Proceedings of the International workshop

Oriental Wisdom

Alternative Pathways towards Environmetal and Natural Resource Management

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Proceedings of the International Workshop on

Oriental Wisdom: Alternative Pathways towards Environment and Natural Resource Management

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Editorial

At present, the world community recognizes the existence of an environmental crisis, especially in the form of global climate change, which is becoming a direct environmental threat to human survival and to sustainability. One of the fundamental causes is the imbalance between current human consumption and the earth's capacity to bear this level of consumption. Even though there have been numerous attempts to solve these problems, for instance the application of technology, which can only partly resolve matters, these attempts often come too late and may in fact cause other unexpected problems. Eventually, the paths to a lasting solution may include life-styles which are based on over-consumption, particularly in developed countries and for wealthy people in developing countries.

In the meantime, the concepts of Oriental Wisdom, such as the GNH of Bhutan and the Sufficiency Economy Philosophy of His Majesty the King of Thailand, are receiving increasing acceptance as probable solutions to the world's problems, since they can help reduce consumption demands while at the same time generating happiness. The Good Governance for Social Development and Environment Institute, (GSEI), therefore is of the view that the study of Oriental Wisdom as applied to natural resources and environmental management can play a crucial role in relieving the problems, not only in the case of Thailand but also at the global level. In fact, GSEI already proposed organizing an Alliances Workshop at the 4th IUCN World Conservation Congress in Barcelona during the period 5-14 October 2008. This workshop presented a good opportunity to disseminate the results of applying the concept of the Sufficiency Economy Philosophy in the context of natural resources and environmental management to a wider audience.

Prior to the workshop in Barcelona, the Thailand Research Fund (TRF) had supported GSEI in conducting a research project entitled "A Synthesis of the Concept of Oriental Wisdom and Approach to Natural Resources and

Environmental Management (leading to an international workshop)" and in producing publications of the results of the "Workshop on Oriental Wisdom: Alternative Pathways towards Environmental and Natural Resources Management". These activities embody the lessons learnt from several case studies that applied the concept of the Sufficiency Economy Philosophy to natural resources and environmental management.

At the same time, GSEI had consulted with the Thailand International Development Cooperation Agency (TICA) regarding the possibility of disseminating the Sufficiency Economy Philosophy - in its environmental aspect - at an international forum. Such an international forum would not only focus on the application of the Sufficiency Economy Philosophy but also on Oriental Wisdom, which can be applied to development and environmental conservation. This, it was hoped, would also lead to international cooperation coinciding with the objectives of TICA. Therefore, TICA granted financial support to organize the planned international conference.

This book covers all the substance of both international conferences which GSEI organized with the support of the Thailand Research Fund (TRF) and the Thailand International Development Cooperation Agency (TICA). The details are as follows:
1) An international workshop on "Oriental Wisdom: Alternative Pathways towards Environmental and Natural Resource Management" from 10-11 April 2008 at the Royal Princess Hotel, Bangkok.
2) Co-organized by GSEI and IUCN, an Alliances Workshop entitled "Living with Nature through Oriental Wisdom for our Common Future" on 7 October 2008 as part of The 4th IUCN World Conservation Congress in Barcelona, Spain.

The first international conference aimed not only to present the outcome of the research study "A Synthesis of the Concept of Oriental Wisdom and Approach to Natural Resources and Environmental Management" but also to provide a stage where opinions and suggestions could be exchanged among researchers from various countries in Asia. These researchers shared concepts on alternative development in natural resources and environmental management, which included: Alternative Development (from India), Community Development (from Bangladesh), Circular Economy (from China), 3R (from Japan), and GNH from (Bhutan).

The experiences of each country reveal the various approaches taken in dealing with the crisis, which can be categorized as follows:

(1) Technological approaches: Circular Economy (CE) of China and 3R (Reduce Reuse Recycle) of Japan, which are macro-management-based.

(2) Community-based approaches taken by India and Bangladesh, which are considered as micro-level management, focusing on community experiences in preservation and poverty reduction by traditional wisdom. These approaches emphasize that local wisdom can be harmonized with existing resource management.

(3) Spiritual approaches, i.e. the GNH (Gross National Happiness) of Bhutan and the Sufficiency Economy Philosophy of Thailand, both of which give significance to the spiritual dimension, morality and are combined with Buddhist thought.

As for the 2nd international conference, GSEI was honored to receive an invitation from IUCN to co-organize an Alliances Workshop entitled "Living with Nature through Oriental Wisdom for our Common Future" on 7 October 2008 as part of the 4th IUCN World Conservation Congress in Barcelona, Spain. The Alliances Workshop had three objectives:

(1) disseminating the concept of applying the Sufficiency Economy Philosophy as Oriental Wisdom in the field of environmental and natural resources management;

(2) providing a stage for the exchange of ideas, recommendations and suggestions regarding knowledge and local wisdom in natural resources and environmental management of different countries in Asia; and

(3) building cooperative networks with other international agencies to promote the application of alternative development, based on Oriental Wisdom, for sustainability.

Apart from co-organizing this Alliances Workshop, GSEI, with the support of the Thailand Research Fund, produced promotional videodisks on Oriental Wisdom to be distributed to other participants from various countries. These aroused great interest. GSEI was also honored that key members of IUCN agreed to be resource persons in the workshop, namely Dr. Ashok Khosla, Chairman of the Development Alternative Group and current IUCN's President, who gave insights on alternative development, and Mr.

Abdul Muyeed Chowdhury, Executive of BRAC, the biggest NGO in Bangladesh, who shared ideas on community development in natural resources and environmental management.

At the 4th IUCN Congress, Dr. Ashok Khosla's was elected as the President. This has provided a good opportunity for building networks of collaboration and extending activities aimed at applying Oriental Wisdom in natural resources and environmental management with IUCN's regional and global networks beyond Barcelona.

This book consists of two parts, the first of which contains the details of the international workshop on "Oriental Wisdom: Alternative Pathways towards Environmental and Natural Resource Management" held from 10 to 11 April 2008 at the Royal Princess Hotel, Bangkok. The second part recounts the conclusions of the Alliances Workshop entitled"Living with Nature through Oriental Wisdom for our Common Future" held as part of the 4th IUCN World Conservation Congress on 7 October 2008 in Barcelona, Spain.

Content

Background and objectives

By Thanphuying Dr. Suthawan Sathirathai
Chairperson
Good Governance for Social Development and the Environment Foundation (GSEI)

On behalf of the Good Governance for Social Development and the Environment Institute (GSEI) and the host organization, it is a pleasure and honor for me to deliver my report on the background and objectives of this workshop. First of all, I would like to express my profound gratitude to Mr. Virasakd Futrakul, Permanent Secretary of the Ministry of Foreign Affairs, for his kindness in presiding over the opening ceremony of the International Workshop entitled "Oriental Wisdom: Alternative Pathways towards Environmental and Natural Resource Management".

The workshop is the most important activity coming out of the research project entitled **"Synthesis Paper based on the Philosophy of Sufficiency Economy for Environmental and Natural Resource Management".** In conducting this project, GSEI has received support from the Thailand Research Fund (TRF). Significantly, the workshop itself would not have been possible without considerable support from the Thailand International Development Cooperation Agency (TICA). It has also received valuable assistance from the International Union for Conservation of Nature (IUCN) and kind cooperation from the United Nations Environmental Programmme (UNEP)

Judging by their national development policies,most countries in the Asia-Pacific region recognize that high GDP growth is a significant component of such policies. However, if rapid economic growth has been driven by environmentally-unfriendly processes and excessive consumption, it can result in severe natural resources and environmental degradation. It is understandable that most developing countries aspire to the level of economic development and standard of living achieved by the major rich countries. Nevertheless, due to the limited carrying capacity of the earth, developing countries seeking development pathways to keep up with the industrialized countries need to adopt more environmentally- friendly approaches. Mainstream development approaches largely focus on the most efficient use of natural resources for sustainable produc-

tion such as clean technology, energy-saving, and industrial ecology, or what we can call **"technology fix".** However, these approaches tend to overlook the problems of excessive consumption and the need for a balanced relationship between production and consumption patterns. Therefore, it is imperative that such countries should seek alternative development approaches which can bring about not only balanced and sustainable production but also balanced and sustainable consumption.

In fact, here in the Asia-Pacific region, we already have many experiences of the application of local wisdoms to national development policies, such as Gross National Happiness (GNH) in Bhutan, the Harmonious Society Concept and Circular Economy in China and the Sufficiency Economy Philosophy in Thailand, 3Rs in Japan. These concepts focus not only on sustainable production but also on sustainable consumption. The Oriental way of life tends to be more in harmony with nature and would certainly put less stress and demand on the environment.

Therefore, this workshop will highlight Oriental development approaches based on existing Asian traditional wisdom as an important option for developing countries in achieving natural resource sustainability. These approaches include, for example, the Sufficiency Economy Philosophy and Gross National Happiness, which are both based on social values and the Circular Economy and 3Rs, which are based on material flow. It is essential that Asian countries, with their rich cultural diversity and local knowledge, co-operate in strengthening and synergizing these important values. Development frameworks based on Oriental wisdom will suit local contexts and improve the quality of life while preserving the environment of each country. More importantly, these development approaches based on Oriental wisdom may offer new pathways to sustainable development.

The purposes of this workshop therefore are

(1) to facilitate brainstorming and to exchange the ideas and practical experiences of the Asian countries about existing knowledge and local wisdoms in terms of environmental and natural resource management;

(2) to present a synthesis paper of practical experiences based on the philosophy of Sufficiency Economy for environmental and natural resources management in Thailand; and

(3) to build up international networks of policy-planning agencies, academic institutes and civil societies in order to promote the application of alternative pathways for sustainable development

I do hope that the workshop will mark a significant step towards enhancing our understanding of Oriental wisdom and our ability to apply it to natural resource management. Moreover, it will help advance our search for new approaches, including indicators, that will contribute to environmental and natural resource sustainability. Most importantly, the recommendations derived from the workshop should not be limited to this workshop alone. It is vital that we push the recommendations forward for international recognition. For example, we plan to propose our recommendations to the 4th IUCN World Conservation Congress to be held in October this year in Barcelona, Spain.

So, it is my hope that this workshop will provide a fertile ground for cooperation and brainstorming on alternative pathways for development which are based on Oriental Wisdom as well as come up with some practical recommendations including appropriate indicators.

On behalf of the host organization, I wish once again to express our appreciation to Mr. Virasakd Futrakul, Permanent Secretary of the Ministry of Foreign Affairs, Dr. Chitriya Pinthong, Director-General of Thailand International Development Cooperation Agency (TICA) as well as to the other distinguished speakers. I am also grateful to the workshop participants for their attendance and valuable contributions.

At this point, I am pleased to invite Dr. Chitriya Pinthong, Director-General of Thailand International Development Cooperation Agency (TICA), to deliver her opening welcome remarks.

Welcome Remarks

By Dr. Chitriya Pinthong,
Director-General of Thailand International Development Cooperation Agency, Ministry of Foreign Affairs, Thailand

On behalf of Thailand International Development Cooperation Agency (TICA) and co-host organization, I would like to thank you Permanent Secretary of the Ministry of Foreign Affiars, Mr. Virasakd Futrakul for presiding in our workshop today. Besides, I would like to welcome you all for the International Workshop on Oriental Wisdom: Alternative Pathways towards Environmental and Natural Resource Management.

It is a great honor that Thailand has an opportunity to organize the workshop which brings together diverse participants with knowledge and experience in Alternative Development, allowing atmosphere for participants to interact and exchange concerns and experiences related to Alternative Pathways towards Environmental and Natural Resource Management. The Alternative Pathways are aimed to offer options based on oriental notions of five Asian countries, namely 3R (Reduce-Reuse-Recycle) of Japan, Circular Economy of China, Gross National Happiness: GNH of Bhutan, Alternative Development of India and Bangladesh, and Sufficiency Economy Philosophy of Thailand. It is important to emphasize here in the first place that the selected options do not mean that the others are less valuable. In fact, the selected alternatives are most localized and therefore applicable to reality.

In Thailand, the Alternative Development is not actually a new concept or initiative. The Alternative Development has become known to Thai people since 1974 when H.M. King Bhumiphol expressed a philosophy called **'Sufficiency Economy'.** The National Economic and Social Development Board has applied the "Philosophy of Sufficiency Economy" which lies at the heart and serves as guidance for the development of National Economic and Social Development Plan in 1999.

Thus, the Philosophy of Sufficiency Economy is not only a notion of the alterative pathways, but also regarded as the philosophy which provides guidance on appropriate conduct based on Thailand's traditional ways of

life. It is applicable at all times and can be said to address all issues within a dynamic setting. Emphasis is put on overcoming crisis for human security and sustainability. That is to say, it is development that takes into account balance, sustainability and dynamics in economy, society, environment, knowledge and technology. The philosophy has been applied by multi sectors from the grassroots to policy levels.

Distinguished Guest Speaker and Participants,
Ladies and Gentlemen,

I do hope that this workshop would be a forum of representatives from governmental officials, academics, experts and civil society organizations not only to share experiences and knowledge about alternative development but also to promote our wisdom to the world.

Finally, on behalf of the co-host organization, I would like to thank all of you once again for committing your precious time to attend this meeting. Today's workshop cannot happen without your participation. The workshop will be a kick-off to enhance and strengthen regional technical cooperation which will contribute to the development of local wisdoms-based framework and advocate for the recognition of the oriental wisdoms in such international environmental conferences as the 4th IUCN World Conservation Congress on 5-14th October 2008 in Barcelona, Spain.

Now, it is time to move on to the opening ceremony. May I take this opportunity to invite Permanent Secretary of the Ministry of Foreign Affairs, Mr. Virasakd Futrakul to deliver opening remark.

Opening Remarks

By Mr. Virasakd Futrakul,
Permanent Secretary, Ministry of Foreign Affairs, Thailand

It is my great pleasure to be here amidst distinguished academicians and practitioners in the field of sustainable development at this International Workshop on **Oriental Wisdom: Alternative Pathways towards Environmental and Natural Resources Management.** We meet at a time when world public opinion has never been as focused on the issue of sustainable development as it is nowadays. Indeed, this event has come at a crucial moment, and it is my hope that the discussions here this week can help elucidate how oriental development methodologies can help sustain natural resources and the environment for our future generations.

It cannot be denied that globalization has created both unparalleled opportunities and at the same time posed unprecedented challenges for development. Globalization has led to rapid industrialization and economic convergence in the world economy. Trade, investment and capital are able to move virtually freely worldwide, creating a new international environment directed and driven by market forces. However, globalization also carries with it great risks for those who are caught unprepared. Moreover, the much-hoped for synergistic relationship between globalization and poverty eradication, defined as the first target of the United Nations Millennium Development Goals (MDGs), still remains unclear. Sadly, we continue to witness a widening gap between rich and poor in all developing societies.

Furthermore, environmental degradation and natural resources depletion can be seen alongside unbalanced growth between the urban and rural areas, most notably within Asia. And throughout the world, populations are currently facing more severe environmental problems than ever before. Reduction of arable land, forest encroachment and deforestation, widespread water shortage, diminishing food and fish stocks, increased flooding and prolonged droughts are already a reality in many parts of the world. A drop in agricultural productivity will lead to, or worsen, food insecurity in least developed countries and an uncontrollable increase in food prices across the globe.

Ladies and Gentlemen,

The context and the challenge are therefore clear. But what about the solutions? Can the globalized economic model of capitalism help tackle such problems? Certainly, it appears as if unless we recognize the implications of the words **"enough"** and **"sharing"**, we will not be able to achieve sustainable development or integrate happiness within global society. As Mahatma Gandhi, the great of India, said ***"There is enough for everybody's need, but not enough for anybody's greed".***

The Workshop's concept paper and reference materials make reference to the emergence of China and India and their growing demand for resources as their economies continue to advance. And indeed if we all continue to follow the classic development path, this planet would no longer be capable of accommodating our growing populations. The question is whether we realize the sense of urgency to make the necessary choices and have the means to take the crucial initiatives that will address the vulnerability of our people in this age of globalization. And part of the answer lies in examining whether or not our existing knowledge and local wisdom can recommend a better development path.

In the Asia-Pacific region, we have many unique applications of local wisdom and national development strategies to promote social integrity and environmental sustainability. One common element is the idea of balance and quality development. At the same time, there is an implicit rejection of a "one size fits all" approach to development. In Bhutan, the concept of Gross National Happiness, or GNH, has been applied by His Majesty Jigme Singye Wangchuck, the Fourth King of Bhutan, since 1972. GNH has guided Bhutan on the path of sustainable development through upholding four balanced practices, namely, sustainability and equality in socio-economic development, environmental conservation, preservation and promotion of cultural values and good governance. But while GNH is home-grown in Bhutan, its wider implications have achieved increasing recognition, including at the 2nd International Conference on GNH held in Bangkok last November, and we will continue to follow its progress with great attention. Elsewhere, the Chinese Harmonious Society Concept and Circular Economy Model also offer a different oriental socio-economic model that has been applied to develop the world's most populous country in a sustainable manner.

Meanwhile, in Thailand, the **"Sufficiency Economy"** philosophy bestowed by His Majesty the King of Thailand has played an important role in refocusing development on the people. By providing guidance on appropriate conduct covering numerous aspects of life, the philosophy points the way leading to a more resilient and sustainable economy, one better able to meet the challenges arising from globalization and other changes. It stresses the middle path as the overriding principle for appropriate conduct by the populace at all levels. While the traditional illustration is applied to an agricultural context, it applies to conduct at the level of the individual, families, communities and businesses as well as to the choice of a balanced development strategy for the nation so as to modernize in line with the forces of globalization. **"Sufficiency"** means moderation in production as in consumption. It also recognizes the pitfalls of dogma, and proposes that great care be exercised in the implementation of theories and methodologies.

"Sufficiency Economy" seeks to strengthen the symbiosis and harmony between men and their natural environment. At the same time, the environment itself is inherently global with life-sustaining ecosystems. It is also intrinsically linked to economic development, providing the natural resources that fuel economic growth and services. Thailand has learnt that without the counterbalanced ideology of **"sufficiency"**, our growth-oriented strategy has led to the rapid depletion of environmental assets priced cheaply at below their replacement cost. Therefore, **"Sufficiency Economy"** has become an integral element of Thailand's quest to achieve environmental sustainability and the MDGs as a whole, as recognized in the UNDP's Thailand Human Development Report 2007. It has been applied as the fundamental framework for Thailand's Tenth National Economic and Social Development Plan and will continue to offer guidance for all those in Thailand and even beyond in the years to come.

Ladies and Gentlemen,

Let me now turn from the macro to the micro level, for oriental wisdom can be seen to have provided guidance on how to operate an economy within the ecological constraints of the biosphere. Indeed, varieties of conservation methodologies can be observed throughout Asia via local practices on the ground.

In terms of local wisdom, let me share with you the case of the Karen hill tribes in Thailand and their practice in forest conservation. One of their traditional beliefs is in the presence of the watershed forest spirits. They will not cut the trees on the mountains because it might disturb the watershed spirits and bring about disasters. Also, they know how to perform agricultural activities in a sustainable way, including rotating land plots for seasonal cultivation and utilizing mixed crops to maintain soil nutrients. These practices symbolize a commitment to environmental conservation as well as to traditional values. And utilizing such traditional beliefs could help sustain natural resources and environment in significant ways. In remote areas, local monks also influence pattern in forest management and protection. For example, they perform ordinate tree as they were Buddhist novices. The temple forest is another effective conservation method derived from the religious domain. Meanwhile, many forests and reforested areas in Thailand have been declared preserved forests in commemoration of auspicious occasions for His Majesty the King and members of the royal family.

Thus, all governments should seek ways of supporting local people to make the best use of their traditional knowledge to promote environmental sustainability. The local people should be made aware that traditional wisdom is a common and eternal property to be preserved, and know how to manage their property efficiently. At the same time, globalization has made available to us various innovative technologies which can be accessed more easily than before. A balanced blend of traditional wisdom and modern science holds out the hope of creating new management systems to foster the sustainable use of natural resources. But it will require policies and mechanisms to ensure that grass-root innovators and custodians of the natural resources are provided with incentives for continuing innovation and conservation based on their local knowledge. Environmental conservation and management, therefore, must include not only setting rules and regulations but also local participation and innovative approaches to rural development with respect to their local wisdom. Above all, it must continue to centre on the people.

Distinguished participants,

It is undeniable that questions of sustainable development, taking into account both economic growth and natural resources conservation, have

attained a sense of urgency. Urban overcrowding and traffic jams, noise, air and water pollution, floods, deforestation and climate change are no longer simply academic concerns. All people are touched by these problems in their daily lives. Young generations are being intensively educated about the importance of natural resources and the environment. However, we need to insert traditional and local wisdom in children's primers to let them be socialized on the starting point from which development should begin.

Just as a rich family is not happy family. We have learnt that economic growth rate and gross national income are no longer the sole indicators when determining whether a country **"developed".** The well-being and happiness of people and the sustainability of the environment in which they live must be considered as well. In particular, if environmental management can be derived via participation of local wisdom and the local people, the paradigm of democracy will finally be on the right track.

Before I conclude, I would like to express my appreciation to Thanphuying Dr. Suthawan Sathirathai, Chairwoman of the Good Governance for Social Development and the Environment Foundation (GSEI), for convening this timely event. I would also like to thank the UNEP Regional Office for Asia and the Pacific, the World Conservation Union Asia Regional Office, the Thailand Research Fund for their good cooperation with the Ministry of Foreign Affairs on this matter.

I am confident that the brainstorming sessions during the next two days will draw out fresh options for more integrated methodologies on environmental and natural resources management which will lead to the goal of sustainable development.

And I think before I conclude, I would like to leave a fruitful for thought, for our Thai participant. Given the present sustainable development model which let us to the point where today each Thai contribute two tons of carbon dioxide to the environment per year - twice of Indonesia and three times of India. I remind that again with quoted favorite guru Mahatma Gandhi **"We should be the change that we want to see the world"** Thank you . Best wishes.

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Asian Road Map: The Application of Local Wisdom in Environmental and Natural Resource Management

Asian Road Map: The Application of Local Wisdom in Environmental and Natural Resource Management

Ms. Aban Marker Kabraji
IUCN Asia Regional

Good morning, ladies and gentlemen. It is a great privilege to be here. This workshop has had a history. This is the subject that GSEI and a number of other institutions have been working on for many years. And we hope that it is part of a process of putting forward a kind of thinking in a conceptual understanding of the importance of the management of natural resources which brings a particular set of each and values to it. A flavor of how we understand the natural world should be managed and a natural world should be treated. So that is the essential theme of my talk and I will try and illustrate it with examples from our region. It is a privilege for me to address the gathering and deliver the key note addressed.

For management of natural resources, nature and the extent of its management, define and guide development processes. You heard the Permanent-Secretary talked about that very eloquently a little while ago. Hence, I would like to broaden the scope of the topic to include the discussion on the current development paradigm, introduce alternative models of development and focus on specific examples of traditional and indigenous knowledge practices that can contribute to realizing these alternative models of development. The UN Convention on Biological Diversity (CBD) of which Thailand is also a signatory recognizes the

importance of traditional knowledge for the conservation and sustainable use of biological diversity. It calls on the signatories to respect and preserve the traditional knowledge, innovations and practices of indigenous peoples and local communities. What is the context of applying this philosophy in Asia?. Asia covers 21.5 million square kilometers of land area with a wide range of landscapes from mountains to coastal lowlands encompassing arid lands to wetlands with a range of weather patterns. Asia in all accounts for 4 billion of the total world population and has 5 of the 10 most populous nations in the world. (China - 1.3 billion; India - 1.2 billion; Indonesia - 234 million; Pakistan - 165 million; Bangladesh - 150 million; and Japan - 127 million). So Asia in many ways represent in terms of population one of the most important continent in terms of its impact in the world. The current rate of growth of population is 1.2%. In some countries it is much higher, in some it is lower. And as you know the Asian economy has been growing steadily for about a decade, and gathered speed during 2006 recording regional growth rate of 7.9%. Some of you who have been watching the world's economy and looking at the effect of what is now a recession in the US will be interested to know that yesterday the IMF released a report which said that the only continent that is not going to be suffering from the recession is Asia. So Asian economy will continue to grow in 2008 and 2009 in spite that the rest of the world economy is going down.

This rapid economic and demographic growth is also causing ecosystem degradation in a number of ways and the environmental stability is at stake. Owing to the high population and growing water demand, a staggering 669 million people in Asia are without access to water supply. They form 6% of the total urban population and 32% of the rural population. The Asia region saw an increase in forest area of about a million hectares annually during 2000 – 2005 due to investment in forest plantation in China. While the rest of Asia there has been steady degradation of forest land. And forest plantations are not going to provide the same ecological services as natural forest. They are particularly at risk in terms of biodiversity habitants, non-timber forest product provisions, watershed provisions and cultural and spiritual support. And often forest plantations are one of the monocultures which in itself mean they are dangerous in a bio-logical sense. Southeast Asia where we sit today experiences the largest decline in forest area, showing annual net decline of more than 2.8 million hectares per year. And this is some of the richest biodiversity and richest forest cover in Asia.

Historically natural resources have been major drivers of development, and human civilization.All developed societies in the world have progressed by tapping their natural resources and maximizing the economic potential of these resources. Jared M.Diamond, one of the foremost biographer in the world, clearly bring out in his book “Collapse” that effective natural resource management and ecosystem integrity are imperative in the survival of civilizations. The rise of civilizations and advancements in technology have been possible only due to the access of the rich natural resources base, all the way from places like Easter Island to the industrialized civilization. And there is a lot of thinking that most of these civilizations collapsed because natural resources would be great to an extent that they no longer support the human society that live on them. Even among the proponents of growth and globalization including institutions like the World Bank and the IMF and people like Bill Gates and George Soros, this is acknowledged. When the new President of the World Bank, Robert Zuellig assumed his role as President of the World Bank. He stated in his first address to dignitaries in Washington that the World Bank has achieved progress and supported growth and poverty reduction in certain large developing countries, but globalization had not impressed all people and its is imperative for it to be inclusive and sustainable. Implicit in this statement is the need to find ways to utilize the natural resource base in an equitable and sustainable manner.

The topic of how to manage natural resources in a sustainable manner has formed the subject of discussion ever since Stockholm Conference in the 1970 that set up the United Nations Environment Programme. And there has been introspection and reflection within my institution and among the institutions that are in the room today. It is necessary that we shift from focusing solely on growth as the driver for economies and societies, to include concepts of human wellbeing and safety, especially in view of the manifest and impending threats posed by climate change effects. We must look for alternative ways of managing nature. Nature has its innate value and that should be realized and promoted. For example, forests and other terrestrial ecosystems act as natural defense mechanisms and bulwarks against climate change related impacts. We saw this very clearly in Asian tsunami where we provided an example of how area with intact ecosystems had very little damage as opposed to area where coral reefs and mangroves had been degraded. You have seen this very clearly along the coastline of Thailand, Sri Lanka, Indonesia and we have many examples of this repeatedly. I have also seen this as an example in my own country in

Pakistan. Recently there was an earthquake, a very bad earthquake in Pakistan two years ago. And its impact was much more severe in urban township because denudation and deforestation in the upper watershed area led to a lack of natural buffer system which forest provides against landslide.

Specifically, the Inter-government Panel on Climate Change (IPCC) has clearly stated that Asia will bear the brunt of climate change with nearly 60% of the world's population. Over half of the population in Asia live near the coast, making them extremely vulnerable to sea-level rise and the kind of climatic unpredictability that we are beginning to see with storms and storm surges and cyclones. Significant impacts are predicted on biodiversity and environment, with analysis showing that one in six of Thailand's 197 national parks and wildlife sanctuaries will be threatened by climate change. The increasing aridity and shortage of rainfall will cause irreversible damage to the tropical rainforest. Rising sea temperatures are already leading to significant degradation of coral reefs through bleaching which will in turn affect local resources such as fisheries on which the poor coast community depend. The change in weather pattern is also creating conducive factors for the proliferation of invasive alien species at the expense of endemic flora and fauna across Asia. And climate change will also create social problems such as displacement, lost of livelihoods, migration into already fragile ecosystems and increased health problems. Last week there was a report from the World Health Organization doing an analysis of the impact of climate change on world health and the trend are very worrying because they say that as the climate and the temperature warming it will also create a situation where viruses and bacteria will thrive and a lot of illnesses that today are not so prevalent will become much more endemic and often epidemic.

Climate change related impact will not manifest themselves at once. We will witness them as slow onset disasters. It is essential that we conserve natural ecosystems; that we recognize ecosystems as being an integral and valuable part of development of the infrastructure, not only in terms of their storm protection functions but also the provisioning functions that they offer to sustain lives of human beings.

The way we manage natural resources depends on our understanding of nature which is shaped mostly by the cultural and societal aspects. The cultural specificities of the indigenous and traditional people of Asia have always recognized the importance of ecosystems and believed that they are a part of nature as opposed to the current development paradigm that

regards ecosystems as an opportunity, and the intensive exploitation of natural resources as a means of progress is not sustainable. This belief, largely pronounced in Asia, has led to different ways of managing resources and a different way of looking at development.

There are many ways of understanding and analyzing what development means. It is influenced by different cultural contexts, religious bases, and institutional structures. The strength of Asian civilization in the past has been the diversity of cultural ideas and the heterogeneity of the society, which are as critical to sustainable development as the diversity of non-human life upon which conservation efforts usually focus. Rapid economic growth in Asia is leading to the erosion of the cultural and spiritual values that underpinned sustainable lifestyles and practices in the past. The debate on the future of sustainability facilitated by IUCN has led scientists and thinkers to look at Asian traditional development models as alternatives for the western models in terms of achieving sustainable development.

We must recognize that implementing sustainable practices is as much a cultural and social needs as it is an environmental and scientific need. Prof. RJ Rees has specifically stated that sustainability poses a far more serious challenge to many of society's basic beliefs, mores and value systems than most mainstream development thinkers have been prepared to acknowledge. The increasing pollution of sacred rivers in South Asia including the Ganges in India, the Baghmati in Nepal and the Meghmati in Bangladesh is posing serious threats to the significant spiritual and cultural aspects of these rivers. These are holy rivers and if you pollute them what does it mean in terms of the religious belief that millions of people hold around these rivers.

Let's take some specific example of where such traditional natural resources management has been practiced in conservation work in Asia. These can be good models for response strategy to climate change related impact as well. And we heard, and I am sure you will hear in more details from speakers who actually come from those countries about Bhutan, and the model of Gross National Happiness. That is one example of the model based on local culture and knowledge that has deep root in Buddhism. The GNH seemed to be a better indicator of human well-being than the normal economic Gross Development Product (GDP) concept. A recent opinion poll found that people in Bhutan were happier than people in the United Kingdom, and the United States in spite of having much less material wealth than the latter. The research on GNH by the government of Bhutan has made some really interesting findings, such as; 1) health impacts - happy

people on average live seven years longer; 2) enterprise impacts - healthy and happy people are more creative and productive; 3) citizenship impacts - happy people are known to be more compassionate and generous, and contribute more to the collective goods; 4) ecological impact-if people are happy, they tend to consume less, they are not driven by conspicuous consumption. The Centre of Bhutan Studies is also in the process of creating GNH indicators such as psychological well-being, health, education, ecological diversity and resilience, community vitality, time use and balance, cultural diversity and resilience, living standard and good governance.

The other model which is much closer to home is His Majesty King Bhumibhol Adulyadej's, "Sufficiency Economy" Model. The current 10th National Economic and Social Development Plan (NESDP) of Thailand is based on this model with the objective to attain people-centred development leading to a green and happy society. The underlying principles of this model are moderation, reasonableness and self-immunity supported by ethics, honesty, integrity and the development of a knowledge-based society rather than a material-based society. The honesty and integrity elements are self-oriented and would have to be adopted by individual. The implementation of the model through the NESDP has demonstrated that participation at the grass root level is critical towards achieving sustainable development. The Sufficiency Economy Model aims to reduce poverty and improve the living standards of population without creating any adverse effect on the environment which is the core of the sustainability principle.

Before the development of complex numerical climate models, many traditional communities have used changes in their environments to predict abnormalities in the weather and climate. Their common social and communal activities – including feasting, cultivating, fishing and hunting patterns – were adjusted in response to changes in the weather and were disperse across the season. And even now in many rural areas of Asia people live their life in according to the season not according to a clock, not according to a calendar. That is what they feel of the sun, the moon, the temperature.

In India, for example, in Rajasthan state a traditional practice of water conservation has recently been revived as a climate adaptation measure. The communities construct a rainwater *bund*, which is a kind of bridge, an earthen wall-around the agricultural fields. The *bund* helps to prevent soil

erosion from wind and rain, and holds water in the soil by preventing rain water from seeping off or flowing away as surface runoff. The traditional form of roofwater and rainwater harvesting are now being used as policy to address water shortages in the major urban agglomerations of India.

We are not too far away from our roots in rural society. To be able to return to the model that our grandparents used to use in Asia. That is something that one needs to remember as a hoax in terms of sustainability within Asian communities. The use of chemical fertilizers and insecticides in agriculture is posing serious threat to the water bodies and ecosystem and also create eutrophication. Indigenous practices such as those of the Mewahang Rais in Nepal could offer a solution to these pollution problems; for instance, they use the grounded pulp of the Cucumis Sativus leaf as the pesticides . In Bangladesh a country extremely prone to natural disaster, communities have over the centuries developed strategies for coping with adversities such as floods by improving their housing conditions, taking shelter on elevated ground, selling land, storing dry food, adapting to diet change and other measures.

In the northern mountainous areas of Pakistan, the pastures at the alpine and sub-alpine level are managed by village-level community on the basis of customary pasture grazing rights that each community is given. This is an equitable system that allows the pastures time to regenerate. Similarly, in the coastal area of South East Asia, fishing was traditionally carried out only during certain months to ensure sustainable yield harvesting, by allowing the propagation of fish in the remaining period of the year. However, this practice changed with the commercialization of the fishing industry, and resulted the shrinking of the fish stocks in the fishery areas.

In the Davao Province of the Philippines, the Ato-Manobo indigenous community has revived the ancient way of nurturing trees, crops and other plants. It has established beneficial synergisitic relationships between them in terms of enriching the organic content of soil and providing nitrogen as required, to address some of the vagaries resulting from climate change related impacts. The Dayak community in Borneo has closely observed the behavior and migratory patterns of bird species for guiding their hunting and cultivation activities.

In part of South Asia and Southeast Asia, especially amongst indigenous people and ethnic minorities, there is a cultural practice of leaving pris-

tine to ecosystems intact and undisturbed as they are regarded as secret groves. i.e., the home of the spirit of the forest and nature. This practice has immense value not only in the spiritual context, but also because it recognizes that these ecosystems play important hydrological and other human well-beings of these societies. In Thailand itself there is the traditional practice of "**Pa Pu Tha"** (spirit forest) that are natural protected areas maintained as part of local culture resulting in the conservation of these areas. As per Buddhist traditions, the areas surrounding temples considered Aphaythan areas (free areas) and not subjected to any development or exploitation; as a result, rivers and natural reservoirs and forests are protected.

In Silaleng located in Pua district in Northern Thailand, the communities traditionally perform a **" Pi Sop nam"** (water ceremony) that

is centred around maintaining the area of watershed functions. Specifically, it involves purging of the watershed area to remove sediments and enhance the hydrological functionality of the watershed. In addition, the community also observes certain cultural mores which help them desist from deforestation of the area.

The application of traditional plants, herbs for medicines and other livelihood support purposes is a widespread practice amongst all Asia cultures

IUCN has been involved in a number of countries in Asia, not only in conserving but also blending the traditional knowledge with modern market economy systems to realize better value for impoverished producers. These specific examples illustrate that the traditional systems not only provide sustainable solutions for natural resource management but can provide the basis for alternative models for development.

A recent IUCN publication titled **"Indigenous and Traditional Peoples and Climate Change: Issues Paper"** also clearly demonstrates that these people living in marginal lands have been exposed to many kinds of environmental transformations and are developing coping strategies to address these challenges. They have thus gained vast and valuable know ledge that can potentially be used to help much more so called **"developed society"**. In understanding processes of adapting to environmental and climate change, traditional and innovative adapted practices include shoreline reinforcement, improve building technologies, rainwater harvesting, supplementary irrigation, traditional farming techniques to protect watersheds, changing hunting and gathering seasons and practices, crops and livelihoods,

diversification, use of new materials and community-based disaster risk reduction among others.

While many national policies are showing some commitment and awareness towards addressing these environmental issues, the focus very much remains on economic development. However, unless countries take a more proactive approach towards environmental sustainability and demonstrate a strong political commitment, it is unlikely that current economy growth rate can be sustained. I think it is a myth that all societies can possibly attain the sort of development that the west has demonstrated over the last few decades. The natural resource base of this planet cannot support that sort of development. We must look for different ways of achieving good standard of living for all societies but not in the way the sort of model in the west has been propagated. It is unlikely that current economic growth rate can be sustained all over the world. And although I started off by saying that the Asian region continues to show a good economic growth rate in the next two years, I also note what is happening to those developed economy which no longer can sustain the same level of growth with the rising price of commodity and oil. So somewhere there is a shift, a major shift taking place, in the global economy and the way we have based other development philosophy. In the Asian context, it may be necessary to explore alternative development models that promote both sustainable consumption and production patterns if countries are to realize their development aspirations.

IUCN would like to encourage you all to recognize that diversity of not just biological resources but also cultural mores, value systems and traditional knowledge which is critical for achieving sustainable development models and especially for combating the threats posedl by climate change. And we hope this seminar will assist in developing for all of us a sustainable and the path towards sustainable future of the world in general, and Asia in particular and invite all these ideas to come with some of you to the IUCN conservation congress that we plan to hold in Barcelona in October 2008 where we expect the strong delegation from Thailand to be putting forward some of these alternative models.

2

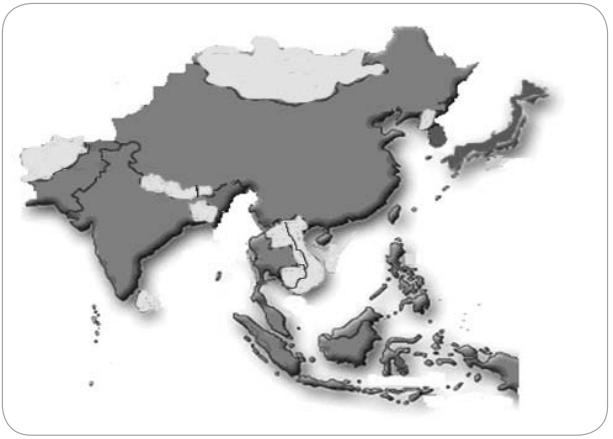
Oriental Wisdom: Alternative Pathways towards Environmental and Natural Resource Sustainability

2.1

Future of Sustainability and Challenges to Asia

K. Vijaya Lakshmi
Development Alternatives, India

The future sustainability of economic development in Asia is my focus today. Time permitting, I will conclude not simply with the challenges but some of the solutions that my organization has already initiated in India and elsewhere.



Source: Adapted from UNEP/ROAP

Developing Nations (Basic Infrastructure) - Rest of Asian countries	Emerging Nations (Policy Instruments) -China, India, Indonesia, Malaysia, -Philippines, Thailand	Developed Nations (3R/Green Growth) - Japan, Singapore, South Korea

Figure 1: Three groups of Asian Countries

The first image [Figure 1] divides the countries in the Asian region into three groups. Japan, Singapore and South Korea are developed nations while China, India, Indonesia, Malaysia, Philippines and Thailand have so-called emerging economies. The rest of the Asian countries comprise the developing countries.

Asia holds half of the world's population and 55% of the earth's biodiversity, supporting that with its 40% share of the global economy. The great economic challenge facing our region is that 900 million of our people live in poverty and represent 70% of the world's total poor.

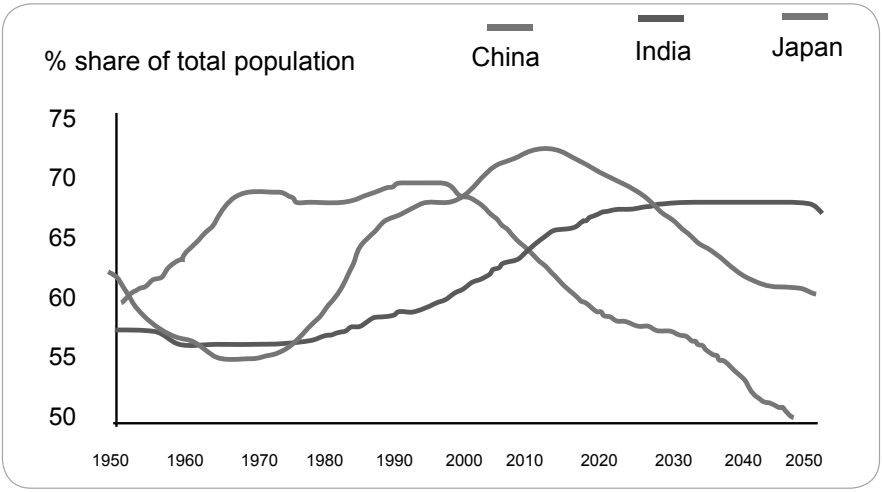
Regarding ecological surplus or deficit balances in the various parts of the world, the red-colored areas in the next image *[Figure 2]* indicate deficits in ecological balance; much of the Asian region is figured in red on this global map. Another key indicator, as Dr. Aban mentioned this morning, is the gross domestic product of certain countries in our region, especially of India and China, that will rise to high levels. In relation with expected growth is the working-age population that will decline in Japan but will rise in China and India. The next image [Figure 3] shows the huge increases in workers projected by 2010, 2020 and 2030 that must be provided with additional jobs.

Ecologically Surplus or Deficit Countries

Source: WWF

Figure 2: Ecologically Surplus or Deficit Countries

Working Age Population



Source: From UN Population Statistic

Figure 3: Working Age Population

Although the working population is tapering down in parts of Asia, expectations of economic benefits continue to rise. The region is experiencing the global quandary of demand for economic development that provides the amenities of modern living but that also consumes natural resources at an unsustainable rate. When we consume resources without regard for how much carbon dioxide and the various pollutants that are released into the environment, we generate a huge amount of emissions that in turn produces deleterious climate changes. Consequently we feel the pressure to reduce the emissions as well as utilize our resources in non- pollutive, sustainable ways.

Complicating this quest for sustainability and reduced emissions are the challenges that stem from globalization, privatization and trade implications. Illustrating the case for all economies is the sustainability equation *[Figure 4].* The environmental quality that we maintain is the result of how resources are consumed by the population and its economic activity. The resources available to us are very limited but the population continues to grow and engages in rapid economic development in all parts of the region. Hence the high pressure on the environment through industrialization or the production patterns that we have chosen.

Figure 4: Working Age Population

In that sense we are right now using 121% of our global hectares *[Figure 5],* consuming more than we should if we want to sustain our current production patterns. That is true for the red-colored areas of this map of the Asian region.

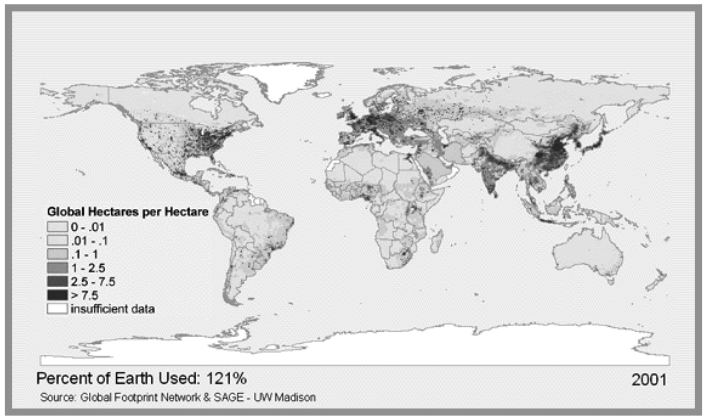


Figure 5: Percent of Earth Used

Of the **"mega-issues"** in the economic development trends in Asia, urbanization is the major problem. The Asian urban population is doubling every 30 years. By the year 2030, Asian cities are predicted to hold 2.6 billion people, some 54% of the Asian population, while 40% of the poor will be living in urban slums and shanty areas. Urban infrastructure is expected to last for only 80 to 100 years. Cities have a huge environmental impact because of the amount of building without reserving space for "green lungs" or sufficient roadways. Road congestion and urban infrastructure generate huge pressures on the environment.

In tandem with the environmental impacts are those on public health. The urban populations of China and India suffer much more than those in other parts of the country because of the fast growth and environmental impacts such as air pollution. From the next image [Figure 6] you see how the people in those two countries are a ffected and die prematurely in relation with other groups of Asian or other peoples. That is due to our runaway consumption patterns that we maintain together with the rest of the urban population today.

Source : World Bank

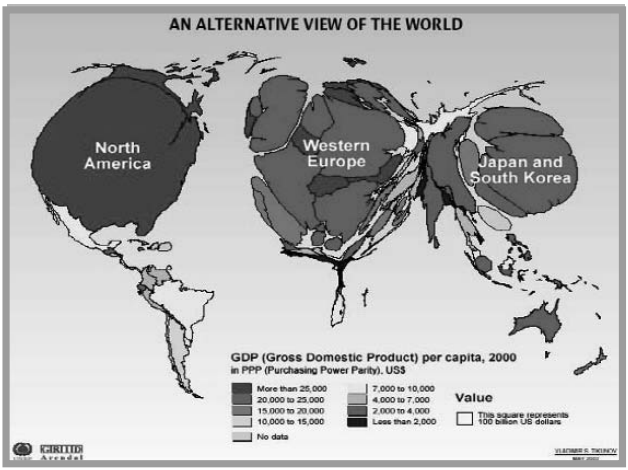
Projected Premature Annual Deaths due to Urban Air Pollution, Total and by Economic Group or Region, 2001-2020

Region	Premature Deaths (thousand per year)
Established Market economies	20
Former Socialist economies	200
China	590
India	460
East Asia and the Pacific	150
Latin America and the Caribbean	130
South Asia	120
Middle East Crescent	90
Sub-Saharan Africa	60
World	1,810

Figure 6: Projected Premature Annual Deaths due to Urban Air Pollution

Energy consumption levels are also growing in the world's cities. Huge amounts of petroleum products and other energy sources are used in constructing urban centers, both for infrastructure as well as various amenities. Commensurately huge amounts of waste and toxic byproducts will require additional consumption to dispose of them. Especially in India and China, growing amounts of electronic waste are a problem. All those mobile phones, computers and related items that we use eventually become obsolete and require disposal. We don't have enough infrastructures to manage those wastes. Large amounts of toxic waste are contaminating our land and water bodies, putting public health at risk. Consumption of paper and packaging is not being reduced as well. As our economies develop we increase our use of resources for packaging as well as production. In rural areas use of pesticides and other chemicals has increased to an extent that to enhance agricultural productivity we are relying too much on intensified chemical usage.

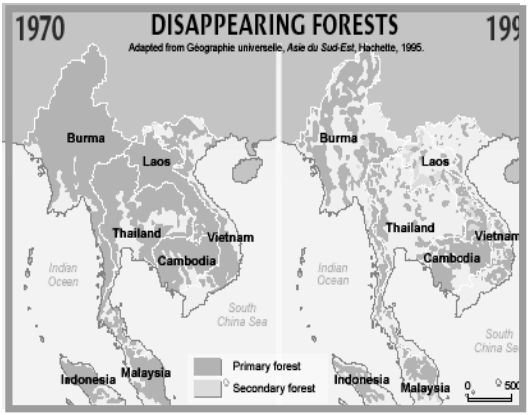
One outcome of all the exploitative activity has been the disparity among and within countries of the region between rich and poor people. In this proportional map [Figure 7] of global economic disparities, the blue areas indicate a per-capita level of gross domestic product of less than US$ 2,000 in "purchasing power parity". Extreme poverty exists side by side with great affluence, on the micro- as well as macro-level. Shelterless people in the villages struggle for their livelihood.



Source: UNEP/GRID

Figure 7: An Alternative View of the World

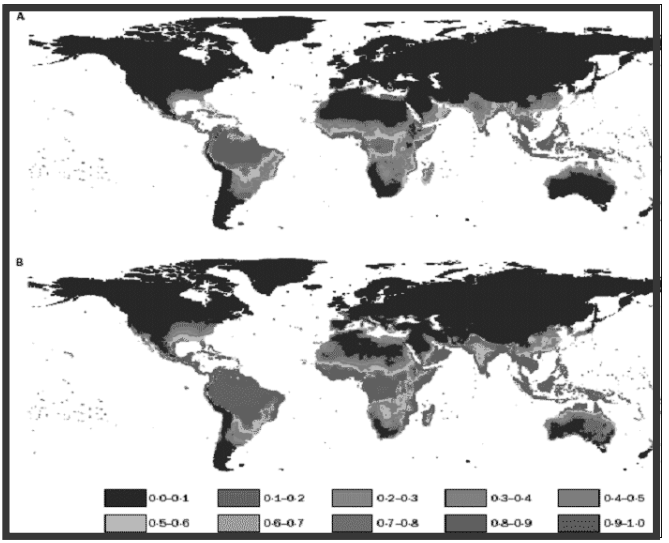
Such resource issues have an impact on strategies for sustainability, especially considering the forest degradation that occurred from 1970 to 1990 *[Figure 8],* where the green patches have disappeared. If you compare 1970 and 1990 figures, forested areas are disappearing at a very fast pace. Adding to factors that jeopardize sustainability is the lack of secure energy sources in the Asian region. Much of the rural population does not have reliable energy sources and still depends on the forest for cooking fuel. In terms of food security, we are still importing cereals; the alarming figure from India alone is 3.5 millions tons of grain that had to be imported in 2006. Compounding this problem is climate change, which will adversely affect food production.



Source: Hachette

Figure 8: Disappearing Forests

Water security again is an issue. The demand is between 60 to 600 liters for industrial as well as the daily community needs and irrigation. The supply of ground water is depleting up to 6 meters. Surface water pollution is also causing a great loss of available water resources. The **"silent tsunami"** is building up in this region. One billion people do not have any clean drinking water in the region. Women experience the daily drudgery of walking for miles to access water. Climate change has projected to decrease water availability further. One third of the world's population is subject to water scarcity, with the majority living in Asian countries. The environmental problem in Asia with forest degradation is that deserts are growing by about 50,000 square kilometers per year. Our continuing use of pesticides and fertilizers as well as the disposal of sewage are responsible for huge amounts of chemicals that are getting into our water bodies, making them unsuitable for consumption.

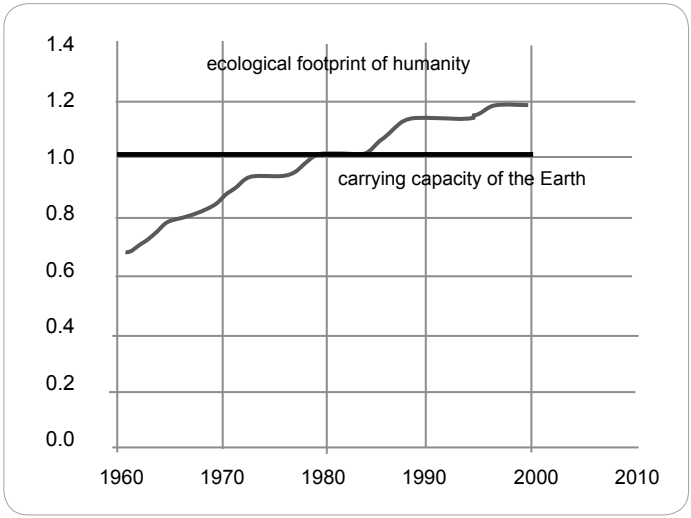


Source: IPCC

Figure 9: Estimated population at risk of dengue fever under "standard" climate change scenario: 1990, 2085

Atmospheric brown cloud is another problem and dust storms and sand storms frequently occur in this region. Adding to those climatic issues are floods, forest fires and waterborne diseases. Public health requires a huge budgetary investment in dealing with the diseases which we face. In comparing the prevalence of dengue fever in 1990 and that projected for 2085 [Figure 9], estimates of the affected populations show considerable increases. In fisheries, the entire industry is under stress because of the impacts of climate change as well as overfishing. From 10 to 15% of the world's fish could become extinct over next 30 years because of climate change as well as the lack of comprehensive protection and of ecological goods and services for the earth's biodiversity.

The totality of climatic impacts is leading to migrations of "eco-refugees" who seek relief from conditions that they cannot survive. The area where I am working is Tickamgadh district of Madhya Pradesh in India. Of a total population of about 1.5 million, between 2006 and 2007 some 450,000 people emigrated because the area has had no rain for the past 5 years. We can expect to see much more of this is in future.



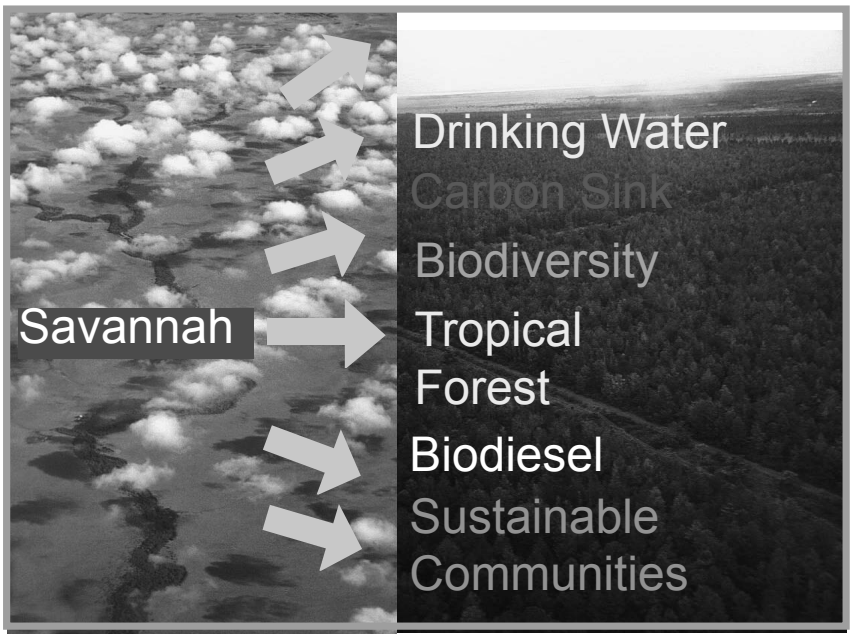
Source: WWF, Global Footprint Network

Figure 10: The Ecological Footprint of Humanity and the Carrying Capacity of the Earth

The ecological footprint of humanity is thus growing beyond the carrying capacity of earth [Figure 10]. By 2050 we will need the equivalent of more than three planets to live on. The way forward for Asia is to consider naturally available solutions. We should learn how to take advantage of the possibilities of **"bio-mimicry"** and back-to-nature technologies in saline land agriculture and traditional medicine usage. We need to incorporate more of such thinking into our production system and lifestyles. Traditional medicine holds much value for development of economic sustainability, especially for conserving environmental resources.

Salicornia, for example, is a plant of huge value that can be used in saline agriculture practices. It can help remove salinity as well as support biodiversity conservation. Conventional treatment of waste product entails a total expenditure estimated at USD 6.5 billion per year; waste water treatment alone costs us USD 300 million. On the other hand, a natural waste water treatment system would require a comparatively smaller one-time investment of USD 0.7 billion.

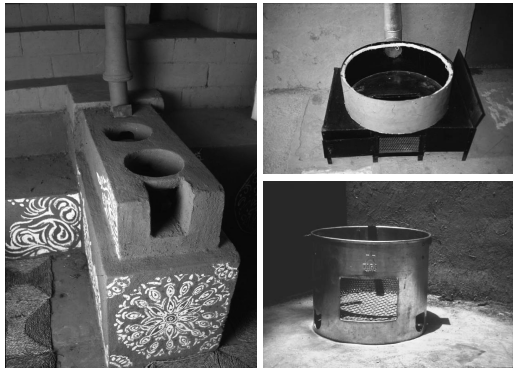
The following images exemplify some of the solutions that some of my colleagues have been developing in Colombia. Here [Figure 11] is the savannah area on the left side which has been completely degraded. By allowing the land to go fallow for five years, on the right side biodiversity has been restored in that same area, which has become a carbon sink with a huge tropical forest and water clean enough to drink. Now even **"biodiesel"** can be produced there and sustainable communities are living in that area.



Source: Zero Emission Research & Initiatives (ZERI)

Figure 11:

In the next image [Figure 12], a means of how rural people can fulfill their cooking needs are these efficient cook stoves that utilize plant oil as fuel, only inedible oils as well as kerosene. Such cooking stoves can save some 35% of the energy used by traditional stoves. We need to adopt technologies that consume less of fossil fuels and fewer material resources than we now do, as well as enable more people to earn a livelihood, because the community economic aspects cannot be undermined. Such technologies can also support favorable health conditions and energy self-sufficiency with reliable local fuel sources.



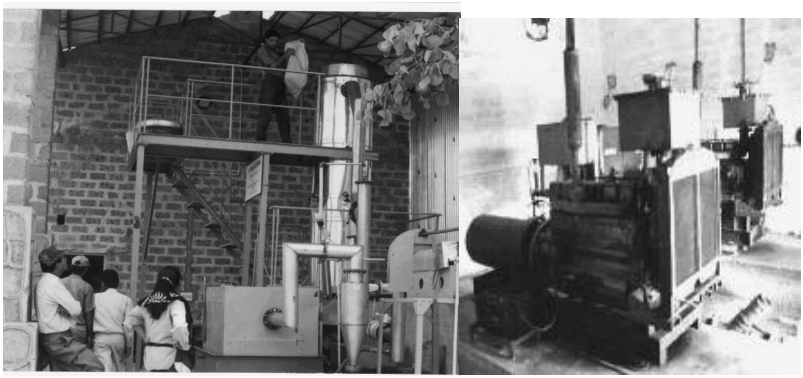
Source: Development Alternatives

Figure 12: TARA Woodstoves

Source: TARA

Figure 13: Compressed Earth Blocks

Use of compressed-earth blocks [Figure 13] in house-building boasts a long list of environmentally friendly advantages: Beginning with the production of the blocks themselves, by compressing the earth and not firing it, some 450 tons of carbon dioxide per annum can be saved from release into the environment. The technology is labor-intensive and can provide jobs.



Source: DESI Power

Figure 14: DESI Power

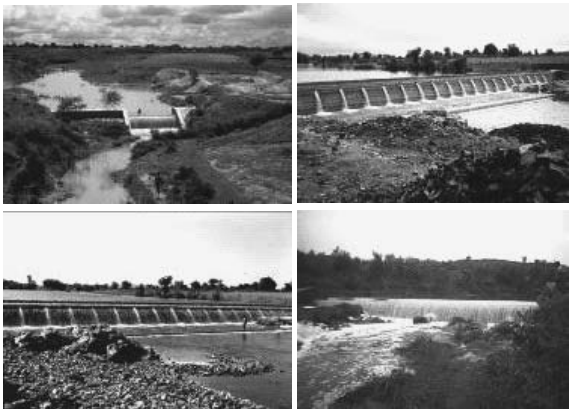
Where alien plant species have invaded, sometimes the enemy can transformed into an environmental ally. Here is one [Figure 14], called the “shameless plant” in parts of India. In Hindi it is called besharam. We utilize it dried, as a fuel for energy generation. It is now running an entire **“technology village”** with a paper plant and our building material industry. As a source of village-level industrialization, it is called desi. Again that is a sort of pun, made up of the initial letters for “decentralize energy systems India”. Desi also means something of your own “locale”. It is a renewable source of energy, powering the villages.

With vermi-composting [Figure 15], we are using organic waste coming from municipal solid waste disposal in urban and rural areas to convert into compost. The technology provides jobs and saves 94% of energy consumed in producing chemical fertilizer. An estimated 95% of the chemical fertilizer currently used can be conserved with use of this organic fertilizer. Again, it provides livelihoods and increases resilience of agricultural land whose fertility can increase over long-term use.

Source: Development Alternatives

Figure 15: Vermi-Composting

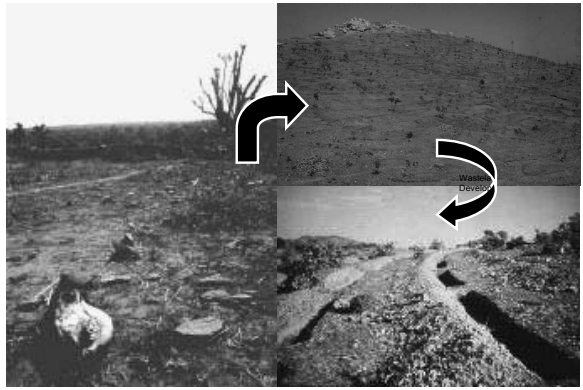
Regarding water resources conservation, one option for conserving water resources is check dams [Figure 16]. They are less energy-intensive and use less material, very little cement and steel, than conventional dams. Check dams in rural areas can help produce three crops.



Source: Development Alternatives

Figure 16: Check Dams- Saves Energy, Cement, Steel for Construction

In experimenting with wasteland development [Figure 17], in an area where nothing was growing, we left the land to rejuvenate itself through irrigated gully blocks. Biomass has returned in this image and thick forest has been regenerated.



Source: Development Alternative

Figure 17: Wasteland Development

Applications of bio-mimicry can help us to adapt to global warming while avoiding high levels of resource consumption that exacerbate climate change. In this image [Figure 18], cool air can be produced without air- conditioning as termites do. Here the architects in Zimbabwe have as well adapted the zebra's alternating pattern of stripes for surviving the desert heat.

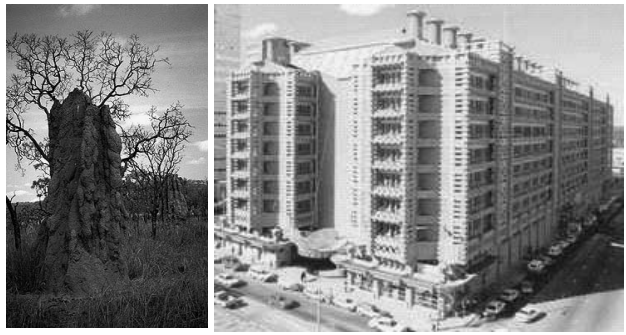


Figure 18: Eastgate in Harare, Zimbabwe

If we don't follow such technologies of going back to nature, our "post-petroleum future" might look like this image all too soon [Figure 19]! We need to think about more than just control of pollution or its prevention, but about systematic change; so that quality of life rises while economic growth is sustained and we minimize our dependency on non-renewable resources.

Source: Internet Photo, Source Unattributed

Figure 19: A post-petroleum future?

Our future depends on what we aspire to, the kinds of values and choices we live by. Today I am very happy to see that the Asian region has all these models, the low-consumption, high-value systems within our traditional knowledge base which should see us through this sustainability crisis.

2.2

Alternative Strategy in the Fight against Poverty: Lessons from Bangladesh

Abdul-Muyeed Chowdhury
Bangladesh Rural Advancement (BRAC), Bangladesh

We are meeting here in the context of global warming, its impact on human societies and civilizations and the commitment of nations to meet specific development goals (MDGs) by 2015. Global warming, climate change and loss of biodiversity are issues that we can not wish away. They are real and the rapid population growth in all the developing countries leading to increased poverty is compounding these problems. It's a matter of paramount importance for us to consider changing our ways of thinking and rationalizing our actions to reduce the negative impacts of human interaction on nature. Only by so doing we can build sustainability into our development efforts.

Change is very difficult; What Thomas L. Friedman has said in respect of fast paced developments in the ICT field : *"Change is hard. Change is hardest on those caught by surprise. Change is hardest on those who have difficulty changing too. But change is natural; change is not new; change is important"* holds good in the context of new knowledge furnished by the IPCC about climate changes and their impacts on planet earth and human survival.

Some predict that Asia will suffer more deaths as a result of climate change than anywhere else in the world. Hence global warming is much more critical for us than elsewhere in the world. We, therefore, need to deal with climate change to save lives and living conditions of the enormous population that we have.

I have written, in my paper that international development policies are based on GDP growth in the belief that benefits will trickle down to the poor. Our experience has been, that this has not happened for more than five decades. We are also familiar with the basic needs approach of multilateral and bilateral development organizations, That too has not offered a complete solution to the problems of poverty.

Rapid growth has in fact been accompanied by increased regional or personal income inequality in many countries and possibly has increased absolute poverty in some places. That has been very true for Bangladesh, where we have achieved growth and success in various sectors of social development, but the number of the absolute poor is increasing even though the proportion of absolute poor has declined. Population growth has caused that increase. More than 70% of our population is poor. Our total population is also much larger than those of most of the other countries put together except countries like India and China. Economic growth alone cannot assist the poor well enough unless it directly reaches the poor in their daily life.

Problems arising from the growing gap in average per capita income between rich and poor have been further compounded over the last decade by climate change and loss of biodiversity. Climate change has seriously affected agricultural and rural economic sectors in all countries of the world. The most developed countries including the United States are not immune from the wrath of nature as has been demonstrated in recent times. As natural disasters strike worldwide with increasing frequency and severity, the poor bear the brunt of the devastation and a disproportionate share of the losses and miseries.

In Bangladesh we initially followed the Bretton Woods system for growth and tickle-down benefits. But after initial experimentation we shifted in the late 1960s to what we call the Comilla model of development: the idea that development must reach the people in the rural areas. Three separate interventions were developed: (a) two-tiered cooperatives of marginal farmers, (b) the Thana (sub-district) irrigation program (TIP) and (c) Thana training and development centers, all of which are described in my paper.

The model started with a pilot project in the thana called Comilla Kotwali, thence spread to the rest of the country after the war of liberation and independence from Pakistan. The two-tiered cooperative of farmers and federations at the subdistrict level did not achieve the goal of comprehensive coverage of the rural poor. So two other types of rural cooperatives were introduced: for the Bitto-hin or asset-less people and separately for women considering that

they constitute 50% or more of the population and without mainstreaming them into the development process meaningful progress cannot be achieved.

When after the 1971 war of liberation with Pakistan, millions of *Bangladeshi* people returned to a free but totally war ravaged country from the shelter camps in India. They needed a major relief and rehabilitation support. Despite an empty treasury and destroyed infrastructure, the government of the day took up that challenge with the help the international community. That was not enough as such many international NGOs came in with funds and workers to supplement the governmental efforts even supporting the government in some cases. Thus non-governmental organizations (NGOs) of various sizes proliferated to cope with postwar needs. Currently about 2,000 of them work in parallel with the government. The historic developments are detailed in my workshop paper. One such organization started in 1972 as the Bangladesh Rehabilitation Assistance Programme (BRAC). It has since grown to become one of the world's largest NGOs dedicated to building the capacity of the poor to develop themselves economically.

By 1974 BRAC realized that just supporting relief and rehabilitation was not going to change the situation. Long-term sustainable support was needed. So BRAC retained its acronym but changed its name to **"Bangladesh Rural Advancement Committee".** In 1977 BRAC realized that progressively increasing number of poor people living in growing numbers of urban slums also needed help and support so it dropped its full formal name *(since rural areas were not the sphere of its activities)* and simply became **"BRAC"**. In 2002 BRAC became an international organization, again retaining its acronym but adopting the new name of **"Building Resources Across Communities".** *(Please see www.brac.net.)*

BRAC's more than three decades of work with the rural and urban poor has conclusively proved that poor people are poor because they don't have purchasing power. And they don't have purchasing power because they don't have sufficient employment opportunities. Agriculture cannot sustain this continuously growing population in any of our countries since agricultural land is being eaten up for other purposes.Therefore we need to provide alternative employment for people so that they may acquire purchasing power.

Another Bangladeshi development organization, the Grameen Bank *(see www.grameen-info.org)* a specialized bank *(a microfinance institution),*

set up by the government at the behest of Professor Muhammad Yunus (a Nobel Laureate of 2006) to provide credit to the poor without collateral. **"Microfinance"** involves various kinds of financial instruments and services and is a major feature of the financial sector in Bangladesh today. In my paper I described the scale of microfinance operations in Bangladesh.

BRAC is also very much involved in microfinance. The BRAC approach emphasizes participation of women and involves them in village organizations. Almost 98% of rural members are women. The core principle of microfinance is to give asset-less people access to collateral free loans and financial services so they can take up off farm or non-farm income enhancing activities to meet their family needs

BRAC follows a holistic approach to poverty alleviation that emphasizes health, education, social development and human rights including legal services for the poor. The chief asset of the poor is their health. If a poor person is unwell, s/he cannot work on that day and the family remains hungry. Good health for them is thus of paramount importance.

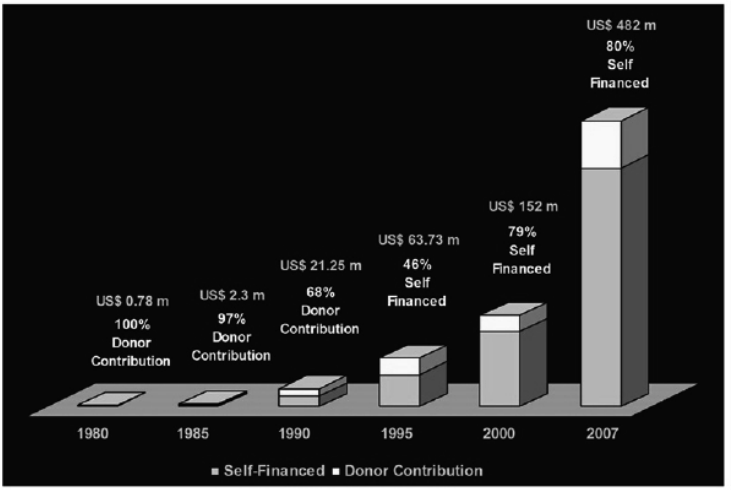
BRAC has support programs for training, research and evaluation. BRAC is a learning organization that continuously evaluates its programs to see whether they work and what changes might be needed. Feedback is obtained from the people covered by various programmes of BRAC, appropriately evaluated and used as input for modifying or fine tuning the programmes to suit and provide maximum benefits.

BRAC also follows a strategy of designing upstream and downstream activities that has enabled it to grow, tackling problems as they develop. For example, Bangladeshi people in almost every rural household keep milch-cows. Many microfinance borrowers did that to add to their income stream. But after some years they told BRAC that they couldn't meet the repayment schedule of their loans because they couldn't sell the milk in the market at a fair price. After studying the problem BRAC decided to set up a dairy. The dairy provided an opportunity for farmers to sell whatever milk they could produce at a predetermined price thus be freed from the market uncertainties. BRAC took that milk to its plants close to the capital city Dhaka to process and and supply to the urban population. BRAC being not for profit organization all profits earned by BRAC in this and other such support activities go back to the poor through the health, education and other programmes

After some time BRAC found that farmers often bought local breeds of cow that could not produce much milk even though the family was required to incur costs for feed etc accentuated by the depletion of grazing grounds caused by population growth. So BRAC set up a bull station to improve the breeds on a countrywide scale through artificial insemination. BRAC trained willing rural poor and supported them with loans to provide these services thus creating employment opportunity for a sizeable number of people. BRAC also tackled the fodder crisis during the annual flood season by setting up a cattle feed mill. As one problem leads to another, BRAC tries to come up with supported and managed upstream and downstream activity in the rural production cycle.

The following images provide a thumbnail statistical picture of BRAC activity in Bangladesh , other South Asian countries and East Africa at the end of 2007. In Bangladesh, BRAC extended to all 64 districts, reaching about 110 million people in 80,000 villages and 1,100 urban slums. While it may be very difficult to believe, it needs to be understood that all of this information is correct. BRAC employed a total of 110,119 staff as of December 2007; of them, 63,358 full-time. BRAC has a massive teacher non-formal primary education program with 46,751 part time teachers who are given a stipend/ allowance rather than a monthly salary. These teachers, all women living in the same village, are recruited, provided initial and subsequent on the job continuous training. Each teacher starts a school with 30-33 children in the age group 8-11in class I who are either primary school drop outs or have never been to school. The teacher takes them through class V in four years and in the process she progressively develops her knowledge and skills to teach the higher classes.

In 2002, immediately after the war in Afghanistan ended, BRAC was the first NGO to enter the country and start operating a relief program in addition to NGOs that were already working with Afghan refugees in Pakistan. Since BRAC was experienced in rebuilding a postwar economy, it wanted to share that experience with Afghanistan. The Afghan government welcomed us. BRAC's Afghanistan operation covers 23 out of 34 provinces.



BRAC has established several institutions that I have described in my formal paper. You may be interested to know that, among them, BRAC set up **"BRAC University"** and two banks in Bangladesh and the BRAC Afghanistan Bank in Afghanistan. The BRAC BDMail Network is an Internet company that is now a joint venture with a US company with an investment of USD 6 million for developing Internet activity. BRAC also has gone to Sri Lanka after the tsunami of 2006 and subsequently to Tanzania, Uganda, and Southern Sudan in East Africa in 2006. Two BRAC organizations, BRAC UK and BRAC USA, raise funds for BRAC operations in Africa and other countries.

In 1980 BRAC had a total budget of only USD 0.78 million, all of it from donor sources. By 2007, however, BRAC funding totaled USD 482 million with only 20% from donors. The rest was generated by BRAC itself from its activities. While BRAC has its own bank, it obviously doesn't print banknotes but instead creates wealth through the success of its programs.

So, in terms of understanding how **"change"** happens and how to stay on top of the changes that are happening, BRAC is always innovating and updating programmes. Its interventions in alleviating poverty has not eliminated poverty nor has it seriously influenced the extreme or ultra poverty in Bangladesh but surely these have contributed towards containing the deteriorating poverty situation. Brac

has given millions of people a chance to improve their lives. Through its varied economic programmes, financial services being the central one, BRAC is directly contributing to the growth of Bangladesh's GDP. BRAC has decided to take its experience and expertise to the rest of the third world countries. Already BRAC set up programmes in Afghanistan, Srilanka, Tanzania, Uganda,Pakistan, South Sudan and have plans to cover more countries in the future. **"Nothing succeeds like success"** has been proved by BRAC beyond any doubt. What started as a small relief and rehabilitation initiative in a far flung area of post liberation Bangladesh has now grown into an international programme of massive proportions. Through its efforts BRAC has been able to influence the behaviour pattern and life styles of millions of people in several countries and have been able to create a positive impact on nature and environment. The lesson from BRAC's experience is that as long as the vast majority of people living on planet earth are victims of income poverty their daily struggle for survival will leave deleterious foot prints on environment and ecology. The sooner this is realized by the rest of the world the better it will be for this planet.

2.3

Addressing Environmental Issues in Development in China with the "Circular Economy Model"

Prof. Dajian Zhu
Tongji University, People's Republic of China

The concept of the **"Circular Economy Model"** for China grows out of the need to decouple economic growth from its adverse environmental impacts. The concept is cyclical in nature, a **"cradle-to-cradle"** economy, not cradle to grave; that is, an economy that creates products which are **"reborn"** or recycled, or whose constituent parts are reused in further production, rather than simply disposed of as waste. The intention is to reduce consumption of material resources while continuing to raise people's quality of life. That reflects the general goal of this Workshop as well as the concept of Thailand's **"Sufficiency Economy".** My task here is to explain how the model fulfills those goals for Chinese economic development and will briefly cover three issues.

We may begin with that famous environmental impact equation, ***I = PAT. (See figure 1)*** The impact of resource consumption- cum-pollution "I" is the product of population size "P" times its affluence "A" *(that is, consumption levels in terms of per capita GDP)* times its level of technology "T". Technology here includes both the "hard" side of engineering and the **"soft"** side of management and public policy that together enable the level of resource consumption with its concomitant pollution. With that tool we can begin to sketch a very simple economic perspective for China by the year 2020.

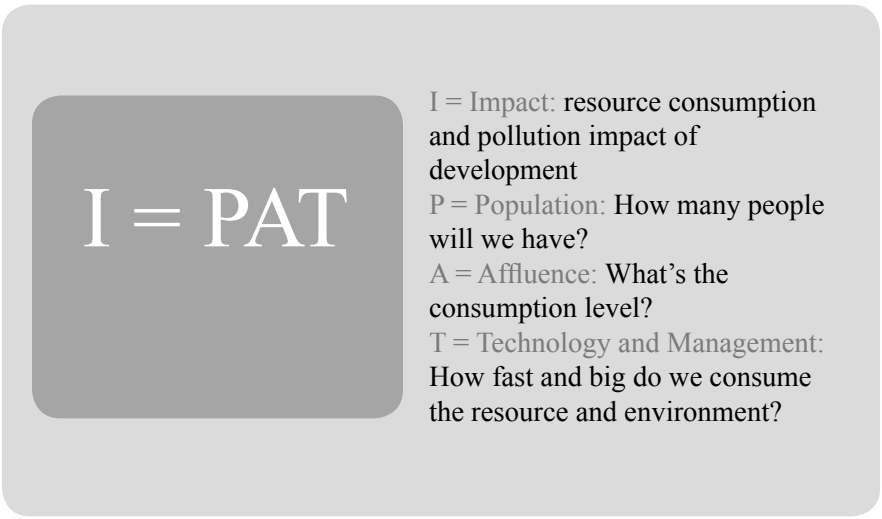


Figure 1: Environment Impact Equation of Economic Growth

Regarding the population factor, China had about 1.26 billion people in the year 2000 and has grown every year at a rate of at least 1 per cent; by at least 10 million people every year. So, by the year 2020, China may count up to more than 1.4 billion people.

Next, looking at **"affluence",** at the beginning of the economic reforms by Deng Xiaoping during the 1980s, per capita GDP amounted to approximately 250 US dollars per capita. By the year 2000 it had risen to more than 800 US dollars. The Chinese government has set itself a target for the year 2020 of 3,000 US dollars by four times that of the year 2000.

Holding the constant level of technology/management and assuming no changes in the traditional development model, the formula I = PAT gives us an estimate of the growth of the environmental impact by 2020 of about 4 times the impact in 2000. *(See table 1)*

How big is environment impact in 2020 and 2050?
(According to the formula: I=PAT, when T=1)

Year	Population (billion)	Affluence (GDP per capita)	Environment impact (how many times)
2000	1.26(1.0)	800(1.0)	1.0
2020	1.4(1.1)	3000(3.75)	4.0
2050	1.5(1.15)	10000(12.5)	14

Table 1: An estimate of the growth of the environmental impact

We can appreciate the significance of such growth in impact by examining the balance of supply and demand regarding natural resources, the **"natural capital"** required in economic development. Two centuries ago the aggregate size of the world's economies was so small that the supply of natural resources was not threatened. By the year 2000, however, the natural-capital supply picture had changed; natural resources had become scarce, more so than labor which had earlier been the limiting factor. Thus economic development today has become a matter of finding jobs for people in an economy that must conserve natural resources.

The economic requirement of China under such resource-scarce, labor-abundant conditions is clear: to raise the skill levels of the worker base and enable the economy to reduce its environmental impact. The challenge is to develop and put into practice such a model.

The supply situation only complicates the problem: while China may be among the world's largest countries in terms of land area, actually only half that area plays a part in economic and social development. Moreover, its natural resources are not distributed evenly in accordance with the geographic distribution of the population.

Importation of the shortfall in resources is no longer an option. Two hundred years ago, the world could rely on its natural resource base to supply its economic needs. But by 1980 we had used up that ecological capacity. At present we consume resources at a rate of nearly 125 per cent of availability, which means we are using 1.25 Planets Earth! That describes our shortfall in natural capital. Using another image, at the beginning of the 19th century we could safely use our planet's resource endowment to support our population, but at present we can't. We need one extra quarter of a planet to support the current size of the world's economy and population. If we continue to follow the Western model of economic growth, we may, by the end of this century, need four planets to support our lifestyle!

Hence, since we have no spare earths to rely on, the challenge for us all is to stop squandering the resources of the only earth we do have and explore new models of development. We should still be able to aspire to the same goal of the older model, of increasing the quality of life especially for the world's poor, but we cannot do so by using the same excessive resource inputs.

That brings us to the theme of this Workshop: how to decouple economic growth from adverse environmental impacts, thus increasing the **"ecological efficiency"** of our economic functions. The need for an alternative development model is urgent and long past due. Traditional approaches entail heavy resource demands and heavy environmental impacts. Alternative approaches should raise the economic productivity of the poor while reducing environmental impacts. That is the global challenge and the key issue for China to address through development planning and its Circular Economic Model.

Thus we have the first issue of three that I want to talk about here. We need some sort of brief indicators to describe progress in decoupling, which spells out our growth in eco-efficiency. The concept presented here is simple: eco-efficiency is the quotient of economic and human development divided by resource consumption and pollution.

Economic and human development or well-being could be expressed as GDP with the human development indicator (HDI) such as the United Nations Development Programme uses. Consumption of such resources as land, energy and water in combination with pollutive byproducts such as wastewater and solid waste must be reduced. Reducing consumption and pollution in tandem with raising the HDI produces an increase in our indicator of eco-efficiency.

The second issue that I have set out to explain is the meaning of **"circular economy".** The traditional economic input-output production model is linear *(see figure 2),* processing raw materials into chemical or other materials that become inputs for finished products which are used by consumers and ultimately disposed of as waste. The process is one-way, so to speak, from cradle to grave. In the United States, for example, material inputs are utilized to produce more waste than usable product: from 100 per cent of the raw materials, only 6 per cent becomes part of the finished product.

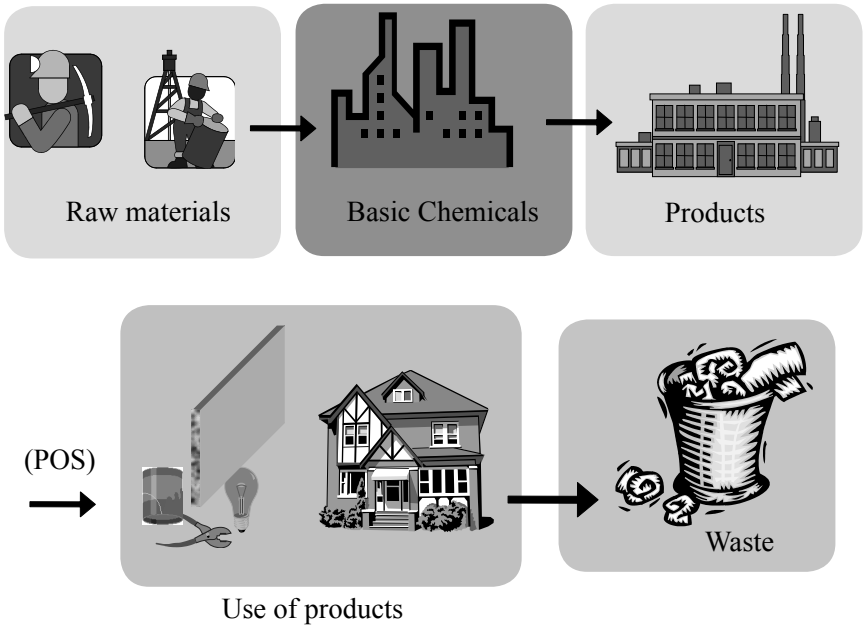


Figure 2: Linear economy or cradle-grave economy

By contrast, the Circular Economy Model employs **"circular"** thinking in the design of the production process, based on cyclical re-utilization of end or waste products at three points: in

(a) recycling of wastes as new primary materials,
(b) remanufacturing and
(c) reuse of products or wastes directly with minimal processing.

(See figure 3). Fewer raw materials are thus consumed than in the traditional linear production model, in serving the economic goals of improving people's well-being.

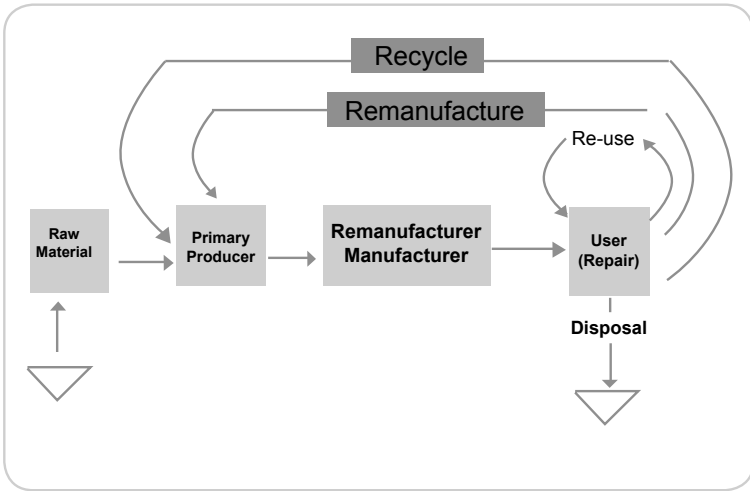
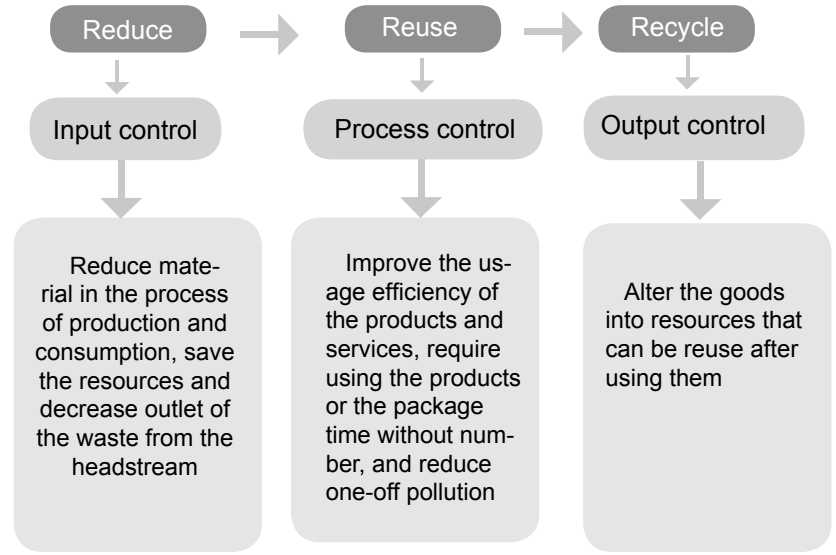


Figure 3: From linear thinking to circular thinking

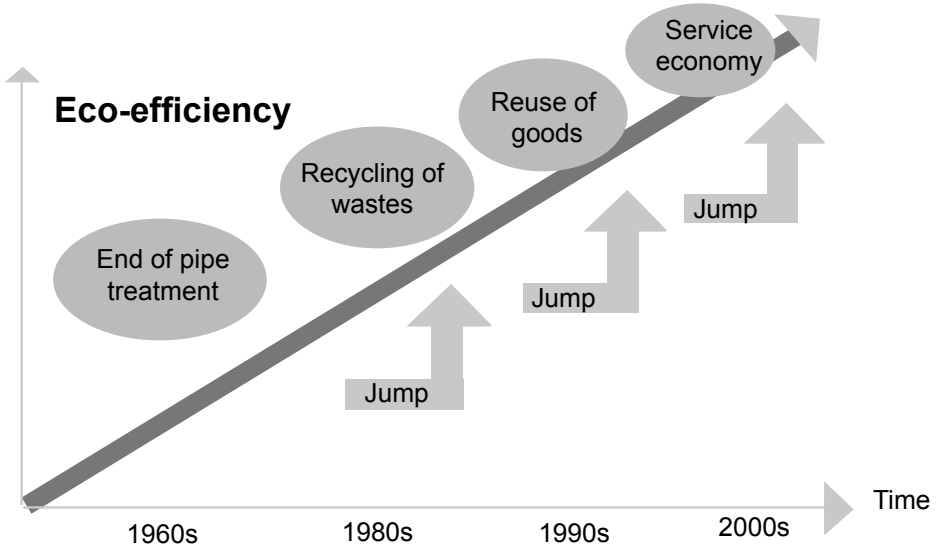
The principles of the ***"3 Rs"*** capture the thinking behind material flow control in the production process, in the quest for improved eco-efficiency. (See figure 4)

Figure 4: 3Rs principles and material flow control



The Chinese circular economy model embodies three cycles or systems of materials cycling. *(See figure 5)* The first is from end - of - the- pipeline (or waste) treatment to waste recycling, to avoid disposing of useful material. The second takes used products from throwaway status to reuse. For example, a major manufacturer of reprographic equipment has allied its Shanghai branch with its Japanese branch in reusing parts of used machines.

Figure 5: Three Kinds of Circulating



The third cycle involves a conceptual jump from selling products to providing services, since consumers are essentially interested in receiving some kind of functional service, not simply in owning a material product. Products are actually a tool for achieving well-being. In that sense we deal with the functional aspects of the economy, in respect of lifestyle.

So the problem is one of conserving the resource base by changing the output to services instead of products. Quality of output or results can still be the guide for standards, since improved well-being remains the goal of economic development.

Taking transportation as an example, instead of using private cars in cities we could use other modes of transport such as taxis or public infrastructure such as railways or subways. *(See figure 6)* And we could also share the use of vehicles. Some organization could provide for the logistics from home to work place.

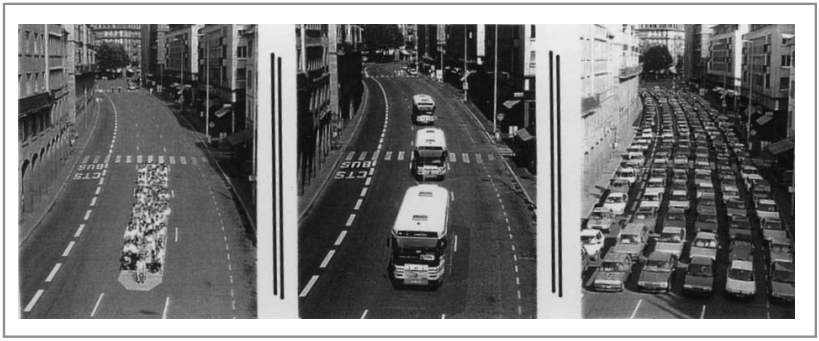


Figure 6: Public transit instead of private cars

Finally, the third issue for this presentation is the **"how"**: the means for achieving an economy of sufficiency. The national economies of the world are usually divided into two types: (a) developing economies that can provide for survival of the population or that produce insufficient goods to satisfy basic needs such as food and shelter; and (b) developed economies, that generally follow the Western development model. A third model is needed, an alternative pathway to sustainable development. It should enable countries to achieve high HDI with low ecological **"foot-print".**

Table 2: Target of China development in terms of three pillars

	China's developing phase	Economic growth	Social development	Environment impact
General well-off	1978-2000	$800 per capita	Human development index 0.7 Entire	Rapidly increasing
Well-off	2001-2020	$3000 per capita	Human development index 0.8	Relative decreasing
General modernization	2021-2050	$10000 Per capita	Human development index 0.9	Absolute decreasing

The possibilities for China's development can be illustrated with the **"three pillars"** of economic growth, social development and environmental impact. *(See table 2)* In terms of economic growth it should be well able to achieve the world's average, even reaching 10,000 US dollars during the first half of the present century. Too high a level is not necessary for a sufficient livelihood for people. In the social sphere China should reach the world's average HDI. In terms of environmental impact China should remain below the world's average eco-footprint and achieve a decreasing standard of impact.

2.4

Japanese Experience in Applying the "3-R Model for Sustainable Development"

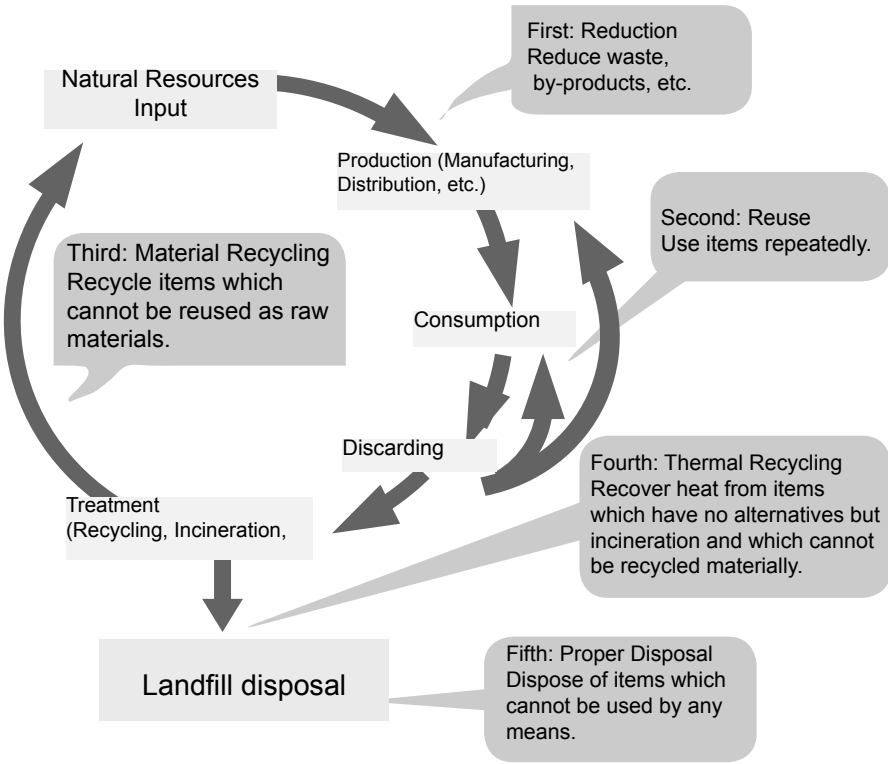
Akira Ogihara
Institute for Global Environmental Strategies, Japan

In my presentation on the Japanese **"3-R Model for Sustainable Development",** I briefly describe the background of the kinds of problems that have kindled our vision of a material- and resource-recycling society based on the "3 Rs" of reduce, reuse and recycle. The Japanese effort and experience with implementing the 3 Rs comes next, followed by an international perspective on such initiatives and selected 3-R activities promoted in Asia by the Japanese government.

During the 1970s and 1980s Japan experienced serious waste-related problems because of strong economic growth and **"bubble economies"** as well as issues of mass production, mass consumption and waste disposal. The Japanese government developed an understanding of the kind of 3-R vision that could enable introduction of the resource cycling processes that were required.

Here we have time for only a chronological account of the case of municipal waste, not the construction or industrial waste problems that were tackled as well. From the 1960s to the late 1980s we saw a tripling of municipal waste volumes. As a result, from the late 1980s into the 1990s we saw the natural capacities of our countryside diminish.

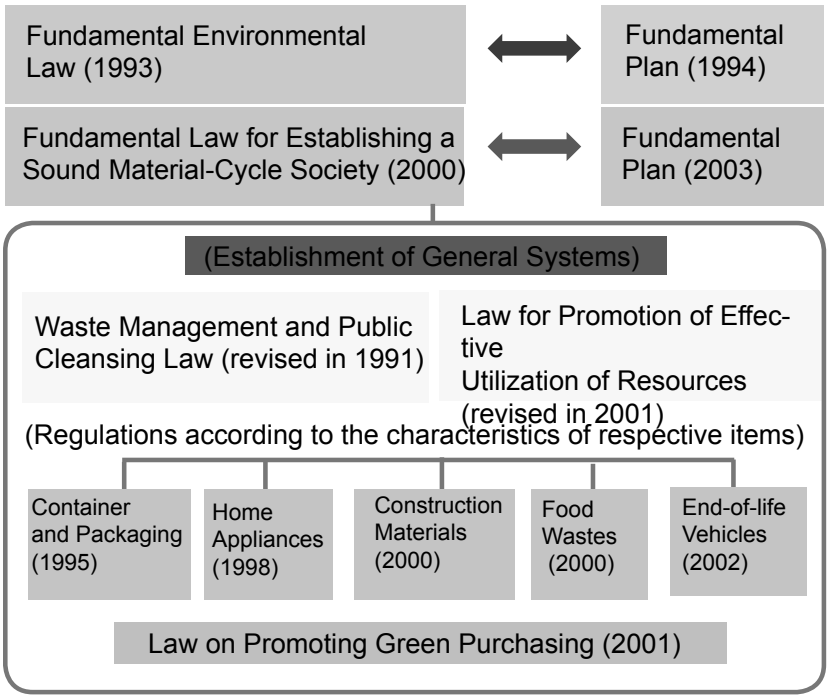
The three guiding concepts *[figure 1]* are, first, reduction of waste at source; second, repeated use of material after consumption; and third, recycling of those materials that cannot be used as is. In addition to such actions, with this recycling approach some recycling is equivalent to proper disposal.



Source: Ministry of the Environment, Japan

Figure 1 : Toward a Sound Material-Cycle Society : Concept of 3R

To implement the 3-R vision, the government realized that public policy issues concerning waste disposal and environmental quality needed to be addressed comprehensively through socio-economic approaches, in addition to conventional end-of-pipe preventive approaches. Waste-related issues needed to be conceptualized on a basis of cycling or recycling of material resources. From 1990 environmental policy was promoted through a market-based approach. In 1993 policy goals regarding pollution issues were superseded by the Fundamental Environmental Law *[figure 2].* The Ministry of Environment was created and became the new home for public agencies responsible for environmental policies. Policy on waste management and recycling shifted from a focus on punitive regulations (for example, citations for improper disposal) to an emphasis on efficient resource utilization. The national policy vision took form in the Fundamental Plan for Establishing a Sound Material-Cycling Society.



Source: Reprint from Y. Moriguchi(2006), "Establishing a Sound Material Cycle Society in Asia" a presentation at Asia 3R Conference, October 30th –November 1st, 2006, Tokyo, Japan

Figure 2: Laws and Regulations

To translate policy into meaningful public activities, programs such as **"blue dot"** packaging were introduced that could help raise consumer awareness of the environmental issues. The recycling role of the individual consumer was developed within the framework of material and resource cycling as a fundamental function of society. We have found that such an individual role needs to be developed first, to prepare for the societal transformation to resource cycling.

Regarding individual regulatory schemes within the national plan, the container and packaging recycling law was actually the first regulatory scheme for recycling *[figure 3].* Container packaging includes brass, paper, aluminum, steel, cardboard and paper materials. Waste from such products is sorted by the consumer, transferred to local municipalities and thence delivered to recycling businesses. Financing for such recycling is an issue here. Each manufacturer must pay a recycling fee to a designated company in the Japanese Container and Packaging Recycling Association.

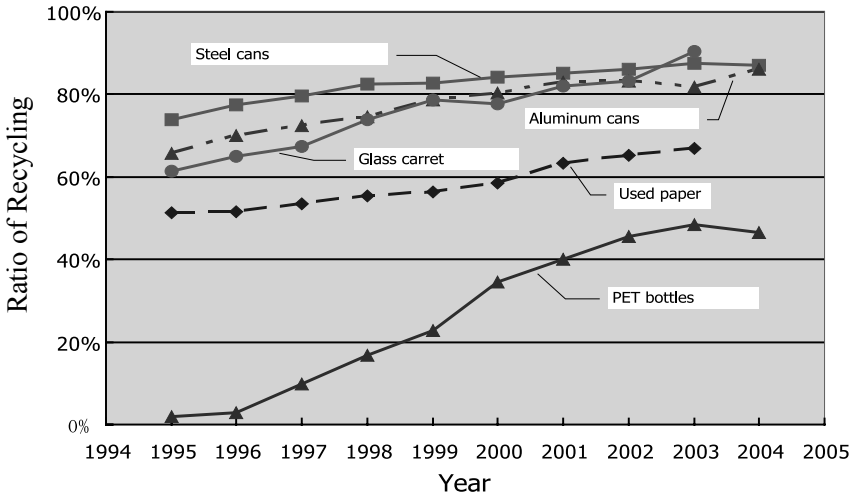


Figure 3: Containers and Packaging Recycling Law: Effects

The second law involves domestic appliances *[figure 4];* specifically including air conditioners, televisions, refrigerators and washing machines. When consumers dispose of such items, they are charged accordingly for the service of recycling them. The items for disposal are collected and forwarded to retailers who have them delivered to the designated recycling company. Municipalities are in charge of the process. The fees collected from the consumer go to the recycling company through the retailers. The percentages of manufactured items that were recycled within this scheme are presented here by year [figure 5]; 70 to 80% recycling was achieved in 2006.

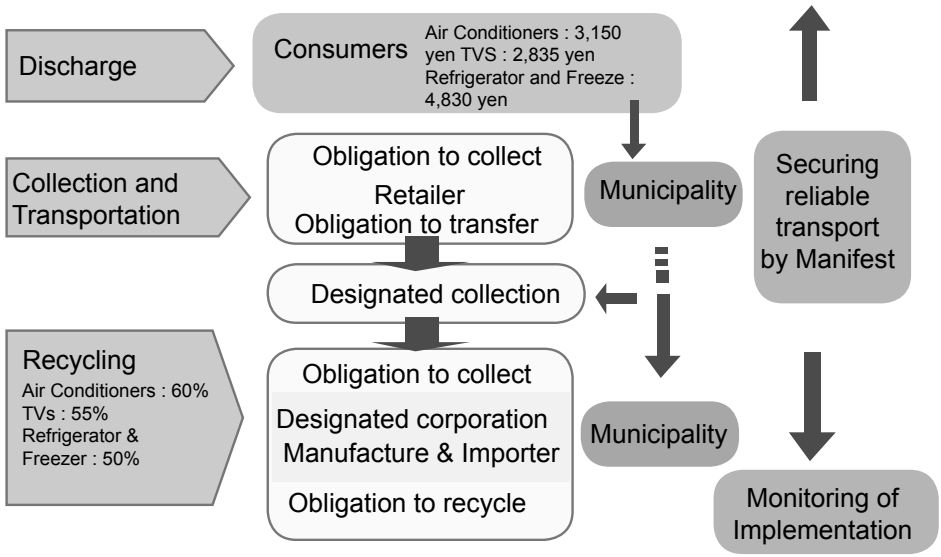


Figure 4: Home Appliance Recycling Law: System

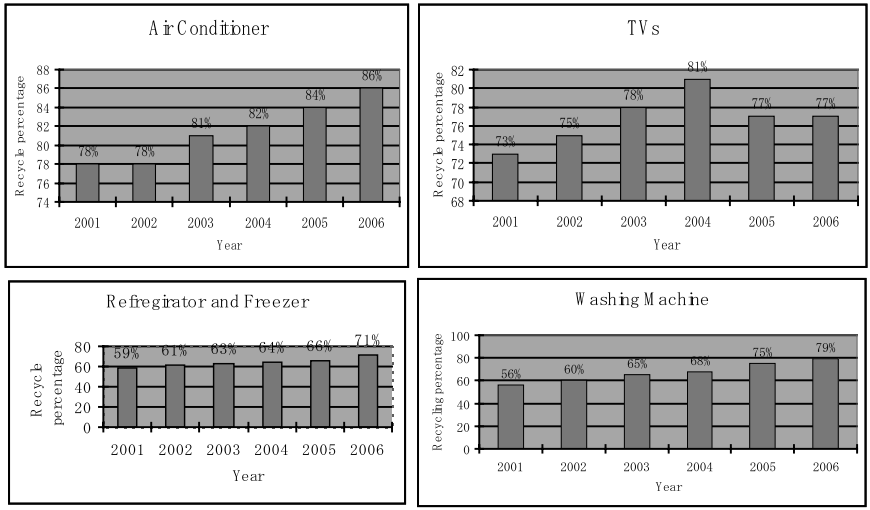


Figure 5: Home Appliance Recycling Law: Effects

Recycled materials are exported from Japan mainly within the East Asian region in the form of scrap iron, waste paper, copper scrap and recycled plastic [figure 6]. Export volumes have dramatically increased since the year 2000.

Export of Recyclables from Japan

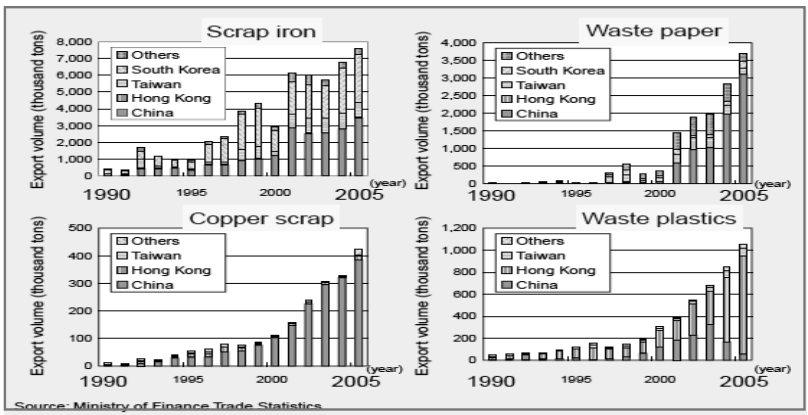


Figure 6: Internationalization of Waste: Growing Trade on Recyclables

As a means of promoting the region-wide development of 3-R initiatives [figure 7], governments agreed on enforcement of waste-recycling measures at the Ministerial Conference on the 3R Initiative in Tokyo in 2004. In 2006 the first meeting of senior officials on the 3R initiative was also held in Tokyo where appropriate targets were set. Last year the second such meeting was held at Bonn, Germany which reviewed the achievements in each country and proposals for future directions. In 2008 the second Asian 3R conference met at Tokyo; the internationalization of 3-R processes and trade in recyclable products was a major focus.

2004	•	G8 Sea Island Summit (USA) Agreed by Heads of State as an effort to construct a sound material-cycle society through reduction, reuse, and recycling (3Rs) of waste.
2005	•	Ministerial Conference on the 3R Initiative (Tokyo) Launched the 3R Initiative.
	•	G8 Gleneagles Summit (UK)
2006	•	Senior Officials Meeting on the 3R Initiative (Tokyo)
	•	G8 Saint Petersburg Summit (Russia) Agreed to set targets as appropriate taking account of re source productivity.
2007	•	2nd Senior Officials Meeting on the 3R Initiative (Bonn, Germany) Confirm the progress of the 3R-related efforts in each country. Japan proposed the future directions of the 3R Initiative.
2008	•	The 2nd Asia 3R Conference (March: Tokyo, Japan)
	•	G8 Environment Ministers Meeting (Kobe, Japan)
	•	G8 Summit (Hokkaido Toyako, Japan)

Figure 7: Development of the 3R Initiative

The 3-R initiatives have five main aims: to strengthen domestic policy to implement the 3 Rs ; reduce barriers against international trade in goods and materials related to recycling manufacturing; encourage cooperation among the various stakeholders in the process; promote cooperation between developed and developing countries; and lastly, promote science and technology suitable for 3-R implementation.

The lessons learned relate to 3-R mainstreaming for increasing resource productivity; global and regional cooperation to promote the international flow of materials and goods; innovative measures that respond to local conditions; the physical and legal characteristics of the goods and materials; and the potential for conflict internationally regarding basic policy principles. Ultimately, the means for compromise must be found to serve the global, national, local and individual interests involved.

The Japanese approach to material and resource cycling is first to promote a sound system nationally, then promote international cooperation in the ways we have discussed here. Some have criticized the Japanese position as masking the export of hazardous waste to other countries. In the image here [figure 8], however, measures to prevent illegal export and import of waste are shown as being integral to the 3-R implementation scheme. Actually, resource scarcity prevails in many places that can be addressed by material recycling. Appropriate measures must be taken to manage the risks involved.

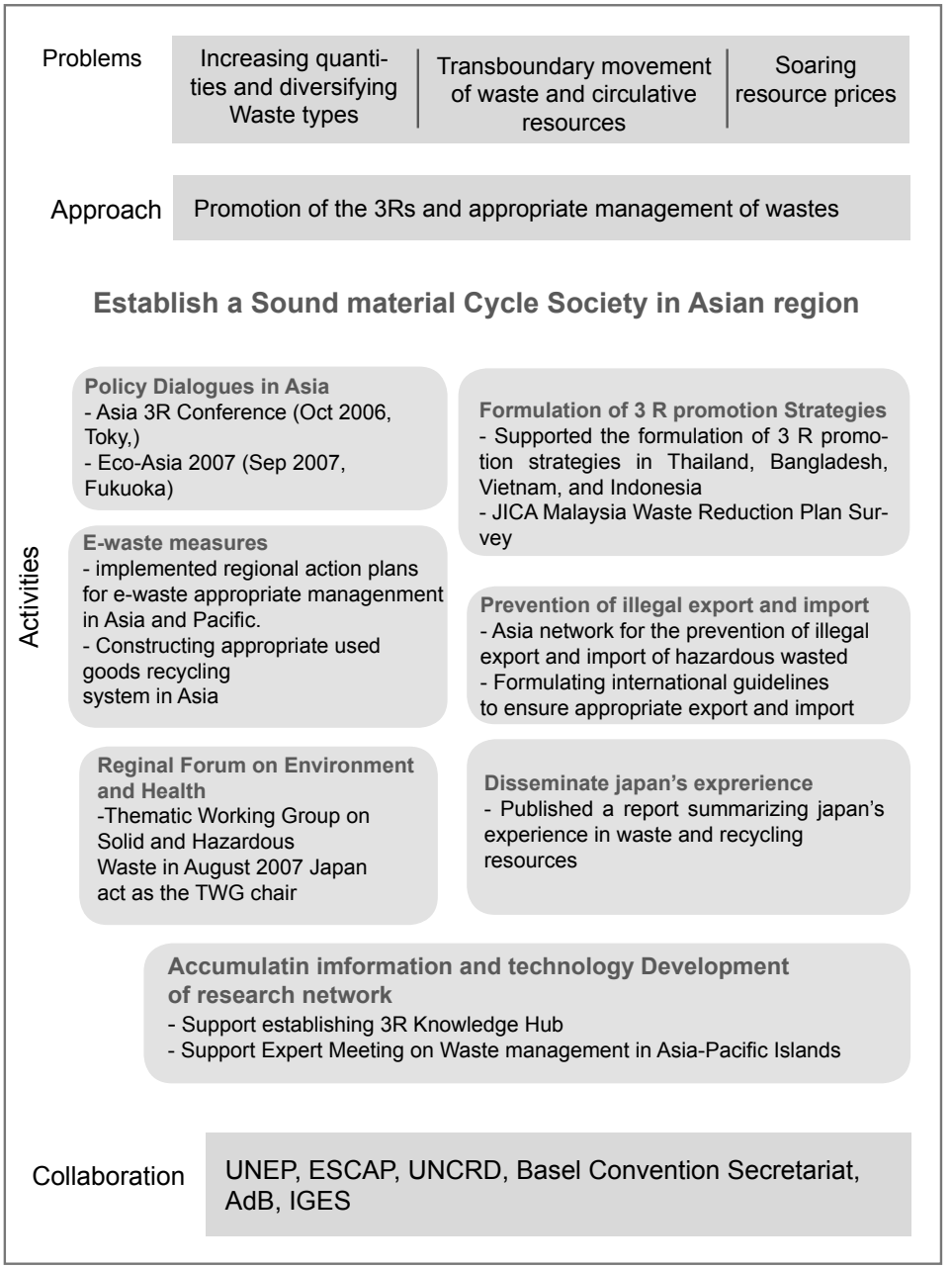


Figure 8: Promotion of the 3Rs in Asia by Japan

2.5

Applying "Gross National Happiness" in Bridging Indigenous and Modern Management of Natural Resources in Bhutan

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I will discuss Bhutan's success in conservation by following both indigenous resource - management systems and a modern conservation regime. Bhutan faces some problems as a result of having introduced modern conservation about 50 years ago. We have conceived the indicator **"gross national happiness"** (GNH) with the use in mind of helping us bridge those two resource management regimes. Lastly I will discuss one aspect, one domain of GNH (of the nine domains that we are working on), that of ecological diversity and resilience.

Bhutan is well known for its success in environmental conservation. Of the total area of about 40,000 square kilometres, nearly three quarters is forest cover and more than one third is classified as protected. We have about 7,000 plant species of plants, 165 of mammals and 770 of birds, many of them classified as endangered (such as the takin, snow leopard, golden langur, blue sheep, red panda, the black-necked crane and white-bellied heron) of which all are being protected by our conservation laws.

During the thousands of years before Bhutan enacted legislation to protect its forest lands, we relied on our indigenous institutions for preserving our natural resources. Indigenous resource management consisted mostly in applying customary practices and beliefs that had evolved around Bhutan's geography and environmental features, molded by centuries of interactions with both physical and non-physical worlds. Bhutanese tradition accords high respect for the natural environment, based on Buddhist respect for all forms of life and on pre-Buddhistic nature worship. Most importantly of all, indigenous institutions have all started through local initiative and participation.

Modern science accepts only the relationship between man and nature; but in Bhutan we have the third dimension of the invisible spiritual world which consists of God and the deities which is factored into our conservation policy and beliefs.

The six principal elements of the indigenous system of resource management are designated here [Table 1] by Buddhistic terms for specific institutional roles, so to speak. The first four terms are the titles of the respective positions as well as the institutional role.

Table 1: Indigenous Institutions

• *Resungpa*	(forest guard)
• *Mesungpa*	(forest fire vigilante)
• *Chhusungpa*	(drinking and irrigation water caretaker)
• *Zhingsungpa*	(crop damage arbitrator)
• *Dam*	(restriction on resource use)
• *Sokshing*	(wood-lot for firewood, leaf-litter, fodder)

These village functionaries were appointed by the community for one- or two-year terms and their powers and responsibilities were defined at village meetings dominated by the elders. The first one, resungpa, is equivalent to a forest warden who ensured equitable and sustainable use of forest resources, meeting frequently with local residents and village elders. They enforced seasonal restrictions on use of forest resources. The second, mesungpa, is equivalent to a fire warden who watches for and helps prevent forest fires. They mobilized manpower to fight forest fires and ensure that culprits were apprehended. The third, Chhusungpa, took care of the distribution and maintenance of both drinking and irrigation water supplies, settling disputes and enforcing property rights as well as managing flood relief and water-related problem situations. The fourth, zhingsungpa, arbitrated in disputes regarding crop damage by domestic animals; the zhingsungpa also designated the start of the cropping season, before which time no household could begin any agricultural activity such as clearing brush or sowing seeds.

The fifth of the main elements of the resource-management system, the dam, is a ban on the entry into or use of resources in mountains, forests, rangelands or river areas during certain months of the year, in order to permit regeneration of forests, pasture or animal populations and to avoid offending resident deities. The sixth, sokshing, is a physical resource *(wood lots)* and a tenurial system whereby specific households inherit the right to extract firewood, leaf litter and fodder from their designated woodland according to traditional practices, thereby ensuring sustainability of the resource from one generation to the next.

A key cultural practice is the respect accorded a category of physical space that has been called “abodes of green house deities” [table 2]. Specific rocks, hills, mountains, forests, rivers, leaves, in and around the village are respected as citadels of gods or deities — thousands of them. Among the most important are Naydag, lord of the soil or earth; Zhidag, lord of settlements; Kaylha, one’s natal deity *(for example, I profess a deity from where my village of birth even now);* Dralha, a personal protector; and Yulha, protector of a village.

Table 2: Abodes of green house deities
• Hills, mountains, forests, rivers, cliffs, rocks, lakes, respected as abodes or citadels of deities, gods, goddesses, spirits
• *Naydag* (lord of the soil or earth)
• *Zhidag* (lord of the settlement)
• *Kaylha* (natal deity)
• *Dralha* (protector deity)
• *Yulha* (deity of the village)

The physical space of those deities is respected and not disturbed, a custom that plays a significant role in bio-conservation *[Table 3].* It allows for the continuous evolution of micro organisms, insects and other creatures and animals in their ecological niches. Most such spiritual citadels are located at the headwaters of springs and rivers which serves the purpose of protecting water sources. Undisturbed groves of trees act as windbreaks that protect d wellings and are crucial to survival of amphibians when left to serve their spiritual function. Lakes and rivers that are not polluted contain plentiful fish. Rocks and cliffs are breeding places for birds and home to rock bees, a vital indicator of environmental health.

Table 3: Green house deities

• Significant bio-diversity implication through uninterrupted evolution of microbes, animals, insects, plants, flowers and trees
• Groves - protection against winds
• Lakes and rivers – source of fish
• Cliff and rock – roosting and rearing places for birds; rock bees
• Belief that they are primeval and immortal owner of the lands while humans are mere travelers passing through their territories
• *Sa-lhang*, literally land begging, ritual is mandatory before house is constructed
• Disturbance of these abodes or failure to per form this ritual will result in disease, pesti lence, natural disaster or famine

Respect for such physical spaces is based on the belief that the deities are the primeval or original owners of the land while we human beings are only guests. We are travelers passing through their territory. The land does not belong to us, it belongs to them. Whenever we build a house we perform a ritual whereby we beg the spirit of the place to allow us to occupy the house, so that we will not fall sick or be otherwise punished. We believe that failure to perform such a ritual and pay respect to the spirit-owner could lead to illness, disaster or many other unfortunate consequences.

The second part of my presentation describes Bhutan's modern conservation legislation [Table 4]. The four main laws are the Thrimzhung Chenmo or Supreme Conservation Law of Bhutan which was promulgated in 1957; the Bhutan Forest Act of 1969; the Land Act 1978; and the Bhutan Forest and Nature Conservation Act of 1995.

Table 4: Modern Conservation Legislation

- Thrimzhung Chenmo 1954 *(Supreme Law of Bhutan)*
- Bhutan Forest Act 1969
- Land Act 1978
- Bhutan Forest and Nature Conservation Act 1995

The 1957 act was the first holistic piece of forest-related legislation after the government began agricultural land records in 1953 *[Table 5].* Before then, there was neither land registration nor the concept of public property. The new law separated private property from common or public property. It shifted power from the community to the center and transformed customary, unwritten law to formal, written law. While it did not specifically restrict use of forest space by local inhabitants, it prohibited them from poaching endangered species. The law also extended the right of tenure over agricultural land.

Table 5: Thrimzhung Chenmo 1957

• It was the first forest-related legislation
• Followed the first official recording of agricultural land in 1953
• Separated private and community property rights
• Shifted power from community to the centre
• Transformed traditional customary unwritten laws to formal written law
• National Assembly became an important lawmaker
• No specification on restriction on use of forest resources by local people, except poaching of endangered species
• It gave tenurial right over agricultural land

The second conservation milestone, the Bhutan Forest Act of 1969 *[Table 6]*, marked the beginning of Western-style forest protection. Forestry officials were given control over access to and management of forest resources, while judges were made responsible for enforcing forest law and regulations. It superseded existing customs and local management institutions. The state took over ownership of common property (village or community forests). Penalties such as imprisonment and monetary fines were imposed for offences.

Table 6: Bhutan Forest Act 1969

• First modern forestry legislation
• Beginning of the outside influence on forestry legislation
• Civil authorities, mainly judges, made respon sible for enforcing forestry rules
• Forestry officials responsible for protecting wild fauna, maintenance of protected areas and managing and controlling access to forests through patrolling
• Penalties like imprisonment and monetary fine were imposed for offence

The third was the Land Act of 1978 *[Table 7].* It established all legal categories of land and their use, including agriculture and forestry. It specified local rights in sokshing (wood lots), tsamdog *(grazing lands)* and private forestry as well as legal provisions for conversion of land types. It conferred legitimacy on tenurial rights over and inheritance of land. It set a ceiling on ownership of 25 acres of land per family.

Table 7: Land Act 1978

- Establish all legal categories and uses of land
- Specified rights over sokshing, tsamdog, private forestry
- Provided legitimacy for inheritance
- Protected tenurial rights
- Fixed land ownership ceiling of 25 acres per family

The last law under discussion is the Bhutan Forest and Conservation Act of 1995, essentially a revision of the 1969 legislation. The Act provided the legal basis for social forestry practices. However, its explicit goal was protection of forest resources against overuse by local inhabitants, while its implicit goal was conservation of biodiversity through land-use controls in national parks and game sanctuaries. It strictly limited utilization of forest products for rural and industrial consumption.

The very definition of the forest annulled all indigenous institutions together with customary rights and sanctions over appropriation of natural resources *[Table 8];* in practice, however, customary rights continued because of shortage of forestry manpower to enforce the Act. The resungpa was replaced by forestry officials, with the negative impact that community property became open to exploitation by everyone since dissolution of traditional arrangements was not followed by establishment of effective institutions.

Table 8: Problem
• Indigenous management institutions annulled, including customary rights and sanctions over resource uses
• Resungpa replaced by forestry officials, without enforcement
• Local arrangement dissolved but not replaced by more effective institutions
• Common property became open to exploitation
• Sokshing became: “forest to be used as a source of leaf litter and fodder and the owner has no rights over the standing tress and land over which sokshing is established”.
• Resulted in owners appropriating as much and as early as possible
• No interest in sustainability, no incentive to improve it through plantation and protect it from other users
• No permanent, inheritable and transferable rights to the community
• Loss of community rights and control over forests
• Indigenous knowledge systems and resource management institutions disappeared

Sokshing holders appropriated as much as they could from their wood lots. With the loss of community rights and control, sustainability was no longer in anyone's direct interest. Indigenous knowledge and management systems disappeared. The government was too weak to implement and monitor the Act.

Table 9: GNH as an alternative approach

• **"Middle Path"** approach since 1990 balances development and conservation
• Social and economic cost identified but never addressed
• Forest cover increased, farm land decreased
• Population of endangered species increased
• Crops and livestock depredation increased
• One third protected areas created by denying access to traditional natural resources
• Rural poverty directly related to extent of forest cover
• Integrates Western science and traditional knowledge
• Values multiple knowledge systems
• Integrates traditional culture, livelihood and resource manage ment with scientific to produce resilient, practical and equitable natural resource management system
• Respects diversity of man-nature relationships, Buddhistic interdepdence, external and internal environments, real benefits of nature worship

Bhutan has succeeded, to the extent that it has, in conserving its forests and natural resources because the government has followed a Buddhistic approach of the **"Middle Path"** since 1990 [Table 9], seeking a balance among cultural integrity, economic development and environmental protection. However, conservation has incurred social and economic costs that have been identified but never addressed. Forest cover over three quarters of the country has come at the cost of farmers' well-being: forests are fast encroaching on farmland, while protected animal species are increasing, foraging on croplands and killing livestock. One third of the protected areas have been created by denying farmers access to their traditional natural resources.

There is evidence to support a direct relation between the rural poverty and forest cover. For example, the district of Zhemgang where I come from has 86% forest cover while 44% of its total area is under protection; and it is the poorest district in the country.

Gross National Happiness (GNH), which is espoused by His Majesty the Fourth King, provides the best alternative for bridging the two resource-management systems, indigenous and modern, to achieve the goal of conserving resources while increasing people's well-being. GNH attempts to integrate both modern and traditional knowledge systems. It acknowledges a multiple-value system, in recognition that local skills can work effectively with social and biological systems. The ecological component of GNH upholds diversity of man-nature relationships, Buddhistic interdependence, external and internal environments, and nature worship with its beneficial impacts on conserving abodes of deities and spirits which in turn shape people's views of the natural environment.

"Ecological diversity and resilience" is one of nine domains of GNH, being based on Buddhist culture, traditions of sustainable forest and land management, and inclusion of people in conservation of nature. It puts social and economic welfare on a par with ecological concerns. It fosters respect for culture, beliefs, knowledge and practices of the people. It will integrate traditional culture, livelihoods and resource management with scientific knowledge to produce a resilient, practical and equitable natural-resource-management system. It will promote community-based natural-resource management and revive informal institutions.

Bhutan has seen that some modern legislation only weakens informal arrangements that had evolved over centuries and helped local communities to manage their resources. Such informal arrangements often embody a holistic understanding of local ecosystems and represent the country's cultural heritage. The challenge is to balance modern legislation that can advance environmental conservation with informal arrangements that have fostered sustainable development in a harsh and unforgiving geography.

2.6

The Philosophy of Sufficiency Economy

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His **Majesty King Bhumibhol Adulyadej gave the philosophy of** "Sufficiency Economy", or the economic model of sufficiency, to the Thai people in 1974 as a way of doing, a way of thinking and a way of living. The goal of this philosophy is to achieve a form of national development that is balanced, stable and sustainable and that will result in happiness for all.

Sufficiency Economy does not differ in its goals from the concept of Gross National Happiness that King Jigme Singye Wangchuck of Bhutan gave to his subjects one year earlier. The rationale is to provide guidelines for uniting the country in practicing a philosophy that leads to universal peace and tranquility.

The scheme in the second image [Figure 1] maps the relationships among the ideas in this philosophy. We start with the **"necessary condition"** of knowledge, which is a combination of wisdom, due consideration, prudence and great care.

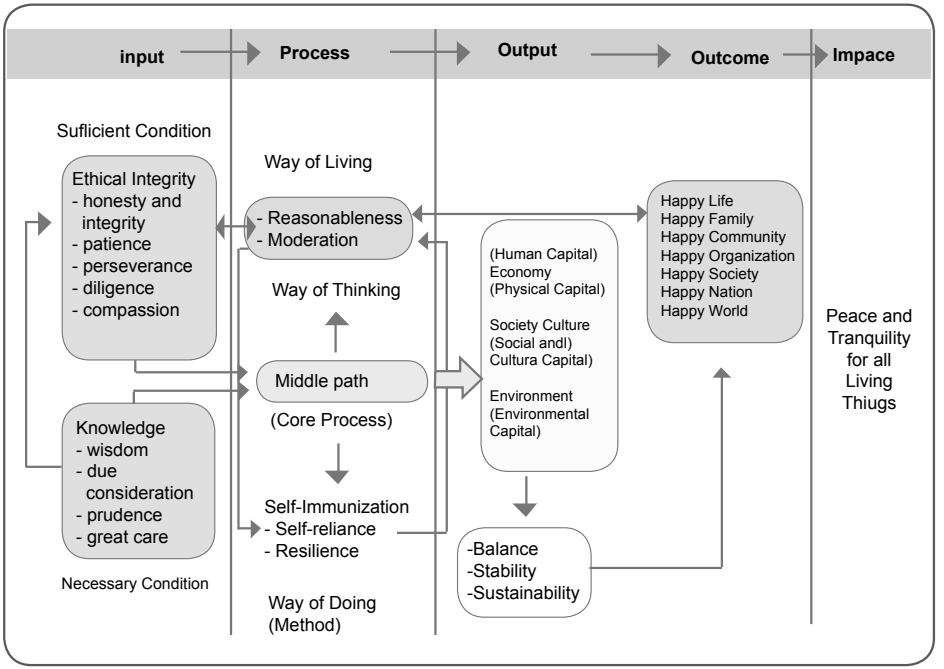

Figure 1: A Systematics Analysis of Sufficiency Economy

This necessary condition of knowledge can be applied in the context of the "sufficient condition" of ethical integrity, which is a combination of honesty and integrity, patience, perseverance, diligence and compassion.

These two conditions are distinct yet complementary, for without knowledge and its components, we would not be able to understand how to practice ethical integrity. Together the two conditions comprise the "middle path" of moderation that is a Buddhistic principle for the best way to conduct one's life.

We can begin our exploration of the philosophy by visualizing the concepts as three processes or stages of practice [Figure 2]: going from left to right in this image, the first stage is labeled **"partial practice"**, the second is **"comprehension"** and the third **"inspiration".**

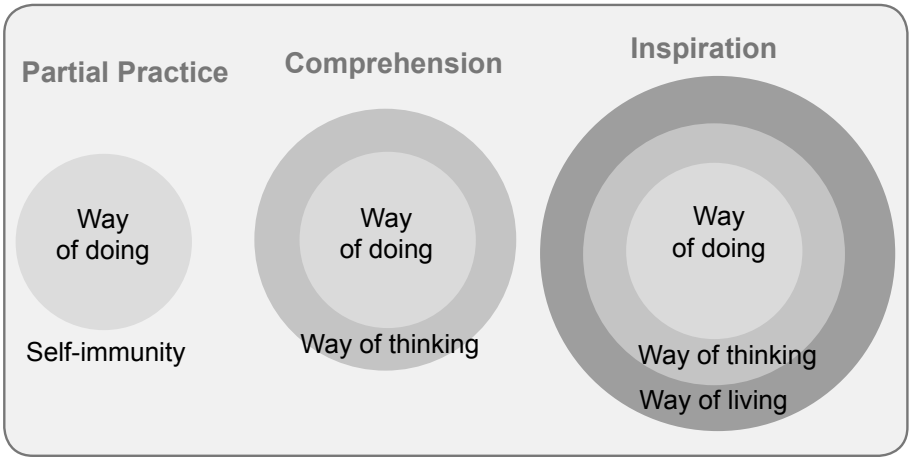

Figure 2: Level of Sufficiency Economy

Most people might find it difficult to start with knowledge and ethical integrity, as the so-called necessary and sufficient conditions that I mentioned a moment ago. So the more practical and popular approach is to begin with partial practice, represented with the smallest circle. It is a way of **"doing"** that can be characterized as **"self immunity or immunization"**. It is the easiest step to take first, not requiring an understanding of sufficiency economy. All one needs is to be motivated to have a stable life under an uncertain environment.

The second level is represented by a larger circle, as a way of **"thinking"** that embraces doing, so-called comprehension. To move to this level, one needs to have self-reliance and resilience. That involves developing one's knowledge and aiming at moderation in one's activity.

The third level is inspiration, the largest circle that encompasses the first two and is a way of "living" that is characterized by reasonableness and moderation in all things. In being reasonable, one can appreciate the need for practicing moderation in one's actions and can apply it in all spheres of living: in society, economy, culture and environment. One will be convinced of the benefits of living a life based on sufficiency economy. The outcome will be a happy life and the impact of peace and tranquility will be on all living things.

One approach to developing the understanding and practices of Sufficiency Economy [Figure 4] is to conceive of the process as an **"external exploration",** proceeding from the innermost area of self to the outermost circle. One begins by aiming to practice self immunization, to improve one's self-reliance. One can then expand outward toward comprehension and inspiration. The outer exploration follows a paradigm of improving oneself through acquiring knowledge, understanding and wisdom that ultimately translates into a way of living

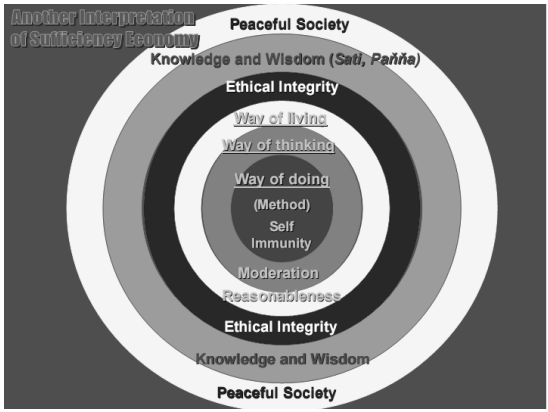

Figure 3: Level of Sufficiency Economy

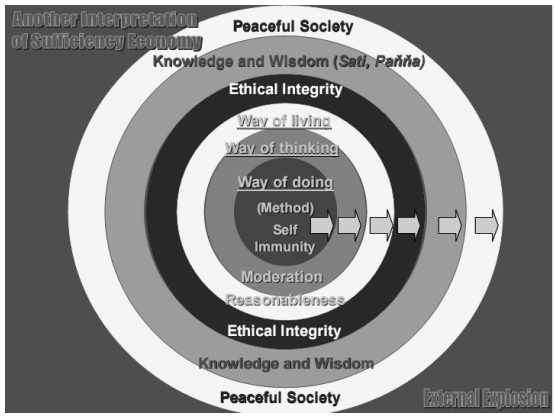

Figure 4: Level of Sufficiency Economy

Alternatively [Figure 4], the paradigm can follow an **"inner"** or internal exploration that proceeds inward. It begins from the initial position of having knowledge and wisdom (sati, panya) and thereupon ethical integrity. Possessing those qualities, we naturally practice the tenets of Sufficiency Economy as our way of living, our way of thinking and way of doing. The ultimate goal is to have a peaceful society conducting a sustainable way of life, hence the final arrow points outward from the ring of knowledge and wisdom into the outermost ring.

External exploration is easier to achieve, generally speaking, but development can be slow and might reach a limited goal because progress is gradual and depends on learning by doing. Internal exploration is much more difficult to do because the starting point is understanding of the abstract concept; however, the goal of peace with sustainability is attainable on the basis of genuine understanding and regular practice.

The philosophy of Sufficiency Economy is timely for the world today, where all natural resources and ecological systems that support life, especially human life, are being degraded at the most alarming rate. The most obvious cause is "global warming", while that in turn results from human activity stemming from consumerism, industrialization and capitalism. Those three socio-economic forces in our times are our real enemies.

Our personal greed, our appetite for consuming things, is our problem as individuals as well as a society. Consumerism, the outgrowth of capitalism, is leading us to catastrophe in the foreseeable future. One way to deal with our problem and avoid catastrophe is to practice the Economy of Sufficiency, instead of materialistic indulgence. How to control our greed, however, remains a big problem.

2.7

The Application of the Sufficiency Economy Philosophy in the Area of Natural Resources and the Environment in Thailand

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At present the natural resources and the environmental crisis is not only felt at a national level but is becoming a real global concern. This can be seen from the problems of climate change. Expressed in scientific terms, if we cannot stop the increase of atmospheric CO_2 from exceeding 450 ppm, the chance of the average increase in the temperature of the earth being higher than 2°C, which is critical, will be up by 50% . If the average increase in temperature of the earth is higher than 2°C, the ensuing effects will be severe.

For example, large cities located below sea level and several archipelagoes in the Pacific Ocean may be completely submerged; the storms will be much stronger and become more frequent. Several species will become extinct and the world will experience a great loss of biodiversity. There

will be less available freshwater. Severe drought in many countries may cause insufficiency of food and water leading to conflict and war over natural resources. With business as usual and the continued release of more greenhouse gases into the atmosphere as a result of high economic and population growth, the IPCC *(Inter-governmental Panel on Climate Change)* has estimated that the average increase in the temperature of the earth may reach 6°C . With these levels of change, it is possible that the human race itself may become extinct altogether.

Generally the ensuing environmental problems tend to have characteristics that do not have a direct impact on the perpetrators or polluters themselves in the early stages. For example, in the case of industrial pollution, the factory owners who do not live nearby will not suffer any direct impact, whereas the community in which these plants are located will instead constitute the affected parties. Moreover, there may be an issue of fairness involved, especially when the affected parties tend to be deprived people or the poor. In the case of global warming, the situation is similar, that is the greenhouse gases, especially the CO2 that creates the problems, have mainly been produced by the OECD countries in the past, and even now their rate of emission is still higher than that of developing countries. The average rate of CO2 emission of the developed countries is approximating to 11.5 tons per capita, while that of the developing countries is at 2.4 tons per capita. The United States alone releases the highest rate of CO2 in the world at 20.6 tons per capita.

The state of Texas, with a population of only 23 million, emits as much CO2 as the whole of the Sub-Saharan African Continent with a population of 720 million[4] . However, the consequent impact will affect the poor people in Africa more than in the U.S. as it will cause severe droughts and food shortages. Moreover deadly diseases tend to spread more rapidly in tropical countries. Nevertheless, when the level of the problems reaches a certain point, every country, rich or poor, will be affected. Therefore it is imperative that the world cooperates to mitigate these problems before it is too late.

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2 United Nations Development Programme (UNDP). Summary Human Development Report 2007/2008, Fighting Climate Change: Human Solidarity in a Divided World. Available: http://hdr.undp.org/en/reports/global/hrd 2007-2008.

3 Inter-governmental Panel on Climate Change (IPCC). IPCC Fourth Assessment Report (AR4), the AR4 Synthesis Report. Available: www.ippc.ch/pdf/assessment-report/ar4/syr/ar4_syr.pdf.

4 Referred to in the footnote 2

Now the only feasible solution is to seriously reduce the concentration of greenhouse gases in the atmosphere. This solution may be based on two approaches simultaneously. The first one is technological innovation and the second is a change of lifestyle. In terms of technological innovation, the developed countries are playing a leading role. However, consumption volume of the world is leading to squandering of resources, as reported in the Global Environment Outlook (GEO3) of the UNEP[5] in 2003 that, based on the ecological footprint, it requires 1.4 globes to support the current use of the natural resources of mankind.

A report by the World Watch Institute in 2006[6] stated that if the populations of China and India consume and embrace Western lifestyle and releasing pollution at the per capita rate equal to that of the United States at present, it will take as many as two more globes. This data shows the problems arising from human consumption that exceeds the carrying capacity of the world to support it. Even though technology-fix may help to a certain extent, it cannot keep up with the problems. In some cases, technology itself may solve one problem, but it may well breed new unexpected problems. One good example is the case of biofuel, which is advocated as a replacement for fossil fuel. The energy technology itself is rather cleaner than that of fossil fuel. However, with the drastic increase in the demand for production of biofuels such as ethanol, the expansion of energy crops such as corn and oil palms leads to worldwide deforestation[7]. Such environmental impact can cancel out all the benefits from this energy alternative. Therefore, the only acceptable approach will have to include changing lifestyles and reducing over-consumption, especially by the wealthy countries as well as the countries with high economic growth.

Nevertheless, a change of lifestyle is not an easy task if there is no change in mind-set, especially in the age of globalization, in which the goal of life is the acquisition of financial wealth and the over-riding value is materialism. The current way of life is highly influenced by **"consumerism"**,

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5 See www.unep.org/geo/geo3/english.

6 See www.worldwatch.org/node/3893.

7 See www.time.com/time/magazine/article/0,9171,1725975,00.html. and www.sciencemag.org/cgi/content/full/319/5867/1235.

which in turn emphasizes material accumulation and over-consumption. However, in many rich countries, where the population has a high income and a high level of material comfort, people are still not that happy, especially those in high stress situations, as they have to struggle to compete and survive in a society that overvalues individualism and fails to cultivate spiritual matters[8].

From the perspective of nature and the environment, the current development approach, which emphasizes the raising of income and material wealth without mental cultivation aimed at reducing the demands of insatiable human greed, it is not possible for the limited natural resources and the environment available in the world to support such unlimited desires. As famously quoted by Mahatma Gandhi: **"The World has enough for everyone's need but not enough for everyone's greed."** Therefore in order to avoid the disasters caused by climate change and other environmental crises mentioned earlier, we need to change our life style, especially by reducing wasteful consumption, and by curbing our insatiable desires.

If we compare the mainstream development approach with an alternative development pathway based on oriental wisdom, we will see that the latter approach gives importance to cultural and economic interdependence with an emphasis on social harmony and a peaceful society, while including a balance between nature and ecosystem. The goal in life is not only materialistic wealth but also mental cultivation, which will contribute to compassion and a harmonious coexistence between humanity and nature. It is based on interdependence, as can be seen from the concepts of several Oriental schools of thought, some of which are based on Buddhism.

For example, Japan adopts an integrating approach based on Zen philosophy for its production, marketing and services; another example is the Gross National Happiness, or GNH, of Bhutan. GNH is a new concept based on the belief that happiness is the life goal for mankind, and views that development should lead to physical and mental satisfaction. In the case of Thailand, we have the Sufficiency Economy Philosophy bestowed by His Majesty the King. The Philosophy has the main principles of self-immunity,

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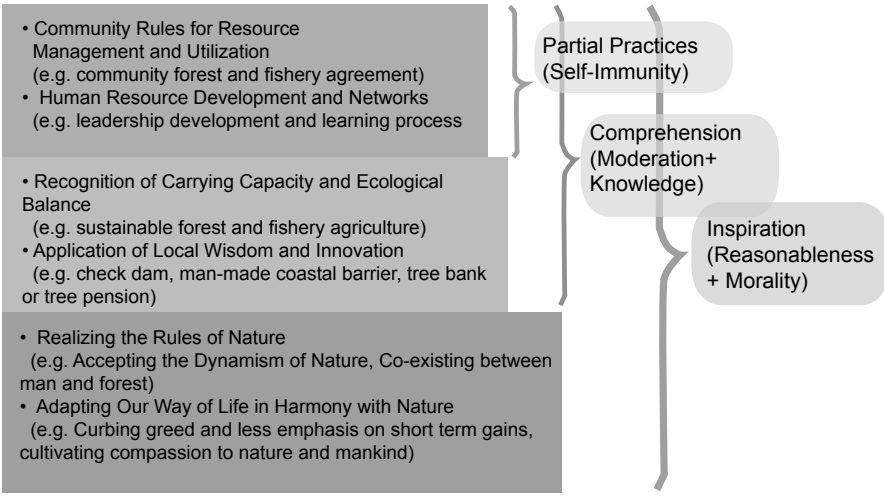
[8] For instance the United States' happiness rank is at 23 and Singapore is at 53, while Bhutan's happiness rank is at 8 and Costa Rica is at 13. See http://bwnt.business.com/interactive_reports/competitive_countries/index and www2.le.ac.uk/ebulletin/news/press-releases/2000-2009/2006/07

moderation and reasonableness with knowledge and morality as necessary and sufficient conditions, respectively. When applied to the area of natural resources and the environment, this philosophy, which stresses merit and self-actualization, can enable humans to coexist with nature and the environment in a harmonious way.

In this regard, GSEI has conducted a research project[9] with the support of the Thailand Research Fund (TRF) in order to understand the application of the Sufficiency Economy Philosophy to the case of natural resources management. The study has synthesized practical experiences from selected case studies based on Professor Apichai's conceptual framework for interpreting the Sufficiency Economy Philosophy ***(see figure 1),*** which can be summarized as follows:

Figure 2 : The Application of Sufficiency Economy Philosophy to Natural Resource Management



(source : Refer to footnote 9)

[9] The Foundation of the Good Governance for Social Development and the Environment,. The interim report "The Synthesis of Practicable Experiences based on the Sufficiency Economy Philosophy in Environmental and Natural Resource Management in Thailand", August 2007-June 2008.
Rural and Social Management Institute (RASMI), Foundation for Thailand Rural Reconstruction Movement under Royal Patronage. The report "Analyses of the Government Policies at All Levels including the Practices in the Private Sector and Civil Society according to the Sufficiency Economy Philosophy" (1997-2006) Vol.1 and "Analyses of Macro-Policies of the Thai Government from Various Dimensions according to the Sufficiency Economy Philosophy" (1997-2006) Vol.2, December 2007.

The first level, **"Partial Practice"** *(see figure 2),* is when a unit (a person or a community) adopts the principle of self-immunity in order to protect itself. In the case of natural resources and the environment, the realization comes when a person or a community experiences severe resource degradation or an environmental crisis.

According to our study, communities led by active leaders will take actions by setting up rules of resource management and utilization such as community forest or fishing agreements to limit overexploitation. They will also notice the importance of human resource development (for example, through leadership development and the learning process).

However, their actions may not be sustaining until they reach the second level: **"Comprehension"**. At this level, people need to adopt the principle of moderation with some knowledge and understanding as a necessary condition. In the case of natural resources and the environment, a community will have to recognize carrying capacity and ecological balance in order to find an optimal or moderate way for resource utilization. They will tend to apply local wisdom and innovation, which are more appropriate to their own context. At this level, overexploitation of resources will unlikely to be continued.

Nevertheless, when dealing with a critical environmental situation such as climate change, drastic reduction in consumption may also be required. This can possibly be achieved at the third level: **"Inspiration".** Once people adopt the principle of reasonableness with a high level of morality as an important pre-condition, they can adopt a way of life that is in harmony with nature. At this point people will realize that they too are part of nature, not trying to conquer it but to co-exist with it. With an embedded morality, they will also truly understand the negative impacts of greed and will be willing to curb it. This is essential because over-consumption as a result of greed can be eradicated. Moreover, society can become peaceful when people are cultivating compassion for one another, nature as well as other living creatures on earth.

Finally, the question now is how to encourage the adoption of this type of approach, especially in the current complex and materialistic society. What kind of policy is needed in order to integrate the Sufficiency Economy Philosophy into the universal and dynamic way of life?

However, their actions may not be sustaining until they reach the second level: **"Comprehension"**. At this level, people need to adopt the principle of moderation with some knowledge and understanding as a necessary condition. In the case of natural resources and the environment, a community will have to recognize carrying capacity and ecological balance in order to find an optimal or moderate way for resource utilization. They will tend to apply local wisdom and innovation, which are more appropriate to their own context. At this level, overexploitation of resources will unlikely to be continued.

Nevertheless, when dealing with a critical environmental situation such as climate change, drastic reduction in consumption may also be required. This can possibly be achieved at the third level: **"Inspiration".** Once people adopt the principle of reasonableness with a high level of morality as an important pre-condition, they can adopt a way of life that is in harmony with nature. At this point people will realize that they too are part of nature, not trying to conquer it but to co-exist with it. With an embedded morality, they will also truly understand the negative impacts of greed and will be willing to curb it. This is essential because over-consumption as a result of greed can be eradicated. Moreover, society can become peaceful when people are cultivating compassion for one another, nature as well as other living creatures on earth.

Finally, the question now is how to encourage the adoption of this type of approach, especially in the current complex and materialistic society. What kind of policy is needed in order to integrate the Sufficiency Economy Philosophy into the universal and dynamic way of life?

3

The Synthesis of Practicable Experiences based on the Sufficiency Economy Philosophy in Environmental and Natural Resource Management in Thailand

Practical Experience in Environmental and Natural Resource Management in Thailand Based on the Philosophy of "Sufficiency Economy"

Adis Israngkura na Ayudthaya
National Institute of Development Administration, Thailand

This morning I am presenting a synopsis of five case studies that our research team has conducted during the past six months. They reflect the Thai philosophy of a "sufficiency economy" that we discussed yesterday. My colleagues on the team are actually sitting in this room and will be able to respond to your questions after I have spoken.

The first slide was shown yesterday [Figure 1] and gives you a recap of the concept of the sufficiency economy. We have here five principles or concepts:

- Self immunity (a way of doing)
- Moderation (a way of thinking)
- Knowledge (a way of thinking)
- Reasonableness (a way of living)
- Morality (a way of living).

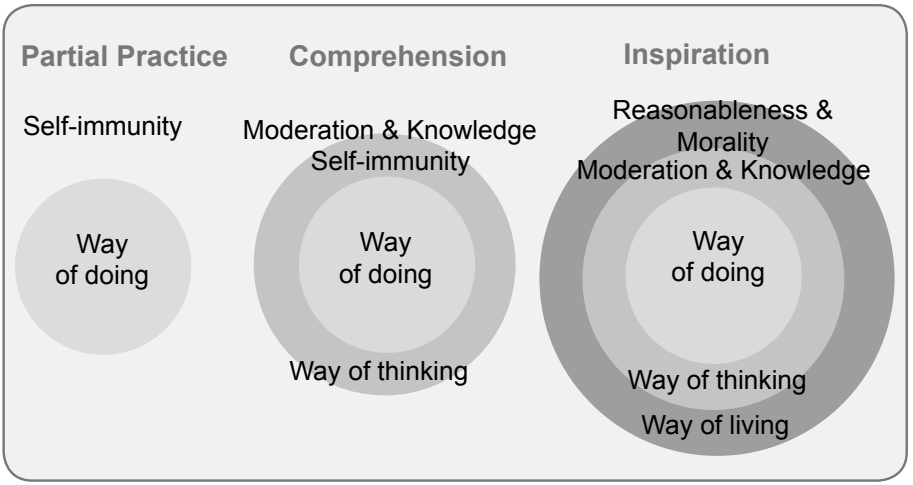


Figure 1: Level of Sufficiency Economy

The sufficiency economy itself consists of three levels of application:

1. Partial practice (providing some form of self-immunity to the community or the family)
2. Comprehension (using or creating new knowledge to solve problems)
3. Inspiration (changing ways of thinking through applying reason and morality).

The last circle on the slide would be the final goal that encompasses all the elements of the sufficiency economy.

In applying the philosophy of sufficiency economy in the Thai context of natural resource and environmental management, we reviewed with *Dr. Sathirathai* yesterday some examples under those three levels of practice. At the first level of partial practice, or **"doing",** we saw what self-immunity or moderation might entail; that is, establishing community rules relating to resource utilization, as protection against external threats.

At the second or comprehension level, examples of "thinking" include ways that people use their knowledge to enhance their capabilities, such as by applying local wisdom or innovations. In resource management we saw cases of

(a) shed dams, small dams that are seen in local villages;

(b) manmade coastal barriers that help sustain or provide new corals; and

(c) the tree bank or tree pension schemes. Recognizing the carrying capacity of the area could lead to applying moderation. People might not initially have understood the carrying capacity of the community; when they did, they might modify their activities. That might impact positively some of the mangrove areas, for instance, or even the agricultural expansion they were thinking of. So putting an upper limit on agricultural expansion could illustrate constructive action, following recognition of the carrying capacity of the land.

At the third or inspiration level, examples of **"living"** the philosophy involve the recognition of the laws of nature or having to change ways of life to suit the framework of nature. That is how we apply the sufficiency economy to the case of natural resources management in general.

Our research team undertook five case studies, a brief summary of which follows. The first in our discussion today concerns the Pa Toh Watershed in Chumphon province, in the southern region of Thailand. Forest destruction occurred there many years ago and we are trying to rehabilitate the area. The next case concerns the resort hotel of Chumporn Cabana, a medium-scale enterprise that uses sufficiency economy concepts to sustain itself through a business-cycle crisis. Our third example involves conservation of the Pa Lien wetlands with the Ban Laem community in the southern province of Trang. The fourth is conservation of wood and charcoal resources around Ban Lahok Krasang in the northeastern Thailand. Lastly, in the eastern province of Trad, coastal mangrove and fishery projects are benefiting from the pioneering work of our colleague Phra Subin, who is with us today and will elaborate on the case of *Ban Pet Nai.*

Figure 2: Pa Toh Watershed, Mr. Phongsa and Tree Bank

The Pa Toh study [Figure 2] begins with the usual story of forest encroachment and destruction where outsiders or entrepreneurs were searching for agricultural land to settle on. They cleared forest land to grow cash crops and even commercial plantations like fruit orchards. The Forestry Department assigned Mr. Phongsa to oversee the forest reserve at Pa Toh. He introduced some programs there, the most interesting of which was called the “tree bank program” that provided credit to villagers when they planted trees. According to his plan the villagers would use the credit to pay off their debt with the Agriculture Bank; the Department of Forestry could then transfer some of its reforestation budget to the Bank for having increased the forest lands in the area. We see this as being an application of new knowledge that has demonstrated successful results for the time being. The last point was the new forest that was created enable the villagers to collect the non timber product as well as adding the ecological balance to the watershed that were previously destroyed.

First among the levels of applying sufficiency economy, concerning self immunity, we see that the community could establish its own rules and regulations with an agreement about how members could utilize their forest. Non-timber products could provide for their daily needs and protect them from potential threats as well. For instance, if prices were to fluctuate or there was a change in a crop price that might make it difficult to sell their product, at least they would have those non-timber products to sustain them economically. Also, raising of awareness about the importance of forest conservation is another example of promoting self immunity.

In terms of the second application level, Pa Toh villagers practiced moderation by limiting their cultivation or expanding cropped areas and hence could increase some of their forest reserve area, thereby helping to provide for a balance between agricultural activities as well as forest reserves. In terms of creation of new knowledge, the tree bank program was successful and yielded useful results.

At the third level, inspiration, Mr. Phongsa emphasized human resources development as a means of saving the forest and restoring ecological balance, by working with people and not just the forest. He operated on the concept that if the people can be “restored”, the forest will come back.

Figure 3: Chumporn Cabana and Networks

The second case is Chumporn Cabana, a modest type of resort hotel. From the photo [Figure 3], you can see that the establishment began as a regular type of hotel venture. By the turn of the century, however, it faced economic difficulties and crisis like many other businesses did. The owner, Mr. Warisorn, therefore decided to adopt business practices based on the philosophy of sufficiency economy in order to recover. Earlier he had, like other businessmen, bought most of his inputs from middlemen. Now, using the principles of sufficiency economy, he encouraged his employees to provide the hotel wherever possible with inputs that were once sourced externally, such as soap and shampoo. People began to identify Chumporn Cabana as a hotel that uses local products. Visitors could thus enhance their vacation experience by seeing and using those products. The one that the hotel was most proud of was their rice. If you dined at the hotel you would be eating a local rice variety and their own vegetables as well.

By revising his entrepreneurial focus and making locally based arrangements, Mr. Warison could

(*1) increase his employees' income,*

(2) save on his own business expenses and

(3) add his company branding to new products. Everyone's outlook improved. And beyond the advantages to the hotel and its employees, some of the workers could mobilize the community to produce organic food items for the hotel.

At the moderation and knowledge levels, we found efforts to promote forest conservation and rice cultivation that helped in saving local varieties; also, activity related to the **"3 Rs"** increased: Reduce, Reuse and Recycle within the resort. At the inspiration level we saw the change in lifestyle, as the resort became more integrated with the surrounding environment and its endowment of local resources. Thus, the company could rebound from its crisis, restore its profitability and begin aiming for long-term sustainability rather than simply short-term financial gain.

Figure 4: Ban Laem Community of the Pa Lian Watershed

Our third case is the Ban Laem community of the Pa Lian watershed. Ban Laem is located in coastal southern Thailand very near Malaysia. The community experienced a wave of new investment from outsiders that targeted their coastal resources, including mangrove areas, for shrimp farming and other commercial uses. Our team wanted to restore ecological balance in the community by introducing a sustainable agricultural model.

The Pa Lian basin covers 32,000 rai of forest area. The village had unresolved problems of common property and some conflicts among villagers as well. The mangrove forest in the basin had been destroyed and replaced by agribusinesses such as shrimp farms and oil palm plantations. The village also faced another environmental crisis regarding overfishing of the indigenous shellfish since the establishment of the shellfish factory nearby. The Yard Fon Association came to introduce sustainable agriculture in the area and rehabilitate some of the wasted resources.

Ban Laem adopted what we might call a **"partial agreement"** in terms of the application of the sufficiency economy concept. The community could establish some rules to limit the extensive fishery overexploitation. Activities were initiated to demonstrate the benefits of sustainable agriculture and introduced into the school curriculum as well. However, we have questioned within our group whether this community is still susceptible to serious threats from outsiders, problematic new investments such as a deepwater port project. We are not really sure whether the sustainable agricultural initiatives have provided enough self immunity from external economic pressures such as the increasing demand for local products.

Figure 5: Ban Lahok Krasang

The fourth community under study is the village of ***Ban Lahok Krasang*** [Figure 5] in Buriram province of northeastern Thailand. The forest resources in the community were dramatically destroyed owing to a government concession scheme for wood and charcoal production as well as illegal logging by outsiders. To tackle the deforestation, a natural resource and environmental conservation group was established at Ban Lahok Krasang. The group provides the villagers with learning opportunities from knowledge exchange with other networks and counterparts. Community participation and indigenous knowledge have been the key focus in acquiring suitable forest-management applications. Again we were seeing how learning opportunities through networking have been used as tools for rehabilitation. Nowadays the conservation group of Ban Lahok Krasang plays an important role in recovery of forest resources and indigenous knowledge at community, district as well as provincial and regional levels. The success of this community has been achieved with the leadership of Mrs. Pramuan.

Figure 6: The community rules or agreement

This image [Figure 6] shows some of the deforestation activity with the participation of the local community and a shot of the community rules or agreement. Here, if I may translate some of the lines for you, they say:

- *Entry is prohibited. Fine for violation is 10,000 baht.*
- *Hunting is prohibited in this area. Fine for violation is 5,000 baht or more.*
- *No harvesting or cutting of logs.*
- *No logging. Fine for violation is 5,000 baht.*
- *No plant species may be removed from this area.*
- *Lighting of fires in the forest is prohibited.*
- *No campfires. Fine for violation is 10,000 baht.*

When we translate all these results into our three levels of achievement towards sufficiency economy, we have another community forest agreement that provides for self immunity in terms of forest products from the new forest area to meet basic needs of the people. Thai people like to collect such products as bamboo shoots, mushrooms and small animals to eat. Regarding the comprehension level of moderation and knowledge, the community has revived some local knowledge and traditional herbal medicine that has proved useful. The limitation of farm size is also an instance of moderation, just enough for subsistence farming. Eventually, we expect to see changes in lifestyle that are physically more in keeping with the environment and also reflect community values.

Figure 7: Ban Pred Nai

The last case study is of Ban Pred Nai in Trad province of eastern Thailand, under the leadership of the Reverend Phra Subin Paneeto who will speak about his work after my presentation. The project area has abundant mangrove and marine resources. During the past 30 years people here have suffered from external investment that has converted much of the mangrove into shrimp farms. The destruction of mangrove areas has disturbed the local ecological balance and led to conflict between the villagers and the investors. One of the most respected persons in the area, Phra Subin, collaborated with the villagers to improve the quality of life through a microfinance program, among other interventions. Some of the revered monk's concepts have become famous, such as the one depicted here that translates as **"Stop catching the hundred and wait for the million in the future"** — meaning that a little bit of conservation now can provide for future prosperity.

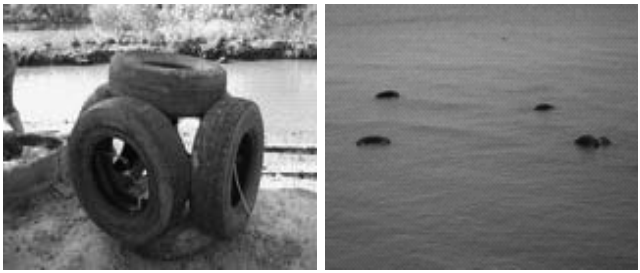


Figure 8: Tire die

Tire die [Figure 8] is one of the inventions that was introduced in the project area. The community collected used automobile tires to create artificial reefs to protect the shoreline and serve as a base for coral reef regeneration. They tied the tires together and poured some cement in between, then placed these **"tire die"** (tao yang) in selected coastal areas where they would protect the mangrove as well as provide nurseries or breeding grounds for sea creatures. The community has already seen increases in fishery stocks as a result of this intervention.

Figure 9: Community Rules

In diagramming the Ban Pred Nai activity [Figure 9], we see again that new community rules have been adopted and some extensive networking taking place with other communities as well. In addition to such measures for natural resource management, microfinancing was made available for local initiatives in mangrove conservation as well as promotion of eco-tourism. Other local initiatives include the manmade barrier of **"tire**

turtles" to prevent coastal erosion and a "tree pension" program. Instead of keeping money in the bank for retirement, community members can also grow trees for their retirement. Such innovations have begun to spread and help improve rural lifestyle, enabling them to harmonize ever more closely with nature. That hopefully would lead to long-term sustainability of their communities.

1. Partial Practices (Self-Immunity)

• Community Activities to Conserve and Rehabilitate Natural Resources.
• Community Rules for Sustainable Natural Resources Management and Utilization. (e.g. forest, fishery, water, public land)
• Human Resource Development and Networks.
• Awareness among Community Members for Environmental Conservation.

2. Comprehension (Moderation + Knowledge)

• Application of Local Knowledge and Innovation.
• Holistic approach to natural resources management. (e.g. linkage between micro finance, mangrove conservation and ecotourism)
• Recognition of Environmental Carrying Capacity and Ecological Balance. (e.g. limiting farm size to fulfill the basic needs)

3. Inspiration (Reasonableness+ Morality)

• Adapting Way of Life in Harmony with Nature (e.g. community forest, practice sustainable production model such as agro-forestry, organic farming) with less emphasis on short term gains and practice sustainable consumption.

Figure 10: summarizes our preliminary list of indicators

The last image [Figure 10] summarizes our preliminary list of indicators from the five cases we have examined that reflect how the philosophy of sufficiency economy being applied today in actual practice of natural resource management in Thailand.

Buddhist Principles Underpinning the Economy of Sufficiency

Phra Subin Paneeto
Satcha Saving Group, Wat Pai Lorm, Trad Province

The organizers and participants at this conference are to be congratulated for providing us with the opportunity to address a problem that is causing suffering to people throughout the world — a problem related to nature.

When people try to be nature's teachers, those teachers are actually trying to be better than nature; but nature won't allow that and punishes us with the problems we have caused.

Disaster comes from people seeing things in the wrong way. When they see things in the wrong way, they tend to do the wrong thing. When they do the wrong thing, they think in the wrong way. Then in turn they do the wrong thing again. With nature, we are punished when we do the wrong thing. That may summarize the disaster of resource degradation that the world is experiencing.

There is a solution for everything. When there is a cause, there is an effect; and when there is an effect, there is a solution. Can the sufficiency economy be the solution here?

In Buddhism, we try to take **"the middle path"**. The middle path is not an empty path; various components must come into play that reflect the whole situation. To be right for us, the middle path must be holistic in such a way that we first see things in the right way. Here the Buddha means that we must see the negative effects as well; if we don't, we won't permit the problem to go away. The negative effects are the harm that is being done to nature. So, if we wish to apply the Philosophy of Sufficiency Economy, we need to see things in the right way. That is the first step. If we fail to see things in the right way, we won't find the solution.

Secondly, once we see things the right way, it will be like starting a journey at sunrise. That is very different from starting to travel at sunset, when all we can see is darkness. We don't want to be moving towards something that we cannot see. If we don't try to develop the way of seeing the things right, we will find it difficult to move forward.

And how can we do that? By not doing harm to nature — including other human beings and animals — nor by going against the laws of the nature. We also need to think about helping. We should start by sharing. Since the problem concerns the forest, I use the forest as our teacher. We cannot tell the forest what to do, because we are not as good as nature. So, how can the forest be our teacher? How can it be **"Dhamma"** for us? Dhamma is nature and in this case is the forest . It can be our teacher in that, for example, trees don't argue, they don't quarrel. Trees don't fight for food. The big trees share food with smaller trees. They all rely on one another. Trees are always giving. The forest keeps our air cleaner. We have factories that produce carbon dioxide and air pollution. Consequently we have to use air conditioners, air purifiers. But trees can do the same job for us, for free. Nature is concerned that we may not have drinking water. So, nature gives us rain and the rainwater helps human beings. The trees help us to survive by holding the rainwater and preventing it from flowing away to the sea, in accordance with the laws of nature. There are all kinds of herbs on and around the trees that can be used to cure human illnesses. The trees themselves never use herbs, they just give them to us. Trees give us everything — housing, energy, medicines and many particular things. So when you work with the community you should use the example of trees as their teacher. Then the people will know what is reliable and always loyal to them.

However, we always take advantage of trees and that's why we are being punished. We try to solve our environmental problems but we are trying to destroy that which is helpful and loyal to us. And it will be difficult for us to replant them or try to compensate for what we have destroyed because we are now suffering.

When we resolve problems in the right way, we do no harm to nature. To realize moderation or the middle path, we must not harm anything in nature; and we must try to achieve harmony so that we can return the favor when nature helps us. When the forest helps us, we have to help the forest. This is thinking in the right way, so that we will do no harm to nature because all our suffering comes from destroying nature.

Poverty is a big problem for us because it leads to destruction of nature. When people don't have anything to eat they cut down trees and sell timber in order to make a living; or they can process them by some other means. First, they can sell the timber. Secondly, they can claim the land. The damage continues to spread. The problems also come from the government as well; where there are good forests, concessions are given to investors and thus we create suffering because people, the grass roots, cannot make use of the concessionary forest. So the laws eventually cause harm to the people at grass-roots level because the government did not think rightly. Those who could take care of the forest are not allowed to use it, while the concessionaires who are using the forest are not going to take care of it. So we don't know where the benefits go to. Harm is also done by the investor. The investor uses his money to buy the forest and turns the forest into food, amenities and the suffering of the people at the grass-roots level. So those people cut down trees and sell them to others to do whatever they want. They just think about how to feed themselves. All of these are inter-related components of the overall picture.

When I started working at Ban Pred Nai people asked me why I was investing a program and budget in this community. I told them that I would not answer the question but would instead ask whether the people at this community had sacrificed much, in dedicating themselves to reforestation work. What did the program donors think about it? The community was not seeking any compensation, nor any wages. At night they had to sleep with a gun at their sides because they were afraid of being killed by vengeful capitalists. All they were asking for was some financing in order to preserve the mangrove forests. To me, the people at Pred Nai were able to conserve tens of thousands of rai of mangroves for the benefit of not only their own

community but for for a vast number of others as well. They were not going to keep clean air for themselves, nor the rainfall and water sources and new breeding grounds for aquatic animals. Their work would lead to food production. We popularized the saying “Stop catching 100, wait for a million” that refers to local crabs’ eggs. During the brief period, 3 days or so, when the crabs were laying their eggs, people should stop catching them to let millions of new eggs be produced. For each crab caught during that time, we would lose 1 million eggs. In this aquatic habitat, all we need to do is let nature take its course, and eventually the crabs will feed large numbers of people. The people at Pred Nai saw the right way to do things and followed through with right action.

People in that community were suffering from bankruptcy when they were engaged in shrimp farming. They were poor and indebted to their investors. So we talked to them about financing, about how those with some money could use it to help others to get rid of debts owed to outsiders. At that time, the total community debt was about 22 million baht. They were working to feed their creditors. That goes against both the sufficiency economy and the middle path. So I suggested to the community, what if we were a family of siblings, with one rich brother who put his money in the bank at 7% interest. If a younger brother needed capital, he would have to borrow from the bank and pay a higher interest rate than his older brother was receiving. But if the big brother became sick, he would rely on the younger one to take care of him. That too would not reflect the principles of sufficiency economy. The community needed instead to help one another. So we put our money together and used the profits to help one another. Just like the trees — the trees have leaves and fruits and feed themselves; they are self-sufficient, self-reliant. The community needed to become self-reliant in order to achieve the balances and health of sufficiency economy.

In order to live together in the world we have to form a society that is compassionate and share with each other instead of taking advantage. Such an effort is called moderation or right perseverance, right effort. If people are trying to think of being compassionate toward others and sharing, others will not be able to persuade them to do otherwise. If other people ask us to destroy something, we would not do so because that would be against our ideology. That is right determination, a Dhamma principle that characterizes sufficiency economy.

To be clear about sufficiency economy, although it is called a philosophy, I prefer to call it a form of practice, a way of life, something that we

should do. In order to use it to solve the problems of the world, we have to begin by solving our own problems. Once we have been able to solve our own problems, we can solve problems for others. If we cannot solve our own problems, it is difficult to solve problems of others. In Buddhism we must begin with the self. We must study ourselves until we understand ourselves. That will enable us to survive. In order to understand anything, we have to begin with understanding ourselves. We collect information and then we can understand what constitutes sufficiency with regard to our economy. How much do we receive? How much do we spend? and so on. That will lead to macro economics. Everyone should say what he or she has, doesn't have, wants or has beyond the capacity to consume. We must know and understand the data — just like doctors, if they don't know the symptoms of the patient, they cannot provide the right medication. In order to understand the symptoms we have to begin with ourselves. We apply the principle: the principle of Buddhism is to see the right thing. Look at ourself first. Don't blame others. We have to begin with ourself. And when we say the right thing and ask others to say the right thing as well, everything can start on the right track. Gradually it comes right, bit by bit.

So, here is a summary of the sufficiency economy as offered by His Majesty the King. We cannot look at it just from a theoretical viewpoint; we have to be realistic and practical. We have to measure what's in our heart, our mind. Do we have enough or not?

4

Conceptualizing Oriental Wisdom Model in Environmental and Natural Resource Management

Conceptualizing Oriental Wisdom Model in Environmental and Natural Resource Management

GSEI held an international workshop in Bangkok on conceptualizing "Oriental Wisdom: Alternative Pathways towards Environmental and Natural Resource Management" from 10 to 11 April 2008. The workshop developed a model of core values that are common among Asian societies at a brainstorming session on "Synergies: Mutual Concepts and Indicators of Alternative Pathways for Sustainable Development in Environmental and Natural Resource Management". Discussions focused on the complementary aspects of six different concepts within the common value system:

(1) "Alternative Development" (presented by India);
(2) "Community Development" (Bangladesh);
(3) "Circular Economy" (China);
(4) "The 3Rs: Reduce–Reuse–Recycle" (Japan);
(5) "Gross National Happiness" ("GNH"; Bhutan); and
(6) "Sufficiency Economy Philosophy" (Thailand).

Through exchange of knowledge, experience, new ideas and recommendations, the participants arrived at the primary core value that they held in common, that of contentment with existing in harmony with nature. How to achieve that state of contentment, through community commitment to harmonious co-existence with nature, were perceived as the key in conceptualizing oriental wisdom.

The workshop created a graphic model *(see accompanying figure)* to illustrate their complementary beliefs. The model resembles a house comprised of (A) foundation, (B) supporting pillars and (C) roof. Each component represents a specific dimension of oriental wisdom as it is applied in managing natural resources and the environment.

(A) The foundation is the base for every building or structure. The concept of oriental wisdom likewise needs a solid basis in order to establish a firm line of thinking about managing natural resources and the environment. Development planning that is based on spiritual values and morality offers the opportunity to view natural resources and the environment in constructive new ways; that is, to

(1) perceive what surrounds us rather than focusing only on ourselves;

(2) learn from nature how to conserve what we value in the environment, how to interact with nature on a sustainable basis; and

(3) achieve harmony among ourselves as well as between humanity and nature.

During the presentation of experience from different countries, the consensus held that **"spiritual values"** and **"morality"** are the basis for the major changes that affect the management of natural resources and environment, such as changes in individual behavior, changes in production processes, changes in thinking and lifestyle. Control of personal greed for material wealth and power is essential in establishing the right kind of social system. Such changes can trigger improvements in community life, including peace and security, and help bring about sustainability in our use of natural resources and the environment.

(B) Pillars support the roof and connect the foundation with the roof.

In the graphic model, pillars are instrumental in linking the concept with its objectives for development. In the context of oriental wisdom, there are three types of pillars, as follow.

Pillar 1: Knowledge with appropriate technology. In the **"globalized"** world of today, knowledge and technology are dominating influences in

everything we do. Through the lens of oriental wisdom, however, knowledge and technology can be adapted so that they positively influence progress in achieving objectives in specific places and situations. Such practical adaptations include

*(1) appropriate technology that can facilitate access to **"local wisdom"** in solving problems arising from issues of globalization; and*

*(2) eco-friendly technology that does not negatively impact natural resources and the environment. The watchword here is **"think globally, act locally",** or **"GLOCAL".** Oriental wisdom in the context of knowledge and technology encourages approaches to problems that combine a global perspective with local wisdom.*

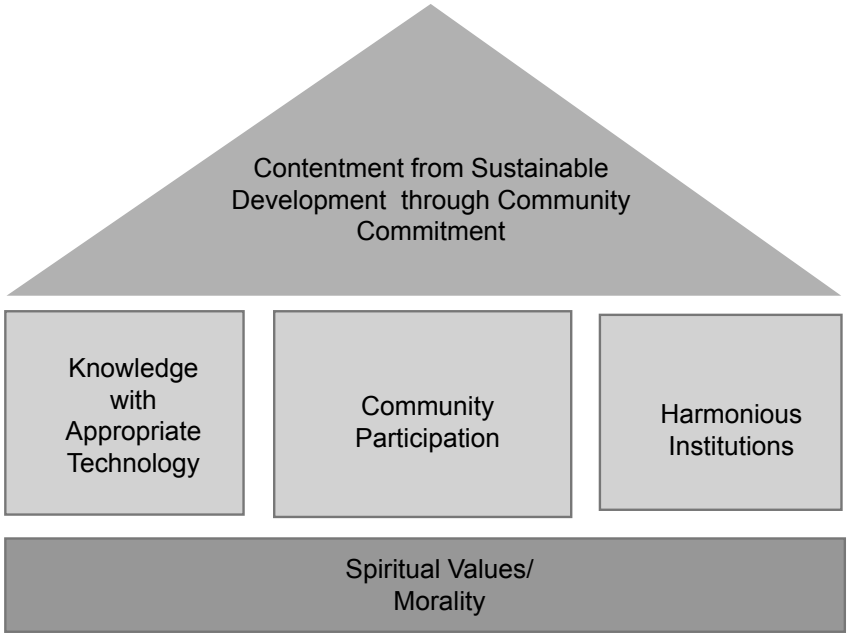
Pillar 2: Community participation. Nowadays, social and economic development in most countries has become **"people-oriented".** Natural resource and environmental management with community participation creates public awareness and community empowerment that can reinforce the goals of sustainable management. The process involves networking as well as learning for communities. Experience from India, Bangladesh and Thailand demonstrates that development requires community participation. Moreover, communities need to decide how to manage their own resources. They must understand the limitations to their consumption of resources. The perspective of oriental wisdom can help communities to find methods for improving their use of resources that steer them toward sustainability.

Pillar 3: Harmonious institutions. Conflicts and problems are often experienced at different levels of managing natural resources and the environment. Most societies have tools available to promote harmony in such situations. In the Western world, the "law" is the tool of choice, while Eastern societies employ "morality" in ensuring unity and peace. Besides law and morality, the concept of oriental wisdom includes the sharing of commitment to attain harmony in society, through institutions that promote harmony. Such a combination should lead to unity and bring peace into the society.

(C) The roof is like the objective of the total effort to develop the basic concept. The objective of conceptualizing oriental wisdom goes beyond the

objective of sustainable development in general. The essence of oriental wisdom is the achievement of **"contentment"** — in this case, contentment from sustainable development achieved through community commitment. A society can be content with its state of development when it is committed to sustainability and can improve its socio-economic conditions without spoiling its natural resource base.

Oriental Wisdom Model in Environmental and Natural Resource Management Core Values for Attaining Sustainable Development with Contentment



Source: The graphic model summarized from recommendations in the international Workshop entitled **"Oriental Wisdom: Alternative Pathways for Environmental and Natural Resource Management".** The workshop was hosted by Good Governance for Social Development and the Environment Institute (GSEI) on April 10-11, 2008-Bangkok, Thailand.

5

Summary of Alliance Workshop: Living with Nature through Oriental Wisdom for our Common Future

7 October 2008, Room 133,
The 4th IUCN World Conservation Congress
5-14 October 2008, Barcelona, Spain

Summary of Alliance Workshop: Living with Nature through Oriental Wisdom for our Common Future

7 October 2008, Room 133, The 4th IUCN World Conservation Congress 5-14 October 2008, Barcelona, Spain

The international alliance workshop entitled “Living with nature through oriental wisdom for our common future” which took place on October 7, 2008 at the 4th IUCN World Congress in Barcelona was coordinated by GSEI Thailand with the support of Thailand International Development Cooperation Agency (TICA) and Thailand Research Fund (TRF). To continue the exploration on oriental wisdom as a basis for alternative pathways towards environmental and natural management, the alliance workshop had put in place central questions about the urgency of transition to an alternative paradigm and the ways in which oriental wisdom can offer solutions and contribution to global climate change and sustainability dialogue.

At the heart of the IUCN World Conservation Congress lies the fundamental question: Is the transition to sustainability possible without a change of paradigm of development? Many are in agreement that the dominant growth-led worldview has created great damage to the eco-system and the conflicting relationships between human and the natural environment. Many have indeed been awakened to the fact that development based on growth without limits has begun to send troubling signals, but they also found themselves struggling with the same question of how to actually make a transition toward a world of sustainability. Embracing a sustainable paradigm requires not only a thorough understanding about the relationship between knowledge of different kinds, but also an

appreciation of how these different kinds of knowledge can contribute to peaceful and harmonious coexistence between human and the natural world. Inspiration for this transition must also be sought from various wisdom traditions or spiritual knowledge and naturally perhaps, some traditions are more in tune with the imperatives of nature than the others.

The Alliance Workshop began with an introductory speech by Thanphuying Dr. Suthawan Sathirathai, Chairwoman of Good Governance for Social Development and the Environment Foundation (GSEI) Thailand. While calling for multiple levels of change was what most people would find most realistic and relevant at a gathering such as IUCN, Thanphuying Dr. Suthawan underscored the fact that change in the lifestyles and the mindsets of individuals were necessary to pave ways for a commitment to sustainable production, consumption and technological/ appropriate innovation. Recognizing the need to respond to the environmental threats posed by global climate change with a direct and devastating impact on the humanity regardless of nationalities or political boundaries, GSEI Thailand had harnessed energy in search for alternative development approaches by initiating a regional workshop to enhance dialogues among six countries in the Asia-Pacific region, namely Japan, Thailand, India, China, Bhutan and Bangladesh. Based on the premise that Oriental Wisdom serves as the bedrock of alternative development models, the meeting was convened in April 2008 in Bangkok with the theme **"Oriental Wisdom: Alternative Pathways towards Environmental and Natural Resource Management" .**

Thanphuying Dr. Suthawan's remarks pointed to the crucial step taken by representatives from these countries in sharing not only practical experiences in dealing with environmental challenges, but also in exploring potential sources of wisdom and solutions to the global ecological problems based on the shared belief in the value of compassion and a harmonious coexistence between humanity and nature. Six different concepts under the umbrella of Oriental Wisdom were presented: (1) "Alternative Development" (India); (2) "Community Development" (Bangladesh); (3) "Circular Economy" (China); (4) "The 3Rs: Reduce–Reuse–Recycle" (Japan); (5) "Gross National Happiness" ("GNH"; Bhutan); and (6) "Sufficiency Economy Philosophy" bestowed by the King of Thailand. As a result of the workshop, a synthesis of ideas led to the construction of an alternative development model in which all six concepts are encapsulated, illustrating complementary beliefs. The foundation, "A", is the process of solidifying our thinking through the establishment of higher moral grounds such as thinking more about public benefits, harmoniously interacting with nature, and living and learning from

nature. The pillars, “B”, support the roof by representing the following ideas: (1) adaptation of knowledge and appropriate technology (2) community participation (3) creation of harmonious institutions at all societal levels. Lastly, the roof, “C”, represents the commitment to create contentment: a society can be content with its state of development only when it is committed to sustainability and when it can improve its socio-economic conditions without depleting its natural resource base.

Thanphuying Dr. Suthawan ended by stating the aims of the 4th IUCN Alliance Workshop in exploring further alternative development models based on the Asian experience and additionally enriching debates on solutions to environmental challenges amidst globalization. She expressed her hope for the workshop in serving as a venue whereby thoughts on practical ways of using these models in national development policymaking could be identified and that an international network and collaborative action on environmental issues could be continually nurtured.

The Alliance Workshop at the 4th IUCN World Congress featured the work of practitioners and thinkers of sustainability livelihoods from three different cultural backgrounds namely: Dr. Ashok Khola, President of the Club of Rome, and Development Alternative Group, India, Mr. Abdul Muyeed Chowdhury, the Executive Director of the Bangladesh Rural Advancement Committee (BRAC); and Professor Dr. Apichai Puntasen, Dean of the Faculty of Management Science, Ubonratchatani University Thailand. The workshop was moderated by Associate Professor Surichai Wankeao who is the director of the Social Research Institute, Chulalongkorn University.

The first speaker of the workshop was Mr. Abdul Muyeed Chowdhury.

Mr. Chowdhury stressed from the outset that environmental problems and the unsustainable use of natural resources could not be fully analyzed without the concerns for poverty alleviation. Bangladesh is a densely populated country with rapid population growth. As a result, there is a tremendous pressure on the existence of natural resources, especially on land use. The people of Bangladesh have experienced repeated cycles of natural disasters due to global climate change. During the past decade, severe floods have posed obstacles to agricultural production. Yet, the country’s economy grows steadily at 5-6 percent annually, and thanks to the efforts of the people and the local wisdom, forest areas in Bangladesh are on the increase.

Mr. Chowhury then shed some light on development activities of BRAC in its efforts to alleviate poverty which includes providing income opportunities via loans. Micro-finance and job training are combined so as to assist people in learning how to produce and become self- reliant. Social business approach of BRAC focuses on production for local market consumption to ensure that profits go back to local producers. Mr. Chowdhury added that Bangladesh has a robust third sector with NGOs playing a vital role in rural development activities based on community participation.

Mr. Chowdhury concluded that the search for solutions for global environmental problems could not be done without exploring alternative development frameworks particularly the richness of local wisdom, with the conceptions of human security and sustainable livelihoods at the center of the endeavor.

Dr. Ashok Khosla, the second speaker began with a note that we all were aware that the world was in big trouble and that we faced many problems ranging from species extinction, to energy and ecological crises. The production and consumption of goods posed tremendous threats to the world natural resources. Yet somehow the awareness of knowledge of trouble and the actual operation of our production system seemed to be divorced from each other and wondered if the mind-body dualism dated back to the work of Rene Descartes had contributed to the challenge we now faced.

In terms of finding solutions to environmental problems, while Dr. Khola did not negate the role of spiritual knowledge, he found it difficult to conclude that there is more wisdom to help the world in the orient than anywhere else. In his view, all religions teach people how to live with nature, but some wisdom traditions might be more in tune with the imperatives of nature and ecological sustainability than the others. The key question for him therefore should be how humans in different natural environments work within the limits of nature and this varies from case to case.

Dr. Ashok Khosla cited an example of a study on bio-diversity conducted by an anthropologist on the subject of “sacred growth” in India. The study found that the survival of one particular kind of tree was a consequence of a belief in the sacredness of the tree which had prevented people from cutting them down. Understanding bio-diversity issue in this instance required cultural

knowledge--the connection between wisdom and the ways humans devised ways to live within sustainability principles. Dr. Khosla concluded with a note that it was important that we continue to ask "What constitutes a good life? He maintained that not until we recognize the existence of one central force—that the world is in one planet—it is difficult to talk about sustainability.

The third speaker, Professor Dr. Apichai Puntasen began by stating that the problem of climate change cannot be solved via existing development paradigm as he believed it was the root cause of the problem. Dr. Apichai proposed that changing the meaning of happiness from acquisition of materials to giving or sharing the surplus to the needy ones was most important. This meant that we must reexamine Buddhist principle of the middle path. His Majesty King Bhumibol Adulyadej's Sufficiency economy philosophy draws from this central tenet of Buddhism, for the word sufficiency itself means moderation. He further explained three key principles—moderation, reasonableness, preparedness for self immunity and two conditional ties—wisdom and moral integrity, and all are interrelated. However, one can also classify the degree of application sufficiency economy into three levels: partial practice, comprehension and inspiration. Partial practice includes efforts taken by anyone to develop techniques and rules in resource management and utilization. Awareness of self- immunity is the basis of action. Comprehension reflects the ability to understand central principles of sufficiency economy--moderation and knowledge. The application of local wisdom and innovation is based on the knowledge about carrying capacity of the environment and ecological balance. Inspiration encompasses an in-depth understanding of additional elements of sufficiency economy namely 'reasonableness' and **'morality'.** Realizing the rules of nature is a driving force for people to adapt and design ways to live in harmony with nature, placing less emphasis on the short term gains from natural resources.

Case studies were presented to illustrate different levels of sufficiency economy application and practice in different parts of Thailand. Chumporn Cabana is a tourist resort located in Chumporn province in the Southern Thailand where the management team purposely applies sufficiency economy philosophy. With the ability to view (financial) loss as (social) gain, the primary motivation in doing business centers around the value of happiness based on giving. The resort has become more than a workplace for staff who are local community members, but a place where all staff work with dignity and in harmony with their natural environment. The resort practices organic agriculture for its own use and to minimize damages on the environment. The case of Ban Pred Nai, a community in the Eastern province of Trad, was illustrated as another example of a community practicing sufficiency

economy. This case highlights the work of the Venerable Subin Paneeto who has successfully challenged and motivated the villagers of Ban Pred Nai to take action to save mangroves and simultaneously strengthen the people's awareness on natural conservation. One other notable community development activity in this community includes the establishment of savings group which does not only provide income security but also enhance the spirit of mutual assistance among community members based on principles of honesty and integrity.

Dr. Apichai concluded that at the present time, key sufficiency economy principles--wisdom, ethical integrity, moderation, reasonableness and self-immunity--are encouraged in the Thai context in all conducts from matters of livelihood to policy decisions and has now been adopted as philosophical framework for national development plan of Thailand.

At the end of all presentations, opinions and questions from the floor were diversely expressed. One participant expressed his concerns about one form of violence in the way of thinking. To him mainstream agricultural production is encouraged in many countries leading to the practice of export-oriented mono-cropping in agriculture. Thus, there is a need to stop cooperating with this violent system. One participant from Thailand expressed the need to begin teaching our youth early about sufficiency economy. The comment was subsequently responded by Dr. Apichai who elaborated that sufficiency economy curriculum has now been developed for children from primary up to secondary education. Courses related to sufficiency economy are now offered in many universities in Thailand. Ubonratchathani University's Faculty of Management Science along with a few other universities has moved further to offer a bachelor's degree in sufficiency economy.

One participant from the United Stated was impressed to find that there was only one workshop in the conference that the issue of ethical integrity was raised as part of the solution for change as she felt that ethical integrity was fundamental to the change process in the context. Dr. Apichai further shared his views by saying that all subjects wanted to be "scientific" while the original conception of the word science is based on physics --a study of matter and energy. Ethics-- the subject of mind-- has thus been excluded from science. He note that although the mind is the combination of matter and energy, it has it own unique property and mind-based science is another kind of science. The most difficult part of this mind-based science which can-

not be clearly understood by physics involves the fact that different levels of mind lead one to see different kinds of truth. Yet, mind-based science can be proven scientific as people with the same level of mind development are able to demonstrate that they have a mutual understanding of **"truth".** Ethical integrity is part of a certain level of the development of the mind.

Offering yet another element of spiritual wisdom, Mr. Chowdhury touched upon the teaching of Islam, especially on contentment as guidelines and knowledge in using natural resource responsibly and fairly, entailing living in peace and harmony with nature. Others expressed concerns and offered their views about how meaningful and effective changes should be materialized and how innovations underpinned by oriental wisdom could become part of the rejuvenating movement to enhance the transition, as sustainability paradigm is gaining its rigor. In light of destructive acts that are forced upon the earth's resources and humanity alike, many came to an agreement that engaging in critical re-evaluation of the present production and consumption systems must also come with the courage to resist injustice and structural violence. Last but not least, how this shared commitment to carve out alternative paradigm of sustainable livelihood is translated and put into practice remains our common collective task.

Through exchange of knowledge,
experience, new ideas
and recommendations, the participants arrived
at the primary core value that they held in common,
that of contentment with existing in
harmony with nature. How to achieve that state of
contentment, through community commitment to
harmonious co-existence with nature, were perceived
as the key in conceptualizing
oriental wisdom.

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