# Happiness and Economic Growth: Green Growth as Regional Strategy for the Well-being of All

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> International Conference on "Happiness and Public Policy"

United Nations Conference Center (UNCC) Bangkok, Thailand 18-19 July 2007

#### Introduction

In the ideal world of the neo-classical economists, countries' development strategies are driven by the necessity for infinite economic growth. This necessity is fuelled by the promise of wealth and capital growth that is believed to bring a decent standard of living for all people. In this best-case scenario, the benefits to overall well-being, if any, are closely dependent on the level of material wealth, which preconditions people's happiness and enjoyment of life.

In the real world there are quite complex processes at play, which for good or bad, pose serious limitations and challenges to the "ideal world model" mentioned above. This paper will argue three points based around the need for a change of the current economic growth model. Firstly, due to the physical constraints of the planet, infinite economic growth, as traditionally understood, is impossible. Secondly, it is doubtful that material wealth provided by economic growth in all cases will result in higher levels of happiness and spiritual well-being on either micro and/or macro levels. Various reasons for this will be outlined later. Finally, the paper will suggest an alternative approach to conventional economic growth, also suggests ways that can promote happiness and well-being for all. This approach is called Green Growth.

Through the encouragement of environmentally sustainable economic growth, Green Growth aspires to eradicate extreme poverty in the region without compromising the environment. Green growth as a policy approach not only focuses on environmental sustainability, it is also concerned with suggesting ways in which consumers can change their approach to consumption, and businesses can change the way they produce. Through the formulation of Green Growth, the team found that the prevailing approach to consumption must change in order to facilitate and sustain the present level of comfort and material well-being in society. Some of the more commonly utilised tools and disciplines of capitalism were studied to identify benefits and incentives for the right mix of policy and economic instruments that could assist in transforming corporate, personal, and political behaviour for the well being of all.

In order to achieve environmentally sustainable economic growth it was also concluded that strong and environmentally knowledgeable leadership is essential for the implementation of social and economic change.

#### Infinite Growth in a Finite Environment

Since the industrial revolution in the late 18<sup>th</sup> century, countries have increased their annual economic output and consumption manifold. Globalization has played a key role in the expansion of markets from being limited to local/communal trade to that of a global economy. The opening of markets and the increase of trade and investment have together created possibilities for fast expansion and rapid economic growth. This has allowed a number of countries to leap forward, pulling their citizens out of poverty, and increasing the overall standard of living.<sup>i</sup>

Governmental policies supporting rapid economic growth would be all but ideal if it were not for the fact that the current manner in which these goals of growth are pursued ultimately lead to the degradation of the environment. Not much longer will nature be able to carry the exponential growth in production and consumption. While this may be a global problem, the Asia-Pacific region in particular is growing beyond its given bio-capacity. It is estimated that the region will soon struggle to be able to sustain its current economic growth rates. The increasing pressure on the environment can be observed using the Ecological Footprint (EF) method:

	Biocapacity (global ha/person)	Ecological Footprint (global ha/person)	Ecological Deficit (global ha/person)
Asia and Pacific <sup>1</sup>	0.7	1.3	-0.6
Africa	1.3	1.1	+0.2
Latin America	5.4	2.0	+3.4
North America	5.7	9.4	-3.7
$EU(25)^{2}$	2.2	4.8	-2.6
World	1.8	2.2	-0.5

1. Excluding Central Asia and Caucasus

2. Excluding the latest accession countries

\*Source: WWF Study, 2006

Despite the region's high poverty levels, current consumption pressures, as measured by the ecological footprint, exceed the available bio-productive area (productive natural resource endowment) per capita in at least 18 countries (see Appendix 2).<sup>ii</sup>, <sup>iii</sup>

ESCAP's most recent regional environmental report shows that the environmental pressures indicated by the ecological footprint are real, and mounting region-wide. The report documents the stresses on the natural environment, including continuing land degradation, dramatic declines in fishery resources, and continued degradation of coastal ecosystems. While afforestation and reforestation have slowed the loss of forest cover, natural forests are still in significant decline, increasing the vulnerability of forest-dependent communities, and serving as a major driver of the rapid global decline in biodiversity. In addition, there have been dramatic declines in fishery resources and continued degradation of coastal ecosystems.<sup>iv</sup> The report also documents increasing stresses on the human living environment, such as air pollution, which remains a defining environmental issue for this region, as well as steadily increasing greenhouse gas emissions.<sup>v</sup>

In addition to this, the signs of a global water crisis, which are also a focus of the 2006 Human Development Report, <sup>vi</sup> are already evident across Asia and the Pacific. Although one in three hectares of agricultural land in the region is irrigated, as compared with one in ten for the rest of the world, <sup>vii</sup> drought conditions still depressed agricultural productivity and food security across every subregion. Between 1995 and 2004 more than 600 million people were affected by droughts in Asia and the Pacific. In 2005, Afghanistan was in the sixth year of its worst drought in 30 years. In 2004, the drought had reduced cereal production by an estimated 25 per cent and lowered GDP growth for fiscal year 2004 to an estimated 7.5 per cent (from 15.7 and 28.6 per cent, respectively, in the two previous years).<sup>viii</sup> In 2005, Australian farmers seeking to make a living on the driest inhabited continent were in the grip of its worst drought in 20 years; high rural suicide rates were linked to this drought, a situation that was replicated in India.

Examining the link between economic growth and environmental sustainability, the ESCAP report stresses that these environmental pressures are beginning to limit the region's long-term prospects for economic growth. The report points out that water is already a limiting factor for not only agricultural, but also industrial production.

This environmental predicament leaves us with a number of choices. Roughly speaking there are two main options and the following scenarios will describe them briefly. In the first scenario, the countries would keep growing rapidly, but because they would still adhere to the 'traditional' resource intensive modes of production and consumption, the environmental biosphere necessary to sustain the growing economy would eventually become depleted, and the economic machine would grind to a halt.

The second option would be less pessimistic in its future perspectives, but it would necessitate a change in the approach to production and consumption. In this scenario, production would have to become much more efficient and consumption would be less wasteful. Economic growth would still be based on production and consumption, but neither would leave too heavy an imprint on the environment and the carrying capacity of the biosphere. Economic growth in this scenario would be sustainable.<sup>ix</sup> Such an approach to economic growth would ideally minimize pollution and destruction of the environment while at the same time maximize resource efficiency/productivity. Moreover, this approach would have to include all stakeholders involved in the production/consumption cycle, and also presuppose a strong and enlightened leadership in order to induce such market transformation.

#### The Weaknesses of Markets

The internationalization of markets has significantly contributed to economic growth. As records of Gross Domestic Product (GDP) demonstrate, high performing Asian economies (HPAE) have been able to accelerate their rates of growth and contribute to poverty alleviation,<sup>x</sup> albeit, most of the world's poor still struggle to survive.<sup>xi</sup> Markets alone cannot sufficiently handle the task of poverty alleviation. Even though markets, "... can be used to accomplish many important tasks, [...] they can't do everything, and it's a dangerous delusion to believe that they can - especially when they threaten to replace ethics or politics".<sup>xii</sup> This is a contentious issue arguing against the belief that markets alone will regulate themselves and equally benefit society on a larger scale.

In terms of the environment, the 'business as usual approach' has been the standard procedure for both private and public enterprises. Since the GDP measures gross production/consumption, a high turnover is seen as positive economic development. Adding to that, consumers have not been sufficiently educated about the environmental consequences of waste-intensive consumption promoted by production/consumption intensive economies. People have become accustomed to a "use-and-discard" lifestyle without being fully aware that this way of life depletes nature of its resources and creates mountains of waste.

# Ecological Inefficiency: A Failure of the Market and Price System

Efficiency of resource use is one of the important variables for computing market price in the current economic system. This price, however, does not reflect the full costs of the processing of inputs (natural resources) and outputs (wastes, effluents,

emissions). For instance, the use of hydrocarbons as an energy source directly results in a failure of the self-regulatory mechanisms of the natural system. If the effects on the natural system from the use of hydrocarbons were internalised into the cost of production, then a transition into renewables could be more effectively facilitated and the impact on the environment could be reduced. This transition has yet to occur. And thus, Asia and the Pacific region in particular is experiencing severe anomalies, such as extreme weather phenomena, a product of global climate change that consequently is threatening the mere existence of the entire planet's ecosystem.

The main fault in the design of the current global economic system is that economists and politicians alike perceive it as a "self-contained system, which defines its own operational boundaries and, theoretically, expands both permanently and exponentially, with constant increases in the throughput of both matter and energy".<sup>xiii</sup>

Since the economic system is a sub-system of human society and is functionally designed to support its existence, the current economic system has reached the boundaries of the encompassing biological ecosystem, which on its own cannot grow. Due to the thermal dynamics of the Earth, the expansion of the economic system is virtually impossible. Society today needs to embrace the approach of ecological efficiency in the use of natural resources.

In pursuit of ecological efficiency there is a need to internalize the costs of extraction and processing, but also the ecological costs of usage of natural resources in the prices of goods, thus making them subject to the processes governing the markets. As long as the environmental costs are considered as social costs and externalities, they will remain outside the workings of every transaction occurring in the market. This distorts the market and creates an ecological deficit, which in turn has a causal effect on the natural systems balance, often resulting in natural disasters and calamities. Uncalculated, these consequences bring additional market distortion by increased and unplanned costs for dealing with the aftermaths of such natural disasters. Eventually, the real price for using natural resources is paid. However, a multifold increase of payments for losses and compensations only creates further disruptions in the functioning of the market forces. As long as the true cost of the use of energy and resources is not reflected in pricing, competition will not be compatible with the pursuit of sustainability, and this is the true weakness of the current market.

Market failure is, "...a term used by economists to describe the condition where the allocation of goods and services by a market is not efficient".<sup>xiv</sup> The lack of efficiency in terms of environmental sustainability represents a major market failure. The lack of internalization of externalities in a production setting epitomises such a failure. While the Asian economies may have been successful in producing competitive goods and services, the cost of production may only have been low because "...correspondingly extensive damage to the ecosystems is seldom given a monetary value. [...] [W]hile technology keeps ahead of depletion, providing what appear to be ever-cheaper materials" is only a delusion constraining the realisation of environmental sustainability. These materials "...only appear cheap, because the stripped rainforest and the mountain of toxic tailings spilling into rivers, the impoverished villages and eroded indigenous cultures – all the consequences they leave in their wake - are not factored into the cost of production".<sup>xv</sup>

This vicious circle could be reversed mostly through adopting the ecological efficiency principle in the economic system and processes. This strategy does not require much additional costs and funding, since choosing, for example a more ecologically efficient mode of transport such as railway, is going to bring economic efficiency and reduction of costs of transport in the medium and long run. Furthermore, opting for eco-efficient modes of transport would substantially ameliorate congestion costs, which at present in some mega-cities is consuming a considerable percentage of the GDP.<sup>xvi</sup> Once these externalities become internalized figures in production cost, the private sector will have much more incentive to develop cleaner production methods, resource efficient production methods, full life-cycle production strategies, and so on.

#### Material vs. Spiritual Wealth

The 'traditional' resource intensive approach to production and consumption is detrimental to the environment and, as mentioned above, to economic growth in the long run. Additionally, other negative side effects of the resource and waste intensive organization of the economy include the lack of focus on happiness, well-being, quality of life, and the spiritual dimension of society.

While the high rate of production and consumption can satisfy most material needs of the people, we have no way of proving if a life saturated with goods, services and material gadgets is really more fulfilling. In fact, to measure only the GDP of a

country's economy will only indicate the rate of economic growth. The GDP is not at all concerned with the overall well-being and happiness of citizens.

The materialistic way of life that industrial capitalism has fostered may have created a more convenient life for many. An undeniable benefit of economic development is the improvement of infrastructure, the availability of potable water, sanitation, and electricity. Conversely, the increasingly fast pace of urban working life, of wasteful consumption of material goods, of a lifestyle characterized by a high level of consumption has a negative effect on our well-being. This is evident in the increasing rates of obesity, psychological disorders, and substance abuse in developed countries.<sup>xvii</sup>

The market is not an ethical construct, and without adequate regulation, the market itself will not seek to distribute goods and wealth equally. Unregulated capitalism has a way of running rampant, because while the overall access to material wealth may have increased on a global scale, the gap between *haves* and *have-nots*, the wealth divide, is widening. This can be seen in the most recent report on the progress of the Millennium development Goals (MDGs).<sup>xviii</sup>

Moreover, while industrial capitalism creates wealth, it also promotes values and lifestyles that are not very conducive for equity. As far back as 1973, the late economist E. F. Schumacher acknowledged that, "we must [...] construct a political system so perfect that human wickedness disappears and everybody behaves well, no matter how much wickedness there may be in him or her".<sup>xix</sup> Looking at the gravity of conflicts that erupt between and inside nations it is often possible to find the root cause of these problems within the unequal distribution of wealth.

After examining the social and environmental costs of the current economic growth pattern, one can conclude that in order to allow our societies to become sustainable, we must "...allow for the fact that, unless industry is to be paralyzed by recurrent revolts on the part of outraged human nature, it must satisfy criteria which are not purely economic". <sup>xx</sup> Thus, industrial capitalism must not be only environmentally sustainable; it must also be a means to an end that is not purely economic and more inclusive of a qualitative measure of well-being.

Adding to this, "an industrial system which uses forty percent of the world's [...] resources to supply less than six percent of the world's population could be called efficient only if it obtained strikingly successful results in terms of human happiness, well-being, peace, and harmony".<sup>xxi</sup> The following graph illustrates that

even though people may have achieved greater levels of wealth, they are no happier than before.



Happiness is not dependent on material wealth. It may be necessary to rethink our definition of growth as to also include qualitative aspects of well-being and happiness.

#### Economics: Growth vs. Progress

Critiques of industrial capitalism and economic growth as an indicator for human development arose after World War II, but little has been done to strive towards a fairer and more efficient way to address the inclusion of a valuation of natural capital<sup>xxiii</sup> and resources into companies' production costs. Furthermore, the traditional focus on economic growth as a yardstick of development is still central to economic theory and policies in Asia and the Pacific.

However, there is hope that things may be changing. A 1995 UNDP report states, "economic growth is essential to human development. But to fully exploit the opportunities for improved well-being that growth offers, it must be properly managed, for there is no automatic link between economic growth and human progress".

Nevertheless, "Modern consumer capitalism will flourish as long as what people desire outpaces what they have. It is thus vital to the reproduction of the [economic] system that individuals are constantly made to feel dissatisfied with what they have".<sup>xxiv</sup> The current economic growth model creates artificial needs and voids that consumers feel they must satisfy through consumption. This could be compared to being continuously on a life-support drip from the advertising industry that "creates gaps in our lives in order to fill them. We buy products, but the gaps remain".<sup>xxv</sup>

The rise of neo-consumerism in recent years is considered to be rather controversial and disharmonious with some traditional lifestyles of the Asian and Pacific countries. This disharmonious clash has facilitated substantial revisions of national policies and the creation and promotion of new strategies for redefining national progress, such as the Sufficiency Economy concept of His Excellency Bhumibol Adulyadej King of Thailand.

It could therefore be a useful suggestion to look beyond GDP in order to find out whether society is really progressing towards a better life. A new approach would require initiators and support from within in all sectors of society. Policy makers could support a greening of the economy through tax incentives and feebates<sup>xxvi</sup> for green businesses. Academia could teach the importance of environmentally sustainable economic growth to future generations. Businesses could undertake more long-term investments to improve their efficiency of production. In short, there are many ways to become involved in the greening of society. The next chapter will explain one possible approach, Green Growth.

# An Alternative Approach to Economic Development: Green Growth

Green Growth is a policy focus. It aims to combine economic growth with environmental sustainability. Through the encouragement of environmentally sustainable economic growth, Green Growth aspires to eradicate extreme poverty in the region without compromising the environment. Green growth as a policy approach not only focuses on environmental sustainability, it is also concerned with suggesting ways in which consumers can change their approach to consumption, and businesses can change the way they produce.

The Green Growth approach proposes a change of attitude towards consumption, without which it will not be possible to sustain the present level of comfort and material well-being. Thus, a primary task for politicians must be to seek the right mix of policy and economic instruments to help transform corporate and personal behaviour.

On a more intangible level, the green growth concept also strives to advocate a fourth dimension of sustainable development, the value of spiritualism and a revival of traditional lifestyle in Asia and the Pacific. Therefore, Green Growth is suggesting a five-track approach to improving the sustainability of economic growth for the well-being of all.

The five tracks could be accomplished by several guiding policies underpinning the measures a green government would need to undertake:

- Green Tax and Budget Reform
- Development of Sustainable Infrastructure by inclusion of the concept of ecological efficiency in investment strategies
- Promotion of Sustainable Consumption and Production by demand side management
- "Greening" of the Market and Business through market and economic instruments
- Eco-efficiency Indicators as a monitoring tool

**Green Tax and Budget Reform:** This economic tool promotes a revenueneutral green tax and budget reform that uses pollution/emission levels as a basis for taxes, while reducing income tax. Many tax-and subsidy-policy measures indirectly promote environmentally damaging activities and thereby undermine sustainable development. In order to avoid this, more taxes on environmentally damaging goods – by means of ecological fiscal reform – need be introduced, while counterproductive subsidies and tax privileges have to be reduced.

**Development of Sustainable Infrastructure:** An important determinant of eco-efficiency is the pattern of infrastructure development. As cities grow, highways lengthen and water, energy, and sanitation services are expanded. The region's growing populations are locked into energy and water consumption patterns determined by the infrastructure delivering these services. Sustainable infrastructure is an infrastructure which provides increased transport, energy and water services, but

with less consumption of material and other resources, thereby enabling 'green growth' and socio-economic development, especially in relation to developing countries.

**Promotion of Sustainable Consumption and Production:** As the current growth pattern is defined by the sum of production and consumption patterns, sustainable consumption can be an opportunity for improving the eco-efficiency of economic growth. Changing production patterns has gained momentum and cleaner production is relatively enhanced by various governmental initiatives throughout Asia and the Pacific. Enhancing consumption patterns of society to embrace sustainability needs to be taken more seriously. Governments should take into account sustainable consumption patterns when designing development policy, realizing their direct impact on lifestyle and consumer behaviour. Demand Side Management is emerging as a tool with critical importance that can regulate and stimulate sustainable consumption. The role of the public sector should be to create a conducive environment for more investment, a necessity for the provision of sustainable consumption choices and the application of demand side management. Its effective implementation will require active support from citizen groups and civil society.

"Greening" the Market and Business: Across the region corporations and small and medium-sized enterprises are becoming the agents of change for sustainability and have managed to turn protection of the environment through enhancing the eco-efficiency of their production into a business opportunity. However, many eco-products cannot pick up speed in the market. There is a need for government intervention to create markets for green products by introducing a system of incentives, economic mechanisms and policy, and regulations.

**Eco-efficiency Indictors:** To enable countries in the region to improve the ecological efficiency of the national, system-wide economic development planning, UNESCAP has identified the need to develop the Eco-efficiency Indicators (EEI). The purpose of the EEI is to measure and compare the eco-efficiency of economic growth of different countries and to identify policy measures to improve this for achieving economic benefit. The EEI will strengthen the role of the public sector and will provide it with powerful policy formulation tools to increase its influence on the pattern of economic growth of the countries in the region on a national system-wide level.

#### Conclusion

This paper has briefly shown two failures of the current approach to economic growth. The first failure lies in the fact that industrial production and consumption are too resource intensive and therefore unsustainable in the long run. The second failure of the economic set-up of society is that it measures growth purely on tangible outputs and neglects the qualitative indicators such as happiness and well-being.

In order to correct these two failures, all stakeholders that, in one way or another are involved in the setting-up and maintenance of the economy, need to take conscientious steps to change their mindset and priorities. The example of the Green Growth approach its five tracks towards greening the economy for the well-being of all shows a viable alternative to the current unsustainable approach to growth and development.

However, to achieve environmentally sustainable economic growth there is a need for strong and enlightened leadership, which is a decisive factor for social and economic change of that scale.

### **Bibliography and Endnotes:**

Hawken, Lovins and Lovins 2000. *Natural Capitalism: Creating the Next Industrial Revolution*. New York, Boston: Little, Brown and Company.

Layard, Richard 2003. *Happiness: Has Social Science a Clue?* Lionel Robbins Memorial Lectures 2002/3. London School of Economics.

Porritt, Jonathan 2005. Capitalism: As if the World Matters. Earthscan, UK.

Schumacher, E. F. 1973. *Small is Beautiful: Economics as if People Mattered.* London: Random House.

Economic and Social Commission for Asia and the Pacific 2007. *Economic and Social Survey of Asia and the Pacific 2007: Surging Ahead in Uncertain Times.* Thailand: United Nations Publication.

Economic and Social Commission for Asia and the Pacific 2006. *State of the Environment in Asia and the Pacific 2005.* Thailand: United Nations Publication.

Global Footprint Network 2006. Ecological Footprint Standards 2006: A Project of the Global Footprint Network Standards Committees.

www.wikipedia.org

www.greengrowth.org

<sup>&</sup>lt;sup>i</sup> www.cid.harvard.edu/bread/papers/policy/p003.pdf (Accessed on 07/06/07)

<sup>&</sup>lt;sup>ii</sup> The demand for environmental goods and services provided by the natural resource base depends on the average consumption patterns in a country and can be estimated by "ecological footprinting." This methodology offers a way of assessing total environmental pressure by estimating how much productive area (or biocapacity) is needed to support a given human activity. Aggregated for all aspects of consumption across a whole population, the total bioproductive space required is termed its "footprint", and indicates the demand for natural resources to produce "all the resources that a given population consumes, and absorb[ing] the waste it produces." It therefore reflects the consumption pressures exerted by the population under consideration. See Chambers, N., C. Simmons and M. Wackernagel (2000). *Sharing Nature's Interest. Ecological Footprints as an Indicator of Sustainability* (London and Sterling VA, Earthscan Publications Ltd.). <sup>iii</sup> ESCAP (2006). *State of the Environment in Asia and the Pacific 2005: Economic growth and* 

<sup>&</sup>lt;sup>III</sup> ESCAP (2006). *State of the Environment in Asia and the Pacific 2005: Economic growth and sustainability* (New York, United Nations), based on data from the Global Footprint Network (2006). Data downloaded on 14 March 2006 from <a href="http://www.footprintnetwork.org">http://www.footprintnetwork.org</a>.

<sup>&</sup>lt;sup>iv</sup> The area of mangrove lost in the region from 1990 to 2000 represents approximately 60 per cent of the global loss, with South-East Asia accounting for the majority of the total coverage lost (ESCAP estimate based on data from FAO (2003). *State of the World's Forest 2003* (Rome, FAO)). Approximately 60 per cent of the region's coral reefs are estimated to be at risk. (ESCAP estimate based on data from Spalding, M.D., C. Ravilious and E.P. Green (2001). *World Atlas of Coral Reefs* (Berkeley, University of California Press)). The reefs of South-East Asia are the most species-diverse in the world and are also the most threatened, with more than 80 per cent at risk, including 55 per cent at high or very high risk.

<sup>&</sup>lt;sup>v</sup> A large proportion of the region's land area is degraded, in particular, dryland areas used for agriculture. In South and South-East Asia, around 74 per cent of agricultural lands are severely affected

by wind and water erosion as well as by chemical and physical deterioration.(see Woods, Stanley, Kate Sebastian, and Sara J. Scherr (2000). *Pilot Analysis of Global Ecosystem: Agroecosystems* (Washington D.C, World Resources Institute), accessed on 15 March 2006 from

<http://www.ifpri.org/pubs/books/page.htm>). Central Asia is most seriously affected by desertification and erosion.In Kazakhstan alone, around 66 per cent of the total land area is desertified (see UN

Millennium Project (2005). Environment and Human Well-being: A Practical Strategy: Report of the Task Force on Environmental Sustainability (London, Earthscan Publications Ltd.).

<sup>vi</sup> UNDP (2006). *Human Development Report 2006. Beyond water scarcity – power, poverty and the global water crisis* (New York, UNDP).

<sup>vii</sup> FAO (2003c). Selected Indicators of Food and Agriculture Development in Asia-Pacific Region 1992-2002, Regional Office for Asia and the Pacific publication 2003/10, (Bangkok, FAO Regional Office for Asia and the Pacific).

<sup>viii</sup> ADB (2005). *Asian Development Outlook 2005:Promoting competition for long-term development* (Hong

Kong, China, ADB).

<sup>ix</sup> See for instance the United Nations Publication *State of the Environment* (2005) for more details about the region being beyond its environmental carrying capacity

<sup>x</sup> See http://unpan1.un.org/intradoc/groups/public/documents/APCITY/UNPAN006666.pdf for a graph of Asia-Pacific economic growth.

<sup>xi</sup> For instance, one fifth of Asians still exist on less than one Dollar US per day. See the United Nations Publication *State of the Environment* (2005) for more details on this matter.

<sup>xii</sup> (Hawkins and Lovins, 2000: 261)

xiii Porritt, Jonathan 2006. Capitalism as if the World Matters. Earthscan, UK

<sup>xiv</sup> http://en.wikipedia.org/wiki/Market\_failure (Accessed on 07/10/07)

<sup>xv</sup> Hawken, Lovins and Lovins 2000. *Natural Capitalism: Creating the Next Industrial Revolution*. New York, Boston: Little, Brown and Company.

<sup>xvi</sup> In Bangkok for example congestion costs are estimated at 6%, while this for the whole of Republic of Korea is about 4,4% of GDP

<sup>xvii</sup>http://books.google.com/books?hl=en&lr=&id=2ekg225NTSwC&oi=fnd&pg=PR9&dq=materialisti c+society+and+psychological+disorders&ots=UjN6nIfOue&sig=kANIsQ58pXe1atw5bwmfGTYcgFA (Accessed on 07/09/07)

http://mdgs.un.org/unsd/mdg/Resources/Static/Products/Progress2007/UNSD\_MDG\_Report\_2007e.pd f (Accessed on 07/08/07)

xix Schumacher, E. F. 1973. Small is Beautiful: Economics as if People Mattered. London: Random House, 2.

<sup>xx</sup>*Ibid*: xi.

<sup>xxi</sup> *Ibid*: 96.

<sup>xxii</sup> Layard, Richard 2003. *Happiness: Has Social Science a Clue?* Lionel Robbins Memorial Lectures 2002/3. London School of Economics, 14.

<sup>xxiii</sup> Lovins and Meadows in their book *Natural Capitalism state that* natural capital includes all the familiar resources used by humankind: water, minerals, oil, trees, fish, soil, air, etcetera. But it also encompasses living systems, which include grasslands, savannas, wetlands, estuaries, oceans, coral reefs, riparian corridors, tundras, and rainforests.

xxiv Porritt, Jonathan 2005. Capitalism: As if the World Matters. Earthscan, UK.

xxvMonbiot, George 2002, What do we Really Want?,

http://www.monbiot.com/archives/2002/08/27/what-do-we-really-want/ (Accessed on 07/08/07)

<sup>xxvi</sup> A feebate can be defined as an amalgamation of a fee and rebate where a customer either pays a fee or receives a rebate depending on the eco-efficiency of the product.