

Sustainable Energy News

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Newsletter for the
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for Sustainable Energy

- INforSE



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NGO Views & Concerns on the World Solar Summit

We are now just at the eve of the World Solar Summit (WSS) called by UNESCO in Harare, September 16-17, to start a 10-year World Solar Programme. As stated in the INforSE Position Paper on the WSS Process, we are confident that NGOs can work hand-in-hand with the WSS to ensure that the Solar Decade (1996-2005) will be a success.

In our opinion, such success must include fulfilling the requirements stated in INforSE's sustainable-energy development strategy, launched in Rio in 1992, for more use of renewable energy worldwide and particularly in developing countries. This implies that technological, economic, social, ecological and cultural/political sustainability criteria will be met as well.

Several NGOs support the objectives of the WSS, but so far some key issues have not been adequately addressed.

The initial idea of the WSS Process was modelled on that of a United Nations Conference, involving an International Solar Convention, a World Solar Charter, a World Solar Fund, and a World Solar Plan of Action. Experience has shown the limitations of this approach and the difficulties of making it work.

Due to the concerns expressed by some countries and NGOs, including INforSE, during the proc-

cess of WSS preparation, the idea of a Harare Declaration on Solar Energy and Development emerged.

Similarly, a firm commitment to mobilize international financial resources to ensure implementation of a World Solar Programme seems more efficient than the creation of a new fund with the high management costs involved and the risk of merely draining the money from other initiatives to support renewables. The notion that the Solar Decade will address all sources of renewable energy, not just solar, still remains to be conveyed clearly to the world.

Much work is needed to derive a good Plan of Action from the current list of projects presented by governmental representatives.

Politically, a main challenge in Harare will be to widen support for the WSS Process among key industrialized countries. So far, the World Solar Commission includes among its 15 members only 3 heads of state from OECD.

A similarly important challenge will be to make sure that the important role of NGOs is adequately addressed in the World Solar Plan and the Harare Declaration.

Emilio la Rovere, INforSE Latin America, Brazil.

Rene Karotki, INforSE Secretariat, Denmark

For more details please see the enclosed 4-page NGO special publication: "World Solar Summit - "NGO Voices" No 2. (No 1. in the previous issue.)

Sustainable Energy News and Contact List is on INTERNET:

WWW: <http://solstice.crest.org/renewables/sen/index.html>.

INforSE on INTERNET: WWW: <http://www.INforSE.dk/>

Front page: Shramik Bandhu "friend of the labourer" biogas plant under construction in India. See article on page no. 6.

Photo: By Jane Kruse Folkecenter, Denmark & Raymond Myles, India.

INforSE Coordinators' Meeting Sept. '96

When the INforSE coordinators meet in Harare, Zimbabwe on September 10-11 and 18, the following topics will be high on the agenda:

- NGO follow-up on the World Solar Summit;
- monitoring of development banks;
- adult education (see below);

- improvements of the INforSE network and INforSE regional activities.

INforSE focuses on its NGO input to the World Solar Summit in Harare at September 12-17. (See "NGO Voices" Newsletter no.2 included.) Please send proposal to the INforSE Secretariat (See page no. 2).



INforSE Coordinator Awarded UNEP Global 500 Roll of Honour

The national INforSE coordinator for India, Lalita Balakrishnan, was awarded the UN Environmental Program's Global 500 Roll of Honour at the Habitat II Conference, June 1996.

The Honour was given in recognition of her important contributions to sustainable development including her work on programmes promoting improved chulhas (woodstoves), biogas, solar cookers, and energy conservation in the rural energy department of the All India Women's Conference (AIWC).



Group discussion on the WSSP INforSE document at the Central Asia INforSE regional meeting in May 1996, India. Lalita Balakrishnan is to the left.

Adult Education Activities

INforSE will actively take part in the preparations of the 5th International Conference on Adult Education in 1997 as mentioned in Sustainable Energy News 13. Funds are now available from the Danish International Development Agency (DANIDA) for a number of key activities:

- participation of INforSE organizations from developing countries in the Preparatory Conferences;
- publication of innovative approaches to environment, development, and adult education;
- cooperation to strengthen the links between environmental activities and adult education, as well as to strengthen NGO participation in these;
- INforSE participation in the Conference's thematic Working Group on Environment and Adult Education.

At the first regional Preparatory Conference in Jomtien in Thailand on September 16-18, INforSE will be represented by Appropriate Technology Association (ATA), Thailand.

More information: INforSE Secretariat. See page no. 2

Climate COP2 Disappointments

Geneva saw yet another gathering of government officials, ministers, and NGOs in mid-July - all ostensibly to give some meaning to the Framework Convention on Climate Change. But when they departed for home on July 19, the threat of global warming still remained unresolved.

This second meeting of the Conference of Parties (COP2) turned out to be a wet squib.

Not only had no negotiations started on the text proper of a protocol for developed countries, but even the IPCC second assessment report continued to be challenged. The much-touted US ministerial statement was only strong in endorsing the IPCC findings, but remained fuzzy on legally binding targets and timetables. Japan shifted incrementally from its total opposition to a protocol. OPEC nations remained a major obstacle to progress, even on the Rules of Procedure.

The only silver lining was the Ministerial Declaration, which stated that negotiations on a protocol text must begin this December and that the pro-

tolocol should be ready for adoption by COP3 in December 97 in Kyoto.

Another hopeful sign was the positive intervention from the new businesses that are involved in alternative energy sources, including renewables. This broke the apparent monolithic obstruction that the business group has put up to actual action on GHG emission reductions.

The impending World Solar Summit failed to influence positively the COP2 outcome, despite the arguably auspicious fact that the Conference Chairman was Zimbabwe's Minister of Environment.

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Renewables in Kenya: Maendeleo Stove & Power Alcohol Program

By S. Karekezi and E. Ewagata, FWD,
INforSE Eastern Africa Coordinator

Biomass is the most important source of energy in Kenya, accounting for 70% of the total energy supply in the country. Since 80% of Kenya's population lives in the rural areas, and their main source of energy is fuelwood there is a need to ensure sustainable supply of the resource.

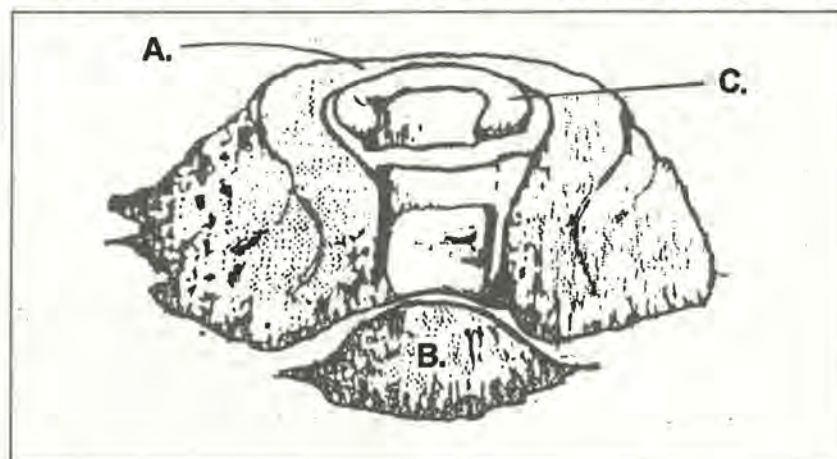
This article focuses on comparing two biomass applications: one small, one large-scale: the Maendeleo improved cookstove and the power alcohol programme, respectively.

Maendeleo Stove

The Maendeleo stove is an improved stove that is designed to replace the three-stone hearth commonly used in the rural areas. The Maendeleo stove has an improved combustion efficiency of 30% and fuelwood savings of about 50%. An estimated 3-20 hours a week can be saved in collection of firewood per household. In addition, it emits less than half of the pollutants produced by the three-stone hearth.

Gesellschaft für Technische Zusammenarbeit (GTZ) and Intermediate Technology Development Group (IT) were involved in the development, launching and commercialization of the Maendeleo stove in over 41 districts in Kenya. The program was carried out by existing networks of governmental extension workers (e.g., agricultural). This eliminated the logistics and expenses of establishing new channels. As a result of these efforts, awareness of the Maendeleo stove was significantly raised. To date, about 250,000 Maendeleo stoves have been disseminated countrywide.

Issues of financing played a significant role in stove dissemination. Support from the two agencies, GTZ and IT, financed research and technical development of the stoves as well as transport, training, and marketing. The study, however, found that direct subsidies on the cost of the stove were detrimental to the sustainability of the stove programme. A commercial approach makes stove produc-



Maendeleo stove. 250,000 have been disseminated.

A: Insulating layer of mud/sand/fireash minimising smoke and preventing accidental burning

B: Tongue supporting firewood to enhance airflow under or between the sticks

C: Top level surface for the cooking pots (Source: GTZ Sept, 1992.)

tion lucrative to small-scale "entrepreneurs" as production costs and a profit margin are factored into the price of the stove.

Other concerns that have affected the dissemination of the Maendeleo stove are capacity-building, the environment, and equity. Over 5,000 women have benefitted from training offered by the two programmes in stove production, business skills, and financial management. Hundreds of artisans have also been trained in stove production. With rising environmental awareness, especially of the impact of air pollution and localized fuelwood scarcity, adoption of the Maendeleo stove is increasing.

Alcohol Program

The main objective of the Alcohol Program started in 1977 in Kenya was to reduce oil imports by developing alternative fuel from molasses produced by the sugar industry in Western Kenya. Of three projects planned, only one took off, a project which was undertaken by the Agro-Chemical and Food Company (ACFC).

The ACFC produced anhydrous ethanol (power alcohol), which was primarily sold in the Nairobi area at a 10:90 blend with gasoline as gasohol. The gasohol was marketed and sold by oil companies.

However, power alcohol procurement by oil companies consistently fluctuated either due to blender breakdowns or shortages due to sugarcane crop failure.

A 1987 request for a price hike of power alcohol by the ACFC was granted in 1992 by a Ministerial directive. Oil companies, however, continued paying the old price, which was far below the operation costs at the ACFC. Consequently, the ACFC found other markets for its alcohol.

The study findings reveal that institutional and finance issues were the main factors influencing the power alcohol programme. There were no clear policies with respect to blending, sales, and pricing. On the management and efficiency, there was no significant effort made to effectively market and distribute the gasohol. Since blending was not centralised, blenders had to be installed at each oil depot at the expense of the ACFC, increasing its overhead costs.

Decentralised / Centralised

Comparing the two projects, our findings show that small-scale decentralised biomass programmes tend to be more successful and effective in addressing Kenya's energy problems than large-scale projects. The summary of the comparison is in the Table:

Maendeleo stoves programme

- Largely small-scale
- Decentralised
- Locally available technology
- Low investment costs
- Less bureaucratic
- Direct benefits to users
- Employs over 10,000 people
- Benefits mainly rural population
- Trained over 5,000 people
- Women empowered
- Largely addresses national environmental concerns

Power alcohol programme

- Large scale
- Centralized
- Largely imported technology
- Large investment costs
- Complex decision-making
- Indirect benefits to users
- Employs about 1,500 people
- Benefits fewer rural people
- Limited training
- Limited gender concerns
- Addresses largely global environmental concerns

The key recommendations:

- Decentralized small-scale biomass projects should be given priority in the short and medium terms.
- Institutional support and multi-sectoral involvement are important to the success of any programme.
- Clear policies and guidelines need to be outlined from the start.
- Program should strive to identify and use existing fieldwork personnel and facilities to disseminate technology. This reduces costs and simplifies the logistics of establishing a new dissemination network.
- There is a need to establish quality control measures. Close collaboration with universities, research in-

stitutions, NGOs, and consultancies will provide useful guidelines for standards.

- Subsidizing is needed only to the technical support such as feasibility studies, training, quality control, and marketing.
- Lastly, there is a need to establish an environmental policy in support of programmes that have minimum environmental impacts.

Shortened by the editors. The article is based on 2 cases studies included in a report by FWD/AFREPREN/SEI.

See Sustainable Energy News no. 13.

More information: FWD, Kenya, InforSE Eastern Africa Coordinator.

See address on the back page.

South African Development Community (SADC) Regional Seminar on Rural Energy Planning & Environmental Management

The Eastern and Southern African Management Institute (ESAMI) hosted the subject seminar, on behalf of SADC in Mbabane, Swaziland on 20-22 May, 1996.

Participants included Principal/Permanent Secretaries and Commissioners in ministries of planning, rural development, energy, environment, agriculture, and forestry, as well as chief executives of energy utilities.

Key outputs of the Seminar included:

- Development of an appropriate policy framework for sustainable energy supply and demand;
- Identification of key environmental impacts of energy systems within the SADC region;
- Preparation of relevant energy policy instruments and institutions.

More information: Dr. Ven Mvano, Project Coordinator, ESAMI, P.O. Box 3030, Arusha, Tanzania. Ph: +257-8384/8; Fax: +257-8285.

Solar Energy for the Kigogo Home for Children in Dar es Salaam

By Sylvester Hanga, The Solar Network of Tanzania

Donors are usually not very keen on covering running costs such as water and electricity bills for any small projects in any country. The people caring for the street children in Dar es Salaam have found it difficult to get any donor funds for running costs to a home at Kigogo for homeless children who are trying to attend school regularly. So it was decided to cut down on the utility costs by installing solar PV, a solar hot water system, solar cookers, and a rainwater collecting system. The Solar Network (a local NGO) and Ultimate Energy (a local business), helped by DANIDA financing, worked with the staff and the children to make the instalment possible and to run it. The system functions as a dem-

onstration system, but it also provides the children with hands-on training in running and maintaining solar systems. Many of the children are already keen on "Umeme ya mionzi" (solar electricity). They train their peers in using the system. Switching off the light or closing the tap requires an awareness of the importance of saving energy or water in everyday life. The PV system teaches this the hard way as well; if you run the batteries down, you have no electricity. To build up experiences in new fields takes time, and the children do not give up easily. They have seen the potential of harnessing the sunlight a raw material abundantly available in Tanzania.

More Information:

The Solar Network of Tanzania, PO Box 77279, Dar es Salaam, Tanzania.



The Project Group under the solar panels in front of the Kigogo Home for School Going Children, Tanzania.

Rural Electrification in the Solomon Islands

By Robert Wadell, *Appropriate Technology Community & Environment (APACE), Australia*

There are several reasons why logging is continuing on a large scale:

- the logging companies' commercial desire to exploit the last remaining stands of old growth rainforest timber;
- the desire of governments to earn foreign exchange in the shortest time possible; and
- the villagers' need for income.

For the villagers to resist this process, there has to be a way of preserving their rainforest while at the same time satisfying their cash needs. One such way has arisen out of a joint operation between the villagers of Solomon Islands and APACE, a Sydney-based voluntary NGO devoted to the promotion, design, and application of appropriate technology.

Small Hydro Power Plants Everybody is Involved

Over a period of 15 years, at the invitation of the villagers, APACE has been involved in the design and implementation of small systems to generate hydroelectricity in several villages in the Solomon Islands. In these villages, initially in the Western province, the people marshalled all of their resources and worked cooperatively to create all the necessary infrastructure. The commissioning of the first system was the culmination of years of preparation and consultation with the villagers. It was preceded and followed by courses of training in the operation, maintenance, and repair of the system. This has been the pattern of all subsequent installations.

In line with APACE's general philosophy, the bringing of electricity to the village was not seen as an end in itself but rather as a means of enhancing the independence and self-reliance of the community as a whole.

Everyone in the village - men, women, and children - was involved in the process. Everyone received a benefit and therefore had a stake in ensuring a successful outcome.

Benefits

The villagers now supplied with electrical power can enjoy a number of benefits:

- They can run small cash-earning businesses such as bread-making, furniture making, and copra-drying.
- They can also have refrigeration facilities for the storage of fish, vegetables, and pharmaceuticals.
- They are enabled to keep their rainforest intact and to avoid all of the problems that the loss of the rainforest had caused for other villages.

Women Involved

A prominent feature of APACE's operations has been the involvement of women in the new technology. So often in the past, when new technologies have been introduced into villages, only the men were involved and instructed in their operation. Women were not asked how they would like the technology to be used for their benefit.

The women involved in the installation of a system in the first village were keen to pass on their knowledge and experience to other women who were anxious to have similar technology in their own villages. This resulted to a national series of women workshops.

Trust of the Government in New Community-Based Hydro-Electrification

In February, 1995, a Memorandum of Understanding (MOU) was signed by the Solomon Islands government and APACE. The Government showed great trust in the ability of the villagers and APACE to do something which everywhere else has been the prerogative of a centralised authority. In this case, the decentralised generation of electricity has been sanctioned by the Solomon Islands Electricity Authority, which will ensure that safety regulations are being observed.

In addition, a working group called Solomon Islands Community Electrification Committee (SICEC) was set up to draft a National Rural Electrification Policy and to design an appropriate organisation to implement a community-based hydro-electrification program.

When SICEC is fully implemented, it will make a quantifiable contribution to the national economy, and to the environment as well as to national self-sufficiency and self-reliance.

More information: APACE, c/o University of Technology, P.O. Box 123, Broadway NSW 2007, Australia.

Ph/fax: +61-2-3302554 /- 3302611.



Community wiring team. Micro-hydro power is being installed. Solomon Islands.

INforSE Organisations' Initiative for a Resource Center in India

Land Donated by Villagers Seeking for Funds Regional INforSE Meeting

By Raymond Myles, INSEDA, Central Asia INforSE Coordinator, India

In the village of Nagla Khan, India, villagers donated 2.5 acres of land to WAFD, Women's Action For Development, to establish a Renewable Energy Resource Center (RE-REC) to meet the needs of the Bharatpur District of the desertic State of Rajasthan.

The initiative is based on the feedback of WAFD's experience in renewable energy programs, specifically in the promotion & implementation of low - cost biogas rural household plants in several of the villages of the Bharatpur District. (See in the box)

WAFD, member of INforSE, and INSEDA, the regional coordinator of INforSE, decided to cooperate to establish the district-level center.

Among others, this was discussed in the Central Asia Regional INforSE



Deen Bandhu Biogas plant under construction in India.

Meeting on May 29-31, 1996, Lucknow, India.

The center gradually would train, research, demonstrate, and perform maintenance, as well as develop training and promotional materials.

INSEDA is lobbying to get funds for the district level center which later on could be upgraded to state or zonal level center for community based and non governmental organisations.

More information: INSEDA, INforSE coordinator. See address on the back page.

WAFD - Biogas Plants

WAFD, Women's Action For Development, established in 1978, has an aim of community development focusing on women & children of weaker sections of the society. Biogas plants are one of WAFD's focuses since 1980.

- **Janata Model** - (meaning "people")

In 1980, WAFD built the first Janata model, in a semi-urban village of Delhi State. The Janata model is a fixed dome model built from bricks replacing the steel model used before.

- **Deen Bandhu Model** - (meaning "friend of the poor")

Since December of 1994, WAFD has built 175 well functioning Deen Bandhu models in the Bharatpur District. This model is a low-cost rural household popular biogas plant that has been used in the country since 1986. It gets subsidy for construction from the National Project on Biogas Development, MNES, Govt. of India. (See photo on this page)

- **Shramik Bandhu Model** - (meaning "friends of the labourer.")

Lately, WAFD started the construction of a recently designed and tested low-cost biogas model made of biomass-reinforced cement mortar. 45% of its construction cost goes towards the wages of poor rural people. The bricks are replaced with locally available biomass, e.g. bamboo, pruned branches of mulberry, and date palm, which are also used by poor local people, especially women, for making baskets. (See photo on the front page)

Organic Farming Using Biogas Technology

Recently, WAFD launched a promotion of low-cost organic farming systems that use biogas technology. The villagers are encouraged to actively participate in the process through, role playing, songs, and street plays.

Why is the WAFD Biogas Program successful in the Bharatpur District where almost 100% of plants had failed before?

- One reason is the better construction techniques, comparing to the previously government-implemented plants in the area.

- The WAFD mason also gives more proper instructions about the basics of the technology from the proper feeding and maintenance to the efficient way of cooking.

- Another reason is that WAFD focuses more on people. WAFD treats biogas implementation as a development program for empowering rural people, especially women; therefore, lots of its efforts go towards awareness, education, and technical literacy. The WAFD biogas master masons remain in the villages with the plant owners during the entire period of plant construction and almost become part of their families. The mason acts as a barefoot socio-technical expert and a development agent. This is why, even though the process is slow in the beginning, it surely gains success.

(shortened by the editors)

Latin America

Spread of Interest in Renewables in Brazil Report from the 3rd Meeting for Renewable Energy in June, 1996

By Emilio La Rovere, Brazil, INforSE
Latin America Coordinator

For the 3rd consecutive year, hundreds of participants from government agencies, universities, NGOs, research centres, equipment manufacturers, and utilities, all involved with renewable energy development, met during the 3rd Meeting for Development of Renewable Energy in Brazil, held in Sao Paulo, from 25 to 29 June, 1996.

These Brazilian meetings with key invited experts from abroad are being promoted by the Permanent Forum of Renewable Energy - Solar, Wind and Biomass, constituted by both governmental and non-governmental organizations. Its main support and sponsorship comes from Brazilian Ministries (Minerals and Energy, Science and Technology, Foreign Affairs), governmental bodies, utilities, the Reference Centre on Solar and Wind Energy (CRE-SESB) hosted by the Electric Power Research Centre (CEPEL), industry (manufacturers of renewable energy equipment), and the universities from Rio de Janeiro (COPPE/UFRJ) and Sao Paulo (USP, UNICAMP).

Small Hydro Included in the National Plan

The main outcome of this event was the presentation of the National Plan of Action for the Development of Renewable Energy. Besides solar, wind, and biomass energy, the scope of the Plan was enlarged this year to include small hydropower (defined as plants of up to 10 MW capacity). A target in this field was set of reaching an overall installed capacity of 2500 MW within the next 10 years.

Creation of a Reference Centre on Biomass Energy in Sao Paulo

Another important announcement was the creation of a Reference Centre on Biomass Energy in Sao Paulo with support from federal and state governmental institutions.

Two 30 MW Wind Power Plants Got Funding

Growing interest is also shown in wind energy, particularly in the North-eastern region, where the potential for installing aerogenerators is larger.

For example, COELCE, the utility in the state of Ceará, conducted the feasibility study and obtained international funding to install two 30 MW plants scheduled to start operating in 1999 and 2001.

PV Gaining Leading Role in the Rural Electrification

While the ethanol programme is facing tremendous difficulties, renewables are gaining momentum again in research, development, and demonstration.

Rural electrification projects based on photovoltaics play a leading role. For instance, CEMIG, the utility in the state of Minas Gerais, plans to install 700 small systems (1 or 2 panels) this year and has a target of 4,000 projects by the end of 1998.

Spread of Interest International Seminars

Two other international seminars on Solar and Wind Energy were held on August 5-9, 1996 in Salvador (state of Bahia) and August 12-16, 1996 Florianópolis (state of Santa Catarina), well illustrating the spread of interest in these fields all over the country.

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Vestas windmill park in Denmark. A wind mill park will be a common view in Ceará State, Brazil in 3 years.

The utility obtained international funding to install two 30 MW wind plants and international tender is planned to be subscribed in 1996.

The total wind potential in the state is assumed to be 8,000 MW. The yearly average wind speed is about 8 m/s.

(source: "Danish Wind Power in Brazil, Part I: The future of wind power in Brazil, market analysis" by Niels Husted Rich, Folkecenter for Renewable Energy, Denmark)

Photo: By Vestas, Denmark.

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INforSE members and other NGOs are deeply concerned about the potential outcome of the Solar Summit. To succeed, the Summit must set clear guidelines for the World Solar Programme (WSP) and ensure:

- an open and participatory selection process based on well described projects;
- strong local participation in all projects;
- targeting all projects towards the needier parts of the popu-

lation, e.g., the rural poor;

- inclusion of NGO projects and general NGO participation in the WSP;
- development of local funding mechanisms to fund the dissemination of solar energy and other sustainable energy solutions;
- development of adult, non-formal education, training, and awareness programmes; and
- inclusion of WSP activities in developed countries.

The role of NGOs

In a successful implementation of the World Solar Programme, the role of NGOs goes far beyond lobbying for sustainable solutions. The large-scale implementation of solar energy solutions will only succeed if technology as well as organisation is developed and implemented in close cooperation with the end-users. In each area, development must be adapted to the needs of the users.

Many years of experience have shown that NGOs, including Community - Based Organisations (CBOs), are important to the successful dissemination of solar energy and other sustainable energy solutions, based on their local contacts, knowledge of local needs, and credibility, locally.

About this Newsletter

This special INforSE WSSP NGO newsletter is produced to link the World Solar Summit Process (WSSP), organized by UNESCO, to NGO-activities, and to focus on NGO views and approaches. This is the second of four issues: two before the Solar Summit and two during the Summit itself.

The English version is issued by INforSE, P.O. Box 2059, DK-1013, Copenhagen K, Denmark.

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Editors: Gunnar Boye Olesen (OVE), Natascia Petringa (INforSE Secretariat), Masse Lo and Secou Sarr (ENDA-Energie).

Next Issue: Sept. 14 at the Solar Summit.
Deadline for Next Issue: Sept. 12.

Inputs are welcome by email: Biomass@mango.zw, att. INforSE Newsletter.

Comments to the World Solar Summit Documents

Draft Harare Declaration on Solar Energy and Sustainable Development

Following the third IOC Meeting (International Organizing Committee for the WSS) on August 1-2, a new draft of the Harare Declaration on Solar Energy and Sustainable Development was released on August 7.

The new draft is shorter and more streamlined than the previous (June) version. Its role is to endorse the World Solar Programme (WSP) 1996-2005 and the continuation of the World Solar Commission.

It may be the only international top-level paper in this decade to stress specifically the role of renewable energy, but other than endorsing the WSP, it gives very few concrete proposals, fewer than the previous draft. Moreover, it does not add much to the already existing Agenda 21.

The draft Declaration recognizes the important roles of NGOs and women in development, as was requested by INforSE and others. However, it does not reflect organisational and institutional factors necessary for decentralized renewable energy development.

The signatories to the Declaration commit themselves to work for free and open energy markets as an arrangement to facilitate solar energy. The need to incorporate social and environmental costs in current pricing systems is not mentioned.

The signatories further commit themselves to greater use of solar energy through use of existing international funds. The idea of a new World Solar Fund is no longer mentioned.

For the continuation of this process, all nations, the UN Secretary-General, NGOs, research institutions, and the private sector are urged to join in the implementation of the World Solar Programme. For some reason, however, only the nations are called upon for the development of the program.

Key Issues and Questions on the Leading WSSP Documents: Some INforSE Views and Comments

Several INforSE member organizations have commented on the leading WSSP documents. We feel these comments should be reflected in the final World Solar Programme and (WSP).

■ The main comment on the WSP is that, in general, it is difficult to evaluate the projects from the brief descriptions provided in this document. At a glance, all projects appear to have a top-down approach, hence their chances of sustainability seem to be rather limited. Moreover, the specific role of NGOs is not very apparent. Who will do the follow-up and post-installation services (such as operation and maintenance), how, and with what? It is recommended that NGOs be involved in technical support, monitoring, and evaluation of the proposed projects. Unless monitoring and evaluation are in place, how will these projects

be replicated and how will their impacts be measured?

■ Secondly, there appears to be little local participation. If these projects are to succeed purely on a technological basis, they will have to depend heavily on highly qualified and highly paid personnel. Hence, these projects will require subsidies from governments for a very long time, and it is unlikely that similar projects can be replicated and/or be sustainable in the situations existent in most developing countries.

■ Cross-sectoral activities such as agriculture and food processing also need to be integrated into renewable energy development programmes. The active participation of rural people (especially women, youth, and landless peasants) also needs to be emphasised. Continued on page 4

The World Solar Summit: Lure or Lend?

Solar energy is one option to meet the energy needs of rural people in developing countries. This justifies the need for coordinated efforts between developing countries and aid agencies, especially regarding national policies in the field of solar energy.

Considering the relationship between most countries with a strong solar potential (i.e. nations of the South) and those controlling the technology (i.e. the North), the Solar Summit should have a strong financial component.

Projects or National Action Plans?

The approximately 300 strategic projects are designed to be large-scale efforts. However, given the current stage of renewable energy development, can one justify such large-scale projects just for demonstration? Several observers of the WSS process question the approach used to identify and select the "strategic projects". Generally, it has been "top-down", with little consideration of local community needs. A more suitable process would be the development of national action plans based on the needs of developing countries, on know-how gained from past experiences, and on participatory approaches.

Borrow.....to experiment!

The draft Harare Declaration indicates that the WSP may be funded via existing financing mechanisms, such as the Global Environment Facility (GEF). This poses a serious concern: It is likely that only projects addressing global warming, or other global problems, will be eligible. The objective of meeting the social needs of local communities, is hence very difficult to achieve. For example, the replacement of conventional fossil fuels with renewables will not directly affect the communities living in rural areas of developing countries, using mainly biomass energy. Their main problem is access to renewable energy technologies.

The WSS draft documents state that financing will be granted as subsidies or as concessional loans. Can one expect that developing countries are in a position to borrow money (even soft loans) just for the sake of experimenting with technologies...often produced elsewhere?

In addition, what contributions will the different countries have to make to the World Solar Programme? How will an equitable allocation of resources be ensured? How will the markets for renewable energy technologies be coordinated internationally?

About the last official preparations

The 40 Projects for Africa

For Africa, approximately 40 projects have been proposed for the onset of the World Solar Programme 1996-2005.

Generally, these projects are aimed at reducing the dependency of developing countries on fossil fuels and improving the provision of energy, especially to local communities living in rural areas. These projects include:

- technical capacity-building (especially for new technologies), to minimise the reliance on foreign expertise, with information and awareness creation, as well as education and training;
- the development and/or improvement of existing rural electrification programmes along with integrated programmes aimed at improving health and food production as well as water supply and development; and
- the promotion and use of biomass for household energy (such as for cooking).

African NGOs believe that more focus must be placed on alternative biomass resources (i.e. other than fuelwood) to reduce deforestation. Clearly, substantial resources will need to be mobilised as soon as possible for these projects to be materialised.

It is also important to bear in mind that most African countries do not have well defined renewable energy policies (at the national level) to implement and allocate resources for renewable energy programmes. This raises several questions:

- Given the maturity of several renewable energy technologies, why does the WSP seem to focus mainly on large scale demonstration units?
- Is it necessary to "borrow" technologies, to experiment with them?
- Finally, is it necessary for countries with little experience in the area of new and renewable energy technologies, to develop isolated projects, or should they rather focus on developing national energy policies and action plans?

Third WSSP/IOC Meeting

During the third International Organizing Committee (IOC) meeting in Paris, August 1-2, the feelings of some of the government delegates present was that there are serious time-constraints associated with the revision of the Harare Declaration. Overall, there is not enough time for governments to give an adequate and comprehensive response to the Declaration before the Solar Summit in September.

Two updated drafts for the WSS were presented and discussed, namely, the Harare Declaration and the World Solar Programme 1996-2005. However, as in the previous versions, there was little mention of NGO involvement and participation in the development and implementation of these projects.

Rene Karottki, representing INforSE, was amongst those participants who stressed that the important roles which NGOs and Community - Based Organisations (CBOs) can play.



Logo of the
WorldSolar
Summit

Akita Solar Energy Meeting.

By Gurmit Singh, CETDEM, Malaysia

About 12 countries were represented at the meeting of solar energy experts held in Ogata village, Akita, Japan, from 24 to 27 July. Although it was supposed to be for South and Southeast Asia, there were many Japanese as well as individuals from the USA, Australia, and Portugal. There were 2 INforSE members present, CETDEM from Malaysia and DERG (Decentralized Energy Research Group) from Japan.

The meeting seemed to spend too much time on photovoltaics and rural issues. There was also excessive time spent on Japan, China, and South Korea, with less focus on other countries of the region. The biggest disappointment came when the UNESCO representative stated that one of the projects presented during the meeting could not be considered since they could only be submitted through

Moscow Solar Summit

The regional Solar Summit in Moscow, July 8-12, gathered leaders of national renewable energy programmes and other experts mainly from the CIS countries. The Summit produced a Declaration, a list of strategic projects, and messages to the World Solar Commission (WSC), the EU, and the UN. The "Moscow Declaration" goes a bit further than the other WSSP Declarations in identifying particular problems for the existing fossil and nuclear energy supply. Further, it is stated that:

- Utilization of renewable energy systems (RES) in many cases can help to solve social and environmental problems;
- More RD&D (Research, development, & dissemination) is needed to improve the RES performance, to increase reliability, and to decrease costs; and
- Incentives and favourable legislation have to be developed to secure RES market penetration.

The messages from the meeting to the WSC, EU, and UN ask for support for a CIS Solar Programme 1996-2005. Finally, the meeting addressed an appeal to Head of States of the CIS countries to promote the development of large national renewable energy programmes. It still remains to be seen what will come out of these messages and appeals.

national governments to the Solar Summit. This raised doubts about projects from several NGOs.

After much debate, participants adopted a 4-page Akita Declaration which generally resembled other Declarations adopted so far. An attempt to create a new Solar Energy Centre was voted out. The lack of political commitment to renewable energy in most countries of the region was also glossed over, as well as the role of NGOs.

NGOs must be alert to the fact that developed nations have not shown much enthusiasm for the Solar Summit and that it is very likely that very few resources may be available to implement any of its recommendations. We must also be aware that these countries have not embraced renewables on a large enough scale to meet their emission reduction obligations under the Climate Change Convention.

Solar Summit Week, Events in Harare

During the WSS a large number of parallel events are planned by NGOs. Below is an overview, including INforSE workshops to be organized at the Harare International Conference Center.

Other important activities include:

- internal NGO briefings at 8.30 a.m. Sept. 12, 13, 14, 16, 17
- NGO press conferences (see posters)
- exhibitions

For those who cannot come to Harare: papers from the INforSE workshops will be available from the INforSE Secretariat after the WSS. Updated INforSE information on WSS can be found on: <http://www.inforse.dk>

Date	Activity
Sept. 12	NGO-Briefing. INforSE Workshops: Morning (10.00 - 1.00): Renewable Energy Education and Training. Presentations by Mr. James Chitauru. Pro-Vice Chancellor of the University of Zimbabwe; Dr. Ekkehart Naumann, Director of the German NGO BORDA; Natascia Petringa, Forum for Energy and Development, Denmark; Mr. Benchikh, UNESCO (not all confirmed). Afternoon (3.00 - 6.00): Decentralised Renewable Energy Development in Industrialized Countries: Denmark as an Example. Presentation by Finn Tobiesen, OVE, Denmark.
Sept. 13	NGO-Briefing. INforSE Workshops: Morning (10.00 - 1.00) Better Management of Natural Energy Resources in rural areas: Fuelwood, Stoves and Biogas. Presentations by Max Mapako, Biomass User's Network, Zimbabwe; Stephen Karekezi, Foundation for Woodstove Dissemination, Kenya; Raymond Myles, INSEDA, India. Afternoon (3.00 - 6.00): How to implement energy efficiency and renewable energy in the fast growing economic of Thailand, Malaysia and South Africa. Presentations by Dr. Asi Bunyajitradulya, ATA, Thailand; Eng. Gurmit Singh, CETDEM, Malaysia; Dr. J. A. Opperman, Dept. of Mineral and Energy Affairs, South Africa.
Sept. 14	NGO-Briefing. INforSE Workshops: Morning (10.00 - 1.00) Provision of CO₂ Free Energy Services Through Off-grid Solar Electrification: Organisational experiences from South Africa, Senegal, Zimbabwe and the Pacific, Presentations by Mr. R. Buttle; Programme Manager, Non-Grid Electrification, Eskom; Mr. Gibson Mandishoba, UNDP/GEF Solar Project, Zimbabwe; Mr. Herbert A. Wade; International Programs Coordinator, Solar Energy Research and Training Center, Baresun University, Thailand (not confirmed) Afternoon (3.00 - 6.00): Scope for sub-regional collaboration on renewable energy development in Southern Africa. Presentations by Eneas Mandangepfufu, Zimbabwe; Bill Cowan, EDRC, University of Cape Town, South Africa; Nazare Slavador, S.A.D.C., Luanda, Angola.
Sept. 15	NGO Excursion to several energy projects, organised by Biomass Users Network.
Sept. 16-17	NGO-Briefings. Participation in the World Solar Summit.

Key Issues and Questions on the Leading..., continued from page 2

■ INSEDA (Integrated Sustainable Energy and Ecological Development Association), India, has suggested a "Renewable Energy Bank" or "Energy Development Bank" with a global trust fund for renewables. NGOs, rural entrepreneurs, and other end-users could then become members of this bank.

■ The WSP (e.g. Global Renewable Energy Education and Training Programme) seem to omit the core of most NGO activities - namely, non-formal education and training. NGOs have been instrumental in this area. In the documents, a great deal of emphasis is placed on training at post-graduate and industry levels; however, non-formal training and awareness activities must be given higher priority.

■ Several INforSE members have proposed SWP projects in education and training, technical management, marketing, literacy and skills development, operation and maintenance, etc., - all based on local resources.

■ The Global Solar Energy Information System should include organisational and institutional issues. INforSE organisations can offer their cooperation in this area.

■ The documents do not emphasise the link between sustainable energy technologies, employment generation, poverty alleviation, and women. They must also promote bottom-up approaches and local involvement.

■ Finally, developed countries need renewable energy as well since they are the largest contributors of greenhouse gases and must comply with UN-FCCC (Climate Convention). This should be reflected in the WSP.

Senegalese Proposals

On June 21-22, a seminar entitled "Financing of Solar Energy in Senegal" was held in Dakar, Senegal. It was organized by the Senegalese Association for Solar Energy (ASES). Forty people working with solar energy attended the seminar.

The participants emphasized the need to:

- formulate and implement a comprehensive "Action Plan" for the promotion of renewable energies;
- strengthen the efforts of different actors working with solar energy to improve coordination and synergy between them;
- disseminate information and create greater awareness of the financial opportunities surrounding solar energy technologies, both at the national and the international level; and
- encourage the participation of ASES in the activities and programmes of the World Solar Summit.

North America

Alert! A New US National Outlook? US Renewable Energy Program Ends in 1999?

Combining the 23% cut in 1996 with the House Appropriations Committee recommended 20% cut for 1997 would reduce the Federal Renewable Energy Program to about half (in real terms) its 1995 capability. If continued, this downsizing trend would bring the Program to an end in 1999.

A Presidential veto is possible and efforts are underway in both chambers to raise the 1997 Appropriations Committees' marks in floor action. Floor action to reduce spending further is also possible.

The Federal Renewable Energy Program, budget of the Department of Energy (DOE), includes R&D funding, tax credits, and a regulatory framework ensuring utility purchases of electricity from independent renewable power producers.

Table 1
US Renewable Energy R&D
(constant 1996 \$US)

Year	Million \$ US
1979	1,300
1990	132
1995	340
1996	254
1997	? 327- 202

The spending history for DOE renewable energy R&D can be viewed within the context of DOE spending for the three other energy R&D programs. See in Table 2.

Table 2.
US R&D Spending History
[Million \$ US]
(constant 1996\$US)

	1948-72	73-95
Nuclear	21,000	41,000
Fossil	5,000	20,000
Renewables		10,000
Efficiency		6,000

1995

The passage of the Energy Policy Act (EPACT, P.L. 102-486) and a priority commitment to renewables by the Clinton Administration raised the spending levels for 1994 and 1995.

1996

The Administration's 1996 DOE budget request reflected this priority by seeking \$372 M, a \$28 M increase, primarily for export promotion and pollution prevention. Stressing budget deficit concerns, the 104th Congress rejected this bid. The 1996 appropriation of \$254 million is about \$77 M lower than the 1995 mark.

1997

- **DOE Budget Request is 327 MS**, \$73M more than the 1996 budget. It includes increases of \$27 M for biofuels, \$25 M for photovoltaics, and \$18 M for wind
- **The House Appropriations Committee recommends \$202 M.** It would cut wind-energy spending by \$26 M and photovoltaics by \$6 M, while terminating deployment and in-house energy management.
- **The Senate Appropriations Committee recommends \$215 M.** Relative to the House mark, it increases wind-energy funding by \$9 M, but it would also terminate the National Renewable Energy Laboratory (NREL) and it cuts hydrogen by \$6M.

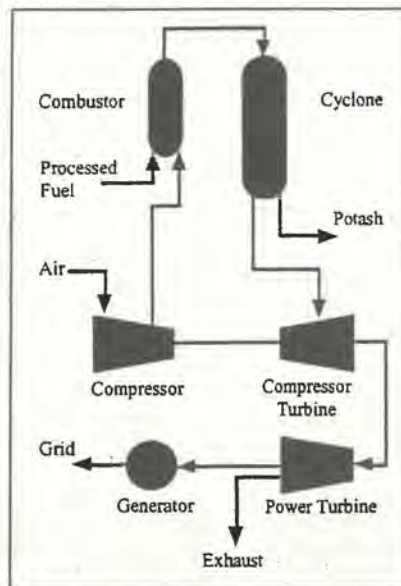
More information:

The report by Fred J. Sissine, Science Policy Research Division Congressional Research Service is available at <http://www.crest.org/pub/policy-and-econ/pending-legislation/crs2.txt>. Updated July 19, 1996.

Biomass-Fired Gas Turbine, USA

A current trend in industrialized countries is the use of increasing number of smaller and more flexible biomass-based plants for cogeneration of heat and electricity. A newly developed biomass cogeneration plant in Knoxville, Tennessee, USA, is at the cutting edge of one of the promising technologies behind this development.

The plant combines a wood furnace with a gas turbine. A hot, pressurized flue-gas filter cleans the exhaust gas from the furnace before it drives the power turbine. The plant can run on fresh cut sawdust (40% humidity), and produces 5.8 MW of electricity, while consuming 10 tons sawdust/hour, and delivering heat as hot exhaust gas at 370°C. This gives an electric efficiency of about 19% and overall efficiency of up to about 75%. The exhaust gas can be used in a steam turbine, increasing electric output to 9.6 MW, and electricity efficiency to over 30%.



The plant in Knoxville has been operating since spring this year, and can be visited during the Seventh National Bioenergy Conference, September 15 - 20, in Nashville, Tennessee.

More information on the plant in Knoxville: BIOTEN, 10330 Technology Drive, Knoxville, Tennessee, 37932, USA, ph: +1-423-675 2130, fax: +1-423-966 2070.

Europe

INforSE - Europe to Lobby EU & Collect Renewable-Energy Case Data

At the 1996 annual INforSE - Europe meeting on June 30, a new Action Plan was approved. It sets the framework for the next year's activities of INforSE - Europe. Emphasis will be on the following items:

- A campaign to monitor and lobby EU institutions on energy questions. APERE in Belgium and the INforSE-Europe secretariat in Denmark will allocate resources to follow ongoing EU issues, circulate the information among INforSE-Europe members, and publicise INforSE positions on the different issues in question.
- Collection of renewable-energy case data from Central and Eastern Europe will continue the work begun in the project for assessing renewable-energy potentials (see SEN no. 13). This new project will first provide an overview of renewable-energy technologies in Slovakia, Hungary, and Western Ukraine. Later, more countries will be included and an international overview will be made.
- A European sustainable energy seminar is planned for the first week of July 1997 in Hungary in



cooperation with other European energy NGO networks. As part of this seminar will be the 1997 INforSE - Europe meeting.

- A new INforSE-Europe email list is being established.
- The INforSE-Europe sustainable-energy-company database will be developed further. It is available on diskette.
- INforSE-Europe asked the NGO Bank Watch Network for cooperation on monitoring energy lending from development banks, specifically, concerning Central and Eastern Europe.

- Finally, an important part of the activities of INforSE - Europe is to take part in the worldwide campaigns and other activities of INforSE. A special European information project is planned for the Solar Summit including a follow up meeting.

The INforSE-Europe coordinators, Emil Bedi, Slovakia and Gunnar Boye Olesen, Denmark were both re-elected at the meeting.

More information: INforSE-Europe. See at the back page.

Successful Urban Ecology Conference

At "The City as an Organism", 170 participants from 26 European countries discussed how to develop sustain-

able cities with respect to energy, water, traffic, urban planning, social organization, and many other aspects of urban ecology. Most of the participants took part in the 16 workshops, each of which discussed a special topic and produced an exhibit. (See photo)



These exhibits are now circulated in the Copenhagen area as a mobile exhibition. Other outcomes of the conference were:

- a statement from the participants, calling for continued cooperation among NGOs on collecting cases for good practices in urban ecology "from the bottom", develop a list of urban ecology groups in Europe, and secure NGO participation in the Sustainable Cities Conference in Lisboa in October (see on p. 11).
- a report summarizing the plenary sessions and workshops.

The conference was organized by OVE, The Danish Organization for Renewable Energy in cooperation with INforSE-Europe and local organizations.

Conference report available at: OVE/INforSE-Europe, address at back page.

EU Update

Electricity Directive Coming

A common position on the EU directive on electricity markets was reached at the EU Energy Ministers' meeting, June 20, after 4 years of negotiations. With this recent development, a binding directive can be expected within a year. The common position includes most of the previous agreements (see Sustainable Energy News 11 and earlier). One new element is an agreed-upon timetable for permitting large consumers to buy on an open electricity market, across the borders:

- starting in 1999, consumers above 40 GWh/year will be granted such access (22% of electricity sales);
- starting in 2000, consumers above 20 GWh/year (27% sales);
- starting in 2003, consumers above 9 GWh/year (33% sales).

The paragraph on public service obligations still includes environmental protection as one of the costs that a state may ask all consumers to pay, including those trading on the free market. According to previous agreements, this can allow countries to give preferential treatment to non-polluting energy sources, but it is a question of

national policy. There will be a second hearing in the EU Parliament before the directive takes effect.

INforSE-Europe organizations are now analyzing the implications of the directive for renewable energy and efficiency.

Following the agreement on electricity, the Irish presidency of the EU has started negotiations on a gas directive. It is possible that an agreement on a gas directive can be reached quite quickly, building on the agreements of the electricity directive.

No IRP Directive

The proposed directive on integrated resource planning (IRP) in the electricity sector was not approved by the last Energy Ministers' Council. Because of the limited support for the proposal, negotiations will not continue. This means, effectively, that there will not be an IRP directive with binding obligations for the EU countries. The EU Commission can now decide to make an IRP recommendation, but it might not find it worth the effort.

With this measure not approved, it will be even harder to reach the CO₂ stabilization and reduction goals of EU.

Efficiency Standards for Fridges

Efficiency standards for freezers and fridges have been approved by the EU Parliament in June at the same level as agreed by the Energy Council in December 1995. They decided upon a 15% efficiency increase over the current level, with voluntary agreements for further improvements. This was better than the 10% increase proposed by the EU Commission, but still is very modest compared with the technical potential.

15% Renewables Called by EP

The European Parliament (EP) now calls for 15% renewable energy in the 12 "old" EU countries. This is much more ambitious than the official EU goal of 8% renewable energy by 2005 for the "old" countries (the "new" EU countries, Austria, Finland, and Sweden, already have a +35% share of renewable energy). It is important for the renewable/sustainable energy organizations to follow up on the implementation of this new goal. This can be a key part of a EU environmental plan that includes stabilization and reductions of CO₂ emissions.

Sources: Danish Energy Agency, EC-Inform Energy (lyons@ecinfor.demon.co.uk), and others.

European Energy Conservation Strategy

At the European Environmental Ministers' Meeting in Sofia, October 1995, an Environment Program for Europe was approved, including the idea of a European Energy Conservation Strategy.

Preparation of this strategy is now in progress within the UN-ECE (Economic Commission for Europe), with the aim of formulating a proposal before the next Environmental Ministers' Meeting, which is to be held in Denmark in 1998. The first, informal meeting was held on July 4, and the next meeting will be on October 14-15. NGOs have been granted one seat in the meetings.

Developments will be followed by INforSE-Europe as well as by the NGO Coalition "Environment for Europe" which followed the Sofia meeting.

Sofia NGO Follow Up

The follow-up of the Sofia Conference and the preparation of the next Pan-European Environmental Minister Conference will also be discussed at the NGO Coalition "Environment for Europe" conference in Brussels on October 25-27, where the NGO preparations will start for the next Environmental Ministers' Conference, which is to be held in June, 1998, in Århus,



Denmark. Topics to be discussed at the conference will include NGO priorities and election of a new NGO steering committee for the process.

More Information: EEB, 26, rue de la Victoire, 1060 Brussels, Belgium.

Ph/fax: +32-2-5390037/ 5390921,

email: eeb@gn.apc.org.

Sustainable Cities, Lisboa, October 6-8, 1996

The cities of Europe will set urban environment on the agenda on the 2nd Sustainable Cities Conference. Four networks of cities united in the "European Sustainable Cities and Towns Campaign" supporting the conference. NGOs will also be allowed into the conference, as far as space allows, and with a participation fee of approx. 150 US\$.

More Information: Camera Municipal de Lisboa, Praça do Município, 1194 Lisboa, Portugal. Ph/fax: +351-1-3476889/-3429505, email: cmlgri@telepac.pt.

Reactors Can Be Not Only Nuclear But Also Biological, Russia

By Eduard Gismatullin, Greenpeace Russia anti-nuclear campaign.

Russia is the biggest country in the world, with a huge bio-energy potential which is not being efficiently used across the country. The total potential of bio-mass resources is 7,000 million tonnes of oil equivalent (Mtoe.) for the whole of Russia. Of this, according to an official report (* See table), 37.1 Mtoe is technical potential and 24.5 Mtoe is economical potential.

Part of the biomass potential is manure and organic waste of which Russia produces 350 Million tonnes annually. From this it should be possible to get 95 Billion m³ of bio-gas equal to 66 Mtoe, almost 1.5 times more than the amount provided by Russian nuclear power plants.

We are spending a fortune on solving the problem of nuclear and organic wastes, and investing money to increase the safety of the nuclear power plants.

We now have a real opportunity to stop dangerous Russian reactors and replace them with alternative sources of energy and energy-efficiency measures. We must seize this opportunity!

In Russia, technically accessible and economically profitable know-how does exist which

- provide autonomous bio-gas stations for producing energy,
- prevent transportation of fuel to remote places. (70% of Russia),
- deal with the organic wastes of farms and cities,
- improve the environment especially around farms where the organic waste pollutes the soil and the nearby rivers,
- produce organic fertilizers.



The farm with Eduard Gismatullin at the BIOGEN-1 station, in Russia.

But bio-gas stations are not very common in the former USSR. There is almost no production. In the whole former

USSR only about 60-80 reactors were built. There are such great possibilities for this technology, but since the economic situation is not stable at the moment, and there is obvious prioritization of nuclear and natural gas energy production, not enough money is being provided for research into alternative energy resources. This makes it extremely difficult to introduce these technologies into the Russian energy market.



The Bioreactor with the author, Eduard Gismatullin (left), and the directors of the biogas station at the farm: E. Pantshkava and V. Pozharnov.

Biogas Plant Visited

Last winter and this summer, I visited one of the few bio-gas stations in the Moscow suburbs. A group of enthusiasts built, on a small cattle farm, the station BIOEN-1 by investing their own money in it in 1994-1995. It should produce energy and fertilizers from the waste of 20-25 cattle and consists of 4 bio-reactors. The station reprocesses 1 ton of biomass a day, producing 40 m³ of bio-gas, enough for 80 kWh and 800 MJ of heat as well as 1 ton of fertilizers. This energy should be enough for 10 families of 4 people to live in Russian climate conditions.

More information on bioreactors:

Center EcoRos, Lomonosovski prospekt, 33, bldg.2, office 21, Moscow 117192 Russia. Ph: 7 (095) 147 3669, 152 6755.

More info on Energy in Russia:

Greenpeace Russia: Dolgorukovskaya str, 21 Moscow 103006, Russia.

Ph/fax: 7-(095)-9783950/ 2519088,

e-mail: gis@green2.greenpeace.org.

Table: Energy potentials of Russia
[Million tonnes of oil equivalent]

	Theoretical	Technical	Economical
Small Hydro	250	87.5	45.5
Bio-Mass	7,000	37.1	24.5
Wind Energy	18,000	1,400.0	7.0
Solar Energy	160,000	1,610.0	8.7

* Russian Federation Ministry of Fuel & Energy Report '94: The concept of development and use of possibilities small-scale and non-traditional energy production in the energy balance of Russia.

Efficiency Tests on the New Peko Pe Stove in Uganda

By Per S. Nielsen, Technical University of Denmark, Denmark.

There are many options for reducing the biomass consumption in the food preparation process. Looking at the total energy chain from biofuel to the final meal, many technical improvements are possible. There are also many options which are non-technical. These are closely related to the cooking performance. In relation to technical options, the choice of fuel, optimisation of heat transfer, and efficient combustion processes are important. The non-technical options include, for instance, the use of lid, skills in firing control, and organisation of the food preparation process.

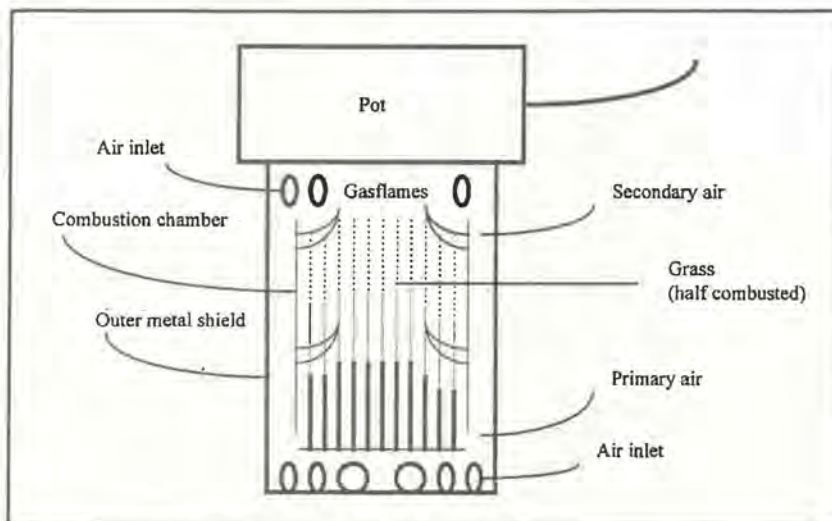
The central problem in obtaining high efficiency for the popular three-stone stove in real life is the firing control. With three-stone stoves, it is difficult to obtain the optimal distance between fire and pot and to keep the fire in the optimal combustion state, as heat is lost with large flames.

Peko Pe Tested

The Peko Pe is a newly developed gasifier stove developed by the Norwegian Paal Wendelbo. It is basically a pyrolysis gasifier. (See figure.)

The stove was tested at the Technical University of Denmark and in the Adjumani Refugee Camp in Uganda in 1995:

- In Denmark, the stove efficiency was 24-26% burning dry woodchips (10% moisture) with a caloric value of 16MJ/kg of woodchips.
- In Uganda, the tests showed a stove efficiency of 21-23% with a caloric value of 15 MJ/kg of grass.



The Peko Pe gasifier stove.

The figure illustrates the pyrolysis in the stove while burning grass. It shows the combustion 5-10 minutes after ignition where the upper part of the grass is burned. The grass is ignited from the top and placed vertical. The stove is made of 2 tins: an inner combustion chamber and an outer shell. The inner chamber (Ø15cm, 20cm high) has Ø0.8 cm air-holes in the bottom, in the middle and at the top.

The idea of the tests with grass in the Adjumani refugee camp in Uganda was to develop the gasifier stove to be able to use as fuel the grass available in the refugee camp, which in any case would be burned in bush-fires.

In the refugee camp, the stove was tested with 20-cm-long grass straw of two different diameters, 3-4 mm and 7-8 mm. Generally, the thinner grass burned better than the thicker grass.

The stove provided heat enough to boil a meal in around 45 minutes after reaching the boiling temperature. The radiated heat made it possible to boil the water for another 25-30 minutes after the combustion was stopped. This is a so-called charcoal effect. This effect was not seen in the tests on woodchips in Denmark.

Further technical options to examine to improve the efficiency of the stove include: changing the number of holes, the height of the chamber, variation of biofuel source, and specifying the role of the moisture percentage.

Socio-economic aspects

In the camp of 100,000 refugees in Uganda, a workshop was established in cooperation with Accord, a UK NGO and the Norwegian Association for the Disabled.

Technicians, disabled people and women were trained to produce, sell the stoves and cook with the stove. Further aspects to examine are:

- How is it received by the cook?
- What kinds of food can be made on the stove?
- Even though the stove is cheap, can people afford to buy it?
- To what extent are people willing to accept preparation of the biomass if necessary?

Peko Pe / Three-Stone Stove

Advantages:

- burns without smoke and CO emissions are low.
- is easy to ignite.
- is rapid in achieving boiling temperature, and it has a charcoal effect, when grass is used.
- is relatively cheap to produce.
- easy to move and carry around.

Disadvantages:

- metal, tools, skills are needed to produce the stove.
- biomass needs treatment which depends on the biomass source. it needs dry biomass.

More info: Per S. Nielsen, Dept. of Buildings & Energy, Bldg. 118, Technical Univ. of Denmark, 2800 Lyngby, Denmark. Ph/fax: +45-4525-1949/ - 45934430, e-mail: psn@ibe.dtu.dk.

Publications



Improving the Environment and Promoting Employment in Denmark
Summary of a study prepared by Economic Council of the Labour Movement, Denmark and the Centre for Alternative Social Analysis.

1995, 45p.

Elements of a Green Energy Plan which can create Jobs Opportunities with Appendix with calculations

Edited by Ole Busck, SID, General Workers Union in Denmark

1996, 59p.

Contact: Kampmannsgade 4, PO Box 392, 1790 Copenhagen V, Denmark

Ph/fax: +45-33142140/-33972460

Mini- and Micro hydropower Development in the Hindu Kush-Himalayan Region- The Nepal Perspective
Report of 14 Seminar Paper presented in a workshop in September 1994 organized by ICIMOD.

By editors R.D.Joshi & V.B.Amatya
October 1995, 102 p.

Contact: International Centre for Integrated Mountain Development (ICIMOD) 4/80 Jawalakhel, GPO Box 3236, Kathmandu, Nepal.
Ph/fax: +9771-525313/-524317,
Email: icimod@mos.com.np.

Renewable Energy Strategies for Europe Volume I: Foundations and Context.

Basis of Policy in EU: trends, assessment, research tech. development. Driving Forces, External dimension: global, Central Eastern Europe, Maghreb and Egypt, aid programs, developing world.

Examples of market stimulations from California, Denmark, Austria, Mediterranean, UK, Sri Lanka, Brazil.

By Michael Grubb, The Royal Institute of International Affairs.

1995, 224 p., £12.95+P&P.

Contact: RIIA, Chatham House 10 St James's Square London SW1Y 4LE UK. Ph/fax: +44 171-957-5700/5710.

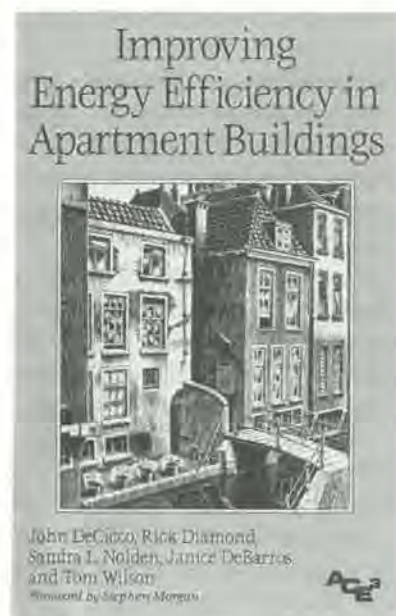
Charcoal Dilemma, Finding a Sustainable Solution for Brazilian Industry

Brazil is the world's largest producer and consumer of industrial charcoal, but the charcoal-based pig-iron and steel industry is at a crossroad.

By F. Rosillo-Calle, M.de Rezende, P.Furtado, D.O.Hall. Biomass Users Network.

1996, 80p, £5.95+P&P

Contact: Intermediate Technology Publication, 103/105 Southampton Row, London WC1B 4HH, UK. Fax +44-1752-202331.



Improving Energy Efficiency in Apartment Buildings

By John DeCicco & Rick Diamond, Lawrence Berkeley National Laboratory Sandra Nolden, Citizens Conservation Corporation et al.

1995, 300p., £32, +P&P.

Published by ACEEE

Energy Efficiency & the Paper Pulp Industry

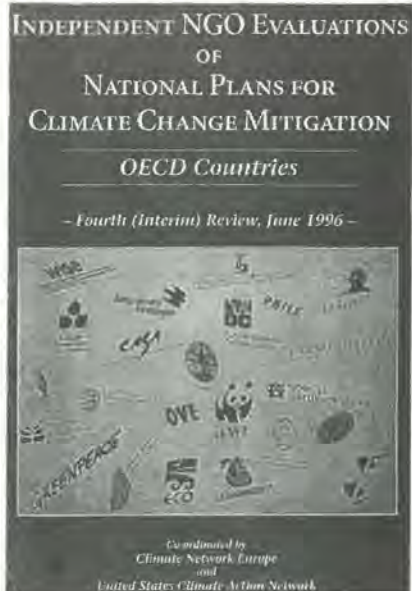
By Lars J Nisson & E. Larson, Princeton Univ. K.Gilbreath, Chesapeake Paper Products Company, A. Gupta, NRDC.

Published by ACEEE.

1995, 65 p., \$24, +P&P.

Contact: American Council for an Energy Efficient Economy, ACEEE Publications, 2140

Shattuck Ave, Suite 202, Berkeley, California 94704. Ph: 1-202-4298873 or 1-510-549-9914.
Email: glee_murray@ccmail.pnl.gov or
http://crest.org/aceee.



Independent NGO Evaluation of National Plans for Climate Change Mitigation.

4th (Interim) review of 20 OECD Countries.

By 20 NGOs from all over the world like CAN, Greenpeace, Sierra Club, OVE, WWF, NRDC, Germanwatch, WISE, Earth Watch et al.

June 1996. 46 p.

Contact: Climate Network Europe, 44 rue Taciturne, 1000 Brussels, Belgium.

Ph/fax: +32-2-2310180 fax: -2305713,
email: canron@gn.apc.org.

Global Warming, A guide to market-based controls on the energy sector

By Ian Fells & Lisa Woolhouse

1996, 135p, £195, 50% reduction for academics.

Joint Implementation, Opportunities for Business under the UN Framework Convention on Climate Change

By Deborah Adams

1996, 154p, £395, 50% reduction for academics

Contact: FT Energy Publishing, 149 Tottenham Court Road, London W1P 9LL, UK.

Ph/fax: +44-171-8962241/-8962275.

periodical:

Medium/Small Hydro Power & Equipment

No 2, 1996 is 100 pages. It is published by HIC, Hangzhou International Centre on Small Hydro Power.

Contact: Int. Network on Small Hydro Power, PO Box 607, 4 Baisha Road, Hangzhou, 320006, China. Ph/fax: 0571-7055489/-7055492.

Events

* Event with INforSE participation

September 10-18, 1996*

INforSE Coordinators Meeting, NGO Forum, INforSE Workshops Harare, Zimbabwe

Info: "World Solar Summit, NGO Voices" Newsletter included, and the INforSE Secretariate. See on page 2.

September 16-17, 1996*

World Solar Summit, Harare, Zimbabwe

Info: WSS Organising Committee, PO Box 4240, Harare, Zimbabwe. Ph: +263-4-727005, fax: +263-4-706295.

September 22-25, 1996

2nd European Biofuels Forum, Graz, Austria

Info: Joanneum Research, 2nd European Biofuels Forum, Elisabethstr. 11, A-8010, Graz, Austria. Fax: +43-316876-320.

September 23-30, 1996

15th Int. Conf. for Industrial Energy Mgmt., Leipzig, Germany

Info: Sikom Leipzig GmbH, Ritterstr. 42, 04109 Leipzig, Germany. Fax: +49-341-2-117924.

September 30 - October 1, 1996

First European Energy Crops Conference, Enschede, Netherlands

Info: John Vos, Biomass Technology Group, Univ. of Twente, PO Box 217, 7500 AE Enschede, The Netherlands. Ph/fax: +31-53-489-3249/3116, email: ecrop.btg@ct.utwente.nl. See also article in SEN #13 page 11.

October 1-2, 1996

Energy and Power Expo, Beijing, China

Info: Adsale Exhib. Services Ltd, 4/F Stanhope House, 734 Kings Road, North Point, Hong Kong. Ph/fax: +852-28118897/-25165024.

October 3-4, 1996

Transport, Energy & Environment, Helsingør, Denmark

European Conf., 10th anniversary of the Danish Ass. of Energy Economics. Info: Helle Balmer, 9 Rosenørns Alle, 1970 Frederiksberg C, Denmark. Ph/fax: +45-31-390111/-395958.

October 7-9, 1996

REAP '96 Conference & Exhibition, Manila, Philippines

Info: Alternative Dev. Asia Ltd, 5/F 3 Wood Road, Wanchai, Hong Kong. Ph/fax: +852-2574-9133/-1997, email: altdev@hk.super.net. See also article in SEN #13 page 8.

October 7-11, 1996

International Course: Small Hydro Development, New Delhi, India

Info: See at the event February 3-7, 1997

October 15-18, 1996

ENEF'96, Slovakia

2nd Int. Conf. & Exhibit of Association of Energy Managers of Slovakia. Info: Marian Rutsek, Kukucinova 5, Banska Bystrica, PSC 97401, Slovak Republic. Ph/fax: +42-88-723320.

October 19-20, 1996

Energy & Env. in Palestine, Challenges for Dev. & Reconstruction, Nablus, Palestine.

Info: The Palestinian Energy & Env. Research Center, PO Box 51791, Beit Hanina, Jerusalem. Ph/fax: +972-7824211, email: pec@planet.edu

October 22-25, 1996

Energy Africa '96, Nairobi, Kenya

Info: Tracey Nolan, 37 Upper Duke Street, Liverpool L1 9DY, UK. Fax: +44-151709 7801.

October 23-25, 1996

Congress Energy & Environment, Opatija, Croatia

Info: Croatian Solar Energy Association, Vukovarska 58, 51000 Rijeka, Croatia. Ph/fax: +385-51-514-562, email: huse@ri-jeka.riteh.hr.

October 28-November 1, 1996

Velo Australis, Int. Bicycle Conf. Fremantle, Australia

Info: Promaco Conventions Pty Ltd, PO Box 8190, Canning Bridge, Western Australia 6153. Ph/fax: +61-9-3648311/-3161453, email: promaco@cleo.murdoch.edu.au.

January 6-10, 1997

3rd Int. Conf. on Solar Cookers Use and Technology, Tamil Nadu, India.

Info: Rajammal Devadas, Avinashilingam Deemed University, Coimbatore 641043, India. Ph/fax: +91-422-440140/-438786.

January 8-10, 1997.

Passive and Low Energy Architecture, Kushiro, Japan

Info: Secretariat, PLEA 1997 Kushiro Conference. Ph/fax +81-33798-5122/-5130.

January 13-19, 1997

Techn. Exchange of Solar & Biomass Energies, Haikou City, China

Info: Song Yuhua, DCAST, No 13, Block 4, People South Road, Chengdu 610041, China. Ph: 028-5541487, Fax: 028-5212250.

January 22-24, 1997

Energy & Economic Growth - Is Sustainable Growth Possible?, New Delhi, India

20th Int. Conf. hosted by Indian Ass. for Energy & Env. Economics.

Info: Dr Leena Srivastava, Tata Energy Research Institute, Habitat Place, Lodhi Road, New Delhi 110 003 India. Ph/fax: +91-11-462-2246/-1770

February 3-7, 1997

Hydro Centenary, Hyderabad, India

Info: C.V.J. Varma, Int. Assoc. for Small Hydro. CBIP Building, Malcha Marg, Chanakyapuri, New Delhi 110021, India. Ph/fax: +91-011-3015984/-30116347, email: cbip@cbipdel.iamet.in.

February 4-7, 1997

R'97 - Recovery, Recycling, Re-integration, Geneva, Switzerland

3rd Int. Congress with Exhibition, language: English, French, German. Info: EMPA, Dr Xavier Edelmann, Chairman PO Box, CH-9001 St Gallen. Ph/fax: +41-71-300101/-300199.

February 17-20, 1997

The Gulf Show, Middle East Alt. Energy Exhibition, Abu Dhabi

United Arab Emirates. Together with AGROFISH, AQUA, EVIRO Exhibition. Info: PO Box 5546, Abu Dhabi United Arab Emirates, Ph/fax: +971-2-446900/-446135. In Europe: Brussels Int. Trade Fair, Ph/fax 32-2-477-0576/-0465.

March 3-5, 1997

Int. Conf. & Exhib. on Village Electrification through Renewable Energy, New Delhi, India.

With MNES & IREDA of Gov of India. Info: CASE, level 3, 81 St Georges Terrace, Perth Australia. Ph/fax: +619-321-7600/-7497, email: case@wantree.com.au

June 30 - July 4, 1997

14th European PV Solar Energy Conf. Barcelona, Spain

Info: European Commission, Joint Research Center, H. Ossenbrink/EPVSECE 14, 21020 Ispra (VA) Italy. Ph/fax: +39-332-785885/-789268, email: jennifer.rundle@jrc.it

July 14-18, 1997*

5th International Conference on Adult Education

Info: UNESCO Institute for Education. Ph: +49-49-448041-0 fax: +49-40-4107723. e-mail: uie@unesco.org

22-24 July, 1997

ISAAE'97 Johor Bahru, Malaysia

Int. Symposium on Advances in Alternative/Renewable Energy. Info: Universiti Teknologi Malaysia, Locked Bag 791, 80990 Johor Bahru, Malaysia. Ph/fax: +60-7-5504758/-5566159, email: othman@fklj.utm.my.

Join INforSE

International Network for Sustainable Energy (INforSE) is a worldwide network of NGOs unified by a common goal - long-term sustainable energy development and a phase out of nuclear and fossil energy consumption.

INforSE was formed at the Global Forum in Rio de Janeiro, Brazil in 1992. Presently, 154 organizations are members of INforSE worldwide.

Membership

INforSE is open to membership for independent organizations.

Membership is free of charge, though voluntary contributions are welcome. INforSE has core members and associate members.

Core members of INforSE are independent organizations which support in their words and actions the energy strategy behind INforSE, "Sustainable Energy Development - Towards a World Strategy", and that are approved by their respective INforSE region. Core members have voting rights at regional meetings.

Regional Activities

In each of the INforSE regions, member organizations and the regional coordinator(s) organize regional INforSE meetings and initiatives including conferences, workshops, campaigns, and research projects.

Joint Activities

INforSE lobbies to promote sustainable energy solutions which utilise decentralised approaches. All activities seek to protect the environment and to achieve development.

Workshops, statements, exhibitions are also prepared for several United Nations events and their parallel NGO Forums including: the *World Summit for Social Development '95*, *Climate Summit in Berlin '95*, *World Conference on Women '95*, *UNESCO World Solar Summit '96* and the *5th International Conference on Adult Education in 1997*.

The views and initiatives of each region are presented by the coordinators at annual meetings where INforSE's global activities are planned. This year, the annual meeting is in September, Harare, Zimbabwe.

The information exchange is facilitated by the quarterly newsletter "Sustainable Energy News" and the annual "Worldwide Sustainable Energy Contact List". These publications are distributed in 2,000 copies and on internet.

INforSE launches campaigns and publishes research reports such as a colourful campaign paper entitled "Energy for a Better Life: Sustainable Energy for Social Development" and reports on EU and multilateral funding programs which can be of interest to NGOs working with sustainable energy in the third world.

INforSE is publishing 4 issues of "World Solar Summit NGO Voices" in English and French.

The INforSE publications are free of charge for NGOs as long as possible.

INforSE is supported by the Forum for Energy and Development, Denmark which is an umbrella organisation of Danish NGOs working on development and energy issues.

Please feel free to contact us at the INforSE Secretariat, at our home page on internet (See on page no. 2) or at the INforSE regional coordinators (See in the box).

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SZOPK-Foundation for Alternative Energy, Gorkoho 6, 81101 Bratislava, Slovakia. Ph/fax: +42-7-364665/-313968, Email: bedi@seps.ke.sanet.sk att. Emil Bedi

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