authenticity and validity.

Secondary data was collected from the National Tea and Coffee Development Board, the Nepal Rastra Bank (central bank of Nepal), the UN Comtrade, the UN's World Development Indicators, the Export Promotion Centre, MoCS, the World Economic Forum, various newspapers and others.

Trade related indicators, competitiveness indicators, environmental sustainability indicators, human development indicators and other variables were used for triangulation and cross-validation process. However, no econometric tools rather statistical analysis has been made wherever possible and applicable.

7.1.3.5 Maintaining validity and reliability

To maintain validity and reliability, the following strategies, as suggested by Yin (2009) and other scholars has been adopted:

- (a) To maintain **construct validity**, we have defined the conceptual framework and identified their operational measures. Multiple sources of evidence or a chain of evidence are put forth. The draft of interview transcriptions was sent to the key informants for review, verification and comments while composing the report. Both qualitative and quantitative data has been used, wherever available, for triangulation to maintain such validity. A concurrent embedded approach has been employed for data analysis and triangulation purpose. As Creswell (2009) argues, concurrent imbedded approach has a primary method that guides the projects and a secondary database provides a supporting role in the procedures. The secondary method is embedded or nested within the predominant method. Mixing of data from two sources in many cases can be used to integrate the information or compare each other; however, data may reside side by side as two different pictures that provide an overall composite assessment. In our case,

quantitative responses, the predominant data are supported and compared with the data from government institutions, international organizations, research works and other available resources.

- (b) We are, as hinted by Creswell (2009), aware about the limitations of this method that are: (i) data need to be transformed in some way to make it integrated within the analysis phase of research, and (ii) if two database are compared, discrepancies may occur that need to be resolved. While conducting multiple embedded case studies, we have applied the *cross-case syntheses technique* while analysing data so that the finding will be strengthened and more robustness can be achieved.
- (c) While analysing data, rival explanations (support of business-as-usual model of trade-led growth against green business/growth model) has been judged within the limitations of the study to maintain the **internal validity**. Cross-case pattern matching, to some extent has been done in terms of descriptive analysis.
- (d) To maintain reliability, a case study protocol was designed and a case study database has been developed during data collection.

7.1.4 Justification

- Despite liberal economic policies, Nepal could not accrue the desired benefits in the direction of poverty alleviation, employment generation and environment friendly trade-led growth. Segura-Cayuela argues that the possible reason behind the inability of benefitting from foreign trade is the weak and non-democratic political institutions and consecutive inefficient economic institutions (2008, p. 8). We try to investigate, in Chapter Eight, whether policy democratization is properly practiced in Nepal and what kind of perception they have had regarding following green growth path with proper policy democratization.
- Putting emphasis on the export share of total trade, some scholars claim that the term 'trade' alone does not suffice for economic growth; it is export share in trade that is significant. Therefore, our emphasis is on trade-led growth that is green and inclusive.
- Green growth model is taken as an alternative policy paradigm to overcome various contemporary issues of changing world economy. However, green growth is considered as a luxurious mode of development that is possible only in efficiency driven and innovation driven developed economies. But we argue that it is possible in all kind of

economies due to the comparative advantage in different growth trajectories each economy has. Therefore, we tried to check its applicability in a factor driven economy like Nepal where manufacturing exports has been performing poorly.

- Agricultural sector contributes one third of total GDP and two third of total employment in Nepal. However, exports of agro-products is scanty despite the fact the NTIS has identified this sector highly potential for environmental sustainability, employment generation and high value addition with competitiveness. In this context, we have chosen tea sub-sector of agricultural sector for our case study.
- Moreover, Nepal Human Development Report 2014 reveals that the pace of economic growth needs to be 'accompanied by large scale employment generation and enhanced productivity in sectors such as high-value agricultural niches, industries and infrastructure development' (p. 3). Although income inequality in Nepal was found decreasing during 2003-2011 period, it is not accompanied by vigorous growth. This report finds a need of intensive investment in agriculture in order to reduce regional balance and well being (p. 36).

We have identified, in Chapter Four, six CSI strategies and three adaptive strategies.

Among those, the strategies that fall under "democratising policy cycle" is completely related to policies of the state whereas strategies under "greening production cycle" have mutual playing fields among policy makers and firms. Remaining three adaptive strategies are mainly related employed by firms and facilitated by the government. Therefore, we have enquired policy related issues with government executives and firm related issues with firm executives. However, some CSI strategies having common playing field are put forward between both kinds of executives.

Having those strategies and research arguments on hand, following section reviews policy incentives in Nepal that may support trade-led green growth transition.

7.2 Review of Concurrent Policies for Competitive Trade-led Inclusive Green Growth

7.2.1 Inclusive and sustainable growth is the constitutional right of Nepali people

In its statutory law, Nepal has codified a clear path toward inclusive and sustainable growth. Healthy environment and inclusive development are considered fundamental rights of Nepali people, and the state has some guiding principles in this regard (GoN, 2007).

Regarding the right to a good environment and good health, Article 16 of the constitution ensures every citizen, the right to live in a healthy environment and the right to basic health services free of cost from the State, as provided in law. It provides some policies of the state to make a coherent, equitable and harmonious society by means of environmental management. For example, state policy should accord priority to the local communities while mobilizing the natural resources and heritages of the country (Article 35-4); the State shall give priority to the prevention of adverse impacts in the environment from physical development activities, by increasing the awareness of the general public about environmental cleanliness, as well as to the protection of the environment and special safeguard of the rare wildlife (Article 35-5).

Similarly, provisions related to inclusiveness are: the right to an education and culture; the right to health and employment; the rights of women (State policies shall pursue making the women participate, to the maximum extent, in the task of national development, by making special provisions for their education, health and employment (Article 35-8)); marginalized and underprivileged people (uplifting the economically and socially backward and indigenous peoples, by making a provision of reservation in education, health, housing, food sovereignty and employment (Article 35-10)); right to property and compensation; right to employment and social security etc. As per Article 18, every citizen shall have the right to employment; the women, labour, aged, disabled, incapacitated and helpless citizens shall have the right to social security; and every citizen shall have the right to food sovereignty, as provided in law. State policies shall ensure right to work of the labour force, which remains as the major social and economic strength of the country, by providing them with employment and raising their participation in the management of enterprises, while at the same time protecting their rights and interests (Article 35-7).

Directive principles of the state guide the move toward an equitable society by its economic objective. It states-

The fundamental economic objective of the State shall be to transform the national economy into an independent, self-reliant and progressive economy by preventing the economic resources and means available in the country from being concentrated within a limited section of the society, by making arrangements for the equitable distribution of economic gains on the basis of social justice, by making such provisions as to eliminate economic inequalities and prevent economic exploitation of any caste, sex, class, origin or individuals, and by giving priority and encouragement to national enterprises, both private and public (Article 34-4).

Since the constitution ensures an inclusive and sustainable development, every sectorial growth policies should be in line with the statutory code and set strategies to materialize the provision of the constitution. Therefore, trade related policies also should address various measures to enhance competitiveness, inclusiveness and sustainability simultaneously. The following section reviews such policies and government incentives that may also facilitate trade-led green growth transition in addition to set policy objectives.

7.2.2 Review of trade related plans and policies

7.2.2.1 Trade policy

Nepal adopted export diversification and import substitution strategies in the mid-1960s. To promote exports, a cash subsidy program was launched in 1981. The first trade policy of Nepal was introduced in 1983, which provisioned de-licensing of exports, the waiver of income tax in export earnings, simplification of custom procedures, the introduction of duty drawback system and bonded warehouse facilities, and establishment of Nepal Export Trade Development Council (Khanal et al., 2005, in: SAWTEE and AAN, 2007, pp. 12-13). Along with the implementation of Structural Adjustment Program (SAP), Nepal embarked to liberal economic policy regime. A subsequent Trade Policy of 1992, aimed to promote internal and international trade, diversify trade in terms of both commodities and destinations, encourage private sector involvement, expand employment oriented trade, foster backward linkages, and reduce trade imbalance (GoN, 1992).

Although Trade Policy 1992 was introduced to harness the benefits of trade liberalization, that policy could not sufficiently address the issues of trade promotion in services, protection of intellectual property rights, implementation of facilitation measures, and so on. It also could not address the challenges and utilize the opportunities created from bilateral and multilateral integration of Nepal's trade and economy. In other sense, this policy remained unable to address issues of international trade dynamism (GoN, 2009).

Hence, Nepal introduced a new trade policy in 2009. One strategic vision of this policy is supporting the economic development and poverty alleviation initiatives through enhanced contribution of trade sector to national economy. Trade Policy 2009 was introduced as one that would create a conducive environment for the promotion of trade and business in order to make it competitive at international level, minimize the trade deficit by increasing exports of value

added products, and increase income and employment opportunities by enhancing competitiveness of the products and strengthening interrelationship between internal and foreign trade as complementary and supplementary to each other. Ensuring economic development and poverty eradication through increasing the contribution of the trade sector to national economy was another aim of this policy.

To ensure inclusiveness, this policy emphasizes entrepreneurship development, employment oriented skill and managerial capacity enhancement for improving the living standards of people through creation of income and employment opportunities in trade sectors. Emphasis is given to human resource development for negotiating on product and market development, quality improvement and trade/treaty agreement.

In this sense, Trade Policy, 2009 brings inclusiveness and competitiveness together. One of its three objectives is 'to increase income and employment opportunities by increasing competitiveness of trade in goods and services and using it as a means of poverty alleviation'. As Nepal embraces liberalized economic policies and the government's role as facilitator, guide, guardian, regulator and motivator for the private sector.

In the sustainable competitiveness context, this policy emphasizes the creation of synergies in production emanating from topographical, climatic and vegetation diversity with application of appropriate technologies, skilled human resources and investment. Additionally, it has enforced the Sanitary and Phyto-sanitary (SPS) measures and Technical Barrier to Trade (TBT) though the lack of required infrastructure has jeopardized such enforcement. However, this policy does not address e-commerce, the rapidly growing mode of international trade.

Trade Integration Strategy (NTIS), 2010 has been formulated as the subsequent implementation strategy of Trade Policy, 2009. NTIS aims to enhance Nepal's capacity to reap the benefits from trade-related technical assistance and aid for trade and promote 19 export potential activities (WTO, 2012). NTIS, 2010 reaffirms that the trade sector can play an effective role in achieving sustainable and inclusive economic growth. With an extensive review of trade and policy realm, NTIS, 2010 finds that addressing the supply-side constraints is essential for achieving desired export-oriented economic growth. As a facilitator, the Nepalese government aims at strengthening its ability to coordinate and manage Trade-Related Technical Assistance (TRTA) and Aid for Trade (AfT) by implementing the mechanism of Enhanced Integrated

Framework (EIF). This Strategy identifies four-fold challenges to meet the goals of poverty reduction and inclusive growth through expanding export base. They are-

- Diversify and expand the basket of export-goods and services.
- Diversify and expand the number of export destinations.
- Move up the value chain.
- Ensure that the goods and services export sectors that are expanding have a robust, positive impact of inclusive growth (p. 9, MoCS, 2010).

In terms of competitiveness, the study concludes that there is a growing importance of NTBs affecting the export competitiveness of Nepali products in export markets. The challenges are: building a competitive supply capacity in terms of cost, quality, productivity, and in some cases, the decreasing importance of tariff advantages as a competitive tool. Bilateral and regional negotiations are very important to lowering some NTBSs. Along with lowered NTBs, higher efficiency of Nepalese production firms and well established trade support institutions should be in place. Moreover, NTBs also create a new demand for efficiency of Nepali producers and trade support institutions.

This Strategy also finds some competitiveness challenges. As remittance represents 3/5th of the export base of Nepal's export, it reveals how poor the situation of goods exports is. To build a successful and competitive export sector, identified major challenges are-

- Ensuring proper market access,
- Building domestic supply institutions,
- Addressing the challenges of NTBs,
- Strengthen the supply capacity of exporters, and enhance competitive advantage so that it can be improved in terms of production costs, quality of product, and productivity,
- Mobilizing official development assistance (ODA) to assist developing pertinent capacity.

7.2.2.2 Competition Policy

Competition Promotion and Market Promotion Act, 2007 regulates anti-competitive practices and facilitates creating competitive environment in Nepal. Chapter 2 of this Act prohibits all kinds of anti-competitive practices including— (i) anti-competitive agreements, (ii) abuse of dominant position, (iii) merger or amalgamation with intent to control competition, (iv)

bid rigging, (v) exclusive dealing, (vi) market restriction, (vii) tied selling, and (viii) misleading advertisement (GoN, 2007).

Some supporting competition laws are: The Consumer Protection Act, The Black Market and Certain Other Social Offences Act, and The Essential Service Operation Act. The Competition and Market Promotion Act deals with the domestic market, but does not deal with the export business and businesses related to cottage and small industries.

7.2.2.3 Environment related plans and Policies

Though environment related components were addressed even in the First Five Year Plan (1956-1961), it was the Eighth Five Year Plan (1992-1997) that put forward the concept of sustainable development in the planning process. National Forestry Plan 1976 was enacted long ago before the concept of sustainable development. Solid Waste Management Policy 1996, Environmental Protection Act 1997 and Environmental Protection Regulations 1997 were enacted during the Eighth Plan whereas Local Self-Governance Act 1999, and Hydropower Development Policy 2001 were enacted in subsequent five-year plan and Community Forestry Programme was launched in the same period. In the Tenth Five Year Plan (2002-2007) Nepal set a long-term goal of environmental management with better governance, pollution control and sustainable use of resources (Ayadi, 2011). Nepal Biodiversity Conservation Strategy 2002, Irrigation Policy 2003, National Wetland Policy 2003, National Action Plan on Land Degradation and Desertification 2004, and other various disaster management plans and policies were put forth during that period. Climate Change Policy was enacted in 2011 that provision auditing the energy intensity of industries every two years to promote energy efficiency (Clause 8.2.6).

Regarding environmental policy provisions, Rule 7 of the Environmental Protection Policy, 1997 prohibits any act that shall create pollution in such a manner as to cause significant adverse impacts on the environment or likely to be hazardous to public life and people's health, or dispose or cause to be disposed sound, heat radioactive rays and wastes from any mechanical devices, industrial enterprises, or other places contrary to the prescribed standards. Similarly, Rule 15 prohibits emitting waste in contravention of the prescribed standards. All industries as referred to in [Schedule-7 of the Act] which are currently in operation should acquire provisional or permanent pollution control certificate.

Now, the statutory code - Interim Constitution of Nepal, 2007 ensures environmental rights. The Thirteenth Periodic Plan (2010/11-2012/13) deals environment and climate change that aims to promote the concept of green development by encouraging human and development activities to be environment friendly.

Regarding policy incentives, Nepal has leapfrogged in the direction of environmental protection by entitling climate financing budget codes. Financing climate adaptation and mitigation programs is essential in translating climate change policies into action. Therefore, Government of Nepal has entitled climate budget code to record the entire process to facilitate poverty reduction and inclusive development concerns into development planning and economic decision making. The climate change budget code tracks climate public expenditures that facilitate the prioritizing of development investment targeted to the most vulnerable areas and key sectors (NPC, 2012). However, this climate budget code does not take into account the climate investment made by CBOs, NGOs, and INGOs. It also does not include recurrent expenditure despite being spent in climate change activities (ibid.).

7.2.2.4 Industrial Policy

Nepal formulated its first industrial policy in 1962. A new industrial policy was introduced in 1974 that aimed to import substitution and export promotion. A revised industrial policy brought in 1981 simplified procedure and introduced an improved incentive system. After introducing liberalization measures in 1985, Nepal opened the door for international competition. FDI attraction measures such as removal of quota and licensing system, reduction of tariff rates and so on came into force. During this transition to liberalization regime, Industrial Policy, 1987 was introduced aiming at promoting export oriented industries by incentivizing exports by employing measures such as pre-export loans, duty drawback system and bonded warehouse facility.

After the restoration of a multi-party democracy in 1991, the Nepali Congress Party introduced a Washington Consensus policy regime in Nepal. A new industrial policy was introduced in 1992 aiming to encouraging private sector participation by creating private investment-friendly environment. It also aimed at strengthening the link between the manufacturing and agricultural sector to promote export oriented industries. Incentives such as tax and risk reduction were given to attract private investment. Privatization of public enterprises was emphasized. Curtailing the government's role in price mechanism, the rehabilitation of sick

industries, productivity-based wage determination, reduction of administrative bottlenecks and procedural delays were some other measures in this direction (GoN, 1992). Industrial Enterprises Act, 1992 was introduced as a part of the policy. The Act provided tax incentives to industries based on national priority, location and industrial establishment, their contribution of employment generation and on the amount of exports. These incentives were perceived as a bit inconsistent to the Industrial Policy, 1992 since the policy had removed incentives to promote industrial growth (SAWTEE & AAN, 2007).

The Industrial Policy of 1992 created the legal basis for industrial development by providing incentives such as: concession in income tax, sales tax, and excise to prescribed industries on the basis of their classes and geographical situation. But its first amendment itself, fiscal act enacted year by year, and Income Tax Act repealed such incentives. However, no permission is required to establish, extend, diversify and modernize industries other than those causing adverse impact on security, public health and environment.

7.2.2.5 Investment Policy

The Industrial Policy of 1992 expected that foreign investment would supplement domestic private investment through capital flows, and enhance access to the international market. Foreign Investment and Technology Transfer Act (FITTA) was introduced in 1992 accompanied by Industrial Enterprise Act, 1992 and Single Window System the very year.

According to FITTA, foreign investors are allowed to hold 100 per cent ownership in industries except a few sectors (cottage industries, arms and ammunitions, security printing, currencies and coinages, retail business, travel and trekking agencies, consultancy services, and industries related to tobacco and alcohol). Similarly,

- Public sector industries have been prohibited to ensure private sector investment;
- Technology transfer is encouraged in all public industries;
- No government role in price fixing of industrial products;
- Guarantee of full repatriation of earning from the sale of equity profits or dividends, and; interest on foreign loans, and the amount received under an agreement for the transfer of technology;
- Foreign investors are granted business visa until the investment is retained.

Despite these policy measures, FDI inflow in Nepal is negligible compared to other Asian countries. Whatever does flow in, is mainly in the labour-intensive sector rather than the

technology-intensive one. FDI in Nepal is largely individual, rather than institutional (SAWTEE & AAN, 2007).

7.2.2.6 Labour Policy

The Labour Act of 1992, Trade Union Act of 1992, and Foreign Employment Act of 1985, are main laws meant to deal with labour issues in Nepal. Additionally, Nepal is a party of nine International Labour Organization conventions. The Labour Act of 1992 is considered as labour friendly at the cost of investment and thus detrimental to the investment and employment generation (SAWTEE and AAN, 2007). As the Labour Act provides, a worker must be granted permanent worker status after six months of employment. Once they are made permanent, it is very difficult for their employer to dismiss them. However, it assures social security and high job safety to workers.

Table 7.1 below presents a summary of policy incentives abstracted from various trade-related policies.

Table 7.1: Policy Incentives as Provisioned in Trade, Environment, and Industrial Policies

Policies	Policy incentives
Trade Policy, 2009	<p><i>For sustainable competitiveness</i></p> <ul style="list-style-type: none"> – Creating synergies in production emanating from topographical, climatic and vegetation diversity with application of appropriate technologies, skilled human resources and investment; – Enforcing the Sanitary and Phyto-sanitary (SPS) measures and Technical Barrier to Trade (TBT). – Transit and logistics facilitation programme, establishment of EPZ and SEZ. <p><i>For inclusive competitiveness</i></p> <ul style="list-style-type: none"> – Entrepreneurship development; – Employment oriented skills and managerial capacity development opportunities; – Human resource development for negotiating on product and market development, quality improvement and trade/treaty agreements. <p><i>Incentives for trade inclusiveness</i></p> <ul style="list-style-type: none"> – Employment opportunities to marginalized groups and deprived communities by developing the employment oriented skills and entrepreneurship in the commerce sector; expanding market access to exportable products based on traditional skills, art and craftsmanship, and emphasis is given to increase income and employment opportunities through promotion of trade in services. <p><i>Tax incentives</i></p> <ul style="list-style-type: none"> – No customs duty, excise duty and value added tax (VAT) in exports; – No local tax on transportation within the country of export products and raw materials used for their production. – No customs duty on the sample sent by foreign buyers to Nepalese exports for export order; no customs duty and VAT on export goods returned back; refund of customs duty if the goods produced from the imported raw materials and auxiliary raw materials are exported; – Lower income tax rate on exports earning and for firms established at SEZ and EPZ; – Incentives for regional balance: Certain incentives such as income tax, VAT, and excise duty, custom duty exemption/deductions for certain industries established across specified geographical regions; <p><i>Non-tax incentives and facilitations</i></p> <ul style="list-style-type: none"> – Export credit guarantee scheme to increase the flow of financial resources in exports; – Providing land on leasehold basis for commercial farming of forest product; – SEZ, warehousing services at custom points; – Customs duty drawback on the goods exported; – No licensing: except the goods of archaeological and religious importance, explosives, goods relating to

environment and wildlife conservation, and goods prohibited by treaties and conventions to which Nepal is a party;

Technology incentives: Export Promotion Fund for technology adoption and improving production process.

Industrial Policy, 2011

- No permission is required to establish, extend, diversify and modernize industries other than those causing adverse impact on security, public health and environment;

Tax incentives

- Tax deduction facility for industrial R&D;
- No VAT and excise duty on machinery and equipment import for R&D, only one per cent custom duty;
- No excise and VAT is levied on exported goods;
- Industries to be established by cooperative societies shall be encouraged by way of tax incentives;
- No royalty is charged on electricity generated by an industry for its own purpose.
- No tax to the industries established in Incubation Centre and Incubation Service Centre.
- No income tax, excise duty and VAT on micro enterprises.

Investment incentives

- Government as facilitator in promotion of industrial investment;
- Investment in micro enterprises and cottage industries reserved for Nepal's citizens but technology and market promotion services are encouraged for international investors;
- Incentives for export-oriented industries established in SEZ, prioritized industries, and industries established in less developed, undeveloped and under developed regions;
- Seed capital grant is given for micro enterprises and cottage and small industries being established in least developed areas;
- Government bears 50 per cent of IPR registration expenses made by industry abroad.

Public procurement incentives

- Products of micro enterprises, cottage and small industries are encouraged in public procurements;
- Industrial products that constitute at least 30 per cent value addition in Nepal shall be prioritized in public procurement. However, these provisions are not harmonious to Public Procurement Act, 2007. This act states that price preference of 10 per cent to domestic products will be given (However, compliance with legislation is limited due to undefined procurement method, no established procurement reporting system, lack of e-procurement system except in Department of Roads).

Incentives for Inclusiveness

- (a) *For capacity development of workers* by enhancing managerial skills, encouraging the use of new technology, imparting training for entrepreneurship promotion, use of local resources; raw materials, skills,

labour and technology

(b) Women's empowerment and meaningful participation

- Mandatory representation of women belonging to indigenous and tribal people, low caste people, regionally disadvantaged, backward and marginalized communities in any policy making concerning to relevant industrial enterprise;
- Priority to women entrepreneurs in trainings, seminars, study visits to develop women entrepreneurship;
- Provision of group loan to women entrepreneurs of cottage and small scale industries;
- Provisions for export loans to women entrepreneurs/ businesspersons;
- Priority to women in the venture capital;
- An exemption of 35 per cent in the registration fee if an industry is owned by woman; 20 per cent waiver of registration fee for registering industrial property such as patent, design and trademark;
- Provision of Women Entrepreneurship Fund;
- Directives for protection and control of all types of gender-based violence at workplace;
- Gender-friendly plan, program, and budget to ensure gender equality, gender analysis and assessment, gender auditing and gender budget system.

(c) Tax incentives to promote inclusiveness through employment generation

Small-scale, medium-scale, and large-scale industries providing direct employment to more than 100, 200 and 500 native workers respectively will get further exemption of 25 per cent in income tax. If the direct employment comprises 50 per cent of native women belong to Dalits⁵² or person with disability will get an exemption of 40 per cent in the income tax to be levied in that year.

(d) Incentives to work safety

The expenses incurred for serving long term interest and welfare of employees of an industry (such as residence, health facilities, insurance, education, childcare facilities, parks, sport centres, etc.) and remuneration paid to physically incapable persons may be deductible expenses for income tax purpose.

(e) To promote micro-enterprises and cooperatives

- Income tax for cooperative industries in prescribed sector is exempted by 50 per cent;
- Market of goods and services of micro enterprises, cottage and small industries shall be promoted; Backward and forward linkages shall be maintained with the middle and large scale industries.

Incentives for sustainability

- Expenses on machines and instruments that help decrease energy consumption and capital expenses for pollution control may be deductible for income tax purpose. Up to 5 per cent of total sales income used for entrepreneurship and skill development, R&D, and new technology acquirement are deductible expenses for

⁵² The term "Dalit" refers the lower caste people in caste-based hierarchy.

income tax purpose.

Incentives for green technology

- Technical and financial assistance to the industries that use environment-friendly and energy saving technology on their own costs;
- Special measures shall be taken to promote green industries (though neither such measures are clear nor any guideline is made to provide technical and financial assistance);
- Concession and facilities shall be given to assist industrial R&D, environmental protection, and the use of clean production, technology and process.

Incentives for regional balance

- Industries established in various geographical location (categorized as least developed, undeveloped and under-developed) get up to 90 per cent income tax exemption for up to 10 years (detail in Annex 6)

Incentives as provided by Public Procurement Act, 2007

- Price preference of 10 per cent to domestic products (However, compliance with legislation is limited due to undefined procurement method, no established procurement reporting system, lack of e-procurement system except in Department of Roads).

Environment Protection Act, 1997	<ul style="list-style-type: none"> – Prohibition any act that creates pollution in such a manner as to cause significant adverse impacts on the environment or likely to be hazardous to public life and people's health, or dispose or cause to be disposed sound, heat radioactive rays and wastes from any mechanical devices, industrial enterprises, or other places contrary to the prescribed standards (Rule 7); – Prohibition of emitting waste in contravention of the prescribed standards (Rule 15); – Climate financing budget codes as fiscal measures to facilitate poverty reduction and inclusive development.
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Despite all these incentives, not a single new exportable good manufacturing industry was established during the last five years (2009-2013) (Nagarik, 2013 October 31). Not only the destination of Nepalese exports, but also the export basket has been changing in recent years. Along with the rising importance of the Indian market, the importance of traditional "northern markets" like EU and USA is decreasing. Now, markets are expanding in Asia, the gulf countries and the Middle East.

In Chapter Eight and Nine, we present findings of case studies that reveal the perception of policy makers with regard to following a green growth path for trade-led green growth transition and the reality facing tea firm executives in this context.

CHAPTER EIGHT

Trade-led Green Growth in Nepal: Policy Problems and Prospects

8.1 Introduction

As a green growth transition needs a paradigm shift from a neoclassical economic growth model based on neoliberal political ideology, such a shift should first and foremost be internalised by policy makers and translated into policies with proper incentives and policy harmonisation. Trade policy instruments are scattered in various sectorial policy documents and legislations, and hence, administered by different institutions. While applying those instruments into action, effective coordination and harmonious decision making is required to avoid conflicting rules, regulations and practices that affect trade competitiveness, sustainability and equitable distribution of trade outcomes. Such harmonisation should begin with policy democratisation and end with trade facilitation for a smooth green growth transition.

Therefore, we conducted some case studies by interviewing high level policy executives from different policy administering institutions to explore the applicability of four CSI strategies or CASs (namely, policy democratizing policy, inclusive eco-innovation, accessible and affordable clean technology development and its diffusion, investing in human productivity and capabilities). To explore the situation of policy democratization and other three CASs in the Nepalese context, we interviewed high level policy making executives at the following agencies:

Table 8.1: Institutions Involved in Policy Level Case Studies

Abbreviation	Agency	Responsible for
MoCS	Ministry of Commerce and Supplies	Operational and policy agency that facilitate corporations and companies in international and internal trade
MoI	Ministry of Industry	Operational and policy agency that works for industrial and entrepreneurial development in Nepal
MoSTE	Ministry of Science, Technology and Environment	Government agency that assumes science, technology and environment as key pillars to achieve sustainable and broad based economic growth contributing to employment generation and poverty reduction in Nepal.
NPC	National Planning Commission	National Planning Commission (NPC) is the advisory body for formulating development plans and policies of Nepal
FNCCI	Federation of Nepalese Chambers	It is an umbrella organisation of the Nepalese private sector. It provides information, advisory, consultative,

of Commerce and Industries	promotional and representative services to business and the government.
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It is not that policy democratization in other trade related growth sectors such as agriculture is less important, but we could not include all of them due to the limitations of our study. In coordination with other ministries, MoCS is the responsible institution for formulation and implementation of trade policy. To make it inclusive, input from the private sector is taken. The FNCCI and the Nepal Chamber of Commerce provide policy inputs directly and indirectly.

8.2 Democratizing Policy Cycle

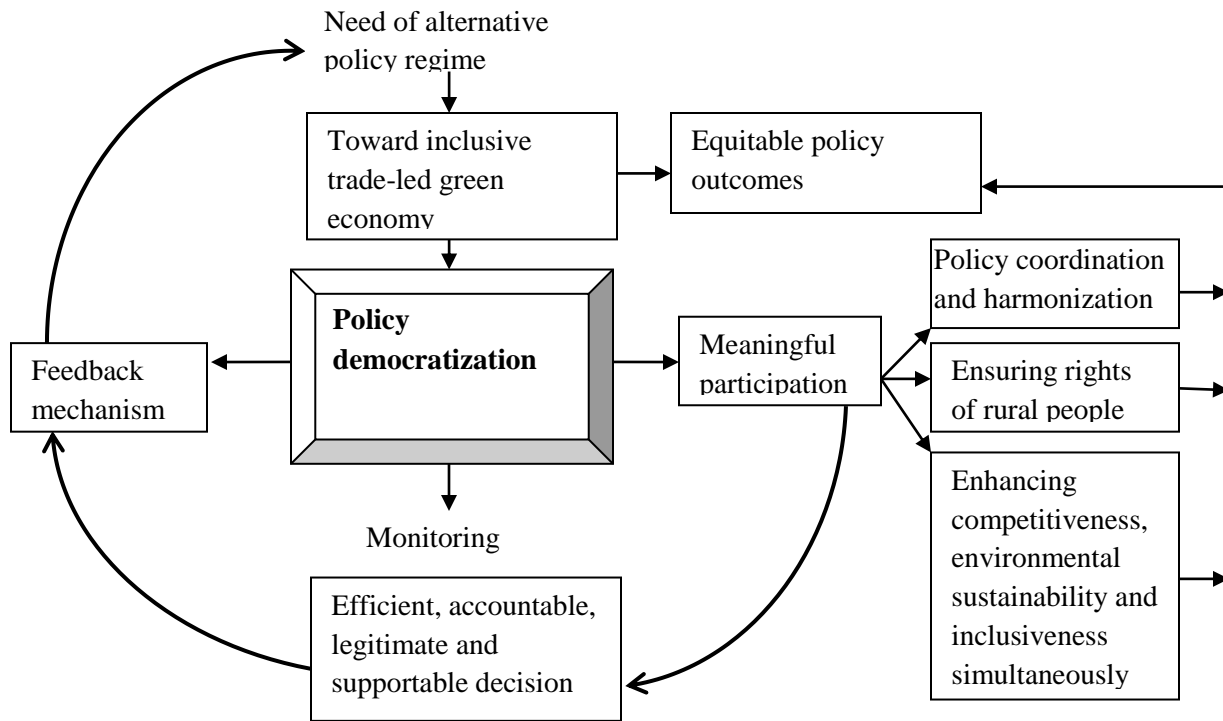
8.2.1 Policy democratization framework

To build public trust and a sense of ownership in trade policy and other trade-related policymaking processes, all actors should be engaged in every stage of the policy cycle. In the inclusive green growth paradigm, it is more important in the sense that resource utilization, its conservation and sharing the benefits of trade is possible through policy ownership. Moreover, the lives of people are touched by working to improve the international economy, and ultimately more people will have a stake in the outcome of trade [and related] policy outcomes. "No policy will be politically sustainable if it is not developed through an open, transparent process that accords all interested parties an opportunity for input" - say Stokes and Choate (2001, p. 2).

Regarding the policy democratization process in Nepal, it is mentioned: "Private sector, non-governmental organizations, experts and research oriented institutions will be involved in the process of trade policy formulations" (GoN, 2009, p. 8). The Trade Promotion Institute and Trade Policy Analytical Wing shall provide policy feedback. The latter will be established with the involvement of private sector and government sector representatives.

Democratizing the policy process helps empower people and persuade the government to design and implement policies that use trade as a means to pursue economic equity and social justice. It lessens political and behavioural inertia and enhances legitimacy as well as policy ownership for its effective implementation.

Nepal's latest periodic plans have considered participation as a main issue, from policy formulation to its implementation and distribution of policy outputs to achieve inclusive growth. However, ensuring meaningful participation of all stakeholders is difficult in a country where actors are either unaware about their rights and responsibilities or are not well organised. Figure 8.1 depicts how policy democratization takes place.

Figure 8.1 Policy Democratisation— A Literary Framework

As depicted in the above diagram, policy democratization is possible through meaningful participation, proper monitoring and feedback mechanism. Meaningful participation is ensured where there is a mechanism of proper policy coordination and harmonization, ensuring rights of rural people and coordinated policies for enhancing competitiveness, environmental sustainability and inclusiveness simultaneously. A participative mechanism should be in place that examines whether the policy decision is efficient, accountable, legitimate and supportable. An impartial feedback mechanism that evaluates policy implementation gives inputs for any kind of deemed policy changes. Such mechanism leads toward inclusive trade-led economy with equitable policy outcomes. Based on this framework, the following paragraphs sum up our findings regarding policy democratization for trade-led inclusive green growth transition in Nepal.

8.2.2 Findings related to policy democratization

Finding 1: Meaningful participation of stakeholders in trade, industrial and environmental policy making has been provisionally ensured in recent policies but yet to be effective

Nepal's trade policy aims to eradicate poverty through trade. As the authority at the Ministry of Commerce and Supply (MoCS) mentions, establishing forward and backward linkages is needed to support poverty reduction. The Trade Policy 2009 aims at facilitating environment-friendly, poverty alleviating and employment generating products. As MoCS respondent claims, policy inputs are sought from private sector representatives who represent all stakeholders.

Similarly, learning lessons from previous industrial policy (Industrial Policy, 1992), new Industrial Policy, 2011 was formulated with a wide consultation and maximum participation. As the information provided by Secretary (the respondent hereafter) at Ministry of Industry (MoI), direct beneficiaries are entrepreneurs but indirectly consumers, traders, private sector representatives and even policy makers are the stakeholders.

Due to the ineffectiveness of previous Industrial Policy and its complementary policies, the new Foreign Investment and Technology Transfer Act and Industrial Entrepreneurship Act are drafted with maximum PPD (Public Private Dialogue) recently. Since the two latter Acts have yet to be put into force, their effectiveness is unknown. The Nepal Business Forum is the first national platform for PPD established in 2010 to deliberate important climate issues and recommend policy inputs. There are nine working groups including one regional PPD forum. Working groups assist accelerating and facilitating the reform process in the field of - (i) business environment, labour relations and security, (ii) export promotion and trade facilitation, (iii) financial, monetary and insurance affairs, (iv) industrial investment promotion, (v) infrastructure, (vi) tourism, (vii) women entrepreneurship development, and (viii) foreign direct investment. Most of the NBF recommendations are included in the Industrial Policy 2011. The Private Sector Development Committee (PSDC) provides plenty of policy inputs. For example, visa facilitation for foreign entrepreneurs and online company registration system were both measures put into place as recommended by PPD.

Learning lessons from the failure of previous industrial policy, MoI conducted policy revision consultative meetings with PPD in five development regions and many consultative meetings were held in Kathmandu. Suggestions and policy inputs were accommodated into the policy draft.

MoSTE respondent considers three kinds of stakeholders- government, non-state actors (NGOs, CBOs, user's group, advocacy group among others) and custodian of environment - the

local people. Most of the environment related government policies pass through all these stakeholders by addressing the issues of inclusion of marginalized segment of society and the gender. For example, the Community Forestry Program clearly provides a 50 per cent representation of women. Gender inclusion is the main concern in almost environment related policies.

This kind of policy democratization starts at the grass-root level that was legalized through Local Self Governance Act (LSGA), 1999. The LSGA has mandated the Village Development Committee (lowest political unit responsible for local development) for local level planning as per the needs of the people. The Act states that each Village Development Committee shall formulate periodical and annual plans for the development of the village development area. The LSGA has been considered a milestone in terms of decentralization of planning process in Nepal to the lowest possible level of governance and delegation of state authority of the democratically elected body of the government. However, this Act is almost defunct, as no election of local government has been held since 1997. Since local elections are the lifelines of democracy that give voice to democracy, the lack of an elected local body has jeopardized policy democratization.

The National Planning Commission (NPC) respondent categorizes stakeholders into three groups: government agencies, not-state actors, and experts. There are various stages of making policy a participative process: to establish their voice, and to enhance their capacity. For meaningful participation, NPC had organized 14 formal interactions in various regions and also conducted informal discussions while formulating the 13th Periodic Plan. They also accommodate feedback from Nepalese people and institutions abroad.

The FNCCI is the apex body of private sector representatives. As the response of their chief consultant (the respondent hereafter) of FNCCI, firstly, every sector associations are involved in trade related policymaking process. Their view is accommodated/consolidated by FNCCI. Secondly, they are directly involved with government interaction.

In brief, learning from previous policy failures, recent policy revisions are made with maximum stakeholder participation so that real policy demands can be addressed. Environmental policies are comparatively more participative. Meaningful participation is an evolutionary process that is in its primitive phase in Nepal. The following sub-findings support this main finding.

Sub-finding 1.1: Trade and industrial policies democratization and harmonization process in Nepal is still poor

Policy coordination, the process and mode of communication determine the harmonization and democratization of trade related policies. The Trade Policy 2009 and Industrial Policy 2011 were recently enacted. Sufficient consultation with the Ministry of Science, Technology and Environment and other stakeholders is needed to incorporate environmental policy instruments and innovation issues into trade and industrial policy.

While designing policy in a democratized manner, the goal of trade, industrial and environmental policies for trade-led green growth should be deliberately specified. Goals should be backed by reliable and appropriate data set to make accountable policy decisions. To get a supportable decision outcome, meaningful participation is needed. And, to legitimize such decisions, adaptation is required.

In this regard, trade policy is a dynamic instrument. MoCS respondent affirms that they are in favour of harmonizing trade policy with environment policies, though trade policy in force does not incorporate any environmental instruments nor innovation and technology development policies. Trade policy is very much demand oriented. We are trying to make decisions accountable, supportable and legitimate, but it is no doubt an evolutionary process.

MoI judges that recent policy designing in Nepal consists in the combination of all of the above-mentioned features, but in most cases, policy formulation is reactive (in response with particular problem- domestic or foreign pressure). For example, Money Laundering Act 2008 was enacted to address the international policy demand. Still they think that a proactive approach is needed to formulate policies.

MoSTE sees problems in policy harmonization that have been hindering the development process. The Planning Commission is the responsible institution for policy harmonization before launching any programs/ projects. Additionally, the voice of MoSTE is not strong enough to influence fiscal instruments. Still, the environment is considered just as 'nature'. However, they are pushing for mandates under their jurisdiction and international obligations. Now, the natural environment is gradually accepted as the part of economy. Recently, the NPC has come up with climate budget codes and a green economy framework with wider consultation with most of the stakeholders including MoSTE, FNCCI, CNI, and other related government institutions.

In this aspect, the private sector feels there is a lack of policy revitalization and harmonization. Despite accepting the stakeholder consultation, they say that policy formulation is supply oriented. A senior consultant of FNCCI expresses his dissatisfaction-

Updating and modification process of trade policy and industrial policy is not frequent. Government gives us a framework and we give inputs. Export-Import Control Act, 1957 is still in force. Policy amendment process is too slow. Many complementary policies are too old or obsolete. The economy embarked towards liberalization some three decades ago but we are working with "Export-Import Control Act, 1957. What an ambiguity!

In brief, Nepal's trade policy incorporates neither environmental policy instruments nor any concrete innovation and technology development strategies. Policymaking mechanisms are more reactive than proactive, and that has made policy coordination and harmonization relatively poor. The private sector perceives that government policies are supply oriented and need to be revitalized and amended so as to harmonize with each other. The NPC's green economy framework is expected to coordinate sectorial policies in future amendments.

Sub-finding 1.2: Ensuring meaningful participation and rights of rural people could better democratize policies

We are in the era of right-based development. Social and economic rights of people in this era can only be met through international trade (UNDP, 2006a). Ensuring meaningful participation and creating a mechanism to incorporate the rights of rural people while formulating policy is needed to democratize policies.

With regard to the right-based approach of policy making, MoCS respondent agrees that hearing the voices of all stakeholders is needed. For this purpose, the local government (for example, District Development Committee) has developed a guideline. Local agencies and people are involved in benefit sharing (MoCS). This means, in trade policy making, there is no mechanism of direct policy dialogue with local people.

In MoI respondent explains, it is through the elected local bodies (which embody the local self-governance) that people in the periphery (i.e. the people residing in remote, rural areas) get their voices heard and attended to by the centre. In Nepal, no local elections have been held for the last 13 years, but still, the local bodies are running under the bureaucratic leadership. These bodies, along with the local offices of other government organizations and CSOs, try to ensure that there is meaningful participation of the people in formulating policies and plans. A 14-step participatory planning process is being followed by the Nepal's Ministry of Local

Development for this purpose, and is being implemented by all the local bodies in their planning process. Such a framework is expected to democratize policy-making process despite the lack of elected political representatives and a strong institutional arrangement.

MoTSE respondent realises the need for effective institutions and an enabling environment in this regard. "Meaningful participation can be ensured only through a conducive policy formulation and its successful implementation. Any participatory policy, to become successful, needs effective institutions and enabling democratic environment that is relatively poor in our context" - says MoTSE respondent.

NPC is very conscious of incorporating the voices of the all segments and especially vulnerable rural people. They have formal mechanisms in the policy and program formulation processes and also informal processes to hold social dialogue that can capture all views of the concerned. As it formulates macro policy framework, the NPC has no hands to ensure meaningful participation in sectorial policies.

FNCCI represents the voice of entrepreneurs from various sectors. Though it is a main actor, the voice of rural people may not reach them if they are not organized. Therefore, a segment of unheard voices may also be deprived of their rights too. Giving an example, FNCCI indicates another threat: that the exploitation of natural resources and their exports has been uncontrolled due to some money-making entrepreneurs. The marginalized people of society are often misused as the shield in the name of raising the issue of their employment. Ironically, it has led to the unsustainable exploitation of natural resources, upon which the marginalized segments of society depends. Short-sightedness is the problem.

There is a pathetic example of pervasive policy inconsistency that causes entrepreneurs to suffer time and again. There is a lack of proper control mechanisms and working policies are poorly defined. In 2009-10, around 12 billion rupees were invested in stone crusher industry. All the crushed gravel stone was exported to India to fulfil the huge demand of it in the booming Indian construction sector. The following example shows how poorly foresighted policy (related to stone crusher) created a huge loss of investment, jobs and environment due to the policy decision to permit then quickly ban it-

Entrepreneurs, who have been hit by a ban on operation of crushers, challenged the government to send them behind bars if they had violated any law and warned of group suicide if the ban was not revoked. "More than five hundred thousand labourers have lost their livelihood and five thousand trippers have been forced to remain idle for the last 18 months due to the ban" said Krishna Prasad Sharma (Himalayan News Service, 2011 March 1).

Another peculiar challenge is revealed by FNCCI. Sometimes the interest of importing countries places pressure on this kind of unsustainable and precarious exports. To cope with these problems, a committee is now in force which, in consultation with local government and people, decides whether or to what extent such natural resource based export items can be produced and exported. A technical committee then decides whether the resource based export item is just raw material or a manufactured item. This way, concerns of marginalized societies are addressed.

In a nutshell, trade policy formulation has not reached the grass-root layer. Additionally, on one hand, frequently changing policy decisions to calm-down the voice of conflicting pressure groups have jeopardized the investment, employment and resources that marginal society depends on; on the other, profit making mongers and demand-side pressures may misuse marginal people to influence policy decision in favour of profiteers. However, industrial and environmental policymaking processes have been rooted in the grass-root level, which has better democratized policies.

Sub-finding 1.3: Meaningful participation in trade policy and trade related policy making may enhance competitiveness, environmental sustainability and inclusiveness simultaneously

Policy democratization, if meaningful participation is ensured through entire policy process (design to evaluation, feedback and learning process) ensures greater environmental sustainability, enhanced equity and better competitiveness in terms of trade-led growth. We tried to identify whether there is any exemplary trade, industry and environment related policy.

Respondent at MoCS emphasized that Nepal's trade policy was mainly intended to incentivize trade that generates employment, alleviates poverty, fosters human capital development and reduce regional imbalances. The main focus is poverty alleviation and employment generation. However, greater environmental sustainability is not the goal of existing trade policy. They also agree that there is no specific evidence that clearly shows equity enhancement and fostered competitiveness by certain participative policy. Though, we cannot establish the causality, that it whether such a result was due to poor policy democratization, but it may be an indication of poor stakeholders' participation and lack of regular policy amendment.

MoI respondent considers agricultural sub-sector — organic agro-product — to ensure better competitiveness, higher environmental sustainability and greater inclusiveness. According to them, strengthening this sector may be expensive in the short run, but it will definitely have a

positive impact and higher comparative advantage in the long run. We explain the reality in this very sector in the second part of our case study. Should agricultural policy become more democratized, it would perform better.

MoSTE respondent claims that environmental sustainability and inclusiveness can only be ensured through meaningful participation in trade related policies because such participation develops a feeling of ownership and responsibilities among stakeholders. Additionally, stakeholders know how long run benefits from trade can be harnessed. Even the fear that environmental standards debilitate competitiveness is becoming weaker in recent days. If stakeholders are well informed as to the concept of cleaner industrial production, energy efficiency, way of enhancing human productivity, water saving mechanism, waste management and pollution control methods, they will embark to a higher quality ladder and gain quality based competitiveness. However, convincing entrepreneurs to avoid knowledge lock-in takes time.

NPC respondent has no specific answer in this regard since sectorial policies are evaluated by sector ministries.

FNCCI respondent observes no particular policy that represents maximum voice of stakeholder and fosters competitiveness, environmental sustainability and inclusiveness. According to them, some policies are inharmonious policies whereas others are dead and/or dormant. Even the application part of active policies is meagre. For example, there is the provision of duty drawback system in trade policy but it takes too long (beyond the time stipulated by the policy) to get the duty back. Moreover, policy democratization is in its infancy since there was no multiparty democracy until 1990.

They further recall that entry into WTO has fostered policy democratization in Nepal. Being a member of WTO, Nepal has to comply with various WTO provisions. In this aspect, government hears the voice of FNCCI. For example, the integrated checkpoint at customs was the demand of stakeholders (traders). Government is doing something but very slowly.

However, without any infrastructure and backbone services, policy democratization will not work. Policy implementation becomes weak in such a situation. For example, One Door Policy has yet to be materialized which would have enhanced competitiveness if it were materialized.

In a nutshell, there is no such trade related policy that ensures all three fundamentals because policy democratisation is not well established yet. Existing trade policy intends to

generate employment and alleviate poverty; however, it lapses environmental sustainability aspect. Even trade competitiveness strategies are not well defined. The Lack of regular policy amendments (possibly due to political instability) cannot ensure policy democratisation. MoI has identified organic agro-sector as a sector where all three fundamentals can be ensured and hence, in the process of amending Industrial Enterprises Act. MoSTE version is more convincing that meaningful participation in policy cycle ensures inclusiveness and environmental sustainability that help climb export goods toward higher quality ladder and resulting enhanced competitiveness. Stakeholders should be properly educated to get rid of fear that environmental safeguards deteriorate competitiveness.

Finding 2: Monitoring mechanism of policy decisions is needed to make policies more efficient, accountable, supportable, and legitimate but it is not well specified

Democratizing policy formulation just by ensuring participation is not enough; rather there is a need for an effective mechanism that helps monitor and evaluate whether policy decisions are efficient, accountable, supportable, and legitimate. Some instruments may help materialize such a mechanism. However, there is no such permanent effective mechanism in Nepal. And even if there is one, it is in its inception.

In the trade policy regime, the Board of Trade, in coordination with other related agencies, monitors and evaluates policy implications. Though Trade Policy 2009 provisions institutional arrangements such as the Trade Policy Analysis Wing and Trade Promotion Institute, they are dormant. To the extent of policy evaluation made so far, policy outcomes are neither encouraging nor discouraging. Such revelation by MoCS may indicate inefficient policy decisions. There is no instrument to measure whether policy decisions are sufficiently accountable, supportable and legitimate.

However, in a broader firm, the oversight bodies such as the Parliamentary Committees, Nepal Vigilance Centre, Constitutional Bodies such as Commission for the Investigation of Abuse of Authority, Public Service Commission, Office of the Attorney General, Courts, Office of the Prime Minister and Council of Ministers, Civil Society Organizations, media and watchdog organizations are the monitors of policy efficacy in terms of formulation, enforcement, compliance and monitoring of policies by the respective stakeholders (MoI respondent).

In terms of environmental policy, enforcement of standards and monitoring of compliance is relatively weak. The causes are: (i) environmental agency is only in central level,

(ii) no sufficient human resources available as well as technical resources (such as labs); (iii) stakeholders are not involved in compliance monitoring. However, third party evaluation, journalists seem eager to be involved in monitoring process.

Environment related policies are more democratic compared to others and inclusiveness is highly emphasized. For example, one effective policy in which stakeholders were highly involved is Climate Change Policy 2011, which was formulated by intensive interaction among stakeholders from community level to central level. Pilot Project for Climate Resilience is an example that enhances inclusiveness and environmental sustainability. Similarly, Local Adaptation Plan of Action involves vulnerable societies, mainly women. They are not only involved but also are responsible for implementing, monitoring and evaluating the program. Fortunately, growing awareness at the grass roots level has made the evaluation mechanism more effective. MoSTE respondent opines that sectorial agencies should involve all stakeholders in the monitoring process of respective policy outcomes.

Basically, we do not need a separate policy monitoring and evaluation mechanism to adopt a green economy framework. The NPC respondent opines that existing monitoring and evaluation mechanisms work even in green framework. This year, the NPC revised the existing monitoring framework in which green economy tools are also incorporated for the first time in Nepal's planning history. The NPC is exercising a result-based monitoring system, which certainly encourages the rating of accountability and legitimacy in policy implementation as well.

In essence, there are policy monitoring and evaluation provisions in trade policy, but they are not functioning well. No instruments to measure whether policy decisions are accountable, supportable and legitimate. The enforcement of standards and monitoring mechanisms in the context of environmental policy is still weak, but essentially rooted to the grass-root stakeholder level. Overall policy oversight bodies are there, but sometimes, too many cooks spoil the broth. A third party evaluation system is emerging. Existing policy monitoring and evaluation may be revitalized for the adoption of green economy framework.

Finding 3: There is poor feedback mechanism for democratization of trade policy

Nepal's trade policy provisions institutional arrangements such as *Trade Policy Analytical Wing* and *Trade Promotion Institute* for policy evaluation, recommendation and feedbacks over the effectiveness of existing policy and possible alteration in the context of

changing world trading arrangements. However, both have yet to materialize. Instead, the Trade Promotion Centre and Board of Trade are institutionalized.

Finding 4: Environmental challenges embedded to Nepalese exports demand alternative trade regime

The democratisation of trade and industrial policy is not enough to achieve higher trade-led growth in the expected direction. As there are severe environmental challenges embedded in Nepalese exports (i.e., export jeopardized due to inability in meeting environmental standards, unsustainable resource use, dependency of marginalized people on natural resources etc.), harmonizing environmental policy or finding an alternative trade-led growth regime that ensures meaningful participation to conserve ecology and the economy requires time.

In this regard, removing sanitary and phyto-sanitary barriers in trade and environment policy go together. MoCS authority opines- "Although Nepal's trade policy does not address environmental issues, but it is not inharmonious. In the case of the exportable natural resource base, optimum resource utilization is equally important as it recharges the environmental preservation." In their view, resources are not only meant to be preserved but also to be benefitted with. They did not suggest any alternative policy regime.

But, MoI's authority has different view. Although the static thought of entrepreneurs' regarding competitiveness makes them hesitant to move toward an alternative policy regime, greening industry is not only an alternative but also a demand of the hour. They have the preoccupation that green industry will be expensive due to the lack of technological innovation, poor expertise, poor technology know-how, training and capacity development issues. But MoI's view is that Nepal should seek, from developed countries, assistance in those aspects rather than avoiding environmental and other concerns. Nepal cannot be competitive by producing manufacturing product in massive scale because her neighbours – India and China– possess higher economies of scale. Only the option is producing environment-friendly quality product and their exports. And, it is possible by democratizing macro policy framework including trade, industry and environment policy.

MoSTE respondent observes the greening of agricultural sector as an alternative policy paradigm. Government should develop a policy of environment friendly agriculture where farmers need to be trained and educated about the environmental implications of harmful pesticides, herbicides, fertilizers and its impact of human health, as well as the use of green

technology. The policy also needs to address the contribution of agricultural production to local ecology, economy and equity.

Advocating the need for promoting organic exportables, MoSTE respondent also emphasizes incentivizing such products through various instruments. According to them, the organic producers should be provided fiscal incentives since they contribute for ecology, economy and, employment for marginalized people and women. Vehicle owners who are the polluters should be disincentivised. Incentives to organic producers should be provisioned by carbon tax or similar disincentives to polluters. Still they are worried that overcoming inertia of business-as-usual model is a major challenge.

NPC focuses on democratization for balanced growth. Economic growth is spatially concentrated in a few cities. According to them, Nepal needs both types of inclusion - sectorial and spatial. Recently they have developed a Green Economy Framework as a mean to accomplish both. Nepal has high potential to move toward green path of development since we have huge potentials such as green energy, agro-based economy and so on. Organic products are sold in a higher price. Since Nepalese agricultural products are still biomass based, adoption of green path is relatively easy and she can be competitive in this sector. Government of Nepal is going to approve a Green Economy Framework.

FNCCI agrees that trade policy is not harmonized with environment policy. According to the senior consultant of FNCCI, present trading arrangement seems ruthless. However, it depends on which commodity is being traded. It is very difficult to be competitive in manufacturing goods, but the service sector (such as tourism and organic agro-products) will be competitive once consumers will be 'used to' environmental consciousness. In the meantime, in the manufacturing sector too, some efforts are noticed. Environmental standards are taken more seriously in some manufacturing industries such as cement factories. 3R is in practice though accountability level is still very poor.

Is the private sector ready to embrace democratised environmental policy in trade? The FNCCI respondent opines- "In the initial phase, it may make cost structure and investment pattern more expensive but in terms of sustainability, there is no alternative rather than moving toward green path. For sustained trade, environmental sustainability is an inevitable part."

In a nutshell, even though MoCS respondent did not indicate any need for an alternative policy regime, MoI respondent advocated a green industry regime and argued that Nepalese

exports can be competitive by producing environmentally friendly quality products, not due to economies of scale. MoTSE respondent accentuates the move towards greening agriculture sector and formulating agricultural policies accompanied by some incentive measures that are supportive to local ecology, economy and equity. A green path of development is expected to foster balanced growth- sectorally and spatially. Contrary to MoCS respondent's view, FNCCI respondent argue that trade policy is inharmonious with environmental policy. He supports MoIs respondent's version and accentuates resource accountability and environmental consideration in the place of current ruthless trading arrangement.

Finding 5: Moving towards trade-based green economy paradigm may be an effective alternative but faces many impediments

As an alternative growth paradigm, recent Rio conventions and sustainable initiatives advocate the following of a green economy path. Generally, greening trade is considered costly, at least in the short run.

The Rio+20 summit has established some fundamental criteria for meeting the conditions of green economy such as using renewable resources within their regenerative capacity, creating their renewable substitutes for non-renewable, limiting pollution within the sink functions of nature, and maintaining ecosystem stability and resilience. With social perspective of green economy it may cover four areas that need to be taken into consideration. Firstly, the approach of green economy should be not to compromise the needs and capability of future generation to meet their own needs. Secondly, the right to development could not be compromised, especially to those of poor countries and equally ensuring the obligations of rich countries and rich people to change their consumption pattern and pave the way to poor countries to catch the pace of development considering the environment and economy. Thirdly, green economy must consider the role of woman and marginalized people especially their access to resources. Fourthly, it should take into consideration of generating employment. However, all the desirable attributed of green economy mentioned above can be achieved only through adopting good governance approaches. It is conceptualized that the economic system that the green economy adopts is not only doing green business, investment, and consumption, which is environment friendly, but it may further promotes and enhances environmental condition and eco-friendly products and services. However, following green growth path is challenging too.

In the Nepalese context, though NPC has embarked toward green economy framework, interestingly, the respondent at MoCS is unaware of the development of this framework. In other words, there is a question whether MoCS was involved in developing greening framework or they have no interest in it.

However, MoI is clear about this green growth framework. According to them, the concept of a green economy and green industry is new for Nepal. A draft bill has been prepared to amend the Industrial Entrepreneurship Act in which green industry provisions are included. Green economy is the need of the day. Nepal needs the proper utilization of natural resources; however, it should touch the life of local people. As he reflects, various divides— income divide, energy divide, facility divide, technology divide, digital divide etc., should be lessened. To reduce income inequality and move toward equitable distribution of development outcomes, Nepal should move toward a green economy. In other words, policy democratization in every sector should be the essence of a green economy. Rio+20 has guided us in this direction. Approach paper of 13th Periodic Plan of Nepal (2013/14-2015/16) has also addressed this issue.

For the green industry, MoI is focusing on— (i) energy efficiency by maximizing energy-mix and moving toward non-conventional energy usage; (ii) waste management (including industrial clustering, solid waste management, 3R etc.), and (iii) making Nepali product more climate adaptive. Basically, a smaller carbon foot print will be the identity of our products if our plan materializes. Despite poor coordination, 'green consciousness' has risen and there is more or less a consensus to move toward the green path of development.

MoSTE sees the need of policy democratization since it is needed to harmonize the interest of customers and producers. Learned customers not only think about the price of the goods/services, but also think about occupational safety, the use of child labour, sanitation, health and safety measures and levels of undesired substances embedded in the product. This kind of high-level consciousness is growing even in less developed countries, indicating that that there will be no loss of competitiveness, but rather a shift in demand - from conventional products to green products. In their opinion, economy may be expensive by 15 to 20 per cent in the beginning, but Nepal cannot escape it as some consequences are already seen as the results of unsustainable resource use (such as drying out of water resources, uncontrolled and unmanaged migration and so on).

NPC respondent thinks that a green economy is neither a policy nor a strategy rather a framework; trade represents a small part of a green economy. The greening process demands redefining and revisiting every sector.

FNCCI representative confesses that a green economy is the need of time. In the words of FNCCI senior consultant-

If we still don't embrace the concept of green economy, we will have nowhere to go. Our trade will be collapse if we hesitate to follow environmental standards and the green path of industrialization.

Unlike the argument of business-as-usual type firms, FNCCI correspondent opines that compliance of environmental standards to move toward a green path does not lower competitiveness since we get competitive prices for the quality of the product. However, they see many impediments to embrace green growth path. As they explain, the Nepalese trade sector has not only a poor infrastructure (such as labs, energy, roads among others), but also lack a mutual recognition system and infrastructure even with India. It must be done before embarking toward a green economy. Open border and poor customs arrangements (for example, checking the quality and environmental standards of items being imported) have hindered border facilitation. FNCCI is also concerned with the high dependency on the Indian market. As they argue, Nepalese manufactured products are no more advantaged by tariff differences along with the compliance of WTO agreements, and hence, the export share of manufacturing goods is lowering and the agro and service sectors are increasing.

In essence, despite the differences of MoCS respondents, MoI authority fully advocates the need of following a green growth path and emphasizes respective policy harmonisation in order to avoid various divides that cause socio-economic inequality. MoSTE respondent not only supports this very notion, but further advocates increasing competitiveness by removing undesired substances embedded in the tradable product. NPC respondent advocates a redefinition of growth in every sector. Private sector representative takes green growth path as an unavoidable need of time. By ameliorating various hindrances, a green growth path should be followed. Still a question remains whether hindrances should be removed before embarking towards green path or green framework should be adopted first.

Finding 6: Democratizing policy process may lead to an equitable policy outcome, basically in trade-led growth paradigm

Beyond policy design and formulation, democratising the policy process leads to an equitable policy outcome, basically in trade-led growth. In the Nepalese context, trade and industrial policies are recently revised and their outcome is yet to be seen. However, relevant ministries have different observations in this regard.

The MoCS in Nepal, as the respondent realises, is relatively weak to make consolidated and compact policy, as trade policy instruments are implemented by different institutions. With regard to trade policy, incentives are given by the Ministry of Finance, economic diplomacy is addressed by Ministry of Foreign Affairs, agro-based trade is facilitated by Ministry of Agriculture and industrial facilitation is shouldered by Ministry of Industry. Hence, MoCS should depend on other agencies for the effectiveness of its policy outcomes. Such a situation has led to trade policy being poorly democratized. However, MoCS was involved in developing the Nepal Trade Integration Strategy (NTIS) and identified priority products by evaluating the trade statistics and implication of policy provisions on various export items. To find out the strength, weaknesses, opportunities and threats, MoCS interacts with grass root level and heard the voice of stakeholders in different sectors. The resulting policy response was that they provided specific facilities (such as labs for agro-products) to various sectors. However, MoCS respondent believes that the second layer democratization should be enhanced by private sector representative institutions (such as FNCCI), and others to better ensure equitable policy outcomes.

As per MoI respondent, policy democratization is practiced in various stages of the policy cycle- policy formulation, implementation, monitoring and evaluation. During this process, they have initiated maximum consultation with target stakeholders to ensure the ownership of the policy and equitable policy outcome. According to them, macro evaluation of policy outcomes is done by Planning Commission and sector specific impact monitoring by sector ministries. However, they confess that policy monitoring by stakeholder is very weak. Therefore, third party monitoring concept has been evolving. It means that there is not reliable mechanism to evaluate whether democratizing policy process results to an equitable policy outcome.

"Policy democratization is inevitable from the policy inception level to its evaluation- not only at a particular phase"- says MoSTE respondent. Although, in theory it is said that democratizing the policy process leads to an equitable policy outcome, without efficient institutional arrangements, the efficacy of the democratic processes to ensure the voice of citizen

in decision making process cannot be insured, the outcome may remain quite inequitable. The focus of the government should be to empower the citizen to use their rights of decision-making and enact policies and regulation that uplift their economic status and improve overall livelihoods. In another sense, the government should play the role of facilitator to address policy demand, to formulate it, to materialize it and to evaluate its outcomes. Policy formulation should be the process of 'sitting together'. But unfortunately, institutional arrangements are so weak that trade-led growth could hardly be supported.

The NPC respondent fully concurs with MoSTE respondent's version that 'sitting together' from each stage of policy cycle is needed. Although every country has its own context, the main theme and process of policy making for equitable outcome are almost the same. NPC is not the exception. In a liberal economy regime and trade led growth model that Nepal has been following since 1991, one of the thrusts of current periodic plan is enhancing employment oriented trade aimed at poverty reduction that is possible by addressing real issues of potential entrepreneurs. But it is not clear to what extent this policy outcome has been achieved.

FNCCI, as its respondent states, clearly embraces the ownership of some liberal economic policies that support a trade-led growth. He states- "Trade liberalization/ free market economic policy itself was the voice of private sector to embrace the competitive age though Nepalese market mechanism is yet to come out from some non-liberal characters syndicate/cartels in many cases." However, he agreed that policy democratization at each policy stage is lacking. Once a policy is formulated, the private sector thinks that policy implementation, monitoring and evaluation are the concerns of the government.

In brief, democratizing the policy process may result in an equitable policy outcome, but the lack of a concrete policy mechanism, efficient institutional arrangement, effective participation in each policy stage, and clear job specification and coordination between public and private sectors are the causes that derogate the evaluation of policy outcomes. Therefore, the conclusion of the proposition is inconclusive.

Table 8.2 Summary Findings: Democratizing Policy Cycle - Policy Makers' Perception

Propositions/ Findings	MoCS	MoI	MoSTE	NPC	FNCCI
1 Meaningful participation of stakeholders in trade, industrial and environmental policy making has been ensured in recent policies	While formulating Trade Policy, 2009, policy inputs are sought from private sector representatives who represent all stakeholders	Direct beneficiaries, indirect beneficiaries and even policy makers are the stakeholder. FITT bill and Industrial Entrepreneurship bill Were formulated of maximum PPD and many consultative meetings.	Most environmental policy formulation process passed through all kind of stakeholders, gender, and marginalized people. Lack of democratically elected local body and poor institutional mechanism of LSGA has jeopardized policy democratization through meaningful participation.	Government agencies, not-state actors, and experts as well as local people are included and tried to ensure meaningful participation.	Representative of every sector association take part in policy dialogue.
1.1 Experience of current trade and industrial policies and democratization and harmonization process in Nepal	Trade policy is a dynamic instrument and implemented by various institutions. However, trade policy does not incorporate environmental instruments and innovation and technology development policies.	Policy formulations process endorses goal oriented, accountable, supportable and legitimate process. However, policies are more reactive.	Voice of MoSTE is not so strong to influence fiscal instruments and hence, MoSTE has less enforcement capacity and weaker harmonization in some cases.	Recent policy frameworks such as climate budget codes and green economy framework with wider consultation with most of the stakeholders.	Lack of policy revitalization and harmonization in many cases.
1.2 Ensuring meaningful participation and rights of rural people may better democratize policies.	Hearing the voice of all stakeholders is needed. However, there is no mechanism of direct policy dialogue with local people.	The absence of local elected body for long time has debilitated the meaningful participation of rural and marginalized people and hence caused poor policy democratization.	Poor effective institutions and enabling democratic environment has weakened the inclusion of voice of rural people and hence the policy democratization.	Formal and informal social dialogue is made by NPC to conduct periodic plan but sectorial policies address more grass root people.	Voice of unorganized rural people is difficult to be heard and they are deprived of their rights too. Interest of profiteers and importers may misguide the voice of marginalized people.

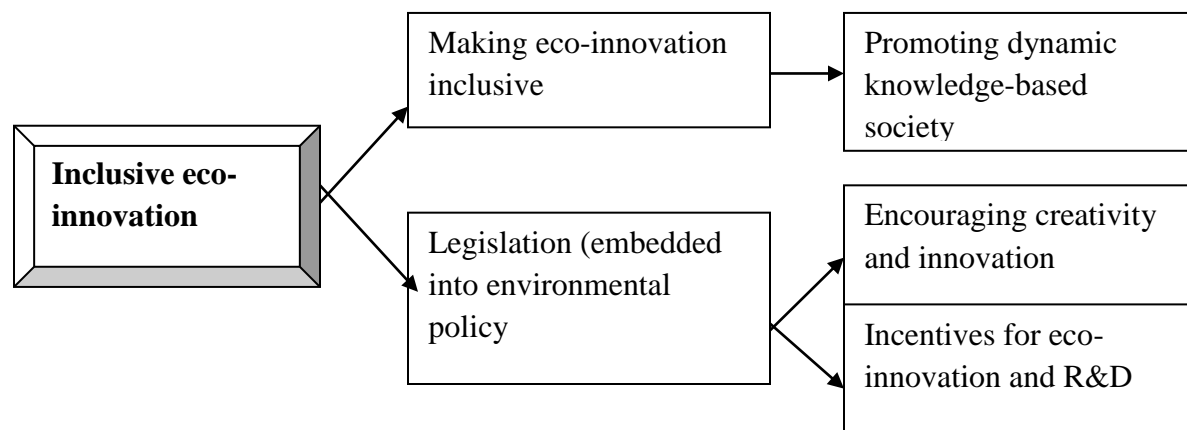
<p>1.3</p>	<p>Meaningful participation in trade policy and trade related policy making enhances competitiveness, environmental sustainability and inclusiveness simultaneously.</p>	<p>Poverty alleviation, employment generation, regional balance and human capital development are main intensions. Few strategies to enhance competitiveness and no strategies for environmental sustainability.</p>	<p>Organic agro-sub sector of agricultural sector would achieve all three fundamentals shall it democratized more even within the existing institutional and policy arrangement.</p>	<p>Environmental sustainability and inclusiveness can only be ensured through meaningful participation in trade related policies because such participation develops a feeling of ownership and responsibilities among stakeholders. Environmental consciousness helps embark to a higher quality ladder and gain quality based competitiveness.</p>	<p>Sectorial policies are evaluated by sector ministries. Therefore, no specific answer.</p>	<p>There is no particular policy that represents maximum voice of stakeholder and fosters competitiveness, environmental sustainability and inclusiveness. Without any infrastructure and backbone services, policy democratization will not work.</p>
<p>2</p>	<p>Monitoring mechanism of policy decisions is needed to make policies more efficient, accountable, supportable, and legitimate.</p>	<p>Institutional mechanism for monitoring and evaluation are dormant or less effective.</p>	<p>Various oversight bodies are there to monitor and evaluate policy efficacy but sector specific arrangement is poor.</p>	<p>Enforcement of standards and monitoring of compliance of environmental policy is relatively weak as the arms and human and technical resources of MoSTE are not sufficient. However, environmental policies are more democratic and inclusive compared to other policies.</p>	<p>Result based monitoring system is being adopted which supports for rating accountability and legitimating of policy implementation.</p>	<p>× (NA)</p>
<p>3</p>	<p>There is poor feedback mechanism for democratization trade related policies in Nepal.</p>	<p>Institutional arrangements such as Trade Policy Analytical Wing and Trade Promotion Institute for policy evaluation, recommendation and feedbacks over the effectiveness no materialized.</p>	<p>× (NA)</p>	<p>× (NA)</p>	<p>× (NA)</p>	<p>× (NA)</p>

4	Environmental challenges embedded to Nepalese exports demand alternative trade regime.	Sanitary and phytosanitary barriers are major trade-related environmental issues; However, natural resources are not only to preserve but also to be benefitted with.	Nepal cannot be competitive by producing manufacturing product in massive scale; therefore, only the option is producing environment-friendly quality product and their exports	Greening of agricultural sector as an alternative policy paradigm supported by fiscal incentives.	Adoption of green economic framework as the alternative policy paradigm.	Present ruthless trading arrangement should be averted and environmental standards should be taken into account in manufacturing sector.
5	Moving towards trade-based green economy paradigm may be an effective alternative but faces many impediments	Not convinced to shift toward new economy paradigm.	Policy democratization in every growth sector is needed to avert various divides—income divide, energy divide, facility divide, technology divide, digital divide etc. Green consciousness is increasing but there is poor policy coordination.	Growing higher level of consciousness among consumers has shifted the demand of conventional products to green products. Economy becomes expensive in the investment phase.	Greening process demands redefining and revisiting every sector.	Poor infrastructure, open border and poor customs arrangements, high dependency on Indian market and removing static though among entrepreneurs that environmental standards deteriorate competitiveness are many impediments.
6	Democratizing policy process leads to an equitable policy outcome, basically in trade-led growth	Relatively weak to make consolidated and compact policies as trade policy instruments are implemented by different institutions. Second layer democratization should be enhanced to get expected policy outcome.	Maximum consultation of target stakeholders in all the stages of policy cycle to ensure the ownership of the policy and equitable policy outcome. Policy monitoring mechanism is very weak.	Lack of efficient institutional arrangements and efficacy of the democratic processes to hinders equitable policy outcome.	No sufficient policy monitoring mechanism to know whether policy outcome has been achieved.	Voice of private sector is resembled in most of liberal economic policies but it is the government who implementations, monitors and evaluates policies.

8.2 Inclusive Eco-innovation

Inclusive eco-innovation policy should be guided by two principles: (a) legislating it as an inherent part of environmental policy and, (ii) making eco-innovation inclusive. The first one should encourage creativity and innovation on one hand and provide sufficient incentives for eco-innovation and R&D on the other whereas the second one may be possible through promoting dynamic knowledge-based society. Creativity and innovations enhance competitiveness and profitability for business that improves resource efficiency and rational resource-use (sustainable competitiveness). A dynamic knowledge-based society makes the trade inclusive and competitive. However, required incentives and R&D facilities should be in place. In terms of eco-innovation policy, figure 8.2 depicts how it may be materialized and what is its situation in Nepal.

Figure 8.2: Making Inclusive Eco-innovation Possible — Framework on Policy Matters



Following are the findings regarding inclusive eco-innovation policy in Nepalese context:

Finding 1: Eco-innovation policy should be incorporated within environmental policy but; Nepal has poor institutional and policy arrangement in this regard.

It is argued that environmental policy and eco-innovation policy should be integrated. In chapter 6.3.3, we have elaborated this relation in detail. In the Nepalese, context, there are no eco-innovation policies. MoSTE is the responsible institution for the policy coordination in this regard.

As the respondent at MoSTE opines, environmental policy and eco-innovation cannot be looked at separately. Environment policy ensures the use of natural resources sustainably in light of the principle sustainable development. Eco-innovation is a part of environment policy itself

that aims to reduce environment impacts through the efficient use of natural resources. Eco-innovation seeks to develop more efficient environment friendly technologies, services and processes adhere to the principles of reduce, reuse and recycle. Through minimization of resource use, recycling and energy efficient technologies it ensures profitability of the business while taking care of the environment.

MoSTE respondent observes that environment policy is cross cutting. So its relationship is to be wider than sectorial policy and should include eco-innovation policy. However, eco-innovation should be dealt with in accordance with other science and technology policies too. Since NPC itself is a policy collaboration/harmonization body, they can make a macro policy guideline in this regard, but it has not integrated this concept in relevant macro policies yet. Neither MoSTE nor MoI has addressed these issues in their respective sectorial policies but expects it to be incorporated in Industrial Entrepreneurship Act being amended. As the respondent opines, a developing country like Nepal needs to pay balanced attention to environment protection and economic development. This would require 'eco-innovation', meaning more innovative ways need to be explored to make development much friendlier to the environment. FNCCI takes it as a good concept. As such, in their knowledge and experience, there is no particular institutional arrangement to conceptualize and operationalise eco-innovation policy.

In essence, eco-innovation is an inevitable part of environmental policy, but one that is underdeveloped in the Nepalese context. Following sub-findings further strengthen this argument.

Sub-finding 1.1: There is no sufficient legislation to encourage creativity and innovations so that greater environmental sustainability will be ensured

"Innovation is not just about coming up with new products— it is also about doing things differently. For this to happen, the entire innovation ecosystem, which consists of a closely intertwined and reinforcing factors is critical" - goes IF Report, 2013 (p. 14). A close relationship between enterprises, universities and research institutions, supported by a well-functioning labour market, and an excellent education system provide fundamentals for innovation to prosper. But Nepal has so little public expenditure allotted to innovation that nothing new can be expected. There is also a notable absence of sufficiently supportive legislation.

The Environmental protection Act 1997, article 15, states that the government of Nepal may provide concessions and facilities to encourage any industry, enterprise, technology or process which has positive impacts on environment protection. Although this legislation does not directly mention the innovation, its intention is to encourage businesses and industries to adopt an environment friendly and efficient technology in their production processes to ensure sustainability (MoSTE respondent).

As MoI respondent states, the Environment Protection Act and Rules need to be made development-friendlier while keeping the essence of environmental integrity intact. But many policy makers do not understand its importance. Therefore, there are no sufficient green innovation-promoting policies that complement environmental sustainability. FNCCI have realized the need for eco-innovation but they think that it takes time in Nepalese context and hence, it is not the topmost priority due to the lack of sufficient R&D funds allocated for it. Proposition 4 shows the global ranking of Nepal in terms of innovation and R&D.

In a single sentence, it may be said that eco-innovation policies are far from being a priority, and that they make Nepalese policy makers less enthusiastic to formulate eco-innovation policies and to allocate a reasonable amount of funding for R&D.

Sub-finding 1.2: There is a poor incentive mechanism to promote eco-innovation and R&D for greening business/industry

Eco-innovation and relevant R&D needs incentives from the government. However, there is such a low level of investment that new innovations can be hardly expected. With sectorial policy perspective, trade policy neither addresses the eco-innovation nor emphasizes R&D. At least, top authority at MoI has realized that policy advocacy is being stronger despite the fact that MoI has not provided incentives for greening industry. They indicate that concurrent policy initiatives will certainly facilitate to incentivize green industry. Very recently, MoI has brought out a separate Fund for Technology Development to facilitate innovation and creativity for industrial promotion.

What MoSTE respondent opines is that business or industry primarily seeks for profit and economic gain, thus, there is naturally little attention and investment towards eco-innovations. In order to encourage the industries for eco-innovation government should invest in research and development through academic institutions or provide incentives to business firms to conduct R&D in their respective areas. They indicate the poor networking among research institutions,

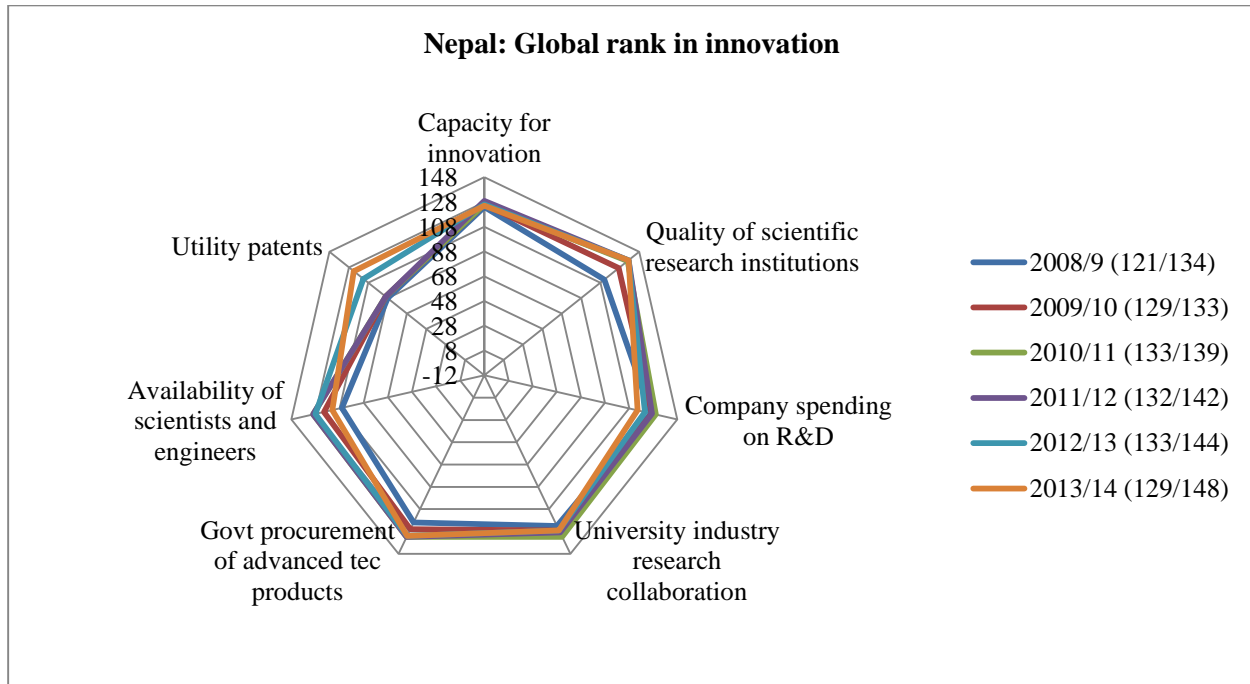
business firms and universities on one hand and least priority of government to R&D on the other.

Even the private sector is not keen on R&D and innovation. According to FNCCI respondent, government does not incentivize private firms to innovate, neither private sector wants to invest a huge amount of money since there is no guarantee of its pay back. Despite that, international agencies have plans to support innovations. FNCCI has alliance with international chambers of commerce and other trade supporting institutions to diffuse technology though FNCCI has negligible investment in R&D.

Although, government investment in innovation and R&D is so scanty, private firms can deduct such expenses for income tax purpose. The Income Tax Act, 2002 provisions that a business entity can deduct all R&D expenses incurred to business operation. However, the limit of such expenses should not be higher than 50 per cent of adjusted taxable income of the business entity in an income year. If the amount is beyond the limit, remaining amount can be carried forward to the subsequent income year and can be capitalized fully or partially. Such R&D expenses capitalization shall be depreciated (Clause 18).

Now, let's see the situation of R&D and innovation in Nepal, which mostly support the arguments given by the respondents. In terms of global ranking in innovation and R&D, Nepal is in the last deciles except in 2013/14 and 2014/15 (in the radar diagram, outer the place poorer the situation). It was relatively good in 'utility patents'⁵³ but gradually lagging behind in the recent years. In terms of 'the quality of scientific research institutions, it stood at 131th position out of 144 in 2014/15. Capacity of innovation is relatively improving along with the increase in the number of economies under consideration (for sure, poorest economies being included lately). The number of companies spending on R&D is gradually increasing since 2010/11. Research collaboration among universities and industries has also been slightly improving (Figure 8.3).

⁵³ Utility Patents are issued for the invention of a new and useful process, machine, manufacture, or composition of matter, or a new and useful improvement thereof. For more details: <http://www.uspto.gov/web/offices/ac/ido/oeip/taf/patdesc.htm>

Figure 8.3: Nepal in Global Innovation Ranking

Source: World Economic Forum - The Global Competitiveness Report (various years)

Finding 2: Nepal is still far from making eco-innovation inclusive

Finally, there should be clear institutional arrangements and effective mechanism to make eco-innovation inclusive. As there is no eco-innovation policy, we cannot expect inclusive eco-innovation mechanism in Nepal. MoCS, MoI, NPC, MoSTE did not indicate any possibility of making eco-innovation policy in immediate future. However, MoSTE respondent argues that government needs to develop a research protocol and mechanism of providing fiscal incentives or tax rebates to those organizations who conduct research on eco-innovation that is relevant to industries before embarking to inclusive eco-innovation. Once institutional eco-innovation mechanism materialises, inclusive eco-innovation itself becomes the integral part of innovation. FNCCI respondent demanded national policies and programs in this regards.

Sub-finding 2.1: Nepalese trade-led growth is debilitated due to the lack of dynamic knowledge-based society

The presence of a knowledge-based society influences the quality and standard of exportable and overall export-led growth. In the Nepalese context, stakeholders are poorly informed about the importance of local/traditional knowledge. The modernization of local

technology, skills and protection of intellectual property rights could have enhanced Nepal's export-led growth.

Some government policies try to address the issues of knowledge-based societies. TRIPs and the inclusion of the service sector in trade policy are new aspects of trade that were incorporated in new trade policy (Trade Policy 2009). It also covers the promotion of local knowledge. However, strategies to promote such aspects are almost absent.

MoI respondent agrees that Nepal is really poor at protecting intellectual property rights. In his own words:

We have not been sufficiently able to protect our intellectual property rights (IPRs). Our IPR laws and institutions are not running in an integrated way, meaning Copyright Act exists separately which is being administered separately by the Office of the Copyright Registrar. They are running apart from other segments of intellectual industrial property such as patents, trademark and design. Also, there is no provision of incentivizing local knowledge. Our heritages are claimed and registered by foreigners.

A new policy on the industrial segment of intellectual property is now in offing that will address the issues of local technology, knowledge and skills.

Even the NPC respondent is unaware of such policies that promote knowledge-based society. FNCCI respondent agrees that there is no policy provision that facilitates knowledge-based society. They see political instability as the cause of the absence of such arrangement.

It means that the promotion of a dynamic knowledge-based society is in its primitive stage despite Trade Policy, 2009 provisions promoting local technology, skills and protection of intellectual property rights. IPR policy amendment is expected to promote such society to some extent.

Table 8.3 below summarizes the findings on eco-innovation policy and policy makers' perspectives-

Table 8.3: Eco-innovation for Green Growth Transition and its Policy Perspectives in Nepal

Propositions/ Findings	MoCS	MoI	MoSTE	NPC	FNCCI
1 Eco-innovation policy should be a part of environmental policy	× (NA)	Expected to be incorporated in Industrial Entrepreneurship Act being amended.	Environment policy is a cross cutting policy. So its relationship is to be wider than sectorial policy and should include eco-innovation policy	Can make macro policy guideline in this regard but not done yet.	No particular institutional arrangement to conceptualize and operationalise eco-innovation policy.
1.1 There is poor legislation to encourage creativity and innovations for greater environmental sustainability.	× (NA)	There are no sufficient green innovation-promoting policies that complement with environmental sustainability because many policy makers do not understand its importance.	Environmental protection Act, 1997 implicitly intends to encourage businesses and industries to adopt an environment friendly and efficient technology.	× (NA)	Although it is very important but it is not the topmost priority due to the lack of sufficient R&D funds allocated for it.
1.2 There is poor incentive mechanism to promote eco-innovation and R&D for greening business/industry	Eco-innovation and R&D is not emphasized.	Policy need is realized in this direction. Technology Development Fund has just been created that will foster innovation. No incentives for greening industry so far. New Industrial Enterprises Act will address some issues.	Private sector seeks profit not the investment in R&D and eco-innovation that does not guaranty economic return. Now, poor networking among research institutions. Business firms and universities. Government should coordinate and incentivize them.	×	Neither the government incentivises private firms to innovate nor the private sector wants to invest. Recently, FNCCI has alliance with international chambers of commerce and other trade supporting institutions to diffuse technology.

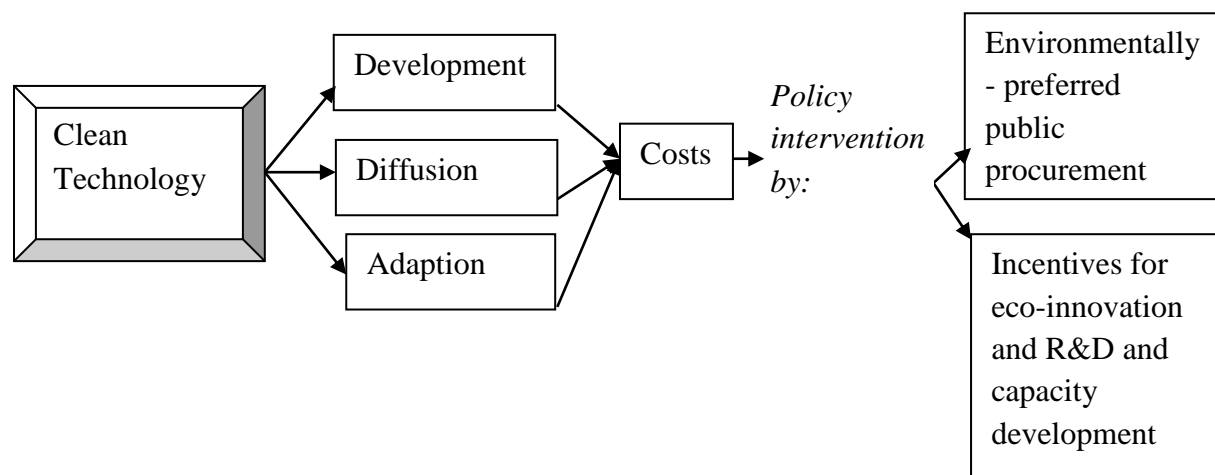
2	Nepal is still far from making eco-innovation inclusive	There is no such policy initiative.	There is no such policy initiative.	There is no such policy initiative.	Yes. Therefore, government needs to develop a research protocol and mechanism of providing fiscal incentives or tax rebates to conduct research on eco-innovation, in next stage; we can embark toward inclusive eco-innovation.	National policies and programs are needed.
2.1	Nepalese trade-led growth is debilitated due to the lack of dynamic knowledge-based society	There are provisions for IMP and inclusive service sector that may help dynamic knowledge based society.	Nepal is really poor at protecting intellectual property rights. New IPR related policy is in offing that is expected to foster local technology, knowledge and skills.	× (NA)	Not aware of such policies that promote knowledge-based society.	No such arrangement. Political instability may be the cause.

8.3 Accessible and Affordable Clean Technology Development and Diffusion

Environmental-based competitive advantage can be gained by green technology. Green technologies are consistently evolving methods, techniques and materials for generating energy to non-toxic clean products. It aims to enhance environmental sustainability, reducing waste and pollution, ending the cradle-to-grave cycle of production and moving toward cradle-to-cradle cycle, altering fossil fuel and chemical intensive production structure and sustaining economic viability. Green energy and energy efficiency is probably the most urgent issue for green technology. Similarly, green building, environmentally preferred public purchasing, green chemistry and green nanotechnology are some other areas of green technology. Investment in green technology may be expensive in the short run, but it definitely pays back in the long run.

To make green/clean technology accessible and affordable, costs incurred during development, diffusion and adaption phase should be alleviated through policy interventions. Followed by the diagram below, we present the the findings in this regard in Nepalese context:

Figure 8.4: Accessible and Affordable Green Technology Development and Diffusion —Policy Framework



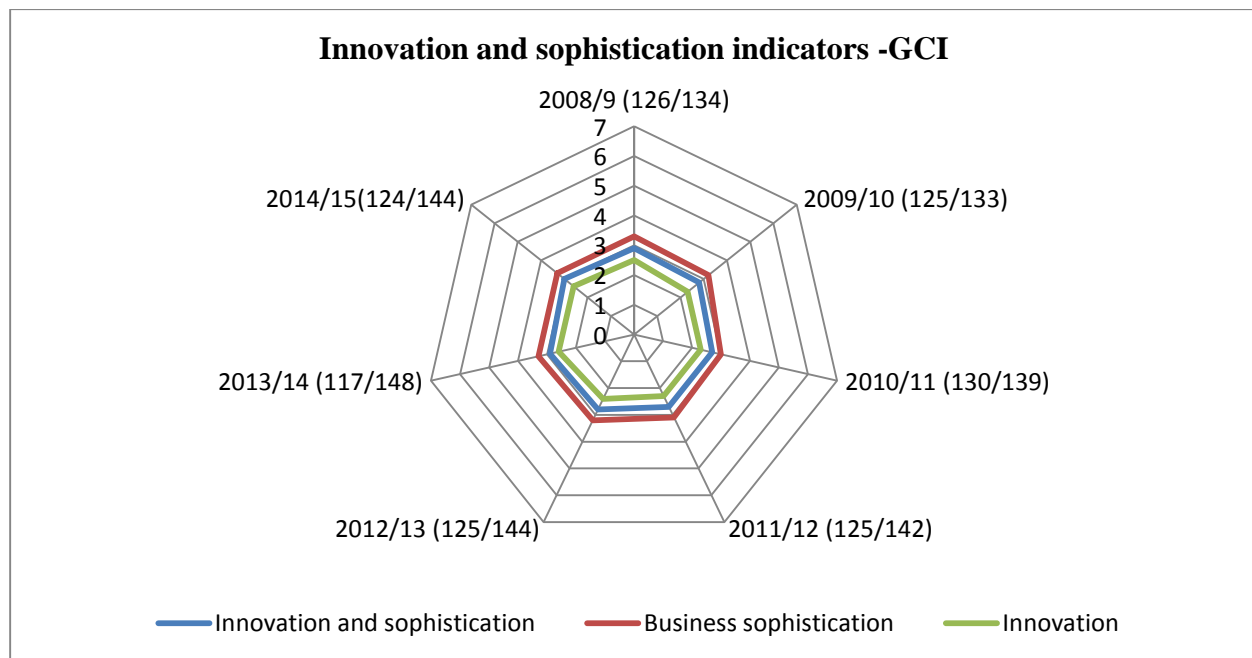
Finding 1: Due to its higher adaption cost in the initial phase, government should incentivize eco-innovation and green technology through R&D and capacity development

Governments should have a clear vision, mission and strategies to develop, diffuse and disseminate green technology. It should be affordable and accessible to all kinds of entrepreneurs. Energy efficient technologies not only reduce the use of energy, but also reduce energy cost in many cases.

In Nepal, the energy crisis is the main issue that makes Nepalese exportable products costly. Despite the huge potential of hydroelectricity, wind power, photovoltaic power and other means of clean energy, its harvesting is so scanty. More than the value of total exports is spent every year to import fossil fuel. On one hand, it has created a huge trade deficit; on the other hand, cost of production becomes very high. Therefore, clean energy and green technologies are more important to Nepal compared to other economies that possess fossil fuel resources and/or the cost of fuel import is not so high.

Though Nepal has invested little in other kinds of green technology, the production of clean energy has been incentivised, mainly solar energy in recent years. As MoI secretary mentioned, Technology Development Fund has materialized and will assist green technology. However, the government has a very low level of contribution in R&D. He confessed that there is no investment in innovation and scanty research is done by government and expects that new Industrial Enterprises Act will address some of these issues. The diagram below (figure 8.5) supports his argument.

Figure 8.5: Ranking and Score of Innovation and Sophistication (Nepal)



Source: World Economic Forum - Global Competitiveness Index (various years)

Note: The outermost figures indicate the year and the rank (in bracket) respectively. For example, 2008/9(126/134) means that in the year 2008/09, Nepal ranked 126th position in terms of innovation and sophistication out of 134 countries. The horizontal scale signifies the value Nepal scored out of 7 (the score expressed as 1-7 scale, with 7 being the best possible outcome).

The figure depicts how primitive the situation of innovation and sophistication situation is in Nepal. As the diagram depicts, innovation indicators have slightly improved, but business sophistication is more or less the same during seven years.

In the Nepalese context, MoCS has no innovation and capacity development strategies in this regard. The Planning Commission is trying to harmonize sectorial policy for this cause. MoSTE respondent illustrated various efforts made in clean energy, basically in in alternative energy sector. As for them, energy efficiency and access to modern energy are the priorities. The Government of Nepal has a policy to encourage industries and business firms to implement resource efficient, energy efficient and less natural resources intensive technologies and provide incentives to those industries who adopt such practices through fiscal policy. In non-industrial sector, more research activities are conducted, basically in agricultural and forestry sector. Nepal Agricultural Research Council (NARC) is a research centre in the field of agriculture and Nepal Academy of Science and Technology (NAST) in science and technology.

In the private sector, the Confederation of Nepalese Industries (CNI) is given a fund to create an innovation think tank. In F/Y 2012/13, the government has also allocated a budget for developing Nepal Industrial Centre for Excellence (NICE) in Kathmandu in collaboration with the private sector to work in this direction (The Kathmandu Post, 2013 July 15, p. II).

Finding 2: Government should promote environmentally - preferred public procurement but it is not sufficient in Nepal

UNEP (ND) estimates that government consumption can represent as much as 20 to 25 per cent of GDP. "By encompassing sustainability criteria into public procurement, it can provide substantial support for the transition towards greater sustainability" (Path to green growth-Greening business, p. 15).

However, in the Nepalese context, Public Procurement Act 2007 does not address this important issue. The Act was enacted to make the procedures, processes and decisions relating to public procurement much more open, transparent, objective and reliable; to make maximum returns of public expenditures by promoting competition, fairness, honesty, accountability, and reliability; and to ensure good governance by ensuring the equal opportunity for producers, sellers, suppliers, construction entrepreneurs or service provider to participate in public procurement process without any discrimination (Clause 8-2).

As the Public Procurement Rule 2007 states, procurement shall not be so made in piecemeal as to limit competition. However, a public entity shall procure goods manufactured in Nepal despite that the cost of such goods exceeds by up to 10 per cent than that of goods manufactured abroad (Rule 17). No public entity shall make discrimination against bidders as to their nationality in procurement proceedings (Rule 38).

Our study incorporated the view of policy executives in this regard. MoCS respondent does not agree that the government should promote environmentally-friendly public procurement. According to him, there should not be any privileges for specific kinds of product in liberal economy. Market should decide the price. No special favour is needed. This response indicates that they may not be aware of environmental and health related cost imbedded into the products being procured publicly.

MoI strongly affirms that government should promote such procurement, but while doing so, he cautions not to excessively overburden the procurement process with stringent rigors of environment protection, because developing countries need development more urgently. A careful balance should therefore be maintained.

MoSTE respondent opines that green public procurement needs to be introduced in the country as a larger amount of government revenue goes in procurement without taking into consideration the environmental impacts of such goods and services and also without proper life cycle assessment. By introducing national green public procurement system substantial amount of carbon, energy and resources can be saved.

NPC respondent argues that public procurement should be taken as an investment rather than directly supporting environmentally-preferred goods. As for them, investment and production pattern should be reoriented rather than giving special privileges in public procurement. While deciding on the basis of human health and dignity, even higher cost goods should be acceptable. Some energy saving efforts are promoted for those goods (for example, CFL purchasing) that save time and energy consumption. Subsidies in solar energy harvesting and micro-hydro are some example of incentives. However, government has yet to have big deals in this direction.

FNCCI respondent supports environmentally- preferred public procurement without any further justification. The findings are summarised in table 8.4 below:

Table 8.4: Green Technology and Energy Efficiency - Reality, Perceptions and Perspectives

Propositions/ Findings	MoCS	MoI	MoSTE	NPC	FNCCI
1 Due to its higher adaptation cost in the initial phase, government should incentivize green technology and capacity development.	Government has mostly done in green energy sector. MoCS has no innovation and capacity development strategies in this regard	Technology Development Fund is created but investment in R&D is really scanty. New Industrial Enterprises Act will address these issues	Research institutions such as NARC, NAST etc., in government sector. Exemplary incentives for clean energy.	Trying to harmonize sectorial policies	Government has started to allocate fund for NICE with private sector collaboration, Fund given to CNI to create innovation think tank.
2 For a successful and transition toward green economy and trade-led growth, government should promote environmentally - preferred public	Yes, but not with stringent rigors so that development is more urgent.	Yes, because GPP system can save substantial amount of carbon, energy and resources.	GPP as an investment rather than directly supporting environmentally-preferred goods and services.	Yes	Yes

Interestingly, no respondent emphasized the importance strong relations among enterprises, research institutions and universities for innovation and green technology development. A close relationship between these three interrelated institutions supported by a well-functioning labour market and excellent education system provide fundamentals for innovation to prosper (IF, 2013). That is lacking in Nepal. Government should investment or support innovation and green technologies with vigour to foster green growth transition.

However, questions such as what is the appropriate timing of direct support, what kind of policy tools and technology or sector should get support are difficult aspects to deal with. Policies such as 'removing barriers to trade in clean technologies and facilitating entry of new firms having the potential of radical innovations are some of the effective policies that foster the development and diffusion of clean technologies in most circumstances (de Serres, Murtin & Nicoletti, 2010).

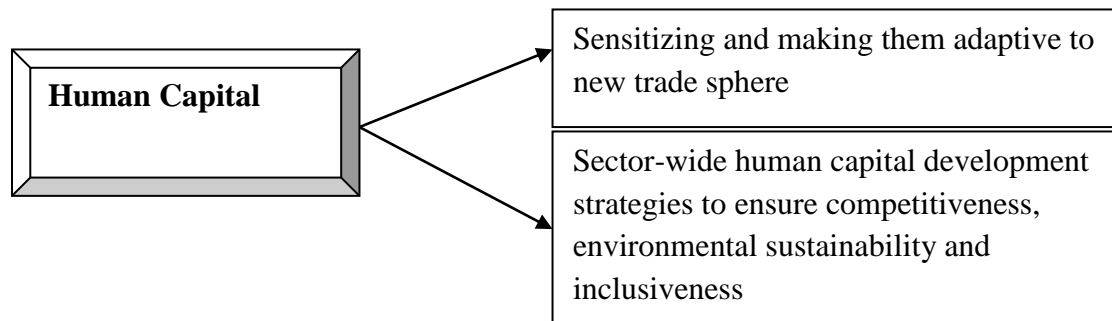
In brief, Nepal has some good initiatives in green energy generation. However, other aspects of green technology development are scanty. The Government incentivises the import of energy efficient technologies with a lower import duty. However, it is not directly supported through green public procurement. Green building concept is gradually being adopted by municipalities and local bodies. Green chemistry is incentivised in agriculture sector by

promoting organic composting fertilizer. Promoting nano-science and nanotechnology will possibly take decades to materialise. Therefore, greening manufacturing sector may take more time to happen.

8.4 Investment in Human Productivity and Capabilities

The greening trade may jeopardize jobs. But appropriate human capital development strategies for green economy not only creates more jobs, but also pays back in terms of export competitiveness, equity, wage premium, higher productivity and, better human and natural health. For competitive trade-led green growth, investment in human capability should be made in such a way that it makes the human resources adaptive to new trade sphere accompanied by coordinated sector-wide human development strategies. Followed by the diagram below, we present findings in this regard.

Figure 8.6: Investment in human capabilities and productivity for trade-led growth



Finding 1: Though Nepal government seems ready to embark towards green growth paradigm, there is no specific human development plan to make human resource adaptive

As the central government should have concrete human capital development strategy for a successful green growth transition, there should be human capital development strategies. The Nepalese government is ready to embark towards green economy. There should be a clear human capital development plan so as to make human resources easily adaptable by re-skilling, up-skilling, trainings and educating them. Such a plan not only includes capacity development of erstwhile workforce, but also incorporates strategies to prepare them to be adapted in new growth trajectory even if they lose their existing employment.

As human capital development is a national agenda, such a plan should be a master plan formulated by NPC and specified and implemented sector-wide because human capital development plan is a long term plan. Although transitioning firms may retrain their employees

to make them adaptable, that is not enough. Therefore, NPC should have guiding principles and plans in this regard. The 13th Periodic Plan has set some operational strategies to fulfil the objective of reducing unemployment and underemployment by creating decent employment at home and safe, dignified and systematic employment abroad. Skill development and vocational trainings are conducted to make the workforce capable, enterprising and competitive. Labour-intensive technologies are encouraged in both the agricultural and non-agricultural sectors. Occupational safety standards are prioritised (NPC, 2013). However, this plan does not address a human development plan for green growth transition.

In this regard, MoCS has some strategies to make existing human resource more efficient (basically, civil employees deputed to customs points and officers who involve in international negotiations), but has no plan to embark toward green economy. MoCS is concerned just to train its own employees in terms of trade facilitation, process shortening, and others. MoI has plans and programs to give training to enhance entrepreneurial skills and various skills needed to run micro and small enterprises. MoSTE respondent could not specify any specific plans or strategies in this regard. FNCCI as an umbrella institution of the private sector also does not have a particular plan in this regard though sector firms might have such strategies. The government, in recent years, has emphasized more inclusive human development programs. For example, to ensure skill development of the people from economically backward, deprived and marginalized community, the government has extended Micro Enterprise Development Programme (MEDP) to 50 districts out of 75 (The Kathmandu Post, 2013 July 15).

In brief, NPC has skill development and vocational training that are conducted to make the workforce capable, enterprising and competitive though such strategies are not intended to green growth. MoCS has specific plans to hone the knowledge and capacity of its employees. MoI launches various training programmes on vocational skill development and entrepreneurship development. FNCCI does not have such plan. However, there is no specific HD plan considering the green growth transition as it is in the initial phase yet.

Finding 2: There is lack of sector-wide human capital development strategies to ensure competitiveness; environmental sustainability and inclusiveness are also poor

Specifically, to make foreign trade more competitive, inclusive and sustainable, each trade-related sector should have its human capital development strategies. We inquired whether there are reasonably sufficient human development strategies.

In this regard, MoCS should have a main role since it is the main trade facilitator. In the Nepalese context, a strategy such as economic diplomacy has been tied up with trade policy that helps trade marketisation. However, the implementation part is weak. The respondent agrees that trade policy is comprehensive but the implementation part is still poor. To enhance inclusiveness and environmental sustainability, MoCS has no specific human development strategy. MoI, MoSTE and NPC could not furnish any strategies in this regards. However, FNCCI conducts trainings, seminars and workshop to enhance competitiveness; public awareness campaign to foster inclusiveness and; policy continuation and reformulation with time framework, market exposition through trade fair and other for trade sustainability. The findings are summarized in table 8.5 below:

Table 8.5: Situation of Human Resource Development Plan and Strategies

	Proposition/ Findings	MoCS	MoI	MoSTE	NPC	FNCCI
1	There is no specific human capital development strategies to be adaptive in green growth paradigm	Training to its employees to make them capable in trade facilitation, process shortening, international negotiation and others.	Training on entrepreneurial skills and micro and small enterprises management	Small initiatives are launched. Women workers Were promoted. Poor HD plan has caused retaining productive workforce difficult.	Skill development and vocational trainings are conducted to make the workforce capable, enterprising and competitive. Labour intensive technology skills encouraged.	Not specific
2	No sector-wide human capital development strategies to ensure competitiveness, environmental sustainability and inclusiveness are	Not specific × (NA)	Not specific	Not specific	Not specific	Training, workshops and seminars

8.5 Conclusion

In this chapter, we presented findings of case studies that describe whether some policy related CASs are applicable in a low income country like Nepal. With some propositions based

on literature found in Chapter Six, we explored how policymakers perceive those adaptive strategies. Some findings are:

As part of a democratising policy cycle, meaningful participation of stakeholders has been emphasized in formulating recent trade, industrial and environmental policies. It is more obvious in environmental policies; however, policy democratisation is in its primitive stage. The lack of effective participation in each stage of the policy cycle, inefficient institutional arrangement, and poor coordination between public and private sector are some impediments that hinder policy democratisation and achieving equitable policy outcomes. Ensuring meaningful participation and rights of rural people may better democratize policies, but policy formulation has yet to address the grass-roots people and their voice is distorted by elite profiteers. Particularly, there is poor policy harmonization among trade and environmental policies and respondents expect that green growth framework will improve policy harmonization. Additionally, poor institutional feedback mechanism has weakened policy democratisation.

In terms of greening trade, there is no particular trade-related policy that may enhance competitiveness, environmental sustainability and inclusiveness simultaneously though environmental policies are perceived relatively better in this direction. As environmental challenges embedded in exports are the major concerns to be addressed, an alternative trade paradigm that is a part of parcel of green economy framework is widely accepted to be in place.

Next CAS, eco-innovation should be an inevitable part of environmental policy but it is far from the policy priority of Nepalese policy makers. This has caused poor allocation of R&D funding in this direction and poor incentive mechanisms to promote eco-innovation for greening business and make it inclusive. Additionally, the Nepalese government is unable to promote dynamic knowledge-based society and hence, trade could not be inclusive and sustainable due to poor promotion of local knowledge, technology, skills and, IPR protection.

In terms of accessibility and affordability of clean technology and its diffusion, Nepal is far behind except clean energy development despite some incentives. Green public procurement is not in place to boost green technology development and its diffusion.

Lastly, there is no human development plan in the trade sector except for government employees. To make trade competitive and inclusive, more specific sector-wide human

development strategies should be in place so that workforce will be capable, enterprising and more productive.

Beyond the policy level, some CASs are highly related (though inseparable to policy) to producers and traders. Policies are best judged at the implementation level. Therefore, we conducted some case studies of tea producing and trading firms (Chapter Nine) and explored whether a green mode of production and trading is better than the business-as-usual model and also inquired as to the applicability of CASs and existing impediments to moving toward greening business.

CHAPTER NINE

Trade-led Green Growth Transition in Nepal: Practices of Greening Production and Trade in Nepalese Tea Firms

9.1 History of Tea Production in Nepal

The agricultural sector in Nepal accounts for 34.7 per cent of real GDP (as of F/Y 2012/13) in which two-thirds of the labour force is involved, mostly in subsistence farming. Nepal neither has tariff rate quotas on agro-products nor a system of guaranteed prices. The manufacturing sector has only 6.1 per cent contribution to GDP which reflects poor industrial development. Within agricultural sector, tea sub-sector is flourishing in recent years.

The history of tea plantation traces back to 1863 and the first tea factory was established in Ilam, the city in eastern Nepal, in 1878. However, the Nepalese government was involved in tea production and trading since 1966 upon the establishment of Nepal Tea Development Corporation.

Though the history of tea production in Nepal goes a century back, the National Tea Policy was enacted just a few ago in 2000, aiming at increasing the production of tea through more sustainable methods (Palikhe, 2012). The main objectives of the policy are: achieving qualitative and quantitative growth in tea production by encouraging private sector participation; linking tea production with poverty alleviation by increased income and employment opportunities; assisting environmental development by expanding tea estates; foreign currency earning by tea exports; focusing on research, technology development and human resource development; and institutional development of tea sector (NTCDB, 2000).

The ideal geo-climatic conditions provide a great opportunity to produce high quality and uniquely flavoured tea in Nepal. The Himalayan foothills are favourable to produce high quality orthodox tea whereas a low-land plane (terai) is appropriate to produce CTC (crush-tear-curl) tea. "Nepalese tea harbours a special aroma, fusion, taste and colour that attract tea lovers across the globe (GIZ, 2012, p. 6). Orthodox tea production accounts for 12 to 15 per cent of total tea production (SAWTEE, 2006). Out of 3500 MT total production, around 9 per cent orthodox tea is organic certified and exported. This is a highly growing sector.

As of F/Y 2011/12, there are 140 Registered Tea Estate, which contribute 85 per cent of the National's production volume. Nepal has 40 tea processing factories in private sectors. The following map shows the tea production region in Nepal.

Figure 9.1: Major Tea Growing Areas in Nepal

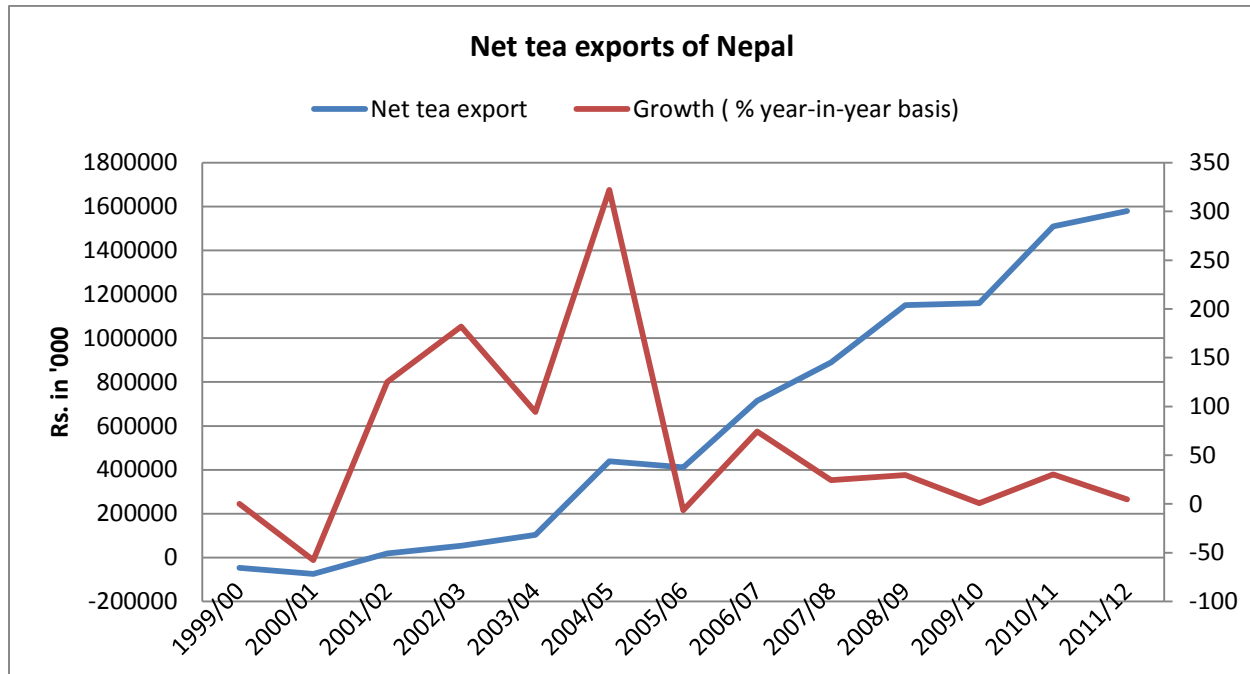


Shifting toward organic tea production in recent years has not only accelerated tea exports with a competitive price, but also has benefitted the tea farmer in Nepal. "Farmers that have switched to organic process received a return of double the amount of national average for orthodox tea green leaves in Nepal (Palikhe, 2012, p. 2)". The replacement of commercial chemical fertilizers and pesticides with home-made manure and pesticides provide additional economy gains. The replacement of firewood with biogas as fuel is estimated to reduce the usage of firewood by 80 per cent contributing significantly to environmental preservation. Since international demand for organic tea has been growing over recent years, Nepal's comparative advantage in tea production provides strong export potential (ibid.). Going green has obviously fostered the environmental sustainability too.

9.2 Tea Production and Export Trend

Recent data reveals that tea is one of the third largest agricultural exports for Nepal that only accounts for approximately 2.4 per cent of Nepal's overall exports. Around 90 to 93 per cent orthodox tea is exported to international market whereas CTC tea is mainly consumed domestically and exported to immediate neighbours - India and Pakistan (Palikhe, 2012).

Figure 9.2: Trend of Nepalese Tea Exports



Source: National Tea and Coffee Development Board, Nepal

Corresponding to the growth in the total area used for growing tea, growth in total tea production is remarkably growing. For example, Nepal produced 1945 metric ton (MT) of tea in 1994/95 which grew by almost 500 per cent to 11,651 MT by 2003/2004, just in nine years. Production in income distribution point of view, share of tea estate in total production is declining and smallholders' output is increasing giving a strong signal that the benefits of tea trade are spread to local farmers with little or no access to capital (GIZ, 2012).

We conducted case studies on different types of tea processing firms in Nepal. The following were five different firms operating under different modality:

Table 9.1: Firms Involved in Case Studies

Firm's name/ umbrella firm	Operational modality	Code
Ilam Valley Tea Industry Limited	Conventional tea processing firm	BAU
Central Tea Cooperative Federation Nepal	Central cooperative agency of tea producers	CooP
Himalayan Sangrila Tea Processing Industry	Conventional+ Organic tea processing firm	PP
Gorkha Tea Estate	Fully organic tea production and processing firm	ORG
Kanchanjangha Tea Estate	Organic tea firm that is also involved in fair trade	OFT

We tried to explore how greening industry facilitates enhance competitiveness, environmental sustainability and inclusiveness with some semi-structured questionnaires that deal with CSI strategies we proposed and elaborated in Chapter Six.

In Chapter Seven, we dealt those CSI strategies with policy making perspective. In this Chapter, we relate them at the firm level as per their relevancy.

9.3 Applicability of CSI Strategies in Nepalese Tea Firms

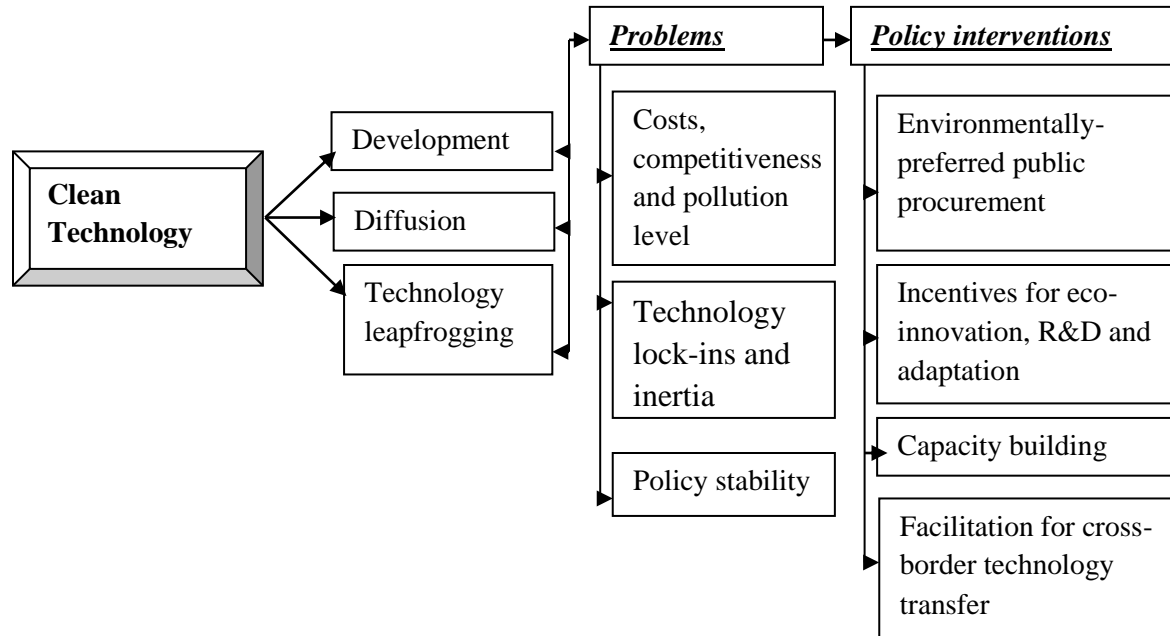
9.3.1 Accessible and Affordable Clean Technology Development and Diffusion

Environmental-based competitive advantage can be gained by green technology that includes clean energy, green building, green nanotechnology, green chemistry, environmentally-preferred public procurement, and others. Investment in green technology may be expensive for short run but it definitely pays back in the long run if social, economic and environmental benefits are taken into account. Strategies to boost clean technology and higher energy efficiency and adopting ultra-low carbon technologies supported by education, training and innovation system help enhance the competitiveness in the long run. Not only technology developing economies, but also economies far from the technology frontier can benefit by appropriate technology imports and its diffusion. Ensuring information dissemination, avoiding technology lock-in, investing in human capital and R&D, financing and incentives (through MBIs such as energy taxes and subsidies to clean energy etc.) encourage users to shift toward green technologies (Swanson & Ziegelhöfer, 2011).

However, shifting towards green technology incurs various costs and faces other various problems such as technology lock-in and policy instability during its development, diffusion and

technology leapfrogging. Such problems may be overcome by some policy interventions. The diagram below depicts this scenario.

Figure 9.3: Accessible and Affordable Green Technology Development and Diffusion—
Production and Trade Sphere



Analysing the data collected from executive interviews in the field, the following scenario was observed in case of Nepalese tea firms under consideration.

1. Findings related to the problems during clean/green technology transformation

Finding 1.1: Green technology affects costs, trade competitiveness and pollution level

BAU firm is being operated in the conventional way. Therefore, for them, cost competitiveness and profitability totally depends on the quality of products. The Coop firm is attempting to move toward organic cultivation and processing. In the cultivation process, use of chemical fertilizers and pesticides were totally abandoned and organic pesticides and vermin-composting has been in use. However, they do not need a different technology or a bigger difference in processing machinery. While shifting toward organic production, main issue was fully abiding food safety measures and avoiding contamination of pesticides. Therefore, they have adopted green chemistry but been using same machinery in both conventional and organic tea processing.

Regarding the cost structure while shifting toward a green way of production and processing, organic tea leaves get 70 per cent higher price than that of conventional one despite

the rise in cost of production during initial few years. Though the processing chain cannot be shortened due to its processing nature, organic tea is sold at a better competitive price (CooP respondent).

An organic product is highly competitive compared to a conventional one, but the problem is that the harvest, while shifting toward organic, goes down by 50 per cent during the first year. Then it starts recovering soon. In terms of total value of yield, loss of competitiveness (basically net gain here) can be realized in very short run since it takes time to win customers' trust, maintaining the quality of product and the response of buyers. Sooner these aspects are established, faster the recovery (ibid.).

The PP firm has been using both conventional and green technology in their tea leave harvesting and processing plant. As a careful consideration should be taken in terms of food safety measures, organic tea processing has increased the cost definitely; however, its sales price is also high. Therefore, cost structure is different for conventional and organic processing. Organic processing adds value in various levels.

Pollution reduction is possible since the firm adopts minimum fossil fuel consumption techniques. They have energy audits and correction mechanisms to avoid energy lose under quality control mechanism at organic processing plant.

As PP firm respondent states, price structure and competitiveness on the foreign market is determined by its quality, taste, and fragrance, which instead depends on the harvesting season. The best quality is produced in the first (spring) season. The texture of the tea has been another value added in tea recently. Quality maintenance and meeting food safety standards is the main issue to remain competitive and penetrate European market. Pesticide traces should be within the agreed limit in both organic and non-organic product.

The ORG firm was established with a plan of extensive use of green technology. Nothing is to compare since this firm is conceptualized as an organic firm with greening production, process and infrastructure.

The OFT firm replaced the use of firewood by bio-briquette prepared from wood waste and rice bran. While doing so, the direct cost of energy increases by an estimated three per cent, but it not only lowers the cost of waste management, but also significantly decreases health hazards. Competitive advantage is higher, as they expect premium price of their produce.

In conclusion, all firms agreed that green technology increases direct costs in the short run but competitiveness is not deteriorated as the price of yield depends on various quality features. Short run decreases in yield may be a challenge. No firms have reliable information about pollution reduction.

Finding 1.2: Shifting to green technology or technology leapfrogging raises costs in the short run but enhances energy efficiency and overall cost effectiveness in the long run

Firms, while shifting their production process by replacing old technology with a green one, need to invest a lot in green technologies (green energy, green chemistry etc.), that is expected to reduce the energy use and eventually, enhances energy efficiency and the overall cost effectiveness. As Nepalese tea industries have limited use of green technologies, we focused on clean energy and its efficiency.

In this regard, different production firms have their own estimation about the change in energy costs while shifting to green production process. BAU firm respondent confidently states that replacing fossil fuel by green energy increases the overall cost significantly. He replied-

I cannot say exactly about the energy use. However, I think, overall cost will definitely increase by 30-40 per cent while transforming toward greening process.

However, this estimation seems unreliable, as the unit cost of hydroelectricity is far less per unit than electricity generated by fossil fuel in Nepal. It reveals that BAU type of firms have a kind of fear that shifting green technology increases the cost of production and hence, weakens competitiveness. In contrast, Coop firm does not agree that there will be increases in overall cost of production by replace fossil fuel by green energy.

The PP firm has imported new machines that do not need fossil fuel and can be run only with green energy. They do not believe that shifting to green production and processing will increase costs because they are the investment to reduce energy use.

ORG has invested in various green technologies. They strongly believe that investment in green energy will be paid back soon causing significant reduction in cost of energy use in the long run. Therefore, the feasibility of a study of solar energy and biomass has been conducted to replace fossil fuel. Definitely, initial cost is high and hence, they are seeking government support in this direction. Additionally, green building was conceptualized in the inception phase and moving toward that direction to save energy. According to them, they have concrete plans of

solar and wind energy harvesting. They believe that moving toward green energy does not weaken cost competitiveness since investment does not accrue in profit and loss account.

The OFT firm has a bit of a different history of using fossil fuels in the past. While using fossil fuels, they had planned tree plantation equivalent enough to compensate the firewood used as the fuel consumption. Their tea estates are not mono-crop type.

We are planning to run 'gravity ropeway' to reduce the cost and pollution occurred during transportation. It will not only reduce the use of fossil fuel, but also shorten the delivery time between plucking and processing, ensuring better quality product (ORG respondent).

The plan of solar and wind energy harvesting will not only reduce energy leakage but also be a better substitute of fossil fuel. The OFT firm respondent strongly believes that the use of green energy reduces the overall cost too.

In brief, the investment in green technologies should not be taken as a production cost itself. In this case, both cost efficiency and cost effectiveness will increase even in the short run. Such technologies reduce environment-embedded costs such as GHG, reduce energy leakage and even enhance the quality of produce. However, the fear of the BAU firm that green technology leapfrogging may increase costs significantly should be addressed by government incentives and financing provisions, as cost effectiveness itself is not only the concern of business firms but also of the nation as a whole.

Finding 1.3: Inertia and technology lock-ins may hinder green technology adoption and transformation

Adoption of new technology is not only hindered due to high cost, but also because of inertia and technology lock-in. Such kinds of lock-ins may be created due to the need of reskilling the workforce, managing production network, building infrastructure and so on. Although adoption of new technology is not widespread in the case of Nepalese tea industries, we posed questions as to what kind of lock-ins they would be facing in the event that they change existing technology.

BAU firm respondent thinks that there will not be a big alteration of technology even if when they move towards organic production. Coop firms have experienced that lock-in due to the technology gap is not a problem since re-skilling is not a big issue, as ordinary types of training is sufficient. The PP firm is using the same technology/machinery in processing of organic and non-organic processing. Therefore, there is no technology lock-in. This question

was irrelevant to ORG firm whereas OFT firm stated that they never felt a technology lock-in. However, they found that other firms are curious to move toward organic production and want to learn from our experience. This means that inertia and technology lock-ins are not big issues in the case of the Nepalese tea industry.

Finding 1.4: Policy instability retards green transformation

Policy stability is a major concern of not only foreign investors, but also entrepreneurs at home. Nepal is going through rapid changes in its political regime. Though all political parties are adherent to liberal economic policies, left-wing parties, by principle are hesitant to follow neoliberal policies in the full sense. A new government has been formed every year on average since 1994. This kind of political instability may have significantly hampered the firms' decision making and transformation potential. We asked questions as to whether such rapid government change has created a fear of policy instability, and whether such fear has hampered the firms' decision making with regard to greening processes.

For the BAU firm, there is no problem of policy instability rather policy coordination is the biggest issue. For example, the government has no policy on pesticide regulation in the catchment area of organic products' raw material. National Tea and Coffee Development Board (NTCDB) should coordinate and harmonize the differences. However, the Coop firm sees the poor enforcement capacity and regulatory framework of government policies as the main problem. For example, a 'code of conduct' was set in coordination with NTCDB, INGOs, government, and representatives of tea producers and processors. It was a way to move towards greening tea industry. But only a few adopted it and other remained non-compliant. Since there was no proper regulation, it remained the case of sole ethics. The PP firm respondent also expresses a similar view.

The ORG firm is optimistic with the changing positive behaviour of bureaucracy in recent days in the move toward the greening process. They are hopeful that there will be positive policy support in the future. Despite the affirmative environment being created, frequent transfer /appointment of government representation in NTCDB is a major hurdle. They are transferred just when they begin to understand the problems and prospects. This means that it is made as a platform to provide employment to kith and kins of respective authority within the government. Such a situation weakens the pace of progress.

Concluding this issue, enforcement mechanisms and coordination are the major challenges. NTCDB needs a stable leadership.

2. Findings related to perceived policy interventions related to clean/green technology transformation:

Finding 2.1: Government should provide incentives for green transformation and the information should be well disseminated

As we mentioned earlier, the cost of green transformation is high during the investment phase. Therefore, certain incentives from the government and the access to green financing are desirable. In this direction, the National Tea Policy 2000 provides that banks shall offer low interest (concessional) loans as equivalent to prioritized sector loans, for the production and processing of tea. The grace period of such loan payback is up to seven years for orthodox tea in the hilly region, and five years for CTC tea in the southern plains (terai). The interest amount shall not be capitalized during the grace period and the loan should be paid within 10 years after the grace period (GoN, 2000).

As fiscal incentives go, Nepal provides a tax waiver and subsidy package for renewable energy harvesting. It includes - (a) business tax exemptions (b) subsidies for micro-hydro development as the part of integrated water-shed management, (c) subsidies for the home installation of photovoltaic electrical system and efficient cooking stoves, and (d) support biogas production (UNEP Web Portal⁵⁴).

As National Tea Policy provides, income tax shall be exempted during the grace period. There is also a 75 per cent discount off of the registration fee for the purchase of land to be used as a tea plantation. Low interest loans shall also be provided to purchase land for tea cultivation. While a minimum import tax shall be levied on irrigation pipes and other tea industry related equipment imports, as levied on agricultural equipment imports. Taxes levied on packaging material shall be refunded as a duty drawback upon its export. Carriage grants shall also be provided to smallholders and farmers to transport tea leaves to processing industries.

Moreover, the government provides cash reimbursements to producers of tea for the cost of organic certification. If companies specialize in the packaging and export of tea products, taxes shall be exempted for five years.

⁵⁴ For more details, <http://www.unep.org/greeneconomy/AdvisoryServices/Nepal/tabid/56332/Default.aspx>

Similarly, as Fiscal Act 2070 has provisioned, no VAT shall be levied, as per the recommendation of Alternative Energy Promotion Centre (AEPCC), on imports of solar energy instruments and spare parts. Instruments and parts related to hydroelectricity plant shall not be levied VAT as per the recommendation of Alternative Energy Promotion Centre or Electricity Development Board (as per their jurisdiction) if such parts/instruments are not produced in Nepal.

Have these policy supports really materialized in practice? What is the perception of tea entrepreneurs regarding these incentives? We inquired with respondents as to whether they are getting any kind of such incentives.

The BAU firm respondent replied that there was no such incentive that can motivate them to abandon the conventional production/processing model, and they were not aware of any green financing facilities. Coop has reasonable argument in favour of government incentives for the change tea farmers have made in cultivation process. According to them, farmers would have been subsidized for using composted fertilizer replacing a chemical version, at least, equivalent to a subsidy given on use of chemical fertilizer. But ironically, no subsidy, or even chemical fertilizer is given to tea farmers. They complain that the government does not provide support—either in the transformation phase, or at the stage of marketisation. In regard to green financing, there is also no such arrangement. Instead, cooperatives are providing loans. Some tea farmers are utilizing the 'Youth Self-Employment Fund' indirectly. And few firms are working jointly with foreign investors instead. The PP firm also does not recognize any kind of government incentives for green transformation.

It seems strange that although the Fiscal Act 2070 (and earlier Acts too) provides for the waiver of custom duties on imports of chassis, engine, motor and battery charger for the purpose of producing electronic vehicles run by solar panels or batteries. And a mere one per cent customs duty tax is levied on machineries, instruments and spare parts, sprinkle, drip irrigation and related goods for tea cultivation, as well as T-chest for tea packaging. But both firms are either unaware of such incentives or overlook such. Still we may argue that government incentives are poorly targeted to the neediest segment of the production cycle.

The ORG firm respondent seemed aggressive about the non-cooperation by the government. According to him, the government provides no incentives, and instead disincentivises competitors of Nepalese tea exporters. He states-

Darjeeling produces nine million kilograms of tea per year, but India sells 30 million kilograms. The government of India provides a huge amount of grant and subsidy and supports marketing of Indian tea in international market. But in our case, government does nothing.

He further notes that other manufacturing industries based on raw material imports get a regular power supply, but even they are not provided uninterrupted electricity. "What kind of other incentives can we expect? Yes, there is only one per cent tax on machinery imports. A two per cent cash incentive was provisioned on the value of third country exports, but we could not receive that. That's all"- he retorted.

As for the ORG respondent, the government of Nepal is also unable to protect intellectual property rights by facilitation registration. Darjeeling, Sikkim, and Shri Lankan tea- their neighbouring competitors- are established brands in international market. Nepalese tea exporters tried to brand their tea with a logo that reads 'Quality of Himalayas' along with the imposing code of conduct. For this purpose, they initiated a registration process in coordination with the Nepal Tea and Coffee Development Board, but files were pending at government agencies for two years. "Expecting further government facilitation in this direction is futile" - he added.

Regarding green financing, the ORG respondent also agreed that there is no such kind of financing facility. They have tried maximum utilization of barren land by developing a tea estate. Basically, most of the tea estates in Nepal's hilly area are situated in such geographical landscapes where no other crops can give a satisfactory yield. Interestingly, Nepalese commercial banks are paying a penalty for defecting the obligatory provision of investing in rural sector, but they are unwilling to invest in greening tea sector. In such a situation, expecting green financing is a kind of utopia at the moment. He further exemplifies-

Government does not provide any tax facilitation. During the decreasing yield period, we asked government for tax waiver but it was not granted. Tea and Coffee Promotion Board is dysfunctional by nepotism.

The OFT respondent also noted a policy inconsistency regarding taxes and providing declared incentives. It is unclear as to what kind of VAT he is talking about, but he mentioned that VAT was deducted before, but was re-imposed during the BRB's premiership (2011-2013). On the other hand, the government has provisioned for the subsidizing of 50 per cent of the certification cost, but it is too difficult to retrieve.

In a nut-shell, we may conclude that government incentives are targeted at border points only. Whatever is provisioned is not necessarily easily benefited from. Government support for trademark registration is poor. And there are even discriminatory subsidies that tea producers are deprived from (such as not giving subsidized fertilizer or its equivalent for organic manure to tea producers). The situation of green financing is remarkably poor or nonexistent.

Supportive to this finding, other sub-findings in this regard are as follow:

Sub-finding 2.2: For a successful and rapid transition toward green economy and trade-led growth, government should promote environmentally - preferred public procurement

The proposition that the government should promote environmentally - preferred public procurement for green growth transition was probed at both firm and policy executive levels. The question was posed as to how such the procurement system actually helps to promote their business domestically and abroad, if any. Obviously, firms' response was confined to their products; however, policy-making executives dealt with the issue in a broader sense.

This question is not relevant to the BAU firm. The CooP firm respondent argues that government can prioritize and facilitate by purchasing final products on one hand, and fixing minimum price of green leaves on the other hand so that tea cultivators will be ensured a basic price. PP firm respondent does not expect direct purchase from the government rather demands government support for technology development and marketing abroad. They can sell their product themselves for a better price.

The ORG firm respondent suggested that the government could assist in marketing and branding of Nepali organic tea. Nepalese missions and consular offices abroad can distribute Nepali organic tea to the guests as the souvenir. Even Nepalese ministers and secretaries could serve the high quality product to their guests. OFT firm respondent expect sustained support from the government through public procurement because the benefit is not only limited to monetary terms but also such support ameliorate the health of people and nature.

Concluding the perception about environmentally-friendly public procurement, firms (except OFT) do not expect that their produce should be prioritized in government purchasing rather they demand non-monetary support such as branding, publicising, fixing minimum price of raw domestic raw materials and others. However, policy making executives have contrasting opinions. MoCS is not in favour of giving privilege to green product whereas FNCCI respondent supports it unconditionally. NPC takes green purchase as the investment and redirecting

production pattern and MoSTE respondent argues that government purchase should not take into account only the cost rather an assessment of life cycle of the product being procured. As they argue, green public procurement can save a sufficient amount to energy, carbon and resources. MoI respondent firmly supports such procurement, but without too much stringency so that development will not hindered.

Sub-finding 2.3: Government should better incentivise capacity building for expediting green trade-led growth

Capacity building is not an overnight process. In this context, we inquired whether government has been playing a role for capacity building and technology imports.

BAU firm respondent was unaware about such incentives for capacity building. Regarding technology imports, they think, machinery imports should be subsidized for shifting toward organic tea production. The Coop respondent confessed that there is some kind of incentive for capacity building such as IPM (Integrated Pest Management) training while the PP firm was supported by SNV Nepal, USAID, and DANIDA in certification for only a short period. As for them, the government of Nepal has recently stepped on this move. Recently, the government of Nepal has started supporting partially, but most of the certification expenses are borne by processing firms. ORG firm and OFT firm respondent realize no incentive from government for capacity building and technology import.

In brief, the government incentive is very poor for capacity development. Training and certification are little supported by the government and some firms are supported by INGOs. The government should intensify and expedite more capacity building programmes.

Sub-finding 2.4: A significant investment in R&D is needed to facilitate trade-led green growth transition

A huge investment on research and development is needed for a faster transition toward a green economy. As the competitiveness of exportables shifts along with shifts in growth trajectories, investment patterns should also be changed, having a significant part on R&D. Such kinds of R&D investment should be at both the national and firm levels.

All kind of firms reaffirmed that there is not R&D investment from the government. BAU, PP and Coop firms do not have such investment at the firm level either. However, ORG and OFT firm have tried themselves at their own level. For example: the ORG firm has been

collaborating for R&D with Indian firms. As they are giving training to farmers, it also helps them to be motivated toward R&D at their level. They are planning to investigate the cause of why a kind of aroma is produced by their tea when milk is added. Further R&D is planned to investigate at every level -plucking, manufacturing, growing new high-yield tea bush and others.

Similarly, OFT firm has R&D provision. They have been conducting research on mother bud selection and finding the high yield species of tea. That has resulted in unexpectedly high yields. They have mixed species due to the lack of experience that is being improved by R&D results. Their research activities have not only taught them, but also given other farmers the opportunity to learn from their mistakes.

These responses help conclude that R&D is provisioned only in fully organic firms. It may be due to better collaboration with foreign firms and institutions. It may be concluded that the greening industry brings R&D together.

Sub-finding 2.5: Facilitating cross-border technology transfer and diffusion is very important to move toward green economy

As less developed countries can invest a very small amount on R&D and technology development, green technology import is their compulsion. Additionally, as the growth trajectories in the green economy paradigm may differ among developed and less developed countries, the former has a comparative advantage in development and exports of clean technology, whereas less developed countries may enjoy an advantage in the relatively more labour-intensive production sector. Technology transfer can also be facilitated by FDI.

At the firm level, we queried as to whether a transformation of Nepalese tea sector needs any technology transfer or they are able to attract such investment. In response, the BAU firm respondent replied that they do not need FDI. They are able to expand the investment themselves. They have seen a significant need of technology transfer either. His argument seems less plausible when considering that among 25 big tea firms in the Ilam district, seven are owned by Indian entrepreneurs, whereas three of the firms' marketing is done by Indian firms (Nagarik Daily, 2014 March 26, "gha"). Such foreign ownership has jeopardized the long run benefits to Nepalese tea farmers, workers and traders.

Additionally, there is a question as to whether such FDI benefits the farmers. The fact that one Indian firm investing in 10 tea industries reveals a high probability of fixing the monopoly price of green tea leaves, resulting lack of competitive price for farmers' yield.

However, the Coop firm noted the need for foreign investment to foster organic practices (i.e.: biodynamic), though it is more related to technological investment. They are also interested in a 'zero budget farming system'⁵⁵ of India, and they seek investment for such kinds of systems in Nepalese tea industry too. The PP firm respondent does not oppose FDI for technology cross-border technology transfer and diffusion but argues that current capacity of tea cultivation and processing does not need any FDI.

The ORG firm is running under a kind of PPP (firm, buyer and the German Government) business model. It was initiated in 2009/10. The firm chairman himself has learnt some technology know-how from Germany. They see a high attraction of FDI in organic tea sector but realize that there is poor government support to attract such investment.

Interestingly, the OFT firm respondent saw no need for technology imports as they think that local technology will definitely help enhance competitiveness rather than importing foreign technology. Giving an example of composting, they argue that the use the compost fertilizer by mixing some local shrubs and herbs, greatly enrich the soil. Foreigners are unaware of this particular process.

In conclusion, firms' experience and other evidence can be show that technology transfer, not FDI, is more important when greening the tea industry. FDI may deteriorate the life of farmers if that is enough to monopolize the input market. But local technology may work better in many cases.

The analysis of data has been summarised and presented in the table 9.2 below—

⁵⁵Zero Budget Natural Farming, propounded by Subhash Palekar (Indian agro-scientist) is a unique method of farming which requires absolutely no monetary investment for purchase of key inputs like seeds, fertilizers and plant protection chemicals from the market. The farmer can grow local varieties of crops without application of fertilizers and pesticides. This system requires only native breed of cattle which is any case forms an integral part of farming families in rural areas (Babu, ND).

Table 9.2: Green Technology and Energy Efficiency - Problems and Prospects

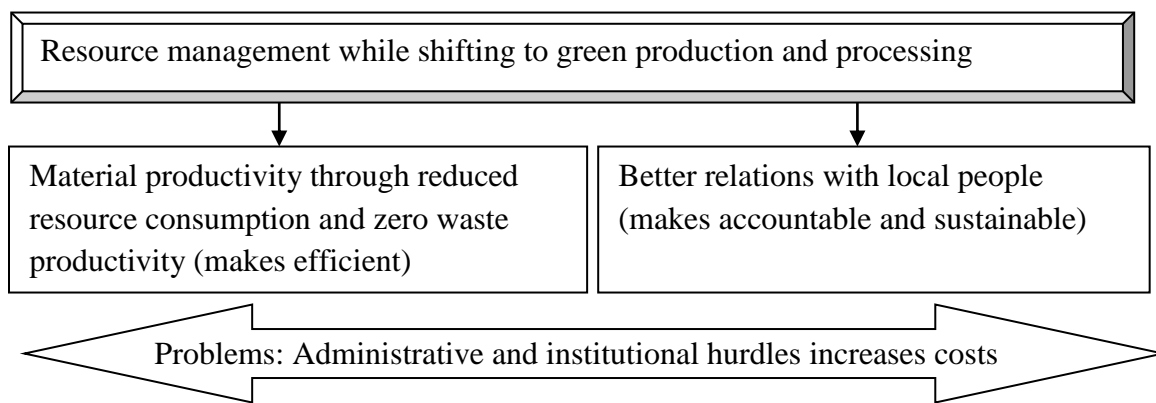
	Proposition/ Findings	BAU	CooP	PP	ORG	OFT	
1.1	Green technology affects cost, pollution level and trade competitiveness	Cost	×	↑ for a few years	↑ for a few years	—	Three per cent higher in green energy
		Pollution	×	↓	↓	—	↓
		Trade competitiveness	Depends on quality of product	50 % lower yield during first year but recovers soon. But produce become more competitive and higher profit margin	yield gets higher price but competitiveness depends on quality, taste, fragrance, texture and meeting the food safety standards	—	Higher competitiveness due to premium price of the yield
1.2	Shifting to green technology or leapfrogging raises costs in the short run but enhances energy efficiency and overall cost	Believes that energy cost increases by 30-40 per cent	No increase in energy cost	No increase in energy cost. Green technology is energy efficient and it is just an investment.	Investment in green energy will be paid back soon causing significant reduction in cost of energy use in the long run	Use of green energy and technology reduces the overall cost	
1.3	Inertia and technology lock-ins may hinder green technology adoption and transformation	Not a big technology alteration	No lock-in since there is not a big shift in technology adoption and re-skilling is easy	No technology lock-in since workforce can be made adaptive easily	×	No technology lock-in rather BAU firms are curious to learn from them	
1.4	Policy instability retards green transformation	No policy instability but lack of policy coordination is the problem	Poor enforcement capacity and regulatory framework are major problems	Poor enforcement capacity and regulatory framework are major problems	×	Frequent transfer /appointment of government representation in TCDBN is a major hurdle	

2.1	Government should provide incentives for green transformation and the information should be well disseminated.	Not government incentives to attract toward green transformation	Other kinds of incentives (such as fertilizer subsidy) are more important than existing one. No usable support, no green financing.	No government incentives for green transformation.	Government disincentives. Even does not provides incentives what it commits. Not even uninterrupted electricity supply.	Inconsistency in incentives and difficult to realize
2.2	To facilitate trade-led green transition, government should promote environmentally preferred public procurement	×	Purchasing final product and fixing minimum price for green leaves	No public procurement needed rather support for technology development and marking abroad	Marketing and branding through diplomatic missions and giving souvenir high level policy executives	Public procurement for the health people and nature
2.3	Government should incentivize capacity building for expediting green trade-led growth.	Capacity building through easing machinery imports	Government supports IPM training and so on but not enough	Capacity building is supported by SNV, DANIDA, USAID etc. Government supports certification	No capacity building support from government	No capacity building support from government
2.4	A significant investment in R&D is needed to facilitate trade-led green growth transition.	No R&D	No R&D	No R&D	Firm level R&D for quality enhancement and higher yield	Firm level R&D for mother bud selection higher yield
2.5	Facilitating cross-border technology transfer and diffusion is very important to move toward green economy.	No need of FDI	FDI needed for new technology adoption such as bio-dynamics and zero budget farming system	Needed but not at this capacity level	Getting technical know-how under PPP model	Local technology is enough/better

9.3.2 Efficient, accountable and sustainable resource management

Greening business is resource efficient, accountable and sustainable for economic growth. In other words, resource efficiency is the heart of green growth. A well-managed production and processing chain, in many cases, reduces the use of resources. Since every waste is inefficiency, efficient resource use reduces the input needed to produce the same amount of a particular product. The diagram below gives a framework in this regard.

Figure 9.4: Efficient, Accountable and Sustainable Resource Management for Green Growth Transition



We investigated whether there was a reduction of resource use in the Nepalese tea industry while shifting from the BAU business model to a green model and found as following:

Finding 1: Reduction in resource consumption within the production chain during the shift towards green production process

Our study revealed that there was not a significant reduction in resource consumption during greening process of Nepalese tea industry. Neither Coop firm nor PA firm realized the reduction of resource use. However, greening process has changed the pattern of resource use and shifted toward green energy and zero waste through green composting. As ORG and OFT respondents both elaborate, tea farmers used to use firewood by destroying forests but they initiated biogas in which cattle's urine is mixed with local legumes and botanicals such as Titepati (*Artemisia Indica Willd*), Khirro (*Wrightia antidysenterica*), Kutmero (*Litsea monopelata*), Assuro (*Adhatoda Vesica*), Kalijhar (*Lantata Camera*) and others to make the slurry more enriched, ultimately saving trees and making more nutrient manure.

A little investment is needed to make all of this happen. For example, ORG firm supports bio gas installation by giving a cow and an installation of bio gas plant for every family joining its cooperative. The bio gas plant then provides the fuel for cooking and the electricity for lighting resulted in the cut-off of other sources of fuel such as firewood and kerosene. Once installed, the bio gas plant not only reduces the carbon footprint, but also fuel and electricity is generated at almost zero cost using the excreta of cows. The residue slurry also serves as the organic manure for the kitchen garden vegetation and tea shrubs. Use of biogas as cooking fuel has curtailed the time needed to collect the firewood and reduced the occurrence of health vulnerability.

OFT firm realizes decrease in resource use in weathering process. They utilize all kinds of waste in surroundings of farmer's farmyard. Cow dung, cattle manure, chicken manure, ash, mustard oil cake, rice bran, bone meals, jungle foliage, farmyard waste, etc., are collected and compost is prepared under meticulous supervision of the experts. Effective micro-organisms are being used in composting.

In a nutshell, Coop and PP firms did not realise a decrease in resource use; however, ORG firm respondent claims that greening processes changes the pattern of resource use ultimately replacing some primary inputs with cheaper and safer recycled inputs. OFT respondent realizes resource cut in the 'weathering' process and claims that there is no change in primary input but 3R has reduced the resource in secondary phase.

Finding 2: Greening business supports zero waste productivity to ensure material productivity

We already mentioned that the greening process is themed at zero waste productivity. Every waste is considered as inefficiency. This is also the essence of sustainable competitiveness. We wanted to explore whether the transition toward green (in this context organic) production and processing has ensured zero wastage. Also, we try to reveal how waste is being managed, and whether such zero waste productivity has been materialized to ensure material productivity.

As BAU respondent replied, 1 to 2 per cent wastage is normal wastage in the tea processing industry but they produce about 10 per cent wastage. This means that they are unable to maintain material productivity with efficient use of resources. The waste is managed through composting. He believes that waste is slightly higher in organic tea processing but can be managed well.

BAU respondent's version is supported by CooP respondent. He agrees that less wastage is generated in processing non-organic tea compared to organic one. It is due to stringent leaf selection and refining in organic processing. However, the wastage generated in organic processing is totally decomposed and reused as fertilizer. The higher wastage in organic processing is not due to inefficient processing; rather it is because they have to use very new budding leaves for the quality control. Fortunately, organic firm decomposes all of the waste through biodegradation process and can reuse the waste as nutrient fertilizer. PP, ORG and OFT firm respondents agreed with this notion.

In brief, wastage is higher in greening process due to stringent quality control requirement, but in cyclic process, all wastage is fully reutilized ensuring zero waste productivity.

Finding 3: Transformation towards green production and processing technologies leads to better relations with local people

Social harmony and cohesion in the catchment area of an industry is an inseparable part of a green economy. A transformation of BAU firm into a green one strengthens better social relations, understanding and cooperation. Green firms are perceived to be more concerned with corporate social responsibility too.

The Constitution of Nepal codifies the promotion of local technology. In the knowledge and technology realms, the State shall pursue a policy of giving priority to the development of science and technology and also pursue a policy of developing local technology (Article 35-11); the State shall pursue a policy of attracting foreign capital and technology, while giving priority to indigenous investment (Article 35-12); and the State shall pursue a policy of identifying, protecting and modernizing the traditional knowledge, skills and practices existing in the country (Article 35-18).

We tried to inquire as to the relations between the greening process and social harmony in the context of the Nepalese tea industry. In this regard, as CooP respondent claims, community relations were not good with catchment habitants when non-organic way of production was in practice. But once they commenced toward greening, the local community became happy and more cooperative.

According to PP firm respondent, farmers are happy that they have better realization of bio-externalities such as pollination, bee keeping etc. However, the respondent expressed

remorse for being unable to provide a higher value for their yield at the level that they really deserve.

ORG firm has various CSR activities as illustrated in proposition 3.1 above. Co-creating enhanced value for all stakeholders is one of its missions. It is committed to exhibiting respect for the community by being responsible and working for the greater good. Respectful and affable relations with colleagues, customers and stakeholders, avoiding child labour and social and racial discrimination, and promoting women empowerment, child education, and HRD all form a part of this conscious effort. As a part of CSR, ORG has formed a cooperative to support its farmers. The cooperative invests in upgrading the home stay management facility at farmers' residences. Meanwhile, home stay brings a unique blend of tea tourism with rural and ethno-tourism. It also provides support for biogas installation at every farmer's yard. The firm also conduct HRD program by providing training and support to farmers in cooking, housekeeping, hygiene and sanitation, tourist safety, home stay management, reinforcement of culture, kitchen garden, Basic English lessons etc.

OFT firm was established with the objective of improving the living standard of the farmers in the remote villages by increasing income without exploiting or disturbing the nature and selling the tea in international niche market. It also conducts various CSR activities such as eco-house project, scholarship programs and cow bank project, school and road building, farmer's cooperative shops etc.

Transitioning firms have realized improved community relations in various dimensions whereas ORG firm's mission itself is co-creating enhanced value for all stakeholders. OFT firm has an exemplary bending of CSR activities by which, as they claim, all stakeholders feel a kind of ownership.

Finding 4: Administrative or institutional hurdles if any, may increase the cost of exports and weakens cost competitiveness

Administrative and institutional hurdles not only add time and costs of exports but also disrupt the quality chain. Nepalese tea exporters have not faced such barriers. However, they may not be able to export the produce unhindered up to the destination. As CooP respondent mentions, customs officials at Indian side often create problem in the name of PSB. There are also some before-the-border barriers such as many duty collection posts along the way toward

the border that adds unseen costs. No special favour is given for organic product exports as stated by PP firm respondent.

ORG firm respondent claims that administrative costs are 50 per cent higher than that of adjoining Darjeeling tea traders of India. OFT respondent does not realize any kind of administrative hurdles.

In this context, there are contradictory responses. However, en route facilitation and across the border hurdles discourage Nepalese tea exports to some extent.

Table 9.3 summarises the findings in this regard.

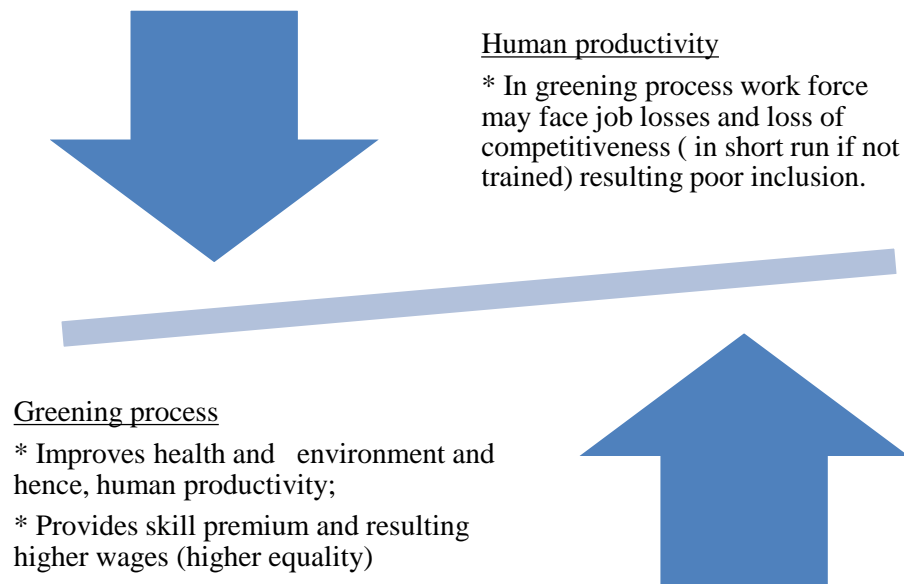
Table 9.3: Efficient, Accountable and Sustainable Resource Use for Trade-led Green Growth Transition

	Propositions/ Findings	BAI	CooP	PP	ORG	OFT
1	Shifting to green production process results in reduced resource consumption in the production chain	No reduction in resource use	No reduction in resource use	No reduction in resource use	Change in pattern of resource use	Resource use of decreased in weathering process. 3R has reduced the resource in secondary phase too through 3R
2	Greening business supports zero waste productivity to ensure material productivity.	In organic processing, wastage increases slightly.	Wastages is higher in organic but not due to inefficient processing rather due to quality control but all wastage is fully utilized safely.	Wastages is higher in organic but not due to inefficient processing rather due to quality control but all wastage is fully utilized safely.	We do not have any wastage. 3R takes place fully.	We do not have any wastage. 3R takes place fully.
3	Transformation towards green production and processing technologies leads to better relations with local people	× (NA)	Community relations improved significantly.	Farmers are happy with positive bio-externalities.	Co-creating values with all stakeholders.	A blending of CSR
4	Administrative or institutional hurdles may increase the cost of exports and weakens cost competitiveness.	No barriers	En route barriers and PSB barriers at Indian customs point.	No special favour for organic tea exports. Indifferent administrative behaviour.	50 per cent higher administrative cost than that of immediate competitor.	No administrative barriers.
5	Transformation towards green production and processing technologies leads to better relations with local people	× (NA)	Community relations improved significantly.	Farmers are happy with positive bio-externalities.	Co-creating values with all stakeholders.	A blending of CSR

9.3.3 Investment in human productivity and capabilities

Greening trade may jeopardize jobs. But appropriate human capital development strategies for green economy not only create more jobs but also pay back in terms of export competitiveness, equity, wage premium and, human and natural health. As the greening process deepens, human productivity may rise in long run if there is inclusion mechanism (diagram 9.5).

Figure 9.5: Human Productivity in Greening Process



In Nepalese trade context, we observed the following scenario (case study findings) —

Finding 1: Greening process better supports the health and environment and hence increases human productivity

To make human capital adaptive to trade-led green growth, human resources should be trained and re-skilled. Workers also should be provided with a safe working environment and health facilities. Therefore, capability enhancing arrangements are needed at the firm level with workers' safety. We asked whether firms are realizing such arrangements.

BAU respondent realizes that, however in terms of workers' safety, he agrees that organic processing is better since less dust is produced in organic tea. Occupational safety measures are far better for it is related to food safety measures too. Giving examples of workers safety in BAU model of tea cultivation, CooP respondent states -

Workers used to be unconscious sometimes due to the stingy odour of pesticide and its inhalation while using non-organic way of production. Now, they are feeling safe once we shifted to organic production and processing.

PP firm segregates organic and non-organic processing plant to avoid pesticide contamination. Giving similar example of health hazard in BAU model of production, he states-

In Kanyam, fishes in the river died due to heavy spraying of pesticide onto the tea bushes around the catchment area. Sometimes, sprayers used to be unconscious while spraying. But after adopting greening process, processing firms are not only responsible on human and animal health but also made CSR their part of business.

ORG firm not only considers corporate social responsibility, but also employs a focus on ethical business. Workers' health, safety and quality of life are integral parts of their business. OFT firm respondent has similar view with ORG firm respondent. According to him, greening process accommodates capabilities enhancing arrangements such as training, safe working environment and health facilities for workers.

Summing up, most of the firms are aware of the workers' safety and even the eco-system. ORG and OFT firms are sincere about workers safety, health, capacity development programs as well as CSR.

Finding 2: Greening production cycle may lead to job losses if human resource is not trained or re-skilled

Generally, shifting toward green process makes some work force obsolete and needs new trained workers. If firm's workforce is re-skilled in due course of transformation, labourers can adapt themselves within the new working environment. During the transformation process, some labourers lose jobs while some get new jobs. The overall effect may be inconclusive as the overall effect depends on growth trajectory. In other words, different type of greening industries need different technology shifts. In the case of Nepalese tea industries, BAU respondent is confident that the workforce can adapt itself even in a new environment. According to them, just a few trained staff should be added and there will be no job loss. CooP, PP and OFT firm respondents also agree with this notion.

Explaining the situation of job losses, labour redundancy, job creation and job replacement, CooP firm informed that some labour force became redundant in "plucking sector," but accommodated in 'composting sector'. In this way, some jobs were lost whereas new jobs were created in other sectors. Most of the workforce adopted themselves into organic processing.

In accordance with PP firm respondent, labourers can accommodate themselves within three months. OFT respondent argues that there will be not significant job losses and that greening processes create new jobs.

About the duration of job losses, one interesting fact became clear: that there is a labour shortage in the Nepalese tea production and processing industry. Though millions of Nepalese are working abroad there is a labour shortage in the domestic market due to poor pay-scale.

In brief, greening production cycle does not cause job losses significantly since they can easily adapt themselves by re-skilling within a short period of time. The less technical nature of the work may be the cause of such result.

Finding 3: There may be short run loss of competitiveness during initial phase of greening process due to job losses of erstwhile work force

In some cases, the greening process may cause diminishing competitiveness if the workforce is not trained to the extent that they can perform well, which may decrease human productivity in the short run. PP respondent agrees with this version and states that farmers were afraid of decreasing yield while shifting to the greening process. In the meantime, processing firms imposed a code of conduct including avoidance of child labour and encouraging women workers. The ultimate result was that they could avoid child labour and increase women workers in production and processing industries. The erstwhile workforce could adapt itself into organic production processes within a year.

In a single sentence, competitiveness was not weakened due to the erstwhile workforce during the greening process because they adapted themselves easily and quickly.

Finding 4: Green transformation may provide skill premium to workers

The greening process also provides a skill premium to the skilled employees. Though such skill premium is not so significant in CoOP firm, plucking workers also get a little bit more amounts (per say five per cent higher) in organic than in conventional. PP firm respondent also agrees that there is a skill premium, but he focused on indirect benefits through quality control package (for example, health insurance). OFT firm does not see such a difference due to its common ownership model.

In short, a skill premium is provided by monetary or non-monetary incentives.

Finding 5: Capital development strategies are needed to make work force adaptive in new green growth paradigm

As the central government should have concrete human capital development strategy for a successful green growth transition, firm itself also need human capability development strategies. Unfortunately, they do not have a concrete plan in this direction. PP firm has a preliminary initiative. Once greening was in practice, they started empowering women by promoting them to the post of inspectors, supervisors and so on. The lack of capacity development plans indicates a low chance of retention of a productive work-force in the firm. Coop firm does not have any human capital development plan.

However, such strategies are prominent in ORG and OFT firms. OFT firm provides regular on-the-job training, whereas ORG hires experts to train unskilled workers. As ORG respondent states, the 60 per cent value added in the tea sector is attributable to the human workforce. Therefore, regularly sharpening their skill and knowledge is needed.

	Propositions/ Findings	BAU	CooP	PP	ORG	OFT
1	Greening process better supports the health and environment and hence, increases human productivity.	Better in organic production/processing since occupation safety measures are stringent.	Health and environmental hazards in BAU model which is removed in greening process.	In greening process, firms become responsible on human and animal health as well as CSR	Ethical business is the essence of green business. Workers health, safety and quality of life become integral part of greening business.	Greening process accommodates capabilities enhancing arrangements: training, work-place safety, health facilities for workers.
2	Greening production cycle may lead to job losses if human resource is not trained or reskilled.	Workers can easily adapt themselves by bit training. There is no job loss.	Some labour force became redundant in on sector but accommodated in other sector.	Labourers can accommodate themselves within three months.	× (NA)	No significant job losses. Greening process creates new jobs.
3	There may be short run loss of competitiveness during initial phase of greening process due to job losses of erstwhile work force.	× (NA)	No job losses, workers adapted themselves. No competitiveness loss.	Greening code of conduct avoided malpractices of using child labour. Erstwhile workforce adapted itself without weakening competitiveness.	× (NA)	No loss of competitiveness. Erstwhile workforces adapted themselves easily.
4	Green transformation may provide skill premium to workers.	× (NA)	Five per cent higher wage premium.	Indirect benefits from quality control package	× (NA)	No skill premium due to its unique nature of ownership.
5	Capital development strategies are needed to make work force adaptive in new green growth paradigm.	× (NA)	No human development strategies	Small initiatives are launched. Women workers Were promoted. Poor HD plan has caused retaining productive workforce difficult.	Regular trainings by experts	On-the-job trainings

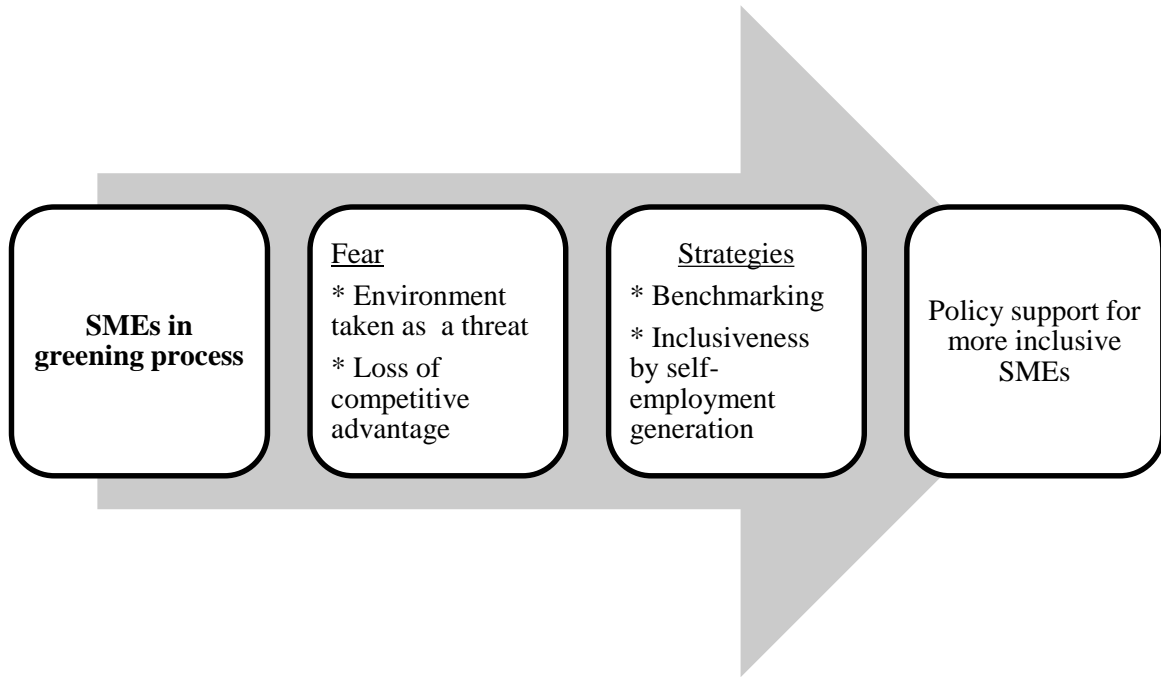
9.3.4 Family business, SMEs and local knowledge-based product specialisation

SMEs are the major source of employment, help today's poor escape poverty, and work as an engine of economic growth. But they also represent a major cause of pollution. SMEs are not only the major employment creator, but also are responsible for around 60 per cent of global GHG pollution and 70 per cent of all pollution and 8 out of 10 pollution accidents (Stokes, Chen, & Revell, 2007; Parker, Redmond, & Simpson, 2009). SMEs have problems with limited knowledge, resource bottleneck and lack of technological capability to cope with negative environmental impact of their own activities. SMEs concentrate on current performance rather than long-run strategies (Parker, Redmond, & Simpson, 2009). They are unwelcoming to environmental standards. If they go green, they can open up new growth markets and address the demand of poor consumers, stay cost-competitive and promote sustainable practices by conserving land, water, energy, and minerals and eliminating waste, and attract highest calibre employees and promote labour rights.

Industrial Policy, 2011 defines small enterprises as 'an industrial enterprise (other than micro enterprises and traditional and other cottage industries) having the fixed assets of up to 50 million rupees' (Clause 12.3.3). Similarly, a medium scale industry is 'an industrial enterprise having the fixed assets more than 50 to 150 million rupees' (12.3.4). This categorization makes most of the tea processing industries as SMEs Nepal. They hire seasonal workers and keep a few regular employees.

SMEs are very important as they form the backbone and foundation for economic development in a country like Nepal where resources are limited, capital and its mobilization is weak, and entrepreneurship is poorly promoted (MoF, 2013). In this context, Nepalese SMEs can play a crucial role for trade-led green growth transition if appropriate environment is created. We explored some perceptions of tea firm managers.

As presented in previous chapters, many SMEs fear of losing competitiveness and take environmental standards as threat rather than opportunity. Such fear may be alleviated by some firm level strategic measures and some policy measures. In Nepalese tea industry, we found the following scenario:

Figure 9.6: SMEs in Greening Growth Paradigm

Finding 1: Environmental standards are not taken as threat by Nepalese tea firms

Contrast to the proposition that SMEs consider environmental issues as threat rather than opportunity, in the Nepalese tea industry, none of the firm's respondents considered environmental issues as threats, which is quite contrary to SMEs in other sectors/countries.

Even the BAU firm owner opposed the notion that environmental standards are burdens for them. They are also keenly interested in moving toward the marketing of green production. Because, as they mention, their exports totally depend on quality (eliminating pesticides and quality chain maintained during the overall production, processing and packaging process). They wish there were environmental regulations to abide by.

CooP respondent also disagreed with the presumption. They believe that environmental regulation will be extremely supportive to increased exports, and increased competition in the international market. Greening tea bushes also contributes to reducing the carbon footprint. PP firm respondent thinks that greening is vital to their ability to compete in the European market. And to compete in the Indian market, they believe that they have no choice other than to move toward greening their business. ORG and OFT firms strongly reject the notion and mention that they favour strong environmental regulations not for their business only but for the environmental protection too.

Finding 2: There may be loss of competitive advantages while shifting toward green production/processing but other advantages can be garnered

CooP respondent rejected this proposition and argued that there are multiple advantages of going green. For example, the health of farmers and labours has been improved, price of their yield has been increased, soil fertility has been increased, use of local resources has been increased, and the environment has been balanced.

PP respondent realises competition advantage due to younger tea bushes compared to immediate neighbouring firms in India. Nepali tea is cost competitive compared to Darjeeling tea which has been decreasing by 20 per cent year-on-year due to very old tea bushes. Nepalese tea-bushes are new that yield higher quality and aromatic tea leaves. It means, Nepalese tea is cost competitive at the source of raw material, however, exploration of international market and other incentives are far weaker in Nepal compared to Darjeeling tea. SWATEE study finds the similar evidence and further adds that orthodox tea production has natural qualitative advantage in Nepal (SAWTEE, 2006). In such a situation, going green further enhances the competitiveness if proper incentives are provided and better marketing is done. ORG firm does not apply this proposition.

However, OFT firm has experienced loss of competitiveness for a few years due to the reduced yield when they were shifting their product from conventional to organic. Farmers can lose their patience since it takes a number of years to recover the yield. The yield was reduced drastically during the first 3 years, but gained momentum and recovered by the fifth year. Ultimately the yield increased marginally by the seventh year. This version seems to be more reliable in that it depicts what happens during the transition period. Therefore, special provisions are needed to facilitate the transition period.

In such a situation, as UNEP (n.d.) specifies, government can ease the transition by the following ways-

- (a) Establish industrial state for green SMEs,
- (b) Providing tax breaks as well as concessional finance for investment in new green technology,
- (c) Managerial and technical training,
- (d) Assistance in the design, development and marketing of green products,
- (e) Support for resource recovery parks,

- (f) Establishing and information network for SMEs,
- (g) Green procurement (Greening Business, p. 22)

Finding 3: Firm level strategies may be useful to alleviate any fear of loss of competitiveness

Sub-finding 1: To enhance competitiveness, SMEs may follow benchmarking strategy

Asset benchmarking or performance benchmarking are some ways SMEs use strategy to enhance cost competitiveness. But the BAU firm does not have such strategy. As per Coop respondent, they have set quality benchmarking since they cannot be competitive just by economies of scale. PP firm has set the asset benchmarking that they aim at processing higher quantities of tea with existing machineries. As per Coop respondent, to remain competitive, they cannot reduce price with economies of scale. ORG firm has cost reduction strategies/ cost benchmarking whereas OFT firm respondent does not specify performance benchmarking despite their claim that they have such strategies.

Sub-finding 2: SMEs also promote self-employment generation through its demand and supply networks

In case of Nepalese tea industries, BAU firm could not answer whether they have such networks. Coop firm respondent claimed that cooperative is itself a network of self-employment generating firms. An additional benefit of networking under a cooperative is that farmers receive higher prices for the tea leaves if it is sold through cooperatives. They argue that cooperatives have made the coordination among tea farmers and processing industries so much easier than it happened before.

ORG respondent supports this notion and reveals the fact that tea industry in Nepal is totally based on small farmers yield. Around 15,000 small farmers are involved in it. They can produce the best quality tea because of favourable climate; however, fragmented tea estates, small and poorly organized tea farmers and other various reasons make it difficult.

OFT firm was launched in 1984 by the local farmers on a cooperative model. It gives a unique example of inclusiveness by coordinated a self-employment generation. Over 100 farmers pooled their marginal landholding and became the owners of the first orthodox tea plantation. The land that was barely enough to sustain them has been utilized to produce high quality organic orthodox tea. The firm sells its produce to organic dealers abroad and fair trade

organizations. It employs 600 people, including small farmers, of which approximately 75 per cent are women. They form part of a network of small tea producer's cooperatives.

Experience from the Nepalese tea industry reveals that cooperatives and coordinated networks not only strengthen the supply chain, but also promote inclusiveness and better profitability for both industries and farmers.

Finding 4: SMEs face many barriers during the green growth transition

Finally, we asked about the hindrances they are facing in exporting their produce.

The following problems were put forward -

- ☞ **Losing European market:** BAU firm has realized that they are losing European market consumers due to pesticide contamination, poorer quality and further degradation of their produce due to the entry of money minded business entrepreneur in tea sector. Losing trust in the European market has prohibited them from getting a reasonable price. "Only 7 per cent of our product goes to the European market, leaving them dependent on India for the remainder of their product and being compelled to sell at a very low price"- says Coop firm respondent. As the WTO study concludes, the lack of an international auction market has filtrated Nepalese tea reaching European market. However, this is not the problem of ORG and OFT firms since they have a relatively better international trade network.
- ☞ **Labour shortage:** The cause of poor quality tea is the labour shortage during the plucking season. It has hampered plucking as per the quality chain. Enhancing quality, sufficient work force and changing internal processing system are some ways to enhance competitiveness. Lack of labour force hampers the quality control and hence less competitive price. Darjeeling Tea, the competitor next door, has a mechanism of quality control. Labour shortage is an irony in Nepal. The SWATEE report also supports the findings of the study and mentions that retention of labour is a critical issue since most of Nepalese active workforce (mainly male) prefers to go abroad for bread winning (SWATEE, 2006).
- ☞ **Supply side constraints:** All kinds of firms agreed that there is not a problem of market demand, but that the quality control mechanism is the main challenge. UNEP, ITC & ICTSD (2012) reports come up with similar conclusions adding that such supply side problems are due to the lack of infrastructure such as fuel shortage, a lack of roads and

low quality processing facilities. This has forced farmers to sell 90 per cent of their products to Indian factories which are then sold on the world market in the brand of "Darjeeling tea". As of WTO study, insufficient processing capacity and insufficient product diversification are other supply side constraints (WTO, 2007).

- ☞ Custom facilitation: Cooperatives are facing problem while exporting. They need permission from various government agencies (CooP respondent).
- ☞ Lack of brand: Lack of branding is the major challenge where the next-door competitor, Darjeeling tea, has established its brand for decades. But Nepalese tea does not have an established brand. SWATEE (2006) also reports the problem of branding and coordinated marketing strategies. Some INGOs like GIZ and WinRock International are currently supporting orthodox tea promotion (marketing, branding, code of conduct and technical training) (SAWTEE, 2006, p. 4).
- ☞ Expensive quality control mechanism: Lacking a laboratory to test pesticide contamination is not only a big hindrance, but also a major cause of cost increase. "We spend large amounts of money to get this approved from Australia. Should we have the facility, we could distribute higher priced green leaves and higher wage to the workers" (PP firm respondent). This argument is supported by a GIZ study. It concludes that maintaining international quality and standards requirement is hampered due to the lack of internationally accredited laboratories with modern equipment and technologies (GIZ, 2012). A WTO study found that a poor monitoring mechanism has weakened the quality standard. It states- "Strong monitoring mechanisms are vital to ensure that the quality is maintained from the cultivation and harvesting state to the packaging and exporting stage (WTO, 2007, p. 3).
- ☞ Organic certification is costly: As PP firm respondent argues, only less than half a dozen firms are organic certified because it is done in Australia and the cost is very high. Throughout the certification process, farmers are trained to maintain organic standards. There are internal inspections and control mechanisms. The inspection report is sent to the appropriate Australian agency. Representative inspector/s from certification agency are deployed to the tea state and processing unit to verify standards. After the verification, sample of final product is sent to the buyers. They get traceability certificate

from the certification agency. The lack of a certification agency domestically adds significant costs to organic tea production.

- ☞ Beyond the findings of this case study, poor R&D investment by the government and private sectors, and TBT (associated with packaging and labelling of the product) are other problems of Nepalese tea exporters (WTO, 2007; GIZ, 2012; UNEP, ITC & ICTSD 2012).

Finding 5: Policy supports for more inclusiveness nature of SMEs lubricates green growth transition

The OECD recognizes the transition toward a green economy as an urgent measure to address both the high unemployment rates invulnerable populations, and the increasing environmental costs of existing resource utilization patterns (APEC, 2013). In several OECD countries, women-owned SMEs are growing at a faster rate than the economy as a whole. This has been achieved by capitalizing the skills of educated and trained women; high-growth SMEs further create jobs. An OECD study finds that few high-growth SMEs have made important contributions to job creation and productivity growth in OECD area (OECD, 1997).

In the case of Nepal, the tea sector is a crucial sector in terms of poverty alleviation and inclusiveness through employment. The tea sector employs more than 100,000 people, mostly women from rural areas. Therefore, it contributes not only to poverty alleviation, but also women empowerment (Palikhe, 2012). Many of daily wage-workers (pluckers, factory workers and other workers in production and processing chain) are landless and live at the estates on a permanent basis (SAWTEE, 2006).

Though not intended to foster green growth transition, the Government of Nepal has provisioned certain incentives to make Nepalese trade and industry more inclusive. As the level of human capital in Nepal is not well equipped with high levels of education and training, OECD cases cannot be replicated. However, government incentives to make the Nepalese industrial sector more inclusive make sense. As provisioned in the Industrial Policy of 2011, Nepalese industries providing direct employment to more than 100, 200 and 500 native workers respectively will get further exemption of the 25 per cent in income tax. If the direct employment comprises 50 per cent of native women belonging to Dalits or persons with disabilities, the company will get an exemption of 40 per cent in the income tax to be levied that year. We asked

our respondents whether they knew of this provision and whether they have employed women, lower caste people and marginalized people.

Interestingly, except PP firm respondent, all of the firm executives were unaware of this provision though most of the labourers in tea production and processing industries are women. It might be due to their seasonal nature of work. ORG firm's almost employees are women and marginalized people. OFT firm respondent does not know such incentives but 70 per cent of their employees consist of women, lower caste people and marginalized indigenous community people. It signifies that incentive provisions are not well propagated among entrepreneurs.

As SMEs, table 9.5 below summarizes the following problems and prospects respective to trade-led coimpetitive green growth transition by Nepalese tea firms-

Table 9.5: Role of SMEs for Trade-led Green Growth Transition- The Case of Nepalese Tea Firms

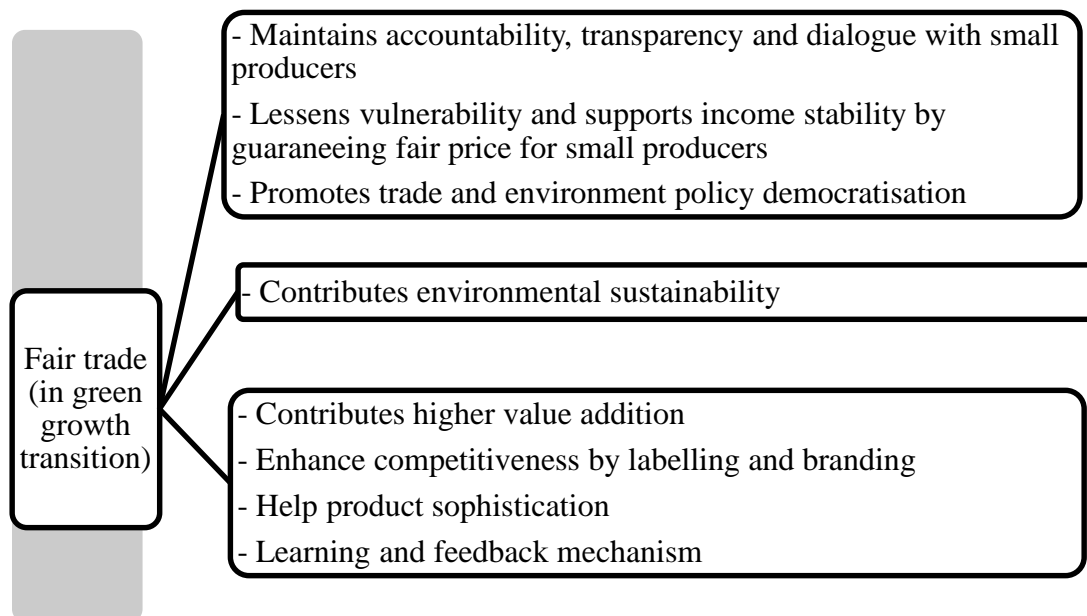
	Propositions/ Findings	BAU	CooP	PP	ORG	OFT
1	SMEs consider environmental standards as threats rather than opportunity.	Not burden. Enhances quality	Very supportive to enhance competitiveness and trust in international market	Environmental standards are must for vying northern market and even the southern lately	Such standards are opportunities	Such standards are opportunities
2	There may be loss of competitive advantages while shifting toward green production/processing but other advantages can be garnered.	× (NA)	Multiple advantages of going green: better health of workers and nature, use of local resources, farmers get better price	Going green further enhances competitiveness due to natural advantage	× (NA)	Yield decreased for first three years though health related advantages can be harnessed. It is a long term investment
3.1	To enhance competitiveness, SMEs may follow benchmarking strategy.	No benchmarking	Quality benchmarking	Asset benchmarking	Price benchmarking	Not specified
3.2	SMEs also promote self-employment generation through its demand and supply networks.	×	Cooperative is itself a network of self-employment generating firms. Farmers get better price due to the network.	They have networks that have made good coordination among farmers.	Farmers have networks but their tea estates are fragmented.	They are the best example of coordinated self-employment generation. Coordinated with small tea producers cooperatives.
4	SMEs face many barriers during the green growth transition	Lack of established brand, Losing trust in Northern market, labour shortage, supply side constraints	Lack of established brand, Problem in customs facilitation, Poor access to western market, labour shortage, supply side constraints,	Lack of established brand, Labour shortage, Supply side constraints, Expensive certification and quality control process,	Lack of established brand, No problem of market, labour shortage	Lack of established brand, No problem of market, labour shortage
5	Policy support for more inclusiveness nature of SMEs lubricates green growth transition.	Unaware about policy support	Unaware about policy support	Knows policy support. Employs women and youngsters	Unaware about policy supports despite almost they employ women and marginalized people	Unaware about policy support

9.3.5 Alternative trade/ fair trade/democratised commerce

As we elaborated in Chapter 6.3.2, fair trade takes place with improved capability, partnership based on dialogue, transparency and the respect of small producers, traders and consumers, use of local technology, emphasis on productive employment, assurance of competitive wage, non-discrimination on the basis of gender, race and ethnicity and marginalized segment of the society, and respect of the environment. Fair trade is the instrument of alternative trade and can be understood as inclusive trade in a parochial sense. This alternative mode of trade helps reduce the middlemen's exploitation of producers and consumers by ensuring higher price of yield and better quality of consumables. Four major components of fair trade are: fair trade supply chains, labelling initiatives, branding and umbrella associations. We studied a Nepalese tea firm called Kanchanjanga Tea (KTE) that is involved with fair trading process.

As fair trade is principally expected to address all three fundamentals of green trade-led growth transition, we tried to evaluate the impacts in KTE context and found the following:

Figure 9.7: What an Alternative Trade Does?



KTE is the first certified organic tea garden in Nepal that produced organic tea and green tea for the first time. KTE RC was established with the objective of improving the living standard of the farmers in the remote village by increasing income without exploiting or disturbing the nature and selling the tea in international niche market. KTE registered in TransFair Germany as the first Nepali fair-trade producers in 1995. After two years, Fair trade group -Nepal was officially registered in 1997 by 9 handicraft producers. In our study, we discussed whether norms of fair trade in practice or not applicable in this firm. We found the following situation:

- ☞ Creating accountability is one of the ten widely agreed principles of fair trade mechanism. To maintaining transparency and dialogue with small producers, FLO BV usually sends experts for promotion of fair-trade by making stakeholders aware of trading mechanism and their role in fair trade supply chain. KTE is satisfied with this effort.
- ☞ The products mediated by fair trade certifying agency may contribute to income stability and lessen vulnerability since the payment of a fair price and creating opportunities for economically disadvantaged producers are two common principles of FT partnership, among others. The additional amount received (than that of BAU model of trade) from fair trade can be reinvested in productive assets. The guaranteed prices for producers' yield, long term contracts, availability of credits and investment in human capital enhances income stability and ameliorates vulnerability. In the case of KTE, fair trade partnership indirectly supports the achievement of the goal of income stability and decreasing vulnerability. Organizing awareness program by its experts for quality improvement (organic certification etc.), investing in gravity bridges to carry raw material to processing unit are some ways to enhance quality so that fair price of yield of small business holders can be guaranteed for long period of time.
- ☞ Democratizing business and environmental protection policies are parts and parcels of FTOs that is done in coordination and collaboration with and through advocacy in

international business and environment forum. However, KTE respondent does not see such experience typically related to Nepalese business case.

- ☞ Fair trade contributes to environmental sustainability since one of its ten principles is environmental stewardship. Fair trade organizations also jointly work with producers for climate change and democratizing policy making process. In the Nepalese case, such stewardship has been shown by conducting education/awareness program and promoting organic farming to some extent.
- ☞ Fair trade certifying agencies, in many cases, coordinate with government agencies for branding fair trade products. Some FTOs also have strategic plans and are committed to working as a partner of global grassroots movements and reforms in global trade paradigm in favour of justice by unlocking the power of disadvantaged producers and workers. While doing so, they advocate for small farmers' access to climate change adaptation technical support, finance and strengthening the voice and role of women. They also lobby for removing trade-distorting subsidies. However, such coordination is not seen in the Nepalese case.
- ☞ Labelling initiative is one of its four components of FT. As Witkowsky (2005) explains, labelling initiatives stress standard for environmental stewardship, working condition and minimum wages. We inquired whether KTE product is labelled specifically and what the impact of such labelling in trade competitiveness is. KTE respondent replied that their tea is exported to Germany with FLO logo. In their experience, sales of Nepali tea produced by KTE are rising and are being more competitive with such labelling.
- ☞ Fair trading initiatives are supposed to enhance great deal of product sophistication through their supply chains and branding. In Nepalese case, Handicraft Northern Organization motivates to improve quality to some extent through trainings. But there is no such product sophistication induced by FT mechanism in Nepalese tea sector.
- ☞ Continuous learning and feedback mechanisms help select new products or help improve/standardize the product being fair-traded. In the Nepalese case, fair trade marketing organizations are playing promising role providing demand of specific

product. Feedback mechanisms and product modification can be expected once Nepalese goods are better included in fair trade supply chains.

The conclusion of fair trade case study has been presented in table 9.6 below:

Table 9.6: Fair Trade Mechanism in Nepal for Trade-led Green Growth Transition

	<i>Queries</i>	<i>Responses</i>
1	Maintaining transparency and dialogue with small producers	Done fairly. For example, FLO BV sends expert for promotion of fair-trade.
2	Contribute to income stability and lessen vulnerability	Only indirectly by organizing awareness and quality improvement (organic certification etc.) of products and green facilities.
3	Contribution to environmental sustainability	Through education/awareness programs and promotion of organic farming.
4	Guarantee of fair price for small producers' yield	FLO fixing standard price, free trade premium and minimum price.
5	Role of fair trade in democratizing trade and environmental protection policies	Not significantly in Nepal.
6	Contributing higher value-addition in fair trade value chain	Yes. Directly through fair-trade premium and indirectly through sharing costs of social projects such as scholarship program
7	Contribution to labelling and its impact on improving trade competitiveness	Marketing Nepali tea with FLO logo in Germany. Sales of Nepali tea produced by KTE have been more competitive.
8	Coordinate with government for branding Nepali products	Not so far
9	Contributed to product sophistication by their supply chains and branding	To some extent in handicraft sector.
10	Learning and feedback mechanism for selecting new products or improving/standardizing the product being fair-traded	Fair trade product marketing organizations are playing promising role providing demand of specific product

In the next chapter (Chapter 10), we summarize the whole thesis, conclude the results of study and prescribe some adaptive strategic policies for successful green growth transition.

CHAPTER TEN

Conclusion, Policy Recommendations, and Areas for Further Research

10.1 Concluding Remarks

This thesis began describing how the GDP based economic growth approach is becoming obsolete along with a paradigm shift in national prosperity measurement. Not only economic prosperity but also the quality of human life and good ecology are the real wealth of nations. In recent decades, foreign trade has been the main source of national wealth. As competitiveness remains the foundation for neoclassical trade-led growth, so are inclusiveness and environmental sustainability for sustainable or green growth. The integration of all three fundamentals is required to generate growth that assures better quality of human life and the environment. For this purpose, green economy policies are taken as strategic policy options to enhance synergies among the ingredients of competitiveness, sustainability and inclusiveness in the trade sphere. Some well institutionalized and policy supported adaptive strategies may lead to a competitive trade-led green growth transition in both high income and low income economies having different growth trajectories. The conclusion of this dissertation is presented in accordance with the research questions initially established:

1. What do changes in national wealth concepts imply for trade-led growth strategies?
2. Does export competitiveness really deteriorate when sustainability and inclusiveness measures are incorporated? What are the debates and what are the evidences?
3. What might be an alternative trade-led growth paradigm and possible adaptive strategies that can address simultaneously the three fundamentals of competitiveness, environmental sustainability and inclusiveness?
4. How can such adaptive strategies be catalysed by incentive regimes for a trade-led green growth transition?
5. How can such adaptive strategies work for a trade-led green growth transition in low income economies like Nepal?

I. Changes in national wealth concepts and implications for trade-led growth strategies

The conclusion of this research question has been derived by intermingling two streams of literature: trade theories and recent wealth measurement initiatives including 'beyond GDP'. The accumulations of precious metals (gold and silver) as well as a large population were measures of national prosperity during the Mercantilist period, whereas fertile land and work force were considered as the wealth of a nation in Physiocracy. Similarly, Smith's theory of absolute advantage measures the nation's wealth by the living standards of its people, not by gold and silver. However, neither the Ricardian model of comparative advantage, nor the factor proportion model, nor neo-factor models specify the nature of wealth of nation. Subsequent New Trade Theories and trade competitiveness models explained causes and ways of trade competitiveness as the source of economic performance of a nation. In essence, neo-classical trade-led growth models condoned human and environmental factors in economic development processes.

The sustainable development approach sprouted in the late 1980s, taking into account the social (human) and ecological dimension along with the economic dimension of development. Through such a perspective, economic growth and markets (trade) are coming to be seen as means, and human development as the end. Rio Conventions, UNDP's human development reports, Beyond GDP initiatives and regional growth strategies such as Europe 2020 and others have broadened development thought and come up with some qualitative measures to be included in national prosperity accounting. Such evolution of sustainable development thinking has ultimately produced the green growth concept as the strategic course of action and a paradigm shifts in each of the contributors to national income accounts — production, consumption, investment, and foreign trade.

Such paradigm shifts in national wealth measurement has drawn the world's attention to rethinking and redefining trade-led growth policies, so that features of inclusiveness and environmental sustainability will be embedded into trade along with competitiveness. However, yoking these three fundamentals and producing synergies is only possible by selecting appropriate adaptive strategies that are supported by some government policy incentives.

II. Export competitiveness may not deteriorate when sustainability and inclusiveness measures have to be incorporated in trade regimes

Although synchronising elements of trade competitiveness, environmental sustainability, and inclusiveness, while deriving adaptive strategies is not entirely straightforward, trade may embed all three attributes simultaneously. In the meantime, some of their determinants/ elements are contrasting and therefore debilitate each another, though there is ample room for synergies. Beyond the hitherto trade theories, after a review of literature regarding trade-offs and synergies we conclude the following which:

- a. Sustainability competitiveness debate: Sustainable competitiveness is the capacity to generate growth not lowering the net-worth of natural and human capital. PHH explains how trade-offs take place (Temurshoev, 2006; Rodrik, 2013) whereas Porter's hypothesis considers pollution as the inefficiency and claims that synergy prevails over trade-off in long run and hence, advocates stringent environmental regulations in trade sphere (Porter & van der Linde, 2008). The synthesis of latest literature is that if supported by institutional and structural adjustments, environmental standards promote competitiveness by induced-technology-based higher efficiency, innovation-led resource productivity, skill-based human productivity, new market opportunity, and first-mover's advantage. In this sense, we suggest that the sustainability-competitiveness trade-off may be more of a fear than the reality.
- b. Inclusiveness sustainability debate: Inclusive sustainability is the capacity to lubricate human-centric growth through participative, empowered and environment-sensitive human resource. Some trade-off arguments in this regard are: (i) employment losses while moving toward green business (business-as-usual versus greening business); (ii) environmental standards worsens equity (environmental pricing, technology and capital intensity, skill, subsidy and crowd-out of pro-poor spending deteriorates equity); (iii) environmental regulations versus voice (natural resource dependency and centrally imposed regulations jeopardize voice/ accountability); and (iv) overall income and

welfare losses versus environmental sustainability (welfare impact of GHG emission reduction vs. long run benefit).

Synthesizing literature in this regard we conclude- (i) debates are mostly inconclusive; (ii) job losses may be substituted by export-led green jobs, (iii) In short run, adaptation cost may be high but pays later; and (iv) A careful reallocation of resources and adoption of inclusive sustainability measures are needed to avoid trade-off.

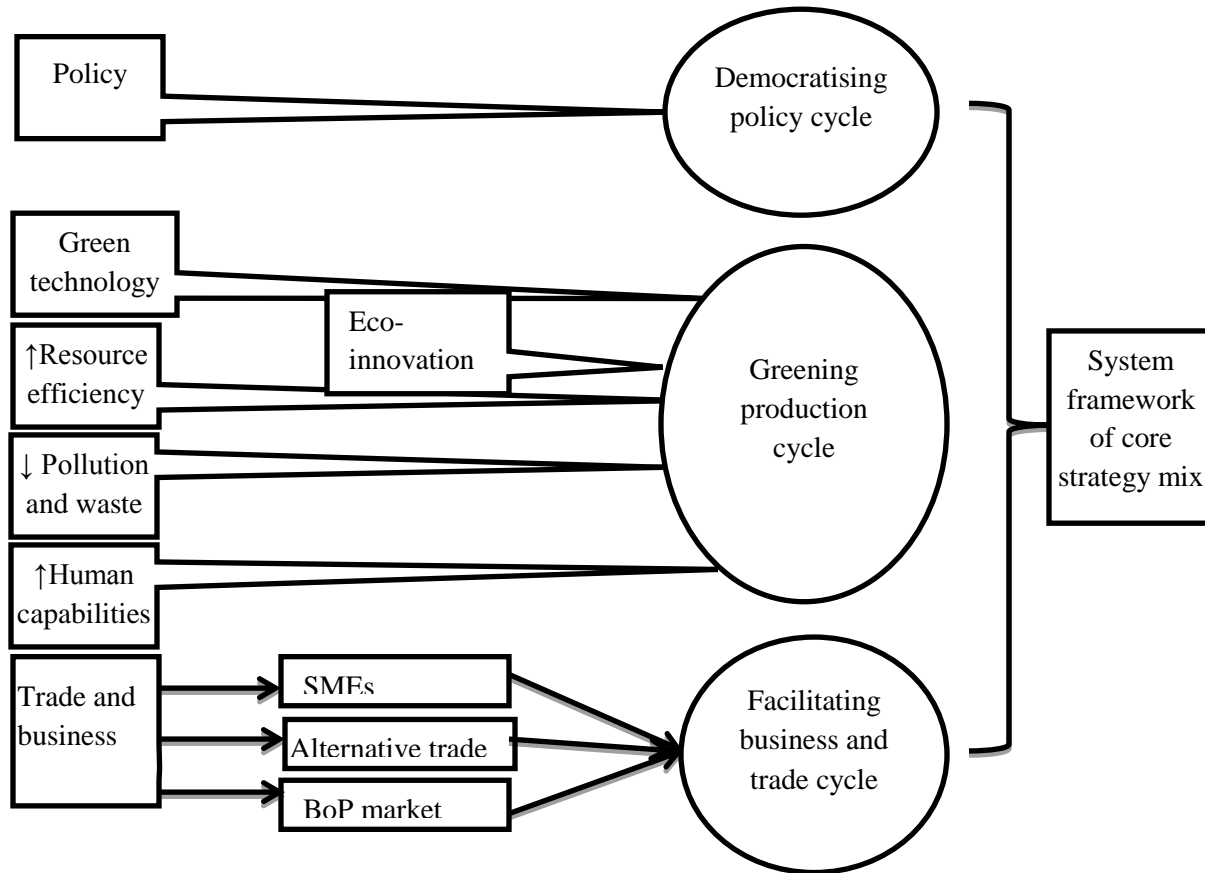
- c. **Inclusiveness competitiveness debate:** Inclusive competitiveness can be defined as the mechanism of bringing the neglected segment of society that inherits or is capable of certain skills or creative force into mainstream of innovation ecosystem, industry cluster or other areas where they can demonstrate their capacity. Reviewing literature, we came up with two kinds of trade-offs: (i) employment-competitiveness trade-off (marginalization of unskilled labour), and (ii) equity-efficiency trade-off. Synthesizing literature in this regard, we found inconclusive results but with some measures to alleviate trade-offs. Firstly, there is high chance of job-losses but green jobs and the resulting export share offsets the trade-offs. Secondly, there may not be equity-efficiency trade-off. Even if there is, it can be avoided by intergenerational transmission of human capital as wage elasticity of labour supply is quite small and efficiency consideration has shifted from static allocative efficiency to dynamic efficiency in output growth over time. Thirdly, inherent competitiveness may be achieved by traditional knowledge and skill transfer.

III. Trade-led green growth as an alternative policy paradigm and possible adaptive strategies to make it happen

The changed trade paradigm in which all three fundamentals are embedded can be named as trade-led green growth paradigm. To move in this direction, certain adaptive strategies are needed that enhances synergies among three fundamentals and debilitate trade-offs. After reviewing literature, we have derived some determinants of trade competitiveness and elements of environmental sustainability and inclusiveness. Then we conjugated likely components and

produced adaptive strategies for sustainable competitiveness, inclusive sustainability and inclusive competitiveness. The common strategies are considered as a core strategy mix. They are: democratizing policies and optimizing social capital; participative eco-innovation; collective accountability towards natural resources, pollution control and waste management; accessible, affordable and clean technology and; investment in human capabilities and productivity

These strategies can be broadly categorized in two interconnected cycles (policy cycle and green supply chain management (GSCM)) that completes the whole system approach of trade-led growth transition. GSCM encompasses through green product design, green material management, green manufacturing, green marketing and distribution and, reverse logistics; in other words, greening global value chain (GVC). For simplicity, GVC includes greening production cycle and economising/facilitating trade (by reducing cost before the border, at the border and behind the border) and business cycle. Core strategy mix and other adaptive strategies can be streamlined under these cycles as presented in figure 10.1 below:

Figure 10.1: Three Cycles for Trade-led Green Growth Transition

Source: Author

However, these strategies should be equipped with various policy incentives/interventions. Government intervention in this regard is justified on the following ground: (i) properly designed environmental regulations generate innovation offsets; (ii) to support national innovation systems; (iii) to promote investment in green technology; (iv) to catalyse the structural change induced by technological revolution needed to move towards green growth; (v) to internalize climate change externalities by policy instruments; (vi) to reallocate the externalities; (vii) to adopt an effective governmental framework for an efficient market; (viii) to set widely acceptable standards of exportable; (ix) to protect domestic firms from undue foreign competition induced by weaker environmental policies in trading partners; (x) to work as an

international player to harmonize sustainability measures in international trading system by negotiations; and (xi) to use trade policy as an effective policy instrument in green growth regime as it helps removing distorted subsidies, generating employment, reducing trade barriers against eco-products and, promoting technology liberalization.

IV. A system framework to catalyse "core strategy mix" by various policy incentives for successful green growth transition

We have proposed a system framework of adaptive strategies that explains how they may lead to competitive trade-led green growth transition if supported by institutions and policy incentives. As explained in Chapter Five, policy instruments (incentives) can be broadly categorized in two groups: (i) market based instruments (taxes, subsidies, emission trading system, pollution trading system and, deposit refund system) and, (ii) non-market instruments (command and control regulations, active green technology support policies, environmental management system and voluntary approaches). Each instrument has its strengths and weaknesses. The effectiveness of each policy instrument can be assessed with its cost effectiveness, adoption and compliance incentives, ability to cope with uncertainty, and facilitating international cooperation. However, appropriate timing and the magnitude of the required intervention are not universal. Rather, they depend on various factors such as private demand and supply situation, the rigidity to path dependency, sector-specific needs, prevailing technology, and others.

System framework of core strategy mix in chapter six explains the interplay between policy incentives and adaptive strategies under various cycles as mentioned in previous section. Adaptive strategies under these cycles (as depicted in figure 10.1) are briefly summarized as following—

A. Democratizing policy cycle

Democratizing policy cycle demands that each stage of policy cycle - policy design, formulation, implementation, monitoring and evaluation, and feedback mechanism should be democratized with meaningful participation of stakeholders so that real policy demand can be addressed and policy ownership is ensured. Democratizing trade, industrial and environmental

policy is essential to use trade as a means to pursue economic equity and social justice. Stokes and Choate (2001) claim, "No policy will be politically sustainable if it is not developed through an open, transparent process that accords all interested parties an opportunity for input" (p. 2). Identifying genuine stakeholders, ensuring their meaningful participation, reconciling conflicting interests, and making policy decision scientific, reliable, participatory and legitimate are major challenges in this direction. To incentivize policy democratization, government should provide legal framework and recognize the public participation.

B. Greening production cycle

Inclusive eco-innovation: Eco-innovation changes existing course of technological and behavioural development that leads towards sustainable, efficient, and effective use of resources that enhance the quality of goods and services ultimately leading to a reduction of the environmental impacts of the company while simultaneously enhancing its competitiveness. It has various dimensions: design dimension, user dimension, producer service dimension and, governance dimension (Carrillo-Hermosilla, del Rio González, & Könnölä, 2009). When eco-innovation is not inspired by the market with business perspective it needs certain government stimulus. Market failures and positive externalities of R&D (and resulting free rider's problem) may hinder the uptake of eco-innovation. Therefore, governments should accommodate innovation policy with environmental and industrial policy; provide public support for public and private R&D; use economic instruments, regulatory standards and technology standards to internalize negative externalities of environmental hazards; and combine price instrument with R&D and technology adoption to enhance cost effectiveness and foster investment in eco-innovation. While doing so, they should also avoid selection bias, choose appropriate incentive instruments, ensure cost effectiveness, cope with conflicting social pressures, and coordinate among other policies.

Green technology development and diffusion- making it accessible and affordable:

Trade-led green growth highly depends on green technological transformation. Environmental-based competitive advantage can be gained by green technology. It aims to enhance sustainability, cradle to cradle design, waste and pollution reduction, innovation for alternative

efficient technologies and viability. Among others, some areas of green technology are – green energy and energy efficiency, green building, green chemistry, green nanotechnology, environmentally- preferred public procurement and others. Industrial policy should incorporate green technology development and diffusion policy and promote clean energy technologies, ultra-low carbon technologies, and higher energy efficiency as the superior strategy in the long run.

By technology leap-frogging, newly emerging economies can reach the technology frontier quickly, as they bear comparatively low costs to abandon old pollution-intensive technologies (Copeland, 2012). However, technology lock-in may arise due to skill-set of workers, network effects, sufficient infrastructures, and other necessary backbones. Government should pay attention on human development plan, R&D incentives, and removing barriers that hinder technology adoption and diffusion. Clean technology flow-in can be promoted by removing import barriers, protecting IPR, and enhancing technology absorption capacity. Stringent environmental standards to buttress technology innovation, public private partnership for R&D and, green financing may be some additional strategies in this direction.

Efficient, accountable, and sustainable resource use: Resource efficiency is not only important for pollution control but also for cost competitiveness by cost reduction. Costs can be reduced mainly in two stages– (i) within the production cycle and, (ii) within the trade cycle. Within the production cycle, cost can be reduced with the synergy and complementarity of resource efficiency, advanced green technology, a highly skilled work force, and other process innovations. Resource efficiency in the production chain can be achieved by various means such as 3R (reduce, reuse and recycle), material substitution and dematerialization, less energy and high skill intensity, greater product durability, localization, cradle to cradle, bio-mimicry and eco-industrial park. Within the trade cycle, institutional effectiveness and administrative efficiency play important roles in cutting costs and making the exports competitive.

'Natural resource governance,' that is a 'set of strategies aimed at transparency and accountability of governments and private companies during the licensing, exploitation, contracting, extraction, revenue generation, and allocation of resources,' is the way to ensure

natural resource accountability in the industrial sector (Acosta, 2010, p. 1). It also promotes voices, rights and the participation of stakeholders. Voluntary resource accountability should be promoted linking with public relations for business. The South-South knowledge sharing platform, CSR, legal and regulatory regimes, the expanded use of indigenous autonomy regime, green public procurement, global reporting initiatives, and extended product responsibility may be some examples of government intervention in this regard (Khoday & Perch, 2012).

Participative pollution control and sustainable waste management: Resource efficient production process entails pollution prevention and control. The focus of clean production and pollution prevention/control should not be on end-of-pipe solutions but on strategies of continuously reducing waste within the process. Resource-efficient cost competitiveness is possible by reducing input at the source and preventing or reducing waste where it originates. Circular economy principle and greening the industrial ecology treat waste as secondary resources where recycled and recovered materials and energy are returned to economy creating new and higher skilled jobs. PSWM is a way to mainstream people and knowledge by involving them in policy decisions, empowering marginalised and resource-poor communities and protecting those detrimental impacts of environmental hazards and supporting them for healthier bread-winning opportunities.

Governments should support to build sufficient infrastructure and can engage local authorities and communities on community buy-in, to make waste management infrastructure more acceptable. Improving safety standards during the waste management cycle by providing skills, training and safety facilities, mobilising cooperatives and community groups, providing micro-credit, imposing volume-based fees for waste, increased curb-side recycling, expanded bottle bills, landfill methane recapture, waste to energy facilities, waste water treatment plant methane recapture, composting etc. are some examples of government intervention.

Investment in human capabilities and productivity: The level of human capital determines the absorption capacity of technologies because innovative technology and resulting technological accumulation has been possible due to highly educated and trained people. Human capability is positively correlated to newer technology adoption, total factor productivity and,

subsequent competitiveness, wealth creation and economic growth. Similarly, human capital and environmental quality are positively interrelated (Gupta & Chakraborty, n. d.).

To avoid skill bottlenecks and enhance human capabilities in the green trade regime, areas of attention include: providing quality education and training, up-skilling, deskilling and re-skilling, promoting R&D by establishment of and coordination among research laboratories, research institutions and innovation clusters, promoting cleaner technology adoption, providing work safety and a healthy environment, new job creation, and higher wage premium that help adapt human resource into competitive growth trajectories.

C. Facilitating trade and business cycle

Promoting SMEs and family business: SMEs represent about 95 per cent of all private sector firms in high income economies. They are considered as the engine of economic growth for they contribute in providing job opportunities and act as the suppliers of goods and services to the big business organizations throughout the world (Singh, Garg, & Deshmukh, 2008). They are not only the biggest employment generator but also contributor of 70 per cent of all global pollution (Hilary, 2000).

SMEs are considered as reactive to environmental issues due to small-scale, and ad-hoc changes in business activities (Scahper, 2002). They have a short decision making chain, higher flexibility, immediate feedback and response mechanisms, but face a big pressure to maintain competitiveness in the market. For sustaining competitiveness, they need to benchmark their assets, processes and performance with respect to the best industry (Singh, Garg, & Deshmukh, 2008). Such benchmarks will be more effective if it is in terms of quality to be more competitive in international market. SMEs as a part of green global value chain can have a higher competitive advantage along with the recent increasing demand for higher quality and green products, the concern of energy efficiency, minimal wastage, better environmental credentials, higher customer satisfaction, support from local community and staff commitment, relations with positive pressure groups, improved media coverage and the combination of all (Welford, & Gouldson, 1993; Simpson, Tayler, & Barker, 2004). In terms of inclusiveness, women,

indigenous people, and youngsters have opportunities of employment and self-employment in SMEs and family-run businesses. Moreover, local knowledge is absorbed mainly by SMEs.

Government can incentivise SMEs by promulgating enforceable compliance measures, increasing assistance with technology and process change, increasing access to finance and infrastructure, and investing in business training and environmental awareness. Similarly, regulatory standards, taxes and subsidies to control emission and pollution, controlling over-exploitation of natural resources and green public procurement further facilitates green SMEs and overall green growth transition. Self-regulatory ethical business initiatives such as eco-management and audit systems, and following international environmental standards are equally important.

Fair trade and democratising commerce: Inclusive trade or fair trade is an alternative trading mechanism for the small producers outside of the mainstream trading process in the global trade sphere. A fair trade mechanism has four major components, namely- fair trade supply chains, labelling initiatives, branding and umbrella associations. FTOs bypass exploitative middlemen and work directly with producers giving emphasis on ethical trading and ethical consumerism. In this direction, they have common principles to be followed worldwide. This trade mechanism enhances competitiveness by product sophistication, ameliorates inclusiveness by trade premium and income stability as well as providing opportunity to small firms, and supports sustainability by democratizing policy and environmental protection measures. On one hand producers further gain from stable prices, fair trade premium, partnership with fair trade institution and empowerment of farmers and workers; on the other hand, consumers have greater freedom of choice. Traders get higher credibility of product with fair trade mark and labelling of environmental standards. However, removing the concept of mercy-based trade and bringing it into mainstream, firms should move towards democratizing commerce and government should include fair trade rules in the trade policy. Joining hands with fair trade initiatives, prioritizing fair trade goods in the public procurement system, making necessary arrangement for better information to producers and awareness to consumers are some policy measures in this direction.

Base of the pyramid (BoP) business: At the bottom of global wealth distribution, there are more than four billion people who live on less than \$2 per day who represent a latent market of goods and services. BoP as a market provides private sector a new opportunity of growth and a forum for innovation because they can start their business with leap-frogging technologies.

BoP market can be made inclusive by partnering with poor to innovate, creating sustainable win-win situation where they are actively engaged in, and providing them profitable products and services, and creating the capacity of BoP people to consume. To be competitive, firms should produce competitive products targeted to those people (Prahalad, 2010). Considering their purchasing power, de-bundling of products or making affordable units, making single-serve units and others measures may be some tactics to make them able to consume.

Since domestic producers are well familiar with the ethno-cultural strength of these people, their BoP business strategies may substitute imports and help reduce a big environmental cost embedded into transport of such goods and their waste management. In terms of sustainability, BoP people have been using natural resources just for their survival. Making them aware that they are double disadvantaged people of environmental degradation, they become sincerely conscious. BoP market strategies can play crucial role in this direction. However, weak institutions coupled with alert entrepreneurs encourage destructive outcomes if entrepreneurship policies emphasize economic indicators only. Therefore, government should set economic goal accompanied by goal for social equity.

V. Adaptive strategies for a trade-led green growth transition in Nepal: Case study findings

To verify and understand the validity of adaptive strategies put forward in previous section in a specific context of a low income economy, we conducted case studies in two levels: policy executives and firm executives (in tea sub-sector) in Nepal. Two strategies- participative pollution control and sustainable waste management, and BoP business- were excluded due to poor relevancy. Finding of case studies is summarized in subsequent section.

10.3 Insights and Lessons Learnt from Case Studies

A. Democratizing policy cycle

Democratizing policy: Among policy executives, policy democratization is unanimously accepted as a welcoming approach of policy making to achieve expected policy outcomes. As more democratized policies (environmental policies in Nepalese context) are seen to be more effective, recent amendment practices in Industrial Policy and other supplementary policies were also made with extensive public-private dialogue. However, policy democratization in Nepal has not matured and has been further debilitated by less efficient institutional arrangement, less effective participation, poor policy coordination, lack of supplementary policies and timely amendments, unspecified monitoring instruments and mechanisms, as well as poor feedback and learning systems. Despite the high emphasis given to meaningful participation in recent policy updates, Nepal is striving to pursue more equitable and sustainable growth. Our study findings do not provide sufficient ground to generalise whether democratising policy cycle ensures competitiveness, sustainability and inclusiveness simultaneously for trade-led growth. However, nearly all policy makers in our case viewed the green growth paradigm as a possible way towards achieving trade-led green growth transition. We suggest conducting similar case studies in those economies where policy democratisation is more mature.

B. Production and consumption cycle

Eco-innovation: Lack of eco-innovation policy and very low level of fund for research and R&D depicts that eco-innovation is not a priority in factor-driven economies. As all respondents agree that Nepalese trade-led growth is debilitated due to the lack of dynamic knowledge-based society, promotion of local knowledge and technology as well as protection of IPR are foremost priorities to make a base for eco-innovation. Despite some problems such as insufficient legislation for eco-innovation policy, unattractive incentive mechanism and poor coordination among public sector, private firms, and research institutions/universities, the foundation of eco-innovation are there in trade, industrial and environmental policies. As such, we may not nullify that eco-innovation is important even for low income trade-based economies.

Accessible and affordable green technology development and diffusion: Green technology entails clean energy as well as energy efficient technologies such as green building, green chemistry, green nanotechnology and so on. However, Nepal Government has given high emphasis on clean energy production and distribution. Environmentally-preferred public procurement is an effective measure for green technology development and diffusion. Most of the respondents at policy making level were in favour of such procurement keeping in mind that it can save sufficient amount of energy, carbon and resources. Interestingly, private sector respondents opined that they preferred non-market support over direct support from government. This nullified the proposition that direct public procurement is an effective measure for promoting green technology.

In production and trading firms, cost incurred by green technology was increased for a short period (up to three years) but competitiveness was enhanced along with the adoption of green technology. Cost effectiveness and energy efficiency was high in transitioning and green firms even in the short run against the popular notion that technology leapfrogging raises costs in the short run, although BAU firm has expressed such fears. The Nepalese government provides negligible incentives for green transformation and capacity development. Despite that, technology inertia and technology lock-in were not barriers to green technology adoption and green transformation.

In case of green technology imports, Nepalese tea firms preferred direct technology support instead of foreign direct investment. They found local green technology equally effective. However, R&D provision for green technology development was found only in fully organic tea firms. This study reveals new insights contrary to the widely argued notions regarding green technology transformation and its relations with technology-lock in, inertia, green public procurement and FDI.

All firms considered policy instability as the main barrier and demanded strong enforcement mechanisms, coordination and stable leadership at the policy level. These issues should be addressed by government intervention.

Efficient, accountable and sustainable resource use and participatory waste management: There was no resource efficiency during the first phase of resource inputs; however, zero waste productivity was realized in greening firms in second phase. Resource accountability was seen in fully green firms. Transformation towards green production and processing technologies has led to better relations with local people. Most propositions were supported. However, local observation and interaction with firms' executives revealed that there was no government support for greening production and trading process so that efficient, accountable and sustainable resource use can be ensured. These issues should be addressed by the government.

Investment in human capabilities and productivity: Although the Nepalese Government is ready to embark on a green growth path, there is no human capability development in this direction. There are no sector-wide human development plans at a macro level for this purpose. Routine types of human capital development programs are in practice.

At the firm level, greening process has enhanced workers health and safety. There were neither the job losses nor a deterioration of competitiveness during the green product transformation, as workers could easily adapt themselves with new skills. Workers are getting wage premiums, though nominally. Only parallel and fully organic firms have human productivity and capability development strategies.

This scenario also nullifies the assumption that green transformation causes job losses. However, this result may be due to less technology intensity of skills. However, practices in organic firms may be replicated in other firms with regard to green transformation.

C. Business and trade cycle

SMEs: One very interesting revelation is that Nepalese tea firms do not consider environmental issues as threats to their business, and they are instead perceived as opportunities. The loss of competitiveness during the green transition phase was also rejected. The total yield was decreased, but competitiveness was not in the short run. They found multiple advantages to the green transformation. Quality, cost and asset benchmarking was set to enhance competitiveness. Cooperatives and coordinated networks strengthened the supply chain and promote

inclusiveness and higher profitability through networks and self-employment generation. Nepal's tea sector SMEs are highly inclusive in terms of employment and income generation. However, they are facing various hurdles such as labour shortages, loss of the high income market, supply side constraints, poor customs facilitation, lack of brand and costly organic certification, expensive quality control mechanisms etc.

Organic tea firms can be ideal to promoting inclusiveness in other firms, but the government has much to do to incentivize SMEs to embrace the green transformation.

Fair trade/alternative trade: Propositions regarding fair trade/inclusive trade were accepted. It means, fair trade mechanisms support the policy democratization of business and environmental policies; creates accountability, transparency and dialogue with small farmers; contributes higher value-addition directly by fair trade premium and indirectly by sharing costs of social projects; guarantees fair price for small producers and ensures income stability (only indirectly in our study case by quality promotion and awareness building) and lessens vulnerability; supports labelling and product sophistication to enhance competitiveness but not branding yet; contributes environmental protection by awareness campaigns and promoting organic products; and through learning and feedback mechanism for selecting new products.

Despite the fact that these propositions were accepted, a single case study is too small to generalize. However, it gives an important insight into mainstream fair trade and to seek FTOs support for branding of Nepalese products. The government can stipulate fair trade rules.

Following the insights from the previous section and Chapter 6.3.10, some policy recommendations are given below:

10.4 Policy Recommendations for Nepalese government

1. Democratizing policy cycle

- ☞ While formulating policies, a mechanism of clear job specification and coordination between public and private sector should be ensured and proactive policy perspective should be at hand.
- ☞ Trade-related policy decisions should not be influenced by myopic interest group rather government should ensure its relative stability.

- ☞ Efficient institutional arrangement, effective participation mechanism, better policy coordination across growth sectors, sufficient complementary policies and their timely amendments should be the basics of policy democratization and subsequent outcomes of competitiveness, inclusiveness and sustainability.
- ☞ Instruments and appropriate feedback and learning mechanism should be developed to monitor the accountability, supportability and legitimacy of public policies. Numerous policy oversight bodies may not be effective.
- ☞ Government should recognize and validate policy democratization process.

2. *Production and consumption cycle*

(a) To promote eco-innovation:

- ☞ Eco-innovation policy should be incorporated into environmental policy.
- ☞ Appropriate strategies should be in hand to promote dynamic knowledge based society.
- ☞ Coordination among public and private research institutes and universities should be established and sufficient fund should be allocated for R&D.
- ☞ In addition to clean energy, Nepal government should promote other green technology with appropriate incentives (command-and-control and market-based incentives) accompanied by capacity development programmes.
- ☞ An amendment in Public Procurement Act is recommended to incorporate green public procurement.

(b) To make green technology accessible and affordable and its development and diffusion:

- ☞ Short run compensation/ incentives should be given to the firms that are shifting toward green production and trading process.
- ☞ Green financing facilities should be in place for green growth transition.
- ☞ Information about government incentives should be well disseminated.
- ☞ Greening business firms should be provided with justifiable subsidies and other non-monetary supports such as fixing minimum price, branding, trade mark registration, protection of IPR, laboratory and third party certification facilities, establishment of

accreditation board to foster the recognition of Nepalese laboratories internationally, marketing, and other means of economic diplomacy.

- ☞ Government should emphasize on direct technology transfer. FDI should be carefully accepted.
- ☞ Government should develop strong enforcement mechanism, coordination and stable leadership at policy level.

(c) To promote efficient, accountable and sustainable resource use and participatory waste management:

- ☞ Policy makers need an extensive exercise on how to incentivise resource efficient technology imports and/or inducement, green energy, eco-innovation, and R&D. Though not revealed by case study finding, government can promote recycling facilities, waste management infrastructure, community buy-in, support to cooperatives and local communities participating waste management to recover materials and energy. Various taxes and duties may be imposed to discourage waste.
- ☞ Green procurement, encouraging CSR, green labelling and socially responsible investment should be promoted.

(d) To enhance human capability and productivity:

- ☞ Human resource development plan should be more specific and concrete.
- ☞ A proper mechanism should be in place to support research, investigation, skill development, entrepreneurial skills and negotiation skills. Each growth sector should have human resource development plan.
- ☞ A proper coordination mechanism is needed to make networks among research institutions, private sector, universities and public sector.
- ☞ Government may replicate workers health and safety standards from organic firms to other business firms.
- ☞ Secondary and tertiary education including vocation training in macro level.

3. *Business and trade cycle*

(a) SMEs and family business

- ☞ Appropriate policies should be formulated to retain labour force and complementary employment opportunities (such as in tea-tourism) during off season.
- ☞ Unhindered en route facilitation and customs procedures should be in place. Necessary infrastructure should be established at customs points so that imports of low quality and potentially harmful products can be stopped and other customs facilitation can be done.
- ☞ Specific standards and regulations in line with SPS measures should be in place.
- ☞ Government with private sector participation shall develop necessary infrastructure for tea auction in international market.
- ☞ Government should support branding, organic certification, and reduce expensive quality control expenses.
- ☞ Government can conduct interactive education system to enhance local knowledge and skills.
- ☞ Government may assist on training for comprehensive marketing information and collective bargaining powers.
- ☞ Increase access to finance, assist in technology and process change is needed.
- ☞ Support tribal market.

(b) Fair trade

- ☞ Trade and its related policies should address fair trade promotion strategies.
- ☞ Government may coordinate with FTOs for branding Nepali products.
- ☞ Government may conduct campaigns for informed consumer choices, public procurement and self-regulatory initiatives.

10.5 Research Implications

10.5.1 Theoretical implication

The neoliberal trade paradigm is often criticised as dominated by oligopolies and big conglomerates, significant concentration of power and political influence in small but powerful economic elites, highly motivated by profit, and a poor democratic process of low intensity with

reduced participation and strongly influenced by money and interest groups. This has been accompanied by irregular growth paths, large inequality of income and wealth, fragmentation of entrepreneurship and, an increase in the frequency of economic and financial crises (Solimano, 2014). This indicates a need of paradigm shift with better policy democratisation and incorporation of socio-environmental concerns in policy design. This study may be a milestone for theory building in the context of trade-led green growth transition as we have come up with some encouraging findings regarding various debates and discourses on interrelationship between competitiveness, inclusiveness and environmental sustainability.

The findings from debates (Chapter Four), the eclectic framework of trade competitiveness, the Green Box System Framework for adaptive strategies and, case study findings may be some good references in the direction of theory building in the context of green growth paradigm.

10.5.2 Policy implications

A green economy framework has been widely adopted by many countries in recent years irrespective of the strength of their respective economies. As growth trajectories more prominently reveal the sector of comparative advantage, all kinds of economies can adopt it in their respective high potential growth sectors. Additionally, findings regarding the way in which the democratizing policy cycle influences all three fundamentals of trade-led green growth, may be an insight for policy makers.

In the case of Nepal, the Planning Commission of Nepal has recently adopted a green economy framework. Forthcoming amendments in sectorial policies will most probably incorporate green growth policies sooner or later. And the development of system frameworks and adaptive strategies may work as a guideline for Nepalese policy makers. Additionally, the finding of case studies within the Nepalese context will provide input to formulate or amend respective policies in the days to come. The NPC can use the research findings to elaborate their green economy framework basically for trade sector.

10.5.3 Academic implications

Literature on the green economy paradigm of economic growth and development is in its infancy, as it does not have a long history. Further, literature on trade-led green growth is very limited. Therefore, streamlining debates and trade-offs in this regard and theorising the stream of green growth literature is a new field of study.

The concept of inclusive competitiveness and inclusive sustainability are quite new strands of green growth literature. The inception we have presented may be the base for further research in this direction.

In sum, this thesis gives much to further build upon with regard to trade-led green growth and possible relevant strategies, along with new concepts that we have conceptualized.

10.5.4 Practical implications

For the first time, the South Korean government realized the potential of green growth and announced 'low carbon green growth' as its national vision and development in August 2008 – even before the financial crisis. "The financial crisis that broke out in late September 2008 triggered many governments to incorporate provisions for green jobs, a Green New Deal and a green economy in their stimulus packages (ESCAP, 20.., p. 17). When UNCSP adopted green economy as one of the two themes for Rio+20 in 2012 in the context of sustainable development and poverty eradication, its relevance has been highly underscored.

However, a green economy is widely and mistakenly understood as the replacement of sustainable development or the economics of climate change. But the fact is that it is just a vital component of sustainable development. Even the proponents have not come up with specific green growth strategies in many growth sectors. This paper tries to identify some important strategies to be incorporated in the green business trade. Case study findings related to "production and trade cycle" at firms and industry gives some important insights for firm level managers of firms in greening process.

10.6 Confession and Areas for Future Research

- ☞ The trade-off literature in 'inclusive sustainability' and 'inclusive competitiveness' is at its embryonic phase. Therefore, given debates can be further extended or countered.
- ☞ The eclectic framework of 'determinants of trade competitiveness' has only qualitative features. Quantitative indicators of each determinant can be developed and tested with econometric tools to measure the trade competitiveness of an economy.
- ☞ Adaptive strategies can be added or countered that we have proposed as the 'system framework of adaptive strategies for trade-led green growth transition'.
- ☞ The case study conducted at the policy executive level may not be sufficient enough to draw a conclusion. The experience of policy democratization practices in Nepal was interviewed with only five high level policy executives. Although they have extensive experience and what they say may be considered highly authentic, their horizon of knowledge regarding the green economy might have created limitations. A bigger participation might lead to higher generalization.
- ☞ As we have selected the agricultural sector and tea sub-sector for firm level case studies in a discretionary way, there may be sampling bias. Greening production and trade cycle can be tested in other potential growth sectors too.
- ☞ Case studies conducted at the firm level may have limitations and drawbacks regarding the sample size of the interviews, targeted respondents, set of questionnaires, selection bias and others. There are 140 registered tea estates in Nepal and 40 tea processing factories in private sector. Selecting only 5 tea processing factories represents only 12.5 per cent. And each of them has different modes of processing and trading. It may not be sufficient enough to compare and contrast.
- ☞ While conducting the case study at the firm level, we could not make observations of tea plucking, transportation, processing and packing practices due to the off-season in tea processing industry. A mixed method of field observation and interviews could generate higher reliability and robustness of research findings.

- ☞ Poor quantitative data might have limited the triangulation and cross-validation of research conclusions.
- ☞ This paper is almost a qualitative one. Econometricians can develop empirical framework to test the robustness of the findings.
- ☞ Inclusive institutions, the most important arrangement needed for policy implementation have not been dealt with in this paper. It may be an important aspect to explore in the context of the green economy regime.

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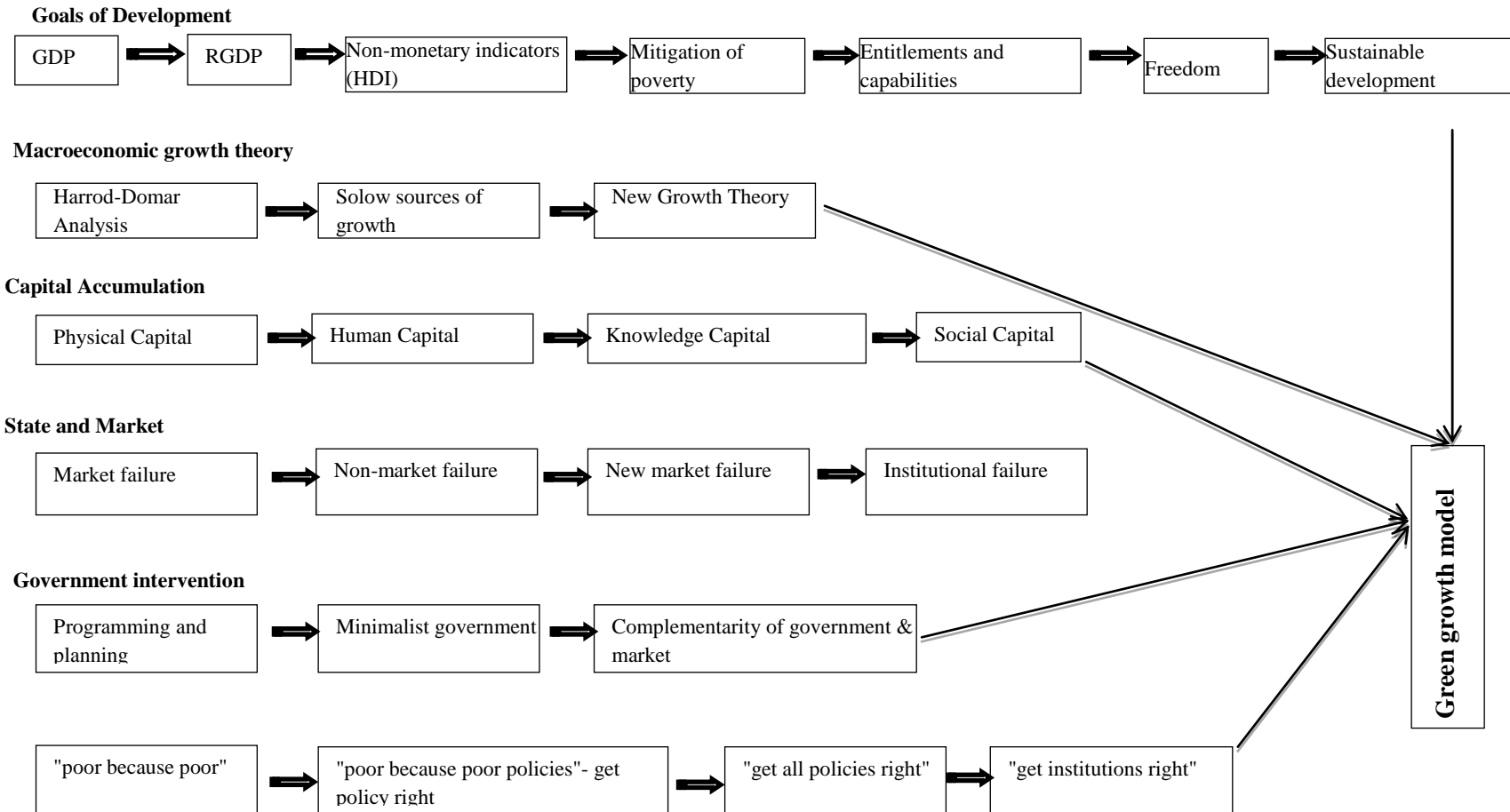
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Annex 1: Evolution of Development Thought



Adapted from: *Frontiers of Development Economies: The Future in Perspective*, p.3 (Ed. Gerald M. Meier and J.E. Stiglitz)

Annex 2: Trade Competitiveness and its Determinants According to Various Theories, Models and Research Evidences

Competitiveness theory/ model	Broad determinants	Broad determinant depends on...	
Porter's diamond (1990)	Factor conditions	Skilled human resources, physical resources, knowledge resources, capital resources and infrastructures, technology base	
	Demand conditions	Trend-setting local market, size of home demand and sophistication of home country buyers	
	Firm's strategy, structure, rivalry	Innovation and quality improvement	
	Related and supporting industries	Support from competing local industry clusters	Learning, innovation, operative productivity
	Government and chance	Government's role and luck	
Generalized double diamond model (Rugman, Moon and Verbake, 1998)	Domestic diamond	Country size and competitiveness (as explained in Porter's diamond)	
	International diamond	Nation's competitiveness determined by domestic and international parameters	
	Global diamond	Fixed within a foreseeable period of time	
Competitiveness triangle (Lall, 1999)	Firm level competitiveness	<ul style="list-style-type: none"> • Learning process (external linkage, organizational change, information and skills) • Government (Remove technology deadlock and market failures) 	Incentives: macroeconomic environment, trade and industrial policy, domestic demand
	National level competitiveness	<ul style="list-style-type: none"> • Firm-level learning process (their cost-effectiveness, efficiency, predictability, uncertainty and lengthiness) • Strength to cope with newer technology • Institutions: bodies that support industrial technology 	Factor market: skills, finance, technology and access to information, government intervention for developing human capital
System framework of competitiveness and growth (Hamalainen, 2003)	Techno-economic core of the system	Productive resources, technology, organizational efficiency, product market efficiency, external business activities	
	Framework conditions	Government policies and activities, formal and informal institutions	
Research evidences:	(a) Hausman, Hwang, & Rodrik (2007)	Goods produced at higher quality spectrum	Physical and human capital, labour, natural resources and quality of institutions

	(b) Sakho, and Welkonhorst (2008)	i. Incentive for actual and potential exporters	
		ii. Backbone services	Energy, logistics, finance and security, information and communication technology
		iii. Macroeconomic factors	Business environment, inflation and foreign exchange rate, trade policy, foreign direct investment policy, trade agreements, and en-route facilitation
	(c) Hidalgo, Klinger, Barabasi, & Hausman (2007)	Product upgradation, network of relatedness	
	(d) Farole, Reis, & Wagle (2010)	i. Level/volume/share of exports, ii. Diversification of exports iii. Export quality and sophistication	
	(e) Fujimoto, & Shiozawa (2011)	Micro-micro loop	Micro-level: organizational capability, technology, relative productivity Macro-level: exchange rate, relative wage rate (productivity in-terms of wage), world-wide price structure
(f) World Economic Forum (Sala-I-Martin, 2012)	(i) Institution (ii) infrastructure (iii) macroeconomic environment (iv) health and primary education (v) higher education and training (vi) good-market efficiency (vii) labour-market efficiency (viii) financial market development (ix) technological readiness (x) market size (xi) business sophistication, and (xii) innovation		

Annex 3: Green Growth Accounting Indicators

(A) ISEW

As defined by Jackson, McBride and Abdallah (2007), "The Index of Sustainable Economic Well-being (ISEW) is an adjusted economic indicator which attempts to incorporate costs and benefits not traditionally measured in monetary terms; it brings together a wide range of economic, social and environmental issues into one analytic framework" (p.1).

Mathematically,

$$ISEW = C_P - C_{Pd} - II_a + C_{G(nd)} + LV_d + E_a - ED - NC_d$$

Where,

ISEW = Personal consumer expenditure (C_P)

- Defensive private expenditures (C_{Pd})

- Adjustment for income inequality (II_a)

+ Public expenditures (deemed non-defensive) → ($C_{G(nd)}$)

+ Value of domestic labour and volunteering (LV_d)

+ Economic adjustments (E_a)

- Costs of environmental degradation (ED)

- Depreciation of natural capital (NC_d).

(B) GPI

Similarly, Genuine Progress Indicators (GPI) is a sum of consumption, investment and foreign borrowing adjusted with some values, services, losses and costs. As redefined by Talberth, Cobb and Slattery (2006). In terms of mathematical equation

$$\textit{Genuine progress indicator (GPI)} = \textit{Personal consumption} + \textit{Income distribution index} \mp$$

Weighted personal consumption + Value of housework and parenting + Value of higher education + Value of volunteering + Services of consumer durables + Services of highway – (Cost of crime + Loss of consumer durables + Loss of leisure time + Cost of underemployment + Cost of household pollution abatement + Cost of auto accidents + Cost of water pollution + Cost of air pollution + Cost of noise pollution + Loss of wetland + Loss of Farmland + Loss of primary forest + Resource depletion + CO₂ emission damage + Cost of ozone depletion) + Net Capital investment + Net foreign borrowing

These green GDP indicators such as GPI and ISEW have policy implications that are demonstrated by various peer reviewed studies. They can provide useful insights for policy makers seeking to implement broader sustainability goals (ibid.). Talberth and Bohora (2006), using GPI and ISEW time series data for the first time, to analyse the welfare effects of policy change- the trade openness- find that there is a strong negative correlation between openness and green GDP and a strong positive correlation between openness and the gap between traditional and green GDP. It invokes us to rethink about the laissez-faire type of openness.

(C) Natural capital perspective and SEEA

With natural capital perspective, national Wealth is taken as the combination of three kinds of capitals- manufactured capital, natural capital (water, forest, and other ecosystems), and social capital (entrepreneurship, innovation etc.). Natural capital is categorized into two namely- visible and invisible natural capital. Visible resources that we can easily recognize and measure are: minerals, energy, timber, agricultural land, fisheries and water. Invisible natural capitals are those that cannot be readily captured in the markets. In another sense, they are natural services such as air and water infiltration, pollination of crops, carbon storage, flood protection, and habitat for fisheries and wildlife.

Together with GDP, natural wealth account gives a better picture of sustainability prospects of long term growth. Existing accounting called the UN System of National Accounts (SNA) provides an international standard for measuring national income, saving, some produced capital and other elements of growth.

The UN Statistical Commission, in February 2012, has approved the System of Environmental and Economic Accounts (SEEA) as an international statistical standard that incorporate natural capital accounting. SEEA, as introduced in chapter 3.2.2, does not replace existing SNA but provides guidance to compile the following accounts for any country-

- a. Asset accounts: stock of natural resources such as land, forest, soils, minerals, water, fish and energy, and their changes over time presented in physical and monetary term.
- b. Physical flow accounts: the information regarding the use of energy, water, other materials, air and water emissions from economic sectors.
- c. Monetary accounts: environmental taxes and subsidies, environmental protection expenditures and resource management expenditure (ibid., p. 15).

Such new indicators are rapidly being recognized and adopted in many countries. Institutionally, In February 2012, the UN Statistical Commission approved the SEEA as an international statistical standard like the System of National Accounts (SNA). Approval of SEEA was a fundamental departure toward natural capital accounting. To put in practice, the World Bank initiated partnership called WAVES (Wealth Accounting and the Valuation of Ecosystem Services) is supporting various countries to move toward natural capital accounting.

Over 50 countries and 86 private companies have joined forces behind the move to factor the value of natural assets into business decision-making and country's systems of national accounting whereas some 24 countries regularly compile at least one account as of the end of 2012. Mexico, Colombia, South Africa, and the Philippines are some less developed countries to mention. The Convention on Strategic Plan for Biodiversity (SPB) 2011-2020 held in Nagoya (Japan) in 2010 has provided a clear target on natural capital accounting. It is recommended that by 2020 biodiversity values are to be integrated into local development and poverty reduction strategies and incorporated into national income accounting and reporting system (WAVES, 2012, p. 15)

(D) eSNI

Hueting (2011a) defines environmentally sustainable income (eSNI) as the maximal attainment of production level by which vital environmental functions remain available for future generations, based on the technology available at the time. It means eSNI gives the information about the distance between the existing situation and a sustainable situation. When the distance increases, it signifies that society is drifting farther away from environmental sustainability and, vice versa. Hueting (1981, 1992) concludes that

the bulk of national income growth accumulated by industrial production contributes the highest of environmental function in production as well as in consumption. Increase in productivity measured in terms of industrial production is much higher than that of other sectors in the economy. It means the real price of such products decreases significantly after adjusting with environmental functions, typically for those products that are highly burdening on the environment.

This concept essentially indicates that an increase in production and consumption of environmentally less burdening products may lead to better eSNI growth. However, Hueting (2011a) advocates that social welfare can be enhanced without increasing nominal production growth that is measured in terms of popularly used GDP figures.

(E) Adjusted Net Saving (ANS)

ANS measures the true rate of saving in an economy after the adjustment of investment in human capital, depletion of natural resources, and damage caused by pollution. This indicator aims to assess economic sustainability of an economy. If such saving is positive, nation's wealth will grow over time ensuring future generations enjoy at least as many opportunities as current generation (Word Bank, 2012a). Mathematically,

$$ANS = \text{Net national saving} + \text{education expenditure} - (\text{energy depletion} + \text{mineral depletion} + \text{net forest depletion} + \text{damage from carbondioxide emission} + \text{damage from particular emmission})$$

ANS monitors whether depletion of natural capital, such as minerals and forests, is compensated for by investment in other assets, such as human capital or infrastructure...[it] measures the real difference between production and consumption, lacking into account investment in human capital, depletion of natural resources, and damage caused by pollution (The World Bank, 2012b). A positive ANS is the indication of an economy on a sustainable path. It means that a country is adding its overall wealth.

(F) OECD green growth indicators

The OECD has developed 18 green growth indicators under five broad categories that show the trend of green growth. They are-

1. The socio-economic context and characteristics of growth
 - (i) Real GDP (index 1990=100)
 - (ii) Population density (inhabitants per km²)

2. Environment and resource productivity
 - (i) Production based CO₂ productivity (US\$ per kg. of CO₂)
 - (ii) Energy intensity (US\$ per ktoe)
 - (iii) Energy intensity (toe per capita)
 - (iv) Renewable energy supply (per cent TPES)
 - (v) Non-energy material consumption (DMC)
 - (vi) Non-energy material productivity (US\$ per kg)
 - (vii) Biotic material productivity including wood and biomass for food and feed (US\$ per kg)
 - (viii) Abiotic material productivity incl. industrial minerals and metals (US\$ per kg)
3. Monitoring the natural asset base
 - (i) Available freshwater resources (thousand m³ per capita)
 - (ii) Total freshwater abstraction (thousand m³ per capita)
4. Monitoring the environmental quality of life
 - Population connected to public sewerage (per cent total population)
5. Monitoring economic opportunities and policy responses
 - (i) Public spending in environment-related RD (per cent total public spending)
 - (ii) Green Patents (Index 1990=100)
 - (iii) Patents - Electric and hybrid vehicles (per cent total PCT patents)
 - (iv) Patents - Energy efficiency in buildings and lightning (per cent total PCT patents)
 - (v) Patents - Renewable energy (per cent total PCT patents)

(Source: http://stats.oecd.org/Index.aspx?DataSetCode=GREEN_GROWTH)

Annex 4: Various Policy Instruments Applicable to Trade-led Green Growth

Instrument categories	Name of instrument	Specific instrument	Purpose	Procedure	Good at	Weak at
Market based instruments and fiscal measures (taxes and trading schemes)	Emission permits systems or emission trading systems	Cap-and-trade permit systems	<ul style="list-style-type: none"> – To reduce air pollution (SO₂, NO_x) – To reduce GHGs (CO₂) – Others: water management and fisheries, agricultural nutrients 	<ul style="list-style-type: none"> – Overall limit on the amount of particular pollutant is set by the central authority which then issues pollution rights or permits equivalent to the ceiling with these conditions: <ul style="list-style-type: none"> – Essential institutional capacity and sufficiently large market are needed – Environmental damage depends on the overall amount of pollution not on location, time or source of pollution) 	<ul style="list-style-type: none"> – Initial rules and conditions have distributional impact – Certainty over pollution emission level – Dynamic efficiency- provides incentives for innovation to reduce abatement reduction cost – Natural mechanism for financial transfers 	<ul style="list-style-type: none"> – No impact on economic efficiency – Steep learning curve, strong learning-by-using effects, high start-up administrative and transaction cost – Potential price volatility and frequent adjustment – Concerns about income distribution and competitiveness – Weak adoption incentives
		Baseline-and-credit permit systems	<ul style="list-style-type: none"> – To foster a clean development mechanism (such as the Kyoto Protocol) 	<ul style="list-style-type: none"> – Imposing a minimum performance commitment relative to some pre-set baseline profile of emission. At the end, participant claim 	–	–

				credits for the amount of emission reductions relative to the baseline and which is traded		
Fees, taxes and charges (on pollution or exploitation of natural resources)	Taxes or charges directly applied to the pollution source	<ul style="list-style-type: none"> - When cross-border spillovers are important, - When cap-and-trade has insufficient capacity or scope - When public-good market failure is not dominated by monitoring and information costs 	<ul style="list-style-type: none"> - Imposing direct tax on CO₂, NO_x, SO₂ emissions 	<ul style="list-style-type: none"> - Can raise revenue - Continuous incentives to innovate - Implementation can be done through existing national institutions - Tends to equalize pollution abatement costs 	<ul style="list-style-type: none"> - High monitoring cost - Uncertainty about pollution emission level - Poor predictability of future policy adjustments 	
	Taxes and charges on inputs or output of production process	<ul style="list-style-type: none"> - To prevent environmental degradation - When public-good market failure is not dominated by monitoring and information costs - When pollution sources are small and diffuse - When environmental damage depends on the overall pollution amount rather than source timing or location 	<ul style="list-style-type: none"> - Imposing tax and charges on the proxy of pollution such as vehicle, fuel, pesticides, fertilizers and packaging 	<ul style="list-style-type: none"> - Lower monitoring and administrative costs - Implementation can be done through adjustment of existing taxes 	<ul style="list-style-type: none"> - Poor adoption incentives become weak by costs that are more visible than with permits - Effect on income distribution and competitiveness 	
	Negative tax on neutral or environmentally friendly activities	<ul style="list-style-type: none"> - To encourage a switch towards activities that cause smaller or no negative externalities 	<ul style="list-style-type: none"> - 	<ul style="list-style-type: none"> - Preferred over tax 	<ul style="list-style-type: none"> - Puts budgetary pressure 	
	Deposit	<ul style="list-style-type: none"> - 	<ul style="list-style-type: none"> - Charge for 	<ul style="list-style-type: none"> - 	<ul style="list-style-type: none"> - 	

		refund schemes		disposal of a consumer product combined with a subsidy for returning it to a certain collection point		
Expenditure instruments	Fiscal measures (Subsidies)		<ul style="list-style-type: none"> - When enforcement of alternative pricing instruments is difficult or costly it is given to substitute 'dirty' activities 	<ul style="list-style-type: none"> - It is designed for a limited-time period and with minimal secondary effects 	<ul style="list-style-type: none"> - High adoption and compliance incentives relative to permits and taxes 	<ul style="list-style-type: none"> - Large budgetary costs - Uncertainty about impact on negative externalities - No incentive to search for cheaper abatement costs - 'Resource trap' into subsidized clean activity
Non-price instrument or NMBIs	Command and control or regulatory standards	Performance standards	<ul style="list-style-type: none"> - When there is no adequate proxy for pollution that could be object of taxation - Pollution control at source is expensive or infeasible - Weakly responds the price signals - Pollution emissions can be measured from application of technology 		<ul style="list-style-type: none"> - Provides flexibility to search for cheapest option to meet the standard - High adoption and compliance incentive - Certainty over pollution emission level - Preserve incentives to innovate to reduce costs of meeting standards 	<ul style="list-style-type: none"> - No natural tendency towards marginal abatement cost equalization - Potentially high administration costs - Weak adoption incentives - More information required than for permits and taxes to ensure efficiency and effectiveness
		Technology standards	<ul style="list-style-type: none"> - Pollution control at source is expensive or infeasible - When there is high administrative cost - Abatement costs are relatively homogeneous across agents 		<ul style="list-style-type: none"> - Low monitoring costs - High adoption and compliance incentives relative to pricing instruments - Certainty over individual unit of 	<ul style="list-style-type: none"> - Does not provide the flexibility to search for cheaper abatement options - Cannot be easily adapted - No incentives to innovate

					pollution emission level	
	Active technology support policies		<ul style="list-style-type: none"> - It is provided to those technology areas where market size and learning-by-doing effects are dominant 	<ul style="list-style-type: none"> - By providing infrastructures in areas where network consideration is important 	<ul style="list-style-type: none"> - High adoption and compliance incentives - High investment incentives for R&D for new technologies 	<ul style="list-style-type: none"> - No direct impact on negative environmental externalities - May condone cheaper abatement options - Potentially large budgetary cost and deadweight losses - Uncertainty about the pollution emission level
Voluntary approaches	Voluntary agreements, information disclosure schemes and product related policies		<ul style="list-style-type: none"> - When the authorities can put strong pressures or credible threat of follow up action - Where information is not expensive to acquire 	<ul style="list-style-type: none"> - 	<ul style="list-style-type: none"> - Contribute to information collection and dissemination and benefits - High chances of political support for adoption 	<ul style="list-style-type: none"> - No mechanism to encourage adoption of least-cost abatement options - Effectiveness depends on perceived benefits of participants - Risk of collusion among actors

Adapted from: de Serres, & Murtin (2011) and UNEP (2011b)

Annex 5: List of Indicators (Adaptive Strategies and Outcomes)

S.N.	Adaptive strategies	Components/ Policies	Indicators	Remarks
1	Democratizing policy cycle and optimizing social capital		<ul style="list-style-type: none"> ▪ Appointment of key officials (appointed or elected) and actors participating policy process ▪ Democracy at the national level ▪ Input legitimacy (civil society and market actors, their role in policy demand and decision-making process) ▪ Participation (citizens' ability to influence and participate in decision-making-consultative status for NGOs, trade associations/ chambers, trade unions) ▪ Reliability, periodicity and coverage of the required data ▪ Control (whether civil societies, private sectors, citizens and their political representatives are involved in evaluation of transparency in decision-making process) ▪ Inter-institution democracy (quality of representative of stakeholders who participate in the policy decision-making) ▪ Supranationalism (stakeholders' general interests over state's interest) ▪ Check and balance between concerned organizations ▪ Institutional accountability ▪ Political stability and lack corruption (both petty and policy) ▪ Type of democracy (direct or indirect) ▪ Output legitimacy (quality policy output describing to what extent it corresponds to the competences and the objectives) 	Adapted from International Democracy Watch ⁵⁶
2	Inclusive/alternative/fair trade and democratizing commerce		<ul style="list-style-type: none"> ▪ Price difference between production cost and cost at consumption point 	Proposed (others yet to develop)
3	Inclusive eco-innovation ⁵⁷		<ul style="list-style-type: none"> ▪ Eco-innovation inputs ▪ Government's environmental and energy R&D appropriations and outlays (per cent of GDP) ▪ Total R&D personnel and researchers (per cent of total employment) 	Eurostat (2012) Eurostat (2012) Cleantech (2010-13)

⁵⁶ From <http://www.internationaldemocracywatch.org/index.php/tools/the-international-democracy-macro-indicators>

⁵⁷ Extracted from http://www.eco-innovation.eu/index.php?option=com_content&view=article&id=2&Itemid=34

			<ul style="list-style-type: none"> ▪ Total value of green early stage investments (USD/capita) ▪ Eco-innovation activities ▪ Firms having implemented innovation activities aiming at reduction of material input per unit output (per cent of total firm) ▪ Firms having implemented innovation activities aiming at reduction of energy input per unit output (per cent of total firm) ▪ ISO 14001 registered organizations (per million population) ▪ Eco-innovation outputs ▪ Eco-innovation related patents (per million population) ▪ Eco-innovation related academic publications (per million population) ▪ Eco-innovation related media coverage (per numbers of electronic media) ▪ Eco-innovation index 	<p>Eurostat (2012) Eurostat (2012) ISO surveys of certifications (2012)</p> <p>Patstat (2010) Scopus (2012)</p> <p>Meltwater (2013) Eco- innovation Observatory</p>
4	Accessible and affordable clean technology development/ diffusion ⁵⁸		<ul style="list-style-type: none"> ▪ The Cleantech Index (CTIUS) ▪ Wilderhill Clean Energy Index (ECO) ▪ Ardour Global Alternative Energy Index (AGIGL) ▪ Wilderhill-New Energy Global Innovation Index (NEX) 	
5	Efficient, accountable and sustainable resource use		<ul style="list-style-type: none"> ▪ Material productivity (GDP/Domestic material consumption) ▪ Water productivity (GDP/water footprint) ▪ Energy productivity (GDP/Gross inland energy consumption) ▪ GHG emissions intensity (tonnes of CO₂ equivalent) ▪ Resource accountability (yet to develop) <p>more here http://epp.eurostat.ec.europa.eu/portal/page/portal/europe_2020_indicators/ree_scoreboard</p>	<p>Eurostat (2011) Water Footprint Network Eurostat (2011) EEA (2011)</p>
6	Participative pollution control and waste management		<ul style="list-style-type: none"> ▪ Generation of waste excluding major mineral wastes (kg/capita) ▪ Landfill rate of waste excluding major mineral wastes (%) ▪ Recycling rate of municipal waste (%) ▪ Recycling rate of e-waste (%) 	<p>Eurostat (2014) Eurostat (2014) Eurostat (2014) Eurostat (2014)</p>
7	SMEs and family business			
8	Investment in human	Green job skill	<ul style="list-style-type: none"> ▪ Training expenditure (USD per year & % of GDP) 	yet to elaborate

⁵⁸ From <http://www.cleantech.com/>

	capabilities and productivity	training	<ul style="list-style-type: none"> ▪ Number of people trained (person/year) 	
9	BoP business and inclusive jobs			Yet to develop
Outcome indicators				
	National Wealth and Well-being indicators	Access to resources	<ul style="list-style-type: none"> ▪ Access to modern energy (%) ▪ Access to water (%) ▪ Access to sanitation (%) ▪ Access to health care (%) 	UNEP (2012)
		Employment	<ul style="list-style-type: none"> ▪ Construction (person in %) ▪ Operation and management (person in %) ▪ Gini coefficient 	UNEP (2012)
		National Wealth	<ul style="list-style-type: none"> ▪ Value of natural resource stocks (USD) ▪ Net annual value addition/removal (USD/year) ▪ Literacy rate 	UNEP (2012)
Green policy intervention related indicators				
		Access to green investment	<ul style="list-style-type: none"> ▪ R&D investment (% of GDP) ▪ EGSS investment (USD per year) 	UNEP (2012)
		Green fiscal incentives	<ul style="list-style-type: none"> ▪ Fossil fuel, water and fishery subsidies (USD or %) ▪ Fossil fuel taxation (USD or %) ▪ Renewable energy incentives (USD or %) 	UNEP (2012)
		Pricing externalities and valuing ecosystem service	<ul style="list-style-type: none"> ▪ Carbon price (USD/ton) ▪ Value of ecosystem services (eg., water provision) 	UNEP (2012)
		Green procurement	<ul style="list-style-type: none"> ▪ Expenditure on sustainable procurement (USD/year and percentage) ▪ CO₂ and material productivity of government operations (ton/USD) 	UNEP (2012)
		International cooperation		yet to develop
	Others	Financial health, network of relatedness, institutions, distance clusters and infrastructures, Policies and incentives, exchange rates, MNCs, predictability and security		yet to develop

**Annex 6: Policy Incentives for Regional Balance in Industrial Development
(To reduce regional imbalance)**

	Types of industries	Income tax exemption (%)	Years, for the first-
1	Industries established in the least developed areas	90	10
2	Industries established in the undeveloped areas	80	10
3	Industries established in the under-developed areas	70	10
4	Cider and wines based on fruits having a maximum alcohol content up to 12 per cent and established in least developed areas	40	10
5	ICT industries established in Information Technology Park	50	
6	Industries engaged in hydropower generation and transmission, mining extraction, producing cement by making clinker with the use of local materials, and industries to explore and extract petroleum or natural gas, out of the prioritized industries (Schedule 7 of Industrial Policy, 2011)	90	7 years from the date of commencement of transaction

Annex 7: List of Case Study Respondents

1. Government Agencies

S.N.	Name	Designation	Respondent	Remarks
1	Ministry of Industry	Secretary	Krishna Gyawali	
2	National Planning Commission	Joint Secretary	Gopinath Mainali	
3	Ministry of Commerce and Supplies	Joint Secretary	Jib Raj Koirala	Export Promotion, Trade & Transit Division
4	Ministry of Science, Technology and Environment	Director General	Laxmi Yadav	Office of the National Certification (Science & Technology Division)
5	Ministry of Environment, Science and Technology	Under Secretary	Dr. Jayram Adhikari	Environment Department

2. Firms

S.N.	Name	Designation	Respondent	Remarks
1	Ilam Valley Tea Industry Ltd., Fikkal-3	Punam Rai	Chairman	Conventional tea processing firm
2	Central Tea Cooperative Federation Nepal	Rabin Rai	Secretary	Central cooperative agency of tea producers
3	Himalayan Sangrila Tea Processing Industry	Ram Chandra Nepal	Manager	Conventional+ Organic tea processing firm
4	Gorkha Tea Estate	Udaya Chapagain	Chairman	Organic tea firm
5	Kanchanjangha Tea Estate	Dilli R. Baskota	Chairman	Organic tea firm + fair trade

3. Private Sector Representative Institution

S.N.	Name	Designation	Respondent	Remarks
1.	Federation of Nepal Chamber of Commerce and Industries	Priya Darshan Sharma	Senior Consultant	

Annex 8: List of Semi-structured Questionnaire Employed to Collect Data from High Level Policy Executives

Participant/s: Secretary/Joint secretaries of (Ministry of Commerce & Supplies (MoCS), Ministry of Industry (MoI), Ministry of Science, Technology & Environment (MoSTE) and, National Planning Commission(NPC)), Executive of Federation of Nepal Chamber of Commerce and Industry (FNCCI).

Method: Open-ended questions (18 questions: MoCS-13, MoI-12, MoSTE-14, NPC-9, and FNCCI-10)

1. Democratizing policies for trade-led green growth			
<i>Main proposition: Democratizing policy process helps empower people and persuade the government to design and implement policies that use trade as a mean to pursue economic equity and social justice. It lessens political and behavioural inertia and enhances legitimacy as well as policy ownership for its effective implementation.</i>			
	Queries	Prompting phrases for response	Specific respondent
1.1	In our latest periodic plans, participation has been a main issue from policy formulation to distribution of policy outputs to achieve inclusive growth. However, meaningful participation of all stakeholders is often doubtful. Do you agree this statement? If yes, how the meaningful participation of all stakeholders can be ensured? Who, do you think, are the stakeholders?	Participation through Chamber of commerce and industry, NGOs, Trade Associations, Civil Organizations, Advisory committee, public hearing....	MoCS, MoI, MoSTE, NPC, FNCCI
1.2	With examples of many African countries, there are ample evidences that democratizing policy process leads to an equitable policy outcome, mainly in trade-led growth? Is it applicable in Nepalese context? If yes, how?	Voice Accountability Opportunities	MoCS, MoI, FNCCI
1.3	How meaningful participation is ensured? Is there any mechanism to incorporate the rights of rural people while formulating policy? Who speaks of their voice?		MoCS/MoI/ MoSTE/ NPC/FNCCI
1.4	In recent years, Trade Policy 2010 and Industrial Policy 2009 Were enacted. What was the process of policy decision making? What was the mode of communication? Was Ministry of Science, Technology and Environment and other stakeholders sufficiently consulted? Are they well democratized and harmonized?	Goal-centred process, Data-based process, Participative process, Adaptive process, Combination of all Others-	MoCS/MoI/ MoTSE, FNCCI

1.5	Is there any mechanism that helps monitor whether policy decisions are efficient, accountable, supportable, and legitimate? If yes, what are those instruments?		MoCS/MoI/ MoSTE/ NPC
1.6	Is there any evidence that meaningful participation in policy formulation ensures environmental sustainability? Any evidence of equity enhancement? Any evidence of enhanced competitiveness?		MoCS/MoI /MoSTE/ NPC/FNCCI
1.7	Do <i>Trade Policy Analytical Wing</i> and <i>Trade Promotion Institute</i> give any feedback for policy?		MoCS/FNC CI
1.8	We are facing severe environmental challenges embedded to our exports (i.e, export jeopardized due to inability in meeting environmental standards). What may be the alternative policy paradigm so that Nepal can export more without compromising environmental issues and better meaningful participation?	Threats to the people near river basin, biodiversity loss, lack of competitiveness in <i>brown</i> products	MoCS, MoI, MoSTE, FNCCI
1.9	Recent Rio conventions and sustainable initiatives advocate for following a green economy path. What is your opinion in this regard? Generally, greening trade is considered costly, at least for the short run. What kind of additional impediments, do you think, hamper moving towards adopting green economy policy?	Political and behavioural inertia; Political leverage of poor to influence policy; Assuring just representation; Government priorities; Lack of financial instruments; Others..	MoCS, MoI, MoSTE, NPC, FNCCI
<p>2. Inclusive eco-innovation Main proposition: <i>Creativity and innovations enhance competitiveness and profitability for business that improve their resource efficiency and rational resource-use - sustainable competitiveness). But Nepal has poor institutional and policy arrangement in this regard.</i></p>			
	Queries	Prompting phrases	Specific respondent
2.1	It is argued that environmental policy and eco-innovation policy should be integrated. What is your opinion? Do you see any relationship between these two? Is there any institutional arrangement that works collaboratively?		MoI /MoSTE/ NPC/FNCCI

2.2	What kind of legislation, if any, is there to encourage creativity and innovations while ensuring greater environmental sustainability?		MoI / MoSTE/ FNCCI
2.3	Do you think, Nepal's export-led growth is debilitated due to the lack of dynamic knowledge-based society? If yes, any evidences?		MoCS/ MoI / NPC/ FNCCI
2.4	Eco-innovation and relevant R&D needs incentives from the government. What kind of government incentives are deemed essential to promote eco-innovation?		All
2.5	Is there any mechanism to make eco-innovation inclusive?		All
3. Green technology and energy efficiency			
<i>Main proposition: Environmental-based competitive advantage can be gained by green technology. Investment in green technology may be expensive for short run but it definitely pays back in the long run.</i>			
	Queries	Prompting phrases	Specific participant/s
3.1	It is argued that government should provide sufficient incentives for green technology and capacity development in the initial phase due the high adaptation cost of green technology. Do you agree? Does government provide any incentives for capacity building and technology development/ imports, its diffusion and the use of green technology?	training/ custom duties	MoCS/MoI /MoSTE/ NPC/FNCCI/
3.2	Do you think the government should promote environmentally - preferred public procurement?		All
4. Investment in Human Productivity and Capabilities			
<i>Proposition: Greening trade may jeopardize jobs. But appropriate human capital development strategies for green economy not only create more jobs but also pay back in terms of export competitiveness, equity, wage premium and, human and natural health.</i>			
	Queries	Prompting phrases	Specific participant/s
4.1	The government is ready to embark towards green economy. Is there any human capital development plan so that human resource will be easily adaptable?		MoI /MoSTE/ NPC/FNCCI/
4.2	What kind of sector-wise human capital development strategies are adopted by the government to enhance export competitiveness, inclusive trade-led growth and environmental protection? Are they sufficient? What is the way ahead?		All

Annex 9: List of Semi-structured Questionnaire Employed to Collect Data from Top Level Tea-Firm Executives

Participants: Production/Business/Trading firm's manager (31 questions)

1. Green technology and energy efficiency			
Proposition: <i>Environmental-based competitive advantage can be gained by green technology. Investment in green technology may be expensive for short run but it definitely pays back in the long run</i>			
	Queries	Facilitation words for response	Method
1.1	Do you use any kind of green technology in your production plant? If yes, what kind of technology? How it has influenced cost, pollution and competitiveness?	green energy, green building, green chemistry...)	Open-ended questions
1.2	While replacing old production process, is there any change in energy use (such as replacing fossil fuel by green energy...)? If yes, how efficient/ cost effective is it?		Open-ended question and calculation
1.3	Are you getting any incentive from government to transform your production plant into green one? Is there any access to green financing?	tax, subsidies, IPRs, custom duty waiver in green technology import, finance	Open ended questions
1.4	Do you think the government should promote environmentally - preferred public procurement? If yes, how it benefits your business? If not, why?		„
1.5	Are there any government incentives for capacity building and technology imports?	training/ custom duties	„
1.6	If new technology has been adopted, how did you curb technology lock in such as skilling workforce, managing production network, and building infrastructure?		„
1.7	Is there any R&D provision? Has your firm utilized these provisions?	Reference: income tax law	„
1.8	Do you see any possibility of foreign investment in your sector so that technology- transfer may be possible?		„
1.9	Is there any fear from policy instability? Does such fear hamper firm's decision making in greening process?	tax uncertainty, regulatory macroeconomic environment	„

2. Efficient, accountable and sustainable resource use			
<i>Proposition: Greening business is resource efficient, accountable and sustainable for economic growth</i>			
	Queries	Facilitation words for response	Method/s
2.1	While changing into green production process, could you reduce use of resources at any production chain?	natural resource, financial resource, human resource,	Open-ended question
2.2	How waste has been managed? Has zero waste productivity been materialized to ensure material productivity? 3R?		Open-ended question + Observation
2.3	Do you have any administrative or institutional hurdles to export your produce that have weakened the competitiveness (increased cost?). If yes, what is the average percentage of added cost?	procedural delays, inventory holding and opportunity cost?	„
2.4	Has this change in production process strengthened relations with local people?	issues of waste disposal, environment and health	„
3. Investment in human productivity and capabilities			
<i>Proposition: Greening trade may jeopardize jobs. But appropriate human capital development strategies for green economy not only create more jobs but also pay back in terms of export competitiveness, equity, wage premium and, human and natural health.</i>			
	Queries	Facilitation words for response	Method/s
3.1	Does your company realize any need of training, safe working environment and health facilities for workers? Do you think greening process accommodates such capabilities enhancing arrangements?		Open-ended questions
3.2	Do changing production structure need well trained/skilled workforce? Does this process created more employment or cause job losses?		Open-ended questions
3.3	Does greening process cause diminishing competitiveness and job losses due to erstwhile work force? If there are job losses, are they for temporary or for the long-run?		Asking quantitative figures
3.4	What is the level of skill premium?		Calculate with payroll
3.5	What kind of human capital development strategies are adopted by your company, are the sufficient? What is the way ahead?		Open-ended questions

4. SMEs, family business and local knowledge-based product specialisation

SMEs are the major source of employment and help today's poor escape poverty, work as an engine of economic growth but are the major cause of pollution. They are unwelcoming to environmental standards. If they go green, they can open up new growth markets and address the demand of poor consumers, stay cost-competitive and promote sustainable practices by conserving land, water, energy, and minerals and eliminating waste, and attract highest calibre employees and promote labour rights.

	Queries	Facilitation words for response	Method
4.1	Environmental issues are taken as threat rather than opportunity. Do entrepreneurs like you admit this argument? If yes, why? If no, why?		Open-ended questions
4.2	After shifting toward green production, what kind of comparative advantage is realized?	energy efficiency, quality improvement, reduced wastage, better environmental credentials, higher customer satisfaction, exploring new business opportunities, getting support from local communities/media coverage, staff commitment, relation with local environmental pressure group etc.	Open-ended questions
4.3	Does benchmarking (assets, performance) help enhance competitiveness in your company?	Seek example/s	„
4.4	Do you have any network with self-employment generating firms?	seek example	Open-ended questions
4.5	What kind of hindrances are you facing in exporting your products?	Lack of resources to produce meets the demand, technology, laboratories, marketing techniques, information gap, poor innovation capacity etc...)	„
4.6	Do you know that government has incentivized if you employ women and lower caste people? Do you employ women, indigenous community, lower caste people and youngsters?		Specific question +observation

5. Alternative trade/fair trade/green trade

	Queries	Response
1	Is there any role of fair trade agency in democratizing trade and environmental protection policies in Nepal?	
2	How [fair trade certifying agency] is maintaining transparency and dialogue with small producers?	
3	Has fair trading arrangement contributed higher value-addition in its trading value chain?	
4	How does fair trade contribute for environmental sustainability?	
5	How fair trade supply chain has guaranteed fair price for producers?	
6	Is there any Nepali product that has been labelled specifically? If yes, what is the impact of labelling in trade competitiveness?	
7	Does [fair trade certifying agency] coordinate with government for branding Nepali products?	
8	Has fair trading initiative contributed to product sophistication by their supply chains and branding?	
9	What are the [fair trade certifying agency] mediated products that contribute income stability and lessen vulnerability?	
10	How learning and feedback mechanism works selecting new products or improving/standardizing the product being fair-traded by [fair trade certifying agency]?	