

Sustainable Development Update

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

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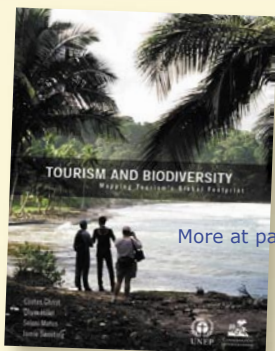
“ International scientific assessments often ignore the vast knowledge and expertise of local and indigenous peoples ”

[More at page 3 >>](#)



Squeezing the maximum food from each drop of water is a must to meet the UN Millennium Development Goals. This was concluded in a Swedish report at the 12th meeting of the UN Commission on Sustainable Development (CSD 12).

[More at page 6 >>](#)



[More at page 4 >>](#)

“I think it is a good educational opportunity, and that we should treat a disaster movie as entertainment and not get upset that it is a distortion. But \$125 million on global warming must be a record for publicizing the issue.”

Daniel B. Botkin, professor, University of California, Santa Barbara, commenting the new climate change Armageddon blockbuster: “The Day After Tomorrow”.

<http://www.nature.com/nsu/040510/040510-6.html>

The more the merrier?

Current technified, single-crop and corporate-dominated agriculture have indeed produced more and cheaper food. But it has too often failed to feed the hungry, and produced numerous negative environmental side effects along the way.

Maintaining biodiversity in and around fields can be part of the solution. This can make food production less vulnerable and reduce the need for chemical fertilisers and pesticides while improving water use and soil structure.

More in the feature article, page 2-3



What kind of agriculture do we need to feed the world?

Editorial:

How to make your morning coffee taste better

In 1997 UNDP calculated that we Europeans spend more on icecream each year than it would cost to provide water and sanitation for the world population currently deprived from them. I kept thinking about this and another parallel unfairness while at my favourite coffee shop this morning. I actually



spent more on my Caffè latte than half the world lives on per day. The farmer who grew the beans probably received less than one-tenth of the price I paid.

Nonetheless, coffee is the developing world's most important

source of foreign capital, and the world's second most important legal commodity in international trade. It is a crucial source of income for almost 25 million people. Most of these are employed in small-scale labour intensive enterprises.

Coffee was traditionally grown in mixed plantations in the rainforests with other plants below and above it. Unfortunately, many of the coffee plantations have abandoned the traditional shade grown methods for intensive, “sun-grown” coffee that uses more chemical fertilisers and pesticides. Actually, many of the pesticides that are used in the coffee producing developing countries are banned in the rich countries that

consume the most coffee. With the expansion of “sun coffee”, the diversity and number of birds, insects, and other organisms in the vicinity of the cultivated area is in most cases drastically reduced.

Ironically, this loss of biodiversity in intensive farming systems can have negative feedbacks on production due to the loss of natural habitats for pollinating insects. Insect-pollinated bushes yield more and larger beans than plants that are shielded from bees. So, farmers that want to make the most of their coffee harvest should maintain a bit of natural habitat and not spread pesticides about.

The market for organic and fair-traded coffee is growing, but few coffee shops have adopted this thinking in my hometown. With fair trade, the

“...no sour aftertaste of mugged and poisoned plantation workers and a damaged natural environment.”

small coffee farmers are getting a bigger percentage of your coffee dollar. So, skip the “technified” coffee and go for shade-grown and fair-traded instead.

More flavour bearing oils due to the slower ripening and no sour aftertaste of mugged and poisoned plantation workers and a damaged natural environment. Your morning fix have never tasted better. Promise.

/Dr. Fredrik Moberg, Editor

SDU contents, Issue 2, Volume 4, 2004:

FEATURE

Agricultural biodiversity and food security, p 2-3

IN BRIEF

Linking local knowledge with global science, p 3

Tourism, biodiversity and poverty alleviation, p 4

Focus on organic farming, p 4
Biodiversity Day, p 4

Year of rice 2004, p 5

Poverty-environment Times, p 5
Ralf Yorque Prize, p 5.

E-forum agriculture-poverty, p 5
Biodiversity and COP 7, p 5

Jeju initiative, p 5

How to get 7000 litres of water into 100 g of beef, p 6

SUSTAINABILITY SCHOOL

“Pollinators”, p 6

Agricultural diversity and food security

- How biodiversity can make food production less vulnerable

Biological diversity can make food production in poor countries less vulnerable. It provides genetic information for plant and animal breeding, diversity for a varied diet and risk spreading across a range of domesticated and wild species. Moreover, wild species in and around fields provides ecosystem services like pollination of crops, control of pests and cycling of water and nutrients. Maintaining biodiversity can therefore reduce the need for chemical fertilisers and pesticides while improving water use and soil structure.

Biodiversity, in all its forms – from genes to species to ecosystems, is closely linked to food security. Many poor people spread risks across many different domesticated and wild species rather than relying on a few staples that may become vulnerable to disease, pest outbreaks, climate changes, and market failure. Biodiversity also provides the genetic information necessary for plant and animal breeding as well as diversity for a varied diet.

Loss of biodiversity

Unfortunately, biological diversity is rapidly decreasing throughout the world's natural systems and fewer and fewer species dominate food production systems. The UN Food and Agriculture Organization (FAO) recently stressed that only 150 species, out of the estimated 7,000 to 8,000 that have been used in 10,000 years of agriculture, are cultivated today. Just a little more than ten plant species contribute about 75% of the world's plant-derived calories: bananas, beans, cassava, maize, millets, potatoes, rice, sorghum, soya, sugarcane, sweet potatoes and wheat. Likewise, less than ten species dominate global aquaculture production and almost the entire world consumption of livestock protein comes from poultry, cattle and pigs.

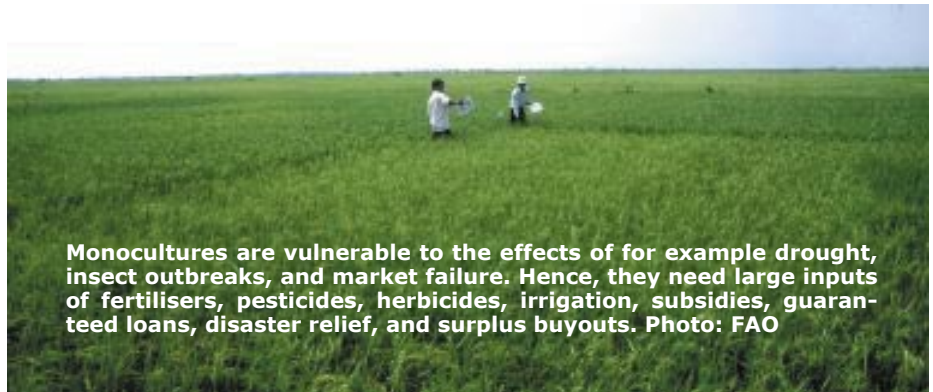
Indeed the Green Revolution succeeded in drastically increasing the amount of food grown. However, along with this trend towards monoculture agriculture

BOX 1: Agricultural biodiversity

Agricultural biodiversity includes the variety and variability of animals, plants and micro-organisms used directly or indirectly for food and agriculture (including crops, livestock, forestry and fisheries).

It comprises genetic resources (varieties, breeds, etc.) and the diversity of species used for food, fodder, fibre, fuel and pharmaceuticals.

It also includes non-harvested species supporting production (e.g. soil micro-organisms and pollinators) and those in the wider environment that support agro-ecosystems.



Monocultures are vulnerable to the effects of for example drought, insect outbreaks, and market failure. Hence, they need large inputs of fertilisers, pesticides, herbicides, irrigation, subsidies, guaranteed loans, disaster relief, and surplus buyouts. Photo: FAO

(where only a single crop is grown), the dependence on irrigation, fertilisers, and pesticides also increased worldwide.

For example, a leaf fungus called Black Sigatoka cuts yields by 50 percent or more on hundreds of millions of small banana farms across the tropics. Commercial banana plantations keep up production with the aid of fungicides – the most intensive application of chemicals on any major food crop. Now a new strain of another banana fungus threatens to make even fungicides useless. The problem is that cultivated banana varieties are seedless, sterile hybrids of the founder species. They can reproduce asexually but crossing them cannot produce new banana varieties that resist the pests.

Reduced use of pesticides and fertilisers

Besides the direct benefits of a diversified agricultural production, farmers also benefit indirectly from biodiversity in many ways. That is, wild animal and plant species – within the farming system and in surrounding habitats – often supply important ecosystem services. These include nutrient cycling, decomposition of organic matter, natural predators which keep pests in check, maintenance of water quality, and pollination (bees, butterflies etc) that help crops to reproduce. In this way biodiversity and the ecosystem services it provides improve water use and soil structure as well as reducing the need for fertilisers and pesticides.

These benefits are fully utilised in so-called agroecosystems, managed ecosystems that are used for agriculture and food collection. Agroecosystems comprise polycultures and mixed systems, including crop-livestock systems (e.g. rice-fish) and agro-forestry (combining timber production with row crops). Traditional agroforestry systems, such as the “shaded” coffee plantations common throughout Central and South America, provide habitat for numerous animals that benefit the farms. A shaded coffee plantation can support up to 180 species of birds that help control insect pests and disperse seeds. However, such traditional agroecosystems are under threat in almost all parts of the world.

Farming and biodiversity effects

Around half of the world's people still live as subsistence or small-scale farmers. Hence, agricultural export commodi-

ties represent a major source of foreign income for many poor countries. For example, coffee and cocoa that are mostly grown in developing countries, rank second in importance only to oil in legal international trade.

As mentioned above, agricultural systems, when managed properly, can maintain important ecosystem functions,



Organic coffee benefits from biodiversity in many ways Photo: FAO

but there is a tendency for biodiversity to become reduced in the wake of modern agriculture. Cocoa and coffee production, for instance, occur mostly in areas identified as biodiversity hotspots and therefore have an impact on biodiversity disproportional to the area of cultivation. The erosion of agricultural biodiversity is also aggravated by deforestation and loss of other natural systems. This leads to losses of wild relatives, important for breeding, and losses of wild foods essential for food provision in times of crisis.

Moreover, the widespread use of pesticides in monoculture agriculture threatens biodiversity directly by poisoning insects, birds and other organisms, and indirectly by destroying habitats and eliminating the food sources of many organisms. It can also have harmful effects on human health and reproduction.

The loss of biodiversity in increasingly intensive agricultural systems has started to have negative feedback on production, in for example coffee cultivations. Coffee, earlier considered self-pollinating, has recently been shown to give greatly increased yields where there are abundant pollinating insects. It could explain why coffee yields have fallen in some areas of Africa and Indonesia, where intensive farming has been blamed for destroying natural habitats, where pollinating insects are found.

Risk spreading and resilience

Many poor farmers spread risk by growing many different crops and different varieties of each crop. This helps to protect poor families from biological, climatic and other shocks or stresses.

One such example is from Rwanda where local bean varieties provided food security during the civil war. 60% of the harvest was lost during the war. Potato harvests, for example, suffered because the crop had become dominated by three varieties. The supply of these varieties, which required regular access to clean seed, fungicide and fertiliser, dried up in the early days of the war. Bean production, on the other hand, remained relatively stable. Over 1,300 local bean varieties continued to be available through local farmer markets. Rwandan farmers mix the locally adapted bean varieties that they plant so a single pest or disease cannot wipe out the entire harvest.

Polyculture is also used by farmers in Samoa as a conscious strategy to reduce the risk of a total loss of food supply during cyclones. More than 40 cyclones have been recorded there since 1831. After two major cyclones some ten years ago, the most important cash crops (banana, breadfruit, coconut) were damaged, and less common crops (like yams) became the staple for a rather long period of time. Moreover, the poor often fall back on a wide range of gathered species in times of

scarcity if staple crops become unavailable.

The Green Revolution, on the other hand, has focussed on a few seed varieties adapted to a high response to inorganic fertilisers and chemical pesticides. American ecologists C.S. Holling and Gary Meffe describe the problems of modern agriculture and the loss of biodiversity as follows:

"Plant species diversity in a natural forest converted to a monoculture may go from dozens or hundreds to one dominant, plus whatever weeds can escape the herbicides. Monocultures are notoriously susceptible to the effects of drought, flooding, insect or pathogen outbreaks, and market vagaries. They consequently require large inputs of energy (fertilizers, pesticides, herbicides, irrigation) and often large societal subsidies in the form of price supports, guaranteed loans, disaster relief, and surplus buyouts."

From this point of view the benefits of monoculture agriculture have often been overestimated at the same time as the benefits of traditional farming have been understated. Comparisons often neglects to calculate the total farm output in terms of other crops (such as rice and fruit trees) and other resources (such as fish in rice fields) in the traditional systems. Moreover, increasing soil infertility, chemical pollution of land and water, pesticide poisoning and growing pest immunity to

pesticides – all associated with modern agriculture – are seldom included in such comparisons.

Can organic farming feed the world?

What kind of agriculture do we need to feed the world then? Whereas the green revolution continues, with ever-newer technologies to produce more and cheaper food, another trend is the growth of organic agriculture. Few people suggest that the industrialised parts of the world should go back to farming as it was done a century ago. However, a growing number of scholars argue that current technology- and chemical-intensive and corporate-dominated agriculture have failed to feed the hungry.

Technology must instead be used more wisely in order to produce more food without harming the environment. This might be achieved by a combination of traditional farming techniques, new farming practices like organic agriculture, and a range of 'green' technologies. Exactly how this is to be done is the greatest challenge for agriculture in the 21st century, especially in developing countries.

/Fredrik Moberg

More at:

<http://www.fao.org/biodiversity/index.asp>

http://www.iucn.org/themes/wcpa/pubs/pdfs/biodiversity/biodiv_brf_06.pdf

Linking local knowledge with global science

International scientific assessments have often ignored the enormous knowledge of local and indigenous peoples. This is about to change. In March about 200 scientists and local and indigenous experts met in Alexandria, Egypt, for a Millennium Ecosystem Assessment (MA) conference on the importance of traditional and indigenous knowledge in improving public understanding of environmental processes.

In March 2004, a Millennium Ecosystem Assessment (MA) conference called "Bridging Scales and Epistemologies-linking local knowledge with global science in multi-scale assessments" was held in the new library in Alexandria in Egypt. The aim of the MA-studies is to link existing local knowledge about local ecosystems with scientific knowledge about ecosystem health on a global scale. The long term goal is to use these results in order to create a global panel on ecosystems, similar to the IPCC, Intergovernmental Panel on Climate Change.

"Environmental changes affect people globally and locally. Yet, international scientific assessments often ignore the vast knowledge and expertise of local and indigenous peoples," said Dr. Walt Reid, executive director of the Millennium Ecosystem Assessment. "This ranges from detailed records of species diversity to stories of species migration and weather patterns that are passed down through village elders, hunters, and farmers."

Scientific scenarios presented in a play

It is still too early to say whether the MA-study will have an impact on decision-makers on the global level or not, but the conference did give a couple of examples on interesting processes that have been started. One study focused on scenarios for the future livelihood of farmers in a South



Researchers and local community members in Quechua, Bolivia, discuss the benefits and techniques of a project. Photo: FAO

African village. Instead of only reporting the results back to the scientific community, the researchers presented the villagers with their results in the form of a play. A drama group reflected three scenarios based on the villagers' views of their future. The play made it clear to themselves that they were all waiting for the government to save them from poverty, something that the government will never do. If they want out of poverty, they have to take action themselves.

There are of course many challenges with using traditional knowledge, since it is a blend of local practices, beliefs and myths inherent to the culture. For example, how does one judge whose knowledge really counts? What is "good" and useful knowledge and what is superstition? When both conservation of nature and culture is needed, is there a risk that also suppression, ignorance and superstition is conserved?

/Christina Schaffer

More at:

<http://www.millenniumassessment.org/en/article.aspx?id=36>

Is tourism and biodiversity conservation compatible in poor countries?

Tourism is one of the world's fastest growing economic sectors. Much of the expansion takes place in fragile high biodiversity areas located in poor countries of the South. This can entail negative impacts on the environment and people's livelihoods, but well-managed tourism can contribute to biodiversity conservation and poverty reduction.

Tourism generates 11 percent of global GDP and employs 200 million people. International tourism constitutes up to 40 percent of GDP in developing economies, compared to 3–10 percent in advanced economies. Tourism has increased by more than 100 percent between 1990 and 2000 in the world's Biodiversity hotspots – the Earth's most fragile, high biodiversity areas facing extreme threats – according to a report by Conservation International (CI) and the United Nations Environment Programme (UNEP). The majority of biodiversity hotspots are located in the developing countries of the South. In many of these countries, such as Belize, Brazil, Costa Rica, Kenya and South Africa, a large proportion of tourism's GDP contribution can be directly linked to biodiversity itself as the primary tourism attraction.

While tourism can be a major threat to biodiversity conservation efforts, it also has the potential, when properly managed, to provide opportunities for biodiversity conservation and poverty reduction.

Ecotourism for the benefit of local people and wildlife

“By linking tourism development with biodiversity conservation and the well being of local communities, we can develop strategies that both conserve Earth's most endangered ecosystems and help make a significant contribution to alleviating poverty”, says Costas Christ, Senior Director for Ecotourism at Conservation International and lead author of the report.

This can be achieved both directly by benefits from biodiversity assets and indirectly by reducing the vulnerability of the poor to environmental degradation through biodiversity conservation.

Considering the linkages between biodiversity and

tourism, and between biodiversity and sustainable livelihoods, it is clear that no biodiversity conservation strategy based on tourism alone is likely to succeed, the report concludes.

However, ecotourism – environmental sustainability, protection of nature, and supporting the well being of local peoples – can have positive impacts on biodiversity and provide important livelihoods for local communities. As such it has a major advantage over other forms of development (such as timber extraction, mining, etc.) with respect to biodiversity conservation and poverty reduction.

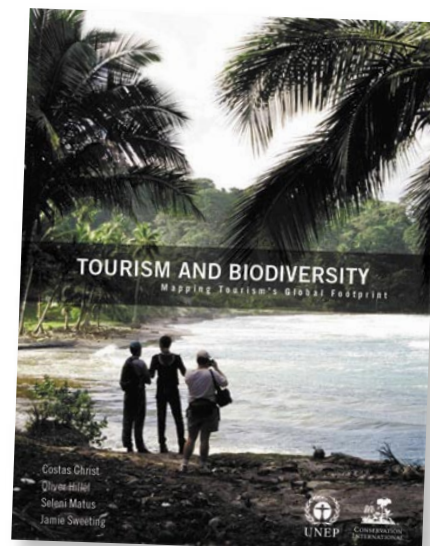
Poorly planned tourism development, on the other hand, has a range of negative impacts. These include clearing of forests for infrastructure development, pollution, introduction of invasive species and degradation of water supplies. Unfortunately, much of the revenue that is retained in the destination country, is captured by rich or middle-income groups – not the poor.

“It is in everyone's interest, particularly the industry's, that the economic power of 21st century tourism is harnessed for the benefit of local people and wildlife,” said Klaus Toepfer, Executive Director of UNEP. “Tourism... cannot ruin the very wildlife and landscapes the visitors pay to see and then move on.”

/Fredrik Moberg

More at:

<http://www.unep.org/PDF/Tourism-and-biodiversity.pdf>



New web-focus on organic farming

Global sales of organically farmed products have risen by about 20% per year for five years running. In a new web focus reporters from the distinguished science journal *Nature* analyse the organic farming trend and try to answer questions like:

What is organic farming?; Is organic food better for humans?; Is organic farming better for the environment?; and can organic farming replace conventional agriculture? Contents, including interactive graphics, are free until the end of May.

<http://www.nature.com/nature/focus/organicfarming/>



May 22 The International Day for Biological Diversity

The United Nations has proclaimed May 22 The International Day for Biological Diversity (IBD) to increase understanding and awareness of biodiversity issues. The theme for this year's International Biodiversity Day 2004: Biodiversity: Food, Water and Health for all, was chosen to reflect the Convention on Biological Diversity's firm commitment to achieving the Millennium Development Goals.

<http://www.biodiv.org/programmes/outreach/awareness/biodiv-day-2004.asp>

Poverty and Environment Times launched



The Poverty and Environment Times, a user-friendly package of information on the links between environment and poverty, was launched at UNEP's Governing Council in Jeju Korea recently. It is published by UNEP/GRID Arendal – a collaboration, centred in Arendal, Norway, between the United Nations Environment Programme's Global Resource Information Database and the Government of Norway. The newspaper highlights recent research, ongoing projects and events, and suggestions for policy action.

<http://www.grida.no/environmenttimes/pov2/>

E-Forum on the role of Agriculture in Reducing Poverty

In March DFID (the British Government's Department for International Development) launched a broad-based electronic consultation on the role of agriculture in growth and poverty reduction. The consultation is going to guide new policy approaches that DFID might employ to unlock the potential of agriculture. It seeks the views, opinions, and examples of innovative and established practice from a wide range of stakeholders in both the North and the South, including: public sector policy makers; private sector; organizations of civil society and NGOs. The consultation period has been extended and will now close on the May 28th.

<http://dfid-agriculture-consultation.nri.org/>

The annual Ralf Yorque Memorial Prize

Ecology and Society (E&S) invites their 10,000+ subscribers and all readers to participate in a manuscript competition. E&S is an electronic, scientific, multi-disciplinary journal that publishes papers written in a way that is accessible to a wide audience. It focuses on the relationship between society and the life-supporting ecosystems on which human wellbeing



ultimately depends. The annual 'Ralf Yorque Memorial Prize' of 5,000 Euro will be awarded to the most novel paper that 1) integrates different streams of science to assess fundamental questions in the ecological, political, and social foundations for sustainable social-ecological systems, and 2) employs unique advantages of electronic publishing and facilities of the WEB to help communicate complex ideas simply.

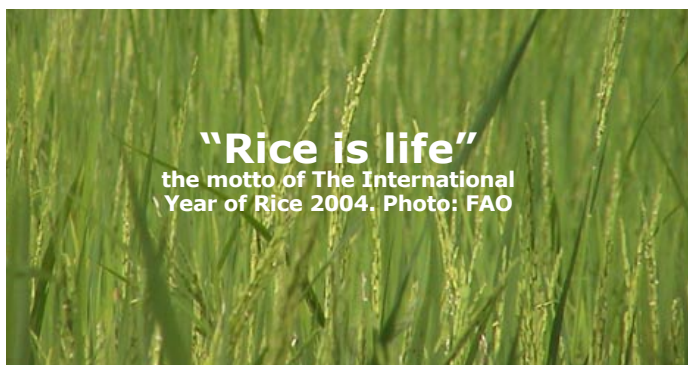
<http://www.ecologyandsociety.org/ads/announcements/ry2004.html>

International Year of Rice 2004

The United Nations has proclaimed 2004 as the International Year of Rice in order to raise awareness that rice is an essential crop for achieving the Millennium Development Goals. IYR will highlight the vital role that rice plays in agriculture, food security, the environment, culture and science.

Rice is a staple food for more than half of the world's population, employing nearly 1 billion people. It has also strong symbolic meaning, representing life and fertility for many cultures. However, rice production is also facing declining yields due to increased temperatures and water shortages.

http://www.fao.org/rice2004/index_en.htm



The Jeju initiative on water

Under the theme "Environmental Dimension of Water, Sanitation and Human Settlements," UNEP's Governing Council met in Korea 29-30th of March at the most recent session of its Global Ministerial Environment Forum.

The forum of environment ministers and officials from 150 countries focused its attention on sustainable use of water resources, the provision of environmentally sound sanitation services and the improvement of human settlements and public health.

The forum also adopted a "Jeju Initiative" on water. One of the main points in the initiative is to identify the world's best water conservation practices and endorsing them as examples for water-starved countries. Further, the initiative stressed the importance of strengthened interaction between UNEP and financial institutions, particularly the World Bank. The need to incorporate environmental dimensions in poverty reduction strategies was specifically pointed out.

<http://www.unep.org/gc/gcss-viii/>

Biodiversity talks in Kuala Lumpur

The Convention on Biological Diversity held its 7th Conference of the Parties in Kuala Lumpur, in February. The meeting was summarised as being one of the busiest and most ambitious ever. Implementation guidelines for the ecosystem approach (see Sustainability School SDU 5 2002) were taken and contained among other things the prioritising of the conservation of ecosystem structure and function; and the consideration of all forms of knowledge, including scientific and indigenous knowledge.

A very important issue at COP7 was Access and Benefit Sharing (ABS). An ABS working group was given mandate to elaborate an international regime. This was an important step for many developing countries that for years have been advocating an increased focus on this, the third objective of the Convention.

<http://www.biodiv.org/meetings/cop-07/>

In the future, more food must be produced using less water. Squeezing the maximum food from each drop of water is a must to meet the UN Millennium Development Goal of halving the number of undernourished people in the world by 2015. This was concluded in a new Swedish report released at the 12th meeting of the UN Commission on Sustainable Development (CSD 12).

The production of food for feeding the growing human population is highly water-consuming. It takes about 550 litres of water to produce enough flour for one loaf of bread and up to 7000 litres of water to produce 100 grams of beef in developed countries.

At the same time diet preferences in the most populated and water stressed regions tend to be moving towards more meat, not less. Raising beef using irrigated maize and grains is, however, different in terms of the environmental and livelihood consequences than range fed cattle in Africa. This is concluded in "Water – More Nutrition Per Drop", a report initiated by the Swedish Government and produced by the Stockholm International Water Institute (SIWI) and the International Water Management Institute (IWMI). The report was recently released at the 12th meeting of the UN Commission on Sustainable Development (CSD 12) and contributes to the Commission's theme of work for this year and next – Water, Sanitation and Settlement.

More food with less water

In order to find sustainable solutions to feed the 840 million people around the world that go to bed hungry at night the report identifies five policy-oriented recommendations. These include the need to identify and influence unsustainable food production and consumption patterns that require excessive water usage and to ensure that new technologies and methods are made widely available to groups that range from farmers to policy makers.

In developing countries agriculture accounts for 70-90% of available freshwater supplies. "With prevailing land and water management practices, a balanced diet requires 1,200,000 litres of water per person per year (3287 liters per day).



Raising beef using irrigated maize and grains require up to 7000 litres of water per 100 g of meat. Photo: FAO

This is 70 times more than the 50 liters per day used for an average households domestic needs," explained SIWI's Malin Falkenmark, one of the authors behind the report.

"Attitudes to water development and management must be addressed and changed if we are to reduce the number of malnourished people. We need practical solutions that benefit poor farmers as well as global solutions that address trade barriers and agricultural subsidies", said Lena Somwestad, Swedish Minister for the Environment.

Massive urbanisation and increasing wealth are changing food preferences with significant increases in the demand for water-intensive commodities like meat and dairy products. "Current production patterns are unsustainable. They involve large-scale groundwater overexploitation and widespread river depletion, which pose a major threat to biodiversity and aquatic ecosystems. We are seeing ever increasing levels of environmental degradation and loss of production potential caused by water pollution from agricultural chemicals, water logging and salinisation," says Frank Rijsberman, Director General of IWMI.

In water scarce regions, food imports may ensure food and nutritional security regardless of the possibility to produce the food domestically. However, the ability to increase import is limited by poverty, lack of foreign exchange, agricultural subsidies and trade barriers.

More at:

http://www.siw.org/downloads/More_Nutrition_Per_Drop.pdf

Sustainability School:



Pollinators are animals, predominantly insects, that help plants with their reproduction.

Pollination is an example of an ecosystem service often taken for granted and not valued fully – if at all – until lost. More than 90% of all flowering plants and more than two thirds of

the world's important food crops depend on pollinators, the rest relies on wind pollination. By transporting pollen grains between plants, allowing them to set seed and grow fruit, the pollinators also provide us humans with a number of services that we otherwise would have to substitute.

Both domesticated and wild pollinators have decreased drastically in number and distribution, due to disease,

pesticides, and land use changes associated with modern agriculture.

In Maoxian County, near the border between China and Nepal, thousands of people with paintbrushes pollinate apple trees because the bee pollinators have become extinct. It takes 20-25 people to perform the work of two bee colonies.

Likewise, almond growers in California have invested large sums to replace the loss of wild bees with domesticated bees transported in large trucks from other states. In total the loss of pollinators in the US has been estimated to cost farmers 6-8 billion US dollars a year. A global estimate assessed the total value of the world's pollinators to 400 billion US dollar.

Further, the value of pollination is not recognised in all production. Coffee, earlier considered a self-pollinated crop, has shown to give up to 50% higher yields when pollinated by bees. Earlier, coffee was grown in a mixed system, with shade trees and various other plants providing habitat for pollinators.

More at:

<http://www.esa.org/ecoservices/poll/body.poll.fact.html>



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