SUSTAINABLE ENERGY NEWS

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Partners Surpass Promises in Thailand

Efficient Smoking of Fish in Uganda

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INFORSE Secretariat:
NEW ADDRESS !
Blegdamsvej 4 B, 2200
Copenhagen N, Denmark.
Ph: +45-35-247700 (NEW!)
Fax: +45-35-247717 (NEW!)
E-mail: inforse@inforse.org (NEW!)
http://www.inforse.org/

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Editorial Address:
Sustainable Energy News
Gl. Kirkevej 56, DK-8530
Hjortshøj, Denmark.
Ph: +45-86-227000
Fax: +45-86-227096
E-mail: ove@inforse.dk
ove@inforse.org (NEW!)
http://www.inforse.org/

Editors:
Gunnar Boye Olesen
Judit Szoleczky
Michael Kvetny
Lars Yde (technical editor)
Niki Fowler (text advice)
Mads Izmodenov-Eskesen (Layout)

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Photo on the front page:
Changing smoked fish on the trays of the efficient kiln.
See article on pages 8-9.
Photo by JEEP, Uganda.

We Welcome Records, but More are Needed

Drawing by Claes Movin

The year 2000 begins with *new records for renewable energy*. Never before has so much electricity been produced from wind turbines or from solar cells. Solar heating, biogas, solar cooking, and other renewable-energy technologies have also reached new heights.

Parallel to this, *successful energy-efficiency technologies are spreading rapidly*: efficient light bulbs, efficient fridges, low-energy houses, fuel-efficient cook stoves, etc.

The new technologies also become *ever more visible on "macro-level"*, such as in national energy statistics.

These successes are *not enough* to ensure a sustainable development, however. CO_2 emissions are increasing, as is the amount of nuclear waste waiting for long-term storage. No industrialised country has realised a sustainable energy path in which its CO_2 emissions and other effects of energy use actually decrease fast enough towards sustainable levels.

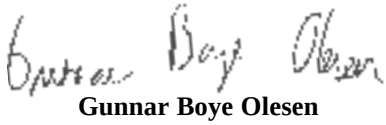
Maybe most needed for a sustainable energy path is *energy conservation*. For decades, studies and examples have shown that energy-efficiency could *reduce energy consumption* by a factor of two or more without decrease of comfort or of production. In spite of this, during the last decade, only countries experiencing major economic crisis have reduced energy consumption substantially. The most progressive of the industrialised countries have maintained a steady energy consumption, regardless of economic growth. In these countries, increased efficiency has kept pace with the economic growth, leading to a decoupling of growth and energy consumption. The decoupling is not, however, inherent in economic development: only when a broad range of supporting measures has been applied, from energy taxes to standards to awareness-raising, the increase of efficiency has kept pace with moderate economic growth.

If more of the energy-efficiency potential were realised, *energy consumption in industrialised countries could go down*, not just be stabilised as in the current "best practice" countries. Combining that with utilisation of a substantial share of the local renewable-energy potential, the industrialised countries could *reduce the environmental effects* of their energy systems to sustainable levels.

Why is this not happening?

We raised this question 8 years ago when the INFORSE network was formed. In spite of the successes with renewable energy and energy-efficiency during these 8 years, we have to raise it *again.*

Now, sustainable energy is on the *"global agenda"*, in the Commission for Sustainable Development, via UN conventions, and at the Earth Day 2000 events. These are *unique chances* to raise questions regarding the unused potentials for energy-efficiency and renewable energy, to raise the question of why proven, cost-effective policies and measures for sustainable energy are not used, on the national level, on regional levels, and on the international level in UN institutions and in multilateral development banks. At the start of the new millennium, there is an *urgent need for more and stronger NGOs* that can raise these questions and that can propose solutions on all levels, from the international summits all the way through the intermediate levels to local communities all over the world.



Gunnar Boye Olesen
INFORSE-Europe Coordinator

The Global Agenda

NGO Push Needed

By Michael Kvetny, INFORSE Secretariat

INFORSE coordinators decided on their meeting in October, 1999 to keep an eye on the global process towards sustainable energy. This global process have started with preparations for the 9th Session of the Commission for Sustainable Development (CSD9) in 2001. Among the preparations are:

- The World Energy Council and the UNDP have launched a World Energy Assessment (WEA);
- The European Union is preparing a strategy paper.

Both papers will be presented at the preparatory meeting towards CSD9 - ad-hoc energy-expert meeting - in March, 2000, in New York.

INFORSE coordinators further decided on their meeting to advocate firm decisions at the global level to secure substantial output from this huge diplomatic exercise.

The papers prepared by the European Union and the World Energy Council reflect the necessity to change direction towards sustainable use of energy.

However, experience shows that very little has been done so far at the global level. The barriers to penetration of renewable energy are very high.

Therefore, NGOs must pay attention to the CSD9 process and push their governments to change direction.

The CSD9 process will focus on important issues like creating a framework for an efficient market for renewable energy, raising awareness, building capacity, and establishing new funding mechanisms designed for renewable energy.

All of these are issues in which NGOs have an important role to play.

INFORSE strongly support:

- The *"Wind Force 10"* campaign (10% of the world's electricity to be derived from wind energy by 2020) should be followed by efficient measures to implement the policy.
- Development banks should create new funding mechanisms to meet the demands of minor decentralised renewable-energy schemes.
- A major pilot program for "renewable-energy islands" to demonstrate renewable-energy technologies as a relevant and realistic option.

More information can be seen later on: http://www.inforse.org.

INFORSE Exhibition Against Desertification

By Secou Sarr, ENDA-Energie, INFORSE West Africa coordinator.

When the countries met for the third conference (COPIII) of the Convention to Combat Desertification (UNCCD), in Recife, Brazil, in November 1999, INFORSE was actively promoting sustainable energy solutions.

During the conference, the INFORSE network, through its West African coordinator, organised an exhibition showing the results of a two-month process to identify renewable-energy projects that support the fight against desertification. The process involved projects and organisations in Senegal, Burkina Faso, Mali, Mauritania, and the Republic of Guinea. The exhibition was also used as a point of distribution of Sustainable Energy News' special issue on "sustainable energy to combat desertification" in English and French. More than 700 copies were handed out during the conference.

Photos from the special issue of Sustainable Energy News distributed on the conference.

In addition to this awareness-raising, the INFORSE network participated in the various actions organised by the RIOD (International Network of NGOs to Fight Desertification). The actions were focussed on national action plans to combat desertification, and they included discussions of the necessary funds related to these plans.

Various other informal meetings were organised, primarily with the active members of INFORSE that were present, but also with official delegations, including the delegation of Denmark.

Information on INFORSE activities on Desertification: INFORSE West Africa, ENDA-Energie, Senegal, att. Secou Sarr e-mail: energy2@enda.sn, http://www.enda.sn/energie/ ph:+221-822 5983/-822 2496, fax+221-821 7595/-823 5157.

PV Solar Home System on the island of Atata in Tonga. Photo by Ministry of Land, Survey and Natural Resources, Kingdom of Tonga.

Huge Step for Islands

By Thomas Lynge Jensen, Global Island Secretariat, Denmark

Global Secretariat for Renewable Energy Islands

The Forum for Energy and Development (FED), a Danish NGO umbrella organisation, has now established a secretariat for renewable energy islands.

This *major step* was based on the recommendations of the *"First Global Conference on Renewable Energy Islands"* in September 1999 on Ærø Island in Denmark. The delegates from 22 organisations and 34 islands of the world called for a forum for the renewable energy issues of the islands. The need to develop the renewable-energy sector of island-state economies was also in line with the Program of Action agreed upon in Barbados by the 1994 "*Global Conference on the Sustainable Development of Small Island Developing States (SIDS)*".

6 of the 25 VERGNET SA wind turbines in the 1.5 MW wind farm on the island of Marie-Galante in the French West Indies. Photo by ADEME Guadeloupe.

Towards the 2nd Global Island Conference

A draft Action Plan is under preparation by the Secretariat. The draft is expected to be approved at the *"Second Global Conference on Renewable Energy Islands"*, which is scheduled for the end of this year or for early 2001, at American Samoa.

The Action Plan focuses on 3 main areas:

• Information

The Secretariat will distribute information on renewable energy developments on islands via the webpage of SIDS (www.SIDSnet.org) and via other relevant media. Best practises and guidelines for available technologies will be identified. Lists of experts and consultants on the development of renewable energy on islands will be compiled.

• Demonstration

Demonstration programmes for selected island states will be prepared for discussion at two workshops, one in the Caribbean and one in the Pacific.

• Funding

Possible funding mechanisms will be investigated especially for renewable energy on island states.

The First Global Conference was arranged by the Forum for Energy and Development (FED). It was funded by the European Commission, the Danish Government, the Danish Council for Sustainable Energy, and FED.

More information:
- Proceedings, findings, and recommendations of the conference can be found at: http://www.energiudvikling.dk/projects_pro.php3?id=6
The price for the proceedings in print is US$ 30 postage included.

- Global Island Secretariat c/o FED/INFORSE Secretariat,
Thomas Lynge Jensen, Blegdamsvej 4B,
2200 Copenhagen N, Denmark.
Ph: +45 35 24 77 13,
fax: +45 35 24 77 17,
e-mail: tlj@inforse.org

450 kW wind farm on the Cuban Island of Turiguano.

Waiah hydroelectric plant, Island of Hawaii. Photo by Energy, Resource & Technology Division, State of Hawaii.

Small Wind Mills in Inner Mongolia - Why so Many?

By Nigel Scott, Gamos ltd, UK.

Over 130,000 small wind generators are being used by nomadic people who keep sheep and goats in Inner Mongolia in northern China! This adoption rate of small wind generators is unlike any other location on the Earth.

A typical small system (100-W wind generator) provides electricity for lighting, TV, and radio (130 kWh/a.).

What Made the Success ? - Unexpected Results

We conducted a study to identify reasons for this success, in the hope that the knowledge might prove useful for planning technology transfer and dissemination programs in other parts of the world.

We summarised our findings in a table of 21 factors which contributed to the success of the Chinese program. Though many simply confirm common understanding, others give new light on the process of technology transfer.

Perhaps the most interesting and *unexpected* of the lessons learned are those regarding cost and the motivation to buy.

What Motivates People to Buy?

Participatory exercises showed that people regard lighting as the most important use of electricity, but in the early days this was not sufficient to sell the technology. When the authorities first set up demonstration programmes, they could not even give systems away - herdsmen did not regard the benefits of light and radio as worth paying for. It was the introduction of a broadcasting station in Inner Mongolia in 1980 that created a demand for TVs, and consequently a surge in demand for wind generators. Light alone was not a sufficient motivator - the *TV was the critical factor*. This demonstrates the importance of identifying demand and of attributing a value to it.

No Credit System

Another interesting feature is that no credit system was needed. Although borrowing money is common practice amongst herdsmen (people borrow money from banks for fencing etc.) no-one reported borrowing money to buy a wind generator. Instead, herdsmen have capital assets in the form of sheep and goats, which are readily convertible at the local market.

Written Instructions

The most commonly reported source of information at the user level was written instructions. This was despite the fact that most programs have relied on training and extension services for information dissemination. This shows how printed instructions can cover considerable gaps in training. The literacy rate of herdsmen is probably higher than in many potential target groups, but instructions can also take the form of appropriate pictures.

"Top-Down" Approach with Feedback

It is particularly interesting that the "*top-down*" approach used, typically characterised by lack of feedback from users to manufacturers, has been particularly successful in this respect. This can be attributed to a number of features:

- the diligence of the authorities in accurately gathering data from the field and relaying it to manufacturers;
- manufacturers were motivated to take remedial action;
- research centres were available to contribute expertise.

Long Term Political Support

The government was prepared not only to commit resources to a program, but also to commit itself to supporting the program over a long period of time. The lead time from first research to sustainable sales was around 20 years, which is well in excess of the planning horizon for political parties in most democracies.

What does the Future Hold?

The government estimates that even by the year 2020, the number of households too remote for grid connection to be economically viable will be 350,000. Whilst the government is committed to making electricity available to these households, the change in economic conditions within China means that these stand-alone systems are coming to rely more on the private sector. Whilst second-hand wind generator markets are emerging, the government is working on the "next generation" of systems to meet increasing demands for power.

Nigel Scott, engineering consultant, Gamos Ltd, UK. Nigel was working on relevant projects in China, Vietnam, and Ghana. He graduated with a BSc in Engineering in 1982, then was awarded a PhD in 1997 for his work on "A flexible blade wind turbine for electrical generation".

The survey was done in 1998-99 by Gamos Ltd. and the Inner Mongolia Electric Power College.
The project was funded by the UK Department for International Development.

More information:
- Nigel Scott, Gamos Ltd., 152 Cumberland Road, Reading, RG1 3LB. UK.
Ph: +44 118 926 7039,
fax: +44 118 935 1374,
e-mail: nigel@gamos.demon.co.uk,
http://www.gamos.demon.co.uk/nigels/imwweb.htm .
- Liu Daoqi, Inner Mongolia Electric Power College, Jin Chuan Development District, Huhhot, 010080, China.
Fax: + 86 471 390 1135,
ph: + 86 471 390 1122 ext. 2343,
e-mail: sundaoqi@email.nm.cninfo.cn

Partners Surpass Promises

Thai-Danish INFORSE Cooperation

By Morten Blarke, Thai-Danish Cooperation on Sustainable Energy

The Energy and Environment Office - the cornerstone of the project

Morten Blarke has been employed by OVE as technical advisor to the project in Thailand. Morten spent 2 years in Thailand, since the beginning of 1998, but has now returned to Denmark. He is 34 years old and a specialist in international energy planning. He has a M.Sc.

The story of the most successful and promising partneship in South-East Asia, where INFORSE members changed the entire basis of the Thai NGOs in the energy sector.

When the project *"Thai-Danish Cooperation on Sustainable Energy"* was launched 2 years ago, it was not possible to name any local or national grassroots organisations focused primarily on sustainable energy. Today, NGOs, the energy authorities, utility companies, and educational institutions all regard the project partnership as the most influential and technically-economically qualified energy NGO group in Thailand.

- The project was launched in December, 1997 as a 3-year cooperation program between the Danish Organization for Renewable Energy (OVE) and the Appropriate Technology Association (ATA) in Thailand.
- The foundations of the project can be traced right back to the basis for international energy and environment partnerships created at the Rio Conference in 1992.
- Both organisations are members of the INFORSE network and INFORSE helped to bring them together.
- The project is financed by Denmark's environmental assistance to developing countries (DANCED).
- The primary target group of the project consists of NGOs in Thailand (including ATA) that have expressed a wish to work on Thailand's large energy and environment problems.

This is one of the most successful projects in which INFORSE member organisations work together. Subsequently to this success, the new SENT network has been appointed regional co-ordinator for the INFORSE (SEN issue Nr 27). SENT is expected to play a major role in spreading and collecting regional NGO experiences with sustainable energy in Asia.

School children are discovering the bus...

...powered by solar cells and an engine running on vegetable oil.

Energy & Environment Office

One of the cornerstones of the project's activities involves the establishment of a local Energy and Environment Office in Nakhon Ratchasima (Khorat).
The primary results include:

- distributing information to some 10,000 individuals with a demonstration bus,
- organising and implementing the NGO training and support scheme outlined below,
- developing analyses and plans of action, - preparing teaching material, like handbooks, CD-Roms, videos and slide shows,
- creating a database, a homepage,
- publishing newsletters in English / Thai.

NGO Micro-support Scheme

With great success, the Energy and Environment Office is implementing a micro-support scheme which has already resulted in 15 local energy projects in the first round of allocations. Among other things, these projects include the development of biogas plant, youth camps focusing on energy and the environment, the development of solar power plants for use in drying crops, the development of low-energy charcoal cookers, recycling campaigns, and local study trips for decision-makers. Each project has applied for a maximum of DKK 5,000, and the degree of voluntary work required is considerable.

The support scheme is used in conjunction with training workshops, where local grassroots interests are given the opportunity and the relevant assistance to develop their own local energy- and environment activities. Initially, the office provides technical and organisational assistance in connection with the training itself, but the support scheme also lays groundwork to ensure that the new know-how can be converted successfully into specific local activities.

Firm Anchor

In our experience, this model encourages and commits participant NGOs to keep working, and prevents them from losing interest. A focus on results and daily commitment to the project provides a *firm anchor* for the development of local capacity, the most important objective of the process. The projects quickly and cost-effectively generate visible results as new knowledge, techniques, and organisation, convincing us of the usefulness of this model.

Coal Plant Questioned

Can alternatives replace a coal-fired plant in Thailand? - One year ago, no one in Thailand could give a qualified answer to this question. The Thai-Danish Project has changed that and gave NGOs a unique experience of selfconfidence.

Unique Experience - What happened?

• In March 1999, the grassroots members of the SENT network questioned the building of a 1,400-MW coal-fired power plant in southern Thailand, a project which was already under way.

• In May, 1999, an intensive 2-week workshop was arranged by OVE and ATA (see article on the previous page) for the SENT network members. Technical and economic analyses were done, including assessments of environmental and employment-related aspects, of the power plant project and of potential sustainable alternatives. This work led in August, 1999 to publication of *"Sustainable Energy Alternatives to the Coal-fired Power Plant under Construction at Prachuap Khiri Khan"*.

The expert team behind the analysis.

Assumptions Proved Worthless

• At the same time, a press release was published: *International energy experts recommend that the electricity authorities responsible should cancel the contract with the consortium behind the planned coal-fired power plant. The analysis shows that an alternative solution consisting of:*

- 1,000 MW of industrial CHP, (combined heat and power)
- 360 MW of electricity savings, and
- 40 MW of hydro-electric power

... could be achieved without any extra cost but with significant advantages in terms of the environment, employment, economics, foreign currency, and technological development.

This was assuming that the extra electricity supply capacity was necessary. In fact, the analysis showed that the expectations concerning developments in electricity consumption on which the contract had originally been based were now worthless owing to the debt crisis in southeast Asia.

Media Attention - NGOs are Equal Partners

• The press release was accompanied by an invitation to attend a conference which attracted many representatives from the National Energy Policy Office (NEPO), the Electricity Authority of Thailand (EGAT), Union Power (the consortium behind the coal-fired power plant), government advisers, researchers, and other important stakeholders. The press attended the conference. ITV, Thailand's only independent TV channel, subsequently transmitted a 1-hour programme including pictures of the conference and interviews with conference participants.

So, the whole issue received attention, on TV as well as in the daily newspapers and in monthly magazines.

The conference was in every respect a unique experience for all concerned. For the first time ever in Thailand, several of the traditional players in this field witnessed qualified NGOs support and defend their policies and studies based on the technical and financial conditions which they face on a daily basis.

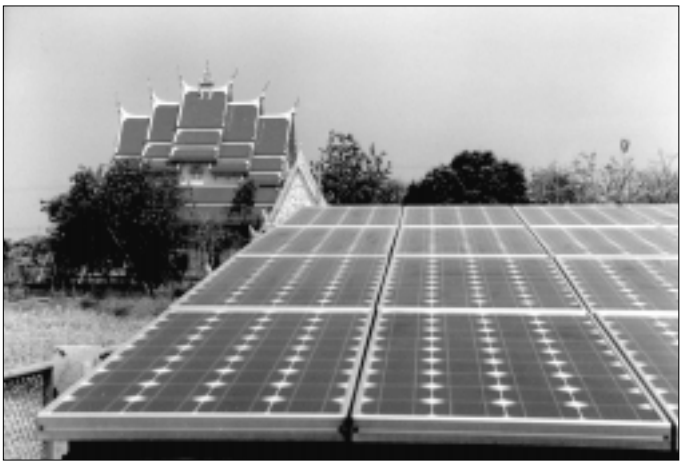
Participating NGOs and local activists learnt what it was like to be welcomed as equal participants in an intense and focused debate.

Greenpeace Support

• In December, 1999, Greenpeace Nordic appeared on the scene. In a letter to the Scandinavian "Nordic Investment Bank" (NIB), Greenpeace Nordic used the earlier analysis to support its claim that NIB should reconsider its financial support for the plan to expand the power plant. The consortium behind the coal-fired power plant is 90% foreign-owned, including a 28% interest held by "Imatran Voima Oy" from Finland and underwritten by NIB. Interestingly, although it is virtually impossible to launch new coal-fired power plants in the Nordic countries, the industry and investment banks of these countries are still making great efforts to give coal-fired power a sound international foothold.

Keeping the Pressure

• The coal-fired power plant project at Prachuap Khiri Khan is virtually at a standstill at present, although this is not due to any formal decision. OVE and ATA will continue to join SENT in putting pressure on the political and financial decision-makers.



More information:
http//:www.ata.or.th

- Thai-Danish Cooperation on Sustainable Energy, Thai Energy & Environmental Office, Chanchai Limpiyakorn, Srilak Silapee, 2252 Mitraphap Road, Tambol Naimuang, Muang, Nakhon Ratchasima 30000, Thailand.
Ph: +66-44-282354/5, fax: +66-44-213700, e-mail: se@ata.or.th.
- OVE, Danish Organization for Renewable Energy (OVE), Ejvin Beuse, Finn Tobiesen, Dannebrogsgade 8 A, 8000 Aarhus C, Denmark.
Ph: +45 86 76 04 44, fax: +45 86 76 05 44, e-mail: ove@orgve.dk, http://www.orgve.dk.
- SENT, INFORSE regional coordinator, Decharut Sukkumnoed, Suphakij Nuntavorakarn, Kasetsart University, Bangkok 10930, Thailand.
Ph: +66-2-5613467 ext 110, fax: +66-2-9428047, e-mail: tonklagroup@usa.net.

Efficient kiln to smoke fish. Note the 4 trays and the iron sheet covering them.

Changing fish on the trays.

Solving the Conflict between the National Park and Villages:

Learning to cook and smoke fish more efficiently

By Kimbowa Richard - Joint Energy and Environment Projects (JEEP), Uganda.

What did JEEP Learn?

Representatives of the Joint Energy and Environment Project of Uganda (JEEP - an INFORSE member) visited the conservation project in the fishing villages of the Queen Elizabeth National Park.

The project is being implemented by CARE-Denmark through CARE-Uganda. We pooled our experience with that of CARE-Uganda's staff. The visit enabled us to learn more about how the project tries to solve the conflict between the National Park's authority and the community. The conflict was triggered by the people's heavy reliance on fuelwood from the Park for fish processing. To ease the conflict the project is working on 3 areas described below: introducing efficient ovens to smoke fish, energy saving cooking stoves and tree planting nursery.

Fish Smoked in Oven

The efficient kiln, popularly known as "*cover*", has been introduced by CARE to replace the traditional ones. About 5-10 kilns can be seen in each of the fishing villages that we visited.

The traditional inefficient fish kiln is made of clay, cow dung, wiremesh, and some metal parts. According to some users, the "*cover*" kiln works twice as fast as the older model and uses firewood worth $US 1.3 compared to $US 4 when using the traditional kiln. User fees are charged by individual or group owners to those who wish to use the kilns.

Artisans trained by CARE charge $US 10 for constructing the "*cover*" kiln, a cost paid by the owner(s). CARE provides wiremesh and ironsheets.

The fish is first cut to remove offals, washed, allowed to drip-dry, and placed in trays. The first 45 minutes of cooking is hot. Then the trays are removed and the fish is turned. Afterwards, a little heat is needed for about one hour. Within 6 hours, the fish has a nice aroma and is ready for sale. The different varieties of smoked fishes are seen in the markets of towns even as far away as Kampala.

As a result of the success, there is a clear interest in using and constructing more "cover" kilns.

Energy Saving Stoves

There are 2 types of stoves, *"Lorrena" and "Peko pe"*, which are used outdoors. Due to the mobility of the fishermen, no effort is put into investing in constructing kitchens. The *"Lorrena"* stove is used more than the *"Peko pe"*.

Materials useful to make the *"Lorrena"* stove - sand, clay, cow and buffalo dung - are easily available in the fishing villages. The stoves constructed outside the kitchens are modified to suit this situation. Nevertheless, there is need for increased sensitization of users about correct construction of the *"Lorrena"* stove; especially, about correct mixing of sand and clay and about correct stove size.

The "Peko pe" is a metal stove only used by fishermen when they are outside of their homes and want to prepare fast, easily cooked food. Artisans have been trained by CARE-Uganda, for instance, at Katunguru, to construct *"Peko pe"* stoves. Some of these stoves, however, are believed to be sold to places outside the fishing villages.

The drawback to the use of *"Peko pe"* arises from the problems if one wants to

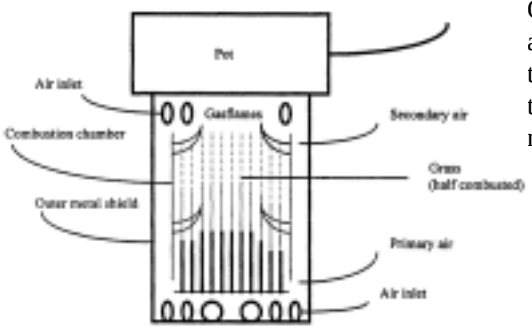
"Lorrena" stove - from sand, clay, cow and buffalo dung.

add more fuelwood to it during cooking, because then all parts of the stove are hot. Also, the excess heat from it is a potential danger to children. Another problem is that it requires dry firewood. It can use wood alternatives like saw dust and coffee husks, but these are not available in the area. (See article in SEN Nr. 14)

Trees Planted, But.....

Trees have been planted to supply firewood and construction materials for the fisher folk. CARE helps to support tree farming including raising tree seedling in the villages, with linkages to the District Forest Departments. Woodlots of mainly Eucalyptus, having 1,000 to 4,000 trees planted by individuals, are now up to three years old. Other trees planted include *Neem, Markhamia , Grevillia, Lira, Senna siamea, and Jacaranda.*

Wild animals like elephants, buffaloes, and hippos, as well as domestic animals, mainly goats, uproot, graze on, and trample the trees that are planted. The prolonged drought has also affected previously planted trees. Similarly, administrative drawbacks affect group tree nurseries, but individually managed ones seem not to experience this problem.



"Peko Pe" *stove - from steel with a pot*

In all, the tree planting needs more extension support, and timely provision of desired tree seeds. Perhaps the most pressing problem is the supply of the tree seedlings from the nurseries, as the willingness to pay for seedlings is too low to support the cost of maintaining the nurseries.

Ideas for Future Training

We hope that a collaborative training workplan can be developed by JEEP and CARE during the second phase of this project.

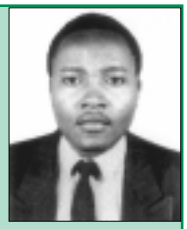
- Training could be improved by easy-to-read reference materials, more follow-up schedules for trained individuals, monitoring of the stoves constructed, and inter-village visits. Use could be made of music, dance, drama, and best-practice competitions to raise awareness of the issues and to promote the technology. Business skills could be considered to improve.
- The training could also focus more on the users as trainers within the fishing villages to complement the work of the Community Based Extension Agents for each fishing village.

Cooperating Networks

Our study visit was supported by the FED and INFORSE Networks. It strengthened the collaboration between the members of these networks respectively CARE-Denmark and JEEP. (see box)

Tree nursery by traditional efforts

Seedling protection keeping away animals



Richard Kimbowa, Program Officer, JEEP, Uganda. Richard is 30 years old, BSc in Forestry in 1994. He is doing training for communities, research and organise events.

CARE is a philanthropic association working to provide development aid. CARE believes that "Helping people to help themselves" and "participant-driven projects" are key to sustainability and success. The United Nations contribute to CARE´s project funding. CARE provides millions of dollars in aid to 63 countries each year.

CARE-Denmark is one of 10 national member organisations. CARE-Denmark is also member of the Danish NGO umbrella organisation, the Forum for Energy and Development (FED), which hosts the INFORSE Secretariat and financially supports it.

Contact: CARE Denmark, Noerrebrogade 68B, 2200 Copenhagen N, Denmark. Ph: +45-35368858, fax: +45-35-368878, e-mail: care@care.dk, http://www.care.dk/eng/.

The Project

Project Area: Queen Elizabeth National Park, covering 2000 km^2.
Target group: 5000 households in 13 villages.
Time frame: 1996-98 (phase 1), 1998-2003 (phase 2).
Total budget: USD 1 million (phase 1).
Donor: DANIDA, Danish International Development Agency.
Partners: Uganda Wildlife Authority, CARE-Uganda
Number of Employees: 15 local staff.

JEEP, the Joint Energy & Environment Project has been an associate member organisation of INFORSE since 1997. JEEP is a national association that was established 15 years ago. It has 500 active individual members and 30 groups focused on the needs of youth, women, and children. Its primary purposes are nature conservation and the linking of the issues of environment with those of energy. To cover part of its cost, JEEP offers to other NGOs various services in training, research, and construction of efficient stoves.

Contact: JEEP, Kabalagala, Gaba road, PO Box 4264, Kampala, Uganda. Ph: +256-41-267303, fax:+256-41-345597 (GPO), e-mail: jeep@imul.com.

Short News

Rural Models

Uganda and Mozambique are considering developing new rural electricity distribution models involving local private-sector suppliers and communities in off-grid areas. Pilot operations will involve encouraging the local people to establish small private energy companies to bulk-purchase electricity from local utilities for distribution. In addition, they will be encouraged to consider off-grid systems such as hybrids, mini hydros, and renewables. The primary focus in Mozambique will be on provincial capitals, less than one-third of which are electrified.

Source: African Energy, *Issue No. 18, September, 1999. E-mail: 101450.1151@compuserve.com, http://www.ftenergy.com/.*

Affordable Solar Energy

The Ministry of Energy and the Uganda Renewable Energy Association are collaborating to enhance rural electrification. The project will make it easier and more affordable for rural homes and businesses to get electricity from solar energy. Credit systems are in place and will be administered by the Uganda Women's Finance Trust.

More information: Uganda Photovoltaic Pilot Project for Rural Electrification, Ministry of Energy and Mineral Development/Uganda Renewable Energy Association, P.O. Box 7270, Kampala Uganda. Ph: 349276/349010/275863.
Source: The New Vision, December 13, 1999, p 7

What are the Perspectives for Africa?

Symposium on the Biomass

More then 200 participants came mainly from Africa to the symposium "*Energy from biomass for the development and the environment: What are the perspectives for Africa?*", held at Abidjan, Ivory Coast, December 1999. Secou Sarr from ENDA, INFORSE regional coordinator particpated as well.

All related major issues were discussed and recommendations have been formulated. The importance of the issue was highlighted by the fact that the event was supported by World Bank, African Development Bank, French Energy and Environment Agency, Canadian International Development Agency, and the European Union.

Source: - Secou Sarr, ENDA-Energy, Senegal, INFORSE regional coordinator, e-mail: energy2@enda.sn,
- CIRAD, e-mail:girard.p@cirad.fr,
- IEPF, e-mail: b.benabdallah@iepf.org

How to Design Projects?

Clean Development Mechanism

Workshop in Uganda Funded by INFORSE

By Ulrik Jacobsen, INFORSE South-South-North Co-operation Fund

In Uganda, the local member of INFORSE "Climate and Development Initiatives" (CDI) is taking the lead by hosting a national workshop on the Clean Development Mechanism (CDM), on February 1-2, 2000.

The workshop will be attended by more members of INFORSE from Uganda as well as by members of the Biomass Users Network (BUN) from Zimbabwe and of the Climate Network Africa (CNA) from Kenya. Papers will be presented on how to design and implement CDM projects. Working groups will discuss potential projects, capacity-building needs, and the role that various sectors in the CDM regime in Uganda could play.

INFORSE Acts as Forum

This year the 6th conference of countries (COP-6) in the United Nations Framework Convention on Climate Change (UNFCCC) will take place in Amsterdam, the Netherlands. It will have a special focus on the CDM as a means of funding projects that reduce emissions and promote sustainable development.

While the CDM may offer access to additional funding for developing countries, many countries lack the public knowledge and capacity to benefit from the CDM. The financial, technical, and managerial capacities of smaller developing countries to compete favourably in the CDM market is limited, and this might result in their marginalisation by countries such as India, China and Brazil.

It is therefore, critical that INFORSE act as a forum for discussion on the CDM as a prelude to COP-6 in Amsterdam, and as a platform for future capacity-building activities

The workshop is funded by the INFORSE South-South-North Co-operation Fund. The fund benefits INFORSE by supporting concrete discussion and capacity-building activities by INFORSE members. The fund also supports the completion of preparatory work necessary to submit a full project proposal to a donor agency.

More information:
- About the national workshop: Timothy Byakola, Climate and Development Activities (CDI), P.O. Box 8849, Kampala, Uganda. Ph: +256-41-347762, fax: +256-41-234248, e-mail:acs@starcom.co.ug.

- INFORSE South-South-North Co-operation Fund: Ulrik Jacobsen, INFORSE/FED, Blegdamsvej 4B, 1'st Floor, 2200 Copenhagen N, Denmark, Ph: +45-35 24 77 11, fax: + 45-35 24 77 17, e-mail: uj@inforse.org

USA Can Meet Climate Target and Save Money!

By Howard Geller, American Council for an Energy-Efficient Economy (ACEEE)

The United States can achieve its greenhouse-gas emissions target under the Kyoto Protocol while saving households and businesses $500 billion. This is the conclusion of our recent study. The study, *"Meeting America's Kyoto Protocol Target: Policies and Impacts,"* recommends 10 major domestic policies that would stimulate energy efficiency and renewable energy in the U.S.

These 10 initiatives could cut U.S. carbon emissions in 2010 by 500 million tons per year - 28 % of the business-as-usual projection. By 2020, the emission reductions could be more than twice that amount.

The 10 recommended policies include:

1 New Appliance Efficiency Standards and Product Labelling
2 Stronger Energy Codes for the Construction of Efficient New Buildings
3 Stimulating the Upgrade of Existing Buildings to Save Energy
4 Public Benefit Trust Fund as Part of Electric Utility Restructuring
5 Renewable Portfolio Standard as Part of Electric Utility Restructuring
6 Tougher Fuel Economy Standards and Market Incentives for Efficient New Vehicles
7 Greenhouse Gas Standards for Motor Fuels
8 Reducing Barriers to Combined Heat and Power Production in Factories and Buildings
9 Voluntary Agreements and Incentives to Reduce Industrial Energy Use
10 Tighter Emissions Standards for Coal-Fired Power Plants

In addition to the emissions reductions, the report concludes, these 10 policies would save $200 billion net through 2010 and over $500 billion net through 2020 for the USA as a whole. The policies recommended in "Meeting America's Kyoto Protocol Target" would provide other benefits besides lower energy bills and carbon-emissions reductions. They would lower oil imports and improve America's trade balance, cut urban air pollution and improve public health, and enhance U.S. industrial competitiveness.

Adopting these policies makes sense even if climate change turns out to be a minor problem. We urge policy makers in the U.S. to adopt these policies no matter what they think about the details of the Kyoto Protocol.

Howard Geller, Executive Director of American Council for an Energy-Efficient Economy (ACEEE) and co-author of the study. ACEEE is member of INFORSE. It is a non-profit organization dedicated to advancing energy efficiency as a means of promoting both economic prosperity and environmental protection. ACEEE is not a membership organization. However, it sends out notices to individuals on a mailing list of over 25,000. Based in Washington, D.C., ACEEE works closely with U.S. agencies. It also works with a wide range of states, utilities, and international organizations.

Information:
American Council for an Energy-Efficient Economy (ACEEE), 1001 Connecticut Avenue, NW, Suite 801, Washington, DC 20036, USA. Ph: 202-429-8873, fax: 202-429-2248, e-mail: info@aceee.org, http://aceee.org.

Military Invades for Oil

On January 19, more than 5,000 agents of the Colombian Military, heavily armed, invaded traditional U'wa territory, at Cedeno, where Occidental Petroleum's oil drilling site "Gibraltar 1" is situated. Faced with opposition from the U'wa people, military forces declared that "the oil will be extracted even over and above the U'wa people."
"We are making an urgent call to the national and international community, and to all groups who have supported us, to mobilize against this last attempt to trample upon the U'wa nation, which threatens our existence and culture" said a representative of the U'wa people. This indian tribe in Northern Columbia is calling for support of their efforts to retain their traditional land, which includes potential oil-extraction sites.

Source: Renewable News Network, e-mail: newsfeed@rnn.com, and U'wa Defence Working Group, Steve Kretzmann <steve@moles.org> http://uwa.moles.org/.

Energy Efficiency Boost in Brazil

In the coming year, a World Bank loan of US$ 43.4 million and a grant of US$ 15 million from the GEF (Global Environmental Facility) will be used to increase energy efficiency in Brazil.
The project consists of 3 parts: 50 Demonstration Projects, "Core Support", which will promote Best Practices and other awareness programs and "Capacity Building".
The effects of the project are expected to include electricity savings of about 1% per year and postponement of investments in electricity supply of about US$300 million per year. Further, the project will help to reduce CO_2 emissions by an average of 1.7 million tons/year over 10 years.

Source: World Bank, http://www.worldbank.org/. More information: Angela Furtado, World Bank, ph:+1 202 4731909, fax: +1 202 5223698, e-mail: Afurtado@worldbank.org.

The Veggie Van - "From the Fryer to the Fuel Tank,"

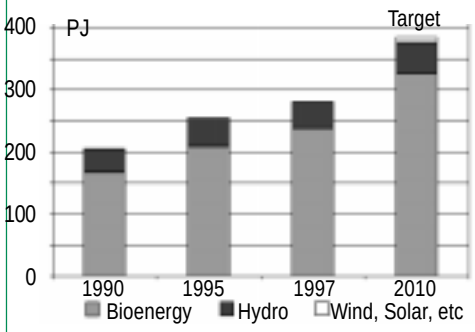
Since 1997, a U.S. couple has shown thousands of people that an ordinary diesel car can be fuelled on used frying oil from grill bars, if the oil is treated in a mobile processing unit that can be carried on an ordinary car trailer. With their spectacular Veggie Van and their home-built processing unit, they have travelled 25,000 miles in the U.S., giving a first hand-on experience of a car that can and does run on an alternative to fossil fuels. They have also published a book, "From the Fryer to the Fuel Tank," on how to make diesel fuel locally from used cooking oil with the esterification process.

More information: Joshua and Kaia Tickell, http://www.veggievan.org/, e-mail: biofuel@best.com. Book available at Green Teach Publishing, price $25, 176 pages, 1999,ph/fax: +1-419-281-6883.
See also: http://www.elsbett.com on how to use plant oil in cars without the esterification process.

Short News

Finnish RE- Program

A new Finnish Action Program for renewable energy was outlined in a publication by the Finnish Ministry of Trade and Industry in November, 1999. It is based on a Finnish white paper for renewable-energy promotion, which was adopted by the government in 1999. It will increase the Finnish national share of renewable energy from 21% to an estimated 27% of primary energy consumption. It is a strengthening of previous renewable-energy promotion programs.



Information: Ari Lampinen, ala@jyu.fi, Finnish Society for Nature Conservation and Technology for Life which is an INFORSE member organisation.

World's Largest Wind Cooperative in Denmark

In December, the largest wind cooperative so far received final permission to go ahead with the construction of 10 2-MW wind turbines in the sea just outside the Copenhagen Harbour.

"Middelgrunden" wind park near Copenhagen. Computer generated image.

The project, "Middelgrunden", which also includes 10 wind turbines owned by the Copenhagen utilities, will be the world's largest off-shore wind park so far. The investment for the 10 turbines, appr. 160 mill. DKK ($US 22 mill.), is coming from appr. 7,000 shareholders. The production, 40 GWh/year, will cover 3% of the electricity demand of Copenhagen.
The turbines will be installed during the year 2000.

Information: www.middelgrunden.dk.

INFORSE-EUROPE News

GRATIS

By Gunnar Boye Olesen, INFORSE-Europe Coordinator, OVE, Denmark

INFORSE-Europe Action Plan 2000

During the INFORSE-Europe e-mail meeting in November, 1999, elements of an Action Plan were developed. The new Action Plan for 2000 includes:

- the DIERET project (see right);
- Energy Planning Models for NGOs, including information exchange;
- INFORSE-Europe meeting;
- develop a project "Towards Sustainable Energy in Balkan Region";
- lobby for Pan-European activities for sustainable energy;
- lobby the activities of multilateral development banks in cooperation with CEE Bankwatch Network;
- lobby for a better EU energy policy, starting with an assessment of the members' activities and interests in the field;
- participate in the global campaign for "10% wind" worldwide.

The INFORSE-Europe Action plan will be sent to the members by e-mail or mail. It also will be available at the INFORSE-Europe website (see below).

Internet Education for Members: DIERET

As the result of South-South-North cooperation, INFORSE-Europe is ready to launch its Distant Internet Education on Renewable Energy Technology (DIERET).

This is an opportunity for member organisations and for their individual members to update their knowledge on the recent status of renewables and their utilisation in the world. The course will also help NGO members to be able to use reliable arguments in campaigns and lobbying for sustainable energy development as well as in advising people on how to use renewables.

The study course will run in electronic form without any paper except that on which the certificate will be issued by INFORSE Secretariat to graduates of the course. There are 5 modules, which have been prepared by INFORSE coordinators Emil Bedi and Raymond Myles: Solar Energy, Biomass, Wind Power, Hydro Power, and the introduction.

INFORSE-Europe is asking member organisations to encourage their membership to take the DIERET course, which will be offered for free!

The deadline for your applications: February 25, 2000.
E-mail: bedi@ba.telecom.sk.

INFORSE-Europe Website *An overview of INFORSE-Europe's activities and information on sustainable energy for local planning is now available at the INFORSE-Europe website, hosted by OVE - The Danish Organisation for Renewable Energy: www.orgve.dk/inforse-europe/ .*

EU's Changing Rules

Renewables Directive on Its Way

The EU directive for renewable energy in the internal energy market is still under preparation by the EU Commission. The proposal from the EU Commission is expected in May.

In December, 1999, the EU Commissioner for energy presented a discussion paper on the issue to the EU Energy Ministers. In this paper, it was proposed that countries should open their markets to imported renewable energy. The exception would be that countries whose electricity demand is covered at more than 5% by renewable energy (RE) with state support could stop imports of renewable energy from countries with less than 5% coverage by supported RE for 10 years.

It was also suggested that ceilings be set for the levels of subsidies allowed for renewable energy.

Several NGOs have agreed upon common recommendations for the new directive, and for other elements of EU's energy policy. An important point of the NGO statement is that no country should be forced to open its renewable-energy market to competition from imports as long as no agreement exists among the EU countries on how to share the common targets for renewable energy. Further, the statement emphasises that any directive must produce real improvements for development of renewable energies.

The NGO proposals are supported by Greenpeace, the WWF, the Climate Network Europe, the European Renewable Energy Federation, and several others.

The EU Parliament is also planning to present its views on the coming renewable-energy directive before May.

Further information:
INFORSE-Europe homepage, www.orgve.dk/inforse-europe/, or EREF, att. Dörthe Fouquet, e-mail: 106425.57@compuserve.com.

Coming Guidelines: A Threat to Renewables?

The EU Commission has postponed implementation of its new guidelines for state aid for environmental protection from January to July this year. These guidelines are used by the Commission in the notification procedure associated with its monitoring of new national laws. With this procedure, the Commission can stop a new law in an EU country if this law does not follow the guidelines. The guidelines are adopted by the EU Commission without any means of intervention by the EU Parliament or by the EU countries (council of ministers).

Without public participation or public hearings in the formulation of the guidelines, no drafts or proposals are publicly available before they are adopted by the Commission. When they are adopted by the Commission, they enters into force.

The significance of the guidelines for renewable energy and energy efficiency is that they limit the ways in which EU countries may support development and market introduction of renewable energy and increased energy efficiency. In addition to limiting subsidies from the state budget, the guidelines increasingly are being used to limit all kinds of state-regulated payments and prices for renewable energy, e.g., feed-in laws for renewable electricity, establishment of state-regulated markets for renewable energy, reimbursement of CO_2 tax to renewable energy producers, etc.

Among other concerns, the fear is that the new guidelines will limit the allowed periods of state aid for a given purpose to, e.g., six years. Combined with the very broad definition of state aid, this would put renewable energy at a serious disadvantage compared with other energy sources, which are subsidized according to various other state-aid guidelines and regimes.

The EU Parliament has decided to express its view to the Commission on the new guidelines, in spite of its lack of formal leverage on the issue. Probably, several NGOs and several EU countries will also express their concern to the Commission on the potentially devastating effects of the new guidelines.

Short News

A Less Nuclear Sweden

Finally, on November 30, 1999, the first reactor of the Swedish Nuclear Power Plant at Barsebäck closed for good.

It is the first of the larger Swedish reactors to close. The other reactor at Barsebäck is scheduled to close in 2001.

The closure of this nuclear power plant in Sweden is a victory for the long-standing anti-nuclear campaigns in Sweden and in Denmark. The capital city of Denmark, Copenhagen, is only 22 km away from Barsebäck.

No Decision for K2R4

Although we told you in our last issue that we expected a decision soon from the European Bank for Reconstruction and Development (EBRD) about loans for the controversial Khmelnitsky 2 and Rivne 4 reactors in Ukraine, this has not happened. It is currently unclear when the decision will be taken. During the waiting, we hope that more countries will voice opposition to the project, as the majority of the Dutch Parliament did in December, following the examples of Austria and Germany.
Information: BankWatch Network CEE, K2R4 Campaign: www.ecn.cz/k2r4/.

Will Turkey Be Nuclear?

In spite of widespread protests, Turkey is going ahead with plans for construction of its first nuclear power plant. The proposed site is in Akkuyu on the Mediterranean coast, just north of Cyprus. One focus of recent protests has been the earthquake risk for a nuclear power plant, because there is an active geological fault line near the site.

The Turkish government expects to choose a construction contractor in the beginning of 2000. Three consortia are competing for the project: Atomic Energy of Canada in cooperation with Hitachi, Ansaldo (Italy), Daewoo (South Korea), and others; a consortium of Siemens and Framatome; and a consortium of Westinghouse and Mitsubishi.
Information: Nuclear Awareness Project, e-mail: nucaware@web.net, www.diaspora-net.org/nuclear/

Wind Campaign for Ukraine

By Gunnar Boye Olesen, INFORSE-Europe, OVE, Denmark
based on work of Andrei Konechenkov, Future Age Energy, (FAE) Ukraine.

In Ukraine a national wind campaign was launched in the end of 1999. It is part of the global INFORSE effort to have *"10% of the world's electricity supply produced by wind power"*.

Drawing from FAE's newsletter.

Integrating Global Goals with National Realities

The first step of the Ukrainian wind campaign was to compare goals of the global campaign with the windpower potentials in Ukraine and the status for windpower development in Ukraine. This was done in a study entitled, *"Wind power for Ukraine, - a proposal for the coming 20 years"*, by Andrei Konechenkov and his colleagues from Future Age Energy (FAE), in cooperation with Prof. Boris Korobko, State Scientific and Research Institute for Non-traditional Energetics and Electrical Engineering. They found that an appropriate Ukrainian goal for 2020 would be the installation of 16,000 MW of windpower, which could produce around 32 TWh/year of electricity. This would represent 18% of Ukraine's current electricity production, or about 11% of officially forecasted electricity production in 2020.

There is ample space in which wind power is proposed to install: land area in Ukraine with favourable wind conditions is estimated to be large enough for installation of 8,000-24,000 MW of wind turbines. In addition to that, shallow sea areas around Ukraine give space for installation of more than ten times as much capacity.

Slow Installation Rate

The official goal of installing 1990 MW of windpower capacity until 2010 is compatible with the proposed goal of installing 16,000 MW until 2020. FAE found, however, that the current rate of installation is far short of that needed to reach the official goal. At the current rate, maybe only 1/5 of the goal will be realised by 2010. This is not because of lack of capacity to produce windturbines: existing Ukrainian companies could produce at least 1000 MW of windturbines annually. The slow development can be explained by the low priority in Ukraine of wind power compared with other energy sources (e.g., nuclear power) combined with the economical crises.

Campaign Proposals

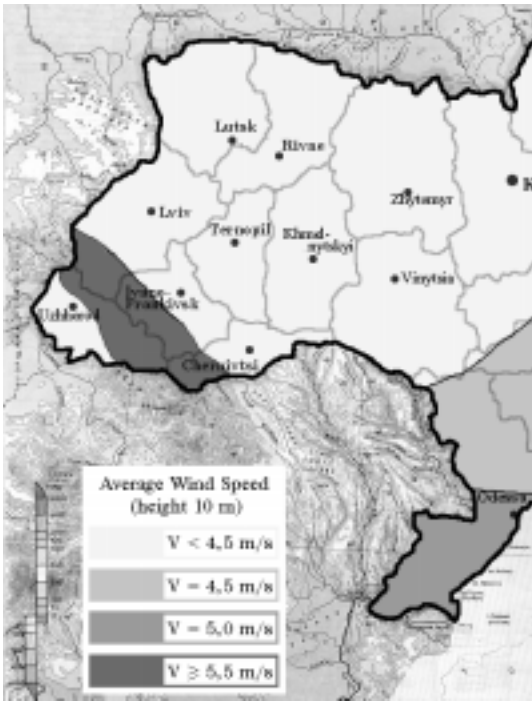
To put Ukrainian wind development back on track to reach its 2010 goal, and to pave the way for the proposed 2020 goal, FAE proposed in the study to:

- give support on the local level. Currently, local authorities are actively providing this kind of support in some regions.
- assist in developing the market infrastructure. It is first necessary to ensure the stability of prices and to ensure access to the general electric power grid.
- abolish the budget allocations for destructive/dangerous types of energy production.
- include the environmental costs in the cost of the energy.
- support the researchers, the development, the industry, and the dissemination of windpower.

NGOs Agree on Joint Appeal

Following the development of the study, FAE asked NGOs and political parties to join in supporting a common statement in favour of the proposed windpower development. 10 major NGOs and two political parties joined an appeal to the president and government of Ukraine, asking them:

- to review as quickly as possible the development-strategy concept of the Ukrainian fuel and energy complex, and
- to design and implement top-priority measures for intensive windpower development that will achieve by 2020 10% coverage by windpower of the electricity production of Ukraine.



Wind map of Ukraine. Average wind-speed distribution at a height of 10 meters.

Campaign Entered the Media

With the study and with this joint appeal, the campaign was ready for a public presentation. This happened on October 19, 1999 at the Energy Saving & Energy Management Institute of the Technical University of Ukraine. Of the 24 participants, 10 represented the media. News of the campaign was reported by 6 radio stations, 3 news agencies, at least 2 daily newspapers, and some magazines.

...and the Future

The future plans of the campaign are to make the current report more widely available, to use the material as an input for a parliamentary discussion of the present energy programme, and to start a large-scale information campaign to create the public awareness necessary for the proposed development. Proposed measures for the information campaign include a series of seminars and workshops as well as a special newsletter for distribution through NGOs.

Parallel to this campaign in Ukraine, a national wind campaign for Russia as well as regional wind campaigns for Western Europe and for Cono Sur in Latin America are under preparation. Reports from these campaigns will follow in future issues of Sustainable Energy News.

More information: Future Age Energy, PO Box 56, 253192 Kiev, Ukraine. Ph: +380-44 2743017, fax: +380-442417038, e-mail: fae@fae.kiev.ua INFORSE-Europe web-page: www.orgve.dk/inforse-europe/

Wind Industry in Ukraine

By Viktor Vasko, Institute of Electrodynamics, Kiev, Ukraine

In spite of transition and crisis in the economy, Ukrainian wind power is developing as a national industry with better results than wind power in other Eastern European countries.

Only in the 1980's did wind turbine development became a priority in Ukraine. The first steps were taken in Kiev, by scientists from the Kiev Polytechnic Institute and the Institute of Electrodynamics of the National Academy of Sciences of Ukraine. Several prototypes of small windmills of up to 20 kW in capacity were constructed. In the latter part of the 1980's, in the design bureau "Yuzhnoe", 200 kW, 250 kW, and, later, 500 kW wind turbines were developed. Construction of commercial windmills started in 1992 at pilot wind-power plants at Aktashskaya, Chernomorskaya, and Adjigolskaya, and one year later at Donuzlawskaya, using Ukrainian designed wind turbines as well as turbines produced under licence from USA.

The "Comprehensive Program to Build Windmills in Ukraine until 2010" was created and legislated as a Presidential Decree in 1996 and became a governmental ordinance in 1997. It is a programme for practical action in the sphere of the development of wind energy in Ukraine. Other legislation also supports the development and, in the near future, a new Ukrainian standard for testing and production of windmills will be legislated.

Financing for the fulfilment of the Comprehensive Program comes from a tariff on electricity, which constitutes 0,75% of the consumers' electricity price. According to the Program, the total capacity of wind power in Ukraine is planned to reach 1990 MW by 2010. The biggest planned wind park is Donuzlavskaya with a capacity of 500 MW.

The distribution and characteristics of winds across the territory of Ukraine have been measured by meteorological stations. The best areas, with average wind speeds greater than 5,0 m/s at a height of 10 meters, are the Carpathian and the Crimean mountain regions, the Western and Eastern parts of Crimea, the Black Sea and Azov Sea coastal areas, the Donbas region, and the Eastern part of Ukraine. Within the framework of the TACIS Program (EU technical assistance for Ukraine and other CIS-countries), a wind atlas of the Autonomous Republic of Crimea has been created. Now, the creation of a full wind atlas of Ukraine is in progress.

As of December, 1999, 120 windmills with a total capacity 15,42 MW have been created, using windmills produced in Ukraine, as pilot plants and for industrial use. Sites have been chosen for more than 50% of the planned new wind-power plants.

More than 30 manufacturers and research organisations are involved in the Ukranian wind-energy sector. The biggest of these are:

- State Research and Planning-Constructional Institute of Non-Traditional Energy and Electric Technologies (Kiev),
- Scientific-industrial enterprise "Yuzhnoe" (Dnipropetrovsk), producing AVE-250c, WEU-220/500
- Ukrainian-American joint-venture "Windenergo Ltd" (Kiev), producing USW 56-100
- Company "Energy systems and equipment" ESO (Dnipropetrovsk), producing ESO-0420
- State scientific-industrial enterprise "Vetroenergoservis" (Simferopol).

Name, Location	Number and type of windmills	Capacity, MW
Donuzlavskaya, Crimea, vil. Novoozernoe	53 * USW 56-100	5.67
Aktashskaya, Crimea, Szholkino	12* AVE-250C 1* WEU-220 1* WEU-500	3.12
Sakskaya, Crimea, Saky	23* USW 56-100	2.46
Novoazovskaya, Donetsk oblast, Mariupol	12* USW 56-100	1.28
Others	7* AVE-250C 1* ESO-0420 7* USW 56-100	2.89

Wind power parks in Ukraine by December 1999

More information:
Viktor Vasko, Institute of Electrodynamics, National Ukrainian Academy of Sciences, Department of Utilisation of Renewable Energy Sources, 20 A, Krasnogvardeyskaya St., Kiev-94 252094, Ukraine. Ph:/fax: +380 44 559 23 63
E-mail: Kudrja@ied.kiev.ua (subject: to V. Vasko), viktorvasko@yahoo.com

Photos:
- (above) wind turbines ESO-0420 after installation at Evpatoriyskaya wind power plant

- (right) windturbines USW 56-100, Donuzlavskaya wind power plant

Saving the Beauty of Himalayas

Threat and Challenge: A villager with his yaks gathering fuel wood in an area of sparse vegetation: The journey from the village often takes two days round trip.

By Tej Prasad Rimal, Alternative Energy Officer, Annapurna Conservation Area Project (ACAP), Nepal

120,000 visitors/ year using fuel wood is a threat to the area. An Alternative Energy Program decreases the immense pressure on forest resources.

Fuel-wood cutting is a threat to the forests in the Himalayan kingdom of Nepal, where all the energy needed for households comes from fuel wood, which is used for all the necessary purposes, such as heating, cooking, and lighting.

The first, and still the largest, protected area in Nepal is the Annapurna Conservation Area. It covers about 8000 km^2 and is home to over 120,000 people. It is the destination of over 60,000 trekkers, with about the same number of their supporting staff (guides and porters), every year. This soaring number of visitors, whose fuel-wood consumption is twice that of local people, has exerted immense pressure on forest resources that are already stressed by the growing local population.

Alternative Energy Program

In order to minimize the quantity of fuelwood consumption, we introduced an Alternative Energy Program as part of a holistic and integrated approach in project planning. Implementation was started in 1986.

This Program now plays a vital role in reducing fuel-wood consumption. In so doing, it also reduces environmental degradation, improves sanitation and hygiene at the household level, and thereby reduces the workload of women. It promotes technology that:

- minimize fuel-wood consumption.
- substitutes the fuel wood.

It does this by promoting technology that replaces the use of fuelwood with renewable energy sources and/or that uses fuelwood more efficiently.

The number of alternative energy devices introduced between 1986-1998 is shown in the table below:

Device	Quantity
Improved Cooking stove	696
Back-boiler water heater	482
Pressure cooker	888
Thermos flask	656
Solar water heater	96
Smoke water heater	31
Low wattage cooker/heater	223

Since 1991, solar power, biogas, and micro-hydro power plants are among the installed alternatives to fuel wood.

Power plant	Number
Micro hydro	6
Solar cell (PV) system	40
Solar mills	2
Biogas	400

400 biogas plants are reliable sources of energy for cooking and lighting, reducing fuel-wood consumption in the southern part of the area where it is warmer and each household's farming system includes livestock.

There are 2 solar mills, which are harnessing solar energy for grinding grains as well as for lighting. They also decrease the time that women must spend to walk to the nearest mill, because in the northern part of the area there is lack of sufficient water for a water mill.

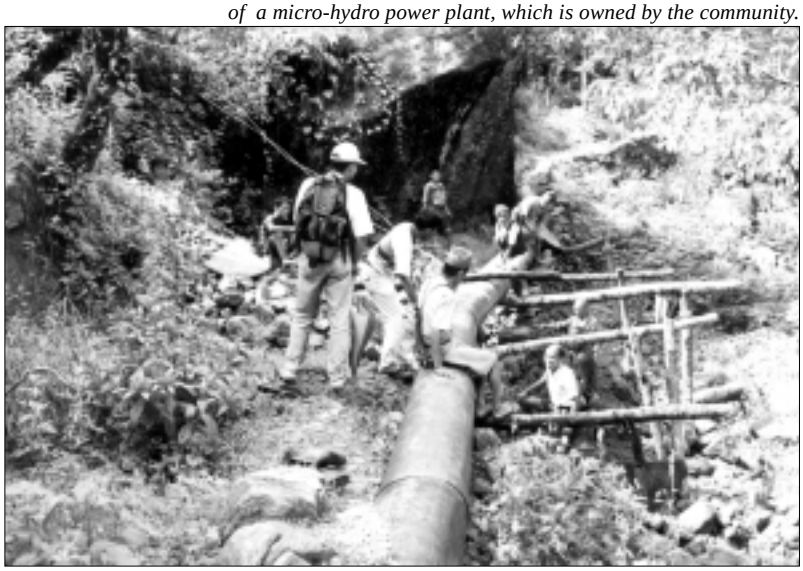
6 micro-hydro power plants provide 315 kW electricity to about 2000 households.

The Gains

The electricity generated from micro-hydro or solar energy is used for:

- Powering agro-processing machinery: Electrically powered mills relieve rural people, especially women, from the traditional methods of grinding, hulling, and oil extraction, which are laborious and time-consuming.
- Lighting: Electric lighting improves the quality of life of remote rural areas. It also raises health standards, as it reduces the use of kerosene and, in high mountain areas, pine chips, both of which fuels give off fumes.
- Cooking with an electric cooker: This saves time that otherwise would have been spent on collecting firewood, slows deforestation, and improves domestic safety and health standards.

Local people are participating to lay down the headrace pipe of a micro-hydro power plant, which is owned by the community.



- Powering machinery for income-generating purposes: Electrically powered machines can be the basis for small-scale rural industries and off-farm enterprises, which create local opportunities and facilitate better use of local resources.

User-owned scheme

The local ownership, management, and operation provide an opportunity for the people to make better use of available resources. If a scheme is user-owned, the user will be more responsible for the scheme, and will look after it more effectively.

An example - micro-hydro plant

The local community owns the micro-hydro plant. The project is financed in the following way:

- 70% subsidy (by a donor partner through ACAP)
- 30% local people's participation, consisting of free labour, e.g., transport of local materials, building the power house, digging holes for the poles, and providing local materials (sand, gravel, stones). Half of this contribution can be paid as cash or from a bank loan (Agriculture Development Bank of Nepal).
- ACAP conservation grant and conservation loan (interest free) is provided if necessary.

After testing and commissioning, the plant is handed over to the Village Electrification Committee (VEC), which manages it. The VEC meets once a month. Its responsibilities are as follows:

- Appointing a manager and two operators.
- Instructing the staff and supervising them.
- Making decisions regarding the repayment of the loan.
- Setting the electricity rate and the future increases.
- Overseeing the maintenance-, capital replacement-, and development funds.
- Deciding on rules and regulations regarding electricity use.
- Approval of the expenditures for repair and maintenance of the plant.

In the first 3 years, the Alternative Energy Officer or representative of the ACAP regularly monitors the VEC and attends their meetings.

Tej Prasad Rimal, Alternative Energy Officer at the Project. Tej is 34 years old. He has a mechanical engineering background in Nepal, and graduated with a B.Sc. in electrical engineering in Manila, Philippines. Now, in the beginning of 2000, he is on an internship at the Stockholm Environmental Institute in Sweden as a Visiting Developing-Country Professional. His research area is "Critical success factors evaluation of micro-hydro".

More information: Tej Prasad Rimal, or Siddhartha Bajracharya, Annapurna Conservation Area Project (ACAP), PO Box 183, Pokhara, NEPAL, Ph: +977-61-21102, 28202, fax: +977-61-28203, e-mail: aeo@mos.com.np, http://www.south-asia.com/kingmah.htm.

Solar water heater providing a precious service in the harsh climate of this region.

Holistic Approach

We consider this to be the most successful integrated conservation and development project in the world. It was introduced because the sectoral approach was insufficient to solve the problems. It reflects the realisation that nature conservation and economic development are mutually dependent. In line with this concept, it:

- Emphasizes the participation of local people at the grassroots level. The local people are the principal actors as well as the main beneficiaries.
- Returns the revenue gained from tourism to help fund local development, nature conservation, and tourism development.
- Promotes local guardianship, which tends to make tourism and other developmental activities responsive to the fragility of the area.
- Increases the number of sources of income in the local economy through skills development, increases in local production, and local entrepreneurship.

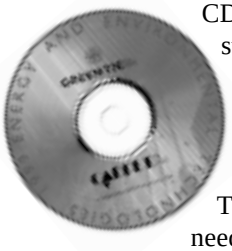
Project activities include all of the following areas: alternative energy, sustainable tourism management, agro-forestry, conservation education for villagers and tourists, sustainable community development projects, health and sanitation programs, research and training. Conservation Area Management Committees, concerned with forest management, electrification, local lodge management, mothers' groups, and so on, manage and control the projects, with assistance from ACAP staff.

The project is managed by the King Mahendra Trust for Nature Conservation, which is an autonomous, non-profit-making, non-governmental organisation. The projects are supported by various European and Asian environment and development organisations.

Publications

WEB, CDs, Diskettes

Energy and Environmental Technologies 1999. GREENTIE - CADDET



CD with 7,700 Worldwide Suppliers and 2000 Successful Demonstration Projects.

It enables an integrated research in both GREENTIE Directory and CADDET register database. Includes offline copies of the websites and 500 PDF files of technical brochures and newsletter articles. It allows access to 180 relevant websites.

The CD runs under Windows 95, Windows 3.1 and Mac 8.1. You need to have Microsoft Internet Explorer /Netscape Navigator 4.0.

Price: 30 EUR, 1999.

Published by **GREENTIE** and **CADDET** which are both part of International Energy Agency (IEA) and the Implementing agreement on Energy and Environmental Information Centres (EETIC). Set up within the framework of the Organisation for Economic Cooperation and Development (OECD)

GREENTIE
Directory & Newsletter

Greenhouse Gas Technology Information Exchange (GREENTIE), is an international information network dedicated to the collection and distribution of details on 7,700 suppliers whose technologies help to reduce greenhouse gas emissions. It works through Liaisons Offices in 36 countries.

The Directory can be (gratis) accessed on the internet. If you do not have internet access, diskettes and CD-ROM for Windows available (gratis).

"Green Times" 4-page Newsletter is published quarterly in English. (gratis)

Contact:
GREENTIE Centre, Novem bv, Swentiboldstraat 21, 6137 AE Sittard, The Netherlands.
Ph: +31-46-420-2203,
fax: +31-46-451-0389,
e-mail: greentie@greentie.org,
http://www.GREENTIE.org.

Centres for Analysis and Dissemination of Demonstrated Energy Technologies

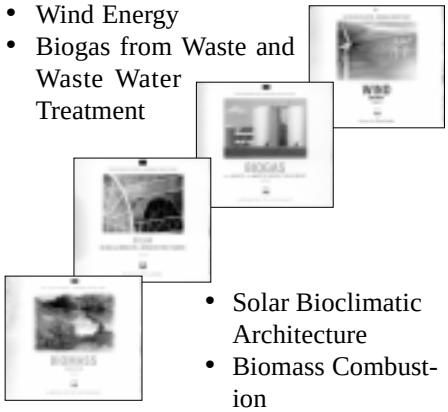
CADDET has a Renewable Energy and an Energy Efficiency program.

- The database of demonstrated 2000 projects can be accessed (gratis) from the internet, diskette version is available (for a small charge) for use on IBM-compatible system.
- The Newsletters, Technical Brochures are (gratis) available in print form and from the internet.

Contact:
- CADDET Center for Renewable Energy, ETSU, Harwell Oxfordshire OX11 0RA, United Kingdom.
Ph: +44 1235 432719,
fax: +44 1235 433595,
e-mail: caddet.renew@aeat.co.uk,
http://www.caddet-re.co.uk.

LIOR Multimedia CD-ROM Collection (online in 2000!)

Solution for the Environment, Renewable Energy. Series of 4 CDs:



- Wind Energy
- Biogas from Waste and Waste Water Treatment
- Solar Bioclimatic Architecture
- Biomass Combustion

Each CD includes:

- Encyclopedic general and technical information
- Case studies on successful projects
- Current National and European policy and legislation.
- Directory of relevant suppliers, engineers and experts and institutions
- Information how to obtain subsidies and grants
- Basic text in English
- Thesaurus, Glossary in 6 languages (English, French, German, Italian, Spanish, Dutch, the Wind CD in Danish also)
- Media gallery, database of pictures, videos, photographs and diagrams.

Funded by the EU, THERMIE program.
Prices: 190-210 EUR each (see website).

Contact: LIOR, Charlierlaan 78, 1560 Hoeilaart, Belgium.
Ph:+32-2-3051000, fax:+32-2-305 1010,
e-mail: info@lior-int.com,
http://www.lior-int.com

A UN Guide for NGOs

Contacts, services available by the United Nations' system.
208 pages, A5 format, 9th edition, September 1999.
Single copies ordered are free of charge.

Contact:
Tony Hill, United Nations Non-Governmental Liaison Service (UNGLS), Palais des Nations, 1211 Geneva 10, Switzerland.
Ph: +41-22-917 2076,
fax: +41-22-9170049,
e-mail: ngls@unctad.org.

Policy for a More Sustainable Energy Future

By Howard Geller, ACEEE, USA.
See article on page 11.
58 pages, A4, October 1999. Research report.

Contact:
American Council for an Energy-Efficient Economy (ACEEE), 1001 Connecticut Avenue, NW, Suite 801, Washington, DC 20036, USA.
Ph: 202-429-8873, fax: 202-429-2248,
e-mail: info@aceee.org,
http://aceee.org.

Energy Policy in the Greenhouse, Volume II Part 2.

Cutting Carbon Emissions while making Money: Climate Saving Energy Strategies for the European Union,
By Florentine Krause, Jonathan Koomey, David Olivier, IPSEP.
30 pages, A4 fornat. October 1999. Research report.
Contact: International Project for Sustainable Energy Paths (IPSEP), 7627 Leviston Ave, El Cerrito, CA 94530, USA. Ph: +1-510-525 7530, fax: +1-510-525 4446, e-mail: ipsep@igc.org, http://www.ipsep.org.

EVENTS

** = Event with INFORSE participation*

1-9 March, April, October, November 2000
Solar Sisters Program, Kathmandu, Nepal
Installing PV systems in remote homes.
Info: Himalayan Light Foundation, P.O. Box 8975 EPC: 5493, Kathmandu, Nepal. Ph: +977.1 418.203. fax: +977.1.412.924. e-mail: hlf@mos.com.np, http://www.panasia.org.sg/nepalnet/hlf/home.htm.

*March 6-10, 2000 **
UN Expert Meeting CSD9, New York, USA
Info: UN, Division for Sustainable Development, 2 UN Plaza, Room DC2-2220, New York, NY 10017 USA. Ph: + 1 212/963 3170, fax: + 1 212/963 4260, e-mail: dsd@un.org, http://www.un.org/esa/sustdev/csd.htm.
See article on page 3.

March 8-10, 2000
Renewable Energy for the New Millennium Conference, Sydney, Australia
Info: Electricity Supply Association of Australia Limited (ESAA), Level 11, 74 Castlereagh Street, Sydney, NSW 2000, Australia. Ph: +612-9233-7222, fax: +612.9233.7244, e-mail: vandermeulen@esaa.org.au, http://www.esaa.com.au

March 9-10, 2000
World Sustainable Energy Day 2000, Wels, Austria
Int'l conference on energy efficiency and renewable energy sources, Presentation of the Energy Globe Award 2000
Info: Christiane Egger, Energiesparverband, Austria. Ph: +43 732 6584 4386, fax: +43 732 6584 4383, e-mail: energy.globe@esv.or.at, http://www.esv.or.at/energyglobe/
See article in SEN 27, on page 12.

March 10, 2000
SunDay
Info: The Solar Energy Society, School of Engineering, Oxford Brookes University, Gipsy Lane Campus, Headington, Oxford, OX3 0BP, UK. e-mail: uk-ises@brookes.ac.uk., http://www.brookes.ac.uk/uk/uk-ises.

March 12-14, 2000
1st European Conference of Renewable Energy & Agriculture: The Changing Land of Europe, Noordwijkerhout, Netherlands.
Info: European Media Marketing, Ltd, P.O. Box 259, Bromley BR1 1ZR, UK. Fax: +44 181 289-8484; e-mail:sustain@emml.co.uk.

April 3-15, 2000,
9th Int'l Course on the Implementation of Wind Energy, Petten, Holland.
Info: J.W.M. Dekker, ECN, PO Box 1, NL1755 ZG Petten. Ph: +31 224 564-278, fax: +31 224 563-214; e-mail: j.dekker@ecn.nl.

April 13-14, 2000
Offshore Wind Energy in the Mediterranean and Other European Seas, Siracusa, Sicily, Italy
Info: OWEMES 2000, ENEA C.R. Casaccia, Via Anguillarese 301, I-00060 S. Maria di Galeria (Roma), Italy. Ph: +39 6 3048-3994/4138, fax: +39 6 3048-6315/6486; e-mail: gaetano.gaudiosi@casaccia.enea.it

April 17-22, 2000
Int'l Course on Small Hydro Power Development, Kathmandu, Nepal
Info: Alternative Hydro Energy Center, University of Roorkee, Roorkee, 247 667, UP India. Ph: +91-1332-74254, fax: +91-1332-73517, e-mail: ahec@vsnl.com, ahec@rurkiu.ernet.in.

April 18-21, 2000
New Energy 2000, Shanghai, China
Int'l Exhibition.Host: China Chamber of Commerce, et.al.
Info: Coastal Int'l Exhibition Ltd., 3808 China Resources Bldg, 26 Harbour rd Wanchai Hong Kong. Ph: 852-28276766, fax: +852-28275224, +852-28276870, e-mail: general@coastal.com.hk, http://www.coastal.com.hk.

*April 22, 2000 **
Earth Day 2000
Info: Earth Day Network, Mark Dubois, 91 Marion str., Seattle, WA 98104, USA. Ph: +1-206-2640114, fax: +1-206-6821184, e-mail: worldwide@earthday.net, http://www.earthday.net.
See article in SEN 27 on page 4.

25-28 April 2000
11th Annual Global Warming Int'l Conference & Expo, Boston, U.S.A.
Info: Global Warming Int'l Center-USA, 22W381-75th Street, Chicago, IL 60565 USA. Ph: +1-630-910-1551, fax: +1-630-910-1561, http://GlobalWarming.net.

April 30 - May 4, 2000
Windpower 2000, Palm Springs, CA, USA.
Info: AWEA, American Wind Energy Association, 122 C Street, N.W., 4th Floor, Washington, D.C., 20001, USA. Ph: + 1 202 383-2500; fax: +1 202 383-2505, e-mail: laura_keelan@awea.org

May, June, July, August, 2000
3 day courses by SEI on Renewable Energy Technologies, Carbondale, CO, U.S.A.
Contact: Solar Energy International (SEI), PO. Box 715, Carbondale, CO 81623-0715, U.S.A. Ph: +1-970-963-8855, fax: +1-970-963-8866, e-mail: sei@solarenergy.org. http://www.solarenergy.org.

May 1-5, 2000
16th European PV Energy Conference and Exhibition, Glasgow, UK
Info: WIP, Sylvensteinerstr. 2, 81369, Munchen, Germany. Ph: +49-89-7201235, fax: +49-89-7201291, e-mail: renewables@tnet.de, http://www.wip.tnet.de/pv00.htm.

June 5-9, 2000
1st World Conf., Exhibition on Biomass for Energy & Industry, Sevilla, Spain
Info: Dr. David Chiaramonti, Energia TA - Florence Piazza Savonarola 10, 50132, Florence, Italy. Ph: +39-055-5002174, fax: +39-055-573425, http://www.etaflorence.it, or WIP Germany see at event above.

June 14-16, 2000
Exchanging the Environment by Reforming Energy Prices, Prague, Czech Republic
Workshop organised by the UN Economic Commission for Europe jointly with OECD and the Czech Government.
Info: Jiri Becvar, Ministry of Environment, Vrsovicka 65, 100 10 Prague 10, Czech Republic. Ph: +42 02 6712 2238, fax:+42 02 6731 0277, e-mail: Jiri_Becvar@env.cz.

June 19-22, 2000
EUROSUN 2000 Congress, Copenhagen, Denmark
3rd ISES-Europe Conference
Info: DANVAK, Orholmvej 40B, 2800 Lyngby, Denmark. Ph: +45-45-877611, fax: +45-45-877677, e-mail: info@danvak.dk.

July 1-7, 2000
WREC-2000, Brighton, UK
World Renewable Energy Congress
Info: Prof. Ali Sayigh, World Renewable Energy Network, 147 Hilmanton, Lower Early, Reading RG64 HN, UK. Ph/fax: +44-1189-611364/-611365, e-mail: asayigh@netcomuk.co.uk, http://www.wrenuk.co.uk.

August 20-25, 2000
Efficiency and Sustainability, Pacific Grove, CA, USA
ACEEE Summer Study on Energy Efficiency in Buildings
Info: American Council for an Energy-Efficient Economy (ACEEE), 1001 Connecticut Avenue, NW, Suite 801, Washington, DC 20036, USA. Ph: 202-429-8873, fax: 202-429-2248, e-mail: info@aceee.org, http://aceee.org.

October 14-15, 2000
6th Annual COGEN Conference and Exhibition, Brussels, Belgium
Marketing Strategies for Cogeneration How to realise the Potential
Info: 98, Rue Gulledelle, 1200 Brussels, Belgium. Ph: +32-2-772 8290, fax: +32 2 772 5044, e-mail: cogen_europe@compuserve.com, http://www.cogen.org

October 17-19, 2000
EEBW 2000, Prague, Czech Republic
Energy Efficiency Business Week, Conference and Exhibition
Info: SEVEn, Slezska 7, 120 56 Prague 2, Czech Republic. Ph: +420-2-2425-2115, fax: +420-2-2424-7597, e-mail: seven@svn.cz, http://www.svn.cz.

November 23-26, 2000
CERE 2000, Beijing, China
Int'l Environment and Renewable Energy Conference
Info: China International Science Center, No. 1 Sandaojie, Jianguomenwai, Chaoyang District, Beijing 100022, P.R. China. e-mail: cisc@midwest.com.cn, ph: +86-10-65157760, fax: +86-10-65158442, http://www.ciscexpo.orgcn.net

Contents

Gender & Energy Development:
A Project Approach

By Anushka G. Abeynayake, Denmark.

Specialist and NGO activist within gender and development.

In November, 1999, I attended a workshop entitled, '***Improving Women's Access to Energy: Policy, Projects or the Markets?***', which was organised by ENERGIA. In the following text, I shall attempt a brief rundown of important points sparked off by these most inspiring and intensive two days.

A Long History of Misjudgement

The identification of women's energy needs in the 'Third World' seem often to have been linked to energy-efficient stoves and ovens, with a view to providing women with sustainable household energy and a source of income generation. Many such projects have proven unsustainable due to lack of serious user project-participation and of long-term commitment, pointing to donors' misjudgement of users' needs.

Crippling of project sustainability due to failure to involve women stakeholders is not specific to the energy sector. It is an ongoing problem in development aid in general. A rich body of lessons learnt already exists.

Compounding the errors, theories and practices culturally specific to the West are too often automatically applied to non-Western cultural and social contexts in which they usually are not appropriate. Such cultural errors can cause long term, unforeseen problems with adverse social, political, and/or economic repercussions.

Groundbreaking New Project Practices

There is thus a need to "listen right" in the design, implementation, evaluation, and monitoring of projects and programs to attain real project sustainability.

It is important to listen to the women's input directly and carefully, making sure to obtain a clear understanding of their concerns practical as well as socioeconomic.

A particularly interesting, ground breaking work is carried out by the UNDP/ World Bank's Water Sanitation Program in South Asia based on qualitative and quantitative indicators developed by CIDA (Canadian Int'l Development Agency).

Below is a listing of such indicators:

- *Base-line data* are crucial to evaluating how well project objectives are met. These include data disaggregated by sex, ethnic grouping, and socioeconomic status.
- *Input indicators* identify project resources: coverage of investment; instructional material and its relevance to women and to men.
- *Process indicators* reflect ongoing monitoring of project implementation: decision-making processes and information feedback.
- *Output indicators* measure results of product use and services towards the goals of the donor funding: number of facilities in working order, user views.
- *Impact indicators* assess long-term sustainability and effectiveness: women's views on benefits/disadvantages and impacts 3 to 5 years after donor funding has commenced.

(Source: Guide to Gender Sensitive Indicators CIDA ,1997)

(The article was edited by the editors)

Contact: ENERGIA, P.O. Box 64, 3830 AB Leusden, The Netherlands. Ph. +33 33 494 3086, fax: +33 33 494 0791, e-mail: office@etcnl.nl, http://www.sms.utwente.nl/vakgr/vok/energia/.

ENERGIA, International Network on Women and Sustainable Energy was established in 1995 and has 800 members all over the world.