

# SUSTAINABLE ENERGY NEWS

Newsletter for **INFORSE** International Network for Sustainable Energy.

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**Theme:  
Poverty  
&  
Energy**



Sustainable Energy News

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**International Network for Sustainable Energy (INFORSE)** is a worldwide NGO network formed at the Global Forum in Rio de Janeiro, Brazil, 1992.

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**Photo on the front page:**

A happy poor woman in Nepal, who got an improved cooking stove. Photo by Saurab K. Shrestha, Alternative Energy Promotion Centre, Nepal. See article on page 5.

## Energy Vital to Fighting Poverty



Demonstration of solar cookers, hay boxes, and sterilisers in Uganda.

Photo by Youssef Arfaoui.

There is no refrigerator in the medical centre of small towns. Fridges do not work because there is no electricity. With no refrigeration, many medicines and vaccines cannot be stored.

Without local access to those medicines, sick members of the community have to travel twenty kilometers to the nearest bigger town for much of their health care. Poor households use less energy per household than wealthier ones. This means, among other things, that these families are less well equipped to pre-boil the water that they use for drinking and hygiene purposes.

In many rural areas, producing energy for household use can mean spending several hours a day collecting fuelwood loads of 20 kg or more. In urban areas, the cost of charcoal or kerosene is often juggled with meager household incomes. One consequence of the latter is that it reduces societies' capacity to accumulate financial resources needed to invest in strategies to improve livelihoods.

Resource-poor communities have to be offered energy choices that help to generate income and to alleviate poverty.

It is important to take note of the hard reality that women and men have different access to resources and decision-making within the household.

Energy options that can facilitate activities like retail trading, beer brewing, and dressmaking can increase women's income.

In food processing, affordable energy would increase the shelf lives of certain food commodities and would contribute to a reduction of farm losses.

Within the health sector, the availability of energy to run fridges is an essential component of maintaining a constant supply of vaccines against measles, polio, and other killer diseases. Effective cooling can guarantee a constant supply of good-quality semen to improve breeds of farm animals. Ready availability of energy can also produce many other beneficial effects on the lives of the poor.

Women, more than men, are particularly affected by this energy poverty. Their health suffers. They work long hours, often in poor conditions, not only to provide energy for their household, but also to compensate for their lack of access to drudgery-reducing technologies.

Timothy Byakola  
Climate and Development Initiatives  
National Focal Point INFORSE (Uganda).

# INFORSE on the Way to Rio+10



## INFORSE - Meeting South Asia

The South Asian Regional INFORSE Meeting in Nepal got postponed until February, 2002 due to the current disturbances in the region.

*More information:*

*Raymond Myles, South Asian INFORSE Coordinator, INSEDA, India.*

*E-mail: rayinsda@iasdl01.vsnl.net.in .*

### Task Force for WSSD Preparation

INFORSE is forming a Task Force for the World Summit on Sustainable Development (WSSD) in Johannesburg, September 2002.

The Task Force will discuss and prepare activities to influence the preparatory process through national governments and on the international level towards the WSSD meeting.

*Interested INFORSE members can contact the INFORSE secretariat, att. Michael Kvetny e-mail MK@INFORSE.org.*

### Vision 2050 at Rio02 in January

The INFORSE vision with phase-out of fossil fuels and nuclear power, Vision2050, will be presented at the major sustainable-energy event Rio02 in Rio de Janeiro, January 6-11, 2002. Rio02 is one of the few officially recognized preparatory events for the World Summit on Sustainable Development (Rio+10) with sustainable energy as the main topic. The vision will be presented by the INFORSE Latin America coordinator Emilio la Rovere.

*Information about Rio02: [www.rio02.org](http://www.rio02.org) .*

### VODO Conference in November 2001

Also Raymond Myles, INFORSE Coordinator for the South Asian Region will participate in Rio+10 preparations, presenting a paper, under the sub-theme "North-South climate policy: more than technology transfer" at the VODO Conference on Globalisation and Sustainable Development, to be held November 19-21, 2001 in Belgium. VODO is a network of 23 NGOs and federations working on sustainable development in Flanders, Belgium. This conference of VODO is also part of the preparations towards Rio+10.

### Side Event at Rio+10 in September 2002

For Rio+10 itself, to be held in Johannesburg, South Africa in September 2002, INFORSE is considering coordinating a side-event on NGOs' sustainable energy strategies in co-operation with other interested networks and NGOs. The main themes of the official Rio+10 are not decided yet, and thus it is not known how high sustainable-energy issues will be on the official agenda.

*Presentations and other preparatory materials from INFORSE for Rio+10 will be available at the INFORSE website ([www.inforse.org](http://www.inforse.org)) as soon as they are finalised.*

## NGOs' Letter Demanding Phase Out of Fossil Fuel Funding

On October 23, 2001, just before the Climate Convention Conference COP7 in Morocco, 70 NGOs and networks including INFORSE-Europe sent a letter to presidents of Multilateral Development Banks (MDBs) and Export Credit Agencies (ECA).

In the letter, it is proposed to introduce criteria for MDB and ECA projects to bring them in line with the recent resolutions of the Kyoto Protocol. This includes phasing out fossil-fuel investment of public funds, which is in direct conflict with fighting human-induced global climate change.

The letter also cites the need for "no-go zones" for mining and drilling projects, including areas of high conservation value and areas where such projects could escalate violence and civil unrest. Another concern of the letter is stopping MDB and ECA investments in nuclear power.

Finally, the letter reiterates the recommendations of the G8 Renewable Energy Task Force, which called for investments that truly alleviate poverty and promote sustainable economic development.

*Information: [www.bankwatch.org](http://www.bankwatch.org) .*

**Theme:**  
**Poverty  
&  
Energy**

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**Global “Marshall Plan”  
It does NOT “cost too much.”**

**The industrial nations should launch a global “Marshall Plan” to provide everyone on earth with a decent standard of living.**

A 1998 report by the UNDP estimated the annual costs:

- \$9 billion - to provide water and sanitation for all;
- \$12 billion - to cover reproductive health for all women;
- \$13 billion - to give basic health and nutrition for all;
- \$6 billion - to provide basic education for all.

These sums are pale in comparison with the estimated \$ 780 billion that is being spent on military by all nations.

George C. Marshall, June 5, 1947, said surveying the wrecked economies of Europe: “possibilities of disturbances arising as a result of the desperation of the people concerned.” There could be “no political stability and no assured peace” without economic security, and that U.S. policy was “directed not against any country or doctrine but against hunger, poverty, desperation, and chaos.”

Source:  
[www.worldwatch.org/alerts/011009.html](http://www.worldwatch.org/alerts/011009.html)



Photo: From the front page of the Greenpeace Campaign Paper. “Power to Tackle Poverty”

## Views on Poverty

In this theme on “Poverty and Energy” we start with an overview of present visions made by Greenpeace, Worldwatch Institute, and INFORSE.

You can read about some facts.

“The progress has been less than hoped.”

as also the World Bank concludes in its yearly report. There is an active search for broader approaches how to reduce poverty, and how to use sustainable energy to tackle poverty.

On the next pages, you can read about an NGO view and the view of a working group of the UK government, which is searching dialogue.

(Editors)

**How to bring energy-sector assistance closer to contributing to poverty reduction?**

- Put ‘Energy Poverty’ on the national energy agendas !
- Overcome the limitation of the market-based approach by assisting:
  - Equal access for the minimum standard energy services
  - Capacity building by decentralised energy services
  - Civil society participation

**Read more about this NGO view on pages 8 - 9**

**Action for Clean Energy - Global Campaign**  
to secure a commitment from the world leaders at the **2002 World Summit on Sustainable Development** to get renewable energy to the world’s 2 billion poorest people within 10 years.

The poor do not have access to essential needs such as clean water, health care, cooking facilities, heating, lighting.

The failure of providing these is one of the most pressing problems facing humanity today.

Renewable energy can meet people’s needs.

Source: [www.greenpeace.org](http://www.greenpeace.org)

**Getting Renewable Energy to Tackle Poverty**

**Global Vision 2050  
100% Renewable Energy in the World in 2050.**

It is possible before 2050 with:

- More energy services
- Higher energy efficiency
- Cheaper: solar and wind
- Phased out: oil, nuclear

Source: [www.inforse.org](http://www.inforse.org)

## Improved Cooking Stove - a Case in Nepal



The photo shows a happy poor woman in Nepal, who got an improved cooking stove. Photo by Saurab K. Shrestha, Alternative Energy Promotion Centre, Nepal.

An improved cooking stove has an *immediate impact on poverty reduction*:

- it decreases respiratory diseases, and as a result it decreases mortality in women and children,
- it reduces drudgery as the stoves reduce by half the consumption of fuel wood,
- it generates income at the local level as the local stove promoters and stove technicians are paid, and
- it builds up both institutional and technical capacity at the local level, as local structures are used as a basis for social mobilisation.

The stoves also have *positive environmental impact*, as the reduced fuel wood consumption reduces the pressure on scarce forest resources, and as a well built and maintained stove has a better combustion and thus reduces the emission of dangerous gasses.

In Nepal, DANIDA (Danish International Development Assistance) started up a project promoting improved cooking stoves.

The users are supposed to pay the stove builder a fixed price, which has been decided by the community. The prices vary from location to location from 50 rps (0.6 USD) to 350 rps (4.2 USD), reflecting, among other factors, the fuel scarcity and relative affluence in a given area.

Even with these low prices, it is still a challenge to reach the poorest part of the population. The support of the project is primarily being spent on building up a critical mass of skilled stove promoters and on creation of institutional capacity both at the local and central levels.

*More information: Saurab K. Shrestha, Alternative Energy Promotion Centre, Krishna Galli, Pulchowk, Lalitpur Nepal, Ph: +977 1 522520, or CRT, e-mail: crt@wlink.com.np.*

### “Progress has been less than hoped”

#### Critics resulted with three World Bank Reports, which Urge Broader Approach to Reducing Poverty World Development Report (WDR) 2000/2001: Attacking Poverty

At the start of a new century, poverty remains a global problem of huge proportions.

Of the world's 6 billion people, 2.8 billion live on less than \$2 a day, and 1.2 billion on less than \$1 a day.

8 out of every 100 infants do not live to see their fifth birthday. 9 of every 100 boys and 14 of every 100 girls who reach school age do not attend school.

Deprivation is also evident in poor people's lack of political power and voice as well as in their extreme vulnerability to ill health, economic dislocation, personal violence, and natural disasters. The scourge of HIV/AIDS, the frequency and brutality of civil conflicts, and rising disparities between rich countries and the developing world have increased the sense of deprivation and injustice for many.

<http://www.worldbank.org/poverty/wdrpoverty/index.htm>.

#### Voices of the Poor

A research study in 3 volumes, background material to the WDR 2000/2001.

- “Can Anyone Hear Us?” analyzes the voices of over 40,000 poor women and men in 50 countries from participatory poverty assessments carried out by the World Bank in the 1990s;

- “Crying Out for Change” pulls together reports on fieldwork conducted in 1999 in 23 countries involving over 20,000 poor men and women; and

- “From Many Lands” offers regional patterns and country case studies.

<http://www.worldbank.org/poverty/voices/index.htm>

**“Poverty is pain;  
it feels like a disease.  
It attacks a person not only materially  
but also morally.**

**It eats away one's dignity and drives  
one into total despair.”  
- a poor woman in Moldova**

**“Poverty is like heat you cannot see it,  
so to know poverty  
you have to go through it”  
- Adaboya, Ghana**

#### Poverty Reduction Strategy Sourcebook Draft - for Comments !

Despite modest reductions in poverty in recent decades, progress has been less than hoped, especially in low-income countries.

This disappointment has led to a critical search for policies that best promote economic growth and reduce poverty in low-income countries, as well as a realization that the delivery of external support should be changed.

The purpose of the book is to provide guidance and analytical tools for developing poverty-reduction strategies. An “Energy Chapter” is also included !

<http://www.worldbank.org/poverty/strategies/>.

Comments are welcome to the draft:

e-mail: [prsp\\_sourcebook@worldbank.org](mailto:prsp_sourcebook@worldbank.org)

## Poverty Orientation in Energy - NGO View



By Susanne Backer,  
Forum for Energy and Development,  
INFORSE Secretariat

**How to bring energy-sector assistance closer to contributing to poverty reduction?**

**The popular market-based approach leaves the needs of the poor largely unattended.**

**Further, 'energy-poverty' is not yet on the national energy agendas, therefore, it is not adequately addressed in energy-sector assistance.**

### Current Understanding of Poverty

Within the last ten years, understanding of poverty has broadened from a relative narrow definition based on quantifiable measures of consumption and expenditure to a more complex concept including also issues relating to energy and the structures underpinning poverty. This broader and generally accepted understanding of poverty perceives poverty as an ever-changing interplay among some of the following factors:

*Poverty factors relating to insufficient income, consumption possibilities, and human development:*

**A. Lack of access to and control over productive assets, with consequent insufficient income and coverage of basic needs;**

**B. Lack of opportunities to exploit human potential and resources due to insufficient education and health.**

*Poverty factors relating to power relations, and structural reasons underpinning poverty:*

**C. Isolation due to geophysical conditions, and lack of education;**

**D. Lack of influence on own living conditions and, thus, of potential avenues for escaping poverty, lack of rights;**

**E. Vulnerability due to a very limited economic basis as well as to unstable natural and political environments.**

Poverty is a non-static interrelation among these factors. The poor are an inhomogeneous group.

Poverty is gender-biased, putting a relatively greater burden on women and girls than on men and boys.

### Understanding Energy in Relation to Poverty

This broader understanding of poverty can be transformed into a conceptual framework for understanding of energy in relation to poverty, which is described below.

#### A. Lack of access to and control over energy as a productive asset

- Low profitability of poor people's economic activities;
- Limited potential for economic development;
- Low coverage of basic needs in relation to, e.g., number of hot meals and reduction of energy-intensive preparations like, e.g., pulses;
- Insufficient heating;
- Conflict over insufficient resources (biomass);
- Drudgery in relation to collection, transport, and consumption of biomass.

#### B. Lack of opportunities to exploit human resources due to insufficient education and health

- Unsatisfactory health and educational services;
- Time lost for educative, reproductive, or productive activities;
- Physical wear and health risks in relation to collection, transport, and consumption of traditional energy;
- Time lost for self studies and evening classes for both adult and children.

#### C. Isolation due to geography and education

- Unattractive market for commercial energy supply;
- Unattractive 'market' for political 'vote-seekers';
- 'Imperfect' consumers due to lack of knowledge of alternatives and due to inability to hold politicians and suppliers accountable.

#### D. Lack of influence, lack of rights

- Absence of institutions and methods identifying and linking the energy interests of the poor with the national policy planning method;
- Minimum standards for energy services not identified as basis for national energy planning and policy;
- The right to a minimum and fair energy consumption not a basis for national energy planning and policy;
- Absence of public debate on national energy policy from the perspective of the poor.

#### E. Vulnerability due to unstable economic, natural, and political environment

- Natural disasters deprive many poor people of the most basic means of survival, including energy for cooking and heating;
- Political and social unrest transform thousands into refugees, with extremely limited access to resources, including energy.





Improved cooking stove in Nepal.

Photo by Saurab K. Shrestha, Alternative Energy Promotion Centre.

## Overcoming some of the Limitations:

Which design elements could contribute to overcome the limitations of the current market approach in future energy-sector assistance?

### Basic Energy Services

The basis for multi- and bilateral negotiations of energy-sector assistance has to be coverage of minimum-standard energy services:

- Equal access for all to sustainable, efficient, and healthy thermal heat for cooking and heating;
- Equal access to sustainable and efficient processing services for agricultural products;
- Equal access to sustainable and efficient water-pumping services;
- Equal access to health and educational services improved by sustainable and efficient energy services.



Solar steriliser in Uganda.  
Photo by Youssef Arfaoui.

## Limitations of the Market-based Approach:

The dominating trend in the energy-sector programs' support is to work towards liberalisation of energy markets.

However, as the conceptual framework for understanding of energy, in relation to poverty shows, the market based approach has some limitations:

- The market approach will only be able to reach the poor to the extent that the productive activities and related energy needs of the poor are integrated into the cash economy.
- The market approach does not address the structural reasons and the power relations underpinning 'energy poverty'. By avoiding the political dimension of energy poverty, energy-sector programs and assistance 'risk' to lose the dynamism of people's own actions and organisations in the setting of national energy agendas.

The real challenge is to maintain the focus on getting the market right for energy demand that is part of the cash economy and, at the same time, to give sufficient focus to developing a framework that also permits poor people who are not securely integrated in the cash economy to benefit from energy-sector assistance programs. To move beyond the market-based approach and reach the poor will take strong political action, as it will not happen through the market forces.



Solar dryer drying mango in Uganda.

Solar dryers open up income generating opportunities exporting dried fruit. Photo by Youssef Arfaoui.

### Capacity Development: Energy Service Delivery

Establishment of decentralised energy service centers with the following capacities:

- Participatory analysis of local energy needs in co-operation with local authorities and civil society organisations;
- Identification of social and economic activities where sustainable energy can make a difference within and outside the cash economy;
- Development of local energy plans;
- Development of community-owned and -managed energy-service delivery models in close co-operation with local authorities and CBOs.

### Civil Society Participation

Facilitation of and support to Cross Sectoral Civil Society Networks in the South with the following capacities:

- Linkage between local CBOs and the national public debate on energy issues;
- Collect, document, and disseminate information on needs as well as solutions to the energy services required by the entire population, in order to provide a basis for energy-related decision making and planning;
- Provide a meeting space for energy specialists (technical and political) with CBOs, advocacy organisations, and media in order to facilitate energy-service delivery;
- Provision of high-quality inputs to the national energy agenda-setting process as well as to the donor community, in order to influence national energy policy.

More information: FED and INFORSE, Blegdamsvej 4 B, 2200, Copenhagen N, Denmark.  
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## Working Group of the UK Development Assistance Seeking Dialogue

By Gill Wilkins  
Energy Adviser to the  
Department for International  
Development, UK;  
and consultant to the  
Energy and Poverty  
Working Group.



PV water pump  
Photo by  
IT Power, UK

A Working Group has been set up in the UK Department for International Development (DFID) to undertake a wide-ranging review of how energy, including renewable energy, is considered in the UK's International Development Programmes for poverty reduction. Energy is being looked at within the framework of the International Development Targets (IDTs) or, more recently, the Millennium Development Goals.

The purpose of this Energy for Poverty Reduction (ENPOV) Working Group is:

- to raise awareness of the role energy can play in achieving the IDTs;
- to get energy back into the development as possibly a theme rather than a sector;
- to help develop an understanding of the link between energy and poverty reduction; and
- to raise awareness of the link among both energy and non-energy experts.



Solar foldable cooker used  
in refugee camps in Rwanda.  
Photo: Solar Cookers International (SCI).

The Group has representatives from different interests within DFID to be sure to take on different perspectives. An external Advisory Group will be set up to provide comment and feedback. The Advisory Group will include representatives from other UK Government Departments, regional DFID offices and other relevant organisations (multilaterals, bilaterals, NGOs, companies and foundations). Wider consultation with the public will also be possible via the DFID Energy Knowledge and Research (KaR) website (see at the end of the article). It is hoped that the findings of the working group will be produced in the form of a guidance note in early 2002.

The Working Group aims to:

- have a primary focus on poverty reduction;
- cover both macro- and micro-level issues;
- cover issues related to rural urban and peri-urban areas;
- look at sustainable livelihoods through and energy lens;
- be people centred, demand-led, and pro-poor.

### Questions to be Answered

It is clear that there are many questions to be answered with regard to the links between energy and poverty reduction.

For example:

- Is energy important for the poor?
- What is the impact of energy access on education, health, urban migration, empowerment, drudgery, vulnerability, enterprise development, and job creation?
- Can economic growth be stimulated with energy provision while managing the environment sustainably?
- How can energy policies be integrated into development plans most effectively?

Some of these questions are starting to be answered, while others need further research and understanding.

### Matrix Drafted

Towards starting to understand the role of energy in achieving the IDTs, a draft matrix has been drawn up which begins to show the links of which we are aware (see figure). This matrix needs further development; we welcome your thoughts and comments on how we can more fully describe the links that exist.



## Looking for Case Studies

We are also looking for case studies and examples to illustrate the role that energy can play in helping to achieve development goals in different sectors.

If you know of any examples where energy has played an important role in helping to achieve development goals, or where the lack of consideration for clean, reliable, sustainable, and affordable energy has been detrimental to development, we would also like to hear from you.



Photos: Biogas used for cooking, and lighting in India.  
Photos by AFPRO.

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where draft papers will be posted for comment.

Energy FOR Poverty Reduction. Draft Matrix:  
Energy and the International Development Targets:

TARGET	IMPORTANCE OF ENERGY TO ACHIEVING THE TARGET		
	Fundamental	Directly contributes	Indirectly contributes
A reduction by one half in the proportion of people living in extreme <b>poverty</b> by the year 2015	<ul style="list-style-type: none"> <li>• Modern energy supplies are necessary for economic growth</li> <li>• Clean, efficient fuels reduce the large share of household income spent on cooking, lighting and keeping warm</li> </ul>	<ul style="list-style-type: none"> <li>• Access to reliable energy services enables enterprise development</li> <li>• Lighting permits income generation beyond daylight hours</li> <li>• Increased productivity from being able to use machinery</li> </ul>	<ul style="list-style-type: none"> <li>• Employment creation in local energy service provision and maintenance, fuel crops, etc.</li> </ul>
<b>Universal primary education</b> in all countries by 2015	<ul style="list-style-type: none"> <li>• Availability of modern energy services frees girl's time from helping with survival tasks (gathering firewood, fetching water)</li> </ul>	<ul style="list-style-type: none"> <li>• Good quality lighting permits home study</li> <li>• Electricity in schools allows evening classes and helps retain teachers, especially if their accommodation has electricity.</li> <li>• Electricity enables access to educational media and communications in schools and at home, which increase education opportunities and allow distance learning.</li> </ul>	<ul style="list-style-type: none"> <li>• Energy can help create a more child friendly environment (access to clean water, sanitation, lighting and space heating/cooling), thus improving attendance at school and reducing drop out rates.</li> <li>• Access to electricity provides the opportunity to use electrical equipment for teaching e.g., overhead projector, computer, printer, copier</li> </ul>
Demonstrated progress towards <b>gender equality</b> and the empowerment of women by eliminating gender disparity in primary and secondary education by 2005	<ul style="list-style-type: none"> <li>• Availability of modern energy services frees young women's time from survival activities (fuel gathering, cooking inefficiently, fetching water, crop processing by hand, manual farming work)</li> </ul>	<ul style="list-style-type: none"> <li>• Good quality lighting permits home study</li> <li>• Electricity in schools allows evening classes and helps retain teachers especially if their accommodation has electricity.</li> <li>• Electricity enables access to educational media and communications in schools and at home, which increases educational opportunities and allows distance learning.</li> </ul>	<ul style="list-style-type: none"> <li>• Reliable energy services offer scope for women's enterprises</li> <li>• Street lighting improves women's safety</li> </ul>
A reduction by two-thirds in the <b>mortality</b> rates for infants and children under age 5 and a reduction by three-fourths in maternal mortality - all by 2015	<ul style="list-style-type: none"> <li>• Indoor air pollution from traditional fuels causes significant numbers of premature deaths amongst children and mothers</li> </ul>	<ul style="list-style-type: none"> <li>• Gathering and preparing traditional fuels exposes women and children to health risks and reduces time spent on childcare</li> <li>• Modern energy safer (less house fires)</li> </ul>	<ul style="list-style-type: none"> <li>• Electricity enables pumped clean water and purification</li> <li>• Latrines for biogas production improve sanitation</li> </ul>
Access through the <b>primary healthcare</b> system to reproductive health services for all individuals of appropriate ages as soon as possible and no later than 2015		<ul style="list-style-type: none"> <li>• Electricity in health centres enables night availability, helps retain qualified staff and allows equipment use (e.g., sterilisation, medicine refrigeration)</li> </ul>	<ul style="list-style-type: none"> <li>• Electricity enables access to health education media</li> </ul>
The implementation of national strategies for <b>sustainable development</b> by 2005, so as to reverse current trends in the loss of environmental resources at both global and national levels by 2015	<ul style="list-style-type: none"> <li>• Traditional fuel use contributes to erosion, reduced soil fertility and desertification. Can become more sustainable through substitution, improved efficiency and energy crops</li> <li>• Using cleaner, more efficient fuels reduce GHG emissions</li> </ul>	<ul style="list-style-type: none"> <li>• Mitigate increased pollution as economy grows with cleaner fuels and energy efficiency</li> <li>• Increased agricultural productivity from being able to use machinery</li> </ul>	<ul style="list-style-type: none"> <li>• National sustainability aided by greater use of indigenous renewable energy sources instead of imported fossil fuels as economy grows</li> <li>• Rural energy services enable non-farm based enterprise and processing of non-timber forest products</li> </ul>

## New INFORSE-Europe Action Plan 2002

At the INFORSE-Europe Meeting, September 21, 2001, representatives of 17 INFORSE-Europe member organisations met and adopted a new Action Plan.

The Action Plan included, among other activities:

- continuation of the DIERET internet education, including a CD with illustrated texts;
- collection of success stories and related data;
- co-operation with other INFORSE regions on actions related to Vision 2050 and Rio+10;
- a continued commitment to monitor and contribute to energy policy in the EU;
- follow-up on the European wind campaign with national proposals;
- continuation of the work for Pan-European energy-efficiency initiatives.

Read the Action Plan at the INFORSE-Europe website, [www.orgve.dk/inforse-europe/](http://www.orgve.dk/inforse-europe/).



The reelected Coordinators: Gunnar B. Olesen, (left) OVE Denmark and Emil Bedi, (right) FAE Slovakia .



## Sustainable Energy Seminar

In September, 2001, more than 50 people met at the Pan-European Sustainable Energy Tour & Seminar in Denmark.

Most of the presentations from the Seminar are now freely available on-line at the INFORSE-Europe website. It includes, among others, articles on:

- Biogas, a coming success;
- National strategies for management of fluctuations of windpower and combined heat and power (CHP);
- Sustainable Energy Future - A Nordic Perspective (article on limiting energy consumption via technology and by a decent way of life);
- Roles of renewable-energy legislation, and innovative tariff principles' influence on implementation of renewable energy;
- Evaluation of the impact of green taxes in the Nordic countries;
- Sustainable energy planning. Examples from Denmark;
- Climate strategies after COP6bis;
- Pan-European energy co-operation, European ECO-Forum.

The Seminar was supported by the Danish Outdoor Council, Planenergi (Denmark), and others.

Read more at [www.orgve.dk/inforse-europe](http://www.orgve.dk/inforse-europe).



The photos are from the Pan-European Seminar and Tour in Denmark, and the INFORSE-Europe Meeting.

- Meeting at the Folkecenter for Renewable Energy,
- Visiting a wind mill park in Copenhagen,
- Group photo in front of the office of OVE in Århus.



## Nuclear & Terrorism - Serious Risks

Following the terrorist attacks in New York and Washington, on September 11 2001, many have considered the vulnerability of the current centralised energy system to terrorist attacks.

In particular, the vulnerability of nuclear facilities been in focus, because a crash of one of the larger aeroplanes could destroy the containment of, e.g., nuclear reactors, leading to radioactive releases that could be comparable to those of the Chernobyl accident. For this reason, the German NGO "BUND" has called for a fast closing of all German reactors. Even worse than a plane crash into a nuclear reactor would be a crash into a nuclear reprocessing plant, such as La Hague in France and Sellafield in the UK.

WISE-Paris has estimated that a serious accident in one of the irradiated-fuel cooling pools at La Hague could lead to the release of radioactive caesium up to or over 60 times the amount released during the Chernobyl accident.

It is not only NGOs that take this risk seriously: the French government is reported to be preparing to install anti-airplane missile batteries to protect the La Hague facility.

Sources and further reading: [www.bund.net](http://www.bund.net) (in German), [www.wise-paris.org](http://www.wise-paris.org) .

# EU to Ratify Kyoto with New Actions

By Gunnar Boye Olesen, OVE /  
INFORSE-Europe

**Just before the 7th Climate Convention Conference (COP7, Oct. 29-Nov. 9, 2001), the EU Commission proposed a strategy to reduce the emissions of the EU countries to reach the Kyoto targets.**

Central in the strategy is a proposal for an EU directive that will make the burden-sharing of reductions among EU countries legally binding.

According to this burden-sharing, the targets of the 15 EU countries are different, varying from 21% reductions in Germany and Denmark, to increases in Spain, Sweden, and other countries.

Another cornerstone in the strategy is a proposed directive to establish an EU framework for emissions trading and an EU-wide market for emissions. EU emissions trading is expected to cover 4,000 - 5,000 installations that are responsible for 46% of CO<sub>2</sub> emissions in the EU countries. In addition to this directive, another has been announced to link Joint Implementation (JI) and the Clean Development Mechanism (CDM) to the proposed EU emission-trading scheme. It will specify under which conditions "credits" from the international JI and CDM projects can be added to the allowances of the EU scheme and can be traded accordingly.

A series of other measures have also been announced as part of the strategy, including:

- Proposal for a framework directive for minimum efficiency requirements for end-use equipment, such as domestic appliances, motors, lighting and heating, as well as air-conditioning equipment;
- Proposal for a directive on energy demand management, including national targets for promotion and support of demand management;

- Proposal for a directive for promotion of combined heat and power (CHP);
- Initiatives to increase energy-efficient public procurement and to promote demand for energy-efficient technology from the public sector;
- Public-awareness campaign and campaign for take-off, to strengthen the ongoing campaign for take-off for renewable energy and to include energy efficiency in the activities;
- Strengthen the role of the existing Integrated Pollution Prevention and Control (IPPC) Directive to increase energy efficiency and reduce greenhouse-gas emissions, mainly in industry;
- Shift the balance of transport modes from roads to rail and waterways with a package of measures based on the recent "White Paper on a Common Transport Policy";
- Proposals for improvements in transport infrastructure use and rate structures, to integrate environmental costs and reduce congestion. A framework directive and a directive for harmonising fuel taxes have been announced;
- Proposal for a biofuel directive, probably with national targets for biofuel use and with provisions to allow EU countries to reduce petrol- and diesel taxes on biofuels and on mixtures of mineral oil and biofuels;
- Proposal for a framework directive on fluorinated gases (strong greenhouse gases).

The Commission acknowledges that these measures might not be enough to reach the target of 8% reduction of greenhouse gases, and expects to continue the process of developing new measures. It even provides a list of 7 possible new measures, starting with an initiative on the promotion of heat production from renewable energy.

## NGO View

NGOs have urged the Commission to present its strategy to COP7, but the list of proposals is not without problems, and some useful proposals are missing.

The strong emphasis on emissions trading make the entire strategy vulnerable to problems with this new and untested measure. Emissions trading is also a measure about which NGOs hold a range of opinions.

The proposal to couple the EU's emissions trading with JI and CDM projects will make the strategy less efficient in reducing greenhouse-gas emissions in EU countries. Further, the biofuels directive have been criticised by the European Environmental Bureau (EEB) because it could increase agricultural pollution. The Danish Folkecenter for Renewable Energy has proposed that fuel-tax reductions should prioritise pure vegetable oils over processed biofuels and mixtures with mineral oil.

Missing from the strategy are the ideas of a European Sustainable Energy Agency, efficiency standards for power plants, and measures for renewable energy for heating, though the latter is included in the "waiting list". These energy measures have been proposed by NGOs in the preparations of the European Climate Change Program (see Sustainable Energy News no. 33 and 34).

*More information:*

*Read the EU Commissions "Communication on the implementation of the first phase of the European Climate Change Programme" (COM 2001-580) at <http://europa.eu.int/eur-lex/en/com/index1.html>.*

## Protests against Russian Nuclear-Waste Imports

**On October 24, 2001, Russian environmental groups in 8 cities along the Trans-Siberian railroad of Russia protested transportation of nuclear waste.**

The national action day was initiated and sponsored by ECODEFENSE and the Socio-Ecological Union. These and other environmental groups fight to stop the plans for commercial nuclear waste imports. The Russian Ministry of atomic power (Minatom) plans to import about 20,000 ton of spent nuclear fuel. This would require up to 670 nuclear transports, or 1-2 transports each week during 10 years.

The anti-nuclear demonstrations were not permitted by authorities but were widely supported by local citizens. Protesters went to railroad stations, bridges, and offices of responsible governmental agencies to demonstrate their opposition to the planned imports.

*Further information: ECODEFENSE, email: [ecodefense@online.ru](mailto:ecodefense@online.ru).*







*The wind mill at Barents Sea coast in NW Russia has excellent conditions for wind power. The wind resources are good and the infrastructure is suitable for large-scale development.*



*Dag A. Høystad standing beside the 200 k-W second-hand plant just before it has been erected on a hill visible from the city of Murmansk. The electricity produced by the turbine will be partly consumed by the hotel, and partly sold to the local grid.*

Information: Dag A. Høystad,  
e-mail: dag@hoystad.no,  
www.vetroenergo.net.ru

## Barents Wind

*By Dag A. Høystad, the Norwegian Society for the Conservation of Nature*

**The first demonstration plant has opened in Murmansk this fall. The plant is a 200-kW second-hand Danish turbine.**

**This is the result of an initiative of the environmental organisation GAIA in Murmansk, the Norwegian Society for the Conservation of Nature, and others.**

### Best in Europe

The organisations behind the windturbine in Murmansk have conducted several studies in order to find future alternative sources of power to replace that produced by the Kola Nuclear Power Plant. The latter plant has to be closed at the end of its lifetime; the two oldest reactors are already slated for shutdown in 2004.

One of the studies describes Kola as the most suitable region in Europe for large-scale wind power development. Wind power has proved to be one of the most promising alternatives, and the suitable conditions make windpower one of the most cost-efficient options for new power production in the Murmansk region.

### Practical development

To facilitate the development of wind power in the region, VetroEnergo Ltd has been established as a Russian company to develop production facilities for wind power, including the above-mentioned turbine. VetroEnergo is planning commercial development of wind power capacity up to 800 MW. Teriberka, a small town located 100 km east of Murmansk, is suitable for development of large-scale wind parks. VetroEnergo proposes to start the development with a pilot wind park in Teriberka.

While power prices generally are low in Russia, rising fuel prices and expensive transportation make windpower commercially interesting to the many villages and settlements not connected to the grid in Northern Russia. A feasibility study shows a short payback period on the investment in combined wind-diesel systems in these locations. VetroEnergo has therefore started to develop business plans for the installation of wind-diesel systems in some remote settlements on Kola, in Archangels, and in Nenets.

## Catalan Platform Formed

**Starting in February this year, 8 NGOs from Catalan have formed a platform called 'Catalonian Agreement for Clean and Renewable Energy'.**

The goal is to build a strong coalition of groups and to collect individual signatures of support, in order to put pressure on political decision-makers.

In the first part of the agreement, the groups express their worries about Catalan's energy dependency on fossil and nuclear fuels; about the decreasing energy efficiency and increasing vulnerability of the present centralised energy system in Catalan; about the energy illiteracy of the population; and about environmental problems of energy production.

In the second part is a proposal to establish a plan and a timetable to phase out, before the year 2010, nuclear power in Catalan, to phase out gradually the thermal power plants based on the most polluting fossil fuels, to increase the energy efficiency of the Catalonian energy system, to ensure that wind energy projects to be developed in Catalan follow sustainability criteria, and to democratise energy decisions.

The third and final part of the document includes a list of commitments of the signatories to the agreement. They will work with all the society sectors (NGOs, political parties, private companies, governments) to open the door to a distributed energy system based on clean and renewable energies, work for the phase-out of nuclear energy, support projects for the increase of energy efficiency, support projects for renewable sources of energy if they are based on sustainability criteria, and work to become examples of sound energy practices in everyday life.

*So far, the 8 groups have collected more than 1,000 signatures on the agreement.*

*Among the groups is the INFORSE member organisation Group de Científics i Tècnics per un Futur No Nuclear (Scientists and Technicians Group for a Non Nuclear Future).*

*Contact: email gctpfnn@mx3.redestb.es, www.energiasostenible.org.*

# Chinese Biogas: Still Expanding

By Wu Libin, China Biogas Society (CBS) China

As a pioneer country in the use of biogas, China is still expanding the practice, using traditional household biogas plants and in a number of other applications.



Family biogas plant, and its uses.

## More and Larger Biogas for Agriculture

The biogas uses in farm households are still growing and currently about 8 million households have biogas plants. Biogas use greatly augments the farmer's income as well as development of the rural economy and improvement of the environment.

Not only do the plants provide farm households with clean gas fuel and excellent organic fertilizer, they increasingly serve a number of other purposes.

The digested slurry is used to feed fishes and pigs, and seeds are soaked in it, while the biogas is used to store grain and fruits.

In addition to the household farms, larger farms are increasingly using biogas. A particular interesting development is the "North Biogas Ecological Agriculture Model" (generally called the Four-in-one model). It is an efficient production model that integrates biogas technology, solar energy, greenhouses, livestock, and cropping as a whole with biogas technology as ligament.

It is effective due to its multilevel energy utilization and benign cycle of substances.

It has been promoted to 230 thousand farm households in the northern area of China and is seen as the "well-off" project, by which local farmers can get rich.

## Biogas in Wastewater Treatment

Biogas technology is increasingly used in wastewater treatment in China, ranging from treatment of "easy-to-degrade" wastewater from large farms, to treatment of more difficult or hazardous wastewater from hospitals, paper industries, pharmaceutical industries, dyeing, and other industries. In several cases, research has resulted in development of processes for anaerobic digestion of "hard-to-degrade" industrial wastewater. In some cases, this can be done by combining anaerobic digestion with other processes.

The anaerobic digestion can also be helped by addition of trace elements or by special digester designs, e.g. with bio-membranes. Further, special anaerobic bacteria are cultivated and used for special purposes.



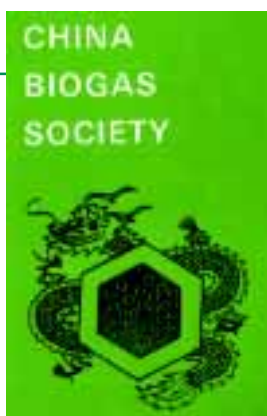
Now household biogas digesters are often produced in pre-fabricated modules.



Wastewater treatment plant on a pig farm in Shenzhen City

## Large support Structure

China has established a complex network responsible for administrative management of biogas construction, research, technology promotion, education, and training. The China Biogas Society and its over 2000 members cooperate closely with this network.



Wu Libin is Deputy Director & Prof. of Department of International Affairs, China Biogas Society (CBS); Director of Department of International Exchange of Biogas Research Institute of Ministry of Agriculture, (BIOMA) & Asia-Pacific Biogas Research and Training Center (BRTC)

Contact e-mail: CBS: wulibin\_cbs@sina.com  
BRTC: brtcl@mail.sc.cninfo.net





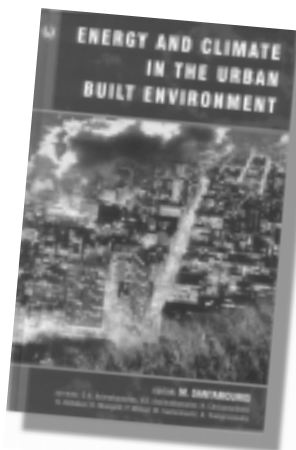
# Publications

## The World Directory of Renewable Energy Suppliers & Services 2000



With Market Overview by Nicholas Mahoney  
 ISBN 190291614X, 268 p., 2001, CD available  
 James & James

## Energy and Climate in the Urban Built Environment



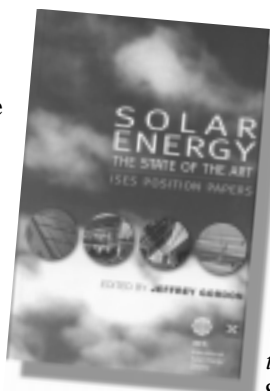
Edited by Mat Santamouris, University of Athens, Greece.  
 Includes a CD, a multimedia tool for buildings in the urban environment.  
 Funded by SAVE.  
 ISBN 1873936 90 7, 402 p, 2001.

## Energy Efficient Office Refurbishment Handbook and case studies from Europe.



Results of a research project founded by the JOULE Program  
 Edited by Simon Burton, ECD Energy and Environment Ltd, London, UK and Marco Sala, University of Florence, Firenze, Italy.  
 ISBN 1 902916 01 8, 185 p., 2001.

## Solar Energy - The State of the Art

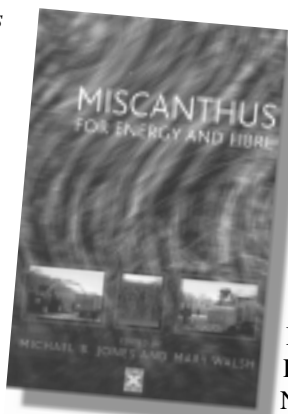


ISBN 1902916239, 706p., 2001, ISES.

ISES Position Papers  
 12 Chapters review the current science, and technology, and explore the remaining challenges for the future.

Edited by Jeffrey Gordon, International Solar Energy Society (ISES).

## Miscanthus for Energy and Fibre

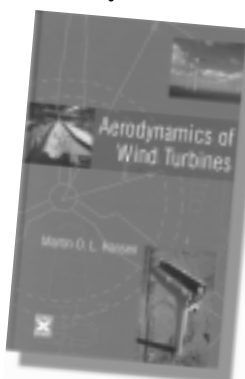


Edited by Michael B. Jones, University of Dublin, Ireland & Mary Walsh Hyperion Energy Systems Ltd, Ireland.  
 ISBN 1-902916-07-7, 192 p., 2001.

A promising, non-food crop. Utilisations are: energy, paper pulp, building material, bio-remediation of contaminated soil.

Results of research by Miscanthus Productivity Network, EU's DG VI (Agriculture) and a project funded by FAIR

## Aerodynamics of Wind Turbines



Rotors, Loads and Structure

By Martin O.L. Hansen, Technical University of Denmark, Lyngby, Denmark.  
 ISBN 902916069, 144 p., 2000.

## A Solar Manifesto, Herman Scheer



German Parliament, president of EUROSOLAR and received World Solar Prize and Alternative Nobel Prize.  
 ISBN 1-902916-24-7, 258 p., 2001. 2<sup>nd</sup> edition.

Calling for fundamental change in political and economic strategies, paving the way towards a global solar energy economy sustained by new social principles. The author is member of the

## 16<sup>th</sup> European Photovoltaic Solar Energy Conference



Edited by H. Scheer, Eurosolar, B. McNelis, IT Power, et.al.  
 Conference was organised by WIP-Renewable Energies, Germany.  
 The Proceeding is available in a CD, and in a 3-volume book set.  
 ISBN 1 902916 19 0, 2000, WIP

Proceedings presenting 790 papers of the International Conference held in Glasgow, UK 1-2 May 2000.

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 www.jxj.com



## India Facts and Figures



A reference handbook.  
 By M. Mohan Mathews, Denmark.  
 Sterling Publishers, New Delhi, India, 2001.  
 392 p. 28 USD plus postage.  
 Info: Forlag Hjulet, Bakkegårds Alle 9, kld., 1804 Frederiksberg C, Denmark. Ph: +45 33310900,  
 e-mail: bharat@worldonline.dk,  
 www.indian.subnet.dk.



# EVENTS

\* = **INFORSE** is Participating

November 21-24, 2001

## **Economic Times Power India 2001, Mumbai/Bombay, India**

3rd int'l exhibition & conference for the power industry including energy conservation and renewable energy.

Info: Ashish Gupta, Winmark Services Pvt. Ltd., A/208, Rizvi Nagar, S.v. Road, SantaCruz (W), Mumbai, India.

Ph: +91 22 -6103824, fax: -6162459, e-mail: winmark@bplnet.com, www.india-tech.com/powerindia/index.htm

November 25- 30, 2001

## **ISES 2001 Adelaide, Australia**

Solar World Congress of ISES with a session about gender organised by ENERGIA.

Info: c/o Hartley Mgmt. Group, PO Box 20, Kent Town, Adelaide, SA 5071, Australia.

Ph: + 61 8 83634399, fax: +61 8 83634577, e-mail: ises2001@hartleymgt.com.au, www.unisa.edu.au/ises2001congress.

December 10-12, 2001

## **Offshore Wind Energy Conference of EWEA, Brussels, Belgium**

Info: European Wind Energy Association (EWEA), 26 rue du Trone, 1000 Brussels, Belgium.

Ph: +32 2546-1940, fax: -1944, e-mail: ewea@ewea.org, bruce.douglas@ewea.org www.ewea.org/src/offshore.htm.

January 6-11, 2002

## **RIO 02, Rio de Janeiro, Brazil \***

World Climate and Energy Event

Info: Prof. Stefan Krauter, UFRJ-COPPE, EE, C.P 68504, Rio de Janeiro 21945-970 RJ, Brazil. Ph: +552 15478298, +552 15628032,

e-mail: info@rio02.com, www.rio02.de.

**See article on page 3**

January 19- 21, 2002

## **Int'l Conference on Renewable Energy for Rural Development, Dhaka, Bangladesh**

Info: AKM, Sadrul Islam, Department of Mechanical Engineering, Bangladesh University BUET, Dhala 1000, Bangladesh. Fax: +880 2 8613046, e-mail: sadrul@me.buet.edu.

February 5-14, 2002

## **Cost Effective Planning and Design for Small Hydro Projects, Roorkee, India**

Info: Alternate Hydro Energy Center, Indian Institute of Technology Roorkee, Roorkee 247 667, Uttaranchal, India.

Ph: +91 1332 74254, fax: +91 1332 73517, e-mail: ahec@rurkiu.renet.in, ahec@vsnl.com.

March 7- 10, 2002

## **World Sustainable Energy Day and the Globe Award 2002, Wells, Austria**

O. Oe. Energiesparverband, 4020 Linz, Landstrasse 45, Austria. Ph: +43 732 6584 4382, fax: +43 732 6584 4283,

e-mail: energy.globe@esv.or.at, www.esv.or.at

April 2-5, 2002

## **Global Windpower Conference and Exhibition, Paris France**

Info: See event on December 10-12 and www.ewea.org/src/gwp.htm

April 8-20, 2002

## **Alternative Ways to Combat Desertification Cape Town, South Africa**

Rural Community Interaction and Workshop Info: Roben Penny, Woodbine, Essex Road, Kalk Bay, 7975 Cape Town, South Africa.

Fax: +27 21 7881285, e-mail: robenpen@jaywalk.com.

May 23-24, 2002

## **8th Int'l Cogeneration & Environment Conference & Exhibition, Istanbul, Turkey**

Teknik Yayincilik, Taniyum A.S., Balmumcu, Barbaros Blv., Bahar Sk., Karanfil Apt 2/11-13 Kat 4-5, 80700-01 Besiktas, Istanbul, Turkey. Ph: + 90 212 275 8359, fax: +90 212 288 1614, e-mail: tekyay@turk.net, www.teknikyayincilik.com.

May 23-26, 2002

## **Solar Expo 2002, Verona, Italy**

Int'l Conference & Exhibition on Renewable and Alternative Energy

Info: Ph: +39 439840922, fax: + 39 43984 9854, e-mail: exhibition@solarexpo.com, www.solarexpo.com

May 29-31, 2002

## **Right Light 5 + IE ECB, Nice, France**

5th European Conf. on Energy Efficient Lighting, 2nd Int'l Conf. on Improving Electricity Efficiency in Commercial Buildings.

Info: ADAME, 500, route des Lucioles, 06560 Valbonne, France. Fax: +33 493 653 196, e-mail: infos.ieecbrl5@online.fr, http://ieecbr5.online.fr/

June 12-14, 2002

## **Sustainable Energy Technologies, Porto Portugal**

Info: University of Nottingham, School of Built Environment, Institute of Building Tec., University Park, Nottingham.

Ph: +44 115 - 951 3158, fax: - 951 3159 www.nottingham.ac.uk/sbe

June 17-21, 2002

## **Biomass for Energy, Industry and Climate Protection, Amsterdam, Netherlands**

12th European Conference and Exhibition Info: WIP- Munich, Sylvesterstr., 2, 81369 Munich, Germany. Ph: +49 89 7201235, fax: +49 897201291, e-mail: wip@wip-munich.de, www.wip-munich.de.

June 29 - July 5, 2002

## **World Renewable Energy Congress - VII, Cologne, Germany**

Info: Prof. A Sayigh, WREN, 147 Hilmanton, Lower Early, Reading RG6 4HN, UK.

Ph: +44 118 961 1364, fax: +44 118 961 1365, e-mail: asayigh@netcomuk.co.uk, www.wrenuk.co.uk.

July 22-24, 2002

## **Int'l Conference on Passive and Low Energy Architecture, Toulouse, France**

Info: Ecole d'Architecture de Toulouse, 83, rue Aristide Mailol, BP 1329, 31106, Toulouse cedex 1, France.

Ph: +33 5 - 62 11 50 49, fax: - 62 11 50 48 e-mail: plea2002@toulouse.archi.fr, www.toulouse.archi.fr

July 23-25, 2002

## **ICTTS 2002, Guilin, China**

3rd Int'l. Conference on Traffic and Transportation Studies

Info: Guiping Xiao, gpxiao@center.njtu.edu.cn /www.njtu.edu.cn/depart/xyjtyts/ictts

August 4-8, 2002

## **Int'l Symposium on Renewable Energy Education, Orlando, Florida, USA.**

Info: Florida Solar Energy Center, 1679 Clearlake Road, Cocoa, FL 32611, USA.

e-mail: sheinkopf@fsec.ucf.edu, http://alpha.fsec.ucf.edu.

**September 02- 11, 2002 \***

## **Earth Summit on Sustainable Development, Johannesburg, South Africa**

Info: Johannesburg Summit Secretariat, Division for Sustainable Development, United Nations Department of Economic and Social Affairs, 2 UN Plaza, DC2-2220, New York, NY 10017, USA.

e-mail: dsd@un.org, or

2002participation@un.org

http://www.johannesburgsummit.org,

www.earthsummit2002.org.

**See article on page 3.**

November 12-14, & 14-15, 2002

## **2nd International Seminar on Energy from Sugar Cane, & 48th Congress of the Cuban Society of Sugar Technologists (ATAC), Havana City, Cuba**

Info: Dr. Antonio Valdes Delgado,

e-mail: geprop@ceniai.inf.cu,

atac@ocentral.minaz.cu.

## **Sustainable Energy Engineering**

**International MSc. Degree Program Including Option: Distant E-learning in Sustainable Heat and Power Generation**

**Academic year:**

**September, 2002 - May, 2003**

**Deadline: January 15, 2002**

Department of Energy Technology, Royal Institute of Technology (KTH) 100 44 Stockholm, Sweden.

Ph: +46 8 790 6884,

fax: +46 8 22 83 07,

e-mail: im@egi.kth.se,

http://www.egi.kth.se/msc/

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  - VODO Conference, November'01
  - Side Event, Rio+10, September'02
- INFORSE - Meeting South Asia
- NGOs' Letter

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#### Back page

10.000 Visitors in Ukraine

## 10.000 Visitors in Ukraine

A successful Danish - Ukrainian cooperation in between two NGOs, which are both members of INFORSE.

The exhibition on sustainable energy was seen by more than 10.000 people. A magazine was published, and reports were written on the Ukrainian opportunities for biomass, wind, and solar energy.

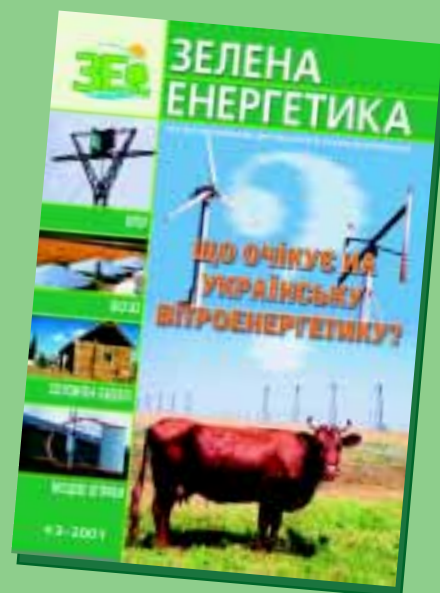
These were some of the results of the NGO cooperation project, during the first 10 months of 2001.

In the project, the Future Age Energy (FAE) and other NGOs in the Ukrainian Working Group on Climate Change have co-operated with, the Danish Organisation for Renewable Energy (OVE), to increase public awareness of sustainable energy in Ukraine.

The activities included a magazine, "Zelena Energetika", and an exhibition that was shown in more than 12 locations around Ukraine and was seen by more than 10.000 people.

The project's two main participating organisations, FAE and OVE, are both member of INFORSE.

The project was supported by the Danish Outdoor Council's Small Project Fund for Central and Eastern Europe.



The magazine 'Zelena Energetika' Green Energy. 4 issues were published by the Danish -Ukrainian NGO cooperation project.



More information:

- Read the reports in English at [www.necin.com.ua/engl/](http://www.necin.com.ua/engl/) (see technology - renewable),
- See the posters at [www.climate.org.ua/tmp1.html](http://www.climate.org.ua/tmp1.html).
- Contact:

Andriy Konechenkov,  
Future Age Energy,  
PO box 56, 02192 Kiev, Ukraine.  
Ph: +380 44 274 3017,  
fax: +380 44 241 7038,  
e-mail: [fae@fae.kiev.ua](mailto:fae@fae.kiev.ua),  
[fae@tcem.ntu-kpi.kiev.ua](mailto:fae@tcem.ntu-kpi.kiev.ua)

"Wind Energy in Ukraine" poster. One of the 12 posters, which are part of the exhibition seen by more than 10,000 people in Ukraine.