CHAPTER II

CONCEPTUAL AND THEORETICAL FRAMEWORK

Just as modernisation dissolved the structure of feudal society in the 19th century and produced the industrial society, modernisation today is dissolving industrial society and another modernity is coming into being.

Ulrich Beck, *Risk Society: Towards A New Modernity*, 1992

Multiple modernities and varieties of modernity take place in the contemporary world because of the different structural arrangements and cultural codes of modernising countries and because of the position they hold in the world economy and in the international power system.

Alberto Martinelli, *Global Modernisation: Rethinking the Project of Modernity*, 2005

This chapter introduces the conceptual and theoretical framework underlying this research. It explores the concept of sustainable development in the framework of the theory of modernisation and its elaborations. ***First***, the concept of sustainable development is explored as an expression of modernity. ***Second***, the role of trade and environment in the context of sustainable development is examined. This includes a discussion of the relationship between trade liberalisation and environmental sustainability. The ***third*** section provides a review of the literature on modernisation focusing on its elaboration as a result of globalisation, including reflexive and multiple modernisation. The ***fourth*** section reflects on *multiple modernities* in Thailand and the Mekong region in the context of this research focus on agroenergy. This thesis argues that making the modernisation process *reflexive* means turning development into a learning process that is informed by demonstrable on-the-ground results. This is the purpose of the field evidence gathered in Chapter V.

2.1 Sustainable development

The right to development must be fulfilled so as to equitably meet developmental and environmental needs of present and future generations.

Rio Declaration on Environment and Development, 1992

Sustainable growth is an oxymoron.

Herman Daly, *Steady-State Economics,* 1992

The concept of sustainable development, which was enunciated in the report of the World Commission on Environment and Development entitled *Our Common Future* (WCED 1987), signifies a policy approach or objective as opposed to a substantive prescription (Caldwell 1990:207). It is an approach to development planning, without indication of goals or priorities. In this sense, sustainable development can be considered to be an expression of modernity, whereby economic growth and environmental protection are complimentary objectives in the pursuit of human wellbeing. As with modernisation, the appeal of sustainable development may well be rooted in the vagueness of the concept.

The momentum flowing from *Agenda 21* of the Rio Earth Summit (1992) and the United Nations Millennium Development Goals (2002) sought to alter the terms of engagement of the development discourse. The course was set for trade and development policies to integrate broader socio-environmental objectives in the pursuit of equitable and sustainable growth. There are basically two views of the relationship between economic growth and sustainability, with a spectrum of variations in between. The view commonly held by most governments and economists is that, for the most part, economic growth and sustainability are *mutually compatible* as noted above. In this manner, sustainable development has become the mantra of governance institutions and civil society from the local to the international level.

The second view is that they are fundamentally *incompatible*. A former World Bank economist, Herman Daly (1992) goes so far as to state that "sustainable growth is an oxymoron." To the extent that all economic activity has an impact on the environment, increased throughput of energy and materials will in turn undermine environmental sustainability. According to Daly, thus, economic growth by its very nature and certainly given the current scale is in contradiction with environmental sustainability. In any event, economic growth is not a *panacea* for environmental quality (Daly 1996:10).

As we enter the 21st century, there remains a vast and increasing disparity between rhetoric and reality in the implementation of policies to support the achievement of sustainable development. This is the case for bioenergy policies in Thailand.

If one of the main purposes of promoting sustainable development through trade is to enable developing countries to address poverty, widely considered to be the root of environmental degradation, what is the record of progress? Discontent with implementation of sustainable development is similar to that of the *Washington Consensus* approach to development.[1] That is to say, economic growth comes first; social and environmental considerations are secondary. In fact, while economic growth can and should go hand-in-hand with environmental protection, the reality is that it has led to serious environmental degradation – fisheries and forests polluted and depleted beyond sustainable yields, biodiversity rapidly decreasing. The conventional response is to fault environmental management and call for the environment to be valued in order that the market can play a role in sustainable development. While not attempting to undermine the importance of environmental management, how much of the burden is to be borne by insufficient management policies for this consequence of modernity?

On the one hand, proponents recognise the balanced equation that the concept of sustainable development represents *in principle*, particularly in forging a common approach to environmental issues between developed and developing countries. Is it not a matter of equity that developing countries have the right to lift themselves out of poverty as the developed countries have done – through growing their economies?

On the other hand, critics consider the concept of sustainable development to merely represent business as usual and, as such, insufficiently vigorous to steer the global economy towards environmental sustainability (Daly 1993; Speth 2008). From this perspective, thus, the economic system is not working as it should if it effectively ignores the natural resource base upon which growth is vitally dependent.

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[1] John Williamson (1990) is credited for outlining a set of economic policies that underpinned the structural adjustment programs in developing countries in the 1980s and 1990s. Of relevance to this essay, was the orthodox neoliberal policy agenda that promoted reduced government expenditures, privatization and trade liberalisation. Williamson (1993) qualified his original comments to the effect that this policy mix was merely what had been observed to be global general best practise.

Before reviewing the criticism of sustainable development as a construct of modernisation, it is worthwhile to set the context by bringing to bear the current evidence underlying the magnitude of the contemporary environmental crisis.

What is the current evidence of environmental crisis?

> *Over the past 50 years, humans have changed ecosystems more rapidly and extensively than in any comparable period of time in human history, largely to meet rapidly growing demands for food, fresh water, timber, fibre and fuel. This has resulted in a substantial and largely irreversible loss in the diversity of life on Earth.*
>
> UN Millennium Ecosystem Assessment, 2005

> *Here is one measure of the problem: if we continue to do exactly what we are doing, with no growth in the human population or the world economy, the world in the latter part of this century will be unfit to live in.*
>
> Gus Speth, *The Bridge at the Edge of the World,* 2008

Several recent reports provide a solid basis upon which to judge the state of affairs of the planet. This section highlights four seminal reports. First, the recent *Millennium Ecosystem Assessment* (2005) was compiled by over 2,000 experts to assess the consequences of ecosystem change for human well-being and establish the scientific basis for actions to enhance eco-system sustainability. It concludes that environmentally-harmful trends have not been reversed. There have been incremental improvements, but the trend is towards greater environmental degradation, even if, as Gus Speth notes in the above quote, we maintain the status quo. Nevertheless, "[o]f course human activities are not holding at current levels – they are accelerating, dramatically, and so, too, is the pace of climate disruption, biotic impoverishment, and toxification" (Speth 2008).

Second, a report commissioned by the government of the United Kingdom, the *Stern Review on the Economics of Climate Change* (2006), left no doubts that environmental pressures are *already* impacting on the global economy. The report forecasts a loss of 5-10% of global gross domestic product (GDP) from the impacts of climate change if greenhouse gas emissions are not cut dramatically.

Third, the *Intergovernmental Panel on Climate Change* (IPCC) established in 1998 to assess the scientific and technical aspects of climate change, in its final report confirmed the link between human activity and climate change (IPCC 2007). This Intergovernmental Panel provides vital inputs to creating momentum in the United Nations Framework Convention on

Climate Change to negotiate collective actions to decrease greenhouse gases. In 2007, the IPCC shared the Nobel Peace Prize with former Vice President of the United States Al Gore "for their efforts to build up and disseminate greater knowledge about man-made climate change, and to lay the foundations for the measures that are needed to counteract such change" (Nobel Prize 2007; Gore 2002, 2006). The Nobel Committee recognised that climate change is a threat to global peace and stability.

These seminal scientific and economic assessments clearly illustrate the extent of urgent action necessary to address ecosystem degradation and respond to the consequences of climate change. The science is clear and the costs have been calculated. Postponing action to cut greenhouse gas emissions would increase the costs of damages as well as the costs of action. Is the lacking element sheer political will? The inability of the global community to react in accordance with these clear and dire predictions is the focus of much debate and obvious concern.

This research addresses the socio-environmental implications of agroenergy expansion in Thailand and the Mekong. As the main emitter of nitrous oxides and methane, agriculture is a major contributor to climate change. According to the IPCC, the agricultural sector annually emitted 5.1 to 6.1 billion tonnes of carbon dioxide equivalent in 2005. This is the equivalent of 10–12% of total greenhouse gas emissions.[2]

Fourth, in a process similar to the IPCC and the Millennium Ecosystem Assessment, the *International Assessment of Agricultural Knowledge, Science and Technology for Development* (IAASTD 2009) represents an intergovernmental process, co-sponsored by the FAO, UNDP, UNEP, GEF and the World Bank. Over 400 independent experts were involved in drafting a four-year, evidence-based assessment of the future of agriculture. The report represents a seminal critique of conventional industrial farming and calls for a fundamental change in farming practices so as to better address increasing food prices, hunger, inequities and environmental crises. The call for a paradigm shift in agricultural practices is echoed by another landmark study carried out for the Mekong region by the Vientiane-based International Water Management Institute (IWMI 2010).

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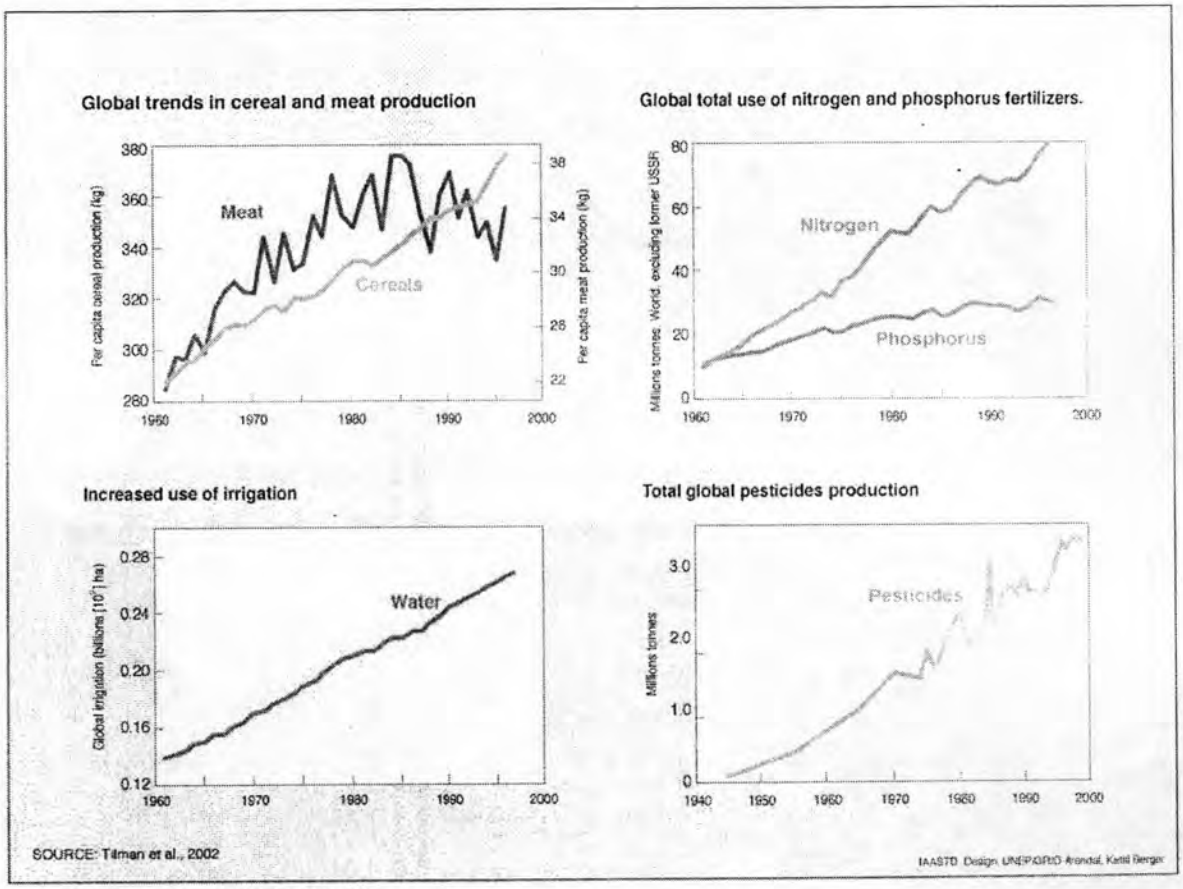
[2] Methane has 20 times more global warming potential than carbon dioxide and nitrous oxide has 300 times more global warming potential than carbon dioxide.

Both reports reflect a growing consensus among scientists and many governments that the old paradigm of industrial energy-intensive agriculture is an outdated concept, while small-scale farmers and agro-ecological methods provide the way forward. The conclusion of these reports is that the past emphasis on production and yields brought some benefits. Yet, these benefits were at the expense of the environment and social equity. The objective of the global IAASTD report (2009) is to integrate a broad range of topics that are "critically interlinked, but often addressed independently" – agriculture, poverty, hunger, human health, natural resources, environment, development and innovation. The report contains key findings on eight topics, including bioenergy as will be discussed in below.

As indicated in the figure below, all the general environmental trends are worsening. **Appendix N** contains a map of the climate change hotspots in Southeast Asia (IDRC 2009).

Figure 1: Global trends in output; nitrogen, phosphorous; irrigation & pesticides



Source: IAASTD 2009

Response of international governance institutions

The part played by orthodox economists, whose common sense has been insufficient to check their faulty logic, has been disastrous to the latest act.

John Maynard Keynes, 1936

The problem is not with globalisation itself but in the way globalisation has been managed.

Joseph Stiglitz, *Globalisation and its Discontents*, 2002

Already by the late 1990s, policies were shifting to accommodate a changing perception of the Washington Consensus to more adequately incorporate socio-environmental imperatives of the development process. In *Globalisation and its Discontents* (2002), Joseph Stiglitz, former chief economist at the World Bank and 2001 Nobel laureate, launched a critique of the neoliberal economic structure. Stiglitz called for a multipronged strategy of reform that went beyond the 'one-size fits all' policy prescription advocated by the Washington Consensus. Stiglitz acknowledged that globalisation represents more than "a largely economic phenomenon." First, in this way, globalisation was under attack precisely because it was undermining traditional values, particularly if they differed from the conventional orthodoxy represented by the Washington Consensus and its prescribed policy reforms for development. Therefore, there was a need for globalisation with "a human face" as well as greater flexibility for countries to make their own choices.

Second, Stiglitz, supported by many others, posited that the system of capitalism was at a crossroads similar to that during the collapse of the global economy during the Great Depression in the 1930s. There was, thus, a corresponding need for systemic adaptation, including strategic government intervention to balance market forces and direct trade liberalisation. As noted by Stiglitz, Keynes managed to rescue the system through government policies based on the argument that markets are not self-correcting, at least in an appropriate time frame (2002:247-251).[3]

2.2 Trade liberalisation and environmental sustainability

In the long and tortuous evolution of the human race on this planet a stage has been reached when, through the rapid acceleration of science and technology, man has acquired the power to transform his environment in countless ways and on an unprecedented scale.

Declaration of the UN Stockholm Conference on the Human Environment, 1972

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[3] Stiglitz recalls Keynes' (1924) famous statement in this respect that "in the long run, we are all dead."

There is a significant body of literature covering the broad spectrum of linkages between trade and the environment. The literature reflects several factors that have contributed to the prominence and poignancy of the discourse, resulting in the evolution of a complex and far-reaching relationship between trade liberalisation and environmental quality since the 1990s.[4]

First, an increasing awareness of the impacts of human activity on the environment has raised the *saliency* of environmental concerns on the policy and research agenda over the past half century. In large part, this awareness has been driven by *science* and *civil society*. That is to say that increasing scientific knowledge has revealed "many wonderful and disturbing things" (Gould 2002); even though uncertainties remain, there is solid scientific evidence to substantiate environmental concerns. Improved scientific understanding coupled with technological innovation thus has helped to define the scope of the problems and contribute to building consensus on reaching solutions. The corresponding rise of civil society (i.e. environmental non-governmental organisations) has brought the results of scientific investigation to our attention and heightened public awareness of the environmental risks.

The roots of the environmental movement and the formation of environmentalism as an ideological paradigm are found in the scientific enquiry and activism of the 1960s. Biologist Rachel Carson sounded a clarion call for environmental action in *Silent Spring* (1962), which documented the human and environmental impacts of pesticide use, specifically indiscriminate DDT use in the United States. The impact of chemical fertilizers and pesticides in the agricultural production process remains one of the main concerns in the trade and environment relationship. Moreover, scientific investigation and understanding has helped define the scope of local environmental problems, as well as supported international cooperation to find solutions to transboundary global concerns, such as ozone depletion and climate change. The role of science has been indispensable – scientific enquiry has provided the evidence to enable quantification of risks, assessment of the consequences of human activities and legitimization of environmental campaigns from the local to the global level (UN Millennium Project 2005; Juma 2005).

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[4] While the trade and environment debate was given pride of place in the 1990s, Pearson points out that the OECD already started work in the early 1970s on "Guiding Principles Concerning International Economic Aspects of Environmental Policy" (Low 1992:65).

Second, environmental issues have become increasingly *global* in nature. Anderson and Blackhurst (1992) distinguish a first wave of environmental concern in the early 1970s centred on industrial pollution in developed countries in the national and regional context (Baumol 1971; GATT 1971; Blackhurst 1977; Siebert 1980). These issues were the focus of the United Nations Stockholm Conference on the Human Environment in 1972. As illustrated in the above quote from the Stockholm Declaration, already in the 1970s, there was recognition of the potentially irreversible environmental impacts resulting from the unprecedented *scale* of human activities.

In tandem with the globalisation of the world economy, the second and current wave of environmental concern has focused on the globalisation of environmental issues, including the impacts of international trade on the environment (MacNeill 1991; Runnalls & Cosbey 1992; Low 1992; Esty 1994; OECD 1994; Pangestu & Roestad 1996; Ewing & Tarasofsky 1997; Najam, Halle & Melendez 2007).

There is a large body of literature emphasising the need for multilateral cooperation to deal with global environmental problems, particularly in the case of the "global commons" (Caldwell 1990; Anderson & Blackhurst 1992; Haas, Keohane & Levy 1993; Young 1994). In *The Tragedy of the Freedom of the Commons* (1968), the ecologist Gareth Hardin illustrated several key concepts related to environmental 'carrying capacity'[5] and decision making.

In order to reveal the inherent logic of the commons, Hardin evoked a pasture open to all in which herdsmen could keep as many cattle as they wished. If each herdsman reacts rationally in pursuit of his self interest and increases his herd without limit, the natural tendency is for the freedom to do so to bring ruin to all. The commons cannot support an unlimited number of cattle. However, there is no incentive for a rational herdsman not to increase his herd; in this 'zero-sum game,' if he does not then his fellow herdsman will. The argument that flows from this analogy concerns the importance of government intervention to manage natural resources and ensure the establishment of property rights, as well as to resolve the tragedy of the commons as an example of the collective-action problem of the 'Prisoner's

[5] Carrying capacity is an ecological concept concerning the links between a population and the natural environment on which it depends for ongoing sustenance. This assumes limits on the number of individuals that can be supported at a given level of consumption without degrading the environment and, therefore, reducing the carrying capacity below the limits to maintain that population.

Dilemma' (Ostrom 1990). Eleanor Ostrom received the Nobel Prize for economics in 2009 for her work on property rights for the commons. The tragedy of the commons is a form of the Prisoner's Dilemma in which there is little incentive for cooperation (Axelrod 1984; Barrett 1990).[6]

Hardin's arguments remain central to the current trade and environment debate concerning market failures and the need for cooperative action to overcome "free-riders," particularly in the "global commons" (e.g. the earth's atmosphere, oceans) (Enders & Porges 1992).[7] For over half a century, environmental economists have delved into the appropriate forms of intervention to deal with the tragedy of the commons in order to counter the failure of the market to recognise scarcity, particularly in the absence of property rights (Coase 1960).

However, it was not until the 1980s that environmental problems became clearly defined as global, with the emergence of multilateral regimes to manage cooperation on specific issues; trade measures were part of the multilateral solution for certain issues, such as endangered species, ozone depletion and hazardous waste.

Third, there has been general recognition of the vital importance of environmental factors to sustain economic growth. The integration of the world economy and increasingly global chains of production have intensified the nature of the relationship between trade liberalisation and environmental sustainability. Increasing economic growth has put a strain on environmental resources and is pushing those resources beyond sustainable limits; overfishing is a prime example cited in this regard (Steenblik & Munro 1999; Schorr 2001; Porter 2001). While it may not be held *directly* responsible, trade liberalisation is one of the main drivers behind a more integrated global economic order, and, as such, has impacted production and consumption patterns. In this respect, economists posit that environmental

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[6] The political scientist, Robert Axelrod, focused on repeated (iterated) Prisoner's Dilemma in which *trust* could be built to get out of the dilemma. The dilemma centers on a game in which both players know that whatever the action of their opponent, they cannot do better than to defect; however, if they cooperate, each one could do better. If only one cooperates, he has the most to lose.

[7] Olson's (1965) raised the issue of free-riding in the production of a public good. Free riders undermine cooperative environmental action. For example, if all countries benefit from a public good (clean air) regardless of who pays for it, there is little incentive voluntarily to contribute to the cost of that good. This is the reason why multilateral environmental agreements are so difficult to negotiate and, moreover, enforce, with a high temptation to free ride on the efforts of others. Enders and Porges examine these issues in the context of the international cooperation to address the depletion of the ozone layer.

problems, in the main part, are caused by production and consumption externalities; they are most effectively addressed through *resource management*.[8]

Market failures

Inadequate natural resource management is in turn the result of *market failures* at the national level (Daly 1977). If environmental assets are not properly valued, it is difficult to allocate resources in a way that fully reflects their cost. The result is excessive exploitation of the resource and environmental degradation. As expanded upon in the early works of economist Pigou (1920) concerning the theory of externalities; an externality is a situation when a benefit or cost is incurred by one party, but that cost or benefit is not taken into account – externalised from the decision of the other party. An example of a positive externality would be a beekeeper in an orchid; negative externalities would be caused by a smoker in a room of non-smokers. The role of government is to intervene to correct for the social and environmental costs of these externalities. How governments can go about this exercise has been the focus of environmental economist for some time (Pigou 1920; Hardin 1968; Daly 1997, 1996; Pearce 1989, 1994; Repetto 1989; Daly & Cobb 1989; Cropper & Oates 1992; Pearce & Warford 1993).

Environmental economists have devoted significant attention to placing a value on environmental goods and services as a necessary step to identifying and correcting market failures as well as estimating the costs of environmental degradation (Oates 1971; Baumol & Oates 1979; Daly & Goodland 1994; Charit & Suthawan 1996; Daly 1996; Bolt 2005).

Policy failures

There are also *policy failures* when government measures serve to encourage inappropriate behaviour; policy distortions can exacerbate market failures. Classic examples of both market and policy failures are agricultural and fisheries subsidies. It follows that removing 'policy-related market distortions' – i.e. agricultural export subsidies or input fisheries subsidies, would benefit the environment and contribute to sustainable development. In these circumstances, trade liberalisation will serve to magnify existing environmental problems. From a trade perspective, removing trade distorting and environmentally harmful subsidies is the most significant contribution of trade reform to efficiently allocating resources

[8] International trade is directly responsible for environmental harm in a limited number of cases (e.g. transport of goods and trade in hazardous wastes, chemicals or endangered species) (Nordstrom & Vaughan, 1999).

and enhancing environmental quality (Low, 1992; Munasinge, 1996; Nordstrom & Vaughan 1999; Borregaard, 1999; IISD & UNEP, 2005). From an environmental perspective, this recipe only works if environmental costs are taken into account. In the real world, getting the prices right for environmental goods and services (referred to as internalization of environmental externalities) is difficult to achieve. Moreover, environmental management policies are also difficult to implement. Nevertheless, it does represent a first step in the process of appropriately valuing the natural resource base and, thereby, creating the conditions for its sustainable use.

Current unsustainable use of renewable resources, such as land, forests and fisheries, resulting from subsidies is extensively cited in the literature when discussing the benefits of trade reform to environmental sustainability (OECD 1998; Milazzo 1998; IISD & UNEP 2005). Subsidies are provided by governments to a broad range of economic activities and are estimated to be in excess of US$870 billion per annum, including subsidies for energy, transportation, water, agriculture and fisheries. OECD estimates for the agriculture sector alone are US$320 billion per year (Steenblik 2008).[9] There is a vast collection of empirical evidence related to the environmental impacts of agricultural production processes, both in support of liberalisation to bring about environmental benefits (Low 1992; Anderson 1992) and against liberalisation (French 1993; Ekins et al 1994).

The arguments in favour support the general premise that removing trade restrictions and distortions tends to lead to more efficient allocation and use of resources. The agricultural sector is particularly environmentally sensitive due to its links to natural resources; extensive agricultural production has been accompanied by land degradation due to soil erosion, overuse of chemical fertilisers and pesticides, poor water management and loss of natural forests and biodiversity. As noted above, failure of the market to incorporate environmental externalities compounded by policy failures, for example subsidies on inputs such as water, fertilizers as well as to support incomes and encourage exports, results in environmental degradation (Runge 1994). Simply put, when governments provide price subsidies to environmentally damaging inputs or outputs for economic or social purposes, the unintended

[9] The WTO estimates the value of trade-distorting subsidies to be more in the range of US$125 billion annually. For an extensive discussion of the different forms of subsidies and their consequences, see the Global Subsidies Initiative (GSI 2008).

consequence is environmental damage.[10] These environmental costs have largely been ignored.

Reforming agricultural subsidies is not only the key to concluding the current Doha round of WTO trade negotiations, but arguably also at the center of the trade and environment debate. This issue is particularly relevant in the current global energy crisis where agricultural production for food may have to compete with production for fuel (ESCAP 2008; Shaw 2008). Economists have called for an end to direct payments to European farmers. These subsidies to the agricultural sector represent approximately half the total annual budget of the European Union.[11]

Due to the fact that the relationship between trade liberalisation and environmental sustainability is *indirect* through the impact of levels and patterns of production and consumption, there has been considerable investigation into the *scale* impacts of increased levels of economic activity and *composition* impacts if environmental factors of production are not internalised in market prices (Low 1992; OECD 1994; Gandhi 1996; Nordstrom & Vaughan 1999).

Exploring the environmental effects of trade liberalisation is widely held to be a complex task (WTO 1996; IISD & UNEP 2005). The analytical framework put forward in the literature to examine the relationship between trade and environment identifies five categories of potential effects: scale, composition, technology, product and regulatory (Grossman & Krueger 1991; OECD 1994, 2000). Despite concerted efforts to provide assessment methodologies and economic modelling approaches, "it is still difficult to draw precise economic causal links resulting from trade liberalisation and to determine the correlation between the economic data and the environmental consequence" (OECD 2000). Moreover, whether trade has a positive or negative environmental impact will depend on the *context* in which trade liberalisation occurs and the degree to which policies are put in place to address potential negative impacts. This highlights the fundamental role of environmental *governance* in making the trade-environment relationship positive.

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[10] One problem with government intervention is *unintended consequences*. For example, export restrictions on unprocessed logs to promote the domestic wood processing industry as well as protect the environment can result in the reduction of log prices, which, if not effectively enforced can actually provide incentives for illegal logging and lead to greater deforestation (Pye 2005).

[11] The economists' declaration is available at http://www.reformthecap.eu/posts/declaration-on-cap-reform-overview. Also see Najam, Halle & Meléndez-Ortiz 2009.

It is widely accepted that trade liberalisation has significant macro-economic effects, particularly on the level of economic activity, and influences the utilization of natural resources, energy and materials as well as pollution levels. Most authors agree that growth in economic activity is largely beneficial, although others have criticized the standard economic analysis involved in assessing the net gains of trade (Ekins 1992; Daly 1993a).

The argument put forward by classical economists is that economic growth creates an increased demand for improvements in environmental quality; these gains from trade can thus be used towards environmental problems. However, this is not an automatic relationship. In the absence of adequate environmental management, economic growth can increase the use of natural resources and associated pollution. If this is the case, it is a widely held view that trade-induced economic growth will lead to increased pollution and unsustainable production and consumption (Low 1992; OECD 1994). Potential technology effects of trade liberalisation are largely deemed to be both economically and environmentally beneficial. The regulatory and policy effects are a dynamic aspect of the trade-environment linkages. Several studies illustrate the potential for trade policies to have significant impacts on environmental standards (Jha 2006; Vossenaar 2006). There has been a tendency for environmental standards in developing countries to increase in order to meet the demands in their export markets. The flip side of this argument is that developing countries are finding it increasingly difficult to enter OECD markets due to these rigorous environmental standards. The costs of compliance required to do so are discussed below.

The sustainable development paradigm [12] attempts to integrate environmental sustainability within the mainstream neo-liberal trade and development framework. Trade liberalisation is a key driver of development. Trade, it is often recalled in the literature, is not an objective in itself – it is the means to an end (Bhagwati 1991; WTO 1996; Sally 2008). In this respect, the argument is that trade contributes to economic growth and in turn to development. There have been many studies that examine the way in which specific liberalisation policies impact the environment (OECD 1994; IISD & UNEP 2005). As an empirical matter, however, a large body of research supports the statement that growth and

[12] The term paradigm refers to assumptions regarding how the world functions. In other words, the dominant paradigm is the accepted view of reality. In *The Structure of Scientific Revolution*, Kuhn (1962:5) states that when historically dominant paradigms have become too rigid to come to terms with the existing reality, they only shift when anomalies or unexplained findings lead to a revolution in ideas that developed into a replacement paradigm.

poverty reduction go hand-in-hand.[13] To a great extent, the development debate has moved beyond the assumption that economic growth will automatically result in poverty reduction or environmental improvement (Klasen 2005). Within the wide spectrum of the development community, the critique has also moved distinctly towards assessment of development and modernisation in order to bring about institutional reform and address poverty reduction as well as environmental sustainability (Marglin 1990; Rodrik 2000; Klasen 2005; Speth 2008).

The idea of a dynamic two-way balance in the human-environment relationship is intuitively attractive. A core assumption is that sustainable development should promote a mutually supportive interaction between development and the environment. Challenging the complementary nature of the concept, Herman Daly, a former World Bank economist, in *Beyond Growth: the Economics of Sustainable Development* (1996) defines sustainability as "development without growth beyond environmental carrying capacity, where development means qualitative improvement and growth means quantitative increase". In other words, development should be defined by both quality and quantity of growth; growth needs to respect the limits of the Earth's capacity to sustain growth.

In principle, whether trade liberalisation results in net economic benefits will vary from case to case. What is certain, however, is that whenever there is economic restructuring there are positive or negative environmental impacts. When new factories open, for example, they contribute to pollution (though they may be cleaner than what they have replaced). There is no disputing, however, the fundamental truth: trade is linked to environment because economic change has environmental impacts.

First, there are at least three ways in which trade liberalisation and environment sustainability may be in *conflict*:

1.1 More trade and economic activity may result in more environmental degradation (scale effects);

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[13] A growing body of literature has shifted from measuring the correlation between economic growth and openness to a more sophisticated assessment of development and the growth-poverty debate. Recognising that rising national income does not necessarily bring about improved income distribution or poverty reduction, the focus in recent literature is on so called '*pro-poor*' growth. The research examines the types of social policies that are necessary to distribute income gains to the poor. See Klasen, 2005. The United Nations Millennium Goals are reflective of this shift in emphasis.

2.1 The competition brought about by free trade may put pressure on governments to lower environmental standards (the 'race to the bottom' argument) (structural effects); or

3.1 Trade agreements may prevent governments from enacting certain environmental regulations (regulatory effects).

With respect to the scale of economic activity, a WTO study on trade and environment recognises that: "[t]he growing world economy has been accompanied by environmental degradation, including deforestation, losses in biodiversity, global warming, air pollution, depletion of the ozone layer, overfishing, and so on" (Nordstrom & Vaughan 1999). Given the prominent role of trade as an instrument of growth, there is a wealth of literature that expands on the linkages between trade liberalisation, economic growth and environment quality. As noted above, the assertion by economists is that trade liberalisation has the potential to lead to facilitate increased wealth, which can, in turn, be dedicated to environmental protection (Grossman & Krueger 1991; Bhagwati 1993). Nevertheless, as critics are quick to emphasise, "trickle down" environmental benefits are not automatic (Ekins 1992, 1997; Daly 1993a; 1996). The literature accentuates the prerequisites that need to be firmly in place in order for this to occur. The relationship between economic growth and environmental quality is discussed below in the case of Thailand.

Second, there are at least three ways in which trade liberalisation and environmental sustainability are *complimentary*:

1.1 Trade liberalisation can lead to higher levels of development and make available resources for environmental protection. *The environmental Kuznets curve, whereby environmental quality gets worse before it gets better as income rises, will be discussed further below*;

2.1 Liberalising trade by removing trade-distorting subsidies and other support for over-production is likely to lead to more efficient resource allocation. *These subsidies encourage depletion of environmental resources for example in the agriculture, fisheries and energy sectors*; and

3.1 Trade liberalisation of environmental technologies would lead to greater dissemination of environmentally sound technologies to reduce polluting production processes, for example in the agricultural sector. *Trade restrictions*

on services or technologies to recycle or otherwise limit environmental harm can prevent the efficient protection of the environment.

Notably, both sets of conflictual and complimentary arguments rest on the institutional framework in which trade liberalisation is undertaken. In other words, *governance* is a crucial institutional variable to mitigate bad policies and enable good policies to ensure that trade liberalisation contributes to environmental sustainability. If trade is essentially aimed at exploiting markets, to a significant extent environmental concerns lie outside the market. As explained above, if these concerns remain "externalised" from consideration in the economic structure due to "market failures," it is the role of governments to put in place a framework for sustainable trade.

Matrix on bioenergy trade and environment linkages

The Matrix in the table below illustrates the various linkages between trade and environment, including the driving force that prompts the initial change, and the mitigating factors that might alter the final environmental impact for better or for worse, as well as the development implications. This matrix is used as a framework for understanding the linkages addressed in this research. The matrix is not exhaustive, but rather illustrates selected linkages as examples to convey the nature of the trade-environment relationship described in this research.

Table 1: Matrix on bioenergy trade and environment linkages

Category	Driving Force	Pressure	Effects	Mediating Factors	Development Implications
Scale effects -ve and +ve	-ve: increased regional market access from reductions in tariffs in ACMECS and GMS +ve: lowered domestic tariffs in ACMECS & GMS	-ve: increased scale of production +ve: increased efficiency of production	-ve: increased consumption of natural resources; increased production-related pollution (air, water, soil) +ve: reduced consumption of natural resources; reduced production-related pollution (air, water, soil)	-ve: if environmental regulatory regime is adequate (sustainable forest management), there is little negative effect. If not, then negative effects ensue. +ve: use of environmentally sound technologies enhances environmental benefits	-ve: increase in biofuel exports leads to accelerated and unsustainable deforestation +ve: domestic ethanol and biodiesel plants increase efficiency to meet regional competition; improve processes to require less inputs, produce less polluting waste
Structural effects -ve and +ve	-ve: greater openness to and attractiveness for FDI due to better regional market access +ve: increased foreign market access from lowered tariffs in ACMECS, GMS	-ve: higher polluting firms migrate from higher standard countries to lower-standard countries +ve: increased demand for "green" goods means cleaner overall production mix in the economy	-ve: increased consumption of natural resources; increased production-related pollution (air, water, soil) +ve: reduced consumption of raw materials and energy inputs; reduced polluting emissions (air, water, soil)	-ve: this pollution haven effect will not occur if a strong environmental regulatory regime is in place +ve: national certification of processing & production methods (PPMs) enhances effects	-ve: increase in fertiliser use for agroforestry plantations leads to water contamination, human health issues +ve: increased share of organic producers in export-oriented agricultural production means less water pollution, less harm from pesticides
Regulatory effects -ve and +ve	-ve: GMS investment framework +ve: rising income from trade and investment liberalisation	-ve: provisions on indirect expropriation constrains the ability of regulatory authorities to regulate +ve: increased public demand for higher environmental quality	-ve: weaker enforcement of environmental laws; reluctance to draft new environmental laws (regulatory chill) in order not to lose FDI +ve: stronger enforcement of environmental laws & standards	-ve: if private investors successfully argue that regulation amounts to indirect expropriation, there will be a regulatory chill +ve: this effect is stronger if the decisionmaking process is transparent & inclusive	-ve: domestic ban on a toxic substance is challenged by the foreign-based manufacturer as an indirect expropriation of its investment +ve: SPS regulations better ensure that agricultural productions comply with ISO standards

Source: adapted from Shaw et al 2007

Flowing from the Matrix, the questions compiled for the informant interviews are based on consideration of the following five types of possible environmental effects arising from trade.

Scale effects are the result of straightforward changes in the volume of economic activity. When a country liberalises, it will have a much larger potential market to serve than its own domestic market. Meeting this demand may allow it to utilise resources that had previously not been used, increasing the national scale of economic activity. As well, the increased wealth that trade liberalisation can bring may eventually increase the country's capital stock, meaning again that a greater amount of activity is possible. The increased scale of economic activity results in increased raw material use, and an increased amount of process-related pollution. This is a relatively simple equation: the more economic activity, the more environmental damage, other things being equal.

When trade is liberalised, we can expect to see increased efficiency in the economy overall, the result of comparative advantage – each trading partner produces those items at which it is relatively more efficient. In those sectors where a country has comparative advantage, production will increase. There will also be sectors, however, where a country scales back its production and instead imports from a more efficient producer. The result is a changed economic structure for the country as a whole. If the new economic structure has a greater share of low-polluting sectors and a lower share of polluting sectors, the ***structural effect*** is environmentally positive, and vice versa. The final result of this impact is of course completely dependent on the economic characteristics of the countries in question and the specifics of the liberalisation, which will determine which sectors rise and which fall.

Regulatory effects are environmental impacts caused by trade-induced regulation. The most positive type of these impacts comes from higher environmental standards that result when the country's citizens become increasingly wealthy as a result of trade liberalisation. Negative linkages result, on the other hand, when the provisions of investment law allow environmental regulations to be challenged as indirect expropriation. ***Technological effects*** have a key role to play in this equation, particularly in the development of bioenergy. These effects can come through the importing of new technologies, through new foreign direct investment, or through the innovation of domestic firms that are forced to become more

efficient when tariffs are removed. In all these cases, the basic equation that links production and environmental impacts is changed for the better. Efficiency means less use of raw materials or less waste and pollution created in the production process.

The framework used in this research aims to convey the nature of the linkages between trade and environment in the context of sustainable development. In the final analysis, the relationship hinges on the fundamental links between economic activity and the environment – links that can be either positive or negative, depending on the specifics of the case and governance structures in place (e.g. institutions, coordination mechanisms). A key element is *institutions* – be it governments, laws or markets – in managing the relationship between trade and environment in a manner that contributes to sustainable development.

Why development is at the core of the debate

We shall never achieve harmony with land, any more than we shall achieve absolute justice or liberty for people. In these higher aspirations, the important thing is not to achieve but to strive.

Aldo Leopold, from the journals of an American conservationist, 1887-1948

Energy is a pre-requisite for meeting the challenges facing the international community in the 21st century. Nearly one third of the world's population has no access to electricity; another third has poor access only. In addition, about 2.5 billion people mainly in Asia and Sub-Saharan Africa rely on traditional fuels, such as wood, dung and agricultural residues to meet their daily heating and cooking needs. It is mainly women that suffer the impacts of energy poverty as they struggle to feed their families. Increasing renewable energy, thus, allows for a reconciliation of advancing development while addressing environmental sustainability.

As the Indian Prime Minister, Indira Gandhi poignantly declared nearly 40 years ago at the Stockholm Summit on Human Settlements in 1971 "poverty is the worst kind of poison for the environment." The point was that poverty can force the poor to clear century-old forests to meet their daily energy needs because they have no alternative sources of income.

Along these lines of argumentation, there has been extensive focus in the literature to apply the Kuznets curve to the environment (Ekins 1997; Norstrom & Vaughan 1999). As Kuznets (1955) posited with respect to income inequality, the environmental Kuznets curve hypothesis argues that while economic growth may lead to increases in pollution in the early

stages of development, it is a significant driver of environmental improvements as income levels increase. If environment is central to the problem, it is posited by economists that economic growth is part of the solution.

Since the early 1990s, a wealth of empirical applications has measured environmental degradation as a non-linear (u-shaped) function of income (i.e. as income increases, pollution increases until a certain income level is reached) (Grossman & Krueger 1991, 1995; Selden & Song 1994). The 1992 World Bank *Development Report* emphasised the *environmental Kuznets curve* and suggested that environmental degradation can be slowed by policies to protect the environment and promote economic development.

Thereafter, the debate over this controversial concept and the link between economic growth and environmental quality has certainly been extensive, with volumes of data to back up the various claims. The current head of the UN Division on Sustainable Development and development economist, Tariq Banuri (1997) argues that "the environmental Kuznets curve is a good example of torturing the data so hard that ultimately it says, 'Okay, okay, things will get worse then get better'." One of the ways in which this result is obtained is by excluding variables that do not fit the picture. Importantly, the environmental Kuznets curve does not work in the case of climate change – rising incomes bring about rising levels of greenhouse gas emissions (Stern 2004; Suthawan 2007). Thus, while this relationship between growth and environment may apply to a few specific cases, it is not possible to make any further generalizations.[14]

Bringing developing countries into the debate

From the outset of the international debate, there has been a strong North-South component to the issues raised by the linkages between trade liberalisation and environmental quality. In this respect, two sets of concerns have been enunciated related to: (i) competitiveness; and (ii) market access. Among the earliest manifestations of concern about the effect of pollution abatement on *competitiveness* can be found in the OECD's establishment in 1975 of the 'Polluter Pays Principle, which states that:

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[14] Nonetheless, empirical enquiry continues with appropriate modifications of variables. Bailis (2005), for example, finds that an inverted-U pattern for greenhouse gas emissions is "highly dependent on technology and policy instruments."

> the polluter should bear the expenses of carrying out (pollution prevention and control) measures decided by public authorities to ensure that the environment is in an acceptable state.

In the early 1990s, most countries enacted environmental laws and regulations to ensure the application of this principle; if a factory pollutes a river with toxins, it is responsible for any resulting health and environmental damages (Sands 1995). A discussion of the literature on competitiveness follows below in the case of Thailand.

Attention in international governance institutions, such as the OECD, World Bank and the WTO has increasingly focused on *market access* and *equity issues* (OECD 2000; Klasen 2005; WTO 2005). If globalisation has been accompanied by a rise in global inequality, the verdict certainly in developing countries was that protectionism in developed countries, to a significant extent, was to blame. The rise of non-tariff barriers to trade, such as health and environmental standards, have conditioned market access in OECD economies; developing countries who are unable to meet these increasingly rigid standards find themselves excluded from the market (Jha 1998, 1999, 2006).

Competitiveness concerns: the pollution haven hypothesis

There has been a vigorous debate concerning whether lax environmental regulation has attracted polluting industries as predicted by the 'pollution haven hypothesis' or 'race to the bottom' on environmental standards. Empirical evidence in support or against the hypothesis remains somewhat unclear, with varying methodologies yielding varying results (Cosbey 2004; Copeland & Taylor 2003, 2004). Some recent studies have provided support for the pollution haven effect in specific sectors where industry is highly mobile and pollution intensive with significant control costs (Ederington & Minier 2003). One study of Thailand notes that while foreign direct investment (FDI) has helped to promote exports, development has brought with it a range of negative environmental impacts associated with a shift from agricultural to manufactured exports, increased capital intensity of exports and weak and ineffectively enforced environmental regulations (Mukhopadhyay 2006).

However, the consensus of empirical studies over the past two decades has failed to find any significant effects on industrial location of weaker or stricter environmental regulations. It is noted that differences in pollution policy are only *one* of many factors that impact on trade and influence investment decisions (Tobey 1990; Low and Yeats 1992;

Birdsall & Wheeler 1993; Copeland & Taylor 2003). However, certain industries do entail significantly higher pollution control costs (chemicals and primary metals) than others with more modest pollution control costs (electrical and non-electrical machinery). At issue is the effect of weak environmental regulation on foreign direct investment.[15]

In Thailand, foreign direct investment has played an important role in the shift in composition of exports from agricultural to manufacturing products since the 1980s (Pasuk & Baker 2008a). In this respect, Mukhopadhyay (2006:33) devises a 'pollution terms of trade' for Thailand based on three pollutants (carbon dioxide, sulphur dioxide and nitrogen oxides) and determines that "lax environmental regulations and non-compliance have distorted the pattern of comparative advantage in Thailand."

On the other hand, Kohpaiboon (2003) finds evidence that foreign plants are significantly more energy efficient and use cleaner types of energy than their host peers. Using data for 1960 to 1995, a World Bank study by Mani and Wheeler (1998) finds that the displacement of pollution to developing countries does not prove to be a cause for concern in large part because pollution havens have been self-limiting given the *increased regulations* and *investment in cleaner production* brought about by economic growth. Using a comprehensive database for environmental regulations across 119 countries in five high-polluting industries, Busse (2004) also finds that a shift towards pollution havens cannot be supported, with the exception of the iron and steel industry, where a negative correlation between *stringency of environmental regulations* and net exports is found.

A study, Javorcik and Wei (2004), respectively from the World Bank and International Monetary Fund, looked at investment flows to 25 economies in Eastern Europe and the former Soviet Union. They find no systematic evidence that foreign direct investment from *dirtier* industries is more likely to flow to countries with weak environmental regulations.

This discussion is relevant to the current thesis if Thailand, for example, exports the socio-environmental problems associated with agroenergy development to neighbouring Mekong region countries. Given the strict standards for agroenergy in Thailand, it may be less

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[15] Economists Xing and Kolstad (2002) use aggregate national sulphur emissions in the US to show that "the laxity of environmental regulations in a host country is a significant determinant of FDI for heavily polluting industries and is insignificant for less polluting industries."

expensive for Thai investors to source biofuel feedstocks in Cambodia, Lao PDR or Myanmar.

Market access concerns: the role of environmental standards and regulations

Notwithstanding the verdict on competitiveness, *environmental management and regulations* need to respond to changes brought about by trade and investment liberalisation. For example, if competitiveness and productivity can be linked with environmental regulations, it is appropriate to put in place and, importantly in the case of Thailand, *enforce* stricter regulations. There is also a case to be made for using incentives structures as opposed to Thailand's use of traditional 'command and control' regulations to stimulate sustainable resource management (Mingsarn 2000). For example, the Thai Ministry of Finance is considering the use of market-based economic instruments to encourage a shift towards more energy efficiency in Thailand, including financial and tax incentives for investing in alternative energy sources, such as biofuels.

Recent evidence supports Birdsall and Wheeler's (1992) early study that found a correlation between *openness* to international trade and investment in 25 Latin American countries was a key contributor to reduced pollution intensity. Openness to foreign direct investment, particularly in the manufacturing sector, continues to act as a key driver of export growth in Thailand, providing opportunities for "learning by exporting." As noted above with respect to competitiveness, Thailand can build on the fact that a large share of foreign direct investment emanates from companies that meet and are accountable to *higher* international standards in order to encourage sustainable investment and stimulate use of environmentally sound technologies, particularly in the manufacturing sector.

In assessing the environmental impacts in the Thai electronics sector, Charit (2007) and Vossenaar (2006) find that environmental sound technology and eco-design is improving rapidly to meet the environmental requirements in its main export markets. Eco-efficiency in this sector will enable Thailand to maintain export competitiveness, while addressing growing domestic concerns related to e-waste generation as described in a study by Suthawan Sathirathai (GSEI 2007).

The extent of compliance costs to meet health and environmental standards has been a key issue in empirical studies. A study by the UN Economic and Social Commission for Asia

and the Pacific (ESCAP 2007) on the trade and environment linkages in the food and processed food sector found that exporters in the region had realised the importance of complying with food safety standards. Despite the proliferation of standards, they did so in order to gain access to developed country markets. While costs diverge vastly across firms and sectors, compliance costs for a vast number of Thai firms reached up to 5% of total sales; in a few cases it exceeded 15% of total sales. Recent studies have found evidence that Thai environmental standards have risen to meet the demands in export markets in several sectors, including electronics, shrimp, fruits and vegetables (TEI 2001; Shaw 2007; GTZ 2008). This is indicative that Thailand has the capacity to implement stricter socio-environmental standards, which is an important aspect in relation to the development of the agroenergy sector in Thailand and the Mekong region. In this way, it is possible to craft a modernisation process that is more sustainable in the Mekong, including in the agroenergy sector.

2.3 Sustainable development from the perspective of multiple modernities

> *We must choose developmental variants that do not close off the future, but transform the modernisation process itself into a learning process, in which the revisability of decision makes possible the revocation of side effects discovered later.*
>
> Ulrich Beck, *Risk Society: Towards A New Modernity*, 1992

This research places sustainable development in the theoretical framework of reflexive modernisation and multiple modernities. These frameworks recognise that transitions to what is identified as modernity occurs in different contexts and produces different results, reflecting divergent starting points (Taylor 1991) and the nature of contemporary risk (Beck 1992) in the context of globalisation (Martinelli 2005). There is thus not a singular modernity but *multiple* modernities. Different societies will develop distinct approaches to change based on different institutions and outlooks. Such a cultural approach to modernity, according to Shmuel Eisenstadt (2000), a leading modernisation theorist, takes into account that "modernity is an open-ended horizon in which there is space for multiple interpretations."

As is elaborated in this section, modernisation theory has changed significantly since its inception in the mid 20th century. In sum, the main underlying ideas of the third wave of modernisation theory – *multiple modernities* – include:

1.1 There are no universal or inevitable processes underpinning social change. Instead complexity, timing and context are relevant in the process of modern social change.

2.1 The project of modernity is not a coherent unity, but contains diverging and conflicting tendencies.

3.1 Modernity is shaped by human agency alongside institutional change. That is to say that the cultural dimension of modernity expands the possibilities for multiple interpretations of modernity.

4.1 In this light, modernity is understood as a cultural project within a structural reality. There is a range of options that modern societies can choose to take towards moulding an interpretation of globalisation.

In this way, the theory of multiple modernities abandons the normative and ideological biases in previous incarnations of the theory of modernity in order to permit more objective and empirically-based interpretations of sustainable development that vary in time and space. Importantly, these interpretations are grounded in a reflexive understanding of the nature of social change (Bourdieu 1992) and the unintended environmental consequences of modernity (Beck 1992), which have emerged as a common threat to our existence.

The following section reviews the history of modernisation theory and puts forward the theory of multiply modernities drawing on Ulrich Beck's (1992) reflexive modernisation theory and Alberto Martinelli (2005) and Shmuel Eisenstadt's (2000) understanding of the concepts underlying the theory of multiple modernities.

Modernisation theory

> *The term 'modern' usually implies a state of advancement, betterment, progress, even goodness or virtue. That is to say, it claims superiority over its counterpart, the premodern and traditional. This claim, of course, is not necessarily true. Unfortunately, because of its relativity and vagueness, the term is flexible and encompassing and therefore applicable to any occasion. As a result, it is very useful in this respect.*
>
> Thongchai Winichakul, *Siam Mapped,* 2004

As one of the most significant theoretical paradigms in the social sciences since the 1950s, modernisation theory emphasises the process of change and the responses to change.

Drawing from early writings that are identified with modernisation,[16] Wolfgang Knobl (2003) outlines several assumptions underlying the process of modernity, including:

1.1 Modernisation is a global and irreversible process beginning with the Industrial Revolution in Europe in the mid-18th century.

2.1 Modernisation is an historical process from traditional to modern society.

3.1 Modernisation is basically an endogenously-driven process.

4.1 Social change towards modernity in different societies occurs in a uniform and linear way.

Central hypotheses of modernisation theory were the interdependence between economic growth and democratisation, and the interpretation of 'traditional' as the counterpart of 'modern'. Modernity need not, Bellah (1957) and others argued from the outset, lead to the emergence of rational and secular values. Nor was development a uniquely linear process as suggested by Levy's (1966) simple but central dichotomy between traditional and modern. With its roots in the late 18th century Enlightenment, modernisation was fundamentally based on the idea of *progress*, suggesting an optimistic path for societies to develop and change for the 'better'. Moreover, there could be continuous progress and improvement of socio-economic development. Modernisation was an interdisciplinary theory of social change explaining the relationship between culture and economic progress. In this respect, modernisation was a distinctly Western construct; as a key architect of modernisation, Eisenstadt (1966:1) notes:

> Historically, modernisation is the process of change towards those types of social, economic, and political systems that have developed in Western Europe and North America from the 17th century to the 19th and have then spread to other European countries and in the 19th and 20th centuries to the South American, Asian and African continents.

In an aptly named article, "Theories That Won't Pass Away: The Never-Ending Story of the Modernisation Theory," Knobl (2003) argues that early modernisation theory was not able to develop "an empirically fruitful tradition of social change." While, increasingly, critics

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[16] While there is no one single unifying work defining modernisation, Knobl (2003) identifies the following mainly American writers associated with the theory: Daniel Lerner's *The Passing of the Traditional Society* (1958); Seymour Martin Lipset's *Political Man* (1959); Neil Smelser's *Societal Change in the Industrial Revolution* (1959); Walt Rostow's *The Stages of Economic Growth* (1960); David McClelland's *The Achieving Society* (1961); Gabriel Almond and Sidney Verba's *The Civic Culture: Political Attitudes and Democracy in Five Nations* (1963).

demonstrated that traditional is not the opposite of modern, this cross-disciplinary social science theory remained in vogue in the 1960s, also as a critique of Marxism. The theory tried to answer the question: what conditions lead to modernisation, since it was assumed that modernisation led to democracy. As noted above, the focus was on *endogenous* explanations for development. Modernisation was an *evolutionary* theory based on unidirectional social change from traditional to modern at a slow and gradual, but continuous rate.

As noted in the initial quote above from Thongchai Winichakul (2004), the term 'modern' imposes a value judgment that this evolution represented "progress, humanity and civilization" (Knobl, 2003). In addition, it is sufficiently vague to continue adapting to the changing conditions of modernity. Parsons (1951) developed a functionalist theory of modernisation that involved conceiving of society as an organism, whereby each institution performed different functions. Similar to Darwin's theory, societies and cultures can develop over time as is the case for biological evolution; this process includes adaption to the surrounding environment and interaction with other societies.

Modernisation theory formed the basis for the post-World War II foreign policy of the United States to contain Communism during the Cold War with the Soviet Union; the theory has been accused of being the "ideological handmaiden" of US Cold War geopolitics (Knobl 2003). Modernisation theory was the foundation for Walt Rostow's (1960) treaties on the stages of economic growth required for developing countries to 'take-off.' In *The Stages of Economic Growth: A Non-Communist Manifesto*, Rostow provided what has been called "among the most simplistic, mediocre and unscientific body of thought on political economy of development" (Knobl 2003). Rostow placed all societies in one of five categories or stages of economic growth and outlined patterns and thresholds to delineate preconditions for take-off to mass consumption. Rostow considered communism to be a "disease of the transition" to be abandoned at a later stage on the way to economic prosperity.

Identifying modernity as a contradictory and problematic phenomenon, Martinelli (2005:20) defines its core cultural, social, economic and political aspects: (i) rationalism and individualism/subjectivity representing the tension between individual liberty and social organisation; (ii) absence of limits, incessant quest for knowledge, innovation and discovery – scientific curiosity; (iii) market-driven industrial capitalism; and (iv) institutional formation of the nation-state as the embodiment of political authority.

The literature highlights that the strengths and weaknesses of this theoretical concept were already obvious from the outset. Critics pointed to the flawed assumption that all countries can, would and should follow this development path to modernisation. Another assumption that was criticised concerned the correlation between economic development and democratization. Economic development associated with modernisation assumed major shifts in prevailing values and beliefs. Nevertheless, as it turned out, economic growth did not bring about the anticipated social transformation in the so-called "Third World"; there was insufficient 'take-off'. Moreover, there were strong critiques of the 'ethnocentric' assumption that socio-economic progress would function in all counties equally and incorporate 'modernised' or 'Westernised' values.

The last few decades of the 20th century witnessed several important critiques of modernisation theory, as well as a revival in the 21st century – hence Knobl's (2003) reference to modernisation theory as a "never-ending story."

A *second* wave of modernisation theories evolved in the 1970s and 1980s to refute the typified approach, as well as the evolutionary nature of the classic theory. The *dependencia* theory developed by Cardoso and Faletto (1971) among others explained underdevelopment in Latin America due to its unequal exchange with the 'metropolises' of former colonial powers. As the name implies, the *world-system theory* of Wallerstein (1974) placed underdevelopment in the context of a single world economy, wherein countries were divided into core, periphery and semi-periphery. With its base in economic criteria, world-system theory placed developing countries in the periphery as providers of raw material and agricultural products not processed by the centre. If classic modernisation emphasised endogenous factors behind change, the neo-Marxist dependencia and world-system approaches almost exclusively focused on *exogenous* constraints resulting from neo-colonial relations and leading to inevitable exploitation and dependence.

In the conceptualisation of economics as a *social theory*, whereby the background behind ideas is almost as important as the idea itself, Karl Marx marked the bourgeoisie as the driving force behind the emergence of capitalist industrialisation. Max Weber identified the Protestant ethic as fundamental to the development of western political culture of democracy. From this perspective, in the 1950s, attempts were made to empirically prove a positive correlation between socioeconomic development and level of democracy. Zehra Arat (1988)

re-examined whether democratic development was an evolutionary phenomenon in modernisation. Measuring democracy in a select group of countries between 1948 and 1977, Arat confirmed Lipset and Coleman's conclusion thirty years earlier that economic development was a necessary but not sufficient condition for democracy – it is not a one way ladder; countries climb up and down as economic and social structures develop.

Following the demise of communism in the 1970s and the rise of the Asian tigers in the 1980s, the 1990s ushered in an era of euphoria for neo-liberalism. Societies had adjusted to economic growth and global integration. They were increasingly converging towards democratic market capitalism. The theory of modernisation appeared to have been validated. Most noteworthy in this respect is Francis Fukayama's "mad joke of the end of history" (Beck 1992:11), which claimed the "universalisation of Western liberal democracy" had been achieved with the end of communism (Fukayama 1992).

Globalisation is central to the re-examination of modernisation theory for Ulrich Beck (1992) and Anthony Giddens (1991). This *third* and current wave of modernisation developed *reflexive* modernisation, which is social theory in its finest form (Beck, Giddens & Lash 1994). Beck and Giddens are inspired by Habermas' theory of communicative action (1985), which focused on enlightened rationality towards risks and rejected the idea of the end of modernity as noted above. Reflexivity is a result of society constantly re-examining itself based on continual inputs of knowledge (Giddens 1990:16-17). Positing that modernisation has overlooked environmental issues as a social construct, Beck (1992) considers environmental degradation to be the inevitable consequences of *social* progress. Of key importance to all three of these sociologists is the intensification of *risk* in the modern society as a consequence of modernity. Thus, environmental degradation and heightened risk are built into the *process* of modernisation.

Beck's analysis develops a captivating perspective on the darker side of progress that has come to dominate social debate and requires constant reflexive reference to and trust in science and knowledge. In this respect, the dire environmental forecasts concerning climate change illustrate the paradox of modern science and technology.

To illustrate this sombre side, Beck's (1992) conceptualisation of the risk society gives pride of place to the environmental crisis in light of the transboundary nuclear pollution following the Chernobyl accident. There are enormous benefits to scientific and technological

innovation, but also catastrophic, even apocalyptic, Beck would claim, potential for destruction. The concept of risk is at the centre of his narrative of contemporary society, in which modernity has changed the global nature of risks and our awareness of them.

> In contrast to all earlier epochs (including industrial society), the risk society is characterised essentially by a *lack*: the impossibility of an *external* attribution of hazards. In other words, risks depend on *decision*; they are industrially produced and in this sense *politically reflexive*. While all earlier cultures and phases of social development confronted threats in various ways, society today is *confronted by itself* through its dealings with risks (Beck 1992: 183, italics in original).

The process of industrial modernisation has resulted in great environmental risks:

> Risks are the reflection of human actions and omissions, the expression of highly developed productive forces. That means that the sources of danger are no longer ignorance but *knowledge*; not a deficient but a perfected mastery over nature; not that which eludes the human grasp but the system of norms and objective constraints established with the industrial epoch. Modernity has even taken over the role of its counterpart – the tradition to be overcome, the natural constraint to be mastered. It has become the threat *and* the promise of emancipation form the threat that it creates itself (Beck 1992: 183, italics in original).

Along these same lines, according to Giddens:

> Modernity, as everyone living in the closing years of the 20th century can see, is a double-edged phenomenon. The development of the modern social institutions and their worldwide spread has created vastly greater opportunities for human beings. [...] But modernity also has a somber side, which has become very apparent in the present century (Giddens 1990:7, italics added)

As pointed out by Martinelli (2005:100), Beck's theory is of critical importance to understanding developing countries' appreciation of risk. As illustrated by the quote from Beck introducing this chapter, the way in which risk is conceptualised impacts, in turn, the choice of development path in the process of modernisation. There are significant costs of growth at the beginning of modernisation in terms of environmental destruction and human labour conditions:

> Thus, what Polanyi (1944) defines as the 'dilemma of the self-regulating market' still seems relevant, that its, the dilemma between the development of the market mechanism (which involves the risk of physically destroying humankind and transforming the environment into a desert) and the policies intended to oppose such development (which imply the risk of disorganizing economic life, placing society in danger in a different way) (Martinelli 2005:100).

In unravelling the complexities of the globalised modernity, Giddens proposes to focus on *institutions* and the role of human agency, which makes his new theory of reflexive modernity more concrete and accessible. At the risk of oversimplification, one of the implications of reflexivity is to acknowledge that the *social context* in which knowledge is attained is constantly evolving. This emphasis may be one explanation for the continued reincarnation of modernisation theory in general - it enables a dynamic process of enquiry, as opposed to a static set of tools to examine social change. Giddens' focus on institutions and the role of human agency as well as Beck's dynamic appraisal of risk raises important issues about the way in which globalisation has become a distinctive feature in the contemporary narrative of modernity.

Moreover, narratives are crafted based on *knowledge* acquisition. In this respect, economist and writer, Jacques Attali, emphasises that "how knowledge is created, accumulated, shared and voiced in a globalised world determines the extent and nature of inequality." Nevertheless, Beck (1986) would argue that it is not knowledge but awareness of the consequences and ability to understand the unintended consequences that characterises the contemporary *risk society*. In other words, we rely on the technicians who created the problems in the first place to provide solutions. In this manner, according to Beck (1986), "science becomes more and more *necessary*, but at the same time, *less and less sufficient* for the socially binding definition of truth." Beck characterises modern society in terms of risk because of: (i) the scale of uncertainty and risk; (ii) the proliferation of sometimes contradictory expertise on scientific matters; and (iii) the common nature of risk. Beck's response is for us to look before we leap. That is to say, there needs to be a reflexive dualism between nature and society that recognises our impact on nature as a consequence of modernity. It is in this light that Beck makes a clarion call alongside Bruno Latour and others for a second modernity to deal with the problems of the "organised irresponsibility of the contemporary process of modernisation" (Interview on CBC podcast 2007).

For Beck, the concept of responsibility and global justice is integral to dealing with the problems of modernity. In this sense, we know that those mostly affected by climate change, for example, have the least impact on emitting greenhouse gases. This is the idea behind the interconnected global environmental risks faced by contemporary society. What

Beck and Latour propose is to develop institutions that are responsible and reflexive – self aware of the apparent risks.

Context matters

Poverty is hierarchic, smog is democratic.

Ulrich Beck, *Risk Society: Towards a New Modernity*, 1992

We cannot go back on globalisation; it is here to stay. The issue is how can we make it work. And if it is to work, there have to be global public institutions to help set the rules.

Joseph Stiglitz, *Globalisation and its Discontents*, 2002

While globalisation has made modernity a global condition, Alberto Martinelli points out that, at the same time, it has fostered the 'dialectic interplay' of different cultural traditions to an unparalleled extent. This suggests:

> multiple modernities and of varieties of modernity and stimulates the need for good comparative research on the different cultural and institutional paths to and through modernity (Martinelli 2005:102).

While the classic conceptualisation of modernisation was shaped by the historical experience of Europe and the West, the contemporary existence of *multiple modernities* is a matter of empirical reality according to Martinelli. Distinct and multiple cultures and politics provide texture and shading to the ideal characterization of *outlook* (i.e. scientific rationalism, pragmatic instrumentalism, secularism) and *institutional orders* (popular government, bureaucratic administration, market-driven industrial economy). To realise this conceptualisation, Dilip Gaonkar, Director of the Centre for Global Culture and Communications at Northwestern University, notes the need to "interrogate the present" in order to understand *alternative modernities* (2001:14). It is clear that modernity has become global and multiple.

In *Development as Freedom* (2000), Nobel laureate Amartya Sen challenges several core assumptions of the process of modernisation. Sen suggests that:

> If freedom is what development advances, then there is a major argument for concentrating on that overarching object, rather than on particular means or some specially chosen list of arguments.

According to Sen, capabilities to enable development are *context* dependent. Moreover, "the flowering of global science and technology since the European Enlightenment is not an exclusively West-led phenomenon" (Sen, 2007).

In his acclaimed *Rethinking Development Economics* (2003:5), Ha-Joon Chang underlines the importance of developing their knowledge of individual countries when economists assist with designing development policies:

> Acquisition of knowledge of particular countries' economic structures, institutions, politics and socio-cultural factors that used to be regarded as a highly-valued – even essential – asset for development economists in the early days of the subject was denounced as a waste of valuable training time. Indeed, many of those who hold the 'economics-as-a-universal-science' view would go a step further and argue that the possession of detailed knowledge about a country is a sign of intellectual failure. In their view, it is a sign that the research has sought refuge in the intellectually 'soft' areas like languages and other social sciences because he/she was incapable of dealing with the 'hard' logical concepts required of rigorous economic analysis.

The need for flexibility to the generalized policy prescriptions of the Washington Consensus took some time to penetrate the hallowed halls of the International Monetary Fund and the World Bank. Proof of the reigning consensus is found in the New York Times columnist, Thomas Friedman's *The World is Flat* (2005), which put forward the liberal orthodoxy that only unfettered capitalism and free trade can address poverty in developing countries. Friedman's metaphor of a 'level playing field' for the world economy denotes a global production chain that sources from wherever is cheapest, produces wherever is cheapest, transports the cheapest way, sells at the highest price for the largest profit, investing the profits in expanding or diversifying production. In other words, Friedman's "flat world" of integrated chains of production is not limited to national boundaries, nor interested in the local content of development.

This view builds on a core assumption of modernity, elaborated by Kuznets in 1952, with respect to the positive correlation between economic growth and equity. This relationship has increasingly been challenged. Notably, there is no environmental Kuznets curve for climate change (Suthawan 2007; Ekins 1997). Moreover, as noted by Apfell Marglin and Marglin (1990), in the absence of redistribution, the necessity of *some* growth does not imply *more* is better.

In *One Economics, Many Recipes* (2007), Harvard University and former World Bank economist Dani Rodrik illustrates that policies tailored to a country's specific needs are the best recipe for growth to reduce poverty, not best practices emanating from the international establishment as put forward by the Washington Consensus.[17] Moreover, as Chang (2007) argues, free trade is an historical myth; modern history is one of protectionist trade policies that stretch back to ancient times.

To return to the subject at hand, the purpose of highlighting the above critiques of conventional neoliberalism is not to further criticize the Washington Consensus or modernisation theory. Rather, it is meant to illustrate the extent of reflexivity that, to a certain extent, is already built into the system to interpret the changing conditions of modernity. We have been able to move beyond Thomas Friedman's 'Golden Straightjacket' analogy reflecting the Washington Consensus policies in the 1970s and 1980s:

> As your country puts on the Golden Straightjacket, two things tend to happen: your economy grows and your politics shrink [...] the Golden Straightjacket narrows the political and economic policy choices of those in power to relatively tight parameters. [...] Once your country puts on the Golden Straitjacket, its political choices get reduced to Pepsi or Coke – to slight nuances of tastes, slight nuances of policy, slight alterations in design to account for local traditions, some loosening here or there, but never any major deviation from the core golden rules (Friedman 1999:87).

This analogy no longer holds as much validity. Thus, the issue is not whether adaptation is possible, but whether international governance institutions can respond quickly enough to meet the challenges of the global environmental crisis. Can modernity reinvent itself yet again?

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[17] Dani Rodrik writes a popular blog http://rodrik.typepad.com/ entitled "Unconventional thoughts on economic development and globalisation."

Response from the social sciences

Modernity has gone global, but this goes together with the diffusion of multiple modernities.
Antonio Martinelli, *Global Modernisation*, 2005

If there are still people left alive a hundred years from now – those people of the next century will be as astonished about our blindness today as we are about the blindness of the Easter Islander.

Jared Diamond, *Collapse: How Societies Choose to Fail or Survive*, 2005

What makes global environmental governance so difficult to achieve asks Michael Redclift (2000). Why is there no unified theory of environmental governance in the social sciences in response to a common problem asks Oran Young (2002b), a prominent American political scientist. Why has there not been a constructive engagement between bottom-up (small-scale systems) and top-down (macro-level systems) perspectives? Why has the environment continued to decline despite the growth and sophistication of the environmental community asks Gus Speth (2008), a leading figure in the environmental movement and former, long time head of the UN Development Programme.

Young attributes the apparent "disconnected discourse" to: (i) divergent research strategies; (ii) conceptual fixations; and (iii) conflicting methodological practices. Young notes that research on environmental governance has brought to light the dual role of institutions[18] both in solving and causing environmental problems. In this respect, Redclift (2000:161) critiques global environmental management for being either toothless (and ineffective) or coercive (and also ineffective). Noting that economic convergence through global market integration erodes the social and cultural autonomy of distinct groups, Redclift emphasises that: (i) environmental problems need to be 'contextualized' in their cultural frames; globalisation often removes them from their context; and (ii) global markets have penetrated ecological systems and local peoples, bringing neoliberal economic policies into

[18] The definition of 'institutions' is an example of the type of debate in which political science engaged extensively. Young (1994) defines *institutions* as "a set of rules, decision making procedures, and programs that define social practices, assign roles to participants in these practices, and guide interactions among occupants of those roles."

conflict with *sustainable livelihoods*, which in turn are dependent on a sustainable environment.[19]

As will be discussed later in this chapter, a significant body of the research identifies *institutional failures* as a key element underlying environmental problems. For example, local level management of incentives and disincentives or assignment of property rights to deal with 'tragedy of the commons' (Hardin 1968) open access to what are termed 'common-pool resources' (e.g. fish stocks, fresh water, clean air) (Olson 1965; Ostrom 1990).[20] Institutions also intervene to address *market failures* by putting in place mechanisms to incorporate environmental externalities (e.g. through standards and economic instruments such as charges and taxes) and minimize social costs (e.g. from pollution). Institutions put in place rules, regulations and policies to restrict access to resources and to manage them sustainably.

Indeed, such a managerial approach to the environmental crisis has arguably been the driving force behind ecological modernisation theory (Spaargaren, Mol & Buttel 2000). Tariq Banuri (1990), the head of the UN Department on Sustainable Development, argues that these types of technical fixes (for example, corporate social responsibility or environmental labelling schemes) may be necessary but overwhelmingly insufficient in view of the enormity of the environmental challenge.

While there has been an effort to engage in a rigorous debate on the substance, Young (2002) observes:

> It is hard to deny that the prominence of *definitional* battles in this realm has diverted attention from more substantive matters and given rise to an understandable perception that the field is preoccupied with debates about the location of the starting line in contrast to theoretically interesting debates about the roles that institutional arrangements play in guiding human/environment relations at the international level.

Moreover, according to Young, academic researchers and epistemic communities:

> Are more concerned with conceptual and methodological matters than with advancing understanding of major substantive issues like identifying the conditions under which

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[19] For example, Somsak (1996) notes that Thailand's economic growth and integration into the global economy has had a profound impact on declining forest resources, the livelihood of small rural farmers, and associated traditional ways of life.

[20] Ostrom (1990) defines common-pool resources as resources characterized both by 'subtractability' (i.e. use by one member of a group decreases the availability of that resource to others) and by 'non-excludability' (i.e. the resource cannot be supplied to one member of a group exclusively without making it accessible to others).

> environmental regimes will produce outcomes that fulfil various criteria of sustainability, efficiency, or equity (Young 2002) (emphasis added).[21]

This is certainly a daunting criticism. Nevertheless, this is essentially also the conclusion of the Millennium Ecosystem Assessment (2005) when it states that hope for reversing ecosystem degradation would "involve significant changes in policies, institutions, and practices that are not currently under way." It can be argued that the lack of a common knowledge input from the social sciences does not help in this regard.

The consequences of irreversible changes in ecosystems and climate change are likely to be of concern for the social sciences for some time to come – dominating governance and policy space (Chasek, Downie & Brown 2010). The extent to which actors and institutions involved in the trade debate and those in the environment debate are able to guide the process forward will depend on opening up the debate to bridge the concerns mentioned above. The construction of knowledge, thus, is larger than the epistemological debate in which it resonates; as an ocean of literature illustrates, the way in which we perceive of, and construct reality shapes actors and institutions which craft solutions to environmental issues. In this context, reflective modernisation theory provides us with the intellectual space to view the issues from a self-reflexive and contextual perspective. It is also from this vantage point that the position of sustainable development in modernity is being contested.

In sum, accommodating sustainable development in the architecture of globalisation has challenged the operating assumptions of the status quo. Essentially, the prevailing assumption is that if trade liberalisation results in environmental degradation, there is no cause for concern as the problem can be fixed afterwards. That is to say, 'grow now and clean up later.' This approach is based in the hope that technology will solve the problem at some point. Based on this approach results to operationalise and implement sustainable development are few and far between – or, at least, insufficient.

It has become clear that the institutional 'context' is vital to managing the process of globalisation. While we may understand the importance of 'good' institutions, we do not know enough about how countries can acquire them. Despite a voluminous literature on the

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[21] Young singles out Neumayer (2001) as an exception with his efforts to compare and contrast international regime theory and economic theories of international cooperation. In an article entitled "Obtaining International Environmental Protection through Epistemic Consensus," Peter Haas (1990) raised the importance of epistemic cooperation to address environmental concerns.

subject, Andy Rodrik (2000) insists that "we know next to nothing about the kind of trade policies that are most conducive to growth." In this context, is there a role for 'multiple modernities' to define sufficient *policy space* for each country to assist in managing the project of globalisation? How will *multiple modernities* find expression in the emerging architecture of development?

While the WTO may be able to adapt to a certain extent to include sustainable development, critics argue that "the gap between what is declared and what is delivered" has already grown too large and the trading system is serving a failed economic paradigm (Halle, 2008). As a mainstream environmentalist for nearly forty years, Gus Speth (2008) has come to the point of suggesting that there is a systemic failure of capitalism to address climate change. If we are trapped in a self-reinforcing system, what are the possibilities to go beyond the capitalist narrative of modernity?

The process of determining policies is complex in an era of global economic and environmental integration and interdependence. However, the "awakening of modern man to a new awareness of the human predicament on earth" over the past few decades has necessitated a redefinition of the role of the state vis-à-vis society and the environment in which it can exist and thrive (Caldwell 1980). From a theoretical perspective, reflexive modernisation provides the foundation to explore the policy space required for countries *themselves* to prioritize environmental considerations and craft a framework for sustainable development. Simply put, it emphasises that context matters. There is no 'one-size-fits-all' response.

It is useful to consider *governance* issues from this perspective. Sustainable development has been put forward within the framework of modernity to reconcile economic and ecological sustainability. This thesis argues that reconciliation would be facilitated if policy were more reflective of, and guided by practice that attempts to implement sustainable development at the local level. Dilip Gaonkar claims that modernisation is a form of discourse that "interrogates the present" in a critically self-reflective manner (2001:17-18). To this end, the current global economic crisis offers an opportunity to reconstruct the current economic paradigm to overcome the paradox of sustainable development.

In his influential study of how societies fail or survive, Jared Diamond (2005) explores how Easter Islanders inflicted such environmental damage as to bring about their ruin. It is

worthwhile to note that Easter Islanders lived traditional (not modern) lifestyles. In this respect, 'tradition' may also lead to unsustainable solutions; just as 'modern' may bring about sustainable ways of living. It is important, thus, to avoid false dichotomies such as 'traditional' is good and sustainable and 'modernity' is bad and unsustainable. Reality is more complex.

Far from being "the end point of mankind's ideological evolution" (Fukayama 1992), the open market orthodoxy of the final decades of the 20th century has raised more questions for modernisation than it has had the time to answer. This is the case with the concept of sustainable development, which has been widely embraced by governance institutions as a pragmatic response to the daunting environmental challenges of our times. Reconciling development with environmental change may well be the current Zeitgeist; a thematic tone that needs to strike a balance to ensure our continued survival on Earth.

Modernisation theory has come a long way from the last century vision of the universalisation of Western liberal democracy as the *last* act of the project of modernity. If this project has *just* begun, according to Beck and Giddens (1994), we need to accelerate the reflection process in order to bring about the transformation that is so urgently required.

2.4 Moving from theory to practice: evidence from Thailand and the Mekong

Thailand has the opportunity to be a leader in biofuels in the Mekong region and beyond.
Surin Pitsuwan, ASEAN Director-General, Interview May 2009

The danger of small-holder farmers disappearing exists, but it is unlikely
Samai Jai-In, Energy Expert, Royal Thai Navy, Interview November 2009

I have a choice of livelihood that can send my children to school.
Athiras Dumdee, oil palm farmer, Aoluk, Southern Thailand, Interview April 2009

Thailand is a valuable case study to illustrate the relationship between trade liberalisation and environmental sustainability on the way to modernisation. It has lessons for its neighbours in the Mekong region who are only now emerging on the world economic stage. The reality in Thailand does not fit all the elements of the theory of modernisation. Therefore, there is a need to undertake empirical research to revise the theory to account for evolving practice in Thailand and the region.

Since the 1970s, the Thai economy has been completely transformed from a predominantly agricultural base. The export-led industrial boom fuelled by accelerated influxes of foreign direct investment in the mid 1980s led to a steady rise in manufactured exports to OECD countries. By the late 1990s, Thailand had become integrated in global supply chains for three main export sectors: electrical and electronic appliances; automobiles and automotive parts; and computer parts (Ministry of Commerce website; Pasuk & Baker 2002).

There is ample economic literature that analyzes the phenomenal economic growth in Thailand since the launch of the *First National Economic Development Plan* in 1961 through to the financial crisis in 1997 and beyond (Pasuk & Baker 1998, 2002, 2008a; Hewison 2001; McCargo & Ukrist 2005). Over four decades of sustained economic development has been facilitated by government policies to stimulate export-led growth initially in agriculture and then manufacturing. Today, approximately two-thirds of Thailand's gross domestic product (GDP) depends on exports (World Bank, 2008). The literature assessing Thailand's trade strategies in general is substantial (Chirathivat & Mallikamas 2004; WTO 2007; Chirathivat & Sabhasri 2008; Sally 2007, 2008).

While there is a growing body of literature on development in general and its consequent social-economic impacts in Thailand (Akrasanee 1975; Pasuk & Baker 1998; Dechalert 1999; GSEI 2007), and increasingly in the Mekong region (Mingsarn & Dore 2003), there is a knowledge gap with respect, more specifically, to the relationship between trade and environmental policies (Rigg 1995; Sitanon 1996). Studies on the impacts of Thailand's trade agreements have yet to deal with environmental impacts (Kawasaki Report 2003; TDRI 2003, 2006a, 2006b; Sussangkarn 2003; Pholphirul 2006; Kohpaiboo & Jongwanich 2006; Zamroni 2006).

Environmentalists and civil society activists are increasingly criticizing trade liberalisation and trade agreements. They call for the potential environmental impacts of trade policy to be addressed in the policymaking process (FTA Watch 2006). Since 2008, there is also a constitutional requirement for the government to make the case for trade liberalisation agreements prior to entering into negotiations.

Thailand's path to development over the past half century has been firmly rooted in its wide range of natural resources, including forests, fisheries, coastal areas and biodiversity

(Somsak 1996; ICEM 2003). Rapid, sustained growth in combination with "almost total failure to impose controls" resulted in a consequent rapid environmental decline (UNDP 2007). Similarly, a comprehensive assessment of *The State of the Environment in Thailand: A Decade of Change* notes the tendency to "give priority to achieving economic growth and pay attention to environmental protection only when the damage is visible" (Mingsarn 2000) – the classic strategy of 'grow now, clean up later'. Kaosa-ard Mingsarn, a leading Thai academic who focuses on environmental concerns, warns that "neglecting to manage the environment properly will eventually lead to an accumulation of problems rendering environmental problems much more difficult, expensive, or even too far progressed to tackle."

Simply put, trade-led growth has occurred at the expense of the environment and the natural resource base. Thailand's environmental decline is manifested in rising urban pollution and waste disposal, and declining forests, marine stocks, biodiversity and wetlands (Pasuk 2000; Mingsarn 2000; Östrom 2000; ICEM 2003; Fahn 2003; UNEP 2003; UNDP 2007; Baird 2009).

Nevertheless, Thailand has become increasingly aware of the general relationship between natural resource management, economic growth and environmental sustainability as manifest by the broad array of environmental policies and legislation put in place since the mid-1980s. As one review of Thailand's efforts concludes, while "conservation issues were viewed as being separate from economic development," this perspective "is changing" (ICEM 2003).

Notably, the growing environmental awareness is also evident in the rise of Thai social movements and advocacy protests over "uneven economic development" and environmental damage (Dechalert 1999; Pongsapich 1995; Pasuk & Baker 2002). With the increase in agricultural exports in the 1980s as a prime driver of growth, vast areas of land were cleared for the expansion of production. In the 1990s, there was rising concern over the negative impacts on rural livelihoods of the planned government expansion of commercial eucalyptus plantations. According to many reports, the extensive expansion of agricultural lands has led to large-scale deforestation and soil and watershed erosion (Hirsch 1995; Pasuk & Baker 1998; Mingsarn 2000; Mingsarn & Dore 2003; UNEP 2003; UNDP 2007). Decreased soil fertility resulting from continuous cultivation has had a direct impact on

decreasing agricultural yields and increased use of chemical fertilizers and pesticides. In this respect, Thailand's promotion of bioenergy is cause for concern (FAO 2008; Shaw 2009).

Awareness of environmental issues and the links with livelihoods and sustainable development were heightened by controversy over a number of large-scale dam projects, such as the Nam Choan and Pak Mun dams. Local communities were active in the eventual cancellation of Nam Choan in 1989 (Pasuk 2000; Mingsarn & Dore 2003); the dam would have disrupted local livelihoods and flooded designated wildlife reserves. The Pak Mun dam, however, was completed in 1994 notwithstanding the protests of local communities and environmentalists. Noting the damage caused to one of Thailand's richest sources of fresh water fish, Pasuk (2003) states that "if the project had been properly assessed in terms of its real costs and benefits, it should never have been built." The "Assembly of the Poor", formed in 1995, organised a large-scale demonstration in early 1997 to protest mega-development projects and to demand community rights in managing natural resources (Dechalert 1999; Somchai 2006: Apichai 2007; Surichai 2007). In this respect, the current plans to reinvigorate the Thai economy through mega development projects are cause for concern.

Integrating trade and environmental policies

> *The Sufficiency Economy is an approach to life and conduct which is applicable at every level from the individual through the family and community to the management and development of the nation. It promotes a middle path, especially in developing the economy to keep up with the world in the era of globalisation.*
>
> His Majesty the King of Thailand, Bhumipol Adulyadej, 4 December 1998

Thailand's move to sustainability was inaugurated with the incorporation of the concept of "people as the centre of development" in the *Eighth National Economic and Social Development Plan* (1997-2001). The 1992 *National Environmental Quality Act* introduced watershed changes to the structure of local environmental policymaking in Thailand; it tightened pollution standards, supported NGO initiatives and provided greater political recourse to people adversely impacted by environmental degradation (Hunsaker 1998). The *Ninth National Economic and Social Development Plan* (2002-2006) also set out the guiding principle of *sufficiency economy* based on a *middle path* or balanced development and economic strategy to "overcome the current economic crisis that was brought about by unexpected change under conditions of rapid globalisation, and to achieve sustainable development" (NESDB 2007).

The *Tenth Economic and Social Development Plan (2007-2011)* addresses the challenges, opportunities and constraints currently faced by Thailand in the context of the Sufficiency Economy. Another recent five-year plan – the *Environmental Quality Management Plan (2007-2011)* points to the need to encourage more sustainable patterns of production and consumption in order to manage natural resources and protect the environment.

His Majesty King Bhumipol Adulyadej's concept of *Sufficiency Economy,* elaborated as a response to the financial crisis of 1997, is rooted in finding a balanced approach to development with inspiration from Schumacher's *Small Is Beautiful* (1973). It appears that we have almost come full circle to re-examine economics as if people mattered – which was Schumacher's subtitle for this seminal work nearly 35 years ago, when there were few accepted limits to growth.

The *Human Development Report for Thailand* elaborated by the United Nations Development Program (2007:76) focuses on "thinking out" the sufficiency economy and human development to better understand the implementation of this concept. The report expands upon the evolution of the King's concept to rebuild a sense of community, drawing on Buddhist principles of moderation and spiritual sense of well-being; it concludes with reference to the need for Thailand to "avoid mindless growth" by paying attention to education and cultivating an approach to development in which people participate and gain the knowledge to move ahead in stages. According to the report:

> Avoiding mindless growth means paying attention to education, but even more it means cultivating an approach to development in which people participate, build their own self-reliance, gain the knowledge and insight to move ahead in stages, and develop themselves as people in the fullest sense, including their mental capacity and spiritual well-being (UNDP 2007:76).

Despite the ensuing criticism on the lack of specificity of this concept (*Economist* 13 January 2007), it is interesting to explore the potential contribution of the *sufficiency economy concept* as a Thai interpretation of sustainable development. This concept finds inspiration from humanist theory in the spirit of Gandhi and Schumacher (Apichai 2007; Suthawan 2007; Banuri 2007), and includes Chatthip Nartsupha's work on the *community culture concept* (Chatthip 1988, 2001; Nozaki & Baker 2003).

Evidence from the Mekong region

There is some new political space in the Mekong region created by globalisation, and corresponding new regionalism.

John Dore, *Democratising Water Governance in the Mekong Region*, 2007

The unprecedented level of regional integration currently underway will transform the economies as well as the environment of the Mekong. What is the evidence of trade and environment integration in the Mekong region? The key intergovernmental regional environmental body – the GMS Working Group on Environment[22] – has recognised the need to address potential environmental stresses from economic development, specifically in the ADBs Economic Corridors Initiative launched in 1992, to ensure environmental issues are properly addressed in pace with regional integration (GMS 2002; ADB 2004). In this respect, *good governance* and *effective enforcement* remain key challenges for sustainable development on the road to further regional integration (Hirsch & Warren 1998; Dore 2003; Myers & Wharton 2005; Tran 2007).

In a recent annotated bibliography on the Mekong, Charnvit and Baker (2008) found few articles or books on trade and investment in the Mekong, aside from Asian Development Bank papers; there were none specifically related to trade and environment. There has been increasing attention to management of shared *water resources* along the Mekong River, such as the accounts by Milton Osborne (2009; 2010) and Öjendal (2002), as well as other environmental issues (forestry and fisheries). However, the discussion has only begun to consider trade and environment linkages in the bioenergy sector.[23]

Olli Varis (2008) asks whether the priority of water-resources policy in the Lower Mekong River Basin should be environmental conservation, economic growth, or reduction of poverty? These "three interlinked facets of development very easily collide in conditions such as those of the Mekong Basin." He examines this relationship in Cambodia and Vietnam and

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[22] This Working Group was established in 1995 to help mainstream environmental considerations in the GMS Economic Cooperation Program. Each GMS country is represented by two officials from the environment or natural resource management agency.

[23] For example, for a discussion of *water resources* along the Mekong River (Dore 2003; Surichai 2007; Lebel 2007; Tran 2007; Varis 2008), *fisheries* (World Bank 2006; Baumüller 2007; Ahmed 2007), *forestry* (Pye 2005; Forsyth & Walker 2008), *biodiversity* (IUCN 2009; ADB 2009), *climate change* (ESCAP 2009; IWMI 2009; IGES 2008) and *environmental policies* in general (Badenoch 2001; Fahn 2003; King & Mori 2007).

finds economic growth to be an insufficient condition for poverty reduction *if* environmental sustainability is left out of the equation.

One way in which environmental impacts of economic integration in general are coming to the fore is indirectly through environmental impact assessments. Dore (2003) notes that "there is increasing attention being given to the processes of environment and development governance" in the Mekong, but that "as of 2003, formal, transboundary environmental assessment in the Mekong Region was still practically non-existent" and that "much higher quality environmental assessment is needed which takes account of monetary and non-monetary costs, benefits and risks of the options – and specifically who is likely to win or lose." This situation is changing; the Asian Development Bank is undertaking sustainability impact assessments of its Economic Corridors Initiative (ADB 2005).

Recognising the need to take into account social progress and sustainable development in addition to economic growth, the Ayeyawady-Chao Phraya-Mekong Economic Cooperation Strategy (ACMECS) between Cambodia, Lao PDR, Myanmar, Thailand and Vietnam since 2003 has initiated over 40 development projects to enhance trade and investment, agriculture and industry, transport linkages, tourism and human resources development.

As noted above, Thailand is by far the leader in the region on *environmental standards and regulations*. This is evidenced by work to develop an environmental sustainability index (TEI 2000), the rise of research networks (Dore 2007) and assessments of trade and environment in Thailand (Vossenaar 2006; Shaw 2007). It is arguably in the Thai *private sector* that the most obvious concrete progress to date has been accomplished with respect to enhancing environmental quality. The Thai private sector is engaged in increasing environment-related standards through the International Organisation for Standardization (e.g. ISO 14000 environmental management standards) to be able to enter export markets in OECD countries. Private companies are also implementing Corporate Social Responsibility (CSR) independently and through Thailand's Business Council for Sustainable Development.

Nevertheless, Since 1990, Thailand's emissions have increased faster than every other country in the world but one. According to the United Nations, Thailand is the 24th largest carbon polluter in the world; while it is ranked 74 out of 177 countries in terms of human development. Pasuk and Baker (2008b) make a compelling argument for Thailand to act now:

> The point is not that Thailand is not being a very good world citizen. Rather, over the next few years, the world economy is going to change radically as markets start to reflect the scarcities and imperatives now visible in the science. Countries that are well-placed to move into a low-carbon regime will do well. Those with a burden of past inefficiencies will suffer. [...]

This leads Pasuk and Baker (2008b) to call for proactive action:

> Global warming is going to change the global economy. How quickly and how well countries react now will determine their fortunes in the very near future.

Acknowledging the strengths and weaknesses of Thailand as compared with other economies in the Mekong, Khien (2003) concludes that:

> It is not possible to dissociate oneself completely from globalisation. Even Myanmar realises this. But there may be a better alternative in which people can share national resources and happiness more evenly. Thailand is a bad example of this.

Khien (2003) provides an illustration of the existing inequality in Thailand from research undertaken by Witoon Permpongsacharoen, a member of TERRA (Toward Ecological Recovery and Regional Alliance) and the National Economic and Social Council. Witoon provides data showing that nearly 60% of Thailand's natural resources are consumed by the top 20% of population, whereas the poorest 20% consume a mere 4%.

Despite the attention to sustainable resource management and recognition of the principles of sufficiency economy, Thailand's environment has been significantly degraded by over forty years of economic growth and lack of sufficient enforcement of environmental laws. As outlined above, several environmental threats are critical: deforestation, encroachment on protected areas, threats to mangroves and coastal areas, depletion of fisheries resources, as well as severe and rising urban environmental concerns related to air, land, water and waste (Fahn 2003; World Bank 2006).

Thailand has put in place a comprehensive institutional and regulatory framework through which to promulgate sustainable resource management and environmental protection. As Mingsarn and Pornpen (2000:7) aptly note:

> environmental problems are not simply the outcome of economic growth [...] they are due to a lack of proper institutional framework and effective management.

However, as is also clearly evident in the case of Thailand, "mere reliance on laws, and command and control approaches will not enable the achievement of environmental

quality management objectives" (Mingsarn 2000). It is with this rich experience with both trade liberalisation and environmental protection that Thailand has a leadership role to play in the Mekong region in the expanding bioenergy sector.

Energy independence, food security and agriculture mitigation

The trading system is serving a failed economic paradigm.

Mark Halle, International Institute for Sustainable Development, 2008

Food security is one of the main concerns of our government. Biofuels, like any other human endeavour, can be done in a better way. So we should not use the worst case as a general reference point.

André Corrêa do Lago, Brazilian Ministry of Foreign Affairs, December 2009

As emphasised by Olivier De Schutter, the UN Special Rapporteur on the right to food, "the food economy today is characterised by the global supply chains and the importance of added-value production led by private corporations, who set the prices and link the producers to the consumers, without any sort of control and with often extremely high levels of concentration that represent a serious market failure." The tension outlined by De Schutter in the introductory quote above between small-scale agriculture and sustainable farming practices, on the one hand, and the imperatives of a fiercely competitive globalised food system, on the other, need to be addressed. The tension is found in the case narratives in Thailand and the Mekong explored in this research. This thesis suggests that it is at the heart of the discussion of agroenergy. This tension has yet to be recognised in the international policy dialogue in a pragmatic manner, particularly with respect to trade in agroenergy. Moreover, if the international community ignores the problem, as stressed by De Schutter at the height of the global food crisis in 2008, it is "silent on solutions" and appropriate and coordinated policy options. The root of the problem, as quoted by Mark Halle above, is a trading system that is based on a fundamentally flawed economic paradigm in which socio-ecological costs are not taken into account. From this perspective, as quoted above by André Corrêa do Lago, the Brazilian approach to agroenergy serves as an illustration of the changing dynamics underlying the use of land in the process of development.

As illustrated in the literature and supported by this research, strategies to increase the contribution of biofuels to Thailand's energy mix have to take into account several related

issues, notably the consequences on food security and environmental sustainability. There are a few points to highlight in this respect.

First, Thailand's creation of a *Food and Energy Management Committee* in 2008 has initiated a coordinated national debate on how to balance food and fuel requirements from agriculture. To ensure rising demand for energy crops does not negatively impact production for food, the agricultural sector is being zoned and restructured. Experts agree on the importance of zoning for agricultural reform – this is a key lesson learned from the Brazilian experience with biofuels (Kutas 2009). Wittoon Permpongsacharoen, a policy advocate of the Mekong Energy and Ecology Network and Foundation for Ecological Recovery (Terra), cautions against premature and rapid moves into industrial biofuel production to enhance energy security without considering agricultural sustainability (Interview 21 February 2009). Therefore, this thesis emphasises sustainability as a guiding principle over security.

Second, given Thailand's position among the world's leading producers and exporters of rice, sugar and tapioca, the issue of food security takes on an international trade dimension. The concern amongst critics of biofuels is that a switch from food to fuel cultivation, if not properly managed, could adversely impact global food supplies. The thorough report of the Vientiane-based International Water Management Institute (IWMI 2009) makes a plea to rethink food security and the way we do business in the Mekong. The authors call for more innovative approaches to make agriculture a key element of climate change mitigation and adaptation. Adverse impacts can be avoided *if* careful policy manages the cultivation of food and fuel to guarantee supply of the former while ensuring maximum output of the latter within environmental and economic limits.

One of the main lessons from Jared Diamond's *Collapse* (2005) is that the societies which are best able to avoid collapse are those that are flexible and adaptable; they are able to *adopt* practices favourable to their own survival and *avoid* unfavourable ones. In the case of Thailand and the Mekong, this entails adapting agricultural practices to use water and land more efficiently to maximise food and fuel output, while ensuring the resource base is preserved for future generations. As illustrated by the quote from Ammar Siamwalla at the outset of this chapter, adaptive capacity will form the basis for economic strategy in Thailand and the Mekong.

Third, and consequently, one of the reasons why Thailand has recognised the need to address climate change is its potential impact on agricultural productivity. Agricultural systems are dependent on imported oil and are vulnerable to climatic change. According to the Intergovernmental Panel on Climate Change (2007), climate change is already having a significant impact on agricultural production in many least-developed countries, and in Africa, it may result in reducing yields in half by as early as 2020. The need to adapt to climate change has prompted Thailand to promote more efficient use of land and water and to increase local energy sufficiency through the use of biofuels.

Fourth, the Clean Development Mechanism (CDM) of the Kyoto Protocol is stimulating renewable energy projects. As of May 2010, Thailand has approved 91 CDM projects, including 62 for biogas and 13 for biomass operations, based on requirements for sustainable development (TGO 2010). Experts agree that new mechanisms emerging from the Copenhagen climate change negotiations, such as REDD (Reducing Emissions from Deforestation and Forest Degradation), have the potential to spur innovation and adaptation of cleaner, renewable energy sources. This is particularly the case for neighbouring Mekong countries where infrastructure is just now being put in place and there are standing forests. This research illustrates the potential of the *Small is Smart* policy alternative as the only feasible option to avoid accelerating energy use and unsustainable resource depletion. The objective is to avoid the Jevons paradox, whereby increased efficiency of resource use (e.g., fuel) leads to increased demand for the resource to the extent that the "rebound effects" act to exceed the efficiency gains of the technological improvement.

In all these four aspects, Thailand could assume a proactive role in addressing the challenging agroenergy policy nexus with innovation and commitment to reform. The power of example is the most persuasive leadership that Thailand might bring to bear in the creation of a new era of progress and prosperity in the Mekong. To this end, the contribution of biofuels to the energy transition is contingent on a range of factors, including: (i) political will; (ii) economic viability; and, vitally, (iii) increasing regional integration and engagement to cement political will and underlying economic coordination.

Addressing energy access and energy poverty

Biofuel mandates in the developed world were linked partially to the rising food prices globally in 2008. As a result, there is pressure for developing countries to reconsider biofuel

production given the sector's competition with food crops. Nevertheless, it is worthwhile to note that policy prescriptions (the Washington Consensus) over the past two decades have prioritised export crops over basic food crops in many countries, contributing to the reduction in per capita food production. As discussed by Paul Roberts (2008) and Tony Weis (2007) discuss in detail, this has allowed North American and European agribusiness complex to sharply increase their exports. This neglect of the agricultural sector was raised by nearly all governmental and expert informants interviewed for this research. The evidence collected during the field visits undertaken for this research clearly illustrate the efficiency gains from capturing waste and residues for bioenergy throughout the agricultural value chain. These gains act to reduce the increasingly divisive debate surrounding the interaction between energy and food.

The Brazilian experience with biofuels is widely considered to be a success story in which a well-orchestrated vision for agroenergy was developed and sustained over time. Brazil initiated its ProAlcool programme in response to the oil shocks in the 1970s to achieve greater energy security and substitute for costly imports of petroleum. Thirty years later, the privatisation and liberalisation of this initially subsidised government project has resulted in a resilient ethanol industry and export sector. This trade occurs despite the additional costs placed on its ethanol exports as a result of high tariff barriers in its main markets of the US and EU. As discussed in Chapter IV, the Doha Round negotiations in the World Trade Organisation are unlikely to remedy this situation by including biofuels in either the Agreement on Agriculture or non-agricultural market access (NAMA) negotiations. It is also unlikely that the environmental goods and services negotiations in the Special Session of the Committee on Trade and Environment can deal with the trade barriers in biofuels.

Therefore, when considering whether the Brazilian model can be replicated in other developing countries, the United Nations Foundation report notes the importance of bearing in mind that for many poor countries "biofuels, and in a broader understanding, modern forms of bioenergy, must be considered as a response to local energy needs" (UNF 2008).

For this reason, Melinda Kimble and Susan McDade, international energy and sustainable development specialists with the UN Foundation and UNDP respectively, emphasise that the focus must be on increasing access to modern energy in order to achieve the Millennium Development Goals (Interview at the Global Renewable Energy Forum 9

October 2009). They view bioenergy, therefore, in terms of its contribution to combating *energy poverty* for the poor and rural communities in developing countries, 2.5 billion of whom do not have access to electricity to meet their basic daily need for cooking and to expand their livelihood options (IEA 2009; UN Foundation 2009; Christian Aid 2009). As such, the balance that they consider needs to be achieved is between the expansion of international trade opportunities and the need to promote bioenergy to broaden energy access and alleviate energy poverty as a concrete daily reality for a large proportion of the world's population.

Agricultural labour migration in the Mekong

In his classic account of the Thai village economy, Chatthip Nartsupha (1984) emphasises the role of labour as a factor of production that was in sufficient supply in each village. Whilst labour was "the original basis of the Thai villagers' subsistence economy" in the past, it is no longer the case today. Migration is an aspect of the agroenergy context that has yet to be explored in sufficient depth, although the details are beginning to come to the fore.

Migration is an increasing and dynamic area of study that requires further integration in policy planning. There are significant implications for future agricultural planning and allocation of the labour force. In addition, migrants are mostly young and over 50% are female.

The trend of international migration from Thailand has been increasing, though moderate, from 2001-2007. This can be explained by the availability of employment opportunities within Thailand for low and medium level skilled labour. Domestic migration is a viable option for most labour from the poorer, rural northeastern region of Thailand. Lower-paid agricultural jobs in Thailand are increasingly filled with foreign migrant labour, often illegal from its neighbours, with Thai migrants mostly from the northeast migrating to the city or to more developed countries.

In a paper prepared for the FAO Feed the World 2050 Forum in October 2009, Collier and Dercon, state that for African development to succeed in the next 50 years, "African agriculture will have to change beyond recognition." As with the history of agricultural development in other parts of the globe, Collier and Dercon argue that, in order to feed a

growing population, there will need to be massive increases in production and labour productivity, with large scale transfer of labour out of rural areas. The impact of climate change will serve to accelerate this process.

The paper offers a surprisingly stark critique of the emerging commitment in the international donor community to smallholder agriculture as the primary way forward for African agriculture and for poverty reduction. Collier's credentials were established by his work on what he has now famously called the "bottom billion," which are those who will be most affected by a changing climate, but who have contributed the least to the problem. Collier and Dercon posit that this exclusive focus on smallholders as engines for growth "may actually hinder large scale poverty reduction." Arguing that labour productivity growth requires migration out of agriculture and rural areas, the alternative is not to invest in 'superfarms' – thousands of hectare tracts of land devoted to food crops for exports, for example to the Middle East, but to find a more inclusive model of agricultural commercialisation.

In this respect, Collier and Dercon note:

> [th]e alternative is not to ditch smallholders and return to the discredited 1950s and 1960s models of mechanised agriculture [...]. Rather, it is to consider more flexible organisational models in which not all bets are placed on a single unquestioned mode of production.

There are examples of rapid successful commercialisation elsewhere in the world, most notably the authors cite in the Brazilian Cerrado region or in the Northeast Region in Thailand:

> Both regions started from 'backward' regions in the 1960s to become successful centres of commercial agriculture, run by private commercial farm and trading enterprises. In Brazil, the farming conditions led to large-scale mechanized production of soybean and rice; in the **Northeast region of Thailand, cassava and rice dominate, and farms remain of relatively smaller size but with plot consolidation, vast area expansion and some mechanisation, they became commercial farm enterprises different from the typical small peasant and family firms dominating Thai agriculture** (World Bank 2008, emphasis added in bold).

In the rest of the paper, Collier and Dercon discuss whether the evidence base for an exclusive focus on smallholders is really justified, and argue for a much more open-minded approach to different modes of production. The contentious issue, the authors argue,

> is whether the current model favoured by donors and most agricultural economists is likely to achieve such a transformation [namely increasing production and labour productivity]. Its approach is to stimulate growth in smallholder agriculture by a variety of interventions, from technology to market development (see e.g. the World Bank's World Development Report 2008).

The authors enquire into the historical experience of most rich economies and the more recent experience of fast growing developing countries. Their response is to highlight five characteristics of the historical experience: (1) a vast decrease in the number of people engaged in agriculture; (2) a significant increase in the urban population and coastal population; (3) a vast reduction in the proportion of the population living in rural areas; (4) a significant increase in agricultural labour productivity; and (5) an increase in agricultural production.

That is to say that economic transformation is directly linked to migration – releasing labour from the land. Collier and Dercon give the example of China, where the rural share of the population has decreased from more than 80% to about 55% in the last 20 years, with rapid increases in labour productivity in agriculture (McErlean & Wu 2003).

This historical transition largely took place in an era of falling energy costs, rapid growth of liquid oil energies and falling prices of agricultural crops making agriculture relatively unattractive. David Fullbrook (2009) touches on these issues in Food as Security whereby he cites the many Chinese smallholders practicing polycropping models, especially in peri-urban settings, who are making a profit.

The idea of progress: alternative paths forward

> *We are now at a critical juncture, in which the tension between supporting small-scale agriculture and sustainable modes of farming, on the one hand, and pushing for more competition on increasingly globalised food markets dominated by large agribusiness corporations [...], on the other hand, is more and more visible.*
>
> Olivier De Schutter, UN Special Rapporteur on the Right to Food, 18 November 2008

It has become clear that the institutional 'context' is vital to managing the process of globalisation. While we may understand the importance of 'good' institutions, we do not know enough about how countries can acquire them. The tension outlined in the quote by Olivier De Schutter above necessitates careful examination in order to support small-scale agriculture and sustainable modes of farming.

Despite a voluminous literature on the subject, Andy Rodrik (2000) insists that "we know next to nothing about the kind of trade policies that are most conducive to growth." In this context, what is the role for *regional modernities* to define the policy space to sustainably manage the project of globalisation? Can regional modernities find sufficient expression in the architecture of the capitalist form of modernity? How to reduce the emerging tensions in the Mekong as trade in agroenergy increases?

While the WTO may be able to adapt to a certain extent to include sustainable development, critics argue that "the gap between what is declared and what is delivered" has already grown too large (Halle, 2008). As a mainstream environmentalist for nearly forty years, Gus Speth (2008) has come to the point of suggesting that there is a systemic failure of capitalism to address environmental crisis. If we are trapped in a self-reinforcing system, what are the possibilities to step outside the capitalist narrative of modernity? Halle (2008) posits that the trading system is serving a failed economic paradigm.

The process of determining policies is complex in an era of global economic and environmental integration and interdependence. However, the "awakening of modern man to a new awareness of the human predicament on earth" over the past few decades has necessitated a redefinition of the role of the state vis-à-vis society and the environment in which it can exist and thrive (Caldwell 1980). From a theoretical perspective, reflexive modernisation provides the foundation to explore the policy space required for countries *themselves* to prioritise environmental considerations and craft a suitable framework for sustainable development. Simply put, it emphasises that *context* matters. There is no 'one-size-fits-all' response.

In a background paper prepared for the United Kingdom's Sustainable Development Commission, Herman Daly, an ecological economist, outlines the alternatives for the future. First, he offers a note of caution:

> a steady-state economy is not a failed growth economy. An airplane is designed for forward motion. If it tries to hover it crashes. It is not fruitful to conceive of a helicopter as an airplane that fails to move forward. It is a different thing designed to hover. Likewise a steady-state economy is not designed to grow (Daly 2008).

The concept of *prosperity without growth* is the future. This is the title of a recent report by the UK-sponsored Sustainable Development Commission concerning the need to

fundamentally rethink the current conceptualisation of development – the trajectory of modernisation. To this end, Daly explains:

> Growth is more of the same stuff; development is the same amount of better stuff (or at least different stuff). The remaining natural world no longer is able to provide the sources and sinks for the metabolic throughput necessary to sustain the existing oversized economy—much less a growing one (Daly 2008).

Daly uses the analogy of a human body to track the failings of the current economic growth paradigm:

> Economists have focused too much on the economy's circulatory system and have neglected to study its digestive tract. Throughput growth means pushing more of the same food through an ever larger digestive tract; development means eating better food and digesting it more thoroughly (Daly 2008).

According to Daly, the message is straightforward:

> Clearly the economy must conform to the rules of a steady state—seek qualitative development, but stop aggregate quantitative growth. GDP increase conflates these two very different things (Daly 2008).

Daly goes on to argue that humankind has lived for over 200 years in a growth economy, which makes it difficult to imagine what a steady-state economy would be like. Moreover, "we have to attempt a steady state economy because we cannot continue growing, and in fact so-called *economic* growth already has become uneconomic. The growth economy is failing."

Regional space to integrate local agroenergy narratives

> *Climate change is the defining challenge of our age. The science is clear; Climate change is happening, the impact is real. The time to act is now.*
>
> Ban Ki-Moon, UN Secretary General, Copenhagen climate negotiations, December 2009

> *In order to reach success we must consequently embrace this new vision based upon sustainable small-scale farming; local and regional markets; and policies based upon the principles of coordination, participation and accountability.*
>
> Olivier De Schutter, UN Special Rapporteur, World Food Summit, November 2008

When Ban Ki-Moon made the first official visit of a United Nations Security General to Lao PDR in 50 years in April 2009, he focused his opening remarks on the need to devote greater attention to the environment, especially when some of the country's natural riches are

endangered by short-term economic interests, undermining socio-ecological sustainability (AFP 11 April 2009).

A broader framework for the design of agroenergy policies suggests that it should cover issues of social justice, economic, social and cultural rights, and the principles of good governance. The latter implies leadership and political commitment based on trade-offs; a process in which Thailand is actively engaged at present. Among the first major works to tackle the social movement initiated by the Small-Scale Farmers' Assembly of Isan, Somchai Phatharathananunth, examined the role of civil society in the process of modernisation in the early 1990s (Somchai 2006).

Bennett Haynes, an advocate of farmers' rights in the Mekong, emphasises that this international movement has enabled members of the Small-Scale Farmers' Assembly and the Alternative Agriculture Network to access the "global discourse" on farmers' rights and utilise these ideas locally (Correspondance April 2010). Somchai notes that "the struggles of post-peasants did not operate in the political space of specific localities; they operated in a *global space*." In this way, they appropriated some global issues, for example the environment, into their campaigns. The Small-Scale Farmers' Assembly of Isan used the problems associated with dam projects (e.g., Lam Sae, Sirindhorn and Pong Kun Petch dams), which were struggles for land, as an environmental platform. In so doing, rural activists built alliances with urban environmental movements (Somchai 2006:107). Somchai points out that portraying the struggle for land as a struggle for the environment was an effort to turn weakness into strength; it involved different power politics with different socio-economic impacts. The point is that this strategy worked to bring about deeper reforms and address structural issues.

Jan Pronk (2009) illuminates the rising potential for conflict flowing from "more and more greed, an intemperate pursue of material welfare and growth, destruction in the name of renewal and progress, and a tremendous burden on the scarce physical resources of the earth." Fullbrook argues "the solution lies in examining the system, looking at it as a whole, observing its behaviour over time, identifying its subsystems, the reinforcing and balancing feedback loops, and, most importantly, working out what is the goal of the system – often not what seems obvious or is easily presumed" (correspondence January 2010). He cites the example of Robert's *The End of Food*, which states presumptively that the goal of the food

production system is to eliminate hunger and feed everybody properly and nutritiously. However, as Fullbrook points out, observing the behaviour of the system – "its products, parts, players, profits, and pressures," suggests that "the goal is purely about maximising profit and minimising cost." Clearly, the current system is no longer sustainable.

The implications for trade and sustainable development are two-fold. First, there is a disconnect appearing in the interaction of the international policy making process and Thailand's conceptualisation of agroenergy policies. Based on the assessment of economic and environmental costs undertaken by the "high gurus in Rome," the international policy consensus views biofuels development with great caution. However, Thailand along with other Mekong countries is forging ahead with the development of the biofuels sector. This indicates the gap in the biofuel policy framework between the international and regional level. The reasons underlying this gap are the focus of this thesis arguing for sufficient policy space at the regional level to accommodate differing conceptualisations of agroenergy development.

Second, and flowing from the previous point, the agroenergy debate has shifted attention back on the agricultural sector, which is still the backbone of Mekong livelihoods. This is one of the main reasons that policy space is necessary for agroenergy. The question remains as to whether there is a role for small-scale bioenergy initiatives in a global economy that is heavily dependent on large-scale, low-cost agricultural production. The impediments to sustainability in this respect are to be found in market distortions in OECD countries and lack of agricultural reform in the negotiations at the World Trade Organisation (Abdel Motaal 2008) – not in adding value to the agricultural production of developing countries to overcome energy poverty. In this respect, Thailand offers a rich historical context for the agricultural transition towards industrialisation and commercialisation of production underway in the Mekong.

At the end of the 19th century, Thailand shifted from subsistence production to commodity production for the global market, with a dramatic decline in the natural base during the course of the 20th century. In describing Thailand's development of an exchange economy in the 1850s, James Ingram (1955, 1971), an economic historian on Thailand, points out that the Bowring Treaty in 1855 ushered in a transition from feudalism to the capitalist mode of development through trade. This represented a dramatic change from subsistence agricultural production in self-sufficient village communities towards outward looking

production of surplus. Yet, as argued by Chatthip Nartsupha (1984/1999), social relations at the community level remained intact according to the feudalist *sakdina* society.

Chatthip Nartsupha was the first of a generation of scholars to go into the field and interview villagers to gain a sense of the economic difficulties that they were facing. Craig Reynolds and Hong Lysa (1983) consider that Chatthip "virtually created a school of political economy studies in Thailand. His research with Suthy Prasartset, *The Political Economy of Siam, 1851-1910*, serves as a groundbreaking collection of sources.[24]

This transformation from self-sufficiency to outward-oriented production for export is only recently underway in Thailand's neighbouring Mekong countries. However, the rural situation is changing rapidly, with consequences on human and environmental well-being for the better and for the worse. The construction of a regional development path towards modernisation can accentuate the positive and avoid the negative consequences, for example, of the relationship between agricultural expansion, land use and deforestation to expand feedstock crops for biofuels (cassava, sugarcane and oil palm).

The current energy production and consumption patterns in Thailand and rapidly rising trends in the rest of the Mekong are unsustainable. There has been a significant body of research seeking to provide an alternative and broader approach to development by redefining the way in which we measure growth. Nobel laureates Amartya Sen and Joseph Stiglitz along with Jean Paul Fitoussi were tasked with the challenge of looking beyond economic growth measurements of GDP. The Sen-Stiglitz-Fitoussi report (2009) spawned the Sustainable Society Index (SSI) to redefine the parameters of growth. Nevertheless, despite these attempts, the old-growth paradigm prevails in defiance of unsustainable trends of the use of land, water and natural resources.

Bridging the gap between evidence and policy

> *All the strategies and projects will be sustainable only if local communities have knowledge and cooperation. The knowledge based society is necessary for the present era of globalisation. Local energy planning requires in-depth study of real conditions of communities and societies.*
>
> Bundhit Eua-arporn, Energy Research Institute, Chulalongkorn, 2006

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[24] Katherine Bowie (1992) submits that the odd convergence between conservative and progressive intellectuals that has resulted in the romanticisation of the past, paradoxically has led to a neglect of the Thai peasantry in history. Jan Breman (1988) treats the subsistence economy paradigm in the context of Asia as a whole.

Experts agree that the discourse around food and agriculture that has dominated the past 60 years needs to be fundamentally rethought (IAASTD 2009; UNEP 2009; IWMI 2009). It is thus essential for Mekong policy makers to bridge the gap in evidence in bioenergy production, processing consumption and impacts to better inform the debate and support efforts to enhance sustainable livelihoods. Building resilient communities in a region that remains largely one of small independent farmers is the starting point for sustainable development. The panorama of change rests on the ability, as Jonathon Cornford (2006) points out, to foster institutions that allow the Mekong people to "speak upwards from the village level."

This research argues that the Mekong is symptomatic of a distorted modernity and urges us to reconsider our relationship with nature. There has been a singular construction of a Western-centric modern World system spanning the globe (Wallerstein 1991). Even though Thailand was not overtly colonised, following the Bowring Treaty at the end of the 19th century, the country was opened up to trade and constructed according to a capitalist hegemony and developed as a Westphalian state. Hence, the contemporary Mekong experience with modernisation emphasises variations of the Western model of the development trajectory. This model has become increasingly unsustainable environmentally, economically and socially – according to the three pillars of sustainable development outlined in Chapter II.

However, the global reach of the capitalist modernity and the paradoxical creation of a risk society (Beck 1992) have necessitated greater reflection on the way in which societies define progress. This realisation, in turn, has led to consideration of alternative pathways towards modernity – along which to define the processes of modernisation. This is the dynamism of the 21st century and the cause for optimism in terms of shifting the paradigm for development towards greater sustainability. The emerging landscape of modernisation in the region is being defined in the farmlands as much as the cities. Although technology plays a central role in sustainable development, as suggested by Charit Tingsabadh, modernity in the Mekong is not necessarily constituted by bringing machines to do the work of human (Interview November 2009. While arguably a transitional technical fix, as emphasies in the interviews with Martin Khor and Witoon Permponsachareon, biofuels are part of the solution

in the transformation to greater sustainability of all three pillars of the development axis that underlies the conceptual framework of this research.

The process of globalisation, it is argued, has thus, paradoxically, allowed a more inclusive dialogue to define a regional modernity. This regional construction is based on linked socio-ecological criteria and conditions. The local narratives examined during the course of this research are constructing the parameters of these conditions to a greater or lesser extent. Changing the discourse, this thesis argues, is the first step towards changing the policy. This entails moving out of what the Sustainable Development Commission (2009) argues has been an "age of irresponsibility" which has sought growth at all costs to an age collectively defined by "prosperity without growth."

From the above discussion an appreciation emerges of the series of equity and environmental issues that the bioenergy debate brings to the forefront of the development narrative in the Mekong region.

The mini-Stern Review for Southeast Asia by the Asian Development Bank in April 2009 emphasises precisely this aspect as it highlights the regional economics of climate change. We are already starting to see evidence of a change in the ecosystem in the Mekong region. Experts, therefore, agree on the need to plan land use carefully in a coordinated way with Mekong neighbours to maintain resilience on which livelihoods depend. This represents a huge political challenge at the same time as a significant opportunity, particularly given the timing of infrastructure development envisaged by national governments to build economic corridors to link the Mekong region (ADB 2009).

During the era of industrialisation, Gallopin and Raskin (2002) suggest, governance has been the purview of the nation state. They posit that the global transition currently underway has witnessed a "dual process." While authority has become more decentralised, new mechanisms of supranational, regional and global governance are emerging. Both processes are challenging the "traditional prerogatives of the state." The result has been to render governance increasingly complex and encompassing more actors.

Tariq Banuri, former head of the Stockholm Environment Institute Asia and currently in charge of the UN Division for Sustainable Development, argues that development is a positive sum game. Yet, "climate change is largely being viewed as a zero sum game,

inhibiting cooperation and action" (Banuri 2009). The emphasis, Banuri insists, needs to be on energy policy and "upfront investment to make renewable energy the default option" for sustainable development to encourage a virtuous cycle and technological leap-frogging (Interview 30 January 2009). At the first annual UN International Energy Conference in September 2009, Banuri (2009) stressed that energy access provides the entry point to think about sustainable development issues and enable transitions in how to use natural resources. The main challenge, thus, is to lower the costs of renewable energy, so it becomes a realistic alternative for developing countries. To this end, Banuri, charts a way forward building on:

1.1 *The contribution of local initiatives to gain a global strategy to guide national policies.* Such a strategy scales-up success stories to achieve the transition to enable a "shift from the micro to the systemic to allow these examples to translate into a global solution."

2.1 *Revisiting the model of the Green Revolution in the contemporary energy context.* The Green Revolution was successful in transferring knowledge that was in the hands of a few scientists to millions of farmers, the vast majority of whom were illiterate, in less than a decade. How did this happen? Banuri notes that an energy revolution would require "a mosaic of institutions to create a network – agricultural extension, research, credit and marketing" towards a common objective. To this end, it would be necessary to build a set of institutions that can transfer the knowledge as a conduit for the best case narratives.

Dani Rodrik (2007), a professor of international political economy at Harvard and former World Bank economist, suggests that "local conditions matter not because economic principles change from place to place, but because those principles come institution-free and filling them out requires local knowledge." This is the message of Bundhit Eua-Arporn quoted above concerning the need to build a knowledge-based society grounded in the local reality (Bundhit & Jintana 2006).

As a growing body of research is documenting, there has been a shift away from localised use of resources to privatisation and expropriation for plantation and cash crops, as well as rapid mining and hydro power development in the Mekong (Lebel & Dore 2007). There is a particularly vibrant discourse on the damaging consequences of the current development model for local communities and ecological systems in Lao PDR (Baird &

Shoemaker 2005; Cornford 2006; Barney 2007; Cornford & Matthew 2007; Dwyer 2007; Vandergeest 2008; Fullbrook 2007; Baird 2009).

In a policy paper prepared for the Swiss Agency for Development and Cooperation, David Fullbrook (2010) builds the case that in Lao PDR: (i) land could yield more income for farmers and the government; (ii) agriculture is underperforming; and (iii) energy is being developed back-to-front. The result is a food security paradox that is not inevitable, Fullbrook concludes, but one that will require a new development paradigm to "spread the benefits of development in a way that does not require sacrificing the environment or food security."

Support for a regional approach to agroenergy is mounting. Patt (2010) makes an argument for *regional* processes to deal with reforming the energy sector – as opposed to global initiatives. Given the lack of leadership to organise regional energy trade, Xiaojiang Yu (2003), an expert with the Hong Kong Baptist University, calls for a regional energy organisation to balance national interest with local livelihoods and ecological sustainability.

2.5 Conclusion: engaging the Mekong in sustainability

Government has always played a large role in shaping the economy. Since the early 1980s, the government has learned very quickly how to manage export industrialisation and has played a large role in shaping the transition.

Pasuk Phongpaichit & Chris Baker, *Thailand's Boom and Bust*, 1998

A regional approach to Mekong resource management is unavoidable.

Joakim Öjendal, Vikrom Mathur and Mak Sithirith, *Environmental Governance in the Mekong*, 2002

The relationship between trade liberalisation and environmental sustainability in the context of sustainable development has been the focus of considerable attention among both academics and policymakers. There has been considerable evolution in the discussion in the past several decades from the *trade-is-good* versus *trade-is-bad* debate to a considerably more nuanced discussion today. A common feature of the academic discourse revolves around both the challenges and opportunities to *mainstreaming* sustainable development in the context of global economic integration.

In the context of Thailand and the Mekong region, the environmental impacts of trade liberalisation have yet to be integrated into the policymaking process to any significant extent. As economic growth in the region accelerates over the course of the next decade, increasing

trade and investment is likely to place a growing pressure on the natural resource base and environmental quality. As a result, there is a strong case to be made for better environmental management and policy reform – coordinated at the *regional* level. There is growing concern, however, over the capacity of the region to move towards a more meaningful embrace of environmental sustainability. Moreover, there is a sense of urgency developing – sustainability needs to be implemented sooner rather than later.

Frequently, assessment of potential damages occurs too late to avoid irreversible environmental consequences. This is particularly important in a region in which the livelihood of the vast majority of the population relies on rivers, forests and land for survival (Mingsarn & Dore 2003; Somchai 2006; Surichai 2007; Lebel 2007: Tran 2007; IMWI 2010). Given the importance of agriculture for livelihoods in the Mekong, the conceptual framework for this research is focused on sustainable development at the regional level – as opposed to solely a national based approach. As noted by Pasuk and Baker above, it is up to governments in the region to address sustainability issues in concert. Moreover, as illustrated by the need for collective management of the Mekong river, a regional approach to resource management is unavoidable (Öjendal, Mathur & Sithirith 2002).

This chapter has led us to several conclusions from a conceptual perspective. *First*, managing the challenge of accelerating regional integration in the Mekong requires ongoing and careful consideration of both the challenges and opportunities of trade and investment liberalisation to craft what the UNDP Asia-Pacific *Human Development Report* (2006) refers to as a more 'human face' to globalisation. In this respect, Thailand has a contribution to make towards a sustainable livelihoods approach based on the concept of the *sufficiency economy*.

Second, integrating environmental outcomes has proven to be an essential component of a development paradigm that is capable of reducing poverty and promoting environmental sustainability, particularly in the agroenergy sector. The lessons of integrating small-scale farmers into national and regional systems have wide relevance, not just to Thailand, but also to other developing countries tackling rural poverty, financial reforms, and seeking to sustain the environmental foundations for future prosperity. As noted in Chapter I, the role of trade in determining resource use in the Mekong region will expand as integration increases. Both

theory and history teach us that limited environmental resources are likely to impose limits to growth in the near future.

Third, the theoretical framework of reflexive modernisation implies an awareness of the environmental risks arising from the process of modernisation. In other words, there is knowledge of the environmental impacts of industrialisation. These risks will undermine growth and prosperity. For example, intensive industrial agricultural deteriorates the natural resource base of agricultural production, with the result that soil fertility and biodiversity decline, soil erosion increases, water pollution occurs.

In conclusion, a few questions are put forward in order to shape the research agenda. How can Thailand engage its Mekong neighbours on a path that integrates trade and environment through sustainable bioenergy development? What is the role of the state in crafting trade policies to go hand-in-hand with sustainable resource management in the bioenergy sector?

Do countries in the region have sufficient *policy space* to bring environmental sustainability into the emerging landscape for trade and investment in bioenergy? That is to say, is there flexibility for socio-ecological policies to be put in place alongside economic integration? How can the urgency of the climate change debate elevate sustainability to the forefront of the policy discourse in the Mekong – where it belongs? To that end, is Thailand positioned to play a proactive role? For example, is Thailand prepared to adopt sustainability criteria in the production and processing of agroenergy? These are several of the questions dealt with in the empirical research and analysis in the following chapters of this thesis.