

EDITO



Does it change anything?

Most people ask themselves whether the many large scale international conferences on sustainability really make a difference. Can we change the market for sustainable sources of energy, or does it stop at words?

Since the Rio Summit in 1992, the Kyoto Protocol has been the most significant milestone. However, symptomatically this protocol has still not been finalised. The question remains as to whether it ever will be. In the light of the extensive efforts which have been put into these international meetings, it is rather interesting to note how little impact they have had on the market for renewable energy. This only serves to show that a number of other elements also help push for positive development within the energy sector.

In other words, we cannot leave the pressure to develop alternative energy sources to the agenda for international co-operation. On the other hand, it is important to hold on to the global perspective and to highlight which countries do not fulfil their obligations. The EU, along with several European countries, has gradually realised that it is not the extensive agreements and fancy after-dinner speeches at different summits that change the big picture. In Johannesburg, the EU tried to establish a more specific type of co-operation with one single purpose: to obtain specific results. However, this proved to be only a limited success. The EU planned to create a financial basis for sustainable work in other regions of the world. This plan has, however, not had the desired impact.

The Bonn summit next month is yet another well-intentioned attempt to establish a specific agreement between countries with their ambitions intact. Good luck! A degree of scepticism has already set in before this summit is off the ground. Still, we must support the international initiatives as well as the Bonn summit and follow the results closely. If nothing else, the summits are justified by the international attention they create.

However, the most significant results concerning sustainable energy gain prominence when individual governments or regions make political decisions in order to prioritise a sustainable development programme or when individual companies make a contribution to technological advances.

*Jørgen Lund Madsen
Vice-President Climate Change*

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Chief editor: Roger Leron

Editorial Board:

Michael Geißler, Secretary General
Dominique Bourges - Isabelle Parent - Ralf Goldmann

With the support of Fedarene's member agencies

Rue du Beau-Site 11, B-1000 Brussels

T + 32 2 646 82 10 - F + 32 2 646 89 75

E-mail fedarene@euronet.be

French and German versions are available on
www.fedarene.org

FOCUS

ON

Renewable Energies within the International Cooperation

International co-operation represents a key-element in the development of renewable sources of energy. In addition to protecting the environment, such developments offer new economic, social and cultural prospects both in northern and southern countries. Convinced by this idea, several members of Fedarene set up partnerships with regions such as those of the Galapagos Islands, China and Kikimi in the Democratic Republic of Congo. On the eve of the Bonn Conference, "Renewables 2004", Osman Benchikh, responsible for renewable energies in UNESCO, reviews the main benefits of international co-operation.

The energetic co-operation of the Walloon Region in the Southern countries

Through its energy service, the Walloon Region has maintained an environmental policy for the last 15 years. This deals with the Rational Use of Energy (RUE) and Renewable Sources of Energy (RSE).

Even if the actions and projects essentially concern the Walloon Region, they nevertheless cross frontiers, further into European territory (the Walloon Region is a founder member of Fedarene) and towards more southern lands.

This policy is implemented in two directions: via the francophone institutions (AIF and IEPF)¹ and through bilateral agreements.

Numerous projects have been co-financed by the Walloon Region in co-operation with other partners. Unfortunately, there have been some failures, due to the inadequacy of representation in the territory or to dramatic situations such as wars. However, we can be proud of the successes, such as for example:

- the training of agents for the security of the electrical installations in Cameroon,
- the training of trainers for the maintenance of renewable energy sources equipment in Morocco (co-financed by the EU ALTENER programme),
- the installation of some thirty biogas production units in villages in Guinea (more than 80% still functioning),
- the installation of micro hydroelectric tur-

- the putting into service of hydrauliennes (floating turbines) in the Democratic Republic of the Congo and in Gabon.

Hydrauliennes for villages: experience in Kikimi in the Democratic Republic of Congo (DRC)

This hydraulienne was installed in January 2000 by the Rutten Company - from the name of the Belgian constructor, Jean Rutten. It supplies the whole village of Kikimi (+/- 2000 inhabitants), covering 300 lighting points, 2 refrigerators, a



Hydrolienne of Kikimi (30 km from Kinshasa) on the river Ndjili
Photo © Rutten SA

television and a video recorder, as well as the hospital, the secondary schools and the administrative building, situated on the edge of the river. A network of +/- 7,000m of various types of cable is also connected to the hydraulienne.

Consisting primarily of a float, a rotor and a stabiliser,

(../. see p 2)

TELEX

CONFERENCE ON "LOCAL CULTURAL CONTEXT FOR NEW ENERGY TECHNOLOGIES" IN GENOVA

The Regional Authority of Liguria and its Regional Energy Agency, ARE Liguria, will organize the international conference "Local Cultural Context For New Energy Technologies" on the 6th of July 2004. The conference will take place in Genova (Italy) within the Environmental Culture Week (5 - 9 July), an event organized by the Italian Network of Environmental Agencies in conjunction with the celebrations for Genoa European Culture Capital 2004. The scope is to develop synergies between energy, environmental and cultural issues around the central theme of social acceptability of technology with particular reference to wind, photovoltaic and biomass plants.

More information is available on the web site <http://www.fedarene.org>

Contact: Maria Fabianelli
ARE Liguria
are.promo@filse.it

RETROFITTING INTEGRATED ENERGY SYSTEMS IN BUILDINGS (INTEREB)

The aim of the INTEREB SAVE project is to define, through planning tools and guidelines, procedures for promoting energy retrofitting measures within standard building renovation processes. Primarily addressing Local Authorities, the outcome of this work should help to promote new strategies, revised regulations and innovative financial instruments conducive to a more sustainable approach to the renovation of residential buildings.

Just one year after its inauguration, the INTEREB partnership has announced its first set of results. Each partner has produced a well documented analysis of the characteristics of the residential building stock, with a national overview followed by a detailed investigation at a regional and local level. A methodology for the evaluation of the potential energy and environmental savings in building renovation was developed by Rete Punti Energia and has been tested in the city of Varese. It is also being implemented by Rhônalpénergie-Environnement, Energy Agency of Plovdiv and Krajowa Agencja Poszanowania Energii in different urban contexts.

For further information, please visit: www.puntoenergia.com

Contact: Paola Fragnito
Associazione Rete di Punti Energia
puntoenergia@puntoenergia.com

(../.) the mode of operation of the hydraulienne is of childlike simplicity. It involves hydro-generators floating on a river at a point where the speed of the current is equal to two metres per second. The water current turns a wheel which produces electricity in zones where it has never been seen previously. As the height of the water increases or decreases, the float causes the hydraulienne to move up and down vertically.

The whole assembly of the hydraulienne and its network was carried out in a week. It has now been running for 4 years 24H/24h. The inhabitants of Kikimi are today better off than the inhabitants of Kinshasa, who suffer frequent electricity cuts. Every day, the inhabitants of this village are supplied with lighting and its benefits are there for all to see. The commercial activity for local products has developed significantly.

This technology provides a source of energy that is inexhaustible, non-polluting and free. These are characteristics that do not even apply to solar energy. Apart from the undeniable advantages related to the environment, energy produced by the hydraulienne is much less costly than electricity generated by conventional methods.

The two-year test phase in this distant suburb of Kinshasa, Kikimi, was very encouraging for the National Energy Commission (CNE) of DRC, who intend repeating the experience in some fifty villages, always in collaboration with the Walloon Region.

The hydrauliennes are manufactured entirely by S.A. Rutten at Herstal in Belgium and they are examining the possibility of fabricating some parts in the Congo. As far as the maintenance of these machines is concerned, the CNE technicians have been trained and the hydrauliennes are well cared for.

During that time, two other hydrauliennes have been installed only a few kilometres upstream.

(1) AIF is the Intergovernmental Agency of the "Francophonie" (french speaking countries). IEPF, the Energy Institute of the francophone countries is a one of the several specialized bodies of AIF.

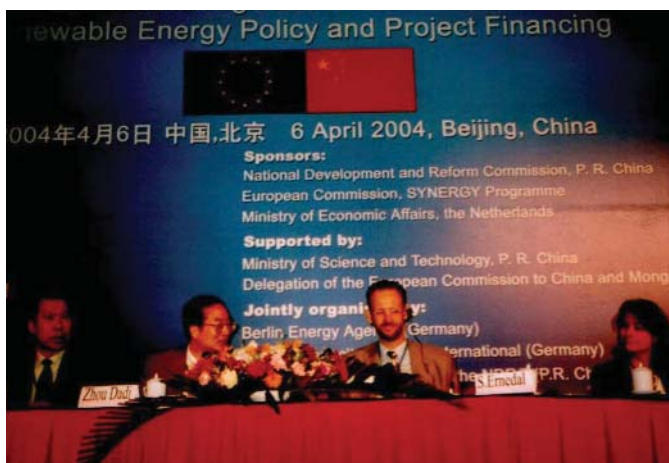
i Contact: Serge Switten
Ministère de la Région Wallonne
S.Switten@mrw.wallonie.be
Jean Rutten (Rutten SA)
rutten@skynet.be

Increasing European public and private sector involvement in renewable energy projects in China

China's fast growing economy is leading to a rapid increase in energy consumption. One of the main targets for climate protection will be the development of Renewable Energy (RE) sources. The Clean Development Mechanism (CDM), a project-based flexible instrument of the Kyoto Protocol, allows for Certified Emission Reductions (CER), which will be applicable in the European Emission Trading System from 2005.

Due to its high potential at low cost, China could be the major playing field for RE projects under

launched in order to spread information on the CDM process in general and on RE opportunities in China specifically, be it to Chinese decision-makers or to potential investors in the EU. In particular, this project which is co-funded by the European Commission's SYNERGY Programme and co-ordinated by Berliner Energieagentur, will contribute to China's declared goal of benefiting from the transfer of technology by setting up its own development and manufacturing capacities based on European experience.



The project therefore aims at improving the framework conditions for Renewable Energy use in China through the transfer of experience on RE policy issues. The project partners will identify Renewable Energy project opportunities under the CDM scheme and assist China in capacity building on CDM related issues. On a wider scale, the project will enhance the transfer of Renewable Energy technology and expertise between EU member states and China.

the CDM scheme, attracting private and public investment capital from EU countries.

However, there are certain barriers to overcome: the policy framework in China is still inappropriate; technology and expertise is insufficiently developed and disseminated while the financial resources and institutional capacities are scarce.

In this context, the project "EU-China Partnership in CDM Implementation" has been

A high-level EU-China Conference on RE policy was held on 6 April in Beijing, with more than 100 participants from China, EU countries, Japan and Canada.

More information on this project are available on the following web sites: www.berliner-e-agentur.de and www.cdm-res-china.net

i Contact: Michael Bröge
Berliner Energieagentur GmbH
broege@berliner-e-agentur.de

Dr Osman Benchikh - coordinator in charge of energy and renewable energies at UNESCO

Osman Benchikh graduated as a Doctor in Physics from the French "Ecole Supérieure de Physique et Chimie de Paris". He has written several books and publications on renewable energies and took part in the definition and implementation of several international programmes and initiatives to promote the wider use of renewable energies.

Dr Benchikh contributed to the launch of the World Solar Programme (WSP) that has since become a UN programme and is the basis of the World Summit on Sustainable Development targets. He also initiated the UNESCO GREET Programme, the launch of the Regional Solar Councils concept and acted as the Secretary General of the Mediterranean Solar Council.

He chaired the Commission on renewable energies at the Francophone Academy of Engineers and he is member of the Arab Permanent Committee on Renewable energies.

On the basis of the action plan adopted in Johannesburg, what were the most striking concrete facts established over the last two years in terms of renewable energies?

One of the great advances of Johannesburg, for you cannot expect everything even from a large meeting such as this, is that it determined the direction to follow. I believe that, as far as sustainable development and the fight against poverty are concerned, Johannesburg established substantial orientations and targeted the priorities.

When we look at the five main problem areas that have been recognised as priority domains for sustainable development, namely water, energy, health, agriculture and biodiversity; energy, and especially renewable energies, indeed constitute the interdisciplinary domain of the different priorities. What we can say is that renewable energies constitute the key element of sustainable development.

The concrete actions or initiatives for achieving the objectives fixed by the Johannesburg Summit were established in what is known as the type II partnership. I can cite some (non exhaustive) examples such as the Mediterranean Renewable Energy Programme (MEDREP) announced by the Italian government. This programme aims to develop a sustainable renewable energy market system in the Mediterranean area and targets the rural populations in particular. Another initiative "The Global Village Energy Partnership" has the objective of sustainable socio-economic development through the introduction of modern energy services to those who do not yet have any form of energy. Electricity, thermal energy and clean car-burants must also be made available to people living in rural and peri-urban zones. Furthermore, we must not forget the "Renewables Energy 2004" conference that will soon take place in Bonn and will be dedicated essentially to the prospects for renewable energies.

What is your opinion regarding the creation of an investment fund, as recommended in Johannesburg, aimed at supporting actions in developing countries? What other financial mechanisms would you suggest?

All initiatives related to support or greater solidarity for the implementation of international financial mechanisms, to finance projects and programmes in the domain of renewable energies are evidently very useful. The fight against poverty is, in my view, dependent on generosity and international solidarity. This can be interpreted in different ways, including the creation of funds.

In terms of decentralised electrification, for example, the financing models vary according to experience, the country and the community. I think that micro-credit is a very interesting financial mechanism that could be used to advantage for the acquisition of solar systems such as that for domestic lighting.

To maintain a greater social balance, it is also essential that support is given by the Member States for the acquisition of solar systems at the level of 10, 15 or even 20% of the cost.

What role can local and regional agencies play in promoting the internationalisation of the markets, the expertise and the transfer of technology to third-world countries?

I would note two things: on one hand the promotion of the use of renewable energies and on the other hand the expertise in this domain. Many of the people concerned with decentralised electrification today do not know that there is an alternative to the traditional network. The role of regional agencies must, among others, concern the dissemination of information, popularisation, research and the initiation of action and pilot projects as well as the identification of financial resources and mechanisms.

Technological expertise in research and development is not strictly the business of the regional agencies for energy and the environment. They can evidently provide their support but technological research and development should be left to the expertise of the universities and industry. The transfer of technology, which remains one of the key elements, for the purposes of international solidarity, should constitute, among others, one of the priorities of bilateral co-operation which implies not only the agencies but also the universities, specialist centres and other institutions. It is indispensable to multiply the partnerships with different players to ensure better transfer of knowledge and expertise between the north and the south and vice versa.

What do you think of the creation of energy and environment agencies in developing countries? How can they be financed and what role can they play?

The creation of the agencies is not a new phenomenon in the so-called developing countries. In fact, there are already such energy and environment agencies in many countries; one could, for example, cite the cases of Tunisia and Algeria. These play an important role in the control of energy and protection of the environment.

What is necessary, however, is to extend their activities and provide them with the means to carry out their role more effectively.

Can you describe briefly, the main lines of the GREET (Global Renewable Education & Training) programme? What are the anticipated effects on the use of renewable energies?

There can be no real development, either in the renewable energies sector or in any other sector, without the development of human resources. The training of human capital constitutes the condition sine qua non for the putting in place and the viability of the projects. Decentralised electrification requires the development of local capacity and competence capable of installing, monitoring and maintaining the systems. That therefore supposes the establishment of an education and training programme. For that reason, Unesco initiated the GREET (Global Renewable Energy Education and Training) programme. The expected effects of this programme are primarily to assist the Member States concerned by the use of renewable energies to acquire the human competence necessary in this domain. This programme deals with all levels of education and training, including information for the general public and user training. Training of the deciders also constitutes a priority feature for a better definition of needs and identification of the resources in this domain. In parallel, it is essential to put in place and use didactic and pedagogic tools to ensure the lasting effects of the training.

UNESCO has initiated numerous activities, including continuous training in the form of summer schools, as well as the creation of pedagogic platforms.

Do you think that the national systems for information about energy (SIE) can help with local development and constitute a tool in the fight against poverty?

The exchange of information in the domain of energy facilitates and enhances energy management and planning. Numerous tools exist, such as for example "energy information panels" and must be put in place to show the progress of the process of electrification and its relationship to the development index within the village community.



SUCCESSFUL OPET WORKSHOP ON ELECTRICITY FROM RENEWABLE ENERGY SOURCES

As part of their final OPET activities, Dr. Brand, Manager of Fedarene member AZES, welcomed around 60 participants to a workshop on the advantages and benefits of the new German feed-in law for electricity production from renewable energy sources, under the name of EEG (energy sources act).

This event was set up with the support of the DG TREN OPET programme in direct co-operation with the regional ministry for environment, headed by the Minister, Mr Mörsdorf himself. All relevant renewable energy sources such as wind, PV and biomass were analysed in terms of their real technical and economic potential under the new framework conditions of the up-dated EEG for the next 5 years. There is a lot to do if all market players are to reach their agreed targets. Nevertheless, most of the experts were optimistic about being able to reach them so long as Saarland can use its regional advantages.

The workshop ended with a visit to a very large, 1.4 MW PV plant near the airport of Saarbrücken.

Contact: Nicolas Sacca
AZES
sacca@azes.de

SUCCESSFUL SOLAR CAMPAIGN IN UPPER AUSTRIA

The results of the solar campaign implemented by O.Ö. Energiesparverband in the framework of the European Soltherm Initiative are very promising: in 2003, 48,000m² of solar thermal collectors were installed. With more than 450m² of solar thermal installations per 1000 inhabitants, Upper Austria is one of the leading European solar regions. The solar campaign focused on the installation of large-scale plants and included a number of promotion measures, training, events and planning tools. A "solar event", including a seminar and study tour, is currently in preparation.

Contact: Christiane Egger
O.Ö. Energiesparverband
office@esv.or.at

"ENERGAMES" IS LAUNCHED BY ARAEN

The Abruzzo Region - Directorate of Tourism, Environment and Energy, through ARAEN, the Regional Energy Agency of Arbruzzo, organizes Energames. Energames project is addressed to the primary and junior high schools, in order to promote the knowledge of energy produced by renewable energy sources, environmentally friendly fuels and also to promote energy saving awareness. The target is to contribute to the development of an "ecological and energetic" conscience by interacting with children because "...small children make big projects".

Contact: Iris Flacco
ARAEN
araen@regione.abruzzo.it

Photovoltaic electrification in the Galapagos Islands

Extending the electricity grid is expensive to finance in isolated rural zones, remote areas and on certain islands. In such cases, energy supply by systems based completely or partially on renewable energy sources is the best option for advancing the development of isolated areas.

This is the solution selected to provide energy on Floreana in the Galapagos Islands, a fragile ecosystem of enormous biodiversity that requires special protection with regard to infrastructure.

Floreana is the smallest inhabited of the Galapagos Islands, an archipelago declared a Biosphere Reserve in 1984. Its population is 200 inhabitants and most of them live in Puerto Velasco Ibarra. Traditionally, electricity has been supplied on the island by a mini-grid with generators working 12 hours a day. This system is powered by fuel brought by sea from the mainland (some 42,000 litres/year). Users pay a conventional tariff below real cost and the operator - ElecGalapagos EGP - is sustained economically by subsidies. Other inhabitants living at a distance from the electrified centre use their own generators to produce power.

In response to this lack of basic energy infrastructure an integral infrastructure project based on sustainability was launched. The project is funded by the Galapagos National Park; the SEBA NGO, through the Spanish International Cooperation Agency (AECI); the Catalan International Cooperation Agency; the Floreana Parish Council and the European Commission, through the Multi-user Solar Hybrid Grids (MSG) project.

Transfer of expertise and good practices

The principal objective of the project is to establish an electrical power system based on renewable energy, which provides users with a 24-hour service. The project is also integrated with other initiatives, such as the rehabilitation of the drinking water grid, reorganisation of the town centre and the construction of a technical building housing a multifunctional centre. Regarding the sustainable electrification of the Isle of Floreana, the project aims to promote: efficiency energy use and demand-side management; generation based on renewable energy sources through stand-alone systems and multi-user solar hybrid grids.

The multi-user grid designed for Puerto Velasco Ibarra consists of a combined photovoltaic-wind system that generates power for 54 consumption points in the town (homes, church, offices, etc), as well as for public lighting. The building that houses the photovoltaic modules and other equipment (batteries, power regulating unit and transformer, etc) is a community centre that also provides information for park visitors. Eleven stand-alone photovoltaic systems and a small photovoltaic-wind-diesel system are installed on sites at the upper part of the island. There is a total of 25 kWp photovoltaic power and a 600 W wind turbine. The new system is expected to produce economic savings of around 20,000 dollars per year or 300,000 dollars in 15 years, including the cost of replacing the batteries after seven years. Although the economic performance is not

dramatic, there are other advantages that are not accounted for economically but which are very important to the development of the local community and improve the quality of life.

Strengthening local institutions

To ensure that all of the many consumers benefit equally from the photovoltaic system, each is provided with a guaranteed minimum amount. An energy dispenser-meter installed in each home limits the maximum power available to each user, metering and guaranteeing individual consumption whilst promoting the rational use of energy. The EDA - Ensured Available Energy - concept also establishes a tariff system based on consumption blocks that, besides promoting energy saving, also enables operating costs to be covered and administrative expenses to be simplified. Under this scheme, each user contracts a monthly flat rate payable to the Parish Council. Moreover, training workshops are organised and the replacement of inefficient household appliances is promoted in order to stimulate energy efficiency amongst users.



Local workers participated in training programmes and assisted with the installation of the systems. These workers will also be able to carry out future maintenance work and any repairs that may be necessary. Floreana Parish Council, which is responsible for system operation, maintenance and management, has received advice and training in the collection of payments, accountancy, community consumption management, regulations, incentives and penalties to enable it eventually to manage the assets that will come under its control. Local investment was co-financed by the promoters of the institutional agreement, within the Araucaria Spanish cooperation programme, with the co-operation of the Institut Català d'Energia. The Catalan firm of Trama TecnoAmbiental is responsible for organisation and technical management. The expected results go beyond the replacement of a conventional energy source by a renewable one on an island, as this project aims to change the current energy model, promote the efficient and rational use of energy amongst users and strengthen local institutions, enabling them to manage the infrastructure in a more economical and environmentally sustainable way. This will enable the model for electricity provision to be extended to other islands in the archipelago and to other remote areas of Ecuador "the Amazon region, for example" in the future.

i Contact: Carlos Torra
ICAEN
ct_internac@icaen.gencat.net