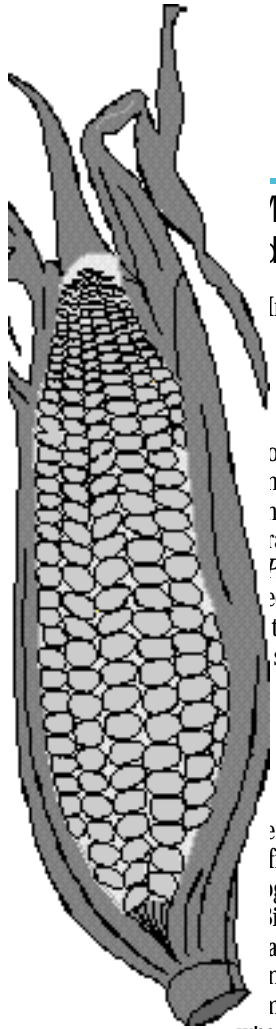


# World News



## 10s treaty adopted

In January representatives of over 130 governments met in Montreal to finalize a treaty on transboundary movement of genetically modified organisms (GMOs), one of the most high-profile and controversial international trade issues. The *Cartagena Protocol on Biosafety*, completed after five years of negotiations, addresses international shipments of living modified organisms (LMOs). Its aim is to protect the environment from potential risks posed by LMOs.

The term "biosafety" generally refers to efforts to benefit from modern biotechnology while avoiding its risks. Biosafety is based on the precautionary principle, according to which precautionary measures should be taken when an activity presents threats

of serious or irreversible damage to the environment or human health, even if cause and effect relationships have not been determined with complete scientific certainty.

While industrialized countries have domestic biosafety regimes, many developing countries are just beginning to establish their national systems. Agricultural LMOs are already a multi-billion dollar global business. Pharmaceutical products derived from LMOs are the basis of an even larger, and rapidly growing, international industry.

Under the new Protocol, governments will communicate their willingness – or refusal – to accept imports of agricultural commodities containing LMOs through an Internet-based Biosafety Clearing House. Clear labelling of shipments that contain LMOs will be required. Even stricter provisions will apply in the case of LMOs to be introduced into the environment intentionally, such as seeds and live fish. Exporters of such organisms must provide detailed information to the receiving country before the first shipment is made, and importers must then authorize the shipment. These requirements are meant to ensure that recipient countries have the opportunity and the ability to assess potential risks associated

with modern biotechnology.

LMOs include many different types of food crops that have been genetically modified to give them greater productivity or nutritional value, or to make them more resistant to pests or disease. Among the most common LMO crops are soybean, tomato, grains, cassava and maize (corn). Seeds are especially important, as they are used to propagate LMOs in the natural environment.

While humans have been artificially altering the genetic makeup of plants and animals for thousands of years through selective breeding and cross-fertilization, advances in biology since the 1970s have enabled scientists to radically alter living cells' genetic structure by introducing genes from one organism into the cells of another. For example, at a Swiss laboratory genes from daffodils and a bacterium have been spliced into rice to make it richer in beta carotene, the source of Vitamin A. "Golden rice", so-called for the colour the beta carotene gives it, was created with the intention of helping the estimated 124 million children worldwide who are deficient in Vitamin A. In Southeast Asia, a quarter of a million children go blind each year due to Vitamin A deficiency. Whether the altered rice loses its nutritional value or has other undesirable characteristics must still be determined.

Products such as "golden rice" demonstrate biotechnology's potential to help make advances in many areas, from increased crop yield to production of new or improved pharmaceuticals obtained through the use of genetically engineered plants and animals. However, most LMO crops developed so far are either toxic to insects or tolerant of herbicides, characteristics often perceived as benefiting seed companies more than consumers. Such LMO characteristics have created intense public concern and consumer resistance, especially in Europe and Asia.

Maize that has been genetically altered to contain high levels of the insect-killing bacterium *Bacillus thuringiensis* (Bt) has been promoted by its developers as a way to reduce pesticide use. But recent tests in the Kingdom showing that pollen maize can spread several kilometers beyond fields where it is grown highlighted concerns about the possibility of genetically engineered cross-pollinating with other growing nearby. In May 1999 University researchers reported pollen from Bt maize could be fatal to butterflies when dusted on milkweed, the monarch's only food during

the caterpillar stage. Field studies are underway to ascertain whether the results are the same for milkweed growing wild near cornfields.

Other safety issues include the potential for unintended changes in competitiveness, virulence or other characteristics of the LMO; the possibility of adverse impacts on non-target species, such as beneficial insects, or on ecosystems; the potential for weediness in genetically modified crops (i.e. for a plant to become too resistant and invasive, perhaps by transferring its genes to wild relatives); and the possibility that inserted genes will lose their effectiveness or be transferred to another host.

Despite the controversy, LMOs have received significant support in view of their potential to improve food supplies and nutrition. The Director-General of the UN Food and Agriculture Organization, Jacques Diouf, supports using genetically modified plants and animals to feed an ever-expanding world population. While acknowledging that conventional crops could feed all of the world's people if evenly distributed to developing countries, he has predicted that a shortage of arable land will make it impossible to feed a population expected to peak at 9 billion without genetically engineered foods. "We cannot deprive ourselves of the potential to have crops that require less pesticide, need less nitrogen and phosphorous to grow and offer poor people improved nutrition," he has said. "We need to take all the necessary precautions to protect human health and the environment. But in the long term, I believe this is a vital tool in the fight against hunger." Although world opinion remains divided, Diouf has said he believes consensus can be achieved on LMO food standards.

The talks that led to the Cartagena Protocol's adoption were held under the Convention on Biological Diversity, whose administering body is UNEP. They followed an initial session in Cartagena, Colombia, in February 1999 that broke up without agreement due to a number of outstanding differences among participants. These differences included the scope of the proposed Protocol, liability issues, and concerns about traditional crops' market competitiveness against LMO imports. The Protocol's relationship to other international agreements, and notably to the World Trade Organization, was an additional point of contention. While environmental agreements are often premised on the precautionary principle, decisions under trade law generally require "sufficient scientific evidence".

In September 1999, Colombian Minister Juan Mayr Maldonado was President of the first of two rounds of informal negotiations among representatives of the negotiating groups. There were major disagreements between the so-called Miami Group (Argentina, Australia, Canada, Chile, Uruguay and the United States), and the so-called Lima Group (Brazil, India, Japan, Korea, Mexico, New Zealand, Norway, Singapore, South Africa, Thailand, and the United States) for restricted regulatory



powers, and the Like-Minded Group of Countries, which includes China and most developing countries. The latter wanted much stronger provisions. The European Union, Central and Eastern European Countries, and the Compromise Group (Japan, Switzerland, New Zealand and South Korea) took positions between those of the other two groups.

The main sticking points for negotiators were resolved when European delegates agreed that it is impossible to segregate and require labelling of bulk products containing GMOs, such as soybeans. Instead it will be specified that shipments may contain GMOs. The Miami Group, for its part, conceded that health concerns could be included in the provision of the Protocol allowing countries to reject GMOs. They had previously objected to the use of the word "health" on grounds that this issue should not be addressed in an agreement on biodiversity.

The negotiating groups ultimately worked out a compromise with regard to the Protocol and the WTO. They are to be mutually supportive. At the same time, the Protocol will not affect the rights and obligations of governments under any existing international agreements.

The agreed text of the Biosafety Protocol was opened for signature at UNEP's headquarters in Nairobi in May, on the occasion of the Fifth Session of the Conference of the Parties to the Convention on Biological Diversity. The Protocol will enter into force once 50 countries have ratified it.

The environmental organization Greenpeace praised the ministers for adopting these "minimum safety standards" and urged governments to ratify the Protocol immediately.

"The Biosafety Protocol is the first new environmental treaty of the 21st century, a century that will be dramatically shaped by biotechnology," said Klaus Töpfer, UNEP's Executive Director. "[The] agreement in Montreal empowers the international community to build an effective regime for ensuring that the planet's biological diversity will be able to coexist with this powerful technology."

The Protocol and related information are available on line at [www.biodiv.org](http://www.biodiv.org)

*For more information, contact: Monique Chiasson, Secretariat of the Convention on Biological Diversity, World Trade Centre, 393 St Jacques Street, Office 300, Montréal, Québec, Canada H2Y 1N9. Tel: +1 (514) 288 2220, Fax: +1 (514) 288 6588, E-mail: [secretariat@biodiv.org](mailto:secretariat@biodiv.org), Internet: [www.biodiv.org](http://www.biodiv.org).* ◆

## Italy bans weekend car use in many cities

The Italian government announced in February that use of most private cars will be banned during some weekend hours in the city centres of Rome and over 150 other towns and cities. In Rome the ban will be in effect for 10 hours on Sundays; public transportation and entry into museums and archaeological sites will be free during these hours. Other municipalities will establish their own rules and schedules. The scheme is a pilot project by municipal authorities to reduce car-related air pollution.

UNEP Executive Director and Habitat Acting Executive Director Klaus Töpfer welcomed the initiative. While acknowledging that cars are a necessity, he stressed that "the health of the people in our cities depends on balancing the demand for private vehicles with other means of public transport. Also, innovative solutions are needed that will reduce the pollution from car emissions and minimize the congestion caused by cars." According to UNEP's *Global Environmental Outlook 2000*, motor vehicles release 900 million metric tonnes of CO<sub>2</sub> annually. Such emissions, accounting for more than 15% of global fossil fuel-related CO<sub>2</sub> releases, are a major contributor to global warming.

The rapid increase in the number of cars has exacerbated problems associated with motor vehicle-related air pollution. While there were only 70 million motor vehicles in the world in

1950, mostly in Europe and North America, today there are over 500 million. Many developing countries will see the size of their fleets continue to increase. Delhi's, for example, grew by about 20% per year in the 1970s and 1980s. The total number of motor vehicles in China has almost doubled every five years in recent decades.

The increase in car-related pollution takes a heavy toll on human health. The World Health Organization (WHO) estimates that exhaust emissions cause more deaths than road accidents. A WHO study in Austria, France and Switzerland found that exposure to pollution caused some 21,000 deaths every year in the three countries, as well as 300,000 extra cases of bronchitis in children and 15,000 extra admissions to hospitals for heart disease aggravated by pollution. Severe air pollution has become one of the most notable and characteristic features of "megacities" in the developing world, affecting the health of millions of people (see "Facts and Figures" in this issue of *Industry and Environment*).

Some cities have demonstrated that balancing transport policies and improving land use planning can control the trend towards increased private vehicle use. In Curitiba, Brazil, which is perhaps the best known example, an integrated bus system in use since 1974 has resulted in 25% of commuters giving up their cars and using buses. Bangkok's new Skytrain transport system began service in December 1999. This year Athens, one of Europe's most polluted cities, inaugurated a subway system that municipal authorities hope will reduce air pollution by 30% and traffic volume by 10%. The car ban in Italy is the latest of such moves by urban authorities to reduce vehicle pollution and congestion. As Töpfer said, it is an important precedent that "gives the city back to its citizens."

*For more information, contact: Italian Ministry of Environment, Via Cristoforo Colombo 44, 00147 Rome, Italy, Tel: +39 (6) 57221; or Sharad Shankardass, Habitat Media and Press Relations, Tel: +254 (2) 623153, Fax: +254 (2) 624060, E-mail: [habitat.press@unhcr.org](mailto:habitat.press@unhcr.org).* ◆

# Industry Updates

in assessing impacts, target-setting or carrying out green audits during the previous year.

PIRC's Research Director, Stuart Bell, says that "all companies, whatever their sector, have environmental impacts such as energy use and production of waste. These findings bring into question the commitment of 'new economy' companies to good environmental management."

Results of the survey, which covered 674 companies listed in the All-Share Index, also demonstrate that environmental reporting is significantly worse among smaller companies. Half of FTSE 100 companies report on environmental improvements and target-setting, but fewer than 10% of SmallCap companies do so. The UK government encourages all companies with over 250 employees to carry out environmental reporting. Overall, however, publication of separate environmental reports shows little progress. Such publications are largely produced by FTSE 100 companies.

Good reporting appears to be associated with either strict regulation, very high environmental impacts or a large consumer base, according to PIRC. The sectors that had done best at reporting were utilities, especially electricity companies; industries such as mining, oil and gas, steel, paper, chemicals and construction; and some service sectors such as food retailing and telecommunications. Many of the manufacturing sectors characterized by significant environmental impacts and lack of a public consumer base, such as engineering, automobile components and electronics, as well as conglomerates, had done less well.

*For more information, contact: PIRC, 4th Floor, Cityside, 40 Adler Street, London E1 1EE, UK. Tel: +44 (207) 247 2323, Fax: +44 (207) 247 2457, E-mail: JaniceH@pirc.co.uk, Internet: www.pirc.co.uk.* ◆

## Germany to reduce noise near airports

The German government has announced plans to reduce the noise level experienced by those living near airports, following presentation of new scientific evidence showing that excessive noise can cause health problems. The German Environment Minister, Jürgen Trittin, said at a news conference in February that his ministry had drafted a bill that makes airport operators pay for installation of new noise reduction infrastructure at airports. The move is a response to the German Council of Environmental Advisors' 1999 *Special Report on Environment and Health*, which states that aircraft noise levels above 65 decibels (dB) increase the risk of heart attacks and other circulation-related problems.

The report, which finds that over 50% of the German population is affected by aircraft and airport noise, recommends that daytime noise levels not exceed 55 dB. The Council points out that measurable noise-related sleep disturbances may

## Mexico rates corporate environmental performance

PROFEPA, Mexico's environmental protection agency, has released a report rating thousands of Mexican companies on three environmental performance indicators. The agency collected data on over 6000 companies' air emissions and generation of solid and hazardous wastes in the past five years. On a scale of 1 to 100, companies had an average score of just 51.4 for air pollution, 52 for hazardous waste and 60 for solid and infectious waste generation.

The petroleum industry had the lowest scores. Pemex, Mexico's giant oil monopoly, scored only 11.2 points for its emissions. The pharmaceutical industry received the best overall scores, followed by the paper industry, automobile manufacturers and the textile industry.

While PROFEPA characterized the average scores as mediocre, they noted that corporations which have already voluntarily joined the national environmental auditing programme were not included in the survey. Many of these companies would score high on PROFEPA's scale, meeting or exceeding Mexico's pollution and hazardous waste emissions standards, because of their participation in the programme. PROFEPA also pointed out that most of the companies surveyed would have little difficulty improving their environmental performance, as many of the low scores were due to reporting and administrative infractions rather than procedural problems.

*For further information, contact: PROFEPA, Periférico Sur No. 5000, 5to piso, Col. Insurgentes Cuicuilco, Deleg. Coyoacan, México, DF, C.P. 04530, Mexico. Tel: +52 5 5 28 54 09 or +52 5 5 28 54 17, Fax: +52 5 5 28 54 32, E-mail: pfpweb@correo.profeпа.gob.mx, Internet: www.profeпа.gob.mx.* ◆

## More US companies must report toxics data

Seven major US industrial sectors have been added to the list of those required to release toxic waste data to the public. The Environmental Protection Agency (EPA) will require the coal and metal mining sectors, electric utilities, chemical wholesalers, hazardous waste treatment and disposal facilities, petroleum bulk plants and terminals, and solvent recovery services to report the quantities of toxic chemicals they release annually to air, water and soil.

The EPA compiles these data in the Toxics Release Inventory (TRI), which is made available

to the public as part of the US Community Right-to-Know programme. This programme originated as a response to the deadly release of methyl isocyanate that killed thousands of people in Bhopal, India, in 1984. Its main purpose is to make communities and citizens aware of chemical hazards in their area.

The TRI inventory collects information on waste management activities and the release of toxic chemicals by facilities manufacturing, processing or otherwise using over 644 chemicals. It applies to manufacturing facilities with 10 or more full-time employees that meet the established thresholds for annual manufacturing, processing or other use of listed chemicals: manufacturing or processing of over 25,000 pounds (11,300 kg), or use of over 10,000 pounds (4500 kg), of designated chemicals or chemical categories.

The first TRI report based on these expanded requirements, using data from 1998, showed that the greatest quantities of the listed chemicals were emitted by metal mining and electric utilities, at 1.57 billion and 500 million kg of toxic emissions respectively.

The EPA points out that toxic emissions fell by 45% during the first decade in which TRI was required. For example, toxic releases from manufacturing between 1997 and 1998 fell by 90 million pounds (40.5 million kg) and air emissions by 6%. Combined emissions from all sectors reporting totalled 7.3 billion pounds (3.28 billion kg), a figure that will be used as the baseline for future reporting. The EPA hopes that releasing the data publicly will encourage industries to continue reducing overall emissions.

As part of the TRI programme, the EPA publishes industry-specific and chemical-specific guidance documents and conducts an ongoing dialogue among stakeholders. Extensive information concerning the programme is available on the TRI web site ([www.epa.gov/tri](http://www.epa.gov/tri)).

*For more information, also contact: Luke C. Hester, USEPA, Tel: +1 (202) 564 7818.* ◆

## UK report: poor environmental reporting by IT companies

According to a report released in March, information technology (IT) companies in the United Kingdom have a "dismal" environmental reporting record. A study conducted by the independent Pensions Investment Research Consultants (PIRC) looked at corporate environmental reporting in 38 industrial sectors. Only 14% of companies said they had an environmental policy. None of the IT companies described any improvements

begin at average indoor levels of 35-45 dB, and that maximum levels should be no higher than 45-55 dB. It recommends a night level of 55 dB as a near-term goal. In the longer term, there are already WHO recommended average levels of 30 dB and maximum levels of 45 dB.

Because of the high relevance of sleeping disturbances to health, the Council said, it is not sufficient to set an average night noise level; maximum levels should also be established. It pointed out that physiological reactions which could be dangerous to health in the long term could be detected even at levels seen, until recently, as merely annoying. The Council also said further study is needed to determine whether present maximum levels are in fact adequate to protect human health.

Trittin said the new law would require day noise levels for residents near airports to be reduced to 65-60 dB from the present 75-67 dB. Night noise levels for residents would be lowered to 50 dB from the present 60 dB. Trittin noted that a major consequence of the law would be that older, louder aircraft, especially the type transporting cargo, would no longer be able to land at German airports. He did not address the issue of the new measure's cost to airport operators. However, operators at Düsseldorf, Frankfurt and Munich responded that the infrastructure at their airports already ensures safe noise levels, and that their facilities are among the quietest in Europe.

The European Parliament has also addressed this issue. A resolution on night flights and excessive noise, passed in April, calls for a coordinated European Community framework to regulate airport noise. The resolution recommends use of fee incentives, landing slot allocations, congestion relief measures and restrictions on night flights to alleviate aircraft-related noise pollution.

Trittin plans to introduce the bill during Germany's current legislative period, which ends in 2002. The Social Democrat- Green government has a majority in the Bundestag, or lower house, where the bill is expected to pass easily. However, it also must be approved by the Bundesrat, or upper house, where there is not a government majority.

Information in German, including the text of the *Special Report on Environment and Health*, is available on the German Environment Ministry's web site ([www.bmu.de](http://www.bmu.de)). Information in German and English concerning airport noise is available

on the web site of Germany's Federal Organization Against Airport and Aircraft Noise, or Bundesvereinigung gegen Fluglärm e.V. (BVF) ([www.fluglaerm.de/bvf/](http://www.fluglaerm.de/bvf/) and [www.airportnoise.de](http://www.airportnoise.de)). ♦

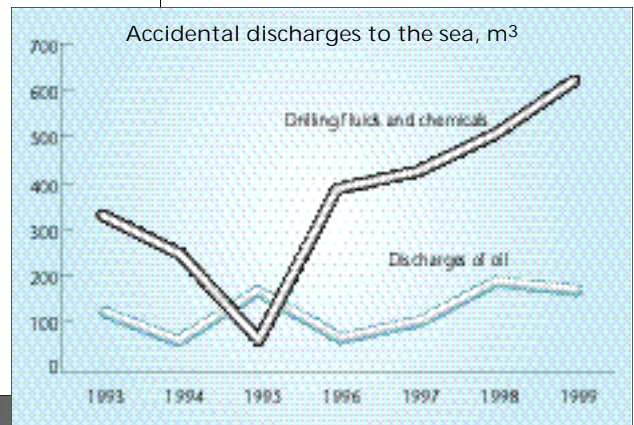
### Norwegian oil industry publishes emissions information

Oil and gas production is Norway's largest single industrial sector, contributing about 10% of GDP in 1998. It is also an important source of pollution. For example, production activities accounted for 22% of CO<sub>2</sub> emissions that year.

While cleaner production technologies and better environmental management techniques have reduced many of the industry's pollution emissions per unit of oil produced, the overall quantity of emissions will remain significant, as oil production is expected to increase during the first few years of the 21st century. The Norwegian Oil Industry

Association (OLF) has produced a report on the industry's air emissions and discharges to the sea in 1999. It includes emissions and discharges from both exploration and production phases. The report details the quantity and composition of discharges from drilling and well maintenance, and methods used to dispose of them, as well as discharges of oily water, heavy metals and organic compounds resulting from well operations.

While both consumption and discharges of chemicals have increased, much of the increase is due to greater use of gas treatment chemicals that are in fact less harmful to the marine environment. Air emissions result mainly from use of



combustion equipment such as turbines, engines and boilers, as well as from gas flaring and crude oil loading. Gas flaring has more than doubled since 1992, while diesel fuel consumption has increased by 120% since 1990.

Information on accidental discharges of oil, chemicals and drilling fluids to the sea and air is also included. While there were fewer incidents of releases of drilling fluids and chemicals than of oil releases (110 compared to 250), chemical discharges were on average eight times greater, resulting in a significantly greater total volume of discharges (see figure).

The report is also available in English and Norwegian at [www.olf.no](http://www.olf.no). This site presents additional data and referenced information.

For more information, contact: OLF, PO Box 547, N-4003 Stavanger, Norway. Tel: +47 (51) 84 65 00, Fax: +47 (51) 84 65 01, E-mail: [firmapost@olf.no](mailto:firmapost@olf.no). ♦

# UNEP FOCUS



## The Malmö Declaration on Environmental Action

Environment ministers met in May at Malmö, Sweden, for the first *Global Ministerial Environment Forum*. They identified the 21st century's major environmental challenges and discussed the roles of the private sector and civil society in addressing them, with the goal of regaining policy coherence in the environmental field. The Forum concluded with adoption of the *Malmö Declaration*, an action-oriented agreement intended to help establish the environmental agenda for the 21st century.

Sponsored by UNEP and hosted by the Government of Sweden, the Forum also served as the Sixth Special Session of the UNEP Governing Council. It offered an opportunity to bridge information and policy gaps on critical environmental issues through informal discussions among over 70 environment ministers and global leaders from academia, business and industry, and civil groups such as NGOs and the media.

The Malmö Declaration will provide major input to the UN's *Millennium General Assembly* in September 2000 and to the *Rio +10 summit* in 2002, which together will establish the global environment and sustainable development agenda for years to come. The Declaration states that the 2002 summit should aim to address the greatest challenges to sustainable development, particularly the "pervasive effects of the burden of poverty on a large proportion of the Earth's inhabitants", seen against "excessive and wasteful consumption and inefficient resource use" by others. It recognizes "the central importance of environmental compliance, enforcement and liability" and integrates the concept of a life cycle approach with regard to the responsibility of the private sector into the text.

The Declaration calls for integration of environmental considerations in the mainstream of decision-making, and for emphasizing preventive action. It states that the environmental perspective should be taken into account in the design and assessment of macroeconomic policy-making, as well as in the practices of government and multilateral lending and credit institutions such as export credit agencies.

*There is an alarming discrepancy between commitments and action. Goals and targets agreed by the international community in relation to sustainable development, such as the adoption of national sustainable development strategies and increased support to developing countries, must be implemented in a timely fashion. The mobilization of domestic and international resources, including development assistance, far beyond current levels is vital to the success of this endeavour.*

### Malmö Declaration

The Declaration emphasizes UNEP's major role, especially with regard to its engagement and collaboration with both the private sector and civil organizations. It recommends that the role of UNEP in international environmental governance be strengthened, and that its financial base be broadened and made more predictable.

The Forum is an example of a fundamental and important shift within the UN towards the use of partnerships to promote peace and prosperity. The UN recognizes that governments, inter-governmental and non-governmental organizations, the business community and private citizens are all necessary to meet new and existing environmental challenges.

A major challenge remains concerning ways to move from analysis to action on global environmental problems. The Malmö Declaration refers

to the growing number of international environmental agreements. Participants pointed out that in many cases these agreements are not being implemented, often due to national or local-level obstacles such as lack of commitment and inability or unwillingness to allocate resources to implementation. The Declaration stresses the importance of taking action and calls for "a new spirit of cooperation and urgency."

Strong support was given to UNEP's ongoing and overall activities. The UNEP water policy and strategy, which emphasizes assessment, management and coordination of actions, was endorsed. The Forum also stressed the importance of UNEP's role in preparing for Rio +10.

The next Global Ministerial Environment Forum will be held at Nairobi in February 2001, on the occasion of the 21st session of the UNEP Governing Council.

The Malmö Declaration is available in English, French and Spanish on the UNEP web site ([www.unep.org/malmo/](http://www.unep.org/malmo/)).

For more information, contact: Robert Bisset, UNEP Press Officer, Tel: +254 (2) 623084, Fax: +254 (2) 623692, E-mail: [robert.bisset@unep.org](mailto:robert.bisset@unep.org).

## World Environment Day message: time is running out

In 1972, the UN General Assembly designated 5 June as World Environment Day to bring attention to environmental problems and the need for action by governments, individuals, businesses, NGOs and community groups. With the theme "2000 – The Environment Millennium – Time to Act", this year's World Environment Day was marked by calls for genuine and effective efforts to reverse environmental damage and to work towards sustainable development. UNEP's Executive Director, Klaus Töpfer, stressed the need for global cooperation as well as local action for sustainable development.

"In our daily lives, it is not always easy to recognize how closely we are interconnected with our fellow human beings. Increasingly, however, we are recognizing that what connects the street child in Rio, the farmer in Kalimantan, the factory worker



Jacqueline Aloisi de Larderel, Director of UNEP DTIE, at the Global Ministerial Environment Forum in Malmö. With her are Chung Dong-soo, Vice Minister, Korean Ministry of Environment (right) and Timothy W. Foresman, the new Director of UNEP's Division of Environmental Information, Assessment and Early Warning.

Message from the UN Secretary General  
on the Occasion of World Environment Day

Our quest for a healthy environment is a never-ending process. It should be an integral part of our way of life. The theme for this year's World Environment Day, "2000 – The Environment Millennium – Time to Act", is a timely reminder of our role in the ecosystem.

In the last millennium, and particularly in the last century, realizing this role has proved to be a great challenge. Never in the history of mankind have we done so much, in so little time, to destroy the wonderful ecosystem that sustains us. The repercussions of our destructive action will be felt for generations to come. Indeed, it may take another millennium to put things right.

We celebrate World Environment Day in the knowledge that environmental issues are inextricably linked to those of peaceful coexistence, international cooperation and economic development.

Despite the great strides made in recognizing that development must coexist with the environment, we continue to search for economic progress in ways that erode the ecological foundations of our existence. Our very survival as a species may depend on our ability to reconcile technological progress with moral progress.

On this World Environment Day, and in this United Nations International Year for the Culture of Peace, let us resolve to take positive steps to fight the degradation of our environment. Let us combine our technological and creative skills with true wisdom, and reverse the trend of violence against nature and our fellow beings.

Otherwise, we may not have another thousand years to correct our mistakes.

**Kofi A. Annan**  
Secretary General of the United Nations  
5 June 2000

in Germany and the stockbroker in New York is the global environment," he said. "More and more, we are realizing how interdependent we are, and that what we do has far-reaching ramifications – even if the connections are not immediately obvious. In fact, the ramifications are already being felt in every corner of the globe." Töpfer called for a 21st century environmental agenda to drive environmental improvements accompanying economic and social gains: "Global agreements that ensure trade and environment policies are mutually supportive must succeed in helping the poorest of the poor in the world. They must also succeed for the sake of the environment."

The main venue for World Environment Day events this year was Adelaide, Australia. Events included a meeting on the environment with business leaders, establishment of a Millennium Tree Park in South Australia, the Australian Youth Parliament on the Environment, tree planting in Sydney and Melbourne, and an environmental parade whose theme was water. The world's largest volunteer organization, Trees for Life, planted some 1.5 million trees around the State of South Australia.

Australian events also included presentation of UNEP's Global 500 award to 14 individuals and organizations from 13 countries that have made outstanding contributions to the protection of the environment. This year's winners include an aboriginal community in Australia, two journalists from Spain and the United States, and a wildlife orphanage in South Africa.

During World Environment Day preparations, Töpfer said: "We are at a watershed. We have the knowledge and the technology to solve many of the environmental ills facing our planet. What we need now is more political will to bring about change. Now is the time to act."

Additional information on World Environment Day and the UNEP Global 500 awards is available in the Media Room on UNEP's web site ([www.unep.org](http://www.unep.org)).

*For more information, contact: Tore J. Brevik, UNEP Spokesman, Tel: +254 (2) 623292, Fax: +254 (2) 623692, E-mail: [tore.brevik@unep.org](mailto:tore.brevik@unep.org).* ◆

UNEP strengthens cooperation  
with the Russian Federation

Acknowledging Russia's importance with regard to global environmental problems, as well as the country's need to address local and national environmental threats, UNEP is increasing its cooperation with the Russian Federation. It will open a Moscow office to work more closely with the Russian government on global issues such as climate change and ozone depletion. The new office will also collaborate with environmental authorities and civil society on programmes to improve environmental conditions within the Federation.

According to Victor Danilov-Danilyan, chairman of the Russian State Environment Committee, almost half of Russia's people live in environmentally dangerous conditions. Over 14% of the land area is in poor environmental condition, and air pollution in 120 Russian cities is five times higher than acceptable levels due to industrial pollution.

UNEP cooperates with Russia on a range of environmental programmes, including the Cleaner Production Programme and the Chemicals Programme. The new Moscow office will work closely with the office of UNEP's Global Resources Information Database (GRID) already established in Moscow in order to make use of its capacity-building activities.

*For more information, contact: Anders Renlund, UNEP Regional Office for Europe, 15 chemin des Anémones, CH-1219 Châtelaine, Geneva, Switzerland. Tel: +41 (22) 917 8272, Fax: +41 (22) 917 8024, E-mail: [anders.renlund@unep.ch](mailto:anders.renlund@unep.ch).* ◆

Initiative promotes a common  
global environmental  
vocabulary

UNEP is collaborating with international government and research agencies on a new initiative to develop a global multilingual environmental thesaurus. This joint project of Italy's Consiglio Nazionale delle Ricerche (CNR), the European Environment Agency (EEA), the US EPA and UNEP represents an effort to lower the linguistic barriers to international exchange of environmental information. The partners met in Santa Fe, New Mexico (USA) in January to launch the initiative.

A common environmental vocabulary is intended to aid development of environmental information systems and retrieval of environmental information from the Internet and other electronic resources. The thesaurus is expected to be useful to database developers, librarians and translators, and to provide environmental decision-makers and the public with greater access to global information systems.

The new thesaurus will bring together the resources of CNR (a multilingual thesaurus developer) with those of the EEA's GEMET and UNEP's EnVoc thesauruses, as well as the EPA's existing activities in environmental terminology and its ongoing work with the Asia-Pacific Economic Cooperation. The four participants expect other partners to join the consortium and to contribute to the thesaurus' development. Thus European and non-European language groups will eventually have access to a standard environmental vocabulary in multiple languages.

*For more information, contact: Gerard Cunningham, INFOTERRA, the Global Environmental Information Exchange Network, UNEP Division of Environmental Information, Assessment and Early Warning, PO Box 30552, Nairobi, Kenya. Tel: +254 (2) 623275, Fax: +254 (2) 624269, E-mail: [cunningg@unep.org](mailto:cunningg@unep.org).* ◆

UNEP launches interactive  
web sites

In the first six months of 2000, UNEP and its partner organizations inaugurated five new on-line forums that allow users to obtain information on, and contribute to the discussion of, major environmental issues and initiatives.

The GEF forum's web site ([gef-forum.unep.org](http://gef-forum.unep.org)) provides a platform for dialogue among scientists on issues of global environmental importance. Its goal is to mobilize the wider scientific and technical community in Global Environment Facility (GEF) programmes. As an initial step towards achieving this goal, the interactive forum facilitates threaded, focused and moderated discussions using the Internet or E-mail. To keep discussions focused, dialogue is based on an "issue agenda". Dialogue conclusions will formulate recommen-

dations for GEF policy. There are two discussion forums on the web site:

◆ **The Interactive Forum on GEF Land and Water Initiative in Africa** is part of the UN System-wide Initiative for Africa. It aims to address land and water-related environmental challenges facing African countries in an integrated manner, and will create a framework for coordination of bilateral and multilateral donors.

◆ **The Interactive Forum on Agrobiodiversity** allows experts and scientists to exchange views on the conservation and sustainable use of agricultural biodiversity, including sharing of its benefits, identification of areas of research and development. This in turn will be used as input to the GEF-OP or national programme.

Additional forums are planned soon on sustainable use of biodiversity and on power sector reform.

**UNEP DTIE's OzonAction Programme forums** ([www.unep.tie.org/ozat/forum/index.html](http://www.unep.tie.org/ozat/forum/index.html)) are E-mail networking and information services whose purpose is to assist countries in phasing out ozone depleting substances (ODS) by the deadlines defined under the Montreal Protocol. By subscribing to an issue-specific service, participants can choose to take part in discussions or to receive issue-specific updates that are distributed periodically via E-mail. There are two forum areas:

◆ **The Climate and Ozone Discussion Forum and CLIO<sub>3</sub> Update Service** facilitates the exchange of viewpoints on issues relevant to the simultaneous implementation of the Kyoto Protocol on Climate Change and the Montreal Protocol.

◆ **The Methyl Bromide Alternatives Discussion Forum and RUMBA Update Service** facilitates exchange of viewpoints on issues related to elimination of the ozone-depleting fumigant methyl bromide.

In cooperation with the International Ocean Institute, UNEP has launched the **GPA News Forum** ([gpanews.unep.org](http://gpanews.unep.org)), which is designed to stimulate discussion of topics of interest regarding the Global Programme of Action (GPA) for the

Protection of the Marine Environment from Land-based Activities. The News Forum is part of the GPA clearing-house, a referral system to mobilize experience and expertise and facilitate scientific, technical and financial cooperation. As part of the GPA clearing-house, the News Forum provides information on recent GPA-related activities at the national, regional and global levels, including capacity-building opportunities, progress in key or pilot projects, and upcoming meetings workshops and conferences.

Articles featured on the News Forum recently have addressed hazardous tanning in Tamil Nadu, India, protection of the Black Sea environment, and regional cooperation and local action to fight land-based marine pollution in the Caribbean.

*For more information on GEF forums, contact: Sean Khan, UNEP, INFOTERRA/GEF, PO Box 30552, Nairobi, Kenya, Tel: +254 (2) 623271, Fax: +254 (2) 624041, E-mail: sean.khan@unep.org. For information on OzonAction forums, contact: Rajendra Shende, UNEP DTIE OzonAction and Energy Programme, 39-43 quai André Citroën, 75739 Paris Cedex 15, France, Tel: +33 (1) 44 37 14 59, E-mail: rajendra.shende@unep.fr. For information on the GPA News forum, contact: International Ocean Institute-Canada, Dalhousie University, 1226 LeMarchant Street, Halifax NS B3H 3P7, Canada. Tel: +1 (902) 494 1737, Fax: +1 (902) 494 2034, E-mail: ioihfx@dal.ca. ◆*

## New IETC Director

Steve Halls has been appointed Director of UNEP's International Environmental Technology Centre (IETC) in the Division of Technology, Industry and Economics (DTIE). He assumed the post on 1 February. Halls, an engineer and biologist by training, has more than 20 years of experience in environmental consulting, science and education. He founded the Institute for Sustainable Development at the University of Luton (UK) in 1995 and served as its Director until

1997. He has been involved in developing the European Eco-Management and Audit Scheme and was a member of the European Commission Steering Committee Group on the Development of Waste Management Policy and Strategy for Europe in 1997 and 1998. Halls now serves as the Secretary General of the European Society for Environment and Development, a pan-European organization that promotes sustainable development, environmental standards and professional development.

IETC was established in 1993 to assist developing countries and those in transition to use environmentally sound technologies to manage urban and freshwater basin environmental problems. Located in Japan (Osaka and Shiga), its current focuses include water supply, sewage, solid waste, urban sprawl, land contamination, air pollution and noise management.



Steve Halls

*For more information, contact: Françoise Ruffe, UNEP DTIE, 39-43 quai André Citroën, 75739 Paris Cedex 15, France, Tel: +33 (1) 44 37 14 50, Fax: +33 (1) 44 37 14 74, E-mail: unep.tie@unep.fr; or UNEP IETC, Osaka Office: 2-110 Ryokuchi Koen, Tsurumi-ku, Osaka 538-0036, Japan, Tel: +81 (6) 6915 4580, Fax: +81 (6) 6915 0304; Shiga Office: 1091 Oroshimo-cho, Kusatsu City, Shiga 525-0001, Japan, Tel: +81 (77) 568 4586, Fax: +81 (77) 568 4587, E-mail: ietc@unep.or.jp, Internet: www.unep.or.jp. ◆*

# Books & Reports



regulations is discussed, as well as the special problems of applying such instruments in developing countries and countries in transition.

(2000). *UNEP Publications, 11-13, chemin des Anémones, CH-1219 Châtelaine, Geneva, Switzerland. Tel: +41 (22) 979 91 11, Fax: +41 (22) 797 34 60, E-mail: irptc@unep.ch. Also available from the UNEP Online Bookshop (www.earthprint.com). Pbk., 208p. ISBN 1-85383-690-7.*

## GENERAL

### Environment and Trade: A Handbook

Links between trade and multilateral environment agreements were high on the agenda of the Commission on Sustainable Development (CSD) this year, especially in the aftermath of the Seattle World Trade Organization Conference. This Handbook, produced by UNEP's Economics and Trade Unit (UNEP ETU) in cooperation with the International Institute for Sustainable Development (IISD), contributes to the ongoing discussions. International trade flows are at US\$ 6 trillion per year, and the rules that govern them can be a major force for economic, environmental and social change. The Handbook's purpose is to make relationships between trade and environment more understandable and accessible to policy-makers, NGOs and the general public. While it is addressed mainly to those with some knowledge of the subject, the authors have used non-specialist language to make it more accessible to all elements of civil society.

The Handbook aims to dispel the idea that relationships between trade, environment and sustainable development can be easily described as either negative or positive. Immensely complex interactions vary from one country, economic activity or firm to another. Both threats and opportunities exist for countries, local communities and firms that are pursuing economic development and environmental protection goals.

Chapter topics include an overview of international environmental management, including the development of multilateral environmental agreements; the basics of the WTO; physical and economic links between trade and sustainable development; interactions between trade law and environmental law, both nationally and internationally; institutional issues and transparency in processes; and environmental aspects of existing regional trade agreements.

The Handbook is also available in a continually updated Internet version at both [www.unep.ch/etu](http://www.unep.ch/etu) and [www.iisd.ca/trade/handbook](http://www.iisd.ca/trade/handbook).

(2000). *UNEP ETU and IISD. Available from the UNEP Online Bookshop (www.earthprint.com) or from SMI (Distribution Services) Ltd, PO Box 119, Stevenage, Hertfordshire SG1 4TP, UK. Fax: +44 (1438) 748 844, E-mail: Anthony@smibooks.com. Pbk., 84p. ISBN 1-89553-62109.*

### Phasing Lead Out of Gasoline: An Examination of Policy Approaches in Different Countries

Since the 1970s, when the health effects of exposure to airborne lead were first suspected, a consensus has grown among governments, the lead and automobile industries, and health experts that gasoline should not contain lead. Subsequent studies have confirmed that lead absorption by the body has detrimental effects, particularly on early development of the nervous system in children and fetuses. In view of the potential health effects, many governments have established programmes for complete elimination of lead use as a gasoline additive. By 1999, unleaded gasoline accounted for 80% of total worldwide sales and lead content had been reduced in a significant portion of the remaining 20%. The results of these efforts have shown that lead can be removed from gasoline without harm and with net economic benefits. However, millions of people in Asia, Latin America, and particularly Africa are still exposed to unacceptable levels of airborne lead.

This joint UNEP/OECD publication is intended to help policy-makers select the best options and programmes for reducing and eventually eliminating lead use in gasoline. It provides guidance on the various policy options available, including fuel distribution and vehicle manufacturers' approaches. The importance of correct tax or pricing policies is highlighted. Examples from different countries provide "real world" experience.

(2000). *UNEP and OECD. Available from the UNEP Online Bookshop (www.earthprint.com) or SMI (see above). Pbk., 14p. ISBN 92-807-1796-0.*

### Economic Instruments for Environmental Management

This UNEP publication presents empirical evidence of economic instruments' power with regard to environmental management. Using case studies from Africa, Asia, Europe and Latin America, it describes a wide variety of environmental problems to which economic instruments have been applied successfully, from grazing land policy to water treatment on industrial estates. Prepared by UNEP's Economics and Trade Unit, *Economic Instruments for Environmental Management* is intended to provide policy-makers and economists with examples drawn mainly from developing countries while allowing researchers from these countries to present their views. The effectiveness of economic instruments versus

### State of the World 2000

The Worldwatch Institute's 17th annual report examines environmental, social, economic and political trends that "have put the global economy on a collision course with the Earth's ecosystems." The authors call for rapid transition to an environmentally sustainable economy, in order to avoid permanent damage to the natural systems that support global civilization. Pointing out that over a billion people lack clean water, that species loss is accelerating and that there is growing evidence of climate change, they recommend ways to use political systems to manage the complex relationships between the global economy and the Earth's ecosystems.

(2000). *Worldwatch Institute, 1776 Massachusetts Ave., NW, Washington, DC 20036-1904, USA. Tel: +1 (202) 452-1999, Fax: +1 (202) 296-7365, E-mail: [wwpub@worldwatch.org](mailto:wwpub@worldwatch.org), Internet: [www.worldwatch.org](http://www.worldwatch.org). Pbk., 262p. ISBN 0-393-31998-9.*

### Vital Signs 2000

*Vital Signs* (subtitled "Environmental trends that are shaping our future") is a companion volume to *State of the World 2000* (above). It defines 50 trends affecting the global environment and points to progress towards sustainability in the areas of food production, agricultural resources, energy, the atmosphere, the economy, transportation, communication, society and the military. While many indicators are alarming (growth in national debt and in the number of those afflicted with HIV/AIDS in poor countries, falling harvests of grain, fish and soybeans, and continuing deterioration of groundwater quality worldwide), some positive developments are cited. Increased use of wind- and solar-generated energy, and of environmental taxes to discourage pollution, are examples of trends that could help reverse environmental deterioration.

(2000). *Worldwatch Institute (see above). Pbk., 192p. ISBN 0-393-32022-7.*

### Vanishing Borders: Protecting the Planet in the Age of Globalization

From climate change to trade in threatened species, environmental problems are increasingly transnational in nature. The author of this Worldwatch publication believes that "vanishing borders" also provide opportunities for making environmental gains. She proposes integrating ecological considerations into international trade

rules through changes in treaties and institutions. The ways new communications technologies can make it possible for NGOs and concerned citizens worldwide to pressure governments and corporations to take environmental issues into account are described.

*Hilary French (2000). Worldwatch Institute (see above). Pbk., 257p. ISBN 0-393-32004-9.*

### The International Factor 10 Club's Reports of 1999

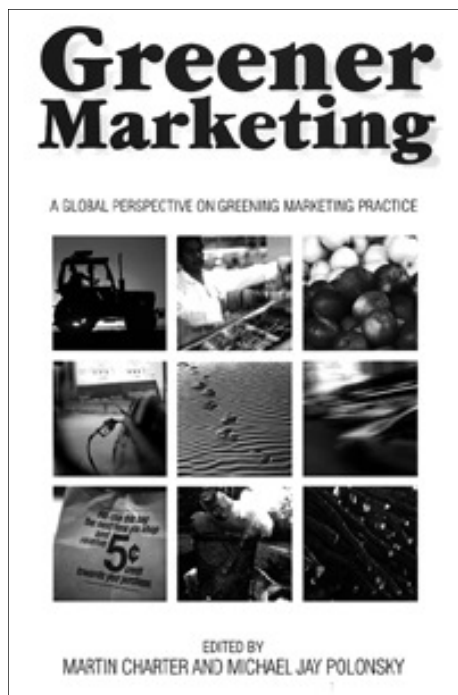
The International Factor 10 Club, founded in 1994, is an international body of senior government, NGO, industry and academic leaders created to draw attention to, and counteract, the global trend towards increasing and unsustainable resource consumption. Its members agree that in the next 30 to 50 years industrialized countries need to work towards reducing present global nonrenewable material flows by half, including minerals, freshwater and nonrenewable energy carriers. The Club's name and activities are based on the principle that within one generation countries could achieve a 10-fold increase in the efficiency with which they use energy and natural resources, and that such a goal is now technologically possible and requires only appropriate policy and institutional changes.

This report explains how the development of less resource-intensive products and services – "dematerialization" – can be accomplished in day-to-day business practices. Case studies and examples from Austrian and German companies are presented. The report explains how resource productivity is measured using Material Inputs Per unit Service (MIPS). It also demonstrates how to calculate "ecological rucksacks" containing all of the resource and energy consumption involved in the production of end-products. By applying the MIPS and rucksack concepts, the authors maintain that companies and consumers can compare inputs and end-use products based on resources required for production and use. However, they also point out that reducing products' resource intensity is not enough to achieve sustainable consumption. Changing consumers' habits and preferences is also necessary.

*F. Schmidt-Bleek, Y. Paleocrassis, F. Lehner, W. Bierter and T. Charles (1999). Institute for Work and Technology, Science Centre North Rhine-Westphalia, Munscheidstrasse 14, D-45886 Gelsenkirchen, Germany. Tel: +49 (209) 1707 0, Fax: +49 (209) 1707 110, E-mail: lehner@iatge.de, Internet: iat-info.iatge.de. Pbk., 151p. ISSN 0949-4944.*

### Greener Marketing: A Global Perspective on Greening Marketing Practice

The editors of *Greener Marketing* believe that social issues, including the environment, are increasingly becoming critical issues for corporations trying to meet customer expectations, and that marketing practices must take such issues into account if companies are to succeed in the long



term. Not only must companies produce more environmentally friendly products and services, but they must ultimately change their own and customers' expectations and behaviour if their businesses are to be made sustainable. This will require integrating environmental issues into every aspect of a business, beginning even before product design by asking whether the product is necessary and can be produced sustainably. Equally important will be how companies get their message across to consumers, and how they can demonstrate that their products or services (and their total operations) address customers' concerns more effectively than those of their competitors. Articles address strategic issues and the rationale for green marketing, as well as tactical issues such as the focus on services rather than products. Nine case studies from different types of businesses in several parts of the world are presented.

*Martin Charter and Michael Jay Polonsky, eds. (1999). Greenleaf Publishing, Aizlewood Business Centre, Aizlewood's Mill, Nursery Street, Sheffield S3 8GG, UK. Tel: +44 (114) 282 3475, Fax: +44 (114) 282 3476, E-mail: greenleaf@worldscope.co.uk, Internet: www.greenleaf-publishing.com. Hbk., 432p. ISBN 1-874719-14-4.*

### Ecological Economics: An Introduction

The interdisciplinary field of ecological economics draws on the natural sciences, economics, philosophy and other disciplines to achieve a more complete understanding of human-ecosystem interactions. Current research in this field includes the study of nature conservation, land use planning, pollution control, natural resource management and environmental impact assessment. *Ecological Economics* provides an introduction, emphasizing the complementary roles of economics, ecology and ethics in environmental policy. The principles at the core of different approaches

to environmental problems, and the tools and techniques used in these approaches, are explained. Examples of their application are also given.

*G. Edward-Jones, B. Davies and S. Hussein (2000). Blackwell Science Ltd., Osney Mead, Oxford OX2 0EL, UK. Tel: +44 (1865) 206 206, Fax: +44 (1865) 721 205, Internet: www.blackwell-science.com. Pbk., 266p. ISBN 0-8654-2796-8.*

### Handbook of Environmental Management and Technology

This Handbook is aimed primarily at engineers, industrial hygienists, health and safety officers, and plant engineers and managers. It covers a wide range of aspects of environmental management and control, as well as background issues and regulatory approaches, mainly from a US viewpoint. Sections are devoted to air and water pollution, solid and hazardous waste, radioactive materials, pollution prevention and energy conservation, remediation technologies and risk assessments. The authors also discuss ISO 14000 and US federal and state regulations pertaining to environmental management.

*G. Burke, B.R. Singh and L. Theodore (2000). John Wiley & Sons, Inc., 605 Third Avenue, New York, NY 10158-0012, USA. Tel: +1 (212) 850 6011, Fax: +1 (212) 850 6008, E-mail: info@wiley.com, Internet: www.wiley.com. Hbk., 806p. ISBN 0-471-34910-0.*

### The Reality of Sustainable Trade

The social and environmental conditions of production are becoming part of Northern buyers' standard commercial considerations with regard to many of the South's industrial sectors, such as agriculture, forestry and garment manufacturing. A growing number of producers in the South are combining high social standards with successful exporting, but according to this new book from the International Institute for Environment and Development (IIED) there has been only intermittent progress towards sustainable trade. The IIED surveyed several developing countries, including Bangladesh (shrimp, garments, leather), Ghana (cocoa and pineapple), India (textiles) and South Africa (tourism). Increasing demand-side pressures on producers in developing countries are having some effect on producer practices. However, they can also be potentially harmful if producers alone are expected to bear the full costs of transition.

*The Reality of Sustainable Trade* is part of IIED's Stimulating Sustainable Trade series, which examines the impacts of social and environmental requirements on North-South trade and ways to encourage trade in more sustainable goods and services.

*Nick Robins and Sarah Roberts, eds. (2000). IIED, 3 Endsleigh Street, London WC1H 0DD, UK. Tel: +44 (207) 388 2117, Fax: +44 (207) 388 2826, E-mail: bookshop@iied.org, Internet: www.iied.org. Pbk., 120p. ISSN 1562-3319.*

"Poverty Reduction and Urban Governance," *Environment and Urbanization*, Vol. 12, No. 1 (April 2000)

Urban poverty is greatly influenced by local governments – not only by what they do or don't do, but also by what they can or can't do, according to the International Institute for Environment and Development (IIED). Nevertheless, local governments receive relatively little attention in discussions of poverty and poverty reduction, which tend to focus on the roles of national governments and international aid agencies. This issue of *Environment and Urbanization* examines local government's current and potential role in urban poverty reduction. The introductory article by IIED's staff provides background information on urban poverty and the factors that contribute to it. It discusses the prospects for local government action to reduce poverty, arguing that local governments often fail to meet their obligations to large sections of their populations in regard to housing, infrastructure, services and political inclusion. Deficiencies in these areas aggravate and perpetuate urban poverty. They also contribute to the enormous and growing problems of urban environmental degradation. However, the authors acknowledge the limits of local govern-

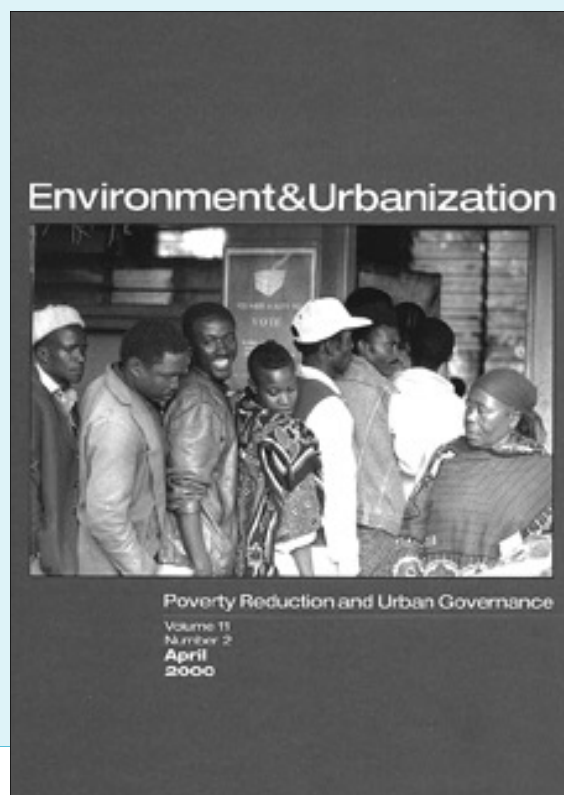
ments' ability to combat poverty through directly increasing incomes.

Articles from contributors cover cities in the developing world, including Guatemala City (Guatemala), Cebu (Philippines), Bamako

(Mali) and Ahmedabad (India). Some of the articles discuss ways local government actions and policies can help alleviate the multiple deprivations suffered by the urban poor; others present examples of ways to improve the effectiveness of aid from international donors. The complexity of the political and economic factors in cities that influence who gets land, infrastructure and services is emphasized. The articles stress that political systems in which the urban poor have little influence are unlikely to provide effective poverty relief.

*Environment and Urbanization*, a twice-yearly journal published by IIED, examines environmental issues related to urban areas and urbanization in Africa, Asia and Latin America. Recent issues have focused on sustainable cities and urban health; back issues focusing on other themes are available. A sister publication, *Medio Ambiente y Urbanizacion*, contains Spanish-language articles and concentrates on Latin America.

(2000). IIED, 3 Endsleigh Street, London WC1H 0DD, UK. Tel: +44 (171) 388 2117, Fax: +44 (171) 388 2826, E-mail: [humans@iied.org](mailto:humans@iied.org), Internet: [www.iied.org/human/env\\_urb.html](http://www.iied.org/human/env_urb.html). Pbk., 256p.



**Sustainable Technology Development**

The Dutch government commissioned a five-year research programme to determine what technologies and development paths are needed in order to achieve a sustainable world, using a method called "backcasting." The project began with a vision of a sustainable future in 50 years that met all the known environmental and economic constraints, and in which factor 10 to factor 20 eco-efficiency had been achieved. The backcasting method set out to describe steps that should be taken now, so that the necessary technologies and systems would be in place. This "virtual hindsight" led to 15 case study projects on nutrition, shelter, mobility, materials and water. *Sustainable Technology Development* presents several of the case studies. Prospects for sustainable technologies are evaluated.

P. Weaver, L. Jansen, G. van Grootveld, E. van Speigel and P. Vergragt (2000). Greenleaf Publishing (see above). Hbk., 304p. ISBN 1-874719-09-8.

**Small and Medium-Sized Enterprises and the Environment**

Small and medium-sized enterprises (SMEs), defined as those employing fewer than 250 people, provide the majority of jobs globally and con-

tribute significantly to GDP. They are also one of the fastest growing parts of the economy in most countries. While relatively small individually, collectively they are not only an important component of national economies but are also responsible for a large share of pollution and waste. There have been a number of attempts, especially in industrialized countries, to engage SMEs in environmental management activities, but most have met with limited success at best.

*Small and Medium-Sized Enterprises and the Environment* looks at why getting SMEs involved in environmental protection has been so difficult. It describes appropriate programmes and tools for environmental management, along with practical strategies for reaching SMEs and introducing the concept of environmental stewardship. It also presents case studies from several countries, including developing ones, where environmental management activities have been initiated successfully in smaller companies.

Ruth Hillary, ed. (2000). Greenleaf Publishing (see above). Hbk., 391p. ISBN 1-874719-22-5.

**Natural Disasters: Protecting the Public's Health**

Natural disasters often cause severe health effects, both directly and indirectly, that can continue

long afterward. The health sector is therefore an essential part of disaster planning and preparedness. This Pan American Health Organization (PAHO) publication outlines the role of health professionals in planning for, and responding to, disasters in order to reduce their impacts. It describes disasters' health effects and summarizes the organizational steps needed to respond effectively, emphasizing the importance of a multi-sectoral approach. Topics covered include preparation of disaster plans, inter-agency coordination, training, and supply management.

Environmental health management is also covered, including information on water and food supplies, sanitation, waste management and disease vector control. The book is intended primarily for health professionals. However, recognizing that disaster management is increasingly an inter-sectoral effort, the authors have also aimed it at others involved in disaster preparedness and response.

The full text is available on line, in PDF format, at [www.paho.org/English/PED/sp575.htm](http://www.paho.org/English/PED/sp575.htm).

(2000). PAHO, World Health Organization, 525 23<sup>rd</sup> Street, NW, Washington, DC 20037, USA. Tel: +1 (202) 974 3525, Fax: +1 (202) 775 4578, E-mail: [disaster@paho.org](mailto:disaster@paho.org), Internet: [www.paho.org](http://www.paho.org). Pbk., 119p. ISBN 92-75-11575-3.

## ENERGY

**Power Sector Reform in Sub-Saharan Africa**

Power sectors in Sub-Saharan Africa face many problems, including the frequent unreliability of power supplies, inefficient operation of entities within a sector, and limited access to electricity by most of the population. Power sector reform, including privatization and restructuring, has the potential to contribute to development and to increase access to electric power for large numbers of Africans. Case studies from six countries (Côte d'Ivoire, Ghana, Kenya, Mauritius, Uganda and Zimbabwe) assess the electric utility industry's performance and efficiency, present rationales for reform, and discuss the choice of reform paths and how reforms have been initiated. The authors, who include engineers, policy advisors, economists and utility directors, also address the policy implications of reform, rural electrification issues and demand-side management.

*John K. Turkson, ed. (2000). St. Martin's Press, Inc., Scholarly and Reference Division, 175 Fifth Avenue, New York, NY 10010, USA. Tel: +1 (212) 982 3900, Fax: +1 (212) 777 6359, E-mail: srmarketing@smartins.com, Internet: www.smartins.com. Hbk., 222p. ISBN 0-333-75129-9.*

**Energy for Tomorrow's World – Acting Now!**

In this report on energy developments in the last decade, the World Energy Council (WEC), an energy industry association, surveys global energy trends and makes policy recommendations for sustainable energy growth and use. The most significant energy indicator since the last survey in 1993 remains the unequal distribution of energy use worldwide, with only 20% of the world's population (in the developed countries) consuming some 60% of the global energy supply. Approximately 1.6 billion people live without electricity or any other commercial energy supply. Pointing out that a significant proportion of harmful pollution in developing countries comes from indoor use of coal or wood and other biomass fuels, the WEC advocates cleaner technologies, more use of renewable energy sources, and greater access to electricity and gas for the world's poor.

*(2000). WEC, 5th Floor, Regency House, 1-4 Warwick Street, London EC1R 0NE, UK. Tel: +44 (20) 7734 5996, Fax: +44 (20) 7734 5926, E-mail: info@worldenergy.org, Internet: www.worldenergy.org. Pbk., 146p. ISBN 1-901640-06-X.*

**Keys for Sustainable Development: Energy, Biodiversity and Space**

This brochure published by the Dutch Ministry of Housing, Spatial Planning and the Environment looks at the interrelationship of energy, resource use and land.

*(1999). Ministry of Housing, Spatial Planning*

*and the Environment, PO Box 20951, 2500 EZ The Hague, The Netherlands. Tel: +31 (70) 339 4820, Fax: +31 (70) 339 1291, Internet: www.minvrom.nl. Pbk., 19p.*

CLIMATE CHANGE  
AIR POLLUTION**Japan and Germany: Towards co-ordinated climate protection strategies**

The success of efforts to control global warming will depend on the concerted activities of governments and private industry. While individual governments need to establish the framework within which companies choose emissions reduction options, there is great potential for international cooperation among both governments and industries.

Japan's Institute for Global Environmental Strategies and Germany's Wuppertal Institute for Climate, Environment and Energy have initiated a policy dialogue between the two countries to facilitate coordination of domestic emissions reduction measures at the company and national levels, as well as to establish best practices in both countries and promote competition among progressive companies. This publication includes the results of an initial workshop held in Tokyo in March 2000, the results of a survey of German and Japanese businesses, and three background papers on economic instruments, greener products and production, and sustainable and eco-efficient enterprises.

*Hermann E. Ott and Tsuneo Takeuchi, eds. (2000). Wuppertal Institute, Döppersberg 9, 42103 Wuppertal, Germany. Tel: +49 (202) 24920, Fax: +49 (202) 2492 108, E-mail: info@wupperinst.org, Internet: www.wupperinst.org. Pbk., 95p. ISBN 3-929944-26-X.*

**Air Pollution Engineering Manual**

This is the second edition of the *Air Pollution Engineering Manual*. It has been updated to reflect the most recent emission factors and control measures for industries in the US or operating under US regulatory requirements. The Manual includes background material on pollution control engineering, choice of equipment, economics, and regulatory requirements. There are chapters on controlling gaseous pollutants, particulates and dust, as well as discussions of combustion sources such as coal and fuel oil and waste incineration sources such as municipal waste burning and sewage sludge. There are separate, detailed sections on pollution control technologies used in 11 major industry groups and a section on accidental and catastrophic releases of air pollutants. The Manual is intended for industry and government professionals directly involved in the choice of air pollution control technologies and in their operation, as well as for students and educators in the field of environmental engineering.

*Wayne T. Davis, ed. (2000). John Wiley & Sons, Inc., 605 Third Avenue, New York, NY 10158-0012, USA. Tel: +1 (212) 850 6011, Fax: +1 (212) 850 6008, E-mail: info@wiley.com, Internet: www.wiley.com. Hbk., 886p. ISBN 0-471-33333-6.*

## INDUSTRY SECTORS

 **Food Processing Sector Guides for Cleaner Production Assessment**

UNEP DTIE and the Danish Environmental Protection Agency have jointly developed a series of Industry Sector Guides on Cleaner Production Assessment. Three sector-specific guides have recently been published:

**Cleaner Production Assessment in Dairy Processing (2000).** Pbk. ISBN 92-807-1842-8.

**Cleaner Production Assessment in Fish Processing (2000).** Pbk. ISBN 92-807-1843-6.

**Cleaner Production Assessment in Meat Processing (2000).** Pbk. ISBN 92-807-1844-4.

Each guide in this series contains background information concerning the industry and environmental issues, including quantitative data on rates of resource consumption and waste generation. There is detailed information on the principles of cleaner production and cleaner production assessment procedures. Opportunities to improve environmental performance in specific sectors through applying cleaner production are discussed. Case studies of successful cleaner production projects are also presented. References and information sources are provided in annexes.

These guides are intended to be used by cleaner production professionals and managers of industries, in order to conduct cleaner production assessments in relevant industry sectors. They can also be used as reference materials by governments or consultants in developing cleaner production projects and relevant policies.

Electronic copies may be downloaded from [www.agrifood-forum.net/publications/guide/index.htm](http://www.agrifood-forum.net/publications/guide/index.htm).

*(2000). UNEP. Available from: SMI (Distribution Services) Ltd, PO Box 119, Stevenage, Hertfordshire SG1 4TP, UK. Fax: +44 (1438) 748 844, E-mail: Anthony@smibooks.com.*

 **Sustainable Development and the Future of Mineral Investment**

This UNEP publication begins by offering a perspective on the normative and philosophical aspects of sustainable development, before proceeding to a discussion of sustainability as applied to the mineral industry. It includes a review of the roles and interests of various stakeholders in mining projects, such as mining companies, the public and government regulators. Methods and indicators for assessing sustainability in the industry are examined. *Sustainable Development and the*

*Future of Mineral Investment* is written for a wide audience and should be understandable by readers who are not experts in the field.

James M. Otto and John Cordes, eds. (2000). *UNEP DTIE, 39-43 quai André Citroën, 75739 Paris Cedex 15, France. Tel: +33 (1) 44 37 14 50, Fax: +33 (1) 44 37 14 74, E-mail: unep.tie@unep.fr, Internet: www.unep.tie.org. Pbk., 208p. ISBN 92-807-1913-0.*

## CHEMICALS, POLLUTION AND ACCIDENTS

### Chemistry, Society and Environment: A New History of the British Chemical Industry

Believing that the present environmental crisis can only be understood in light of its history, the authors of *Chemistry, Society and Environment* have analyzed the chemical industry's impact on society in the UK as a whole. They describe the industry's development in the context of its environmental effects, showing that although the word "environment" was scarcely used before the 1960s, environmental impacts have been a source of concern since the industry began. Chemical companies' records, museum and news archives, government documents and earlier industrial histories, as well as industrial archaeology sites, were examined in an effort to provide a balanced view.

The book is divided into sections describing the industry's general organization and the history, processes, and environmental and social effects of individual branches, including alkali, nitrogen, pharmaceutical, organic and inorganic, metal-related and petroleum-based chemical manufacturing. It concludes with an assessment of the relationship between the chemical industry and the country's quality of life, as well as the industry's role in climate change, ozone depletion and other global issues.

Colin A. Russell, ed. (2000). *Royal Society of Chemistry, Turpin Distribution Services, Ltd, Blackhorse Road, Letchworth, Hertfordshire SG6 1HN, UK. Tel: +44 (1462) 672 555, Fax: +44 (1462) 480 947, E-mail: turpin@rsc.org, Internet: www.rsc.org. Hbk., 372p. ISBN 0-85404-599-6.*

### Principles of Toxicology

An understanding of the principles of toxicology is essential in determining the risks chemical pollutants pose to human health and the environment. This textbook covers the theory and practical application of toxicological studies in both industrial settings and the ambient environment. It introduces the basic concepts of toxicology (e.g. dose-response relationships) and includes chapters on the physiological processes by which toxic substances affect health, the effects of toxicants on various major body systems and functions, and the properties and effects of various types of toxic chemicals. The authors emphasize the applied aspects of toxicology, covering risk

assessment, occupational and environmental health, and epidemiology.

*Principles of Toxicology* is intended for industrial hygienists, occupational physicians, safety engineers, and others involved in environmental health and safety.

P.L. Williams, R.C. James and S.M. Roberts, eds. (2000). *John Wiley & Sons, Inc. (see above). Hbk., 603p. ISBN 0-471-29321-0.*

### Environmental Toxicants: Human Exposures and their Health Effects

Toxic substances have become widespread in the environment (though usually at low concentrations) as a result of human activities. The effects of workplace exposure to toxic substances have been studied extensively, but less information is available on the effects of low-level exposure to toxicants in the natural environment on large populations. This book therefore focuses on non-occupational exposure to environmental toxicants. It summarizes the characteristics of chemical contaminants, including their physical properties, techniques for measuring environmental concentrations, and the routes of human exposure – through air, water, food or direct contact.

*Environmental Toxicants* addresses the problems associated with estimating exposure rates and the relationship between exposure and adverse health effects. It surveys a broad range of toxic substances and the risks associated with exposure to them. Separate chapters treat common toxicants, including aerosol particles, asbestos, carbon monoxide, diesel exhaust, drinking water disinfectants, food additives, lead, microwaves, ozone and other topics. The authors also treat broader issues such as individual and community risk, environmental engineering for risk reduction, and knowledge gained in the industrial sector. *Environmental Toxicants* is intended for public health officials, industrial hygienists, epidemiologists and physicians involved in assessing and managing risks to exposed populations.

Morton Lippmann, ed. (2000). *John Wiley & Sons, Inc. (see above). Hbk., 987p. ISBN 0-471-29298-2.*

### Phytoremediation of Toxic Metals

Contamination of soil and water with toxic metals is a major environmental problem, especially at active and former industrial and military sites. Metals, which can have serious effects on human health and on ecosystems, are difficult and expensive to remediate using current methods that rely mainly on excavation and burial at hazardous waste sites. Many sites remain contaminated since, at an average cost of over US\$ 2 million per hectare, they are too costly to clean up.

This collection of technical papers explores various aspects of phytoremediation: the use of plants to remove contaminants from the soil. Some contributors discuss the economic and regulatory issues involved and prospects for public acceptance of new technologies. Others present

studies of various phytoremediation processes, including the use of plants that absorb metals from the soil into the plant mass, which can then be harvested and recycled to reclaim the metal or dispose of it properly. *Phytoremediation of Toxic Metals* also includes information on the biological and molecular processes involved in phytoremediation.

I. Raskin and B.D. Ensley, eds. (2000). *John Wiley & Sons, Inc. (see above). Hbk., 304p. ISBN 0-471-19254-6.*

### IPCS Environmental Health Criteria

The International Programme on Chemical Safety (IPCS) is a joint venture between UNEP, the International Labour Organisation (ILO) and the World Health Organization (WHO). The IPCS Environmental Health Criteria series provides critical reviews of potential health and environmental effects of chemicals and combinations of chemicals. These are primarily risk evaluations and are based on published and unpublished studies. The series is published in English, with summaries in French and Spanish. It is available from WHO and its sales agents. Six new titles are available:

**EHC 211: Health Effects of Interactions between Tobacco Use and Exposure to Other Agents** (1999). *Pbk, 149p. ISBN 92-4-157211-6.*

**EHC 212: Principles and Methods for Assessing Allergic Hypersensitization Associated with Exposure to Chemicals** (1999). *Pbk, 399p. ISBN 92-4-157212-4.*

**EHC 213: Carbon Monoxide, 2nd ed.** (1999). *Pbk, 464p. ISBN 92-4-157213-2.*

**EHC 215: Vinyl Chloride** (1999). *Pbk, 356p. ISBN 92-4-157215-9.*

**EHC 217: Bacillus thuringiensis** (1999). *Pbk, 105p. ISBN 92-4-157217-5.*

**EHC 218: Flame Retardants: Tris(2-butoxyethyl) Phosphate, Tris(2-ethylhexyl) P phosphate and Tetrakis(hydroxymethyl) P hosphonium Salts** (2000). *Pbk, 130p. ISBN 92-4-157218-3.*

WHO, *Distribution and Sales, Geneva 27, Switzerland. Tel: +41 (22) 791 2476, Fax: +41 (22) 791 4857, E-mail: bookorders@who.ch, Internet: www.who.int.*

### Road Map to Understanding Innovative Technology Options for Brownfields Investigation and Cleanup, Second Edition

The US Environmental Protection Agency produced this guide to brownfields remediation information with the goal of speeding up rehabilitation of such sites while reducing associated costs. Brownfields, defined as abandoned, idle or underused industrial and commercial sites whose redevelopment is complicated by real or perceived environmental contamination, are common in many older cities and industrial areas.

This book provides extensive references to, and summaries of, publications and web sites with information on brownfield clean-up technologies. It focuses on relatively new technologies that have been shown to be successful in pilot programmes

for remediation of a number of types of soil and water contamination. It is meant to serve as a "road map" guiding the user through the steps involved in choosing options.

A CD-ROM containing the text of many of the referenced publications is included. This publication is intended for planning and public health officials, developers, private citizens, and other stakeholders who have decision-making responsibility but who may be unfamiliar with the issues involved in cleaning up brownfield sites. Although the regulatory issues discussed apply mainly to the US, the technologies and strategies described in the listed publications and resources can be used in other countries as well.

(2000). *US EPA, National Service Center for Environmental Publications, PO Box 42419, Cincinnati, OH 45242, USA. Tel: +1 (513) 489 8190, Fax: +1 (513) 489 8695, Internet: www.epa.gov/ncepihom. Pbk., 94p.*

### Innovative Remediation and Site Characterization Technologies Resources

This CD-ROM contains a variety of information resources that can assist brownfield site managers in evaluating and choosing among site clean-up alternatives. It includes citizens' guides explaining the most commonly used innovative technologies, as well as summaries of fact sheets, journals, on-line resources and other information sources. In



some cases these sources are also included in PDF format. There are extensive lists of references and of organizations that provide information about site characterization and remediation technologies. The CD also presents 140 case studies with cost and performance information on remediation technologies.

(2000). *US EPA (see above). CD-ROM.*

### The Chemistry of Pollution

The health and environmental threats posed by pollution are a function not only of the original characteristics of the polluting substances, but also of the changes these substances undergo in the natural environment. Smog is a notable example. The chemical components of automobile emissions are converted in the atmosphere by solar energy into ozone and other compounds, many of

them toxic. Chemical conversions can also transform toxic substances into less harmful compounds.

*The Chemistry of Pollution* surveys the chemical aspects of pollutants in air, water and soil. It covers common toxics such as carbon monoxide (CO), sulphur dioxide (SO<sub>2</sub>) and heavy metals. It also discusses chemical processes that affect the toxicity of compounds in food and consumer goods and includes a brief section on radioactivity. This book is intended for chemistry students and others interested in the chemical principles of environmental pollution.

Günter Fellenberg (2000). *John Wiley & Sons, Inc. (see above). Pbk., 192p. ISBN 0-471-61391-6.*

### Continuous Emission Monitoring

Continuous emission monitoring (CEM) systems permit sampling, analysis and measurement of air emissions, throughout the operations of an emissions source, without the need for manual sampling and laboratory analysis. CEM systems are increasingly being incorporated into the regulatory programmes of air pollution control agencies worldwide. They are used not only to check the performance of air pollution control devices, but also to assess compliance with regulations and to establish emissions allowances in the US acid rain control programme.

*Continuous Emission Monitoring* examines both the technical issues and regulatory considerations involved in choosing and operating CEM systems, taking into consideration the varied requirements imposed by different processes, equipment types and emissions standards. Its purpose is to enable the user to assess the operating characteristics of commercial systems and evaluate them for a specific application. It is intended for environmental engineers in industry and in control agencies, CEM users, and inspectors and auditors.

James A. Jahnke (2000). *John Wiley & Sons, Inc. (see above). Hbk., 404p. ISBN 0-471-29227-3.*

### Nuclear Test Explosions

The Scientific Committee on Problems of the Environment (SCOPE), part of the International Council for Science, investigated the environmental and human impacts of all nuclear tests carried out between 1945 and 1998. In this publication it gives the location and dates of 730 explosions and 2419 tests at sites including those in the US, Russia, China and the South Pacific. The Committee assesses the fallout from atmospheric tests and describes the development of nuclear weapons and the testing programmes of countries that possess nuclear weapons. The bulk of *Nuclear Test Explosions* is devoted to an examination of environmental contamination, health effects, and estimations of radiation doses from each of the known test explosions.

Sir Frederick Warner and René J.C. Kirchmann, eds. (2000). *SCOPE. Available from John Wiley & Sons, Inc. (see above). Hbk., 275p. ISBN 0-471-97848-5.*

### Reducing the Use of Hazardous Substances in Personal Computers

This report, based on three Master's theses produced at Lund University, looks at how different incentives and barriers can influence companies to consider environmental aspects in developing and using electronic products, especially personal computers. The first part examines drivers of, and barriers to, reduced chemical use in the computer industry. It concludes that the industry is often constrained by short-term financial considerations that limit the ability to integrate sustainability and hazard reduction concepts into product design.

The second part focuses on the influence of eco-labelling schemes on product development and their effectiveness as an environmental policy tool. It concludes that some labelling schemes have the potential to influence product development, but that their effectiveness is limited by lack of customer awareness and concern about the environmental aspects of PCs.

The third part analyzes the implications of World Trade Organization rules on product policy and mandatory information instruments. It concludes that such instruments represent the greatest potential for trade law conflicts because of their restrictive effects on trade. While WTO trade rules allow national mandatory instruments to address downstream impacts of hazardous substances, they do not allow different treatment of products based on their upstream processing and production methods. The report also contains a summary of EU and Swedish chemicals legislation.

(2000). *Swedish National Chemicals Inspectorate, PO Box 1384, S-171 27 Solna, Sweden. Tel: +46 (8) 783 1100, Fax: +46 (8) 735 7698, E-mail: kemi@kemi.se, Internet: www.kemi.se. Pbk., 130p. ISSN 0284 1185.*

## NATIONAL/REGIONAL

### Environmental Impact of Refugees in Guinea

Several hundred thousand refugees have arrived in Guinea in recent years, mainly because of the conflicts in nearby Sierra Leone and Liberia. In July 1999, the Government of Guinea and the Secretary General of the UN asked UNEP to investigate the environmental impacts of the refugee situation. This report documents the findings of UNEP's investigation, which involved visits to a number of refugee camps and urban centres. The investigators found serious short-term and long-term impacts in both rural and urban areas, including a rapid increase in waste generation and severe strains on water supplies and sanitation systems. In rural areas, the addition of refugees' needs to those of the local population has exacerbated problems of deforestation and land degradation.

The report includes recommendations for improving response to environmental pressures

created by the presence of refugees. It is also available on the Internet at [www.grid.unep.ch/guinea](http://www.grid.unep.ch/guinea).

UNEP Regional Office for Africa, PO Box 30552, Nairobi, Kenya. Tel: +254 (2) 62 4283/4284, Fax: +254 (2) 62 3928, E-mail: [ipainfo@unep.org](mailto:ipainfo@unep.org). Pbk., 21p.

**Asian Approach to Resource Conservation and Environment Protection**

The Asian Productivity Organization (APO) conducts annual training on resource conservation and environmental protection for its members, a group of Asian and Pacific country governments. This volume collects the proceedings and papers presented at the 1998 conference. It includes an overview of the approach to resource conservation and environmental protection in the region, and individual country papers provide more detail and statistics on the environment for each APO member.

(2000). APO, Hirakawa-cho Dai-ichi Seimei Building 2F, 1-2-10, Hirakawa-cho, Chiyoda-ku, Tokyo 102-0093, Japan. Tel: +81 (3) 5226 3920, Fax: +81 (3) 5226 3950, E-mail: [apo@gol.com](mailto:apo@gol.com), Internet: [www.apo-tokyo.com](http://www.apo-tokyo.com). Pbk., 284p. ISBN 92-833-2246-0.

**Green Korea 2000**

*Green Korea 2000* presents the Korean government's environmental policies and plans for the years 1998-2002, as well as a summary of projects carried out between 1992 and 1996. The goal of these plans, as stated by the Ministry of Environment, is "to build a society that is environmentally friendly, one that respects ecological values, and that is environmentally sound and sustainable." This report summarizes efforts in the areas of nature conservation, air and water quality management, waste management, public education and involvement, and the development of environmental industries and technologies. It includes data on the water quality of major river systems, capacity and level of service of sewage systems, and participation in recycling schemes.

The report includes case studies of Korean industries that have joined the Environmentally Friendly Enterprise System, a government-sponsored voluntary initiative for companies to set and meet environmental targets.

*Green Korea 2000* also discusses Korea's participation in international environmental treaties and conventions and in cooperative agreements with its neighbours, as

well as Local Agenda 21 activities. Tables present the organization and responsibilities of the Ministry of Environment and the major environmental laws in effect in Korea.

(2000). Korean Ministry of Environment, Government Complex Kwacheon, Kwacheon 427-760, Korea. Tel: +822 (504) 9244, Fax: +822 (504) 9206, Internet: [www.me.go.kr](http://www.me.go.kr). Pbk., 77p.

**The State of India's Environment: The Citizens' Fifth Report**

The Centre for Science and the Environment (CSE) in New Delhi first published a survey of the state of India's environment in 1985. This report updates and expands that survey, covering environmental issues, events, policies and practices. Due to India's vast size and geographical and ecological diversity, it has tremendous natur-

al resources. However, it also has severe and worsening environmental problems, ranging from deforestation to water shortages to urban industrial blight. The authors argue that India's government has been unable to deal with these issues, acting only when a problem becomes a crisis. They suggest that political as well as technological solutions will be necessary to reverse environmental damage.

The report comes in two volumes. The first is divided into sections describing the condition of land, water, forests, natural habitat, air, natural resources and energy, as well as human health and political factors. The second is a statistical database of India's environment.

(1999). CSE, 41, Tughlakabad Institutional Area, New Delhi 110 062, India. Tel: +91 (11) 6981110, Fax: +91 (11) 6985879, E-mail: [cse@cseindia.org](mailto:cse@cseindia.org), Internet: [www.cseindia.org](http://www.cseindia.org). Hbk., 2 volumes, 440p. and 256p.



**Environmental Governance**

To meet the challenges of the coming century in India, the UN Development Programme (UNDP) initiated the Capacity 21 Project in 1995. Its goal is to build understanding and capacity for environmental economics in research institutions, government agencies, NGOs and the private sector, and to promote concern for sustainability among decision- and policy-makers in government and industry. The project focuses on the four main areas of air quality, water quality, land resources and biodiversity. As part of the project, the Indira Ghandi Institute of Development Research (IGIDR) has prepared four strategy briefs for these four areas.

**Clean Water** (Environmental Governance 1) describes the extent and causes of water pollution in India and its health and other consequences. The economic, technical and legal approaches needed to cope with the problem are outlined. Pbk., 24p.

**Wetlands** (Environmental Governance 2) addresses issues related to the sustainable management and conservation of wetlands, which are among India's most productive and most endangered biological systems. It describes the various problems of, and threats to, wetlands and the legal protections available to preserve them. Pbk., 24p.

**Land and Forest Regeneration** (Environmental Governance 3) examines the causes and consequences of land degradation and deforestation and suggests strategies for reversing the damage. Pbk., 28p.

**Clean Air** (Environmental Governance 4) discusses the problems of air pollution in India, which like many countries suffers from serious indoor air quality problems and adverse health effects due to common use of biofuels for cooking and heating. Pbk., 24p.

(2000). IDIGR, Gen. Vaidya Marg, Goregaon (E), Mumbai 400 065, India. Tel: +91 (22) 8400919, Fax: +91 (22) 8402752 or 8402026, E-mail: [cap21@igidr.ac.in](mailto:cap21@igidr.ac.in), Internet: [www.igidr.ac.in](http://www.igidr.ac.in).

Field	Act
Environmental Management	<ul style="list-style-type: none"> <li>Environmental Policy Act</li> <li>Environmental Dispute Settlement Act</li> <li>Special Act relating to the Control of Environmental Crimes</li> <li>Act Relating to Support and Development of Environmental Technologies</li> <li>Environmental Improvement Account Act</li> <li>Act Relating to Environmental Improvement Charges</li> <li>Environmental Management Corporation Act</li> <li>Korean Resources Recovery and Reutilization Corporation Act</li> <li>Natural Environment Conservation Act</li> </ul>
Natural Environment Management	<ul style="list-style-type: none"> <li>Natural Parks Act</li> <li>Act for Environmental, Traffic and Disaster Impact Assessments</li> <li>Special Act Relating to the Conservation of Marine Ecosystems such as Tokko, etc.</li> <li>Soil Environment Preservation Act</li> <li>Wetlands Preservation Act</li> <li>Air Quality Preservation Act</li> </ul>
Air and Noise Management	<ul style="list-style-type: none"> <li>Noise and Vibration Control Act</li> <li>Air Quality Management Act for Underground Living Spaces</li> <li>Water Quality Preservation Act</li> </ul>
Water Management	<ul style="list-style-type: none"> <li>Act Relating to Treatment of Sewage, Night Soil and Livestock Wastewater</li> <li>Drinking Water Management Act</li> <li>Food Water Body (Water) Quality Management Act</li> <li>Water Supply and Wastewater Installation Act</li> <li>Sewage Treatment Act</li> <li>Act Relating to Water Resource Quality Improvement and Local Resident Support in the Han River Watershed</li> <li>Waste Management Act</li> </ul>
Waste Management	<ul style="list-style-type: none"> <li>Act Relating to Promotion of Resource Saving and Reutilization</li> <li>Act Relating to the Extrajurisdictional Movement of Waste and its Disposal</li> <li>Act for Promotion of Waste Treatment Facilities and Local Communities</li> <li>Toxic Chemicals Control Act</li> <li>Act Relating to Establishment and Operation of the Metropolitan Area Landfill Management Corporation</li> </ul>

### Old Sins: Industrial Metabolism, Heavy Metal Pollution, and Environmental Transition in Central Europe

Industrial metabolism studies look at the total consequences of resource consumption by society, using analysis of energy and material flows and their environmental consequences. Such flows have increased enormously in both quantity and geographic extent since the Industrial Revolution. As material flows have increased and become more complex, they have also become more "open", increasing losses to the environment in the form of waste. This book, based on two projects in the Rhine Basin and the Black Triangle-Upper Silesia region, presents examples of the industrial metabolism approach to understanding regional environmental change. The authors include historical studies of heavy metals use and pollution in Europe to illustrate how spatial patterns of emissions and depositions of such metals in the environment have changed over time. Presenting the development of the Rhine Basin as an example of the shift in pollution trends in OECD countries over the past few decades, they discuss the problems involved in simultaneous economic restructuring and environmental remediation, combining technical analyses with studies of social, political and economic developments related to the environment.

*S. Anderberg, S. Prieler, K. Olendrzynski and S. de Bruyn, eds. (2000). The United Nations University Press, 53-70, Jingumae 5-chome, Shibuya-ku, Tokyo, 150-8925, Japan. Tel: +81 (3) 3499 2811, Fax: +81 (3) 3406 7345, E-mail: sales@hq.unu.edu, Internet: www.unu.edu. Pbk., 194p. ISBN 92-808-1049-9.*

### Sourcebook on Environmental Funds in Economies in Transition

This regional overview surveys 21 environmental funds in the Central and Eastern European Countries and the New Independent States of the former Soviet Union. Many countries use such funds to help meet environmental financing challenges during economic transition. They are usually governmental or quasi-governmental institutions that obtain revenue from sources such as environmental fees or fines and provide grants or loans for environmental protection activities. In many CEEC/NIS such funds have contributed to accelerated environmental remediation and capacity building.

The main features of the funds, their effectiveness as environmental policy tools, and their record of managing public monies are assessed. Recommendations are made for improving institutional capacity and management, as well as the design and implementation of economic instruments and methods of setting priorities and selecting projects.

*(2000). OECD Publications, 2, rue André-Pascal, 75775 Paris Cedex 16, France. Tel: +33 (1) 45 24 82 00, Fax: +33 (1) 49 10 42 76, Internet: www.oecd.org/bookshop. Pbk., 267p.*



### UNDP Human Development Report on the Web

[www.undp.org/hdro](http://www.undp.org/hdro)

The full text of the UNDP's annual Human Development report is now available online. It includes statistics on income, life expectancy, education, access to essential services, and many other measures of human welfare and development.

### International Office for Water

[www.oieau.fr/anglais/index.htm](http://www.oieau.fr/anglais/index.htm)

The International Office for Water (IOW) is a non-profit organization located in Paris. Its objective is to establish a network of public and private partners worldwide engaged in water resources management and protection. The site also exists in French, Spanish and Portuguese.

### Pachamama

[www.unep.org/geo2000/pacha/](http://www.unep.org/geo2000/pacha/)

"Pachamama: Our Earth, Our Future," the youth edition of UNEP's GEO 2000 report, has its own web site. The Pachamama site contains information, case studies, artwork and poetry by young people. It has been compiled so as to present a worldwide assessment of environmental issues ranging from atmospheric and freshwater problems to urbanization and the protection of polar regions. Also included is the ECOMIND Maze Game, an interactive component of the report, which tests the user's knowledge of present and emerging global issues presented in GEO 2000.

*For more information, contact: Tessa Gerverse, UNEP, E-mail: tessa.gerverse@unep.org, or Tore J. Brevik, UNEP Spokesman, Tel: +254 (2) 623292, Fax: +254 (2) 623927.*

### Environmental Performance Reviews: Greece and Hungary

The OECD's Environmental Performance Review series compiles environmental and economic data on OECD and other countries. Each report includes information on the country's geography and resources, a survey of its social, economic and institutional development, and an analysis of its environmental policy. Current environmental conditions and air, water and waste management activities are assessed. An EPR analyzes the country's integration of environmental and economic decisions and its record in meeting both domestic objectives and international commitments. Recommendations are made for overall policy implementation and for improving environmental protection in selected industry sectors. Two new EPRs have been published:

*Greece. Pbk., 204p. ISBN 92-64-17189-4. Hungary. Pbk., 198p. ISBN 92-64-17195-9.*

*(2000). OECD Publications (see above). A first series of Environmental Performance Reviews have been carried out for Australia, Austria, Belarus, Belgium, Bulgaria, Canada, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Iceland, Ireland, Italy, Japan, Korea, Luxembourg, Mexico, the Netherlands, New Zealand, Norway, Poland, Portugal, the Russian Federation, Slovenia, Spain, Sweden, Switzerland, Turkey, the United Kingdom and the United States. A second series will begin to appear soon.*

*(2000). OECD Publications (see above). A first series of Environmental Performance Reviews have been carried out for Australia, Austria, Belarus, Belgium, Bulgaria, Canada, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Iceland, Ireland, Italy, Japan, Korea, Luxembourg, Mexico, the Netherlands, New Zealand, Norway, Poland, Portugal, the Russian Federation, Slovenia, Spain, Sweden, Switzerland, Turkey, the United Kingdom and the United States. A second series will begin to appear soon.*

*(2000). OECD Publications (see above). A first series of Environmental Performance Reviews have been carried out for Australia, Austria, Belarus, Belgium, Bulgaria, Canada, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Iceland, Ireland, Italy, Japan, Korea, Luxembourg, Mexico, the Netherlands, New Zealand, Norway, Poland, Portugal, the Russian Federation, Slovenia, Spain, Sweden, Switzerland, Turkey, the United Kingdom and the United States. A second series will begin to appear soon.*

### Sustainable Development in Canada

This series of monographs was prepared as part of Canada's participation in recent sessions of the UN Commission on Sustainable Development (CSD). Environment Canada published six new titles as a contribution to the land use dialogue at the Eighth Session of CSD in April. They describe experience with issues concerning sustainable development of land resources and the challenges that remain with regard to integration of sustainable development.

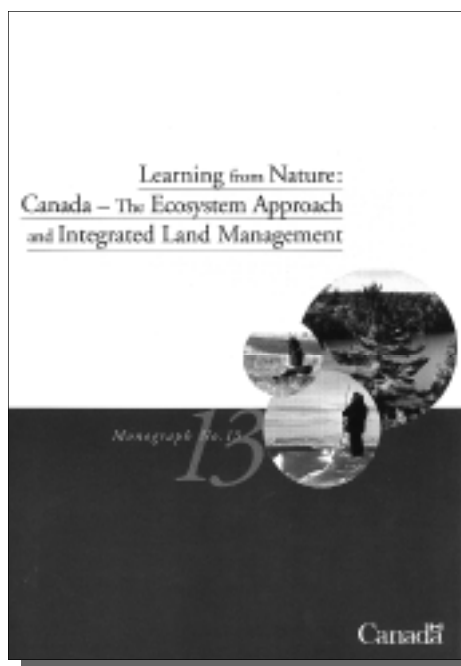
**Cultivating a Secure Future: Rural Development and Sustainable Agriculture in Canada** (Monograph No. 8). This monograph describes government approaches to rural development in Canada, emphasizing that sustainable rural development depends not so much on sustainable agriculture as on economic diversification. It discusses steps that have already been taken towards sustainable agriculture, and concludes with a list of the next steps that can move Canada further along in stabilizing and building rural communities and ensuring that agriculture can be practised profitably and in an environmentally sound way in the future. *Pbk., 68p. ISBN 0-662-64827-7.*

**Sustainable Forest Management: A Continued Commitment in Canada** (Monograph No. 9). In 1998, Canada adopted a five-year strategy to bring together the ecological, economic, social and cultural aspects of forest conservation and use. This title describes the strategy and other international, national, provincial and local initiatives, as well as the criteria and indicators used to measure and report on progress in sustainable forest management. The monograph also profiles the role forests play in meeting the needs of Aboriginal people in Canada and the special perspective they bring to sustainable forest management through their enduring relationship with the land. *Pbk., 40p. ISBN 0-662-64829-3.*

**Minerals and Metals: Towards a Sustainable Future** (Monograph No. 10). This report highlights some of the major economic, environmental and social issues facing the minerals and metals sector. It reviews recent Canadian government and industry initiatives and the various international organizations that work in the area of sustainable development of minerals and metals. This monograph updates the earlier one on minerals and metals, prepared for the 1997 review of Agenda 21, to reflect experience and the evolution in thinking since the release of the *Minerals and Metals Policy of the Government of Canada: Partnerships for Sustainable Development* in 1996. *Pbk., 40p. ISBN 0-662-64828-5.*

**Indigenous Peoples and Sustainable Development in the Canadian Arctic** (Monograph No. 11). This report identifies the progress made on Chapter 26 of Agenda 21, "Recognizing and Strengthening the Role of Indigenous People and Their Communities". It traces the Government of Canada's efforts to implement and build on commitments in pursuit of sustainable development with Indigenous communities in the Canadian Arctic. *Pbk., 44p. 0-662-64830-3.*

**The Contribution of Earth Sciences to Sustainable Land and Resource Management** (Monograph No. 12). Earth sciences are crucial for balanced decision-making regarding sustainable



land and resource management. This monograph discusses earth sciences in Canada and describes how they contribute to the sustainable and integrated management of land and resources by generating, analyzing and disseminating informa-

tion for land use decision-making on local, regional and global scales. *Pbk., 40p. ISBN 0-662-64832-3.*

**Learning from Nature: Canada - The Ecosystem Approach and Integrated Land Management** (Monograph No. 13). An ecosystem approach is fundamental to managing marine and terrestrial ecosystems and their adjoining coastal areas. This monograph explains the concept of the ecosystem approach to resource management and how it is being applied in Canada. Because the focus of Chapter 10 of Agenda 21 is managing land sustainably, integrated land use planning and management is featured and the report covers terrestrial ecosystems in more depth than marine areas. The report also focuses on the connections between people and the environment, including the short- and long-term implications of human activities and the processes, components, functions and carrying capacity of ecosystems. *Pbk., 68p. ISBN 0-662-64831-5.*

Each title includes the complete text in both English and French. The full texts, along with previous titles in the series, are also available on Environment Canada's web site ([www.ec.gc.ca](http://www.ec.gc.ca)).

(2000). *Environment Canada, Enquiry Centre, Ottawa, ON K1A 0H3, Canada. Tel: +1 (819) 997 2800, Fax: +1 (819) 953 2225, E-mail: [environinfo@ec.gc.ca](mailto:environinfo@ec.gc.ca).*