

# Sustainable Energy News

No. 8 March 1995

Newsletter for the  
International Network  
for Sustainable Energy

- INforSE



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## Sustainable Energy News

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# Environment, Energy and Social Development

The following statement was presented on behalf of INforSE at the World Summit for Social Development Main Committee, Friday 10/3 by Lalitta Balakrishnan, All India Womens Conference / INforSE - India.

1. Many social problems are related to environmental degradation in the form of desertification, unstable climatic conditions due to global warming, urban industrial pollution etc.

2. The potential for combined environmental and social development must be recognized and fully utilized. There is a wide range of opportunities for income generation, alleviation of poverty and creation of constructive employment utilizing natural resources in a sustainable manner. This development involves the genuine participation of local communities in decision-making and implementation.

3. Point 50J of the Draft Programme of Action in the Draft Declaration recognizes the need to encourage the utilization of renewable energy based on local employment-intensive resources, in particular in rural areas. Sustainable and locally based energy solutions have already proven to be successful and ready for implementation on a large scale.

Sustainable social development must be based on the use of locally available renewable energy sources. At the same time these technologies have had very positive social impacts. Apart from creating smoke free kitchens, thereby alleviating family members of respiratory diseases, and reducing drudgery work loads on women in 2 million Indian families, 200,000 jobs have been created in the construction of biogas plants.

In Kenya, the Kenya Ceramic Jiko, a fuel efficient charcoal stove, is improving the economy and environment for 700,000 families, and has created thousands of new jobs in stove manufacturing. Recent studies conducted in both countries have clearly shown that by becoming self-employed in the manufacturing of the improved stove, rural women has experienced tremen-

dous social transformation. This has meant a new status, empowerment and an improvement in family health. Even in an industrialized country such as Germany, energy conservation measures created 400,000 new jobs from 1973-1990.

4. NGOs are forerunners and important cooperation partners in sus-



tainable energy. The role of NGOs in the development and promotion of sustainable energy must be recognized by Governments and enhanced through much greater support at all levels for the work of NGOs.

5. Sources of renewable energy are available at the doorsteps in most developing countries. They must be recognized as the only realistic way to reduce CO<sub>2</sub> emissions and alleviate global warming.

6. Education and information at all levels are important elements in a socially and environmentally sustainable development, including training in the use of various renewable energy devices, especially aimed at the youth.

7. In its Action Plan 2000, the International Network for Sustainable Energy, INforSE, proposes the establishment of a Global Fund, specifically for the promotion of social development through sustainable energy solutions. The Fund may be financed

### Front page:

Social Summit NGO Forum. INforSE Event. The limit for NGOs at the Official Summit, Copenhagen, Denmark. Photo: OVE.

8. Women's development activities have always been mindful of conservation of resources. This is most true in the poorest societies. The poor societies are recycling societies. From women's participation in development, this is the way of wisdom. But with the opening of more and more territory to market forces, the rush to consume resources has risen. The developing countries are the most at risk of losing their own resources to these new external consumers. The products will only return to them at value-added rates!

9. Structural Adjustment Programmes imposed on the peoples of the developing countries by the World Bank and the International Monetary Fund are causing untold suffering to the peoples of these countries especially women and children. By recommending the abolishment of subsidies in the health and education sectors, the SAPs are posing a great danger to the attainment of sustainable development. SAPs also recommend abolishment of subsidies on energy. While there is a need to reduce energy consumption based on fossil fuels, there is at the same time a need for public support of environmentally sustainable forms of energy. This support

must be targeted to the poorest groups in the developing countries.

10. With the serious environmental and social problems in mind, it is appalling that 60% of the funds allocated to energy research and development in the industrialized countries are used for nuclear energy, while solar energy is receiving only 6%. We demand a substantial transfer of funds from nuclear energy research to solar energy and better technology for the use of biomass, which has a direct bearing on the poor, especially women from rural and remote areas.

11. The full social, cultural and environmental costs must be included in decision-making processes in order to promote socially and environmentally acceptable solutions.

12. Concurring with Part One, point 15D and F of the Draft Declaration, it is imperative that the industrialized countries in particular must realize that economic growth in itself does not lead to full employment, but rather to an unsustainable pattern of consumption and production. The traditional economic growth in the industrialized countries implies a constant threat to the environment. A gradual shifting of the tax burden from labour to natural resources will pro-

vide a much needed incentive to save scarce natural resources and at the same time favour the use of abundant labour. The introduction of ecological tax reforms is an obvious way of integrating the wish for job creation with the commitment to environmental sustainability.

13. Relating to the Draft Declaration, Part One, point 14, technology exchange has to be open and based on full recognition of the value of indigenous technologies and knowledge. Policies and strategies to protect, enhance and promote these knowledge systems and their custodians should be put in place at community, national and international levels. This will be in line with the recognition that traditional knowledge in agricultural practices, health care practices and local handicraft lie with the poor and rural women.

14. There is increasing recognition within the UN System of the important role of renewable energy. UNESCO is planning a Solar Summit, and the UN Committee on New and Renewable Sources of Energy for Development is proposing a global initiative for renewable energy. INforSE looks forward to a close cooperation with these and all relevant bodies in the future.

## Energy for a Better Life

This is the title of the INforSE Campaign Paper for the campaign of Sustainable Energy for Social Development. The paper describes in 12 pages 19 success stories of sustainable energy and social development, as well as the INforSE campaign, regional and worldwide.

The paper is sent to most INforSE contacts and is available free of charge from the INforSE Secretariat.



### In this issue

This issue features a number of international activities: the Social Summit and its links with sustainable energy development, a new initiative from the UN Committee for Renewable Energy, Climate Negotiations, a new World Bank initiative, and a critique of a proposed Worldwide Solar Fund that might not lead to much progress. New ideas for international action are given in the article on assistance for renewable electricity.

The regional news features a number of ideas and of mostly good news, from the halting of construction of nuclear reactors in the USA and Spain to the new program for renewable energy in the Philippines. The technical articles feature local production of rapeseed oil as motor fuel, ideas for energy from organic waste, and transfer of small windturbines.

Included in this issue is the European part of the Sustainable Energy Contact List, which, together with the contact list from September 1994, forms a worldwide list.



*Isagani Serrano, Philippines, Lalita Balakrishnan, India and Carlos Canas, El Salvador at the Social Summit Special Event: Social Development and Environment, organized by INforSE and others*

## Outcome of the Social Summit

After a week of the World Summit for Social Development, the participating state leaders and their negotiators agreed upon an 85-page Declaration and Programme of Action for social development. The document contains some good descriptions of the necessary social development. The phrase, "sustainable development" made its way into the Declaration and Programme in several places. In many places, the term was equated with economic growth, e.g.: "..., sustainable development and broad-based and sustained economic growth are equally necessary for social develop-

ment and social justice." (§6). Unfortunately, the paper has no definition of the much-debated term, "sustainable development"; but this is may be too much to ask from a social summit. Also, the results of the Rio conference are remembered in the Declaration (§10).

In the Programme of Action, sustainable development, renewable energy, and consumption patterns are addressed. Under the heading "A favourable national and international economic environment", the following action included as required to ensure equitable distribution of global econ-

omic growth: "Changing unsustainable consumption and production patterns, taking into account that the major cause of the continued deterioration of the global environment is the unsustainable pattern of consumption and production, particularly in industrialized countries, ..., aggravating poverty and imbalances;" (§10c).

Listed as a requirement for promoting patterns of economic growth that maximize employment creation is: "Encouraging the utilization of renewable energy, based on local employment-intensive resources, in particular in rural areas." (§50j)

The results of the Social Summit will be discussed by the UN Economic and Social Committee - ECOSOC, that decides about the follow up. Beside this the summit proposed an annual meeting on social development with participation of ECOSOC, World Bank Development Committee and International Monetary Fund (IMF). Social development will also be addressed by UN in 1996, that is declared international year for alleviation of poverty.

## Social Summit NGO Forum

During the Social Summit, hundreds of NGOs were active at the Summit or at the large parallel NGO Forum in Copenhagen, Denmark. Four of the events featured energy and social development: *Environment Energy and Social Development*, and *Social Development and Environment* (Special event at the Social Summit), organized by INforSE and the Forum for Energy and Development, Denmark; *Job Creation and Climate Change* organized by A Seed and others; and a *Sustainable Employment Seminar*, organized by the Danish Association of Engineers and others. All of the events highlighted different aspects of energy and social development. The events showed a widespread understanding of the nexus between sustainable energy

and other environmental technologies on one side as well as between social development and employment on the other side. It is obvious that this theme is gaining momentum.

During the NGO Forum, statements were made on behalf of the NGO Environmental Caucus and of a larger NGO Development Caucus. The Environmental Caucus made a Declaration on the right to Sustainable Societies, in which it criticises the official Declaration and Programme of Action for undermining its commitments to sustainable development by its "almost religious faith and devotion to the doctrine of 'sustained economic growth' ....". It also "...urge promotion of the right of all peoples to sustainable development". The Devel-



*INforSE booth at NGO Forum.*

opment Caucus made "The Copenhagen Alternative Declaration" in which it criticises the economic framework adopted in the official Declaration and Plan of Action for over-reliance on open, free-market forces. It also proposes "Effective international machinery to promote renewable energy should be installed in the UN system".

# UN Committee Calls for Global Initiatives in Energy

The UN Committee on New and Renewable Sources of Energy and on Energy for Development held a special session on February 6-17, 1995. The session was called to formulate advice on energy for rural development for the coming meeting of the Commission for Sustainable Development, CSD. The CSD has agriculture on the agenda of its next session, to be held on April 11-28, 1995, and will also discuss related energy questions. The committee, consisting of experts from 16 countries, proposed that the CSD invite all states, international organizations, and NGOs to:

- launch a global initiative, before the year 2000; to facilitate the efforts of the developing countries to bring electric power to the people in rural and isolated areas, based on renewable energy. The UNDP (UN Development Program), the World Bank, and the GEF (Global Envi-

ronmental Facility) should take the lead in this;

- launch a global initiative, before the year 2000, to map renewable energy resources. The WMO (World Meteorological Organization), the FAO (Food and Agricultural Organization), the UNDP, and the UNEP (UN Environmental Program) should take the lead in this;
- establish, under UN auspices, a network of Centres of Excellence for environmentally sound energy technologies;
- study ways and means of strengthening institutional arrangements within the UN to advance energy for sustainable development and to stimulate the coordination of energy, including the possible establishment of a dedicated institution;
- make national energy plans, before the year 2000, for sustainable agri-

culture for countries that do not have such plans;

- give special attention, in national plans, to the use of biomass as well as to increasing energy efficiency in households and agro-industries.

Then it just remains to hope that the CSD in April will support the recommendations, and that they will be followed by countries as well as by organizations. This could finally pave the way for international cooperation and for institutions dedicated to sustainable energy development.

*Source: C. Constantinou, Energy and Natural Resources Branch, Dept. for Policy Coordination and Sustainable Development, UN, New York, N.Y. 10017, USA, fax-1-212-963 1795.*

## World Bank Solar Initiative

**The World Bank has begun a solar initiative, building on work already in progress under bilateral funding through the ESMAP (World Bank's Energy Sector Management Program) and similar other projects in the Bank.**

The initiative has two objectives.

First, it will take a proactive role in project development, strengthening the World Bank's own involvement in and commitment to renewable energy (RE) projects. It will seek to include in World Bank lending large-scale grid-connected power and industrial applications based on RE. At the same time, the Bank will not ignore opportunities to expand investments in small-scale, rural applications.

Second, the initiative seeks to play a coordinating, strategic, and catalytic role in promoting accelerated research, development, and demonstration of commercial and near-commercial RE ideas by building a network of partnerships with other international organizations as well as with countries.

**Opportunities are already being investigated in:**

- ongoing RE work in China to identify a suitable package of investment that can be proposed for Bank lending.
- preparation for an investment in Mexico to establish a hybrid solar thermal/gas power plant of a capacity of possibly 2-300 MW.
- a biomass-gasification power plant and other projects in Brazil. Small-scale applications are also an important objective of the project development efforts. The solar initiative will attempt to accelerate identification of projects and their development as packages or as components of World Bank projects, not only in the energy sector, but also in agriculture, health, education, and rural development.

**The initiative will further include:**

- internal workshops to raise the awareness of World Bank staff of RE;
- regional seminars directed at developing countries' public and pri-

vate sector groups interested in commercializing RE.

- a series of reports with technical updates, guidance on financial and institutional arrangements, and proposals for strategic actions to move development of RE to full commercialization;
- cooperation with research institutions and others to make current international research, development, and dissemination programs more responsive to the needs of developing countries.

*From the article "The World Bank Solar Initiative" by Achilles G. Adamantiades and Ernesto Terrado, Power Development, Efficiency, and Household Fuels Division of the Industry and Energy Department of the World Bank, 1818 H Street N.W., Washington DC 20433, USA.*

*The article was published in The ESMAP Connection, Dec.'94. In the coming issues of Sustainable Energy News we hope to bring more information on this.*

# World News

## Climate Negotiations and Berlin Summit, 1995

The last INC (International Negotiating Committee) meeting in February did not give much hope for a successful Climate Convention Conference "Climate Summit" in Berlin, March 28-April 7, 1995.

The major topic of the negotiations is how to react on the generally acknowledged fact that the commitments of the Climate Convention are insufficient to avoid harmful climate change.

The group of small island states, AOSIS, had submitted a protocol with proposals for 20% reductions in industrialized countries' CO<sub>2</sub> emissions by the year 2005. OPEC, the oil exporting countries, and China were openly against new commitments for industrialized countries. A number of industrialized countries, including the USA, Canada, Australia, and New Zealand, were mostly inactive in the efforts to agree on new commitments. This left the countries of the European Union (EU) plus Switzerland, India, Argentina, and a few others as the most progressive larger countries. The EU and Japan are in favour of starting a two-year negotiation period for a protocol on CO<sub>2</sub> reductions in industrialized countries, as the main result of the Climate Summit. Even the start of negotiations on a protocol for reduction of CO<sub>2</sub>-emissions is not certain after this last INC meeting.

In Berlin, The Climate Action Network plans an NGO-conference, "Goals for Berlin", at which the INforSE campaign will be presented as well. Youth groups plan a Greenhouse Gathering in Berlin, April 1-8. On April 3, the main topic will be energy,



Power plants and traffic (not bicycles) are main causes of climate change

and during the gathering, the renewable energy exhibition (see back page) will be shown in Berlin. Further information: see event list.

## Beijing Conference on Women, Women & Energy

INforSE, COSENI (The Consortium of Sustainable Energy Networks International) and other NGOs will form the renewable energy component of a major event at the NGO Forum of the UN Fourth World Conference on Women, Beijing, China, September 1995. The Once and Future Pavilion, will bring together women's groups, technology institutes, and development organizations.

INforSE members are encouraged to participate in this event. The organizers welcome case studies, position papers, educational materials (including videos or pamphlets), and equipment displaying women's experiences with different alternative energy sources.

*INforSE activities coordinated by: Lalita Balakrishnan, INforSE-India, c/o All India Women's Conference, Sarojini House, 6 Bhagwandas Road, New Delhi - 110001, India. Ph: +91-11-389680/389314. Info: INforSE.*

*COSENI coordinator: Linda Helm Krapf, PO Box 677, Long Valley, New Jersey 07853, USA. Ph.: +1-908-876-9698, fax: +1-908-876-5030. E-mail: krapf@eden.rutgers.edu.*

## International Meeting on Renewable Energy

On January 9-12, 1995, the West African Coordinator of INforSE took part in an international meeting on new and renewable sources of energy in Denver, Colorado, USA. The meeting was organized by the National Renewable Energy Laboratory (NREL in Denver) in cooperation with the NGO Africare. From INforSE West Africa, information was presented about ongoing projects in West Africa and about the activities conducted in the framework of INforSE. This meeting opens new opportunities for cooperation with NREL.

*Masse Lo, INforSE West Africa/ENDA (translated by the editors)*

## Worldwide Solar Fund: Loan to...Experimentation

*By Masse Lo, ENDA-Energi/INforSE Western Africa*

The idea of a Worldwide Solar Fund (WSF, a proposal for the UNESCO Solar Summit, Paris, 1996) follows international recognition of the necessity of using renewable energy for sustainable development. The WSF proposal describes a financial mechanism that should help to bring together grants and loans for developing countries for financing of renewable energy projects. The fight against desertification should be considered as a main priority of the WSF.

It must be stated that the presentation of the document that describes the WSF is quite disappointing. The document simply repeats the ideas of the GEF (Global Environmental Facility). Only those projects are eligible for WSF that will have an impact on one of the four major problems defined by the GEF. The objective of favouring a rural development is only given secondary emphasis. The document only mentions renewable energy plants as experimental. Also the important south-south cooperation on renewable energy technologies is not addressed appropriately.

In Senegal, we have tried to propose modifications in the documents for the conference in Harare, Zimbabwe (March 1995, regional preparation conference for the UNESCO Solar Summit). We call for other organizations to do the same in their respective countries. The Secretariat of the INforSE network should try to start a large international movement to influence the process of establishing the WSF. A first step should be to forward the ideas, which we will develop, is an electronic conference. The ideal would be to organise lobbying before and during the Harare conference (and the other coming regional Solar Summit conferences in other developing regions).

*Translated and shortened by the editors, we hope to bring more information and views on the Solar Summit proposals in the coming issues.*

# Regional News - Africa

## Renewable Energy and the Combat Against Desertification

By Mase Lo, *INforSE Western Africa*  
/ ENDA - Energie

In the middle of the last decade, the ecosystems of the dry zones of Africa were especially disturbed. The effects of the drought and desertification were a quick degradation of the resources of biomass and water. Among the problems for the populations in the most



*Fuelwood consumption can increase desertification. Niger.*

affected areas are provision of water and energy. These are key problems to solve in the strategy to combat desertification. The international convention to combat desertification includes, with good reasons, renewable energy as an important alternative in the recommendations for national programmes to combat desertification. For cooking needs, the African population depends primarily on biomass (firewood and plant residues), the consumption of which contributes to the acceleration of desertification. The equipment traditionally used to transform and use biomass (charcoal stacks and stoves) is not very efficient, and provides low yields. For rational use of firewood, dissemination programmes of improved stoves have been started in several countries as a major element of energy and resource preservation policies.

Some evaluations of these programs have shown weak results, especially in the rural areas, where firewood is not an important commercial good. On the other hand, the conditions for dissemination are more favourable in urban areas, where combustible materials (wood and charcoal) have a

commercial value. To secure a reduction in the consumption of firewood, the dissemination of improved stoves should be complemented by usage of charcoal production technologies with higher performance.

To provide water, the most used technologies to extract the water (human- or animal-driven pumping) do not secure an appropriate service level. The dry zones have an important potential for solar energy and, in certain locations, good for wind energy. The widespread distribution of the rural communities and the recent development of the renewable energy technologies are arguments for their decentralized use. The policies to provide water should therefore give high priority to these energy sources.

Water pumping with energy from photovoltaic cells is specially adapted to dry and sunny regions. It is used, for example, in the programme "Mali aqua Viva", the regional solar programme of CILSS, etc. Wind energy can also contribute significantly to satisfy the water needs when the local conditions are favourable. Production of electricity from wind turbines has the same potential for water pumping as have photovoltaic cells.

In spite of the advantages of the renewable energy sources their use are limited by some major barriers: their relatively high costs and, in many countries, the absence of an operational framework for development, which must take into account the social, economical, and political situations.

In terms of massive support for renewable energy sources in the dry regions to combat desertification, it is necessary to rethink the energy policy in all countries affected by desertification. *(translated and shortened by the editors)*

## Renewable Energy Technologies - Research for Dissemination and Implementation

by Stephen Karakezi and Patience Turyareeba, *AFREPEN/FWD, Nairobi, Kenya*

The Renewable Energy Technologies (RETs) Research for Dissemination

and Implementation Project, started in January 1994, is an initiative of the Stockholm Environment Institute (SEI), the African Energy Policy Research Network (AFREPEN), and the Foundation for Woodstove Dissemination (FWD).

Through the examination of non-technological barriers, the project aims at gaining a better understanding of the factors determining the success or failure of the RET's dissemination projects. Renewable energy in the form of biomass continues to account for the bulk of energy used in most Sub-Saharan African countries, representing about 73% of total energy.

Sub-Saharan Africa has substantial renewable energy resources, which include solar, hydro, and wind. Renewable energy will continue to meet household demand and, if properly harnessed, will play an important role in economic as well as industrial development.

Suitable renewable energy technologies have been developed and are mature enough to be applied on the African continent. Despite the recognition that renewables are an important source of energy for Sub-Saharan Africa, RETs have not attracted the requisite level of investment, nor has the desired level of dissemination been realized.

Although the national and international resources allocated to developing, adapting, and disseminating of RETs in the last two decades were substantive, the total amount is still insignificant (6%) when it is compared to resources invested in fossil fuels.

Although there has been little success, isolated cases in which substantial numbers of RETs were disseminated have been recorded in some Eastern and Southern African countries. For instance, typical examples include dissemination of the Kenyan ceramic jiko (KCJ), an improved charcoal stove in Kenya; solar water heaters (SWH) in Botswana; photovoltaics (PVs) in Kenya, Botswana, and Zimbabwe; ethanol in Zimbabwe; and biogas in Burundi.

*Continues next page.*

(continued from p. 7)

### Dissemination of RETs in Eastern and Southern Africa

Limited success of RET dissemination projects has been attributed to a combination of factors which include:

- high initial investment costs coupled with absence of supporting financial instruments,
- poor general information level,
- excessive emphasis on the household sector,
- inadequate development of local capacity.

These factors and many more have yet to be evaluated comprehensively. This analysis will enable key RET ac-

Country	RET No.	Disseminated
Kenya	KJC	over 500,000
Kenya	PVs	*over 8,000
Botswana	SWH	8,500
Zimbabwe	Ethanol	**40,000 liters

+ total number of modules sold  
\*\* annual production of ethanol

tors such as policy makers, entrepreneurs, NGOs, and aid agencies to respond effectively to the pressing need for effective RET dissemination.

To address the above issues, the Renewable Energy Technologies Research for Dissemination and Im-

plementation Project will:

- document the status of RET dissemination,
- compile a regional directory of experts and organizations involved in RET dissemination,
- conduct case studies on RET dissemination in six countries, and,
- explore non-technological factors that affect the dissemination of RETs in Eastern and Southern Africa.

More information on the project is available from Semida Silveira at SEI in Stockholm or from Patience Turryareeba at AFREPEN/FWD for address, see list of coordinators.

## Regional News - Europe

### European Sustainable Energy Seminar, June 19-24, 1995

In cooperation with Climate Network Europe and the Greenway Energy Group, INforSE - Europe invites you to the European Sustainable Energy Seminar, June 19-24, 1995 in Budmerice, Slovakia.

The seminar will be this year's event for NGOs working for sustainable energy and international cooperation in Europe.

The seminar will include:

- National actions in Europe to reduce climate change
- Energy & the Environmental Ministers' meeting in Sofia.
- East-West cooperation in Europe
- European Union and sustainable energy,
- Sustainable energy strategies: official and NGO proposals,
- Estimating renewable energy potentials, based on data from participants,
- Visit to renewable energy sites in Slovakia and Austria,
- Coming activities of the NGO energy networks,
- Fundraising for energy NGO activities.

The seminar will be a combination of presentations, workshops, and a one-day excursion. During the seminar, a European estimate of renewable energy potentials, based on the partici-

pants' national data, will be elaborated.

The price of the seminar is tentatively set at 4,000 Skc, approximately 150 US\$, including food and accommodation. Support for participation and travel will be given for Central and Eastern European participants as far as funding is available.

Venue: Slovak writers' manor in Budmerice, 40 km east of Bratislava, Slovakia.

Please register as soon as possible on the form below.

### INforSE - Europe Meeting, June 24, 1995

This year's European INforSE meeting will be held in connection with the seminar in Budmerice, Slovakia. The meeting will discuss the coming activities of INforSE - Europe, including campaigns, an exhibition, new projects, and worldwide activities in cooperation with other INforSE regions. Core-members of INforSE - Europe can vote at the meeting, others are welcome as observers.

Further information, agenda and action plan: INforSE - Europe, Skovvangsvej 191, DK 8200 Århus N

Registration information for European Sustainable Energy Seminar, June 19-24, 1995

Name: .....

Organization: .....

Address: .....

Country: .....

ph/fax: .....

..... and further information

..... I wish to register for the seminar

..... I need travel support of .....

(Central and Eastern European participants only)

..... I will also participate in the INforSE - Europe meeting, June 24 (please tick)

Please return to INforSE - Europe c/o SZÖPK-FAE, Gorkého 6, 81101 Bratislava, Slovakia, ph+42-7-364665, fax+42-7-313968



*European Energy Seminar is this year in Slovakia, June 19-24 1995. Picture from the last year's seminar.*

## Nuclear Power or Alternatives in Slovakia

One of the hottest energy issues this year is whether the Slovakian nuclear power plant Mochovce, which is of Russian design, shall be finished with French/German technology and with funding from the EBRD (European Bank for Reconstruction and Development) as well as from the EU. Slovakia has asked for loans for this and transferred the ownership of Mochovce to a joint venture of Electricité de France (EdF) and the Slovak Power Board (SEP), in which EdF has 51% of the shares.

EBRD made an environmental assessment and have allowed a period for public comment. All major environmental groups in Europe have opposed the funding, more than 1 million protest signatures have been collected, and the countries of Austria, Denmark, Norway, and Luxembourg have decided to vote against the loan in the EBRD Board. Further, Austria has offered 500 mill. Austrian Schillings for alternative energy solutions, if Mochovce is given up and plans to close the existing Slovakian nuclear power plant Bohunice are adopted in Slovakia.

Unfortunately; France and the EBRD director J. Larosiere are lobbying hard in favour of the project and many larger countries are likely to follow their lead.

Some major points of the NGO's critiques are:

- Mochovce is not the least-cost option for electricity production in Slovakia;
- The proposal for finishing Mochovce will not meet minimal

safety standards for atomic power plants in the USA, France, Germany, or Finland;

- The plant will not be able to withstand an earthquake similar to the largest one recorded in the area;
- There is no secondary containment of the reactor;
- The design is a problematic mix of Eastern and Western technology

The EBRD Board will decide upon the loan to the Mochovce plant in April (probably).

*More information on the campaign against Mochovce: Global 2000, Flur-schützstr.13, 1129 Vienna, Austria, ph: +43-1-812 5730-0, fax: +43-1-812 5728.*

## Renewable Energy Regulation in Spain and Belgium

New regulations have been passed in Spain and Belgium for independent electricity producers that will make electricity for the public grids based on renewable energy.

The Spanish regulation, which also covers cogeneration, guarantees a 20% profitability level for cogenerators, but, in spite of this, the Association of Electricity Auto-generators in Spain fears that the new decree will reduce investments. Since 1991, there have been installed more than 1,000 MW of independent electric production capacity in Spain.

In Belgium, the new law is expected to give a boost to independent power producers, especially small-scale hydro power.

*Sources: Energy...in Demand, Feb.95 and APERE.*

## Atomic Power Construction Stopped in Spain

The construction of five atomic power reactors, where construction had been started, has been permanently stopped by the Spanish government. For AEDENAT and other opponents, one of the major arguments was the superior job-creation potential of an energy policy without atomic power.

*Source: Klimaforum'95 Bulletin/ AEDENAT.*

## European Union Energy Market & Green Paper

The EU Commission published in January a green paper "For a European Energy Policy" to serve as a discussion paper on a new energy policy. The paper states that the energy policy now focuses on the completion of the internal market in energy and on the EU's foreign policy. The completion of the internal energy market concentrates on four energy goals; protection of public service, security of supply, environmental protection, and energy efficiency. This includes maintenance of a minimal level of coal production; acceptance of the nuclear options, including upgrading nuclear stations in Eastern Europe; research and development in renewable energy; adjustment of indirect taxation; and removal of operational constraints on oil-fired electricity production. The green paper will be discussed among the EU energy ministers, probably on June 1. So it is time for NGOs to raise their voices about the paper now.

The green paper will be followed by a white paper in the fall of this year and probably by a proposal to include energy in the new EU treaty that will be discussed at the EU treaty revision conference in 1996.

The proposed directive of a common electricity market is still debated among EU countries. France have proposed that each country can establish a system with a "single buyer" that is responsible for all electricity trade. Some countries are against this and until a compromise is found, no progress will be made.

*Sources: Energy...in Demand Feb.95 and others*

# Regional News - Asia

## Taking a Proactive Stance in Developing Markets for Renewable Energy

Compiled by Benjamin Gertes, INforSE Eastern Asia & Pacific



Typical rice-hull pile in tropical rice mills in the Asia-Pacific region. Photo: Benjamin Gertes

The global market for renewable energy is stirring the interest of private-sector companies. In the Philippines and the ASEAN countries, renewable energy industry is on the upswing. Technology developments have grown considerably and have reached the commercialization stage. Government support through policies, plans, and programs is motivating the renewable energy industry to explore new ways of expanding local markets.

Converting these markets to actual installations and aggregate sales remains an elusive goal, mostly because of institutional and commercial constraints. Government action in this instance should be proactive in approach as well as decentralized and integrated in strategy.

For instance, the needs of special markets in which the cost of electricity is exceptionally high can be targeted. Rural electrification of many coastal barrios, interior and upland communities, and isolated islands can now be accomplished using market-ready solar home systems (SHS). The affordability and practicality of SHS is well proven.

The burgeoning demand of rural industries for energy and power can be supplied by technologies that use biomass resources such as rice hulls, bagasse, coco, and wood residues. There are feasible power projects that will harness wind and micro-hydro resources.

A decentralized and integrated strategy for developing NRSE (New and Renewable Sources of Energy) projects should also be considered. The needs of individual communities as well as grassroots support and interest play important roles in efforts to commercialise NRSE projects. It is encouraging to note that there are many organizational infrastructures like associations, cooperatives, and non-governmental organizations (NGOs) that have shown a capacity to manage community-development projects.

The government must work to help link private companies with these organizational structures so that various communities and industries can experience the techno-economic gains from using renewable energy.

(from *Renewable Energy News - Philippines*).

### The Renewable Energy Program of the Philippines

Compiled by Benjamin Gertes, INforSE Eastern Asia & Pacific

The goal of the REPP is to install at least 50 MW of power-generating capacity from renewable energy sources by the end of 1996. It has the following objectives:

- To promote the dissemination of technically and financially viable power-generating technologies that make use of, renewable energy

sources such as solar radiation, wind, animal wastes, agro-waste, forest residues, and hydro-power.

- To provide an accommodating market environment that is attractive to local/foreign investors by making available information, incentives, and funding support relative to the commercialization, marketing, and utilization of unconventional and, renewable energy technologies.
- To provide funding support in terms affordable to target beneficiaries.
- To assist in the national government's power development program.

### Nature and Funding of the Loan Program

This program shall be known as the Department of Energy Renewable Energy Power Program (DOE REPP). An amount of 750 million pesos (US\$ 30 million) shall be provided from the Government Service Insurance System (GSIS) and from the Social Security System (SSS), which will contribute, respectively, US\$ 10 million and US\$ 20 million. The Development Bank of the Philippines (DBP), the Land Bank of the Philippines (LBP), and the Philippine National Bank (PNB) shall act as the conduit banks for the purpose.

The Department of Energy, through the National Power Corporation (NPC) and the National Electrification Administration (NEA), shall provide technical and marketing support to the project proponents and shall guarantee the purchase of the power generated from their plants if the proponents wish to sell their power.

### Features of the Program

The loan shall not exceed 50% of the total project cost.

The loan shall not exceed a maximum term of 20 years, including a grace period of not more than 5 years.

Loans shall carry concessional interest rates which shall be determined by the lending institution.

## Eligible Projects

Any power plant project that utilizes the following renewable sources of energy: Biomass, including forest residues, logging waste, animal waste, agricultural residues; mini-hydro; solar; and wind.

The aggregate power-generating capacity shall be within the range from 200 KW to 25 MW.

## Project Criteria (partial list):

- The operation of the proposed power project shall promote public interest.
- The technologies introduced must have been successfully piloted in a pre-commercialization phase.
- The proposed project shall be supported by a feasibility study providing indications of the technical, economic, financial, social, administrative viability of the project.
- A private power proponent may use the main transmission line and service facilities free of charge so long as the electrical energy will be sold to the National Power Corporation and so long as transmission capacity is available. If the power is intended for a private utility, the National Power Corporation will charge the proponent wheeling charges, to be determined, for the use of the grid.

The National Power Corporation and the National Electrification Administration shall assist the proponent in the negotiating with the appropriate utilities on the payment for and ownership of transmission lines as well as service instruments.

## Narmada Update

The largest hydro power scheme in India, the Sardar Sarovar Dam at the Narmada river, is facing increased public resistance. The debate now concerns the height of the dam and the speed of construction. How much higher than the current 80 m shall the dam be, and how much lower than the planned 140 m? Following a hunger strike of 11 people in December 1994, NBA, the anti-Sardar-Sarovar Movement has succeeded in starting a court case at the Supreme Court of India, with a charge filed against the project. At the first sessions of the Court in January and February, the Court raised

several critical questions about the project, and made public as well as internal evaluations of the project.

The increased influence of NBA is partly due to the desperate situation of many of the people displaced by the project. During the last half of 1994, several people died because of the bad conditions in the resettlements.

Adding its voice to that of the NBA, the State of Madhya Pradesh has raised a number of critical points against the project. This is the State in which the 150,000 people live who will be displaced by the project. The State Government raises the objection that the resettlements fall short of the promised standard, and that they will get worse as the number of people being moved increases. It proposes that the dam should not be built as high as planned and that the dam should not be made any higher than the current 80 m before the promised resettlement standard is reached for the people already displaced by the project. The State Government of Gujarat also proposes slow down of construction.

The main supporter of a rapid continuation of the project is now the Central Government of India, as well as the State Governments of Maharashtra and Rajasthan.

The construction of the dam is suspended presently (February 95) because of the Madhya Pradesh Government's protests. In 1994, the monsoon did serious damage to the earth cover of the turbines and to a basin at the bottom of the dam. These incidents showing some weaknesses of the design will probably delay the construction, and they will increase the project costs.

*Information: International Rivers Network, Berkeley, California, USA, ph-1-510-848 1155, email: patrickirrn@igc.apc.org & International Service Society, Bombay, India, email: poddar.seva@access.net.in.*

## Everybody's Solar Dryer

*By A. Jagadeesh, India.*

Vegetables, fruits, fish etc. drying in straw or bamboo baskets are a common sight in India. However, the method suffers from many disadvantages, like vulnerability to dust, insects, and birds. To overcome these problems, a simple and inexpensive solar dryer has been designed by the author.



*A: new designs, B: traditional method. Photo by A. Jagadeesh.*

The dryer is made in two sizes. The larger model consists of a basket made of bamboo, one meter long, 60 cm wide and 15 cm deep. The inside of the basket is covered with a black polyethylene film which acts as solar absorber. The dryer is covered with a transparent polyethylene sheet and has holes on the sides for easy passage of air, which avoids condensation of water vapour inside. The larger dryer can be made for 150 Rupees in Southern India, while the smaller can be made for 50 Rupees.

Compared with normal drying, the advantages of the new dryer are:

- it dries twice as fast,
- the contents are kept clean,
- the contents are protected from rain, which often appears quite suddenly,
- the dryer is easy to make locally. (shortened by the editors)

*Further information: A. Jagadeesh, Shri AMM Murugappa Chettiar Research Centre, Tharamani, Madras - 600 113, India, ph: +91-44-235 0369, fax: +91-44-510 378, telex: MCRC CARE 041-7132 CUMI IN.*

## Halifax Eco-city

In Adelaide, Australia, the community group of Urban Ecology Australia plans to develop 2.4 hectares of the inner city into an eco-city with room for 1,000 inhabitants, shops, community centres, parks, and gardens. The group has taken an option on the land, located on Halifax Street, for one year. The land is now cleared from its former use. The project is currently in a stage of planning and searching for investment funding. The estimated investment needed is 60 million Aus\$.  
*Source: Soft Technology, 247 Flinders Lane, Melbourne, VIC 3000, Australia. Email: claire@suburbia.apana.org.au*

# Rethinking Development Assistance for Renewable Electricity

By Keith Kozloff, WRI, U.S.A.

The developing world's demand for electricity is expected to double in the next 15 years. As a concrete example of what this surge will mean, consider China, where officials talk about increasing power plant capacity by 15,000 to 17,000 megawatts each year for more than a decade. Unless there is a massive effort to make renewable energy economically attractive in developing countries, about 70 percent of the electric capacity they add will come from fossil fuels.

Besides curbing environmental damages, shifting toward renewables promises economic boons. For the 65 countries that import at least half their commercial energy, two factors are most prominent: stemming their hard currency outlays and avoiding the price risks that arise from fuel imports. Renewably generated electricity performs well on these counts. These are some of the conclusions of a new report from World Resources Institute: *Rethinking Development Assistance for Renewable Electricity*.

## Only a Foothold

When renewably-generated electricity is so promising, why hasn't it gained more of a foothold in developing countries? One reason is that renewables have gotten short shrift in development assistance — only 2.5 percent of the funds earmarked for energy over the past 13 years. Another is that what little money has gone to renewables



Solar electricity plant at Tuvalu.  
Photo: Pene Lefale

has failed to stimulate lasting markets for them. In the "parachute" approach of the 1970s and early 1980s, donors funded one-shot projects and then moved on, neglecting follow-up. By the mid-1980s, renewables' prospects looked dim, as disillusionment set in among donors and world oil prices plummeted.

## New Interest - Lessons of the Past

Now that environmental concerns are rising — along with the recognition that billions of people will not be hooked up to a conventional power grid anytime soon — the development assistance community is once again interested in renewables. How can past lessons be applied to make future funding more effective? What kind of financial and technical assistance would lower renewables' costs and demonstrate their true worth as sustainable energy options?

It is hard to generalize when renewable technologies and developing countries' needs are both so diverse, but assistance agencies can spur lasting markets for renewably generated electric power if they learn from experience. Paramount among the lessons to be learned are the following:

1. Development assistance that promotes a comprehensive commercial development strategy is more likely than "one-shot" demonstration projects to result in technology diffusion. To encourage widespread use of a particular renewable technology, assistance agencies must address factors that sap its market potential. Agencies should do more to build up a society's "software" — its store of technical and managerial skills. Of the official development assistance spent on energy projects from 1979 to 1991, less than 10 percent was invested in developing these skills.

2. Donor countries often tie aid to renewable technologies in which they have a comparative advantage, but unless these technologies create local jobs, sustainable markets are unlikely to develop.

3. Conventional energy options look deceptively good because fuel prices do not fully reflect the differing environmental costs of "various" fuels and because conventional electricity is often subsidized. On average, developing-country consumers get electricity at a rate 30 percent lower than those in their industrialized counterparts — even though it usually costs more to provide.

If development assistance is spent in countries with heavy subsidies for conventional electricity, the investment will be wasted because renewables won't be able to compete.

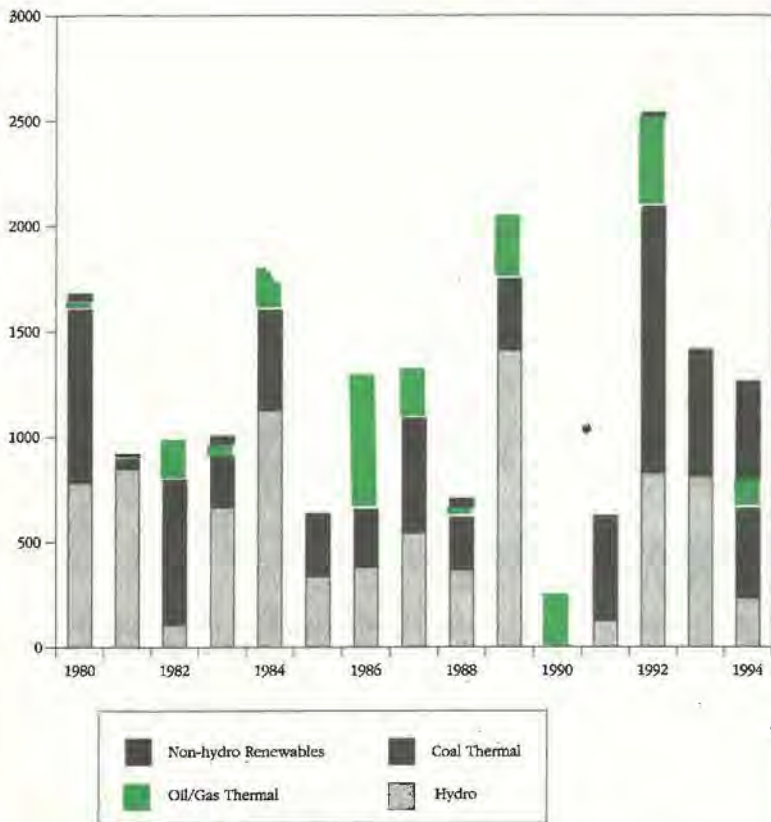
Of course, what the development assistance community does is by no means the whole story: its leverage is waning as its budgets shrink and needs in other sectors grow. Multilateral loans will be dwarfed by the private capital flowing into developing-country power sectors — capital that renewables must attract if they are to gain significant market share.

Ultimately, renewable energy's prospects will hinge on the actions of the private sector and developing-country governments — which is why development assistance should do a better job of enhancing demand for renewables now.

## Recommendations

To see how development assistance affects renewables, WRI's research team examined 11 projects using photovoltaics, geothermal power, wind, small hydropower, or biomass in Brazil, the Dominican Republic, India, Kenya, Mauritius, Morocco, Nepal, the Philippines, and Tibet. By assessing each project's success in creating an enduring market for a particular technology, the team gained insights that can help development assistance agencies target their funds effectively. Among its recommendations, the following stand out:

Donors, lenders, the private sector, and developing-country utilities should collaborate on international commercialization strategies. If such collaboration involved pooling market demand across countries, it would



Other than in 1993, virtually all non-hydro renewables financing has been for geothermal projects.  
Sources: World Bank, 1989; World Bank Annual Reports, 1994b, 1993b, 1992b, 1991a; Hemphill, 1993.

### World Bank Financing for Power Generation Projects (U.S. \$Millions)

lower the risks of scaling up manufacturing capacity and investing in technical innovations.

Development assistance agencies should stress local involvement. Local entrepreneurs should be given the

chance to help adapt technologies and meet service needs, activities that not only produce jobs, but also raise the odds of technology diffusion.

International lenders should "mainstream" cost-competitive re-

newable electricity options. Multilateral development banks need reforms to ensure that their loan evaluation criteria, management reward structures, and analytical as well as planning tools are not biased toward conventional power generation technologies and against renewables.

Assistance should be aimed at countries in which renewables can compete fairly. A level playing field may require not just reforming electricity pricing, but also revamping planning processes so that they fully value the benefits that renewables offer to a utility system.

Donors should emphasize building sustainable markets. An effective development assistance program selects a technology commercialization strategy based on the human resources available in a particular country, rather than simply seeking to expand its own market share in the short term.

For the time being, development agencies still exert considerable leverage over which technologies will meet growing needs for electricity. By making the right investment decisions now, they can enhance humanity's prospects for a long time to come.

*Dr. Kozloff, senior associate in the Climate, Energy, and Pollution program at the World Resources Institute in Washington, D.C., is the lead author of Rethinking Development Assistance for Renewable Electricity (see publications).*

## Private Power at Jamaica

An innovative financial arrangement involving the Jamaican government, the Interamerican Development Bank (IDB), and the World Bank will enable a private company to build a 60-MW diesel power plant in Kingston, Jamaica.

The IDB and private banks are giving 120 million US\$ of guarantees for the private company during the 5-year construction phase. The guarantees enable the company to issue bonds with a lower interest rate than it could without them. The commitment by the IDB is only for 40 million US\$, which leaves it with more capital for other projects than

a normal loan arrangements would. After 5 years, the company can get loans from the Jamaican government. This will be possible due to loans from IDB and the World Bank.

The private company is made up of a consortium of US companies, and the power plant will only use fossil fuel.

*Source: The IDB (newsletter of IDB).*

## World Wind Success

Preliminary information points at 1994 as a new record year for implementation of windpower. The worldwide installed capacity of large windturbines was around 700 MW, 45% of this was produced in Denmark. Germany, USA, Holland and India as well as other countries also have regular production of larger windturbines. The main users of larger windturbines in 1994 were Germany, India, United Kingdom, USA, Holland, Denmark, Ireland, China and Sweden. In Denmark, the installation rate grew again in 1994, 52 MW were installed.

*Sources: Vindmølleindustrien, Denmark and others.*

# Regional News - North America

## TVA

The Tennessee Valley Authority's (TVA) plans to halt construction on three nuclear reactors will still allow one dangerous reactor to come on line, and could potentially waste billions of ratepayer and taxpayer dollars on natural gas turbines instead of renewable energy supplies.

The TVA operates one of the largest electric systems in the US., serving nearly 8 million people in seven southeastern states. It began its nuclear construction program in September 1966, with 17 plants originally planned. Long after other utilities had dropped construction plans, the TVA, which is owned by the Federal Government and protected to some degree from competitive pressures, continued to press ahead. Three nuclear plants are currently in operation, and they will continue to operate. A fourth plant, Watt Bar Unit 1, is planned to be brought on line next year despite repeated safety violations and Nuclear Regulatory Commission (NRC) reprimands for shoddy workmanship at the \$6-billion-plus facility.

## Competition debate

Despite all the recent talk in the U.S. about the coming of a new world of a "restructured" and "competitive" electric utility industry, many people are missing the fact that the utilities are in the midst of remarkable consolidation. Utilities are merging among themselves and purchasing many of the most notable independent power producers. Seven large mergers have been proposed or consummated in the past five years. Utilities are also aggressively seeking complete dismantling of a key federal law, the Public Utility Holding Company Act PUHCA, that curbs the inevitable growth and excesses of electric utility monopolies. In

*Part of Environmental Action Staff, from left to right Jim Pierce, Mutsumi Mizuno, Margaret Morgan-Hubbard, Eric Berolzheimer, Nancy Hirsh. Environmental Action is INforSE coordinator and Mutsumi Mizuno has compiled the news on this page.*

addition to posing a threat to integrated resource planning (IRP) and sustainable energy solutions, the current power-players of the debate on competition care mostly about cheaper electricity rates for large industrial customers and very little about "captive" residential customers who may not be given the opportunity to benefit from retail competition. Environmental Action is working to promote competition in a manner that protects ratepayers and the environment.

## U.S. Delegation to the Social Summit Prep Comm

As a result of lobbying by environmental and other groups, the U.S. delegation to the Third Prep Comm (Preparation Committee Meeting) of the UN Social Summit supported to mention Agenda 21 and other environmental protections in the official document.

## SunDay '95

Sun Day 1995 will be the second annual national celebration of renewable energy as well as of energy conservation and efficiency in the USA. It will be officially celebrated on Sunday, April 23, 1995. Where possible and appropriate, Sun Day 1995 activities will be coordinated with other sustainable energy programs being planned for the 25th anniversary of Earth Day (April 22).

Participants will be sponsoring events, not only on April 23, but also throughout the spring and summer months to October 1995, which is the national energy awareness month in the USA.

Sun Day 1995 has three primary objectives:

- to educate members of the general public, media, and decision-makers about the status, potential, and benefits of sustainable energy technologies;
- to showcase the programs and technologies being sponsored by the participating NGOs, businesses, utilities, and governmental organizations;
- to encourage new public and private initiatives to expand further the use of sustainable energy technologies.

Sun Day 1995 will feature one-day educational activities such as fairs, tours, seminars, news conferences, and exhibits as well as activities that have a longer-term impact, such as announcing changes in governmental policies and building codes, initiation of energy policy reviews, and incorporation of energy materials into school curricula.

Sun Day 1995 is designed to appeal to a very diverse mix of interest groups. In 1994, Sun Day included participation of more than 400 organizations, including most of the national renewable energy trade associations, national environmental organizations, national consumer groups, electric utility trade associations, and the U.S. Department of Energy.

*Further information: SunDay - A Campaign for a Sustainable Energy Future, 315 Circle Avenue #2, Takoma Park, Maryland 20912-4836, USA ph-1-301-270 2258, fax-1-301-891 2866.*



# Garbage - Recycling - Hygiene

Last fall's plague epidemic in India brought into focus the question of waste management and recycling.

*By Lars Yde, Folkecenter for Renewable Energy, Denmark*

Recycling is good. Bad hygiene should be avoided. Nevertheless, it seems to be the condition for the incredibly effective recycling "business" involving armies of hundreds of thousands of rag pickers in the cities of India.

All kinds of garbage lie about in the streets crowded together in small and big heaps. The rag pickers, who are the poorest and who cannot find other ways of employment, are removing everything that can be recycled. Typically metal, glass, plastic and paper. Only the organic materials is left, and it rotten quickly in the heat. Especially in the rainy season.



*Photo above:  
Rag picker carrying recyclable items  
by bicycle: The private recycling business.*

*Photo to the left:  
Garbage heap in a street of New Delhi.*

*Photos by Lars Yde.*



It takes time to sort the garbage in this unorganized way. It is unknown whether this is the reason why the heaps are removed only after 2 - 4 weeks. But it is certain that if it was done every day, which would be optimum seen from the hygienic point of view, it would cause a destruction of the livelihood for 600,000 human beings in Calcutta alone.

## **Various models of a solution of the problem can be imagined**

If the poorest were paid a kind of social benefit they did not have to live like

rats by the garbage heaps and thereby they were not forced to expose themselves to the enormous danger of infection that the garbage makes.

Another possibility would be to give the organic waste a certain value. Make it an article like the iron, paper, glass, and plastic.

If the municipality paid an amount per kilo of organic waste the waste would be removed from the streets immediately and the danger of infection would decrease.

In reality, the garbage is not a waste product but a resource which can be recycled for compost or biogas. LPG (liquefied petroleum gas) is usually

used in the cities for cooking. So there is a market for the gas already.

The biogas has, however, the disadvantage that it cannot be made liquid by compressing. This means that a biogas cylinder will contain much less energy than a corresponding LPG-cylinder. Therefore, the biogas ought to be distributed via a pipe line system or be converted into electricity in a co-generation unit.

*Lars Yde is project engineer on the Folkecenter for Renewable Energy, and technical editor of this newsletter.*

# Danish Support for Windturbines in Cuba

The technical editor of Sustainable Energy News, Lars Yde, visited Cuba recently.

On his return, he gave the following interview to Mors Folkeblads Ugeavis, a local Danish newspaper:

**- What is your view of the third-world countries like Cuba?**

- High energy prices, supply problems, trade sanctions, and political boycotts always hit third-world countries the hardest. Due to a vulnerable and weak economy and an outdated production infrastructure, third-world countries have few feasible options that will lead to a favourable standard of living for their people.

Nevertheless, the possibilities exist - from Denmark, among others, and more specifically, from the Folkecenter for Renewable Energy.

**- What can the Folkecenter for Renewable Energy do?**

- Recently a Folkecenter delegation visited Cuba to assist in investigating the possibilities of establishing several small windmills to produce electricity for the boarding schools in Cuba. Each boarding school has about

500 pupils ranging in age from 15 to 20 years old.

The Folkecenter is one of the members of the international consortium GREECA - Global Renewable Energy and Ecology Centres for Action. Folkecenter represents Denmark in the consortium, which also includes centres located in Cuba, Tanzania, India, and China.

The secretariat is managed by the Folkecenter, which has employed the Indian professor T.K. Moulik as coordinator. The aim of the visit was partly to obtain the right contacts and partly to obtain means for renewable energy projects.

Each country prepares a project proposal and then GREECA applies for financial support to the project. When it concerns Cuba, it is very difficult, as the country has been affected by the USA's trade sanctions for more than a generation. Further, Cuba has only bilateral agreements with countries like Canada and Mongolia.

During my visit to Cuba, I participated in meetings with staff members of the embassies of the countries mentioned and with representatives from the UN organisations UNDP and FAO.

**- How can renewable energy solve the problems of Cuba?**

- The retraining and retooling of a society to have a certain percentage of its electricity produced from renewable energy sources ought to be timed such that first comprehensive energy-conservation programmes have been put into operation to reduce the consumption of electricity produced from fossil fuels such as coal or oil. I emphasize, that before the investments in renewable energy technologies are made, it is necessary to reduce the consumption of energy as much as possible. And this song has to be sung every time.

As an example, in the late 70's the houses in Denmark were insulated. The radiators were equipped with thermostat valves and a lot of other initiatives were made. Not till then development of solar heat and wind-power technologies were done. And the same has to be done in the third-world countries before considerable investments in alternative energy technologies are made. This is the philosophy to be used at an extension of renewable energy. I trust that the project in Cuba can be realized regardless of the country's decline caused by the collapse of the Soviet Union.

Cuba has already been forced to reduce almost all activities. Construction work has stopped and the import of oil has been reduced by 90%. But the population has a high level of education. While the Soviet Union was still intact, preparations were made for a factory that should produce chips for the computer industry. This project, however, has stopped and attempts are being made to change the plans so that the factory can produce solar cells instead.

Cuba is not a typical developing country, and there is no doubt that, in the long run the Cuban industry easily will be able to manage to manufacture the components that must be used for production of renewable energy, according to my assessment. Vestas, the Danish manufacturer of windturbines, has already visited Cuba.

*(translated by Lene Larsen, Folkecenter for Renewable Energy).*

*Project engineer Lars Yde, Folkecenter for Renewable Energy, Denmark.*

*The tallest windmill that can be seen in the background is the model that is meant for the tropical winds of Cuba. Photo: Bo Lehm Nielsen.*



# Self-Production of Rapeseed Oil for the "rapeseed car"



By Lars Yde, Folkecenter for Renewable Energy, Denmark

The most prominent example of the utilization of alternative fuel sources at the Folkecenter for Renewable Energy is found in a car bearing the license plate "Økobil 1" (Eco Car 1). Under the bonnet there is an engine that is fuelled and driven by rapeseed oil. In the workshop at Folkecenter, there is a recently purchased oil press from Sweden that extracts oil from the rapeseed.

The rapeseed is put into a big funnel. An auger brings the rapeseed into a warmed-up perforated tube. Through the perforations, the oil drops into a bucket, and the dry rape comes out as a thin sausage from the end of the press.

The utilization of rapeseed oil as fuel is harmless to the environment and the rape cake which is the by-product of the oil extraction is useful as well. The rape cake is suitable for animal feed, and besides, it can be used as an

addition in biogas plants.

The oil press is expected to be able to produce about 25-30 litres of oil per hour. In the long term, there is great potential for using rapeseed oil for engines in the agricultural sector, where the farmers can make their fuel from the rape-fields.



The rapeseed oil drops out through the perforations. The rape cake comes out as a thin sausage which can be used in animal feed or as addition to biogas plants.

Rape seeds are poured into the oil press. The rapeseed oil is collected in the white bucket and the rape cake into the black one. Once a farmer gets this plant installed on his farm, he can produce his own fuel for the tractor and the combine harvester. The rape cake can be used as feed.

Photos: Bo Lehm Nielsen

## Plant Oil Car

The rapeseed oil test car of Folkecenter is driving around on the roads like any other car. It runs for about 25 km per liter of rapeseed oil and the engine works by the same principles as does a diesel engine.

It has to be emphasized that the product of rapeseed oil has nothing to do with bio-diesel (Rapeseed Oil Methyleneester, RME). Bio-diesel undergoes a chemical process in which the fuel is adapted to the engine. We take the opposite approach and adapt the engine to the fuel. Our approach is a better solution because it results in a fuel that is far less toxic than bio-diesel, which is almost as toxic as diesel fuel.

## Important Step

Since the energy crisis affected the everyday life of everybody, many successful attempts have been made to reduce the total energy consumption. One sector has continued the old way: the transportation sector, - the car producers simply have not been aware of the problem.

The German engineer Elsbett, who has developed the rapeseed-driven engine, could not get support for his ideas at the company at which he was employed. He therefore decided to construct it himself. The introduction of the rapeseed oil engine marks a very important step within the transportation sector towards utilization of bio energy.

(see also article in Sustainable Energy News 6).

# Publications

## Energy for a Better Life

INforSE Campaign Paper on Sustainable Energy and Social Development. Presented on the Social Summit, 12 p., free, 1995.

## Sustainable Energy and Social Development

Proceedings of INforSE Campaign Workshop, 300 p., DKK 200, 1995.

## Combining Sustainable Energy Development & Employment Strategies + Examples of Job Generating Environmental Activities in Denmark

Background papers for INforSE - Europe Campaign. By Gunnar B. Olesen, 60p., DKK 80 incl. postage, 1995.

Contact: *INforSE*

## Solar Electricity

**Engineering of Photovoltaic Systems** by Eduard Lorenzo et al, Institute of Solar Energy Polytechnic University of Madrid. Photovoltaic solution as an alternative is reviewed. Past, present market and future scenarios. Technical chapters included. Spanish and English versions, 316p 1994.

Contact: *PROGENSA, Avda. Republica Argentina, 1, 41011 Sevilla Spain.*

## Manuals on Financial Engineering and Business Planning for Energy Efficiency Projects

53p + 23p, 1994.

Contact: *United Nations Economic Commission for Europe, Palais de Nations, 1211 Geneva 10, Switzerland.*

## Rethinking Development Assistance for Renewable Electricity

See article p. 12 by Keith Kozloff, Olatokumbo Shobowale 57p, 1994.

## Why Climate Policy-makers Can't Afford to Overlook Fully Fluorinated Compounds

by Elisabeth Cook, 1995.

## New Partnerships in the Americas, The spirit of Rio 1994

85 innovative partnership. Commissioned by USAID and WRI. Involved 200 organisat. for the Summit of the Americas. By New Partnership Work Gr. of USAID and WRI, 106p 1994.

Contact: *World Resource Institute, 1709 New York Avenue, N.W. Washington DC 20006 USA. Ph/fax: +1-202 63863-001-36.*

## Energy Policy in the Greenhouse, Volume II Part 3C: Low-Carbon Fossil Power Generation

The Cost and Potential of Cogeneration and High-Efficiency Central Stations, by Florentin Krause and Jonathan Koomey et al. The 10 part study has 1300 pages, 300 figures. Each part costs \$ 50, discount for non-OECD countries, 1994.

Contact: *IPSEP 7627 Leviston Avenue, El Cerrito, CA 94530 USA. Ph/fax: +1-510-525-7530/4446.*

## Prospects for the Expansion of Solar PV Technology in the Developing World

Financial mechanisms and technology transfer optimisation by Daniele Guidi and Leonardo Barozzi 50p 1993.

Contact: *WWF Energy & Resource Unit Via Salaria, 290, 00199 Rome Italy. Ph/fax: +39-6-84131-98/37*

## Energy Strategies - Strategies Energetiques

Between the Risks of Nuclear and Greenhouse Effect. French proceedings with English summary of April 8-10 1994 SENAT hearings in Paris 240p, 1994.

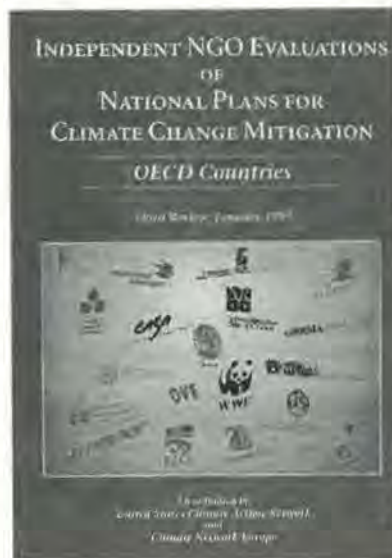
Contact: *INESTENE, 5, rue Buot, 75013 Paris, France. Ph/fax: +33-1-45-650808/897357.*

## Independent NGO Evaluations of National Plans for Climate change Mitigation:

- OECD Countries, Jan.1995

- Central and Eastern Europe, first review, Jan.1995

Contact: *Climate Network Europe, 44 rue du Taciturne, 1040 Bruxelles, Belgium, ph: +32-2-2310180, fax: +32-2-2305713.*



## Nuclear Power, no case for new build

A summary of the evidence submitted to the UK Government's nuclear review, 9p, Dec. 1994.

Contact: *Nuclear Free Local Authorities, Town House, Manchester, Ph/fax: 44-61234 33241-8864.*

## Energy and Socioeconomic Indicators in the European Community.

By Joaquim Corominas et al., Contact: *Universita Autonoma de Barcelona, Departament de Geografia, 08193 Bellaterra, Spain, ph/fax: +34-3-581-15271-2001.*

## Periodicals

### Baltic-Nordic Network on Sustainable Energy

Email newsletter published by The Swedish NGO Secretariat on Acid Rain. Channel for communication among NGOs in Nordic and Baltic countries and North West Russia.

Editor: *Dag A. Hoystad, Daasgt.16, 0259 Oslo, Norway, ph: +47-22562002, fax: +47-2256840, email: d.a.hoystad@geografi.uio.no*

### Sustainable London

Quarterly. Newsletter of the London Agenda 21 Network, 2nd issue: Winter 94/95.

Contact: *Rosa Bridger, London Ecology Centre, 45 Shelton Street, Covent Garden London WC2H 1J, UK. Ph/fax: 44-71379-43241-8334.*

### AEGIS

#### European Environment Protection Newsletter

Newsletter targeting Central and Eastern Europe. 1st edition: May 1994.

Contact: *Victor Thome, East West Environment, 21 Tower Street, London WC2H 9NS, UK. Ph/fax: +44-71 379356-31-4, email: eweuk@gn.*

### SCI, Solar Cookers International

Quarterly newsletter, From the contents: Solar cooking usefulness check list; organisational membership list; who is who in solar cooking; calling for volunteers.

Contact: *1724 11th Street, Sacramento California 95814 USA. Ph/fax: 1-916-444-6616/5379.*

# Events

## \* INforSE Campaign activities

March 27, 1995\*

### Goals for Berlin, NGO-conference of Climate Action Network

Info: Klimaforum, Behrenstr. 23, Berlin, D-10117. Ph/fax: +49-30-202-2030/-20333.

April 1-8, 1995

### The Greenhouse Gathering,

Energy topics April 5, renewable energy exhibition bus. Organized by youth networks

Info: The Climate is Right for a Change - Campaign, Celebesstraat 80, 1094 Amsterdam, The Netherlands, ph/fax: +31-20-6932024.

April 10-12, 1995

### 2nd General Assembly & Seminar on Financing Energy Efficiency Projects, Istanbul, Turkey

Info: The World Energy Efficiency Association. Fax: +1-202-797-6573, email: info@weea.org.

April 23, 1995

### Sun Day '95 in US

See article p. 14

May 1-3, 1995\*

### Inter Action Annual Forum, Washington DC, USA

Rethinking Development: New Partnership for a New Century.

Info: Linda Helm Krapf, Consortium of Sustainable Energy Networks International, Ph/fax: 1-908-876-9698/-5030, email: krapf@eden.rutgers.edu.

May 15, 1995

### Climate Action Day: The Climate is Right for A Change

Info: EYFA or A SEED, PO Box 62066, NL-1090 AB Amsterdam. Ph/fax: +31-20-665-7743/0166.

May 17/18, 24 May, 1995

### Solare energie und Architektur Lösungsansätze für Architekten und Ingenieure, Freiburg

Info: S. Nowak, Weiterbildung in Ökologie, Universität Freiburg, Koordinationstelle Umweltwissenschaften, Perolles, CH-1700 Freiburg.

May 21-26, 1995

### Rural Electrification with Renewable Energy Technologies, Southampton, UK

Info: Anthony Derrick, The British Council, 10 Spring Gardens, London SW1A 2BN UK. Ph/fax: +44-71389-4264/-4154.

June 19-24, 1995\*

### European Sustainable Energy Seminar & INforSE -Europe Annual Meeting, Budmenice near Bratislava, Slovakia

Info: INforSE Europe

June 23-26, 1995.

### ÖKO'95 Messe, Germany

Info: Landesverband Baden-Württemberg e.V. Dunanstrasse 16, D-79110 Freiburg, Germany. Ph/fax: +49-761-88595-0/-90.

June 18, 1995

### SUNDAY'95 Throughout UK

Info: UK-ISES, 192 Franklin Road, Birmingham, B30 2HE, UK. Ph/fax: +44-121459-1248/8206.

June 18-21, 1995

### 3rd European Conf. on Energy-Efficient Lighting, Newcastle upon Tyne, UK

Info: Right Light Three, Carlisle House, Market Street, Newcastle upon Tyne, NE1 6NE, UK. Ph/fax: 44-9123528-01/-98.

June 29 - July 1, 1995

### Rebuilding the European City, Integration of Renewable Energies in Urban Structures, Corfu, Greece

Info: A. Alamanos, ANEDK, 3, Kaloheretou street GR-49100 Corfu Greece. Ph/fax: +30-661-25708/-36257

July 19-21, 1995

### Conference of British Wind Energy Association, London UK

Info: BWEA, Lincoln's Inn House, 42 Kingsway, London WC2B 6EX, UK. Ph/fax: +44-171404343-3/-2.

August 21 - September 3, 1995

### 4. ASEAN Science and Technology Week, Central Plaza Hotel, Bangkok, Thailand

Info: Wanasri Samanasena, National Research Council of Thailand, 196 Paholyodhin Road, Bangkok 10900, Thailand, ph: +66-2-579 2285, fax: +66-2-561 3049.

September 9-16, 1995\*

### ISES Solar World Congress '95, In Search of the Sun. Harare, Zimbabwe. With workshop of INforSE - Eastern and Southern Africa

Info: P.O.Box 2851, Harare, Zimbabwe. Ph/fax: +2634-730-707/-700 /INforSE - Eastern and Southern Africa.

October 9-12, 1995

### Water & Energy 2001, Int. R&D Conf. New Delhi, India

Info: C.V.J. Varma, CBI&P Malcha Marg, Chanakyapuri, New Delhi-110021, India. Ph/fax: 11-301-5984/-6347, Email: cbip@cbipdel.uunet.in.

October 2-4, 1995

### Int. Conf. on Engineering and Urban Sustainability Beyond 2000, Budapest, Hungary

Info: P.Steingasznar, Secretary WEPSD Hungarian Branch, c/o MTESZ Kossuth Lajos ter 6-8, H-1055 Budapest Hungary.

October 23-27, 1995

### 13th European PV Solar Energy Conf. & Exhib. Nice, France

Info: WIP, Sylvansteinstr 2, D-81369 München, Germany. Ph: +49-897-2012-32/-91.

November 20-24, 1995

### Int. Africa Conference: Sustainable Energy for Development, Maputo-Mozambique

Languages: English and Portuguese. Info: Jose de Abreau, AITP, Av. Amilcar Cabral 212, PO Box 1574, maputo, Mozambique. Ph/fax: +2581-4759-38/40.

November 20-24, 1995

### Int. Symposium: Energy, Env., Economics, Victoria, Australia

Info: Faculty of Engineering, University of Melbourne, Parkville, Australia, 3052.

June 3-7, 1996

### Energex '96, Beijing, China

The 6th Int. Energy Forum. Energy Strategies in Developing Countries in the 21st Century: Challenges and Opportunities.

Info: Meng Xiangan, China Solar Energy Society, 3 Huayuan Road, Beijing 100083, China. Ph/fax: +86-1-201-7009/-2880.

June 3-14, 1996\*

### Habitat II: UN Conference on Human Settlements, Istanbul, Turkey

Info: UN Centre for Human Settlements, Room DC2-0943, United Nations, New York, NY 10017, USA. Fax: +1-212-963-8721.

June 15-21 1996

### World Renewable Energy Congress IV, Denver, Colorado, USA

Info: A.A.M. Sayigh, WREN, 147 Hilmanton, Lower Earley, Reading RG6 4HN, UK. Ph/fax: +44-1734 61136-4/-5.

July 1-8, 1996\*

### The City as an Organisme, Urban Ecology Now and in the Future, Copenhagen, Denmark

Conference and exhibitions on sustainable energy & urban environmental solutions. Part of Cultural City in Copenhagen 1996.

Info: OVE, Blegdamsvej 4, 2200 Copenhagen N, Denmark, ph: +45-35373565, fax: +45-35373676.



*In France lots of school classes visited the exhibition.*

## Sustainable Energy Tour 1995

A report after 2 months of exhibitions for a nuclear free world, starting in Bruxelles, January 11.

by Ann Vikkelsø

The first 6 weeks in France and England were hard - but also had their good moments. Our last days in Belgium were sunny and very successful. The exhibition has already visited more than 20 towns. And the Walk Across Europe for a Nuclear-Free World has stepped through the first 1500 km on the way to Moscow. We will continue through Germany, the Czech Rep., Austria, Slovakia, Ukraine, and Byelorussia, ending in Russia in October.

### France - A Nuclear State

In France, we had a lot of success with school classes visiting the exhibition, and often for the first time realising that there are other possibilities than nuclear power - EdF (Electricity de France) has huge information (promotion) activities, also in the schools. At market places, it was hard to catch people's attention. The Walk had success with their activities against nuclear weapons in France.

### England and Belgium - Waking Up

In England and Belgium, we have had a more positive response from the general public. Many people were interested. Solar energy is especially

popular. Several city councils also are starting to move. For example, in Reading, the city council has made a local Agenda 21 plan, and runs an information campaign on energy saving. In Belgium, we participated in national demonstrations around nuclear power plants. Many new people are getting involved in the anti-nuclear struggle at the moment, because new waste sites are being planned.

### How can you support the Sustainable Energy Tour (SET) and the Walk?

Join us - there is still space for more Walkers and exhibition staff.

Sponsor the exhibition, an Eastern European Walker, ...or just the whole thing!

Donations - food, materials...

DRIVERS !! - we need more drivers for the truck (C+E license).

SET contact: SNORE, Rijksweg 37-46, 6574 AD Ubbergen, the Netherlands. Ph: +31-80-603917. E-mail: snorelist@antenna.nl.

Giro account: Postbank 6454704, att. F. de Jonge - inz. SNORE-Ubbergen, NL.

WALK contact: For Mother Earth, Zilverhof 19, 9000 Gent, Belgium. Ph: +32-9-2333268. Fax: +32-9-2334924.

### INforSE Coordinators

#### Africa, Eastern

FWD- Found. for Woodstove Dissemination, P.O.Box 30979, Nairobi, Kenya, Ph.: +254-2-566 032, fax: +254-2-740524/561464, email: stephen\_karekezi@elci.gn.apc.org att. Stephen Karekezi, Mumbua Murywoki-Muthusi

#### Africa, Western

ENDA-Energie, 54 rue Carnot, B.P. 3370, Dakar, Senegal. Ph.: +221-225983/222496, Fax: +221-222695, Email: energy@endadakar.gn.apc.org att. Youba Sokona, Masse Lo

#### Eastern Asia & Pacific

PCATT- Philippine Center for Appropriate Technology & Training, 224 Diego Silang Str. 4200 Batangas City, Philippines. Ph.: +63-43-723-1155, Fax: +63-43-723-0340 att. Benjamin Gentes

#### Asia, Central

AFPRO - Action for Food Production, 25/1A Institutional Area, Pankha Rd, D-Block, Janakpuri, New Delhi, 110 058, India. Ph.: +91-11-5555412/413 Fax: +91-11-5500343, Telex: 31 65899 AFPRO IN att. Raymond Myles

#### Europe

OVE - Danish Organization for Renewable Energy, Skovvangsvej 191, 8200 Århus N, Denmark., Ph.: +45-86106466, Fax: +45-86106188, Email: ove@pns.apc.org att. Gunnar Boye Olesen

SZOPK-Foundation for Alternative Energy, Gorkeho 6, 81101 Bratislava, Slovakia. Ph/fax: +42-7-364665, att. Emil Bedi

#### Latin America

IED - Institute for Evology and Development, Av. Erasmo Braga 277, sala 305, Rio de Janeiro, RJ, CEP 20020, Brasil. Fax: +55-21-240-

0661, Univ.Fed: Ph.: +55-21-270-9995/9662

att. Emilio la Rovere, Ana Lucia Nadalutti la Rovere

REDES, Av. Millan 4113, 129000 Montevideo, Uruguay. Ph.: +598-2-356265, Fax: +598-2-381640, Email: redesur@chasque.apc.org att. Martin Prieto Beanlien

#### North America

Environmental Action / Energy Conservation Coalition, 6930 Carroll Ave. #600, Takoma Park, Maryland, 20912, USA. Ph.: +1-301-891-1100, Fax: +1-301-891-2218 att. Mutsumi Mizuno, Margaret Morgan-Hubbard