UNEP

Our Planet

Volume 14 No 3

The magazine of the United Nations Environment Programme

ENERGY


Van Capellen/UNEP/Topham


UNEP/Topham


Wu Shuangyan/UNEP/Topham

Our **Planet**,
the magazine of the
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ISSN 1013-7394

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Web Editor: Chris Cypert
Production: Banson
Printed in the United Kingdom

Front cover: Banson

This issue of *Our Planet* has been made possible by the generosity of the United Nations Foundation/Better World Fund.

EDITORIAL

From the desks of

KLAUS TOEPFER
United Nations Under-Secretary-General and Executive Director, UNEP

and **CORRADO CLINI**
Director General of the Italian Ministry of Environment and former co-Chair of the G8 Task Force on Renewable Energy

As delegates gather in Milan for the next round of climate change negotiations, some may wonder why such an event is necessary when the Kyoto Protocol, the international instrument for combating global warming, is not yet in force.

Surely, they will say, we can achieve little of substance until 55 countries representing 55 per cent of the emissions of the industrialized world have ratified it.

Such doubters should step outside the cocoon of gloom and smell the flowers.

In Italy – which hosts this ninth session of the Conference of the Parties (COP9) to the United Nations Framework Convention on Climate Change – for example, energy producers have been obliged to deliver a fixed amount of renewable energy into the national grid since 1999. A national plan for increasing wind and biomass-based energy generation has been established: its fruits include new 800 megawatt capacity for wind, and 10 megawatts from biomass in Maratta Bassa, Umbria.

New laws, economic incentives and the fast tracking of projects – both nationally inspired and as part of European Union initiatives – have helped improve the prospects for cleaner energy.

Power companies and banks are actively involved, proving yet again that saving the planet is a profitable business which generates jobs.

Next year Germany will host the International Conference on Renewable Energies. Last October the United Kingdom launched its Renewable Energy and Energy Efficiency Partnership (REEEP) and in November Italy launched the Mediterranean Renewable Energy Partnership on the occasion of the Conference of the Parties to the Barcelona Convention. These are ideas that were born out of the World Summit on Sustainable Development (WSSD) in Johannesburg last year and modelled on recommendations made earlier by the G8 Renewable Energy Task Force.

Among early success stories are the installation of solar power in Brazil, India and Sri Lanka through partnerships including BP Solar and Shell Renewables.

REEEP may be the latest initiative of its kind, but it is by no means the first – or the last. Last year the Global Network on Energy for Sustainable Development – involving specialized centres in India, Argentina, Senegal, Kenya and other countries – was launched at Johannesburg.

UNEP and the UN Foundation – whose sister body, the Better World Fund, has generously supported this issue of *Our Planet* – have been developing the Rural Energy Enterprise Development (REED) programme. It has three spin-offs: AREED, in Africa; CREED, in China, and B-REED focused on the Bahia and Alagoas areas of north-east Brazil. Other supporters include the Fund for International Partnerships, E+Co, the Blue Moon Fund, The Nature Conservancy and UNEP's collaborative Riso centre in Denmark.

REED aims to establish networks of clean energy entrepreneurs and businesses in developing countries. AREED, for example, has invested in 15 clean energy enterprises, supporting projects including the manufacturing of efficient cooking stoves, solar water-heating systems, wind-powered pumping and improved distribution of liquefied petroleum gas.

Access to energy is essential if the United Nations Millennium Development Goals and the WSSD Plan of Implementation are to be achieved, and the proportion of the world's people in poverty is to be halved by 2015.

Some 3 billion people rely on dung, coal, charcoal and kerosene for cooking and heating. Inefficient use of these fuels contributes to indoor and local air pollution, linked to up to 5 per cent of global disease.

The Global Environment Facility is backing an assessment of the solar and wind potential of developing countries. And the Sustainable Energy Finance Initiative (SEFI), launched only a few weeks ago at a UNEP Finance Initiative meeting in Tokyo, Japan, will complement attempts to overcome financial barriers to a rapid, widespread uptake of clean energy systems.

These are just some projects, partnerships and initiatives. Others are underway in the United States, Japan and elsewhere. Clearly not all will be successful. Some may wither and die. But many different kinds of flowers are needed to make a beautiful bouquet, and so many are now blossoming that there is the real promise of a less carbon intensive future.

In Milan we must water this garden so that the initiatives so actively backed by many countries, companies and communities can be growing strongly when the Kyoto Protocol finally enters into force ■

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COP9

YOUR VIEWS

We would really like to receive your feedback on the issues raised in this edition of ***Our Planet****. Please either e-mail feedback@ourplanet.com or write to:*
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KEY TO *development*

GERHARD SCHROEDER says that sustainable energy supplies are essential to combat poverty, prevent crises and conflicts and safeguard natural resources

Kenneth Akelis/UNEP/Topham

Around a third of the world's population lacks adequate access to energy supplies. Improving this situation provides one of the major challenges for future-oriented policy at the start of the 21st century. Germany is participating in efforts to facilitate sustainable energy supplies all over the world. We expressed this in particular at the Johannesburg World Summit in September 2002 by announcing concrete programmes, which sent out a strong signal to the international community. Sustainable energy supplies are essential to combat poverty, to prevent crises and conflicts and to safeguard natural resources.

Yet, we are still a long way from achieving this goal. The quarter of the world's population that lives in the northern industrialized countries accounts for three quarters of the global consumption of resources. At the same time, these countries are the source of three quarters of all carbon dioxide (CO_2) emissions – with their effects on the global climate. In the next decades there is also expected to be a steep rise in energy consumption in the developing countries. Energy efficiency levels in those countries – as well as in some industrialized countries – are low. This is another reason for the rapidly growing danger posed to the global climate by CO_2 emissions. To put it simply, sustainable energy supplies can only mean one thing: improving energy efficiency combined with renewable energy use.

Therefore, developing and industrialized countries bear joint responsibility. The industrialized countries must adopt new approaches in industry and society in the pursuit of energy conservation, energy efficiency and renewable energies. For their part, the developing countries must be given the opportunity to develop a sustainable future for themselves to free them from long-term dependence on less sustainable energy forms. It was for such reasons that the states participating at the Johannesburg Summit agreed that the fights against poverty and for access to sustainable energy must go hand in hand. The European Union and several additional countries joined together in a group of like-minded countries to commit themselves to timetables and targets for increasing the use of renewable energies.

Strategic partnership

The Federal Government of Germany also announced in Johannesburg that it would turn its cooperation with developing countries into a strategic partnership under a programme of Sustainable Energy for Development. Over the next five years a total of € 1 billion (approximately $1.17 billion) will be made available for this purpose – 500 million for renewable energies and 500 million for improving energy efficiency. In providing this money we will be helping the developing countries to make energy more efficient and climate friendly.

For example, a project financed by Germany is promoting the development of energy consulting, the introduction of energy audits and the use of energy-saving technologies in India. There, electricity is both in short supply and expensive. Energy-intensive production methods only drive up company costs. By introducing more efficient processes, industry and small businesses could save 10 to 20 per cent of their energy costs. As for the impact on climate change, it would mean 15 million fewer tonnes of CO_2 emissions each year. Several demonstration plants are showing how effective such measures are and how energy conservation not only helps protect our climate but also increases competitiveness.

Support for renewable energies

I have issued an invitation to an international conference on renewable energies to be held in Bonn in June 2004. 'Renewables 2004' will focus on strategies and measures to provide active support for renewable energies, removing barriers to the expansion of renewable energies and developing markets for them around the world. The conference aspires to commitments to national and regional targets, the adoption of an international action plan and the drawing up of guidelines for good policies in the energy sector. I am hopeful that the conference will stimulate a new dynamism in the worldwide development and expansion of renewable energies.

Sustainable energy supplies are a long-term goal. Germany is playing its part to that end. Today, we are already leading the industrialized countries in terms of energy efficiency, but we have set ourselves still higher standards in our national sustainability strategy. By 2020 we intend to double our energy productivity levels of 1990.

Heather Johnston/UNEP/Topham

Developing and industrialized countries bear joint responsibility ... the fights against poverty and for access to sustainable energy must go hand in hand

Germany is also making good progress in the expansion of renewable energy. Wind energy is playing a major role in this. Indeed, one third of the world's wind power is now generated in Germany. Accordingly the economic significance has increased: around 130,000 people are employed in the renewable energies sector here, especially in small and medium-sized businesses. The goal of the Federal Government is to raise the proportion of renewable energy used in power generation to 12.5 per cent by 2010, thus doubling the share it had in 2000.

Sustainable prosperity

In this way, we are developing a model of growth and prosperity that is sustainable because it is not at the expense of the environment, future generations or the developing countries. Because we cannot call on the developing countries to make careful use of the resources that they have at their disposal if we, the richest countries in the world, are not prepared to contribute the groundwork. It must be our common goal that successful economic development and the reduction of poverty can be combined with the protection of natural resources, in the developing countries as well as the industrialized ones ■

Gerhard Schroeder is Chancellor of the Federal Republic of Germany.

Tim J. Johnson/UNEP/Topham

The energy challenge

TED TURNER describes the imperatives of tackling energy poverty and climate change – and work done by the UN Foundation to address them

UNF

The responsible course ... is to get moving in the right direction

Balancing the world's growing need for energy against our collective need for a healthy environment in many ways lies at the heart of the development challenge. Globally, fossil fuels account for nearly 60 per cent of the emissions that are causing the Earth's atmospheric blanket of carbon dioxide to thicken and trap more heat. In the United States, fossil fuels contribute an even larger share – 85 per cent – of these emissions.

Of all the threats to the world's environment, the prospect of climate change looms largest. There is almost complete consensus in the scientific community that our climate is changing and warming; the remaining uncertainty is about how fast and how much this will impact the globe.

The responsible course in the face of these truths – in the face of risks that large – is to get moving in the right direction. Increased energy efficiency and increased use of renewable energy are tools to reduce carbon emissions that are readily available today, and their use would grow with economic incentives.

Energy and human development

Of the world's 6 billion people, one third enjoy the kind of 'energy on demand' that North Americans take for granted, and another third have such energy services intermittently. The final third – 2 billion people – simply lack access to modern energy services. Not coincidentally, the energy-deprived are the world's most impoverished, living on less than $2 per day. Their ranks will continue to grow. According to UN estimates, the populations of the 50 poorest nations will triple in size over the next 50 years. Without access to modern, reliable energy sources, social and economic development is not possible.

A number of new models have helped demonstrate, on a limited scale, various approaches for financing and delivering affordable rural energy services. Our challenge is to build on these successes and continue to increase their impact by scaling up programmes that work and encourage the flow of private capital into sustainable energy development.

UN Foundation role

To date, the UN Foundation has invested more than $28 million in United Nations projects working to address the energy challenge. One of our flagship projects, African Rural Energy Enterprise Development (AREED), seeks to develop new sustainable energy enterprises that use clean, efficient and renewable energy technologies to meet the energy needs of under-served populations, while reducing the environmental and health consequences of existing energy use patterns.

The AREED approach offers rural energy entrepreneurs a combination of enterprise development services and start-up financing. This integrated financial and technical support allows entrepreneurs to plan and structure their companies in a manner that prepares them for growth and makes eventual investments by mainstream financial partners less risky.

In Mali, where firewood and charcoal represent more than 90 per cent of the country's household energy consumption, AREED is working with a local business to develop alternative cooking fuels to decrease the dependence on traditional sources which causes forest degradation and desertification and contributes to overall poverty. The local company is addressing this need by manufacturing briquettes from agricultural by-products, such as coconut husks, hulls of groundnut, sawdust and rice husks. AREED is assisting the company with a market study and strategy that will allow it to market its product more effectively and prepare the company for business expansion.

AREED has been so successful that the UN Foundation has expanded its support to include similar activities in Brazil and China ■

Ted Turner is Chairman of the United Nations Foundation.

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Plant POWER

RICHARD G. LUGAR calls for a new green revolution to combat global warming and reduce world instability

In a world confronted by global terrorism, turmoil in the Middle East, burgeoning nuclear threats and other crises, it is easy to lose sight of the long-range challenges. But we do so at our peril. One of the most daunting of them is meeting the world's need for food and energy in this century. At stake is not only preventing starvation and saving the environment, but also world peace and security. History tells us that states may go to war over access to resources, and that poverty and famine have often bred fanaticism and terrorism. Working to feed the world will minimize factors that contribute to global instability and the proliferation of weapons of mass destruction.

With the world population expected to grow from 6 billion people today to 9 billion by mid-century, the demand for affordable food will increase well beyond current international production levels. People in rapidly developing nations will have the means greatly to improve their standard of living and caloric intake. Inevitably, that means eating more meat. This will raise demand for feed grain at the same time that the growing world population will need vastly more basic food to eat.

Complicating a solution to this problem is a dynamic that must be better understood in the West: developing countries often use limited arable land to expand cities to house their growing populations. As good land disappears, people destroy timber resources and even rainforests as they try to create more arable land to feed themselves. The long-term environmental consequences could be disastrous for the entire globe.

Richard G. Lugar

Richard G. Lugar inspecting corn on his US farm.

Agriculture and the wider sphere of plants represent a resource not only for food, but also for the fuel, energy and materials essential to modern society

Productivity revolution

To meet the expected demand for food over the next 50 years, we in the United States will have to grow roughly three times more food on the land we have. That's a tall order. My farm in Marion County, Indiana, for example, yields on average 8.3 to 8.6 tonnes of corn per hectare – typical for a farm in central Indiana. To triple our production by 2050, we will have to produce an annual average of 25 tonnes per hectare.

Can we possibly boost output that much? Well, it's been done before. Advances in the use of fertilizer and water, improved machinery and better tilling techniques combined to generate a threefold increase in yields since 1935 – on our farm back then, my dad produced 2.8 to 3 tonnes per hectare. Much US agriculture has seen similar increases.

But of course there is no guarantee that we can achieve those results again. Given the urgency of expanding food production to meet world demand, we must invest much more in scientific research and target that money toward projects that promise to have significant national and global impact. For the United States, that will mean a major shift in the way we conduct and fund agricultural science. Fundamental research will generate the innovations that will be necessary to feed the world.

The United States can take a leading position in a productivity revolution. And our success at increasing food production may play a decisive humanitarian role in the survival of billions of people and the health of our planet.

Directly related to our challenge to feed a growing world is the necessity of providing a sustainable resource for fuels, chemicals and materials. I believe that agriculture and the wider sphere of plants represent a resource not only for food, but also for the fuel, energy and materials essential to modern society. Scientists have developed biotechnologies – genetically engineered yeasts, enzymes and bacteria – capable of breaking down plants, trees, grasses and agricultural residues (known as biomass) into their constituent chemical building blocks, principally in the form of complex sugars. From this intermediate step, we can produce a wide variety of bio-based products including animal feed, chemicals and – importantly – fuel.

If a significant percentage of products currently derived from petroleum can be produced from biomass, the major industrial economies will improve their strategic security by ▶

reducing their dependence on Middle Eastern oil and all countries, rich and poor, can spend far less on oil imports, dramatically reduce greenhouse gas emissions and help strengthen their own rural communities while simultaneously building a new bio-based industry worth hundreds of billions of dollars worldwide per year.

Shift to bio-based fuels

Bio-based fuels such as ethanol have clear potential to be sustainable, low cost and high performance, are compatible with both current and future transportation systems, and provide near-zero net greenhouse gas emissions. The impact of bio-ethanol on greenhouse gas emissions is particularly significant because the transportation sector relies almost exclusively on fossil fuels and accounts for one third of total greenhouse gas emissions. A shift to bio-based fuels is a long-term approach to the problem of global warming that does not require a shift from automobiles or result in increased costs for US employers and consumers.

As my friend, former CIA director James Woolsey, who has worked with me on this issue, likes to say, this is not your father's ethanol. We currently derive ethanol from corn and other starches, an energy-intensive process that results in an expensive product. He notes that using biocatalysts, or other technologies nearing commercialization like thermal depolymerization, we can cut costs by orders of magnitude, making bio-ethanol competitive with gasoline even if the price of oil drops to $10-13 a barrel. Equally important, large-scale production won't require us to plough up marginal land or displace food crops.

Before we can reap these benefits from the sustainable

Jacky Sawalha/UNEP/Topham

Romain/UNEP/Topham

Natalia C. Mazzucchelli/UNEP/Topham

Bioenergy: *doing well while doing right*

seemingly intractable conflict and could have surprising payoffs in other areas as well: economic growth in the developing world, reductions in the emission of greenhouse gases, and easing the world's dangerous dependence on oil.