



Bernadette Dungee/Topham Picturepoint/UNEP

A sustainable approach to urbanization

Rapid urbanization can bring many environmental risks and problems. These vary across the globe, but commonly have an adverse effect on a healthy urban environment in its broadest sense and, by extension, on long term growth and development.

Cities of industrialized and transition countries have created and inherited a frightening legacy of pollution, soil and water contamination, "dirty" production techniques and high-waste consumption patterns. In most of these countries, improvements are now being made, but at a significant cost.

In the cities of developing countries, the risks and the problems are much greater, because of the overwhelming scale and speed of urbanization. These cities face a rate of urban growth that was not planned for. The result is a conflict between their environmental resource base and development needs.

This conflict damages both the environment and the economy. Apart from its effect on health and well being, environmental degradation constrains development and the growth of cities themselves. Ill-health and premature death not only cause pain and suffering, but also impose heavy costs on the economy.

Ultimately, neither the human population nor the environment escapes the detrimental effects of unsustainable consumption and degradation.

Principles of sustainable development

Efficiency: Resources should not be over exploited. Neither should they be un-utilized. Utilization however must prescribe full restoration;

Sufficiency: Resources are to be used for absolutely necessary ends. Their use must aim for the highest marginal returns;

Consistency: Ecosystems should be managed in a manner that is compatible with each other;

Precaution: If the potential threats posed by the economic activity to ecosystems are serious, or where the environmental damage due to it is expected to be irreversible, lack of full sci-

entific certainty that the threats or damage will in fact occur is not to be a reason for postponing measures to prevent their occurrence. Gambling with the environment is not advised, particularly if the stakes are high.

Agenda 21

The ecological footprint

The territorial dimension of sustainable human development has been defined as an "ecological footprint," describing the impact of urban agglomerations beyond their own administrative boundaries, in terms of consumption of natural resources and environmental disruption.

One of the early limitations of this ecological footprint paradigm lies in its one-way definition (cities seen as "predators"). Urban settlements also hold a promise for human development, and for the protection of the world's natural resources, through their ability to support large numbers of people while limiting their impact on the natural environment. Sound environmental management can directly improve people's well-being (better drinking water, less air pollution) and also directly support economic growth. Equally, economic development based on sound urban policies and visions can promote and finance environmental improvements and protection of ecosystems well beyond city boundaries.

The expansion of cities naturally creates increased pressure on resources such as lakes, rivers, air, land and energy, which cannot be met within the urban area itself. As much as the effects of urban activities leave ecological footprints on resources outside the urban area, measures undertaken to protect and use urban resources in a sustainable way can also yield gains in adjacent rural communities. The challenge lies in the adoption of urban planning and management approaches which embody the principles of sustainable development.

The effects of unsustainable urban lifestyles, land uses and production patterns are well documented. There are also many examples of poor territorial planning and management, the impact of which adversely affects both urban and rural areas. Hydroelectric power, for instance, is one of the cleanest forms of energy available, but its capacity can be hampered by deforestation of water catchment areas, causing in turn loss of precious top soil and silting of dam reservoirs. Solutions can often be as original as the problem, as when fuel-powered generators are used, resulting in higher costs and higher greenhouse-gas emissions.

Environment and development

With regard to sustainability, the destinies of cities and their expanding hinterlands are inextricably linked, and an increasing number of countries now recognize certain key principles of environmental management. One is that the environment is not an end in itself - not something to be "protected" from development - but is a resource to be carefully man-

aged on a sustainable basis. Secondly, urban development necessarily depends upon the natural resource base available to a city - which in turn has an impact on the state of those resources. It is therefore crucial to improve understanding of the two-way relationship between environment and development.

New tools for sustainable development

Eco-Industrial Park (EIP)

The Eco-Industrial Park is a community of manufacturing and service businesses seeking enhanced environmental and economic performance through collaboration in managing environmental and resource issues including energy, water and materials. The goal of an EIP is to improve economic performance of the participating companies while minimizing their environmental impact.

Environmentally Sound Technologies (EST)

Environmentally sound technologies are technologies that perform better in relation to the environment than other technologies. They minimize pollution of the air, water and land, and recycle or reuse their wastes. In industrial processes, they are not just end-of-pipe technologies; they are technologies that ensure clean production from the start of the production process.

Environmental Technology Assessment (EnTA)

EnTA is a decision-making tool to assist urban and environmental managers to make an informed technology choice, and is a voluntary method of decision-making, rather than a legally prescribed process. It assesses the impacts on the environment of technologies of similar application before the most appropriate one is adopted.

Environmental Risk Assessment (EnRA)

EnRA is fast becoming a standard practice - either by itself or as a complement to an environmental impact assessment (EIA). It identifies environmental resources for development, allowing decision-makers to evaluate both the benefits and consequences of development planning options, thereby minimizing unwanted or unexpected consequences.

Environmental Management System (EMS) for Local Authorities

EMS provides the overall framework by which environmental policy, objectives, programmes and targets - as well as environment assessment tools, such as, EnTA and EnRA - are implemented and performances monitored and evaluated.

Source: UNEP-IETC, Osaka - publications and documents.

Environmental Monitoring, Accounting, Auditing

One problem for societies wishing to improve environmental and social performance is the lack of reliable methods of measuring, monitoring and communicating progress. One indicator is the ecological footprint, seen from the viewpoint of 'consumption' rather than 'impact', mentioned earlier.

Recent years have seen an increase in the use of environmental management systems within both public and private sectors. Few of these - except for the new ISO 14001 series - take a life cycle approach (which accounts for the flow of materials and energy over time). Most focus on emissions and pollution and, whilst this is necessary

for compliance with regulations, the potential financial and environmental gains of reduced resource use (or eco-efficiency) cannot easily be ascertained.

The issue of 'how much' consumption is sustainable also needs to be addressed. Various attempts have been made to quantify resource targets. Ecological Footprint Analysis (EFA) approaches the issue of sustainability by reference to the overall 'carrying capacity' of the planet. Thus it is able to link individual behaviour to wider institutional targets, using concepts such as the 'earthshare' - the average, sustainable, bioproductive capacity available per person.



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Big foot

The ecological footprint of London, UK, is 120 times the area of the city itself. It is estimated that a typical North American city with a population of 650,000 would require 30,000 square kilometres of land - an area roughly the size of Vancouver Island, Canada - to meet domestic needs without even including the environmental demands of industry. In comparison, a similar size city in India would required 2,800 square kilometres.

International Institute for Sustainable Development (IISD) as reported by: www.gdrc.org/uem/e-footprints.html

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