

## ENVIRONMENTAL ECONOMICS

### ATTITUDE IS EVERYTHING

For development to be sustainable it must not only take care of the environment and ecosystems, but also must solve societal needs, especially poverty, treating communities and individuals equitably, whilst at the same time providing a satisfactory return on money invested by the developer. Environmental protection, social justice, and economic prosperity must all be attained to realise the goal of sustainable development.

Attitudes to each of these components of sustainable development are shaped by underlying personal and cultural values and norms. In turn, attitudes govern our concerns, desires, ambitions, and hence the actions we are willing to take with regard to the three primary components that determine whether sustainable development is possible or not.

### ***Attitudes to the Environment***

Four fundamental attitudes to the environment have been characterised. They are:

- **Utilitarian** – The environment and ecosystems exist to be exploited for the economic benefit of humankind. Left in their place, the various 'pieces' that make up the environment (soil, water, plants, animals, minerals) have no intrinsic value until they are harvested or mined and converted to products for human use.
- **Ecological** – The environment and ecosystems must be preserved

because they provide the means of life-support on earth.

- **Aesthetic** – The environment has value as a source of beauty and for its intangible psychological, spiritual, and restorative benefits to humans.
- **Moral** – The environment and ecosystems are home to living creatures and organisms, all of which have a right to be there. The duty of humans is to respect and protect all living things and their habitats. Schumacher (1973) called this attitude 'reverential ecology'.

It is evident that each of these attitudes will give rise to quite different human behaviours toward the environment, ranging from an extreme of free-wheeling, 'winner-takes-all' exploitation by the Utilitarian to absolute reverence for creation by a Moralist.

A sustainable developer probably needs to adopt some aspects of all four of the above attitudes.

### ***Attitudes of Traditional Economists***

Economics is the science of the production and distribution of wealth. As a science, economics is concerned about the most efficient allocation of resources given the existing distribution of assets (i.e., money, property) among people. Economics is concerned only whether an endeavour yields a money profit specifically to those who undertake it, not to society as a whole.

The price of a product is determined by the pressure of demand for the product, its availability, and the ability of potential consumers to pay. Product price is not automatically related to its true value to society. If this was so, basic, essential commodities, such as clean water and air would have a much higher price than, for example, diamonds or gold. Economics does not take into account personal or community values or ethics, because as a science, it is independent of these.

Most traditional economists have a Utilitarian attitude to the environment, believing that natural resources have no intrinsic value unless they can be procured and converted into saleable goods. The natural environment and ecosystems are considered as free goods to be exploited. Natural capital – the residue of accumulated natural resources at any given time – is not assigned an economic value. As a result, ecosystems subsidise human economics, and especially those who profit from any development that does not fully compensate for nature's contributions.

It is well to remember that humans do not actually produce anything; they merely convert nature's primary products into other forms of goods. Humans are macro-consumers, using large amounts of high-grade energy, initially converted from the environment by nature, in the form of plants, animals, minerals, and water.

### **Externalised Costs**

Because capitalist economics is about making money, it is in the interest of economists to minimise the costs of extracting and converting natural resources while maximising the

selling price of the product or service. A mechanism that is used universally to achieve this end is to 'externalise' as much of the cost of resource recovery and manufacture as possible, i.e., to pass on as much as possible of these costs to others – government, communities, individuals, future generations.

This narrow perspective is reflected in the discounting of costs that a development will incur for many years into the future, by selecting a relatively short period of accountability. For example, when costing a dam project that causes displacement of communities, economists may account only for the initial resettlement costs, and assume that all will be well. In reality, problems associated with dam 'oustees' (i.e., those people who must move because of dam construction or reservoir flooding) can last well into the next generation after resettlement. The costs of their impoverishment and the consequences of their poor living standards are ultimately borne by the country's government, local communities, and general society, not the dam's proponents.

Other typical examples of externalised costs are:

- When fertilizers and pesticides are used in intensive agriculture, neither the companies selling the chemicals, nor those who sell the resulting food products take responsibility for the costs of damage to: fisheries and public health caused by contaminated run-off water; groundwater pollution; ill-health of farmers, applicators, and by-standers poisoned by the chemicals; illness of people consuming pesticide-contaminated food; loss of long-term soil fertility;

or pollinators lost because of pesticide toxicity. The chemical producers externalise these costs, leaving them for others to bear.

- External costs of untreated wastewater discharge by a factory into a river may include contamination, morbidity or mortality of fish in the area; contamination of drinking water for downstream communities; and interference with recreational uses of the river, all of which have to be borne by others.
- When a logging company removes only the highest quality logs, but destroys the remaining timber and other forest resources while getting access to them, it is externalising the costs of all the lost resources, such as other wood products, medicinal and food plants, animals, water resources, soil fertility, shelter, aesthetic values, and the potential for tourism. Even when a forest is clear-cut and all merchantable timber is removed, the other resources become collateral damage, and are lost to society. Their lost value becomes a cost to local communities and the country.

Externalising many of the true costs of development distorts the cost-benefit picture, and makes a development look more attractive than it really is. This attitude has been a massive blind spot in the traditional application of economic principles. It is a symptom of narrow, non-systemic thinking.

Economic practices tend to take a short-term view of matters, overlooking potential long-term effects of resource use, trusting that free-market

economics will respond to any future shortages in raw material supply by finding other sources or replacement materials. Traditional economists proclaim that humans have always found new reserves of natural resources, such as oil, minerals, coal, and timber when we needed to, so there is no need to worry about catastrophic shortages in the future.

Another economics perspective is that it is not this generation's responsibility to care for all succeeding generations. The attitude holds that those who come after us will be quite capable of taking care of themselves, and in any case, we cannot presume to know what will be important to them, so why bother conserving scarce resources now? A related economic opinion is that the Precautionary Principle is far too cautious and costly an option for now. For example, why spend large sums of money to slow global warming when it has not yet been proved that the phenomenon is real. Far better to wait until good scientific evidence exists for such a calamitous event. If, some day, proof is obtained, by that time science and technology will be more advanced and better able to find cost-effective solutions.

Capitalist economists assert that the best way to combat poverty is to expand the economic base of a country, and wealth will trickle down to the poor as all members of society become richer. In this way, environmental problems will also be solved, because poor people will no longer have to scavenge destructively. Sanitation, health, education, and social standards will be raised simultaneously with the spread of wealth. Evidence of the flaws in this argument can be found in each Mekong River Basin (MRB) riparian

country; clearly, not everybody gains from increased prosperity under traditional economics.

### ***Consequences of Traditional Economics***

Traditional economic principles and their application have resulted in widespread depletion of natural resources in the MRB, resulting in a reduction of the natural capital available to present and future generations. The short-sighted attitudes of conventional economic philosophies lead to an emphasis on minimising the current cost of resource extraction without regard for long-term conservation.

On a global and a local scale, economic development has tended to reward those who are already privileged with yet more wealth, while the poor are left to pay an unfair proportion of the costs. Underlying these economic attitudes are human frailties – greed, fear, and the lust for power.

### ***Attitudes of Poor People***

This section is not intended as a judgement on the attitudes of poor people, but as a presentation of some facts. Poverty is a condition of powerlessness. Poor people act out of their dire need for basic daily survival; and those who are not also poor have no right to judge the actions of the poor as good or bad.

### ***Maslow's Hierarchy of Needs***

Abraham Maslow, an American psychologist, developed an analysis of human behaviour and motivation based on an assessment of deficiency and growth needs. He created a hierarchy of needs that helps to explain why we

behave in certain ways when faced with different life situations. The lowest need in the hierarchy must be satisfied before an individual can move up to the next level. Deficiency needs are the most significant, in that they concern everyone. Growth needs are the privilege of a rather small proportion of the world's population.

For very poor people, basic survival and safety are all that matters. They must find enough food and water to live from one day to the next, and whatever shelter they can to protect them from animals and the weather. Nothing else in their lives receives their attention until these needs are met, and everything they do is motivated by these goals: first survival and then safety. Conservation of the environment or concern for ecosystem health is not part of the consciousness of poor people – these are higher order growth needs that cannot be accessed by anyone on the edge of survival.

Many societies, while still poor, have achieved a sufficient level of nourishment and security that the next two needs in the hierarchy can be aspired to – a sense of belonging to, and acceptance and respect from, the local community. It is possible that at this level of development, concern for the environment and ecosystems may be recognised as practical measures to ensure continued survival, health, and well-being.

Satisfaction of growth needs is reserved as the luxury of more wealthy communities, in which attention to the aesthetic and recreational benefits of conserving nature becomes possible, though not inevitable. Those who choose to follow a religious calling may also seek the higher levels of need, though even for them, it is usually not

until the basic deficiency needs have been satisfied.

### ***Theories of Limitation***

#### ***Malthusian Principle***

As the world population, including that of the MRB, expands, pressure increases on the environment's natural resources for food and shelter. Thomas Malthus, in 1798, identified population growth as a threat to human survival because of eventual limits to the availability of land, water, and food. More recently, poverty has been correlated with higher birth rates; lower education; poorer sanitation, nutrition, and health; and higher mortality. All of these are connected. Thus, relieving poverty is essential if future increases in population are to be contained.

#### ***Tragedy of the Commons***

When resources are held communally or by a distant 'hidden hand' such as government, according to Hardin's 'Tragedy of the Commons' theory it is natural for each person to act in self-interest and try to maximise their share of the yield from the resource, because the cost is shared by the whole community, whereas the gain is exclusively the individual's. As the population of users increases, so does the risk of over-using the available resources. Hardin's thesis implies that users of a shared resource are incapable of working together for a goal of sustainable development.

Poor people, by definition, do not own land or property and must occupy and work on land that is owned by others or which has no defined ownership. Given the combined survival imperatives of Maslow's Hierarchy of Needs and Hardin's

Tragedy of the Commons, it is natural to expect that such resources will be used to the fullest extent possible. Since they have no assurance that the land will be available to them in the future, there is no incentive for poor people to treat the resources as assets, and to preserve or care for them.

### ***Summary of Conventional Economics Effects***

What are we to make of the gloomy picture painted above? It appears that basic human nature as reflected in traditional economic theories, and 'the way things are' will conspire to defeat any possibility of sustainable development. Indeed this is probably the truth. Unless we find a different paradigm, one that transforms social and economic systems, deals with poverty and its attendant problems of birth rate, illiteracy, disease, and low life-expectancy, and leads to equitable, just solutions, development will most likely continue to benefit the few at the expense of the many.

## **ALTERNATIVES TO CONVENTIONAL ECONOMICS**

Following are a few options which may form a basis for alternative applications of economic theories that would nourish an ethos of sustainable development.

1. As in Agenda 21 and the Mekong River Commission's stated environment principles, PEOPLE must be the main focus of attention – especially their health and welfare, education, economic, and societal needs.
2. Instead of mega-projects, implement technology at a scale that is appropriate to local needs

and skills, so those who are required to pay the price reap the benefits. Schumacher (1973) described this as 'technology with a human face', because it provides a work environment that preserves human dignity and self-worth whilst improving productivity. In contrast, high technology and large-scale development exclude poor people because they do not have the right kinds of knowledge to work in it. The result is often high unemployment, mass migration to already overcrowded cities, rural decay, and social disorder.

3. Conserve natural resources for their economic and their inherent values, recognising that ecosystems:
  - produce and convert elemental resources into a multitude of valuable products for human use – food and drink, medicines, shelter, raw materials for manufacture and construction, clothing, art, and much more;
  - purify air and water more efficiently and on a larger scale than human systems;
  - in the form of wetlands perform flood control and water purification services, are nurseries for many species of aquatic and terrestrial life, and home or temporary residence for vast numbers of birds;
  - can regenerate and renew themselves if allowed time and space;
  - modulate climate (e.g., forests are a free source of air conditioning);

- provide spiritual, aesthetic, and recreational benefits for local people and visitors;
  - are home to all living species on earth.
4. Strive for a balance between centralised and local control of resources to preserve community rights and the common good.
  5. Develop the means to transfer land ownership, lease, rental, or harvesting rights to local people, with precautions to ensure equitable distribution.
  6. Implement full-cost accounting of development projects, including externalities, and life-cycle costing for resource use and manufactured goods.

### **Capital Assets**

Traditional economics recognises only financial capital, which is the sum total of wealth in the form of money, property, equipment, and other possessions that have been accumulated by an individual, community, association, organization, company, country, etc. For sustainable development to succeed, a new economic tally is needed which acknowledges other forms of capital such as:

- ✓ **Natural capital** – Environmental resources, such as forests, water, air, land, fish, and minerals, each of which have intrinsic value as well as providing products needed for human survival and well-being.
- ✓ **Social capital** – Relationships of trust and cooperation that result in membership in formal and informal groups, and networks that enable people to work together and obtain

access to, and influence in, institutions and services. Formal law (legislated and religious) and informal law (customs, cultural values and norms) are also forms of social capital.

- ✓ **Human capital** – The combination of skills, knowledge, beliefs, attitudes, ability to work, and good health that enable people to earn a living and contribute to society.
- ✓ **Physical capital** – Basic infrastructure and products needed for a productive life, such as affordable transportation, water, sanitation, shelter, energy, and other services.
- ✓ **Financial capital** – Property and land ownership, wages, savings, credit, subsidies, loans, grants, investments.

To achieve truly sustainable development, all these forms of capital will have to be included in plans and results that are monitored and measured.

### ***Buddhist Principles Regarding Environment***

The underlying principles of sustainable development appear to be quite consistent with practical Buddhist beliefs in the MRB riparian countries. Buddhist philosophy respects the rhythms of nature, the sanctity and interdependence of all living things, the oneness of humans with nature, and their responsibility to live in harmony, with an attitude of non-violence and gratitude to all living things. Buddhist philosophy recognises that the natural environment provides life-supporting systems that must be nurtured and cared for, in contrast to the dominant historical Western attitude that confers

on humans the illusion of power and dominion over nature. This latter belief system has encouraged destruction of ecosystems and attempts to control rather than work within natural processes.

Buddhist economics values growth only to a point of sufficiency, wherein each person aspires to an optimum consumption of resources, in contrast to traditional economics, which strives for maximum consumptive patterns. Buddhist philosophy values conservation, reduction, re-use, and recycling of materials so that nature is revered, not exploited or violated. All this is in pursuit of 'right livelihood', which would surely be a suitable axiom for sustainable development.

In summary, the Buddhist ethic is consistent with the principles of sustainable development.

### **MEASURING PROGRESS TOWARDS SUSTAINABLE DEVELOPMENT**

Several indexes of sustainable development have been devised by various agencies. Two that will be summarised here are the United Nations Development Program (UNDP) Human Development Index (HDI), and the International Union for the Conservation of Nature and Natural Resources (IUCN) Barometer of Sustainability. Both indexes reject the customary measure of prosperity using the gross domestic product (GDP), which, being based on traditional economics, focuses exclusively on material wealth. GDP omits consideration of externalities and the issue of whether wealth is distributed equitably, or if wealth is generated from essential or useful goods or mere trinkets. No consideration is given

either in the GDP to the 'care economy' – the unpaid work of caring for the old, the sick, and children, community service, and food grown for a family's own consumption. The United Nations estimates that this 'free' economy contributes US\$16 trillion per year.

### ***UNDP Human Development Index***

This index, which is becoming widely used and reported, emphasises human well-being as the goal of development, placing people as the focus of economic and political change. Three principle criteria are measured, each of which incorporates several elements of measurement. The criteria are life expectancy, education, and income. By including considerations other than financial measures, the index attempts to assess overall quality of life, not just the average standard of living in a country, which is purportedly captured in the GDP figure. Ratings for all HDI criteria are combined to give a single number, which is used to rank the country's level of development.

The first criterion, life expectancy, is an indicator of a population's overall nutrition, health, and well-being. As a country's living conditions improve, so does the average life-span of its inhabitants. One consequence of extended healthy living is that people have more time to reach goals for personal improvement and achievement – they are able to become fuller contributors to their family and society, enabling them to prosper.

The next criterion in the HDI is education and knowledge, which is measured by the number of years of schooling and the level of adult literacy in a population. These are indicators of the potential for people to achieve their full personal growth as human beings.

A country has the potential to improve as the education and knowledge of its inhabitants expands, though these attributes alone cannot ensure prosperous development, as demonstrated by several East European countries.

Financial considerations are the third criterion measured in a country's HDI. The GDP is used as a basis for economic performance, but is adjusted to account for purchasing power, contributions from unpaid work, and currency exchange rates. This manipulation is intended to arrive at the 'real GDP'.

The UNDP publishes an annual Human Development Report listing the HDI for most UN member countries. In the year 2000, rankings for the MRB riparian countries were: Thailand 74, Vietnam 115, Lao PDR 141, Cambodia 148, in a total of 174 countries. It should be noted that the HDI incorporates social and economic considerations, but does not include specific measurement of environmental health and well-being.

### ***Barometer of Sustainability***

The Barometer of Sustainability is a rather complex measurement devised by the IUCN. It is designed to measure a society's well-being and their progress towards sustainable development. Ecosystem health is a central criterion in this assessment, together with human health and welfare. The criteria used in the barometer are diverse and still evolving.

Some ecosystem measures used in the Barometer of Sustainability are: the quality and quantity of fresh water supplies; the area of intact forests and the rate of decrease in forested land; and the diversity of animal and plant



species, and the numbers of endangered species.

The human dimension of the Barometer takes into account measures of: health and security (as indicated by the level of violent crime); literacy, education, and gender equality, (i.e., the roles and status of women in society); and financial considerations in the form of income and property ownership.

Measurements of these and related criteria are combined and calibrated in a systematic way to arrive at a single number which, it is claimed, rates a country's state of sustainability.

### **SUMMARY OF KEY POINTS**

- The primary focus of traditional economics is the generation and distribution of wealth.
  - Conventional economics principles and practices ignore many of the external costs of acquiring raw materials and manufacturing goods. These costs are borne instead by others in society who may or may not be beneficiaries or have a say in decisions regarding the actions involved.
  - In the past, development has used many natural resources unsustainably, but has been considered 'economical' and efficient by traditional criteria.
  - Poor people have been marginalised by many forms of development.
  - The vital concerns of poor people are day-to-day survival and security; they do not have the luxury of conserving limited resources for possible future needs.
- Sustainable development can only be achieved with strong triple bottom line performance in economic, social, and environmental areas.
  - Sustainable development is based in part on the natural capital of land, air, and water resources, which must be conserved, not run down.
  - Conservation of resources can sometimes be improved by careful decentralisation of responsibility to include management by local communities.
  - The principles of sustainability are consistent with Buddhist philosophy in MRB riparian countries.
  - Indexes of development and sustainability may be useful indicators of a country's performance and progress towards sustainable development.