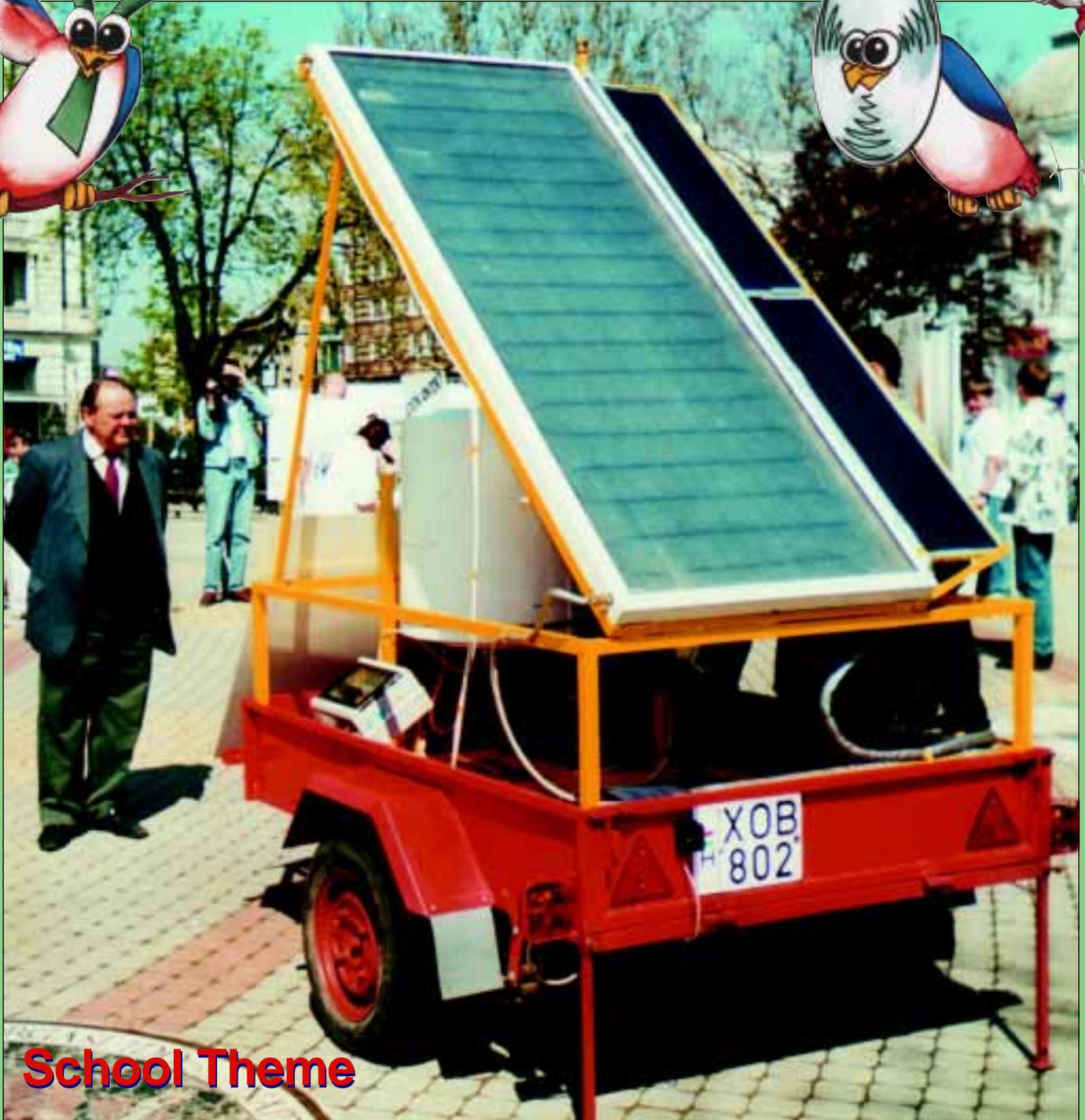
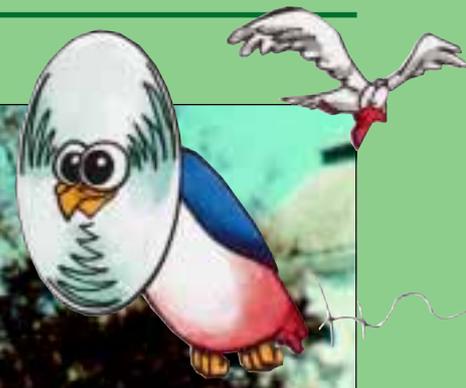


# SUSTAINABLE ENERGY NEWS

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

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**School Theme**

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Blegdamsvej 4 B, 2200  
Copenhagen N, Denmark.  
Ph: +45-35-247700  
Fax: +45-35-247717  
E-mail: [inforse@inforse.org](mailto:inforse@inforse.org)  
<http://www.inforse.org/>

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**Editorial Address:**

Sustainable Energy News  
Gl. Kirkevej 56, DK-8530  
Hjortshøj, Denmark.  
Ph: +45-86-227000  
Fax: +45-86-227096  
E-mail: [ove@inforse.dk](mailto:ove@inforse.dk)  
[ove@inforse.org](mailto:ove@inforse.org)  
<http://www.inforse.org/>

**Editors:**

Gunnar Boye Olesen  
Judit Szoleczky  
Michael Kvetny  
Lars Yde (technical editor)  
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Solar collector demo trailer in  
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The owls are the logos of the  
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See articles of the School Theme.

# Wake-up Time for Governments



The latest reports from the UNDP and the World Bank, "Energy as a Tool for Sustainable Development" and "Fuel for Thought", respectively, advocate a new approach to energy in development. The energy sector is still driven primarily by issues of supply, but the focus is changing in response to the needs of the South, to define strategies to supply people with the energy services that they need to achieve sustainable development. Only if energy initiatives are linked together and planned across sectors can goals of social and economic development be addressed together.

As the UNDP points out, experience has taught us that an energy sector dominated by government agencies does not have the flexibility or the reach to provide the diversity of choice that consumers need to fulfil their energy service needs. Until an environment is created that provides an enabling framework in which a variety of enterprises are encouraged to provide sustainable energy services to communities, top-down conventional energy supply will continue to dominate.

The role of governments is an important one, as only they can create the right policy environment. National and regional sustainable energy strategies are necessary to create this policy environment. The process of developing and implementing the strategies will be crucial for energy in sustainable development. The UNDP finds capacity-building to be the cornerstone of sustainable energy systems.

Capacity to inform consumers as well as potential providers of the technologies available, to adapt existing technologies, and to devise new ones.

NGOs have long advocated cooperation between government, the business community, and the civil society as a powerful measure in the process of developing and implementing strategies for energy in sustainable development.

But changes do not come easily. Although the international development agencies advocate for the new approach, there seems to be a long walk ahead before governments will accept this new approach. The first session in the Group of Experts on Energy and Social Development, which took place from 6 to 10 March 2000 in New York City, clearly showed that this new approach is not common sense to all governments. Indeed, it was difficult to find any governments arguing for this approach. The 9th session of the Commission on Sustainable Development (CSD9) in 2001 will be the right place to have this new approach confirmed by governments. The NGOs will have to go into a direct dialog with national governments, and in this dialog the reports from UNDP and World Bank will provide serious arguments.

INFORSE will stimulate all members to go into the dialog and will try to coordinate the activities to ensure that steps are taken towards sustainable development.

**Michael Kvetny**  
INFORSE Secretariat  
Forum for Energy Development

# Expert Group Has to Improve



By Michael Kvetny, INFORSE observer at the first session in the UN Group of Experts on Energy and Sustainable Development in New York City.

**What was meant to be a debate between experts on key issues of energy and social development turned out to be a brainstorm with no focus and no strategic considerations.**

The Ad Hoc Open-ended Intergovernmental Group of Experts on Energy and Sustainable Development met for its first session March 6-10, 2000, in New York City with 33 national representatives, mainly from the North, plus observers. At this session, the energy experts prepared for the 9th session of the UN Commission on Sustainable Development (CSD9), to be held in 2001.

The preparatory process started in 1997 with the decision at a UN General Assembly Special Session 5 years after the Rio meeting (UNGASS) to include energy as an issue in the programme for the further implementation of Agenda 21. Then, national governments and others were asked for inputs to the process. Based on the comments, the secretary-general prepared a report for the group of experts. This report and the World Energy Assessment prepared by the UNDP in co-operation with the World Energy Council formed the basis for discussions at the meeting.

## Disappointment

The report, launched in January of this year, was a great disappointment from a sustainable-energy perspective. All issues related to energy were included in the debate with no priority and no discussions of objectives.

The group of experts identified the following key issues:

- Accessibility of energy
- Energy efficiency
- Renewable energy
- Advanced fossil-fuel technologies
- Nuclear energy technologies
- Rural energy
- Energy and transportation
- Technology transfer
- Capacity-building
- Mobilisation of financial resources
- International and regional co-operation

The session showed no consensus among the EU countries to take the lead for sus-

tainable development. The G77 countries and China wanted all doors to be open for technology transfer, without criteria for sustainability. The most intense discussions were about the election of co-chairs. When elected, the co-chairs (Irene Freudeschuss-Reichl from Austria and Mohammad Reza Salamat from Iran) chose a defensive role. Other disappointing points were the efforts from Canada and other countries to include nuclear power and the lack of interest from the G77 countries, headed by Nigeria, to address the problems of subsidies for fossil fuels.

The result of the meeting (including the above-mentioned list of key issues) was only a "working paper for consideration".

The only agreement reached was on a Provisional Agenda for the Second Session, to be held in March 2001, one month before CSD9. The main points of this agenda will be:

- Considerations of the key issues of energy for sustainable development and the means of their implementation, i.e., capacity-building, technology transfer, and financial resources:
- Regional Initiatives and Endeavours
- Enhancing International Cooperation for Energy for Sustainable Development
- Learning from each other: Success Stories in the Promotion of Energy for Sustainable Development
- Adoption of the report to CSD9.

## Islands as Sole Movers

The Association of Small Island States (AOSIS) and their representative, ambassador Slade from Samoa, used the meeting to present the initiative for sustainable energy for islands taken at the Global Conference on Renewable Energy Is-



lands, September 1999, Ærø, Denmark. This was a little step forward at a disappointing meeting.

The NGOs in the "CSD Energy Caucus" recommended that the expert group focus on some main themes: real cost of energy without subsidies; environmental, social and health costs of energy; energy conservation; renewable energy; and financing strategies for sustainable energy. This recommendation was not reflected in the discussions or in the outcome of the meeting.



*INFORSE was observer at the United Nations  
Photo by Scott Murphy, New York City*

## NGOs Must Push for Action

NGO's cannot wait for further discussions in 2001, but have to do something to keep up the momentum from UNGASS concerning energy for sustainable development. The NGO society must push national governments to take the preparation process for CSD9 seriously.

INFORSE supports the "Windforce 10" campaign which shows that wind energy can cover 10% of the world's electricity consumption by the year 2020. Soon, a scenario showing that 50% of the world energy consumption can be covered by renewable energy by the year 2050 will follow this initiative.

*Information:*

[www.un.org/esa/sustdev/enexpert.htm](http://www.un.org/esa/sustdev/enexpert.htm)  
(official reports);  
[www.igc.org/csdngo/energy/ene\\_index.htm](http://www.igc.org/csdngo/energy/ene_index.htm) (NGO reports).

# How to Realise Biomass Potential in Thailand?

The cogeneration system of a rice mill decreased its electricity costs by 40,000 USD/month, increasing the income by 1.1 million USD / year by exporting ashes. Using biomass for energy could reduce the oil consumption of Thailand by 50%. Proven technology is available. However, unfair market regulations, lack of economic incentives, and unfair pricing are obstacles to realisation of these potentials.



By Decharut Sukkumnoed (left) and Suphakij Nuntavorakarn (right), Sustainable Energy Network for Thailand (SENT), INFORSE Regional Coordinator



## Growth Rate / Potential

In the past decade, Thailand had enjoyed impressive economic growth, on average 8 % per year. Therefore, peak generation requirement for power sector rapidly increased from 4,733.9 MW in 1987 to 14,506.3 MW in 1997. The annual average growth rate for this decade was more than 10%. Meeting this demand caused many problems to Thai society. From an economic point of view, it is clear that Thailand has to rely increasingly on foreign and non-renewable resources, which might increase the chances for the Thai economy to face an uncertain and uncontrollable future.

From environmental and social points of view, the greenhouse-gas emissions have increased, and the developing of large hydropower plants has brought tragedy to natural forests and to local communities. These problems have forced Thai society to pay more attention to the utilization of domestic renewable energy like biomass as the means of making the energy sector more sustainable. Important biomass resources include rice straw and sugar cane, which are currently left in the field and, in many cases, burned in open air.

## Biomass Equal to 50% of the Oil Consumption

An estimated technical potential of 10,000 ktoe of rice straw and 7,000 ktoe of sugar cane is available in Thailand. These numbers exclude what is left in the field as natural fertilizer. Combined with other biomass resources such as logging trash, rice husks, corncobs, and coconut shells, Thailand has an estimated technical biomass potential of more than 20,000 ktoe, which is equal to more than half of the country's current oil consumption. Moreover, an analysis of the structural potential of efficient power generation in agro-industry shows that an annual production of electricity will be about 11,200 GWh and the power capacity will be almost 3,000 MW.

(\*) The rice mill received the advice from the EC-ASEAN Cogen Program based at the Asian Institute of Technology (AIT), Thailand. The Cogen Program is an economic cooperation between the European Commission (EC) and the Association of South-East Asian Nations (ASEAN) which aims to accelerate the implementation of proven technologies in generating heat and power from wood and agro-industrial residues.

## Chia Meng Rice Mill

At present, there are factories, especially sugar- and rice mills utilizing agricultural waste for energy production. The Chia Meng Rice Mill, in Nakhon Ratchasima province, is one of these factories. It uses agricultural waste to generate energy for both heat and power with just one system. (\*)

With its milling capacity of 600-700 tons of rice per day, the rice mill produces 140 tons of rice husks per day, of which about 115 tons are used as fuel in the cogeneration system.

- The system was installed with a heat capacity of around 18 tons of steam per hour and a power capacity of 2.5 MW.
- The investment amounted to 5.4 million USD.
- The cogeneration system has helped this rice mill to utilize large quantities of its rice husks to decrease its cost of production, because the mill does not need to buy diesel fuel for heat production or to purchase electricity from the local utility.
- Electricity expenses have dropped from about 48,600 USD per month to 8,100 USD per month.
- Moreover, a byproduct of the system is the rice-husk ash, which can be exported to other countries, like Germany etc., for use in their ceramic and metal industries.
- The mill's income from exporting ash has reached 1.1 million USD a year.
- The factory is now planning to expand its power plant and to sell its excess power to the grid, which will increase its benefits from its own waste.

Chia Meng rice mill producing electricity from rice husk. Photo: Finn Tobiesen, OVE



## Economic Incentives, Fair Pricing Needed

The cogeneration plant at the rice mill is a good example of how biomass can be used to the benefit of Thai society. Nowadays, Thailand has a policy on purchasing from small power producers (SPP) that aims to promote the use of indigenous and non-conventional sources of energy. Nonetheless, the regulation is still not favoring renewable energy at all. The buy-back price from the SPPs, who mainly depend on renewable energy, is much lower than the SPPs', who mainly depend on fossil-fuel, due to their lower reliability as providers of electricity to power utilities. The price is also much lower than the marginal costs of power utilities. The low economic incentive from this unfair market regulation leads these SPPs to avoid investing in efficiency improvements and in expansion of new power plants.

Therefore, the SENT network strongly suggests promoting sustainable energy development. The power price should reflect avoided costs of power utilities, including avoided capacity costs as well as avoided energy- and operation costs. Moreover, power price should reflect the "positive externality" e.g., the positive impacts of the technology; examples are the external environmental and social benefits from using renewable energy for power generation. According to an estimation from Rambøll, a Danish consulting company, if the fair pricing regulation has been implemented, the 3,000-MW potential will not be difficult to achieve. This will provide more jobs, especially in rural society, as well as significant reduction of greenhouse-gas emission.

From this example, it is clear that the potentials for biomass power generation can be met through a marked shift in the use of power generation technology. Moreover, it is also clear that the problem of biomass energy development in Thailand is not about technology, because proven technologies are available on the market for efficient power production from many kinds of biomass resources. For these technologies to become viable, the major precondition is a power pricing policy, which allows a reasonable return on the investment for investors.

Therefore, to develop sustainable energy in this country, the political movement is certainly not less important than technological development.

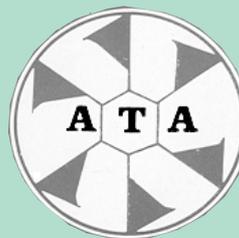
## Success of Protests in Thailand

### News on the Controversial Coal-fired Power Plant under Construction in Thailand.

The controversial 1,400-MW coal-fired power plant in southern Thailand reported in the last issue (No. 28) had been the subject of protests by local people and NGOs because of the project's bad effect on local society and the expected impact to environment and economy. The many efforts of local people, Thai NGOs, and international NGOs contributed to the decision of FORTUM Power and Heat, the Finnish government enterprise, and CEPA, the USA private company, to cancel their partnership in the consortium owning the power plant.

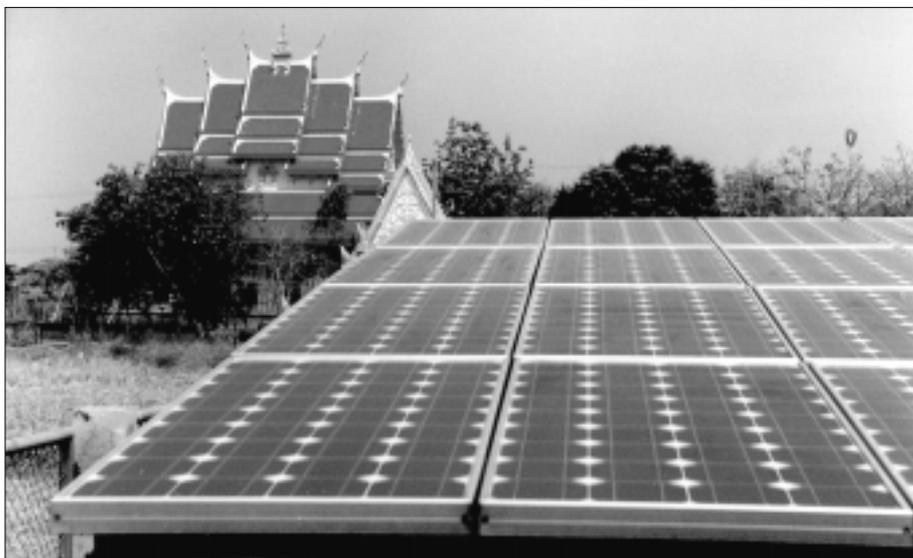
The partnership of the two companies would have been 56% of the consortium. The other partners, who are TOMEN, a private firm from Japan, and UNION POWER, a Thai private company, try to find new partners. One potential new partner is Singapore Power International. However, the local people held a protest in front of the Singapore Embassy in Bangkok to call for the cancellation of any related investment plans of the Singapore firm.

See more on this and an alternative energy plan for Thailand promoted by SENT, the Sustainable Energy Network of Thailand; OVE-ATA, the Danish-Thai NGO Cooperation Program; and Greenpeace, in the last issue of Sustainable Energy News, No. 28, February 2000.



More information - SENT, INFORSE regional coordinator, Decharut Sukkumnoed, Suphakij Nuntavorakarn, Kasetsart University, Bangkok 10930, Thailand. Ph: +66-2-5613467 ext 110, fax: +66-2-9428047, e-mail: [tonklagroup@usa.net](mailto:tonklagroup@usa.net), <http://www.ata.or.th/>.

PV in Thailand. Renewable energy is an alternative to the coal power plant.  
Photo by Finn Tobiesen, OVE, Denmark



# Key Actors Lack Knowledge

## Financing Sustainable Development in the Climate Change Era.

By Timothy Byakola, *Climate and Development Initiatives (CDI), Uganda.*

**A national INFORSE meeting raised awareness of opportunities of the Clean Development Mechanism.**

### Opportunities

Only through international cooperation will the threat of global climate change be effectively tackled. To facilitate this much desired North-South cooperation in the climate change regime, a Clean Development Mechanism has been suggested.

The CDM, as it has come to be known, is viewed as offering flexibility and the opportunity for sponsoring climate-change-mitigating initiatives in developing countries while at the same time reducing greenhouse-gas emissions. The CDM is a means for the promotion of sustainable development in many developing country nations.

### Lack of Knowledge

But despite widespread publicity, there remains significant lack of knowledge about the CDM concept and its possibilities for developing countries, particularly

within Africa. Participation in the CDM negotiations is limited to a few government officials and NGOs. The situation is worse in regard to the participation of the private sector, who are considered key actors in the UNFCCC process.

### Calling for Capacity Building

It is in this recognition that a national CDM workshop was organized in Kampala, Uganda in February 2000.

The workshop was convened to increase public awareness of the CDM and to develop strategies for increased participation of key players from Government, NGO, media, the donor community, and the private sector in CDM activities.

The 37 participants were drawn from Government, the private sector, media, and NGOs from Uganda, Kenya, and Zimbabwe.

To address national capacity-building needs, participants noted that multi-funding institutions should assist developing countries in funding CDM awareness activities and specific projects designed to build capacity in relevant key institutions.

Participants also highlighted the need for developing national institutional frameworks that will facilitate coordination of available national capacity to implement the CDM.

Participants identified potential CDM projects. Some of the identified projects involve the effective and sustainable use of high-potential solar and wind-energy resources. During the workshop, it was recognized that Uganda possesses huge potential for mini-hydro and solar energy development.

The workshop was an initiative of an Ugandan INFORSE member, Climate and Development Initiatives, and funded by Forum for Energy and Development (FED)-Denmark through the framework of the INFORSE.



### CDI

**Climate and Development Initiatives** is a national NGO established in 1996 in Uganda to influence policy issues on climate change, desertification, biodiversity loss and global pollution from an African perspective.

In achieving the above, CDI benefits from working within networks like:

- International Network for Sustainable Energy (INFORSE)
- International NGO Network on Desertification (RIOD),
- Climate Action Network (CAN),
- International Persistent Organic Elimination Network (IPEN).



**Timothy Byakola,**  
Program Coordinator at CDI for 4 years.  
Born in 1970.



Graduated as B.Sc. Forestry (Makerere University), Postgraduate training in Plant Genetic Resources Conservation and Management (DSE-Germany and Ethiopian Biodiversity Institute).

Timothy is also secretary to the National NGO Coordinating committee on Desertification (NCCD), a committee coordinating activities of Ugandan NGOs implementing the United Nations Convention to Combat Desertification (CCD). The NCCD is implementing the Ugandan component of the Regional Combat Desertification and Mobilisation Programme (CDMP) is a programme coordinated by ECONEWS Africa.

### More information:

- Timothy Byakola, *Climate and Development Initiatives*  
P.O.Box. 8849 Kampala, Uganda.  
Ph: +256-41-347762, fax: 256-41-234248, e-mail: [acs@starcom.co.ug](mailto:acs@starcom.co.ug)

- INFORSE South-South-North Cooperation Fund  
Ulrik Jacobsen, *INFORSE/FED,*  
Blegdamsvej 4B, 1st Floor, 2200 Copenhagen N, Denmark.  
Ph: + 45-35 247711, fax: + 45-3524 7717, e-mail: [uj@inforse.org](mailto:uj@inforse.org)

# NGO Network Launched in Brazil to Foster Renewables



By Emilio Lèbre La Rovere (photo), and Claudia do Valle Costa from Interdisciplinary Laboratory for Environment (LIMA), Latin America INFORSE Coordinator, Rio de Janeiro, Brazil

**According to a new report, there are good prospects to foster the development of renewables in Brazil through an NGO network. It should facilitate training activities, exchange of information among NGOs, and the launching of joint projects in this field.**

## Starting to Recognise NGOs

For more than two years now, Winrock International (WI), supported by USAID, has been providing technical support to PRODEEM - Energy Development Programme of States and Municipalities, managed by the Brazilian Ministry of Mines and Energy, aiming at the dissemination of renewable energy technologies.

A recently implemented strategy, to achieve this goal, recognizes the need to foster NGO involvement in the field of renewable energy. The starting point was to convene a workshop in Fortaleza, capital city of the state of Ceará (in the North-eastern region, the poorest of the country), held in May, 1997, with 46 participants from a number of NGOs already implementing successful development projects in rural areas with an emphasis on gender issues. The main target was to highlight the link between rural development and energy services, and the leading role women can play in making renewable energy projects sustainable. In this workshop, the idea was approved of establishing a network of NGOs to provide them with support in the establishment of pilot renewable energy projects through exchange of information, dissemination of success stories, and training activities.

After the Fortaleza workshop, a joint project was started, gathering WI and 3 NGOs (PSA, Pesacre and Mamirauá) to install photovoltaic systems in 8 rural communities, supplying electricity to schools, health care facilities, and community centres. These communities are located in the Amazon region:

- *PSA (Health and Joy Project) is active in the state of Pará.* PSA succeeded in the creation of innovative fundraising

mechanisms like dance parties and bingos, so that new systems can be added.

- *Pesacre (Agroforestry Research and Extension Network) in the state of Acre.* Pesacre achieved good results in its pilot programs so that it was invited by Indian leaders to bring photovoltaic systems to a community in Apuriná, municipality of Boca do Acre.
- *Mamirauá (Sustainable Development Reserve of Mamirauá) in the state of Amazonas.* Mamirauá implemented a photovoltaic system on a floating hotel on the Japurá river and expects some income from lodging visiting researchers.

## New Formal NGO Network

Building upon this initial experience, in 1999, WI has asked LIMA to help in the development of a formal NGO structure able to make the network more effective. Claudia Costa, from LIMA, has conducted short field visits to 4 NGOs selected by WI: the 3 above-mentioned in the Amazon, and APAEB in the state of Bahia (Northeast of Brazil). APAEB is an association of small farmers aimed at fostering income generation activities of its members. Since 1995, it operates a revolving fund to provide microcredit to rural development projects. This fund has supported, up to now, 199 loans for the acquisition of photovoltaic systems. Additionally, APAEB has sold 200 photovoltaic systems to farmers who were able to afford the initial cost. An agreement between Banco do Nordeste (Northeast Bank) and APAEB has made possible the funding of another 23 photovoltaic sys-

tems. Finally, an agreement between APAEB, COELBA (the regional utility), CRESESB (Solar and Wind Energy Reference Centre, located at CEPEL, Rio de Janeiro), and NREL (National Renewable Energy Laboratory, USA) has led to the installation of 10 photovoltaic systems. Most of them are used in fence electrification needed for goats and sheep raising, besides lighting. Two attempts are underway to use solar electricity for water pumping and desalination. Based upon the information collected during the field research, LIMA has delivered to WI a report with the following contents :

- an assessment of the current status of the renewable energy projects visited;
- an assessment of the current status of the NGO Network on Renewable Energy;
- some recommendations towards the improvement of the NGO Network on Renewable Energy;
- a draft proposal of the final format of the NGO Network on Renewable Energy.

This report is available in Portuguese.

*PV system installed at a farm keeping animals in the state of Bahia, Brazil. The electricity is used for fencing, water pumping and lighting. The project was financed by microcredit of a revolving fund operated by an association of small farmers (APAEB).*



*For further information, please contact:*

- *LIMA, INFORSE Coordinator att. Emilio L. Rovere, and Claudia do Valle Costa, Federal University of Rio de Janeiro, C.P. 68565 Rio de Janeiro, 21945-970 Brazil. Ph: +55 21 5608995, fax: +55 21 2906626,*

*e-mail: emilio@ppe.ufrj.br or ccosta@lima.coppe.ufrj.br, www.lima.coppe.ufrj.br .*

- *Winrock International, att. Carla Haddad, Av Luis Tarquinio pontes n. 2580 sala 107, 42700-000 Lauro de Freitas Bahia Brazil.*

*Ph/fax: +55 71 3791759,*

*e-mail: chaddad@winrock.org.br*

## On-line Education

The INFORSE Distance Internet Education on Renewable Energy Technologies (DIERET) has started with 26 students from 21 countries. This first group is expected to finish the course in June.

Info: INFORSE-Europe, att. Emil Bedi, FAE, Slovakia, e-mail: [bedi@ba.telecom.sk](mailto:bedi@ba.telecom.sk).

## Children for a Nuclear-Free Future in Russia

The action "Children for a Nuclear-Free Future" is running January 10 to June 1 in several Russian regions. In one of the regions, Saratov (about 760 km southeast of Moscow), children from the Saratov Childrens' Ecological Theater "No matter what" and CSEI\* members have travelled through 50 settlements in the 30-km zone around the Balakovo Nuclear Power Plant. They showed a play on Nuclear Power problems, offered environmental games, and spoke about nuclear problems.

Contact: Olga Pitsunova, Center for Citizen Initiatives Support (CSEI), [volga@wildfield.ru](mailto:volga@wildfield.ru).  
Source: Social Ecological Union (SEU) Times, Russia, <http://www.igc.org/gadfly/>.

## EU Guideline Postponed

The proposed, revised EU guidelines for state aid for environmental protection (see previous issue) were postponed recently by the EU Commission after critique from the EU countries. Many of the countries found that the proposed guidelines did not give enough room for national schemes, including energy/CO<sub>2</sub> taxes and support for co-generation of heat and electricity. Many also felt that the Commission should focus more on environmental issues compared with competition issues. A new proposal is expected in May, to enter into force by the end of the year, not by end of June as previously planned.

## Renewable Energy Directive Probable Weakened

The EU Directive for Renewable Energy in the internal energy market is expected to be discussed by the EU Energy Ministers in June. A proposal from the Commission is expected May 10.

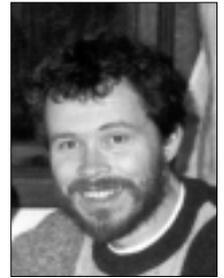
## Remarkable New Law

In February, the German Parliament passed a new law with the aim of doubling the share of renewable energy in the German electricity supply from 5% today to 10% in 2010. It sets specific tariffs for each renewable-energy technology based on their real costs.

Info: German Wind Energy Promotion Association [www.wind-fgw.de](http://www.wind-fgw.de), e-mail: [fgw-hh@t-online.de](mailto:fgw-hh@t-online.de)

# EU's Nuclear Dilemma?

By Gunnar Boye Olesen, INFORSE-Europe, the Danish Organisation for Renewable Energy (OVE), Denmark



The EU Commission recently released a study called, "DILEMMA STUDY: Study of the Contribution of Nuclear Power to the Reduction of Carbon Dioxide Emissions from Electricity Generation". Among the findings of the study is that by 2025 nuclear electricity in the EU will be reduced to 9% of the electricity supply, while it would be reduced to 1% in a low-nuclear scenario, and would remain unchanged at 23% in a high-nuclear scenario. The study assumes that the nuclear power will be replaced with fossil fuels (1/3 coal and 2/3 gas), which, of course, will lead to increased CO<sub>2</sub> emissions. This is seen as a dilemma of nuclear power versus CO<sub>2</sub> emissions.

Strangely, the development of renewable energy is only included on the level of the EU Commission's "Conventional Wisdom" scenario from its study "Energy in Europe to 2020" (from 1997). If just windpower development is changed from EU's "conventional wisdom" to the Windforce10/INFORSE-Europe scenario for windpower in the EU, CO<sub>2</sub> emissions will be reduced more than the reduction achieved by going from the business as usual to the high nuclear scenario.

Comparison shows that a progressive renewable energy policy can result in CO<sub>2</sub> reductions as great as the difference between nuclear phase-out (low-nuclear scenario) and maintaining nuclear power (high-nuclear scenario). Thus, it seems that the dilemma of nuclear power versus CO<sub>2</sub> emissions only exists if progressive development of renewable energy is not included as an option.

On the other hand, neither the high nuclear power scenario nor the 'Windforce 10' alone will lead to sustainable levels of CO<sub>2</sub> emissions: at best the power sector will miss the Kyoto target by a few percent in 2010. Sustainable development must also include vigorous energy efficiency and increased cogeneration of heat and electricity.

### Sources:

- "Dilemma Study", <http://europa.eu.int/en/comm/dg17/dilemma.pdf>.

- "Comparing Windforce10 and the Dilemma Study", <http://www.orgve.dk/inforse-europe/>.



## Petition to JOIN!

### NO Nuclear to Combat Global Warming! Clean Energy NOW!

This coming November, during the 6th Climate Convention Conference, the decision will be taken on whether nuclear energy is eligible for the Clean Development Mechanism (CDM). It is of high importance to block any attempt to make it eligible. Because of that, INFORSE-Europe has joined a petition coordinated by WISE (World Information Service on Energy). It is part of WISE's campaign against trying to use nukes as a solution in the struggle to stop climate change. INFORSE-Europe recommends signing the petition.

The signatories to the petition call on all world leaders to:

- Halt the funding and construction of all proposed nuclear power plants.
- Invest significant funds in clean, renewable energy and energy efficiency measures.
- Explicitly reject nuclear power as a proposed answer to the global warming problem when they gather at COP6. In particular, industrialised countries should not be permitted to offset greenhouse gas emissions by funding nuclear power projects in developing countries under the CDM.

### Information:

WISE, P.O. Box 59636, Amsterdam 1040 LC Netherlands. Ph: +31 20 612 6368 fax: +31 20 689 2179, e-mail: [wiseamster@antenna.nl](mailto:wiseamster@antenna.nl), <http://www.antenna.nl/wise/cop6/>.



*Solar panels to the roof in Switzerland. Photo from: Erneuerbare Energie 2-99.*

## Real Challenge: Mobilizing Markets

**From few and large suppliers to millions of small ones**



*By Preben Maegaard, Executive Director, Folkecenter for Renewable Energy, Vice-President of EUROSOLAR. The Folkecenter is member of INFORSE.*

**A number of successful strategies have mobilized renewable-energy markets. These successful achievements may serve as inspiration for future efforts.**

### Call for Decentralisation

By nature, renewable energy is omnipresent. This calls for a basically decentralized implementation. A transition from traditional energy sources to renewable energy implies a development from few and large suppliers to millions of small, independent suppliers; in principle, every house should produce energy. In such a thorough change of the energy market, the traditional aspects - resources, technology, and economy - are merely the necessary basic prerequisites.

### Popular Basis for Change

The real challenge lies in the creation of the popular basis for the change; and this involves a large number of aspects. Among these are a general popular acceptance and active involvement based upon environmental awareness, strengthening of social relations, self-sufficiency, local production and development, creation of new industries, and employment. Prestige value is often an important parameter.

### Breakthrough of the Wind

Wind energy is generally recognized as a significant renewable-energy resource, and many countries have initiated large R&D programs. However, the decisive breakthrough for wind energy in Denmark was created in a process where the market was founded on a small-scale popular development supported by the right public initiatives. The subsequent maturing of wind power technology, resulting in competitiveness and low investment risks, has been enough to secure the widespread implementation in all the countries with favourable wind energy conditions. The further success of wind energy in Denmark, and later in Germany and Spain, has been secured mainly by upholding guaranteed feed-in prices. These 3 countries now provide 80% of all wind energy in Europe. 4000 MW established in Germany in 6 years is the convincing result of a policy from 1991. An illustrative contrast is seen between 2 countries of comparative size: Ireland has established a total of 70 MW on superior wind resources, whereas Denmark has reached 1700 MW.

### Self Builders' Solar Heaters

Although not competitive with traditional energy sources, solar heating has achieved great success in Austria with 250.000 m<sup>2</sup> of panels installed per year. The development started as a self-builder movement after a referendum on nuclear power. It is borne by a strong popular commitment inspired by leading personalities. In Denmark, a more traditional approach with centralized campaigns has only led to implementation of 10.000 m<sup>2</sup> of panels to be installed per year, in spite of higher support rates.

### Photovoltaics' Prestige

At present, PV is so expensive that a market development requires extraordinary means. Resolute national initiatives like the Japanese 50.000 roofs and the German 100.000 roofs programs with high support rates give ordinary consumers the chance to make a remarkable contribution to an improved environment. This, combined with a high prestige value for institutions and companies with the Reichstag in Berlin as an outstanding example, has turned PV into an important progressive image concept. This has ensured worldwide attention and a great effort in capacity-building and mass production.

*More information: Folkecenter for Renewable Energy, Kammersgaardsvej 16, Sdr. Ydby, 7760 Hurup, Thy, Denmark. Ph: +45-97956600, fax: +45-97956565 energy@folkecenter.dk, www.folkecenter.dk*

*"Solar Tree" sculpture of PV is a "Symbol of a New Lifestyle" and the direction of the energy policy in the region. Gleisdorf, Austria. Photo from: Erneuerbare Energie 2-99.*



## School Theme: Children Leading Change

The next 4 pages present 2 school initiatives in the energy field started over the last 3 years. Both raise awareness of energy and the environment. They act locally; yet both have ambitions of networking in Europe and globally. One is a Norwegian initiative which has been adopted in 10 European countries, mainly in Eastern Europe. The other is a Danish initiative, which achieved substantial success in Internet communication with school children. It started a cooperative project with Thai schools and is working with an English network to develop the ideas further.

We hope that these articles will inspire the creativity of our readers to work on education in this field. We are open to review more such examples in the next issues.

Editors

The logo of  
School Energy Forum

## 50,000 Children SPARE

A European school project succeeds in changing behaviour. Launched from Norway to Eastern Europe. The children bring awareness to their families



By *Tore Brænd* energy and climate specialist (left) and *Kåre Olerud*, information officer (right), Friends of the Earth (FoE) Norway

More than 2,000 classes and 50,000 school children from 10 European countries are participating every year in the SPARE project. This highly successful energy-education project started in 1996. The project's name, SPARE, is an abbreviation of "School Project for Application of Resources and Energy". In the first year, the project was partly funded by the European Union's SAVE program. Finland and Scotland were the first EU countries to join. Eastern Europe is well represented, with participating schools from Estonia, Latvia, Lithuania, Poland, Russia, Hungary, and the Czech Republic.

### Children as Agents of Change

The purpose of SPARE is to fight climate change and to stabilize CO<sub>2</sub> emissions by reducing the total energy consumption. As an energy-saving project in schools, SPARE has achieved two goals:

- It has increased the knowledge and raised the awareness of pupils, students, teachers, and parents by reaching out to many people, both in schools and in homes.
- It has consolidated good energy habits at an early stage in its young participants' development, thus contributing to permanent changes in behaviour.

The project stimulates the introduction and continued use of practical energy-saving measures in school buildings. We have

seen that a reduction of 5%-10% can be achieved in the energy consumption of a school. The most successful schools have reduced their energy use by 25%.

The 11-to-16-year-old school children are involved through activities at their schools. They take their new knowledge, commitment, and practical skills home with them, introducing new attitudes and stimulating changes in their own homes.

The SPARE project aims to establish a network of participating schools in Europe and, through the use of this network, to test new methods of reducing energy consumption on a large scale.

### Information Spreaders

Friends of the Earth Norway is the initiator and organiser of SPARE, but the project is locally run. In each of the participating countries we cooperate with a local organization and sign a contract with a national coordinator, who is responsible for recruiting participants, sending out the project material, and following up with the schools.

It is up to each coordinator or school to follow up on the implementation of the ideas, improving and adapting them to national or local conditions. Giving SPARE a national angle in an international setting has proven so successful that we believe SPARE is a major step towards more sustainable energy systems in Europe.

Project packs are sent to participating classes. Each includes a self-instructing, easy-to-follow project manual; a poster; a project report for all countries; and a penpal offer. A lot of these classes have joined the twin-class project, exchanging experiences and making new friends in other countries.

The knowledge is disseminated by the school children and teachers to other children and parents; from teachers to other teachers; etc. The students also influence their local authorities, both through direct contact and via the media. We expect that this project will continue to recruit over 50,000 new information-spreaders throughout Europe every year. It is our ambitious goal to introduce the project throughout Europe, and later also globally.

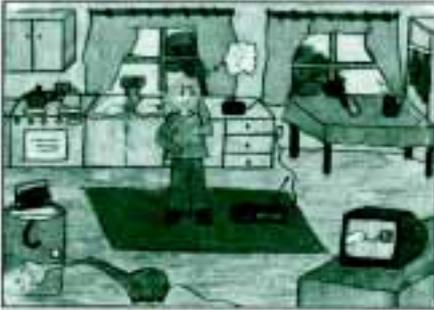
*More information: SPARE Project, FoE Norway. P.O. Box 342 Sentrum 0101 Skippergata 33, 3rd fl., Oslo, Norway. Ph: +47-22402400, fax: +47-22402410 e-mail: spare@naturvern.no, naturvern@naturvern.no, http://www.naturvern.no/english/. The web site includes a huge list of 'Energy-Saving Ideas' and a 'Gallery of Drawings' all sent by the participants.*

Child drawing from Estonia



# SPARE

Child drawing from Lithuania



## Participating countries 98/99

Project period: November - May.

Estonia	145 classes
Latvia	135 classes
Lithuania	200 classes
Russia	500 classes
Poland	800 classes
Scotland	208 classes
Finland	50 classes
Czech Republic	286 classes
Hungary	73 classes
Norway	146 classes



## From the SPARE Report '99 of Friends of the Earth (FoE) Norway to the Participants

*"Once again, we have to thank you for the fantastic work you have all done during this project period. It is wonderful that so many are committed to this very important issue. We are impressed with the way the different countries have developed different tasks and carried out the dissemination process. SPARE has become a huge success in its third year. More than 50,000 school children in 10 countries were taking part. Together you have contributed to a huge reduction of the energy consumption."*

*"Thank you again for all the letters, for the vast amount of drawings and comments you have sent us. We are grateful for your interest, inventiveness and enthusiasm. Your contribution is important if we are to make a better, non-polluted world. The knowledge of energy saving and the transition to renewable energy resources can solve some of our serious environmental problems."*

*"We challenge you to keep up the excellent work. By doing this together, you will make a difference. Don't forget to spread the message:"*

**Save Energy - Save Money  
- Save the World!  
No one can do Everything but Every-  
body can do Something!**

### Poland

More than 800 classes in Poland participated. The coordinator has done a magnificent job, and the activities were numerous and successful. It is fun for us here in Norway to see that the students' creativity and research spirit is so highly developed. Hundreds of energy-saving tips and lots of great drawings arrived at our office in Oslo. This sparked off several small exhibitions of students' work, and we are planning a bigger exhibition later this autumn.

### Estonia

145 classes participated in SPARE and provided us with lots of energy-saving ideas. Many schools have just used selected parts of the project or worked with some of the tasks. 40 schools have had interesting project years, including different kinds of seminars, exhibitions, small conferences, energy measurements at school and at home, research, and discussions.

The drawings show that there is an enormous interest in wind energy in Estonia. Some of the schools are familiar with using the Internet to send data from measurements and calculations. We hope that in the future we can include the possibility of using the Internet more.

### Lithuania

200 schools participated in Lithuania. Vast numbers of excellent drawings reveal the seriousness and determination of the schools' involvement in promoting renewable energy and the ways in which it can contribute to the energy supply.

By measuring electricity consumption, the students were motivated to conserve energy. There was certainly no lack of understanding, motivation, or good proposals concerning heating, water conservation, and economizing on electricity. 184 students from ecology clubs participated in a one-week summer camp. They performed practical tasks involved in energy-saving, produced their own scientific reports, and held their own conferences.

### Hungary

73 participating schools returned the task sheets from Hungary. Students had grasped the importance of the notion of energy-saving, and had suggested new ideas and tasks for the future.

It turned out to be a barrier that generally there is no common interest of the schools and local councils in advocating energy-saving. The schools, which are the users of public buildings, are not the parties who run those buildings, and are therefore not interested in the savings. However, it should be interesting for both parties, especially if the money that they save could be allocated and used for the improvement of the educational environment. Even so, in 2 little village schools, children managed to reduce school energy bills by more than 20%.



material. Information and ideas must be gathered in a ready-to-use format.

So, now, we made some materials that gathered the most popular ideas:

- A basic energy course book for 11-to-12-year-old pupils, with a lot of eye-catching drawings. When children finish the course, they get an energy diploma and a badge.
- A collection of experiments with energy with 1 page for each experiment which can be copied for each of the children in the class.
- A planning tool for teachers on the Internet and on a CD-ROM, including relevant shareware programs.

### Using Teachers' Network

There is a lot of interest in these offerings. Until recently, though, knowledge of the Schools' Energy Forum and of its resources wasn't spreading very quickly. So, a close co-operation was initiated with the Museum of Electricity, which created an Energy Teachers' Network. One teacher from each school was to be the school's conduit for new energy materials and offers, provided that he/she would promise to pass on the information to interested colleagues. The "Energy Teachers" can also win access to special arrangements at the Museum of Electricity with a class and are sometimes offered free materials for energy education. In Denmark, it is a problem that there are too many brochures etc. trying to catch the attention of teachers, so if it doesn't come to the relevant person at first, it will probably not come at all. So the Energy Teacher Network has turned out to be a success. 3 months after the using the Network, 450 primary schools got involved. There are about 2500 primary schools in Denmark.

## Teachers, Children Find Fun"

### Schools' Energy Forum in Denmark

The Schools' Energy Forum is an ambitious, NGO-initiated project started up in Denmark. It gives an exciting option for teachers and children who are also communicating through the Internet. Get an insight how it started, what were the problems and what are plans for the future.



By Kaare Albrechtsen, MSc OVE the Danish Organisation for Renewable Energy Coordinator of the Schools' Energy Forum, Denmark

and inspiration through the Internet as well as through a network of contact persons. But, to reach this point, the first thing to do was to present the ideas to a number of relevant organisations. The organisations asked were mostly very interested, and the most relevant joined the Steering Committee. There were Steering Committee meetings every 2-3 months, until consensus was reached on the strategy. All ideas still had to be worked out thoroughly, and the money to be found within existing systems.

The next step was to get an overview of existing materials and offers related to energy education. Many organisations etc. had offers and many materials were made, but there was no co-ordination.

There was a lot of discussion about how much to use the Internet and about whether the teachers would use it. The agreement was to make things for Internet access, but to pursue more traditional means as well. Today many teachers use the Internet, and about half of the letters for the Schools' Energy Forum come through the Internet.

The first offers made by the Schools' Energy Forum were the databases, links to homepages, and a network of contact persons for the teachers and students. To raise awareness of energy-related and environmental topics, posters and wall calendars were made and sent to the schools. It showed that mainly the very interested teachers reacted. The main problem was that the teachers needed substantial time to prepare the educational

### How did it start?

The objective of the Schools' Energy Forum (SEF) was to promote energy and environmental education in the Danish schools. SEF was initiated in the beginning of 1997 by Danish NGO organisations, specifically, by the Organisation for Renewable Energy (OVE) and by the Forum for Energy and Development (FED). Both organisations are members of INFORSE.

The idea was to join the technical knowledge of the energy and environmental organisations with the expertise of the educational organisations. There was quite a lot of interest from teachers' side. The energy organisations were interested because they acknowledged the importance of education if the environmental situation is to get better. The Ministry of Education was also encouraging to include it in the educational plans.

Now, in year 2000, the Schools' Energy Forum (SEF) has produced various materials for use in schools. The SEF has also made it possible to get information

Photos on this page:  
Children experiment with energy in a Danish School.

Photos by: Kaare Albrechtsen, OVE, Denmark.





Photos on this page:  
Hands-on exercises  
with energy in Thai  
schools.  
Photo by: Kaare  
Albrechtsen, OVE,  
Denmark.

## Next Steps

Now, we are planning the next step, which is to integrate the offerings more closely with the educational and technical environments. Because of this, the main office will move from the Danish Organisation for Renewable Energy (OVE) to the Teachers' Innovation Center. An energy education house has been set aside at the Center; school classes come to it for one-day courses. In this way, the Schools' Energy Forum has daily contact with energy education. Around the country, the 20 Energy and Environmental Offices will be the centers for the teachers/students that want personal instruction. These offices are already offering advice to the public, but in the future they will receive more organised support from the Schools' Energy Forum, and they can focus more on presenting advice to children as well.

In the spring of 2000, the Schools' Energy Forum is going to offer a school camp. This is done with the Museum of Electricity and the Folkecenter for Renewable Energy. If it is a success, it will hopefully be made a permanent programme.

One of the ambitions of the Schools' Energy Forum is to promote energy and environmental education via other subjects besides the traditional technical ones. This would mean that, e.g., history and geography would teach some of the energy and environment aspects. This idea, however, is still in its early stages.

The Schools' Energy Forum, along with the English Energy Education Forum, is trying to make a European Energy Education Forum (EEEF). The idea is to create a kind of contact agency, where teachers, students etc. can get in touch with interested teachers, students etc. in other countries that are working with energy and the environment. The main information point is going to be a homepage, which will include databases of contacts, teaching materials and newsletter.

## Funding

The Schools' Energy Forum has received economic support, among others, from the Danish Ministry of Energy and Environment, and Ministry of Education, Green Foundation, EU's ALTERNER program.

*More information: School Energy Forum  
c/o OVE, Dannebrogsgade 8a, 8000  
Aarhus C, Denmark.  
Ph: +45-8676 0444  
fax: +45-8676 0544  
e-mail: ove@orgve.dk  
www.SkoleEnergi.dk*



## School Energy in Thailand

Built on the experiences from the Danish activities, the Schools' Energy Forum got involved in promoting school activities in Thailand. Three networks were made with around 10 schools in each. Representatives from the schools meet frequently to exchange experiences about energy and environmental education. The project office has made some offers for the energy education of these schools:

- A "mobile unit", which is a redesigned delivery van. The van runs on plant oil, and has solar cells for the electrical equipment, which is a video and television for educational videos and a computer for energy-education CD-ROMs. The teachers in the network can borrow the van when doing energy courses.
- "Hands-on exercises", which require equipment to use for experiments, along with explanations. The experiments involve solar hot water, solar cells, vegetable oil fuel, energy-efficient light, and an energy-saving stove.
- "Courses for teachers", where the teachers are showed how the hands-on exercises work.

Presently, an energy game is being tested for use. The main purposes of the game are to make the students think about the consequences of what they are doing and to try to build up a team spirit about doing something for the environment.

You can read more about this Thai-Danish co-operation project in the previous issue of Sustainable Energy News.



### Active and Interested Teachers?

The policy of the Schools' Energy Forum has always been to make it easy for the teachers. But teachers are of course individuals, so their needs vary. On the energy issue, it seems that there are three main groups: a small group of very active and interested teachers; a small group of teachers that was absolutely not interested; and a big group who thought that it was quite important and interesting, but didn't really feel that they could handle energy education. One of the ideas of the Schools' Energy Forum was to gather input from the first group and to pass it on to the third and major group of teachers.

# Publications

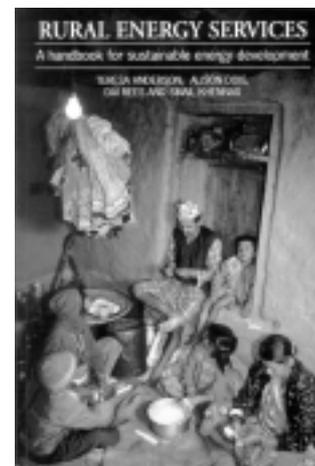
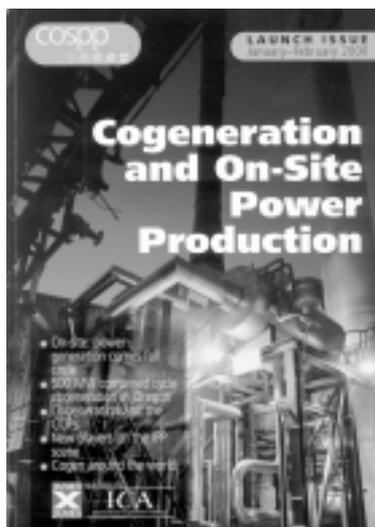


## Wind Turbine Market 2000

Types, Technical Characteristics, Prices. More than 200 wind turbines  
Special Report, 70 pages, 30\$/40DM, free to the subscribers of the Magazine „Erneuerbare Energien“  
ISSN 0948-3136  
Published by SunMedia GmbH, Querstr. 31, 30519 Hannover, Germany.  
Ph: +49-511-8441932,  
fax: +49-511-8442576.

## Cogeneration and On-Site Power Production

Newsletter. Launch issue January-February 2000, 90 pages, Free of Charge  
ISSN 1469-0349  
Published by International Cogeneration Alliance, and James & James Ltd 35-37 William Road, London, NW1 3ER, UK.  
Ph: +44-20-73878558, fax: +44-20-73878998, e-mail: [cospp@jxj.com](mailto:cospp@jxj.com),  
<http://www.jxj.com>.



## Rural Energy Services

A handbook for Sustainable Energy Development  
By Teresa Anderson, Alison Doig, Dai Rees and Smail Khennas, 1999, 160 pages, £12.95 ISBN 1 85339 462 9  
Published by The British Council and the Intermediate Technology Publications Ltd 103/105 Southhampton row, London WC1B 4HH, UK. Ph:+44 - 1714-369761 fax:+44 -1714-362013  
e-mail: [shop@itpubs.org.uk](mailto:shop@itpubs.org.uk).  
<http://www.oneworld.org/itdg/>.

## University of Oldenburg

### Postgraduate Program Renewable Energy, Germany

**Duration:** 12 months from September  
**Deadline:** January 15  
Cost: 500 DM/ year (student fees)  
**Scholarship:** Yes ! deadline October 15.  
**Language requirement:** Yes. TOEFL  
**Number of Participants:** 16 students in 1999 coming from: Asia (7), Africa (5) Germany (2) and Latin America (1). Applicants in 1999: approx. 100, Course since 1987 with 180 alumni from more than 60 countries worldwide.

**Contact:** att. Edu Knagge, Faculty of Physics, University of Oldenburg, P.O. Box 2503, 26111 Oldenburg, Germany.  
Ph:+49 4417983544, fax+49 4417983990  
email: [edu.knagge@uni-oldenburg.de](mailto:edu.knagge@uni-oldenburg.de),  
[www.physik.uni-oldenburg.de/ehf/ppre/](http://www.physik.uni-oldenburg.de/ehf/ppre/)

## University of Reading, UK

### MSc/Postgraduate Diploma in Renewable Energy and the Environment

**Duration:** 12/24 months (full/part time)  
**Deadline:** any time. Cost: £3-4,000  
**Scholarship:** Yes, some:  
Panasonic Trust (UK students), Wallace and Muriel Hirst Fund, int'l students)

**Language requirement:** Yes. TOEFL  
**Number of participants:** 16 students in 1999: 50 % from UK, 50% from all over the world

**Contact:** The Energy Group, Department of Engineering, University of Reading, Reading, RG6 6AY, UK.  
att. Ms Ana P Barbosa, Ph: +44 118 987 5123, fax: +44 118 931 3327,  
e-mail: [a.p.barbosa@reading.ac.uk](mailto:a.p.barbosa@reading.ac.uk)  
<http://www.reading.ac.uk/energy>

## The Open University, UK

### T265 Renewable Energy, undergraduate BA/BSc program.

**Duration:** From February to October.  
**Cost:** £210 for the entire course  
**Scholarship:** No (though Financial Assistance Fund for UK students)  
**Number of participants:** 350 students/year, mainly in the UK but some from EU.

**Contact:** Energy & Environment Research Unit (EERU), Faculty of Technology, The Open University, Milton Keynes MK7 6AA, UK. Ph: +44 1908 653335, fax +44 1908 858407.  
<http://www.open.ac.uk/StudentWeb/t265/t265.html>

# Looking for a University ?

## Aalborg University, Denmark Energy Planning for Sustainable Development NEW!

### One Semester in M.Sc. Program

**Duration:** September - January  
**Deadlines:** Several: e.g. June 1  
**Cost:** No tuition fee  
**Scholarship:** Yes some  
**Language requirement:** Yes, TOEFL  
**Number of participants:** It stated in 1999 with 9 student from Lithuania and Estonia. In 2000, about 25 students are expected.

**Contact:** Department of Development and Planning, Ecology and Energy Group, Fibigerstræde 2, Aalborg University, 9220 Aalborg, Denmark.  
Ph: +45 96 35 96 52,  
fax: +45 98 15 45 22,  
e-mail: [ek@aua.auc.dk](mailto:ek@aua.auc.dk),  
<http://www.auc.dk/international/udveksling/mpenvman.doc>  
Professor: Frede Hvelplund,  
ph: +45 96 358380,  
e-mail: [hvelplund@i4.auc.dk](mailto:hvelplund@i4.auc.dk)

# EVENTS

June, July, August, 2000

## 3-day Courses by SEI on Renewable Energy Technologies, CO, U.S.A.

Info: Solar Energy International (SEI), P.O. Box 715, Carbondale, CO 81623-0715, U.S.A. Ph: +1-970-963-8855, fax: +1-970-963-8866, e-mail: sei@solarenergy.org. <http://www.solarenergy.org>.

June 5-9, 2000

## Adoption of Technology for Sustainable Project Development, Workshop, ARTEFACT, Glücksburg, Germany

For decision makers in north-south cooperation  
Info: Werner Kiwitt, ARTEFACT, Gremsbergalle 35, 24960 Glücksburg, Germany. Ph: 4631-6116-0, fax: 4631-6116-28, e-mail: artefact@pin-net.de, <http://www.artefact.de>

June 5-9, 2000

## 1st World Conf., Exhibition on Biomass for Energy & Industry, Sevilla, Spain

Info: Energia TA - Piazza Savonarola 10, 50132, Florence, Italy. Ph: +39-055-5002174, fax: +39-055-573425, [eta.fi@etalfflorence.it](mailto:eta.fi@etalfflorence.it), <http://www.etaflorence.it>, or [www.wip-munich.de](http://www.wip-munich.de).

June 14-16, 2000

## Exchanging the Environment by Reforming Energy Prices, Prague, Czech Republic UN Economic Commission for Europe.

Info: Jiri Becvar, Ministry of Environment, Vrsovicka 65, 100 10 Prague 10, Czech Republic. Ph: +42 02 6712 2238, fax: +42 02 6731 0277, e-mail: [Jiri\\_Becvar@env.cz](mailto:Jiri_Becvar@env.cz).

June 19-22, 2000

## EUROSUN 2000 Congress, 3rd ISES Conference, Copenhagen, Denmark

Info: DANVAK, Orholmvej 40B, 2800 Lyngby, Denmark. Ph: +45-45-877611, fax: +45-45-877677, e-mail: [info@danvak.dk](mailto:info@danvak.dk).

June 19-22, 2000

## The Kyoto Protocol: The End of the Beginning? London, UK

Info: The Royal Institute of International Affairs, 10 St. James Square, London SW1Y 4LE, UK. Ph: +44 171 957 5700, fax: +44 171 957 5710, <http://www.riia.org>

June 28- July 1, 2000

**3rd All-Union Antinuclear Conference**  
Ecological civilization, movement, industry.  
Info: Antinuclear Society of Tatarstan, 420034 Kazan, Russia-Tatarstan, Ph: 8432 447757, E-mail: [reno@reno.kcn.ru](mailto:reno@reno.kcn.ru), [hadi@open.kcn.ru](mailto:hadi@open.kcn.ru), <http://www.mi.ru/~ant>

July 1-7, 2000

## WREC-2000, Brighton, UK

World Renewable Energy Congress  
Info: World Renewable Energy Network, 147 Hilmanton, Lower Early, Reading RG64 HN, UK. Ph/fax: +44-1189-611364/-611365, e-mail: [asayigh@netcomuk.co.uk](mailto:asayigh@netcomuk.co.uk), [www.wrenuk.co.uk](http://www.wrenuk.co.uk).

Aug. 3-Sept. 17, 2000

## The 25th Int'l Training Course on Biogas

Info: Hu Rongdu, BRTC, China, e-mail: [obrte@shell.scsti.ac.cn](mailto:obrte@shell.scsti.ac.cn) and [brtc@bigfoot.com](mailto:brtc@bigfoot.com)

August 20-25, 2000

## ACEEE Summer Study on Energy Efficiency in Buildings

The conference, brings together 600-800 attendees every 2 years.

**13 Scholarships are available for participants from developing countries and former communist countries!**

**Deadline: June 15, 2000.**

Info: American Council for an Energy-Efficient Economy (ACEEE), 1001 Connecticut Avenue, NW, Suite 801, Washington, DC 20036, USA.. Ph: 202-429-8873, fax: 202-429-2248, [rmida@aceee.org](mailto:rmida@aceee.org), <http://aceee.org>.

September 4-7, 2000

## RE&EE 2000 Kuala Lumpur, Malaysia

Business and Investment Forum Renewable Energy & Energy Efficiency in Asia & Pacific  
Info: ECO Energy Sdn Bhd, 35 2nd Floor Jalan Ara SD 7/3a, Bandar Sri Damansara, 52200 Kuala Lumpur, Malaysia. Ph + 60 3635 8187, fax +60 3 635 8068, [reee2000@eco-energy.com.my](mailto:reee2000@eco-energy.com.my), <http://www.eco-energy.com.my/reee2000>.

September 12-14, 2000.

## International Conference Biomass Fuels in a Sustainable Energy Development

Info: Antonio Valdés, Agency for Science and Technology, Calle 20 no. 4112 and / 41 and 47 Playa Ciudad Habana, Cuba. Fax +53 7 249460, e-mail: [acyt@ceniai.inf.cu](mailto:acyt@ceniai.inf.cu).

September 12-15, 2000

## Solar Energy in Architecture and Urban Planning, Bonn, Germany

6th European EUROSOLAR Conference  
Info: EUROSOLAR, Kaiser-Friedrich str. 11 Bonn, 53113 Germany. Ph: +49-228 362373, fax: +49 228-361279, [inter\\_office@eurosolar.org](mailto:inter_office@eurosolar.org), <http://www.eusolar.org>.

September 27-29, 2000

## Energy Efficiency in Household Appliances and Lighting, Naples, Italy

2nd Int'l Conference and Exhibition  
Info: Italian Association of Energy Economists (AIEE), Via Giorgio Vasari, 4 00196 Rome, Italy. Ph: +3906 3227.367, fax: +3906 3234.921, e-mail: [aieeconference@mclink.it](mailto:aieeconference@mclink.it).

September 18-25, Oct. 9-16, Nov. 13-20, 2000

## China's Small Hydro Power Study Tour

Info: Hangzhou International Center on Small Hydro Power, P.O. Box 202, Nanshan Road 136, Hangzhou, 310002 China. Ph: +86-571-7070070, fax: +86-571-7023353, e-mail: [hic@mail.hz.zj.cn](mailto:hic@mail.hz.zj.cn), <http://www.digiserve.com/inshp>

September 25-27, 2000

## Wind Power for the 21st Century - Int'l Conference, Kassel, Germany

Info: German Wind Energy Promotion Association, FGW, Ph: +49-40-2780 9182, fax: +49-40-2780 9176, e-mail: [fgw-hh@t-online.de](mailto:fgw-hh@t-online.de), [www.wip-munich.de](http://www.wip-munich.de).

October 2-4, 2000

## Commercial Opportunities in Renewable Energies, London, UK

Info: CWC Associates, Ph: +44 20 7704 9155, fax: +44 2077048440, [www.globalenergyintel.com](http://www.globalenergyintel.com) e-mail: [juliane.jung@cwconferences.co.uk](mailto:juliane.jung@cwconferences.co.uk),

October 2-6, 2000

## Adoption of Technology for Sustainable Project Development, Workshop, ARTEFACT, Glücksburg, Germany

For decision makers in north-south cooperation  
Info: Werner Kiwitt, ARTEFACT, See June 5-6

October 10 - 12, 2000

## ENEF 2000, Banska Bystrica - Slovakia

Int'l Energy Efficiency Conference and Exhibition  
Info: ASENEM - Association of Energy Managers, Magnetová 2, 831 04 Bratislava, Slovakia. Ph: +421 88 414 4011, fax: +421 88 414 4012, e-mail: [epsbb@psgnetbb.sk](mailto:epsbb@psgnetbb.sk), <http://www.meen.sk>

October 16-27

## COP- 4, UNCCD, Bonn, Germany

Info: United Nations' Convention to Combat Desertification, Conference of Parties fax: +49-228-815-2899, [secretariat@unccd.de](mailto:secretariat@unccd.de)

October 17-19, 2000

## Energy Efficiency Business Week, Conf. and Exhibition Prague, Czech Republic

Info: SEVEN, Slezska 7, 120 56 Prague 2, Czech Republic. Ph: +420-2-2425-2115, fax: +420-2-2424-7597, e-mail: [seven@svn.cz](mailto:seven@svn.cz), [www.svn.cz](http://www.svn.cz).

October 18-20, 2000

## 7th COGEN Europe's Conference, Brussels, Belgium

Info: European Association for the Promotion of Cogeneration, rue Gulledele 98, 1200 Brussels, Belgium. Ph: +32 27728290, fax: +32 2 772 5044, e-mail: [info@cogen.org](mailto:info@cogen.org), <http://www.cogen.org>

October 23-25, 2000

## ALTERNER Conf. Renewables for Europe, take off campaign, Toulouse, France

Info: Energia TA, See at event June 5-9, 2000 .

November 1-4, 2000

## UIE 2000 Lisbon, Portugal

International Conference on Electricity for a Sustainable Urban Development

Info: FCT, University of Coimbra, Portugal, Polo 2 da UC, Pinhal de Marrocos 3030 Coimbra Portugal. Ph: +351 239 79 62 00, fax: +351 239 79 62 47, [amartins@dee.uc.pt](mailto:amartins@dee.uc.pt), [www.edp.pt/uiie](http://www.edp.pt/uiie)

November 13-24, 2000

## COP-6, UNFCCC, The Hague, Holland

Info: United Nations' Framework Convention on Climate Change, Conference of Parties, fax: +49-228-815-1999, [secretariat@unfccc.de](mailto:secretariat@unfccc.de)

November 23-26, 2000

## CERE 2000, Beijing, China

Int'l Environment & Renewable Energy Conf.  
Info: China International Science Center, No. 1 Sandaojie, Jianguomenwai, Chaoyang District, Beijing 100022, P.R. China. Ph: +86-10-65157760, fax: +86-10-65158442, e-mail: [cisc@midwest.com.cn](mailto:cisc@midwest.com.cn), [www.ciscexpo.orgcn.net](http://www.ciscexpo.orgcn.net)

November 28- December 1, 2000

## CIEE 2000, Shanghai, China

China Int'l Energy Exhibition and Conference  
Info: Worldwide Exhibition Service Co., Rm. 2706, Nanzheng Building, 580 Nanjing Rd. (W), Shanghai 200041, P.R. China. Ph: +86-21-52340650, fax: +86-21-52340649, e-mail: [weszhou@online.sh.cn](mailto:weszhou@online.sh.cn)

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## New INFORSE coordinator in East Africa: BUN-Zimbabwe



### BIOMASS USERS NETWORK

**BUN – Zimbabwe** is a non-profit organisation established in 1989.

BUN helps to identify opportunities to reduce poverty and land degradation in rural areas in an environmentally sustainable manner through the innovative production and efficient use of biomass resources. BUN is reaching out to community groups assisting them in capacity-building.

There is a board, and the staff includes 9 permanent and 12 field workers with project contracts.

#### **BUN facilitates:**

- information dissemination and training,
- scientific and technical cooperation,
- setting up demonstration projects, and
- hosting conferences.

Main areas where BUN was/is involved:

- plant oil production and utilization for soap making, lighting, and fertilizer;
- sweet sorghum for ethanol production;
- household size biogas plants;
- cropwaste briquetting to produce fuel substituting coal charcoal and fuel wood;
- installation and training of solar photovoltaic systems; and
- study on the potential impact of decentralized power production using conventional and renewable energy sources.

BUN is replacing FWD as INFORSE coordinator. BUN has been member of INFORSE since 1992 and was local coordinator of INFORSE activities at the World Solar Summit in 1996, Harare. Besides INFORSE, BUN-Zimbabwe is member of IUCN (World Conservation Union), ELCI (Environment Liaison Centre International), and numerous national committees and associations. BUN is also cooperating with the other independent offices of the BUN network in Brazil, Costa Rica, India, Zimbabwe, the USA, and the UK.

The projects of BUN are supported by several governmental development agencies and private foundations.

Mr M. C. Mapako.  
Director, BSc Biochemistry / Environmental Studies (Wales, UK). Post-graduate Diploma in Renewable Energy Engineering (Italy). Joined BUN in 1992.



Mr L. Katsvairo  
Project Officer, BSc Agriculture (Univ. of Zimbabwe). Joined BUN in 1999, following a student internship at BUN in 1998.



#### *More information:*

*Biomass Users Network - Zimbabwe,  
P.O. box 7768 Causeway,  
Harare, Zimbabwe.  
Ph: +263-4-793395/6,  
fax: +263-4-793313,  
e-mail: bunzim@hotmail.com,  
mmapako@internet.co.zw.*