

Sustainable Development Update

– Keeps you updated on the interactions between ecological issues and social and economic development

www.albaeco.com/sdu/newsletter.htm

Issue 5, Volume 2, October 2002

“ Ecosystems are the planet's primary biological units—the source of all the environmental goods and services we rely on for life, and the ultimate foundation of the global economy. They should therefore become the logical center of our management efforts and the point of reference for our environmental decisions. ”

More on page 6

Environment and health at annual development conference

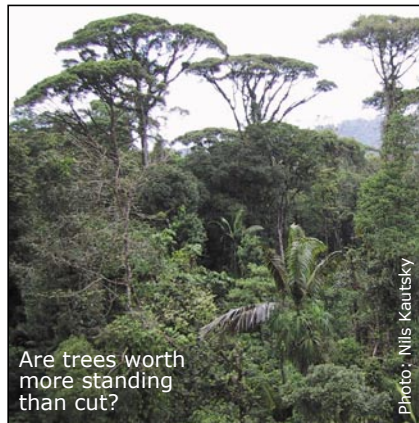
“A third of the disease burden in developing countries can be attributed to environmental risk factors”, said Marianne Kjellén.

More on page 3

“This Summit will be remembered not for the treaties, the commitments, or the declarations it produced, but for the first stirrings of a new way of governing the global commons – the beginnings of a shift from the stiff formal waltz of traditional diplomacy to the jazzier dance of improvisational solution-oriented partnerships that may include non-government organisations, willing governments and other stakeholders.”

Source: Jonathan Lash, president, World Resources Institute, on the recent World Summit in Johannesburg

Putting price tags on nature



Many of Nature's services are literally priceless – we cannot live without them and they have no known substitutes.

Putting price tags on these services can, however, focus attention on the importance of healthy ecosystems for sustained development and poverty alleviation. But what's behind the price tags?

More in the feature article on page 2-3

Editorial:

The movement of small green pieces of paper

In the satirical adventure *The Hitch-hikers Guide to the Galaxy* Douglas Adams describes Earth after it has been destroyed to make way for an intergalactic highway. He calls it an utterly insignificant little blue-green planet where most of the people were unhappy for much of the time. “Many solutions were suggested for this problem, but most of these were largely concerned with the movements of small green pieces of paper, which is odd because on the whole it wasn't the small green pieces of paper that were unhappy.” The movement of small green pieces of paper – predominantly dollar bills or their electronic counterparts – also dominated the World Summit in Johannesburg. Many claim that world leaders allowed US bullying, corporate lobbying and outdated economic thinking to stop the progress needed to tackle poverty and environmental destruction. For example, agricultural subsidies to industrialized countries were heavily criticised. The rich OECD (Organisation for Economic Co-operation and Development) countries still support their own agriculture sector with a billion dollars a day,

six times more than all development assistance combined.

Nevertheless, the Johannesburg action plan does define important goals. We definitely need to highlight the possibilities that such a plan implies. International conventions, together with consumer power and the work of NGO's, can work miracles. Recently, an Australian study reported that chlorine-based chemical levels in the atmosphere are falling, and that the hole in the ozone layer should close within 50 years. Let us hope that the international community will deliver on the important agenda that was agreed in Johannesburg so that also other much more complicated poverty-related and environmental problems can be solved.

This issue's feature article focuses on attempts to make the small pieces of paper greener – the pros and cons of putting price tags on nature. This issue also includes brief articles about issues including malaria, environmental governance, health and the environment, and a recipe for resilience management.

/Dr. Fredrik Moberg, Editor

Contents, Issue 5, Volume 2, October 2002:

FEATURE

The value of nature and the nature of value, p 2-3

IN BRIEF

Environment and health at recent conference, p 3.

A recipe for resilience management, p 4.

Linking poverty reduction and environmental management, p 4.

Web-focus on sustainable development, p 4.

Fighting malaria with gene technology?, p 5.

Increased Sida focus on biodiversity, p 5.

Environmental governance with equity, p 6.

New FAO-report on state of food and agriculture, p 6.

SUSTAINABILITY SCHOOL

Ecosystem approach, p 5.

Many of Nature's services are literally priceless – we cannot live without them and they have no known substitutes. "Pricing" these services can focus attention on the importance of healthy ecosystems for sustained development and poverty alleviation. But what's behind the price tags?

The world's ecosystems provide a flow of vital services, like the generation of fertile soils, purification of air and water, the mitigation of floods and drought, pollination and pest control. The world economy would crash without this "natural capital." In this sense, the value of nature's services is infinite – we simply cannot live without them. Unfortunately, "infinite" often becomes "zero" in the economic calculations that guide land-use and policy decisions. In this respect, human societies indirectly assign values to Nature every time a land use decision is made – whether we like it or not.

Getting the prices right

An ecosystem's services can be even more valuable than its goods. For instance, the value of forest services, like flood control, recycling of rainfall and carbon dioxide uptake, can be several times more valuable than its timber yield.



Forests are often worth more standing than as timber. Photo: Jakob Lundberg

So even if forest clearcutting is profitable for a logging firm, it might involve large costs for society at large. This is what economists call a "market failure," when market prices do not reflect the full social costs or benefits of a good or service. Another example is the price of gasoline, which many argue does not reflect the full costs of emissions.

Therefore, many argue that the value of ecosystem services must be incorporated into market prices so nations can make rational, environmentally sustainable, economic choices. This is of special importance to developing countries as poor people are generally more directly dependent on the benefits provided by their local natural systems and vulnerable to the effects of environmental hazards.

Economists assign values to non-marketed ecosystem services using



Pollination of crops, by for example butterflies, has been estimated to be worth some 400 billion US dollars annually. Photo: Nils Kautsky

several valuation methods such as calculating the cost of replacing them with technology, or assessing how much people would be willing to pay for them (see box). In 1997, Robert Costanza of the University of Maryland and twelve co-authors estimated the annual value of the world's ecosystem services at US\$33 trillion. It was more than the value of the global gross national product (GNP) that year. Although the study was widely criticised, many considered it a valuable tool in efforts to focus attention on the importance of maintaining healthy natural ecosystems. According to Costanza, most economists would have guessed that the value of ecosystem services would only be 1 percent of global GNP or less.

Valuation drawbacks

Some criticise these types of studies, arguing that the true value of these services comprises much more than their importance to the world economy; there are moral, ethical, and aesthetic reasons to protect nature. Others note that ecosystem services could never be traded in open commerce, which is how prices of conventional goods and services are determined. Moreover, basically all available valuation methods are based on human preferences and are therefore unreliable when applied to environmental services with which the public is unfamiliar. Some also claim that it is not the role of science to determine what is right or wrong or to assign values based on human preferences at all.

Another major criticism is that no economic analysis can put a value on the capacity of ecosystems to withstand stresses and shocks – its resilience. The value of biodiversity in this broader sense – that it is a prerequisite for the ecosystem's long-term survival – is much higher than the value that can be assigned to the current production of goods and services. Many ecologists have emphasised this wider insurance value of diversity, but it is extremely difficult – not to say impossible – to capture in economic valuations.

Box: Valuation methods

Productivity Method: (sometimes called the *net factor income* or *derived value method*): estimates the value of ecosystem goods or services used, along with other inputs, to produce a marketed good. For example, the economic benefits of improved water quality can be measured by valuing improved crop quality and agricultural productivity.

Hedonic Pricing Method: estimates values for ecosystem or environmental services that directly affect market prices, e.g. variations in housing prices reflecting local air and water quality or noise.

Travel Cost Method: estimates the value of ecosystems that are used for recreation, based on how much people are willing to pay to visit the site.

Damage Cost Avoided: estimates the value of ecosystem services based on the costs of avoiding damages due to lost services.

Replacement and Substitute Cost Method: estimates values of ecosystem services based on the cost of replacing them, or the cost of providing substitute services, e.g. valuing the water purification services of a wetland by comparing it to the cost of filtering and chemically treating water

Contingent Valuation Method: estimates values by asking people to directly state their willingness to pay for specific ecosystem services, based on a hypothetical scenario.

A new economy and new model of development

There are several signs that a new economy that values natural systems is beginning to take shape. Lester Brown, former president of the Worldwatch Institute, is among those arguing for such an economy. The needed restructuring of the global economy has already begun, reports Brown in his book *Eco-Economy*. The past decade witnessed a 25 percent annual increase in the use of wind power, a 20 percent increase in solar cell use, and a 4 percent increase in geothermal energy use. Oil consumption increased

The value of nature cont.

by only one percent a year and coal use declined by one percent annually over the same period, Brown notes.

Another interesting contribution is *The New Economy of Nature*, by Stanford ecologist Gretchen Daily and Pulitzer Prize winning journalist Katherine Ellison. The book highlights several new approaches to ecosystem conservation that recognise the economic benefits of protecting them. Examples are taken from both rich and poor countries. In China's Yangtze River basin, 85 percent of the original forest cover had been lost by 1998. When flooding of the river basin displaced 120 million people, causing US\$30 billion worth of damage, Chinese officials argued that standing trees were worth many times more than felled trees and banned logging in the upper reaches of the basin.

New York City spent US\$1.5 billion to protect the upstate watershed by buying land and upgrading polluting sewage treatment plants. This saved the city the potentially enormous cost of an artificial water filtration plant, estimated at US\$6-

\$8 billion, plus US\$300-\$500 million in yearly maintenance expenses.

This new focus on the value of nature and calls for a shift to a more sustainable economy has also been called "natural capitalism." In their book of the same name, Paul Hawken, Amory Lovins and Hunter Lovins describe the "next industrial revolution" in which business and environmental interests increasingly overlap. This revolution, however, will require abandoning assumptions that guided the first industrial revolution. These assumptions were valid when natural resources were abundant and labour was the limiting factor of production. Today the opposite is true – there is a global surplus of labour while natural resources and ecosystem services are dwindling, expensive and often irreplaceable.

New methods are also being developed to measure welfare and the quality of development, including indicators such as "wealth," "genuine savings" and "comprehensive savings." These new national accounting techniques include

adjustments for effects on natural and human capital and are now in use by the UN and World Bank. As reported in *SDU 1, 2001*, these techniques are not able to internalise all natural assets, but they are steps in the right direction

More at:

General information about ecosystem services:

www.esa.org/sbi/issues.htm

About valuation:

www.wri.org/wr-98-99/ecoserv.htm

www.ecosystemvaluation.org/

R. Costanza and others. 1997. "The Value of the World's Ecosystem Services and Natural Capital," *Nature* (Vol. 387) can be found at:

www.uvm.edu/giece/publications/Nature_Paper.pdf

About "natural capitalism":

www.natcap.org/

Environment and health at development conference

A third of the health burden in developing countries can be attributed to environmental risk factors. This was reported at the Annual Conference on Development in Stockholm, October 17.



This year's development conference in Stockholm focused on maternal health, the environment and young people's lifestyle.

Health and its link to the economy and the environment was the theme of the development conference, organised by the Swedish Ministry for Foreign Affairs, UNDP and Sida. One of three parallel seminars was led by Marianne Kjellén, Stockholm Environment Institute, and Mats Segnestam, head of the Environment Policy Division at Sida. Kjellén presented several direct problems that the poor face in their home environment, such as indoor and outdoor air pollution and the spread of diseases due to poor sanitation. Segnestam added a list with more indirect examples of how the environment is linked to poor peoples' health (see box).

Anders Nordström, head of Sida's Health Division, presented Sida's new policy for health and development: "Health is wealth," which also emphasises environmental impacts on health. Deepa Narayan, Senior Advisor at the World Bank noted "illness is both a cause and consequence of poverty." People in good health are better able to learn, earn a living and be more productive. Moreover, poor people are more vulnerable to diseases like AIDS, malaria and tuberculosis. Money alone will, however, not solve the problems, but even the most well governed countries need more money as Professor Jeffrey D. Sachs, of the Earth Institute at Columbia University, put it. He was met by a long applause when he criticised his own government for not allocating sufficient

resources to world poverty and health issues in poor countries in particular. "We need a war on disease" was his message.

More at:

www.sida.se

You can download *Issue paper on: Health and Environment*. Health Division Document 2001:1. Prepared by Marianne Kjellén for Sida's Health Division. [http://www.sida.se/Sida/articles/12600-12699/12650/HDD2001.2\[1\].pdf](http://www.sida.se/Sida/articles/12600-12699/12650/HDD2001.2[1].pdf)

Box: Environment and health links

- 1) Water quality and quantity:** e.g. clean water to avoid diseases and water needed for food production;
- 2) Biodiversity loss:** leading to the loss of a source of medicines, food and ecosystem services as natural pest control;
- 3) The tropical coastal zone:** fish from mangroves, coral reefs and seagrass beds are often the most important animal protein source;
- 4) Climate change:** droughts in some places and floods in others, both with effects on food production and disease;
- 5) Environmental refugees:** people migrating because of pollution and/or scarcity of resources;
- 6) Conflicts due to natural resources degradation:** e.g. the Rwanda genocide where population growth, soil erosion, unequal distribution of land and marginalisation of people interacted;
- 7) "Unnatural" natural disasters:** e.g. floods, storms and droughts induced by human activities. Often the poor are most affected since they tend to live in areas more prone to disasters and do not have the economic resources to deal with their effects;
- 8) "Chemicalisation":** e.g. increased use of pesticides leading both to acute poisoning and illness due to long term exposure.

What is resilience in practise? Who can identify it, and how? A new resilience management-“recipe” emphasizes cooperation among scientists, managers and local users.

Resilience is the capacity of an ecosystem to cope with disturbance (like storms, fire and pollutants) without shifting into a qualitatively different state (see *SDU 2, 2002*). Earlier issues of *SDU* describe the strong connections between resilience, diversity, and sustainable use of ecosystem goods and services. This resilience is of special importance to poor people, who have few or no possibilities to alternative food or income sources if local ecosystem goods and services are degraded. Whereas most current western resource management focuses on only one or a few species in the ecosystem, resilience theory



Grazing in rangelands is one of the examples in the article

Photo: Jonny Larsson

emphasises management of entire natural systems and humanity as “social-ecological systems.” But, what is resilience in practise? Who can identify it, and how?

In a recent article, Professor Brian Walker and colleagues within the Resilience Alliance propose a resilience management strategy.

They provide examples

of how collaboration between researchers, agency managers, and involved stakeholders has been used to identify resilience and use it in practise to manage ecosystems. Their resilience management-recipe (see box) is a step-by-step process involving identifying of key issues, constraints, and stakeholders, developing scenarios and models of various outcomes, and evaluating results. The strategy emphasises cooperation among scientists, managers and local users.

Box: Resilience management

- 1) Identify spatial boundaries of the social-ecological system.
- 2) Identify the key ecosystem services used.
- 3) Identify key human impacts on the ecosystem and the different stakeholders including their preferences and future expectations.
- 4) Identify key, often slow, controlling variables (e.g. climate, technological change etc.) that influence the production of ecosystem goods and services.
- 5) Make a historical profile of the system, including major changes (ecological, technological, social, and economic). The description should be made at local, regional and multi-regional scales.
- 6) Identify the institutional arrangements (property rights, power, access to information etc.) regarding the main ecosystem goods and services.
- 7) Identify uncertainties about how the system will respond to change.
- 8) Develop a number of scenarios, in collaboration with the involved stakeholders, based on their experiences, preferences and visions, and discuss possible outcomes.
- 9) Use various forms of modelling tools to identify and discuss possible driving variables and processes that control the most desired ecosystem goods and services.
- 10) Finally, scientists, managers and local stakeholders, together evaluate the above-described process.

/Cecilia Holmlund

Source:

Walker, B. and others. 2002. Resilience management in social-ecological systems: a working hypothesis for a participatory approach. *Conservation Ecology* 16(1), available online at: www.consecol.org/vol6/iss1/art14/main.html

Web-focus on Science and Sustainable Development

The role of science in achieving sustainable development is emphasised in a new web focus from the science journal *Nature*. It provides free access to a wide selection of material regarding sustainable development that *Nature* has published in recent years.

The collection includes both scientific articles and news and comments from *Nature's* Science Update that writes in layman's terms about the latest insights from the scientific community. Even readers without a scientific background can appreciate the scientific articles.

Several articles relate to issues discussed at this year's World Summit on Sustainable Development in Johannesburg, including genetically modified crops, food security in Africa, aquaculture, world fisheries and population forecasts.

More at:

www.nature.com/nature/sustainabledevelopment



Photo: Carl Folke

Healthy coral reefs are important for sustainable world fisheries.

Linking poverty reduction and environmental management



Adrian Davis, DFID, Ian Johnson, World Bank, Alvaro Umana, UNDP, and Simon Le Grand, EC, Directorate General for Development present the report at a side event to one of the preparatory meetings before this year's World Summit.

A recent publication sparked a lively debate at a number of side events in Johannesburg: *Linking Poverty Reduction and Environmental Management: Policy Challenges and Opportunities*. It was jointly published by UK Department for International Development, the Directorate General for Development of the European Commission, the United Nations Development Programme and the World Bank. Several other donors contributed to the publication, including the Environment Policy Division at the Swedish International Development Cooperation Agency (Sida). The report is optimistic about the future and focuses on win-win opportunities that reduce poverty and sustain growth through sound and equitable environmental management. The publication has also been debated in an e-discussion that was reported in a previous issue of *SDU*.

More at:

The e-discussion can be found at:

<http://vx.worldbank.org/cgi-bin/lyris.pl?enter=env-rio-10>

the report at:

www.dfid.gov.uk/Pubs/files/epd_linking_poverty.pdf

Newly mapped genome of malaria parasite and mosquito

Will it help eradicate the disease that kills one million people every year?

Many now hope for better medicines and even a vaccine. But it is important not to forget the underlying social, economical and ecological causes of malaria's spread.

Researchers have now described the complete genomes of both the parasite that causes malaria and the mosquito that spreads the disease. Malaria kills over one million people every year, mainly in the poorest part of Africa south of the Sahara. With these newly mapped genomes, and the map of the human genome, it is hoped that new drugs can be developed to help control or even vaccinate against malaria. However, there is a risk that our models of how Nature works are too simple. The malaria parasite has developed resistance to most earlier drugs and also to some insecticides.

So while we wait for a vaccine, it is still important to address the underlying social, economical and ecological causes of malaria's spread. These include poverty, hunger, lack of sanitation and public health infrastructure, land-use changes, biodiversity and climate change.

The International Panel on Climate Change has concluded

that climate change will likely increase the geographic spread and incidence of malaria. Many ecologists claim that too much research funding is being spent on molecular biology and not enough on basic ecological research. For instance, one controversial proposal to replace wild mosquitoes with insects made harmless by genetic engineering has not been evaluated from an ecological point of view.

Ecological changes such as new irrigation projects and the expansion of water-intensive crops have contributed to the spread of malaria, since the mosquitoes need stagnant water to breed. Scientists in malaria regions are therefore trying to use organisms that naturally destroy the mosquito or the parasite, a method called "biological control." Developing country scientists underscore that more aid money should be used for capacity building in poor countries to train their own researchers to combat the disease.

More at:

www.nature.com/nature/malaria

Multilateral Initiative on Malaria: <http://mim.nih.gov>

Roll Back Malaria: www.rbm.who.int

Increased Sida focus on biodiversity

Sida is establishing an international programme on biodiversity organised in collaboration with the Swedish Biodiversity Centre (CBM), at the Swedish University of Agricultural Sciences (SLU) and Uppsala University.

Biodiversity is a prerequisite for sustainable development and will be an important focus of future Swedish development aid. Biodiversity issues are intimately linked to other aspects of development, such as poverty, food security, livelihood, equity, health, and trade. Sida therefore attempts to integrate biodiversity aspects in ongoing bilateral and regional development cooperation programmes. Evaluation of biodiversity impacts is one of Sida's environmental impact assessment requirements and biodiversity is also an important component in Sida's environmental training courses.

In 2001, the estimated cost of contributions directly related to the biodiversity convention was US \$25 million. Sida supports a large number of organisations that work for conservation and sustainable use of biological diversity. These include the International Centre for Living Aquatic Resources



Photo: Jonny Larsson

(ICLARM), the World Wildlife Fund (WWF), the World Conservation Union (IUCN), the World Resources Institute (WRI), and the International Institute for Environment and Development (IIED). Sida also supports capacity building in several areas such as trade-related intellectual property rights concerning biological material, access to genetic resources, traditional knowledge, and the potential risks posed by genetically modified organisms (biosafety).

As part of the newly launched programme, CBM will support Sida's staff in their work to further integrate

biodiversity aspects in all areas of their work. The programme will also function as an advisory body to government officials and participate in projects such as capacity building. Sida already has two external advisory boards on environmental impact assessment and strategic environmental analysis and the new programme will be linked to these boards.

More at:

www.biodiv.org/doc/reports/fin-se-en.pdf

Sustainability School:

The ecosystem approach seeks an optimal balance between conservation and utilisation of biodiversity as well as an understanding of ecosystems in a socio-economic context. Twelve principles defining the ecosystem approach appeared on the international political agenda in 1998 in Malawi during the Fourth Conference of the Parties of the Convention on Biological Diversity. In the implementation plan from the recent World Summit on Sustainable Development, the ecosystem approach is emphasised several times.

The ecosystem approach aims to maintain the capacity of ecosystems to produce desired goods and services. Social and economic information is integrated with environmental information to evaluate how human exploitation of an ecosystem affects its functioning and productivity in the short and long term. Urban areas, which depend on ecosystem goods and services, must therefore be included in ecosystem management systems, and human needs and activities should be integrated with conservation goals, even in protected areas.

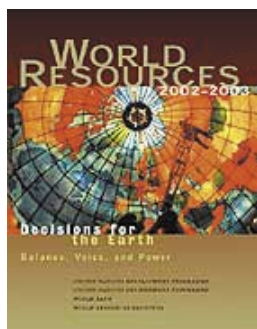
Instead of focusing on one dominant ecosystem good, such as fish, or service, such as flood control, an ecosystem approach tries to include all possible ecosystem benefits so that trade-offs become efficient, transparent, and sustainable. It emphasises that ecosystems should be managed as whole entities, including linkages to adjacent ecosystems and across state or national borders when needed.

An ecosystem approach requires an informed public discussion, and management should be decentralised to the lowest possible level. Local and indigenous stakeholders, who often have intimate knowledge of local ecosystems and a direct interest in keeping them healthy, need to be integrated into decision-making processes. However, local interests must be balanced with the wider public interest.

More at:

www.biodiv.org/programmes/cross-cutting/ecosystem/principles.asp

Environmental governance for ecosystems and people with equity



The World Resources Institute, together with UNEP, UNDP and the World Bank, has released a summary of their report *World Resources 2002-2004*. The subject of this year's report is "environmental governance" – how environmental decisions are made and by whom.

The focus is on sustainable governance to "match human needs with Earth's biological capacities – with equity and balance." The report discusses how to increase public empowerment and participation, especially among indigenous groups and the poor who are frequently denied property rights and negotiation authority. An ecosystem approach to environmental governance is suggested to represent the interests of both affected communities and ecosystems.

This year's report deals with international governance institutions and treaties such as the Convention on Biological Diversity and the Kyoto protocol. It also discusses corporate and individual environmental governance. The report argues that an institutional structure for environmental governance should be determined by the scale and dynamics of the natural system to be managed. A small forest can often be managed by surrounding local communities, while managing river basins or mitigating acid rain require cooperation across national borders. For complex environmental issues like global warming, the most effective recipe for environmental governance is to find a balance between authorities from the local to higher levels. The report discusses a variety of new institutional and economic arrangements that link users with the ecosystems upon which they depend.

More at:

www.wri.org

(The full report "World Resources 2002-2004: Decisions for the Earth: Balance, voice, and power" will be released in February 2003.)

New FAO-report highlights global public goods

The FAO has highlighted the importance of ecosystem services as global public goods (GPGs) in this year's report "State of Food and Agriculture." Focusing on GPGs can also contribute to poverty alleviation.

The concept of global public goods (GPG) is being used increasingly often in sustainable development discussions. Normally, GPGs refer to health, knowledge, cultural heritage, financial stability, peace and security, but the new FAO-report focuses on GPGs related to agriculture and natural resources. These land-related GPGs include ecosystem stability, biodiversity conservation, carbon sequestration, forest biodiversity and hydrological stability.

The report describes mixed results in efforts to improve the provision of GPGs since the 1992 Rio Earth Summit. Progress rehabilitating degraded lands has been slow, but more area is now protected for the conservation of biodiversity. There is still a net loss in forest cover, but deforestation rates have decreased, and there has been a major shift towards sustainable agriculture.

The report notes the importance of compensating those who make the provision of GPGs possible, for example by refraining from logging a private forest. However, official development assistance has decreased since Rio, and has failed to reach the Rio-approved level: 0.7% of GNP. Foreign direct investments are motivated by market opportunities and cannot be expected to generate GPGs. However, international initiatives such as the Global Environmental Facility have ensured the provision of GPGs through multilateral environmental agreements.

New funds are being established which could finance GPGs, including the Clean Development Mechanism (CDM). The FAO report discusses whether the CDM could reduce global net emissions of carbon dioxide and also contribute to poverty alleviation. The CDM allows investors from developed countries with high emissions to purchase a "carbon credit"



Poor people can be compensated for conserving forests, like this one in Costa Rica, in order to mitigate global warming.

from developing countries, which, in return, reduce their emissions or increase carbon sinks by for example conserving forests or investing in clean technologies. Poor landowners can be compensated for keeping their land in a state that maintains or increases the rate at which carbon dioxide is sequestered. Specific efforts must, however, be made to ensure that carbon credit payments will reach the poor. It is also important to identify land-use patterns associated with poor land-users, as well as the potential private and social costs and benefits of the carbon credit system.

/Louise Hård af Segerstad

More at:

Download the FAO-report at:

www.fao.org/DOCREP/004/Y6000E/Y6000E00.HTM

Another report, "Forest Carbon and Local Livelihoods", from CIFOR (Center for International Forestry Research) and Forest Trends, looks more in depth at what the clean development mechanism might mean for the rural poor:

www.cifor.cgiar.org/publications/pdf_files/OccPapers/OP-037.pdf



The Sustainable Development Update focuses on the links between ecology, society and the economy. It is produced by Albaeco, an independent non-profit organisation, in cooperation with the Center for Research on Natural Resources and the Environment (CNM) and the Department of Systems Ecology, both at Stockholm University; the Beijer International Institute of Ecological Economics; the Resilience Alliance; and the Stockholm Environment Institute (SEI). It is produced with support from Sida, the Swedish International Development Cooperation Agency, Environment Policy Division.

Feedback: We welcome comments, questions, and article ideas. **Editor:** Fredrik Moberg, fredrik@albaeco.com **Want to subscribe?** Send an e-mail to sdu@albaeco.com with the word *subscribe* in the subject line. **Want to read the newsletter at our website with clickable links?** www.albaeco.com/sdu/newsletter.htm **Thanks to** the following individuals for their thoughtful comments and/or assistance: Carl Folke, Lisa Deutsch, Louise Hård af Segerstad, Amy Rader-Olsson, Maria Schultz, and Mats Segnestam. **Contributors:** Cecilia Holmlund, Department of Systems Ecology, Stockholm University; Louise Hård af Segerstad, Albaeco.