



German stamp 1985
Save the forest

Over the last three decades, the paths of government departments and international organisations concerned with the environment have converged with the paths of departments and agencies concerned with a more economically based development. This has expanded the definition and measurement of human well-being, and revealed new opportunities for human development, in particular poverty reduction, as detailed by Flavio Comim. Thierry de Oliveira and Anantha K. Duraipapp set out how UNEP is putting this new thinking into practice.

The role of ecosystems in provisioning (supplying food, fibre and fodder), regulating (purification, detoxification, mitigation of droughts and floods) and enriching (spiritual, aesthetic, social functions), can be seen as providing the raw materials, the enabling conditions, and the inspiration for development. John Vidal's report from Hitosa in Ethiopia illustrates some of the benefits that water supply can bring to poor communities – including opportunities for growing and

selling vegetables, and freedom from predation by hyenas.

To complement this expanded poverty-environment nexus, the nature of the relationship has also been reviewed. The long-standing assumption that poverty is a causal factor in environmental degradation has been re-examined, and evidence points to a much more complex nexus of social and economic exclusion as well as institutional failure as the main drivers of both environmental degradation and poverty. It is also well recognised that poor communities suffer most from environmental degradation and hazards, because of their increased level of direct dependence on natural resources. This is manifest through increased risk of disease, accidents, and disasters. In an urban context, these interactions are concentrated and the impacts magnified, as explained by David Satterthwaite. His article helps to dispel the urban myth that the poor have a greater environmental impact, and puts forward some integrated solutions for improving urban environments, societies, and economies.

Realising development

Thierry de Oliveira and Anantha K. Duraipapp

There is an increasing consensus that poverty is multi-dimensional. The income-dominated approach to poverty reduction has now widely been acknowledged among development experts as being limited in terms of impact and reach. On the whole, the income-oriented approach has recorded very limited success in reducing poverty. Furthermore, the assumption that benefits obtained from economic growth would reduce poverty by the so-called trickle down effect is coming under increasing criticism. Here we will argue that any poverty reduction schemes should be formulated within the boundaries of ecosystems and ecosystem services.

It is necessary to begin by adopting a fundamental philosophical shift that moves beyond income preoccupation and embraces the concept of opportunities, freedom to make choices and agency – the building blocks of Nobel Laureate Amartya Sen's Capability paradigm.

A second shift calls for an ecosystem approach which acknowledges the three main services – provisioning, regulating/supporting, enriching – ecosystems provide for human well-being. The ecosystem approach also recognizes that these services are highly inter-dependant and synergistic with each other. For example, over use of the provisioning service will cause deterioration in the supporting/regulating service.

We suggest a comprehensive framework that establishes the link between the capability paradigm with the ecosystem approach will be needed if we are to realistically reduce poverty and improve human well-being in a sustainable manner.

On human well-being and poverty

- How human well-being and poverty is expressed is context and situation dependent, reflecting local social and personal factors like geography, ecology, age, gender and culture.
- These local social and personal factors require that human well being be more than just income and opulence. It is multi-dimensional and should also include non-materialistic constitutive constituents like the ability to prevent avoidable diseases, to have access to clean water, the ability to live in a safe environment, the ability to have clean air, the ability to use clean energy for keeping warm and cooking, and the ability to use ecosystems for traditional spiritual practises.
- Human well being is therefore about the expansion of human capabilities – the ability to achieve what individuals have reason to value.
- Poverty is the pronounced deprivation of human well-being or in other words the pronounced deprivation of human capabilities.

On ecosystem services

- Ecosystems are highly diverse and complex systems.
- Ecosystems provide three critical services; regulating, provisioning, enriching.
- The three ecosystem services are highly inter-dependent and excessive extraction of one service leads to deteriorations in the other services.
- An ecosystem approach is needed whereby the natural synergies among the various services are re-

spected and management strategies designed that reinforce these inter-dependencies.

On the relationship between human well-being, poverty and ecosystem services

- Each of the four ecosystem services provides valuable constitutive elements of human well being. The ability for individuals to achieve the various constituents and determinants of well-being are directly influenced by their ability to access and use ecosystem services in a fair and equitable manner.
- The fact that various stakeholders use ecosystem services in various ways and that these stakeholders have different degrees of dependency on these services is critical. Some may have clear substitutes while others have limited options. This calls for ecosystem management strategies to be designed with respect to these variances outlined above, the types of use of ecosystem services and ensure that no stakeholder groups are marginalized in the process.
- There will be trade-offs to be made between ecosystem services as well as among the various constituents of well being.

On intervention strategies

- There is a need to move away from a one-size fits all approach to a complex adaptive management strategy that embraces, understands and respects the heterogeneity of ecosystems and people.
- The use of a policy framework that emphasizes not only economic opportunities, but an integrated framework that also includes social opportunities, participatory freedom, transparency and good governance, protective security in the form of social nets and finally ecological security.
- The adoption of an integrated policy framework that emphasizes not only the efficient use of ecosystem services but also equity and fairness.
- A combination of instruments (market and non-market), organizations (public, civil and private) and institutions (formal and informal) will be required in order to provide the working basis for the integrated policy framework.
- Policy coherence is a critical element if an integrated policy framework is to be successful in achieving the objective of poverty reduction through the sustainable management of ecosystems.

Development frameworks must ensure that the premises outlined above are captured in the implementation process. In determining how to achieve all the above, value judgments have to be made concerning equity and ecosystem stewardship. Such understanding and depth of knowledge will always be needed to inform and support responsible and far-sighted governance.

Thierry de Oliveira leads the Poverty-Environment Programme at UNEP within the Division of Policy Development and Law. Amongst other achievements, he was instrumental in designing the poverty-environment component of the NEPAD Environment Initiative. Anantha K. Duraipapp is a senior economist and director of the Economic Policy Programme at the International Institute for Sustainable Development, Canada. He is assisting UNEP with the Poverty-Environment programme and has published many papers.

Capabilities and poverty-environment links

Flavio Comim

Two notions about poverty-environment links are now widely shared by policy-makers, NGOs and academia: i) that world poverty reduction depends on proper ecosystem management to be achieved sustainably, and ii) that the links between ecosystems and human well-being are dynamic and complex since they depend on time-lags, geographical and temporal scales, cultures, institutions, traditions and many other particular features of local ecosystems and constituents of human well-being. However, although the complexity and multidimensionality of these links are widely acknowledged, the use of unidimensional and linear techniques (such as simple livelihood analysis and environmental impact assessments) remains quite entrenched among researchers and policy-makers. Yet, new initiatives such as UNEP's Poverty-Environment Initiative are revolutionising the way in which the complexity of poverty-environment links are being comprehensively and systematically assessed. A central feature of these initiatives is the use of a multidimensional approach to evaluate human well-being and ecosystem services focused on the promotion of autonomy of individuals and communities. These new developments match technical advancements, such as mapping aspects of human well-being and ecosystems.

These initiatives have been highly influenced by the development of Professor Amartya Sen's Capability Approach and its implications for the establishment of a human development perspective. This approach has been

used to assess well-being with emphasis on distributive considerations. The approach aims to determine which criteria should be used when making normative assessments. In the current context we could ask: what criteria should we use when we are assessing the impact of poverty on ecosystems or the impact of ecosystem changes on poverty?

Sympathisers of the Livelihoods Approach would claim that the main criteria to assess impact on human well-being should lie on the distribution of resources among different individuals or communities. They would emphasise rural portfolio management options and strategies to cope with vulnerability caused by the volatile returns of the poor's assets. This analysis will prove an important contribution, but, as Professor Sen has pointed out, resources are usually imperfect indicators of well-being. Because not all people are equal in their capacity to convert resources into well-being and not all of them live under the same cultural and social constraints, promotion of equality should be achieved in the space of capabilities. Different families or individuals might get the same resource allocation but might not have the same capability of converting these resources into whatever they have reasons to value.

The Livelihoods Approach has given a first step into the promotion of multidimensionality analyses of poverty-environment links. The Capability Approach furthers this logic by broadening the dimensions incorporated in the examination of these links. Information about resource distribution is not all that matters. Other informational spaces related to the constituents of human well-

being, such as health and education, are important here. Thus, the Capability Approach provides a rationale for the use of techniques and methodologies that take into account: i) multidimensional aspects of human well-being, ii) ethical considerations for assessing distributive issues in assessing human well-being, iii) the choice of environmental and poverty indicators that reflect the importance of assessing the quality of processes rather than simply outcomes of policies, iv) the use of participatory approaches to enhance the ownership and participation of local communities in the management of their natural resources, v) what people are actually able to be and to do (ends) rather than simply what resources (means) they have available to promote their well-being.

It is important to note that the added-value of the use of the Capability Approach lies not on a simple list of these points but on the general perspective that articulates all of them in a comprehensive and systematic way.

Poor people and the ecosystems where they live should be seen as part of the solution and not as part of the problem. The Capability Approach provides a rationale for articulating a wide range of information needed for the solution of entrenched poverty-environment problems. It does not provide a ready-made solution. It provides a way for us all to arrive at solutions.

Flavio Comim is the Director of the Capability and Sustainability Centre, St Edmund's College, University of Cambridge. The csc provides a forum for collaborative research and interdisciplinary discussion tackling human and sustainable development, and their links, from a capability perspective.

“There is no hunger where there is water”

John Vidal

When the ponds in the central Ethiopian village of Deyata Dodota ran dry for six months of the year, the women would set out at 4am on a long, back-breaking journey. The daily hardship of carrying water weighing up to 18kg over such a long distance – and the fear of hyena attacks along the way – together with the grinding poverty of subsistence farming in the region, have left a grim legacy. Today there are many in Deyata Dodota left crippled by years of water-carrying, and the village graveyard is full of women who died young, exhausted and diseased by poor water.

Deyata Dodota was transformed almost overnight in 1994 when the NGO WaterAid, backed by the Ethiopian government and an army of volunteers, laid 20 miles of pipe from the water source, and a further 68 miles of distribution lines. They also built three new reservoirs, capped several springs and installed 122 water points. It was a huge community effort, costing £1 million, but it now serves 70,000 people in the town of Iteya and 23 villages, including Deyata Dodota. The investment of about £13 per head has had astonishing physical, social and cultural results.

The women of Deyata Dodota unanimously say that they have been freed. “Woha hiwot newu (Water is life)” says Radia Aman. “The arrival of the

water has changed everything. All our lives have been greatly improved. We used to get diarrhoea and other diseases. At that time we could not clean the dead, our children would be dying for food while we were collecting water and you can imagine the change it has made for nursing mothers” she says.

The nearby town of Iteya has changed beyond recognition. “No one wanted to live here eight years ago because we had no water, and the town was very poor” says Haji Gebi, chair of the community water management board. Iteya has doubled in size since the water arrived, there are trees growing in the streets and real prosperity in the cafes and agricultural shops. Last year the first two-storey building was constructed. “Now people and businesses and money are coming. A school has been built and our children are healthy. Children go to school who never would before. This is like a new town. It is because the water has stimulated business, farming and social life” says Gebi. “People now grow vegetables in their gardens so their diet is better. There is no hunger where there is water” he says.

But WaterAid's work has had other unexpected benefits. Technical, managerial, health, hygiene and financial jobs have been created, and new skills have been learned. And because the whole scheme is run by and for the commu-

nity as an independent non-profit-making project, it has given people a sense of shared ownership.

The 23 villages and the town elect a board, which annually decides the price the water should be sold at, where services should be extended, and where the money taken in charges, should be invested. They also train and employ technicians to manage the pipes, and community workers to oversee all 122 water points and advise everyone using the taps about sanitation, hygiene and general health. “The rich pay more and subsidise the poor. We have £8,000 in the bank, some of which is going to take water direct to the school, and we are hoping to help build the new health clinic. We have loaned money for the construction of a church and a high school, and paid for the water to go to the school. This is development” says Getu Bedo, also on the board.

“With water, everything is possible” says Meselech Seyoum who works with WaterAid. “But people have to contribute; we cannot just impose solutions on people. We try to find the solutions with people. That is what is unique.”

John Vidal has been a journalist at the Guardian newspaper in the UK for 14 years, and the newspaper's Environmental Editor for the past eight years. He has four times won Environmental Journalist of the Year in the UK and in 1999 he was awarded the World Food Prize for writing. He also writes for BBC Nature magazine. This article is reprinted with permission from The Guardian, 14th April 2003.



German stamp 1973
Environmental protection



German stamp 1973
Environmental protection



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Environmental protection



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Environmental protection

Development in an urban context

David Satterthwaite

By 2000, approximately two-fifths of Africa's and Asia's population and three-quarters of Latin America's population were living in urban areas¹. These regions are home to most of the world's largest and fastest-growing cities, where the number of people living in poverty is also rapidly increasing.

Urban areas concentrate a wide range of social and environmental problems. More than 600 million urban dwellers live in squatter settlements or illegal subdivisions where the housing is makeshift, or in tenements or cheap boarding houses^{2,3}. Their lives and health are continually threatened because of poor quality, overcrowded housing (often one household per room), and inadequate provision of safe water supplies, sanitation, drainage, and garbage collection^{4,5}.

It is often assumed that urban poverty is a major cause of environmental degradation^{6,7}. However, most environmental degradation in urban areas is caused by consumption patterns of high-income groups and the production and distribution systems that serve them. Ironically, high levels of urban poverty in Africa, Asia, and Latin America have helped to keep down environmental degradation,

because poor urban dwellers have very low levels of consumption, resource use, and waste generation. Indeed, the urban poor generally have a positive role from an ecological perspective, as they use so few resources and are the main re-claimers, re-users, and recyclers of wastes from industries, workshops, and wealthier households.

The urban environment

A better understanding of the links between poverty and the environment in urban areas is needed to improve the design and implementation of urban development projects. The first step is to recognise the multiple deprivations that contribute to urban poverty. These include not only inadequate income but also inadequate shelter, public infrastructure and limited or no safety net. Poverty is also caused by the contraction of rights of low-income groups, and their powerlessness within political systems and bureaucratic structures. Equally important is not to confuse environmental hazards and environmental degradation. Most of the urban poor face very serious environmental hazards in their homes and their surroundings and in their workplaces⁸. Such hazards cause ill health, injury, and premature death, contributing significantly to urban poverty. However, most environmental hazards do not

cause environmental degradation. For instance, the inadequacies in provision for piped water, sanitation and drainage often means serious problems with insect borne diseases such as malaria and dengue fever but these do not degrade any environmental resource. The small makeshift homes in which so many urban poor live make accidents a common cause of serious injury or premature death, and present serious environmental hazards but do not cause environmental degradation.

Other dimensions of the poverty-environment nexus in urban areas include:

- *Water-related diseases* – at any one time, close to half of the urban population is suffering from one or more of the main diseases associated with inadequate provision of water and sanitation⁹.
- *Occupational exposure to a wide range of chemical pollutants from the industrial, energy and transport sectors* – more than 1.5 billion urban dwellers are exposed to levels of ambient air pollution above the recommended maximum levels, and this causes an estimated 400,000 additional deaths each year⁹.
- *Deaths and injuries from motor vehicle accidents* – these have become an increasingly significant component of

all premature deaths and injuries in many cities, especially those where infectious and parasitic diseases and their underlying causes have been successfully addressed.

- *Vulnerability to natural disasters* – cyclones, high winds, and storms – has probably caused more deaths in urban areas than other disasters in recent decades. Earthquakes have caused many of the biggest urban disasters. Floods affect many more people than cyclones and earthquakes but kill fewer people. Landslides, fires, epidemics, and industrial accidents are among the other urban disasters that need attention.

The economic underpinning of the environmental risks becomes evident when comparing the risks faced by lower-income and higher-income groups. Most case studies on infectious and parasitic diseases and morbidity and mortality show that these mostly affect low-income groups¹⁰. The same is true for most chemical pollutants and physical hazards¹¹. Higher-income groups have better-quality homes and generally less dangerous jobs and work in occupations where occupational hazards are minimised.

The urban solution

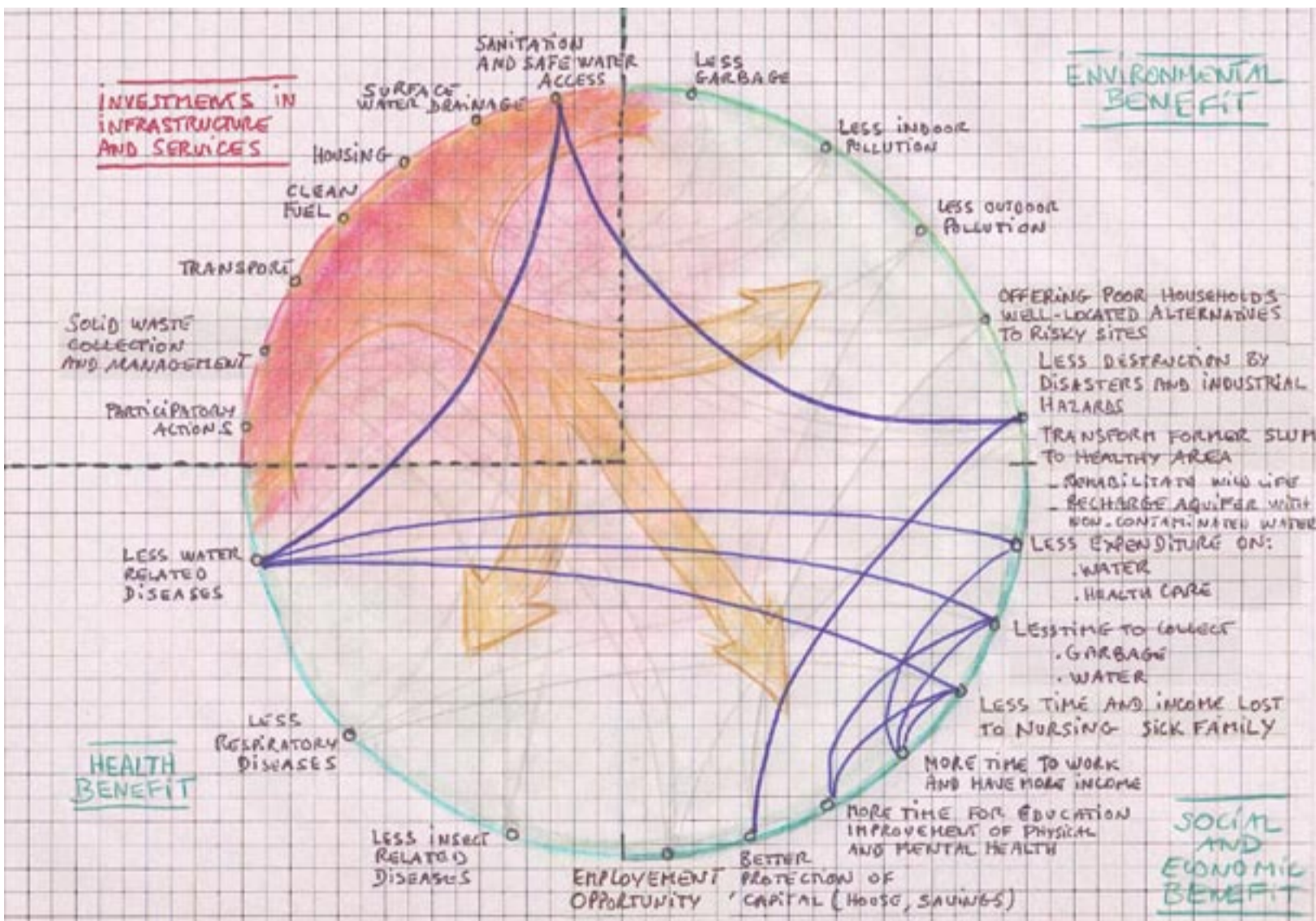
Urban planners and development

agencies can help address urban poverty through various environmental actions, as shown below;

More effective links between poverty reduction and environmental management depend on accountable, effective, and innovative urban authorities. Priorities include ensuring provision for basic services for the poor and making land available for housing that does not damage surrounding ecosystems. Also management of consumption and waste generation and disposal in higher income areas. International agencies can support this by going beyond more projects to strengthening the capacity of urban authorities to work with urban poor groups and develop appropriate responses.

National frameworks are also needed to encourage environmental policies that not only address urban environmental health problems, but also limit the transfer of environmental costs to people and ecosystems beyond urban boundaries.

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1. United Nations. 2002. *World urbanization prospects: The 2001 revision: Data tables and highlights*. ESA/P/WP/173. New York: Population Division, Department of Economic and Social Affairs, United Nations Secretariat.
2. Hardoy, Jorge E., and David Satterthwaite. 1989. *Squatter citizen: Life in the urban Third World*. London: Earthscan.
3. United Nations Centre for Human Settlements (UNCHS) (Habitat). 1996. *An urbanizing world: Global report on human settlements, 1996*. Oxford, UK: Oxford University Press.
4. Cairncross, Sandy, Jorge E. Hardoy, and David Satterthwaite. 1990. *The urban context*. In *The poor die young: Housing and health in Third World cities*, edited by Jorge E. Hardoy, Sandy Cairncross, and David Satterthwaite, 1-24. London: Earthscan.
5. World Health Organization (WHO). 1992. *Our planet, our health*. Report of the WHO Commission on Health and Environment. Geneva: World Health Organization.
6. World Commission on Environment and Development. 1987. *Our common future*. Oxford, UK: Oxford University Press.
7. UNEP. 1999. *Global Environmental Outlook 2000*. United Nations Environment Programme, London: Earthscan.
8. Cointreau, Sandra. 1982. *Environmental management of urban solid waste in developing countries*. Urban Development technical paper no. 5. Washington, DC: World Bank.
9. WHO. 1999. *Creating healthy cities in the 21st century*. In *The Earthscan reader on sustainable cities*, edited by David Satterthwaite. London: Earthscan.
10. Bradley, David, Carolyn Stephens, Sandy Cairncross, and Trudy Harpham. 1991. *A review of environmental health impacts in developing country cities*. Urban Management Program discussion paper no. 6. World Bank, UNDP, and UN (Habitat), Washington, DC.
11. Hardoy, Jorge E., Diana Mitlin, and David Satterthwaite. 2001. *Environmental problems in cities of Africa, Asia and Latin America*. London: Earthscan.



The Millennium Ecosystem Assessment

The Millennium Ecosystem Assessment (MA) was established as an international process designed to meet the needs of decision-makers and the public for scientific information concerning the consequences of ecosystem change for human well-being, and to analyse options available to enhance the conservation of ecosystems and their contributions to meeting human needs. Leading scientists from more than 100 nations are conducting the assessment at multiple scales from global to local, with oversight by a Board comprised of representatives of international conventions, UN agencies, scientific organisations, and leaders from the private sector, civil society, and indigenous groups. The MA's first report, *Ecosystems and Human Well-being* was released in September 2003. The report lays out the approaches, assumptions, processes, and parameters scientists are using in the study. It offers decision-makers a mechanism to identify options that can better achieve core human development and sustainability goals and better understand the trade-offs in decisions about development and the environment.

Further information available on: www.millenniumassessment.org



Swedish stamp 1963
Feed the starving