

Sustainable Development Update

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

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Issue 4, Volume 3, 2003

“ The complex relationship between the health of ecosystems and people is too seldom taken into account in conventional health practices. ”

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“Cows are better off than half the world”



More on page 4



Water experts from academia, business, NGOs, international organisations, civil society, government, from around the world gathered August 10-16 in Stockholm.

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“Will the Millennium Development Goals be achieved? That is often the first question that people ask about these goals – but this is the wrong question. We should be asking what does it take to achieve the goals?”

Sakiko Fukuda-Parr, Director and Editor-in-chief, Human Development Report 2003

www.undp.org/dr2003/sakiko.html

World's poor will suffer most from climate change – High dependence on climate-sensitive livelihoods and fewer options for responding mean problems as planet warms



Climate change is expected to increase the number of extreme weather events, like drought. Many poor countries already suffering from water scarcity will be most affected. Photo: Corel Corp.

Rich nations contribute most to global greenhouse gas emissions, but the poor are expected to suffer the most.

In combination with other environmental pressures, climate change will make it more difficult to alleviate poverty, increase food security and reduce ill-health in poor countries.

Climate change risks must therefore become integrated parts of poverty alleviation strategies.

More in the feature article on page 2-3

Editorial:

“With time, and enough water, everything is possible”

The words above are from Leonardo da Vinci, Italian renaissance painter, architect, scientist, and philosopher. Recently, I came across another quote. This time from a less well-known anonymous Indian woman, but definitely along the same line:

“We cannot do any kind of work as we spend all our time on searching for and fetching water. We have to leave our children home alone. We cannot give them proper food and they are not able to go to school.”

This quote is from a project called “Water Voice” that was launched to collect grass-roots opinions and comments on water issues ahead of the 2003 World Water Forum. The project documents the voices of people who live in less accessible areas, without Internet and far from any international conference. It shows the importance of understanding poverty and lack of water from the perspective of the poor themselves.

Water is a major driving force of social, economic and cultural development. Presently, more than a billion people lack access to clean water and 2.4 billion lack access to proper sanitation. According to the World Water Development Report 2003 these figures are likely to worsen in the coming decades due to population growth, pollution and climate change.

Large parts of international water management practice and engineering evolved in water-rich areas. No wonder, then, that many in the development community were long “water-blind”, assuming water to be infinitely available. But this is beginning to change, not the least thanks to the famous Swedish water expert, Malin Falkenmark. She often talks about the “thirst of the atmosphere” to explain the differences between Northern, temperate countries and the driest countries. Imagine a barrel placed where it rains 1000 mm annually. Place one barrel where the possible annual evaporation is 500 mm, barrel two where it is 1000 mm, and barrel 3 where it is 1500 mm. After 2 years barrel 1 has overflowed, the water table in barrel 2 is unchanged, while barrel 3 is empty. Barrel 1 and 2 are situated in climates that are typical for the industrial countries, barrel 3 in a climate typical for many of the poorest countries.

The political and economic world leaders could learn a lot from this thinking exercise. They cannot afford to be “water blind” if they really want to change the course of development for a growing amount of people in poor countries. People and ecosystems need water. Without enough water many things are impossible. Even time becomes limited.

/Dr. Fredrik Moberg, Editor

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World's poor will suffer most from climate change

– High dependence on climate-sensitive livelihoods and fewer options for responding mean problems as planet warms

Climate change is real and at least partly caused by us humans. In combination with other environmental pressures, climate change will degrade many goods and services provided by ecosystems to humans. This will make it even more difficult to alleviate poverty, increase food security and reduce ill-health in developing countries. Climate change responses and adaptation measures must therefore become integrated parts of strategies for poverty alleviation.

Few scientist doubt these days. Climate change is a reality and humans are at least partly responsible. According to The Third Assessment Report of Working Group I of the UN climate advisory body (IPCC) "there is new and stronger evidence that most of the warming observed

Box: The greenhouse effect

Without the natural greenhouse effect the Earth's average global temperature would be -18 degrees Celsius, rather than the present +15 - too cold for most forms of life.

The greenhouse gases in the atmosphere (e.g. water vapour, carbon dioxide, methane, and nitrous oxide) let in light but keep heat from escaping into space. Just like the glass panels in a greenhouse.

Since industrialisation, however, the levels of many of these greenhouse gases in the atmosphere have increased too much, due mainly to the increased burning of fossil fuels, like coal, oil and natural gas.

over the last 50 years is attributable to human activities" – primarily increased emissions of carbon dioxide from our use of coal, oil and natural gas. A recent UN-report shows that the world's most industrialised countries will continue to increase their emissions of greenhouse gases by 17 percent this decade, a setback after a near stabilisation in the 1990s. 2002 was the second hottest year since the late 1800s and the nine warmest years on record have occurred since 1990. Experts also say that climate change is highly likely to increase the number of extreme weather events, such as storms, floods and drought. There are also calculations showing that the number of big weather catastrophes worldwide has actually quadrupled since the 1960s.

World's poor in trouble as planet warms
It is well known that rich nations contribute disproportionately to the global greenhouse gas emissions. In 1999, per capita carbon dioxide emissions in high-income OECD countries exceeded 12 metric tonnes – compared with 0.2

tonnes in the least developed countries. Ironically, poor countries and communities are expected to suffer the most from the negative impacts of climate change. The reasons for that are these countries' geographical and climatic conditions, their high dependence on climate-sensitive natural resources, and their limited institutional and financial capacity to predict and respond to a changing climate. This is also indicated by the fact that more than 96% of natural disaster-related deaths in recent years have taken place in developing countries. Moreover, many developing countries that already suffer from water scarcity are expected to become even drier due to climate change.

In these poor countries climate change is also likely to have particularly adverse effects on human health. Among the

Box: Why the poor are more vulnerable to climate change

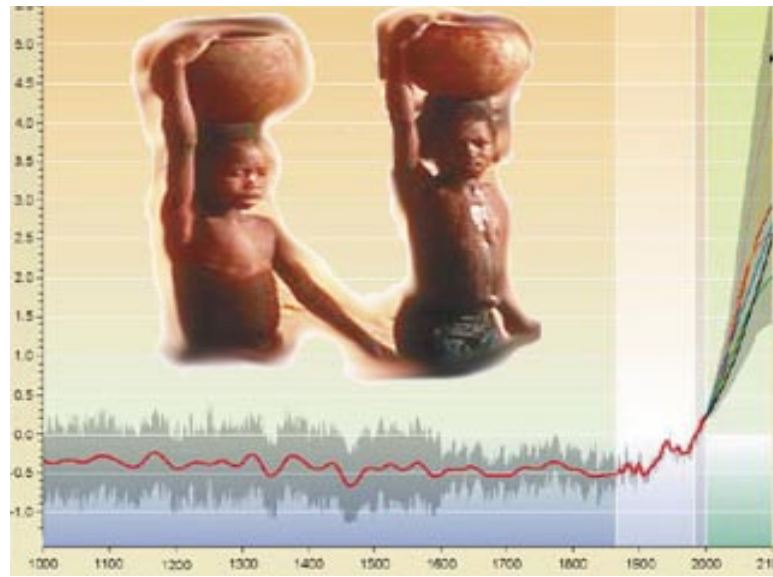
Many poor are highly dependent on climate-sensitive livelihoods as farming, fishing, or forestry.

The poor have fewer options for responding to climate change, due to limited human, institutional, and financial capacity.

The poor often live in more vulnerable areas, prone to e.g. droughts and flooding (e.g. water scarce areas or along coastlines).

The negative health effects impact poor people more due to lack of a functioning health care system, clean water and sanitation as well as malnutrition.

causes are increases in the incidence of extreme weather events, such as heat waves and flooding, as well as exposure to infectious diseases. Warmer climate can also result in disease-carrying insects and rodents inhabiting broader ranges of habitat, possibly leading to increased incidence of malaria, yellow fever and dengue fever. Moreover, harmful ground-level ozone forms more readily when temperatures are higher, and harmful algal blooms can be promoted by increased sea surface temperatures. Ecological disturbances leading to changes in food and water supplies can also indirectly affect



Picture of African boys collecting water overlaid over IPCC's graph of Earth's surface temperature from year 1000 to 2100.

human health.

Even though many now say that climate change is a serious threat to poverty eradication, current development strategies still tend to overlook climate change risks. This was recently concluded in the report "Poverty and Climate Change: Reducing the Vulnerability of the Poor through Adaptation" that was launched in June 2003 by ten bilateral and multi-lateral agencies (for details, see below).

However, some claim that in temperate areas the warming can have positive effects, at least to begin with. In Sweden we might experience increased output of forest products, crops and hydroelectric power, and the energy required for heating homes might be reduced. Nonetheless, large parts of the world population live in warmer countries, and also colder areas will suffer from increased incidences of extreme weather events and ecological changes. So, there is an obvious risk that climate change will eventually have serious consequences for the global economy and world stability.

Ecosystems vital to human development are vulnerable

The IPCC Second Assessment Report claims that many ecosystems vital to human development and well-being are vulnerable to climate change. In these systems reductions in biological diversity, and the goods and services they provide to society, are likely.

Already today climate change is threatening whole vulnerable ecosystems, like coral reefs, mangrove forests, and the Polar Regions. Many scientists warn that climate change is becoming an additional stress on ecosystems and species that are already affected by land-use change; pollution; over-harvesting; and the effects of invasive species.

Coral reefs and mangroves are vital systems for many poor communities. Tourism and fisheries often form the economic mainstay of small coral reef na-

tions. A rise in sea temperature of only 1 degree C can cause bleaching followed by mass death of coral, especially in reefs already stressed by overfishing and pollution. Likewise, many mangrove ecosystems are highly vulnerable to the effects of climate change. For example, it has been calculated that a 45 cm sea-level rise could inundate 75 % of the Sundurbans, the world's largest mangrove forest, in Bangladesh.

Earlier this year scientists said that the average rise in global temperature of 0.6 °C in the last 100 years has already affected many species. Climate change may directly affect species leading to earlier flowering of trees and egg-laying in birds, lengthening of the growing season, and changes in distribution (e.g. pole-ward and altitudinal shifts in ranges). Warmer temperatures could also disrupt predator-prey relationships that normally keep pest populations in check. For example, in Zimbabwe 6 years of drought eliminated many rodent predators entailing an explosion of rodent populations that damaged the grain crops. All these impacts are probably getting worse if warming increases by 6 °C the coming hundred years, as some have predicted. Plants and animals may not be able to react quickly enough and many can even be driven to extinction.

New development strategies needed

Recent research has warned that global environmental change will entail increasing environmental variability and uncertainty in fisheries, forestry and agriculture. This means that rigid governance systems with prescriptions for resource use and command and control measures will become outdated. Instead new development strategies are needed that minimise the undesirable effects of climate change and enhance the resilience of vulnerable social and ecological systems. In this con-

text modern societies can actually learn from traditional communities with long-term experience in environmental uncertainty. Many such traditional methods to cope with environmental variability and disturbance appear to have developed by trial and error and by responding to environmental feedback.

This approach is now advocated by modern science and promoters of "adaptive co-management" (see SDU1/03). The conservation, restoration and sustainable use of ecosystems, and the goods and services they provide, may in fact protect against the negative effects of climate change. For example, mangrove forests protect coastal areas to sea level rise and extreme weather events, and upland forests and wetlands can moderate floods from heavy rain and improve water quality.

Power to the poor without climate change

Two billion people have no access to electric lighting or decent cooking facilities. Is it really possible to make electric power available to all these people without messing up the world's climate? The industrialised countries, especially the United States, still lead the world in per capita greenhouse gas emissions. However, the total emissions from developing nations are growing fast and are expected to exceed those of the industrialized world in the next century. A transition toward a new energy system based on renewable energy from the sun, streams, wind, waves and tides must be the solution, many say. Lester Brown, former president of the Worldwatch Institute, reports in his book *Eco-Economy* that 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 by only one percent a year and coal use declined

by one percent annually over the same period.

However, the developing countries are only likely to limit their emissions if they believe they will be able to develop fast enough by adopting renewable, efficient energy systems. This requires sufficient assistance by the richer, industrialized nations, many say. A recent strategy adopted by the European Commission meet these challenges. It is aimed at integrating climate change concerns into EU development cooperation activities. The strategy places the emphasis on adaptation to climate change, capacity development and research.

"The developing countries are the most vulnerable to climate change and therefore deserve our full support in addressing this threat," said Environment Commissioner Margot Wallstrom.

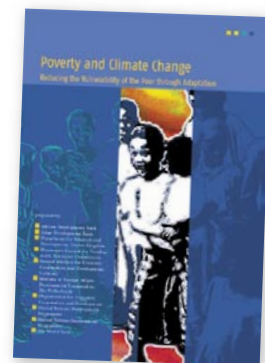
Want to know more?

"Poverty and Climate Change: Reducing the Vulnerability of the Poor through Adaptation": <http://www.oecd.org/dataoecd/60/27/2502872.pdf>

"Climate Change and Health" from the World Resources Institute: <http://www.wri.org/wr-98-99/climate0.htm>

IPPC report on climate change and biodiversity: <http://www.ipcc.ch/pub/tpbiodiv.pdf>

About climate change and biodiversity from the Convention on Biological Diversity: <http://www.biodiv.org/programmes/cross-cutting/climate/>



Ecosystem health and human health intimately linked

Can people remain healthy in a natural environment that is sick? The Ecohealth approach is a new initiative that challenges donors and governments to look beyond conventional health practices in developing countries.

High exposure to chemical insecticides has decreased the mental capacity of potato farmers in the Carchi Province of Ecuador. The farmers are among the heaviest pesticide users in the world. How can a sustainable balance between health and productivity be achieved in this potato farming system through safe pesticide practices? Questions like this are central to the "Ecohealth" approach, or more precisely: The Ecosystem Approaches to Human Health Program Initiative, hosted by Canada's International Development Research Centre.

The Ecohealth initiative supports research on the links between the health of people and the sustainability of their life-supporting ecosystems, with special emphasis on improving human health in developing countries. This is badly needed as a third of the health burden in developing countries can be attributed to environmental risk factors. However, the complex relationship between the health of ecosystems and people is too seldom taken into account in conventional health practices. The Ecohealth initiative focuses on solutions based on

ecosystem management rather than health sector interventions. Therefore, the people behind the initiative challenge scientists, governments, international organisations, and donors to revise mainstream health programming and policies.

While the Ecohealth Program Initiative focuses on ecological factors that influence human health, it also recognizes that economic, social, and environmental components play equally important roles. On their website twelve interesting case studies from around the world demonstrate how the Ecohealth approach can be used to find practical, low-cost solutions for interwoven systems of people and nature.

More at: <http://www.idrc.ca/ecohealth>



Environment and health: Few safety precautions led to pesticide poisoning among potato farmers in Carchi, Ecuador. Photo: IPM CRSP

Human Development Report 2003: "Cows in rich countries are better off than half the world"



The Human Development Report 2003 is full of upsetting facts. But, if rich and poor countries alike set their minds to the practical tasks recommended in the report the world could foresee the absolute end of poverty within a generation, says one of the editors.

One of the upsetting facts of the latest Human Development Report (HDR2003) is that the world's poor would actually

be better off as cows in the rich countries. Whereas the average European cow gets \$2.20 a day in subsidies and other aid, 2.8 billion people in developing countries live on less than \$2 a day. No wonder, then, that the report warns that the world is facing an acute development crisis, with many poor nations suffering severe and continuing socio-economic reversals.

Criticised Human Development Index

HDR is published by the United Nations Development Programme (UNDP) and famous for its Human Development Index (HDI). The HDI looks beyond income to assess long-term well-being and the role of people in development. Three basic features of human development are included in the measurements: longevity, knowledge, and a decent standard of living. The HDI has, however, been heavily criticised and even called "misleading" in regards to measuring environmental effects. Many poor countries now develop at the cost of their natural ecosystems - although they seem to be performing well

according to the HDI.

Nonetheless, the Human Development Report homepage is a highly practical resource. It is full of data, background papers, media kits and more. One of the entries on the website is "Do you know that". It is a long list of interesting, enlightening, educational, terrifying and even encouraging facts from the HDR2003:

- OECD countries subsidize agricultural production and exports by over \$300 billion a year, nearly six times what these countries provide in total foreign aid to the developing world.
- Soil degradation affects nearly 2 billion hectares, damaging the livelihoods of up to 1 billion people living on drylands.
- Around 70% of commercial fisheries are either fully or overexploited.
- 1.7 billion people - a third of the developing world's population—live in countries facing water stress.
- Patients suffering from water-borne diseases take up half the world's hospital beds.
- More children have died through diarrheal disease in the past decade than all people lost in conflict since World War 2
- However, in the 1990s, child mortality was reduced by a third or more in 63 countries— in more than 100, it was cut by a fifth.

So, despite all international commitments to alleviate poverty and improve human development, the HDR2003 concludes that, "in practice, the world is already falling short". "A huge amount of work remains".

Despite all this Jeffrey Sachs, Special Adviser to the UN Secretary-General on the Millennium Development Goals, and the guest contributing editor of the 2003 Report remains positive: "If rich and poor countries alike set their minds to the practical tasks recommended in the Human Development Report, we can foresee the absolute end of poverty within a generation".

Want to know more?

<http://www.undp.org/hdr2003/>

Before the flood – new initiative to mitigate flood damage

The International Flood Network (IFNet) is a new initiative to globally coordinate initiatives to mitigate flood damage. One of the major goals is to contribute to economic stability in poor areas by improving the coordination and effectiveness of measures to manage floods and reduce the loss of life and property damage that they cause.

The International Flood Network (IFNet) was set up at the 3rd World Water Forum in March 2003 in Japan. IFNet will make use of accumulated precipitation data, probability estimates of precipitation, and the latest satellite and ground station observations of rainfall, to make predictions about flooding. Through the Internet, alerts to the countries concerned can then be sent out. The data will also be made available online.

Such information is of great importance for poor people living in the vulnerable but rich floodplains. These valuable land areas with rich soils and moderate slopes are ideal for agriculture. Depending on the region and the season, small to moderately sized floods may do little damage and rather have positive effects bringing nutrient rich soils to flood plains, and recharging aquifers.

However, in some parts of the world, floods are a constant threat to life and property, causing damage, and threatening the chance of attaining sustainable development where it is most needed. In addition, global climate change is expected to make these problems more severe.

The network is still in its infancy and will not be fully functioning until 2007, but a trial run is planned in 2004. IFNet will also provide a mechanism for the exchange of information by establishing an interactive website and circulating a periodic



In some parts of the world, floods are a constant threat to life and property, causing damage, and threatening the chance of attaining sustainable development for many poor living in vulnerable areas. Photo: Corel Corp.

newsletter. The new network will also co-sponsors symposia, workshops and other meetings on topics related to flooding.

/Caroline von Post Carlsson

For more information:

<http://www.idi.or.jp/vision>

The World's water experts gathered in Stockholm recently for the 2003 World Water Week. Prices were handed out, new initiatives launched, key global water-related issues were discussed, and once again it was concluded that wise water use is central to achieve sustainable development and poverty alleviation.

Wise water use is central to achieve sustainable development and poverty alleviation. This was once again concluded when the world's water experts from academia, business, NGOs, international organisations, civil society and governments gathered August 10-16 in Stockholm. "Even though water is precious to us, we do not always treat it as a precious resource. Water is used and managed in a fragmented and unsuitable manner", said Lena Sommestad, Swedish Minister for the Environment, in her opening speech of the 2003 World Water Week and the 13th Stockholm Water Symposium. Sommestad continued: "The Stockholm Water Symposium is also a link between practice, science and policymaking. As a politician, I greatly appreciate this contribution. Co-operation between us is a key to progress."

This year's Symposium had the theme of "Drainage Basin Security – Balancing Production, Trade and Water Use." Key global water-related issues were discussed, including poverty reduction, water and agricultural subsidies, climate change, ecosystem protection, pollution, governance, trans-boundary issues, and "virtual" water (see further description in SDU3/03).

Millennium Development Goals in focus

A large part of the discussions at the Symposium revolved around the UN Millennium Development Goals and the targets to halve by 2015 the proportion of the world's population lacking safe drinking water and safe sanitation.

The World Water Forum, which was held in Japan in March, also launched its Final Report during the symposium in Stockholm. Moreover, the EU Water Initiative was discussed. In particular these discussions dealt with the Africa-EU Strategic Water Partnership that was launched to help African



Swedish Crown Princess is handing out the Stockholm Junior Water Prize. Claire Reid, South Africa, received it for inventing a seed-planting device to be used in dry and poor areas.

countries to achieve the UN Millennium Development Goals and targets for water agreed at the World Summit in Johannesburg. The Initiative seeks to build new partnerships, increase donor co-ordination, use financial resources for water more effectively and increase access to funds for water services.

The Stockholm Water Prize was handed out to Professor Peter A. Wilderer of the Technical University of Munich (see SDU3/03). Stockholm Industry Water Award and Swedish Baltic Sea Water Award were also presented. The 2003 Stockholm Junior Water Prize winner, Claire Reid from South Africa, received \$5,000 for inventing a practical and uncomplicated seed-planting device to be used in dry and poor areas. It is made out of a newspaper and said to cut down water usage by 80% by absorbing water and decreasing leakage into the soil, thus keeping the seed constantly moist.

More at:

<http://www.siwi.org/waterweek2003>

See also in-brief article on page 6 about subsidies.

The environment and public benefits neglected as the electric power sector is reformed in both rich and poor countries

The electric power sector in both developing and developed countries is switching from public to private ownership due to reforms. Unfortunately, public benefits and environmental protection tend to become neglected in the conversion. This was claimed at an international workshop in Stockholm earlier this summer.

As reforms are introduced into the electric power sectors around the world, public benefit programmes and environmental obligations are being lifted out of the public sphere into the private one. There is mounting evidence from developing and developed countries alike that important public benefit and environmental protection programmes fall through the cracks during these reforms. This was the major conclusion from the international workshop "Public Benefits and Power Sector Reform", held in Stockholm in May 2003. It was co-arranged by Stockholm Environment Institute (SEI), International Energy Initiative (University of Cape Town) and the Department of Environmental and Energy Systems Studies (Lund University).

The power sector has important roles to play in delivering public benefits, but is also a major contributor to environmental degradation. While electricity liberalisation has led in some cases to improved technical performance and economically more efficient markets, these benefits have been outweighed by negative environmental, social and indeed, economic impacts. Today, power companies in increasingly competitive markets find it more and more difficult to maintain spending on

programmes that promote public benefits and sustainable development. Long term public interest in energy conservation and environmentally sound energy technologies are consequently neglected. This is largely due to shortened time horizons, increased borrowing costs, and increased requirements for high rates of return, after the switch from public to private ownership.

The workshop also discussed how public benefits are defined? Ideally the public, through a democratic process should define what public benefits are. However, there is still a tendency that this definition is made with limited stakeholder participation. Issues of environmental protection and ecological sustainability are frequently not included.



/Mattias Nordström

More information:

A report from the workshop will be published at www.sei.se. The workshop was the first in a series and part of the Programme on Information and Dissemination on Energy and Environment at SEI.

The programme is funded by the Swedish International Development cooperation Agency (Sida).

For more information, please contact Anders Arvidson: anders.arvidson@sei.se

“We would like to subsidize water but we can't, the money we are using is not ours, it's yours!”

Poor nations find their products locked out of developed nations' markets by high tariffs and highly subsidized goods from the EU and US. Also trade between South to South is disturbed because of market flooding by subsidized goods from the North. This was claimed by many participants at a panel debate at the World Water Week, held in Stockholm August 10-16.

The panel debate, entitled “Agricultural Subsidies from a water perspective: are subsidies steering crop production away from hunger and poverty alleviation?”, focused on the complicated links between trade barriers, agricultural subsidies and water issues.

Participants agreed on the major effects of trade barriers and subsidies – locking out developing countries goods. Professor Peter Rogers, Harvard University, USA noted that when discussing subsidies, it should include all kinds of subsidies, like subsidies to agricultural chemicals, diesel fuel, elections - not just direct water subsidies. However, if subsidies given are tied to certain environmental and social conditions, they can have positive effects in saving livelihoods.

Ravi Narayanan, Director of Water Aid, UK stated: “Unpack the idea that subsidies are bad! They are necessary at a certain time and period. I'm more concerned with livelihoods. Very large amounts of people are dependent upon agriculture. Tying the belt on an empty belly is not a feasible option. What will be the impact if you can't survive the change?”

“We've been driven out of agriculture”

Maria Mutagamba, Minister of Water in Uganda on the other hand concluded that the impacts of subsidies in the North are big: “...in Africa we've been driven out of agriculture that is our backbone. Eighty percent of the Ugandan population is dependent upon agriculture. We would like to subsidize water but we can't, the money we are using is not ours, it's yours! With democracies in the North people can voice their protests, but in Africa you have riot after riot. The farmers move to the next land where there is still wet land so we have destroyed our forests and the rain patterns are distorted.”

Agricultural subsidies are also having negative effects in countries of the North as Professor Pedro Arrojo-Agudo, University of Zaragoza, Spain brought up. In his country, agricultural subsidies to greenhouses and touristic developments



Participants of the panel debate concluded that subsidies lock out poor countries goods. Photo: Caroline von Post Carlsson

along the Mediterranean coast have led to an overexploitation of surface and groundwater resources.

Mr. Anders Wijkman, representing the European Parliament, said that the current economic model has its limitations. “Farming and agriculture cannot be compared to manufacturing – farming and agriculture have to do with biodiversity and livelihoods etc. Subsidies in Europe are enormously flawed. There is an ongoing painfully slow process and I'm embarrassed.” He also expressed a wish for getting more politicians involved.

The Northern countries often claim that subsidies are necessary to keep their countryside alive. The subsidised goods that flood the markets in developing countries can have devastating effects on the livelihoods there as Munthir J. Haddadin, Former Minister of Water and Irrigation, Jordan, exemplified. When trade barriers were lifted in Jordan people then chose to buy less expensive imported fruits; the Jaffa oranges depressed the market price.

The debate ended with suggestions for necessary actions that are needed to overcome trade barriers – such as the need for the countries of the South to come together; the need to establish responsible trade patterns; stopping subsidies that are harmful socially and environmentally; and the need for a moral responsibility of the developed countries. Also, the trade liberalisation process in developing countries should include helping to build democratic conditions, trade union rights, environmental legislation, and supporting local farmers in such a way that they too have access to international trade opportunities.

/Caroline von Post Carlsson

More at:

<http://www.siwi.org/waterweek2003>

Sustainability School: Natural capital



Pollination has been estimated to be worth about 400 billion US dollars annually.

Natural capital is an extension of the traditional economic notion of capital. The term was coined to represent the natural assets that economists, governments, and corporations tend to leave off the balance sheets. Natural capital can be either non-renewable resources, like fossil fuels and mineral deposits, or renewable resources, such as the quantity of fish or timber that can be harvested without affecting the sustainability

of the stock. A third category of natural capital is ecosystem services (e.g. the generation of fertile soils, purification of air and water, the mitigation of

floods and drought, pollination and pest control). These goods and services provided by natural ecosystems are of immense economic value - many are literally priceless, since they have no known substitutes. We simply cannot live without them. Natural capital has constantly been on the decline since the beginning of industrialisation.

Now, many argue that we are facing a historic juncture in which the limits to increased wealth are not the lack of conventional form of capital assets (machines, buildings and infrastructure), but the lack of natural capital. As this natural capital is already depleted in many poor countries, there is a growing need to find a new system of development in developing countries – a system that realises the full value of ecosystem goods and services. A system that takes natural capital into account.

More at:

http://www.wri.org/business/tm_03_natural_capital.html
<http://albaeco.com/sdu/06/index.htm>



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