



ENERGY +
SUSTAINABLE
DEVELOPMENT

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Special WSSD Edition

Global Network Takes Shape

A new network to link existing institutions focused on energy, development and environmental issues will be officially launched during World Summit on Sustainable Development (WSSD). The *Global Network on Energy for Sustainable Development* (GNESD) will promote efforts to provide energy for sustainable development by linking existing centres working on energy, development, and environment issues. The GNESD will make it easier for partners to exchange information, share experiences, conduct analyses and provide practical policy and technical advice.

An Institutional Perspective

The decade since the Rio Earth Summit has been a period of immense technical and social change. Although it is almost a cliché to say that modern forms of energy are a necessity for development, the implications of how that energy is derived – and how it is used – still eludes many institutions and policy makers.

The work of the United Nations Environment Programme (UNEP) and the UNEP Collaborating Centre on Energy and Environment (UCCEE) aims to enable the policies that will move the world towards energy systems based on cleaner forms of energy.

UNEP's Energy Programme (UNEP Energy) is focused on renewable energy, energy efficiency, transport, energy finance and policy issues that address the environmental consequences of energy production and use, such as global climate change and local air pollution.

UNEP Energy works with a range of partners including UCCEE, the Basel Agency for Sustainable Energy (BASE) as well as governments, non-governmental organizations (NGOs), academic research institutions, banks and private sector companies. Financial support comes from UNEP's Environment Fund, bilateral donors, the Global Environment Facility (GEF) and the United Nations Foundation (UNF).

UCCEE was established in 1990 and is core-funded jointly by UNEP, the Danish Ministry of Foreign Affairs (DANIDA) and Riso National Laboratory. The Centre's international team of scientists, engineers and economists supports the aims of UNEP with a special emphasis on developing countries and climate change. In addition to a full in-house research programme, UCCEE also supports research by local institutions, co-ordinates projects, and communicates information and findings to a range of stakeholders.

Agreement to create the GNESD arose from two meetings in Berlin and Paris during May and June. One of the key members of the group working to develop the concept. Thomas Johansson of the Swedish International Institute for Industrial Environmental Economics (IIIEE), says the GNESD would not be a new institution but "a flexible arrangement of existing Centres of Excellence" cooperating to enhance the collective effectiveness of these institutions. This includes centres in developing and industrialized countries with a regional or sub-regional focus and noted for their work on energy, development, and environment issues. Their partners in the Network could include international organisations, governments, financial institutions, private-sector institutions, and other parties who share the overall goal of promoting energy for sustainable development.

The Network is also aimed at strengthening national and regional research networks in the South, and promoting South-South and South-North exchanges. This would help to create an effective knowledge management of issues related to energy and sustainable development, as well as a shared research and information database on policy and technical guidance, advice, and information. The GNESD would operate to complement other energy initiatives being proposed at WSSD. "We want the Network to help place energy for sustainable development more firmly on the global agenda and link the provision of clean energy services to other development goals," says Johansson, adding that networks play a very useful role to facilitate the exchange of knowledge at relatively low cost, provided that there is a shared purpose and vision among partners.

Support is coming from the German, French and Danish governments, the United Nations Foundation (UNF), and the E7. UNEP will act as the Network Secretariat and will be responsible for communicating the Network's experiences and results to a wide group of policymakers, technical experts, NGOs, journalists, and others concerned with sustainable energy.

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New Project Links

Development and Climate

In many developing countries today, climate change remains a marginal issue to the pressing issues of food security, poverty, natural resource management, energy access, and urban transport. Finding policies and actions that can drive development and at the same time address the challenge of climate change is the core of the *Development and Climate Project* - a major effort to analyze the relationships between development and climate change. The Project will be officially presented at the Energy Day side event on August 30th during the World Summit on Sustainable Development (WSSD).

"There are many good sustainable development projects that do not directly address climate change issues but still produce positive climate impacts," says UCCEE director, John Christensen.

The Development and Climate Project, he says, aims to find the development path that links to positive climate outcomes. Christensen explains that one of the drivers for the project is the Marakesh declaration, which emphasizes that actions to limit climate change should be in the context of sustainable development.

The project is a strong international collaboration among a number of partners and coordinated by UCCEE, the Netherlands' National Institute of Public Health (RIVM), and the International Institute for Environment and Development (IIED). The project also includes partner institutions in Brazil, China, India, South Africa, Senegal, Bangladesh, Germany, France and the United States. International organisations include UNEP, OECD, IEA, UN Foundation and the FCCC Secretariat

The first phase of the project will run until the end of 2002, analyzing specific case studies and developing a common analytical framework. The case studies will focus on development projects in Bangladesh, Brazil, China, India, South Africa and West Africa and include an analysis of each country's long-term development objectives and unique requirements for energy, water and food security.

The second phase of the project will then run over the next two years and focus on policy analysis, developing the institutional capacity to address development and climate change issues, and a continuous interaction between policy makers and experts.

Christensen notes that reframing climate change policy from a development perspective does not make actions to address climate change directly easier. Rather, the approach suggests that North-South collaboration on climate change should target development at the local level as an approach to establish an equitable and efficient global regime.

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Implementing The Clean Development Mechanism

The CDM is an important opportunity within the Kyoto Protocol, but human and institutional capacity is needed within developing countries to benefit from new CDM projects. To help developing countries gain this capacity, the Dutch government is providing \$10 million through UNEP and UCCEE in the project *Capacity Development for the Clean Development Mechanism*.

UCCEE programme manager for the project, Myung Lee, explains that unlike other CDM projects, the UNEP/UCCEE project is "investment-neutral" and unconnected to the actual purchase of carbon credits from possible CDM projects. Rather, he says, the project aims to build the human and institutional capacity of selected developing countries to participate as "equal partners" with developed countries in CDM projects.

Twelve countries have stated their interest, including the Philippines, Viet Nam, Mongolia, Cote d'Ivoire, Mozambique, Uganda, Bolivia, Ecuador, Guatemala, Morocco, Jordan, and Egypt. Lee says that mostly medium-sized countries have been selected because larger countries have other opportunities to develop CDM capacity. "We also believe that this approach of choosing medium-sized countries will help to replicate this project in other developing countries," he says.

Regional centres are being contracted to help with national project implementation, beginning with the preparation of background papers, collecting data & information, and convening workshops. The regional centres are: (Africa) Environmental Development Action in the Third World (ENDA) and the Energy and Development Research Centre (EDRC); (Asia) the Asia Institute of Technology (AIT); and (Latin America) the Institute for Energy Economics (IDEE). APEX Conseil in Tunisia will act as the centre for the Arab States region.

The project team will finish initial country visits by September and begin drafting national work plans. National and regional workshops will also be held from September to November.

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REED**Projects Advance**

The first half of 2002 has been an active period for the *Rural Energy Enterprise Development Initiative* (REED). The initiative, a partnership between UNEP, the United Nations Foundation (UNF), UCCEE, E+Co (a US-based non profit clean energy investor) and a diverse group of local country partners, aims to assist developing countries to develop the institutional and commercial capacity to pursue sustainable development through the creation of new clean energy enterprises.

The first REED initiative in Africa (AREED) has provided seed capital and enterprise development support to seven new clean energy enterprises (see www.ared.org). Many of the current AREED enterprises are based on servicing equipment installed as part of previous aid projects. VEV, for example, is a small company in Senegal repairing and servicing disused windpumps. The company is using a \$17,000 AREED loan to expand its inventory of spare parts to service the estimated 90% of the country's windpumps that are currently inoperable (see photo).

In May, REED launched a new initiative for Brazil, called B-REED (www.b-reed.org), which aims to help new businesses provide modern energy services to the 20 million people in the northeast of Brazil who do not have them. Another initiative for China (CREED) is in the planning stage with The Nature Conservancy, a US-based organisation formed to protect biodiversity. Rather than purchasing land to preserve biological values, however, TNC will invest \$500,000 to protect biodiversity in Yunnan Province through energy enterprise development. The CREED programme aims to replace the unsustainable collection of fuelwood from local forests with sustainable options, including energy from locally generated biogas and the use of efficient cookstoves.

UNEP AREED programme manager, Eric Usher, says that the initiatives are "demonstrating how innovative new financing mechanisms can promote sustainable energy", particularly how small amounts of initial seed capital can transform innovative ideas into new clean energy businesses capable of eventually attracting commercial capital.

REED is also evaluating new finance opportunities in the voluntary market for carbon emission credits. The long-term goal of this work is to demonstrate how voluntary transactions involving 'decentralised' clean energy technologies and services can eventually be configured as small-scale CDM projects under the Kyoto Protocol.

REED is already benefiting from voluntary investments, although not concerning carbon credits. As part of their efforts to meet corporate environmental and responsibility objectives, The Bodyshop – an international manufacturer and retailer of bodycare products – has recently invested \$75,000 in AREED enterprises. The money will be used as seed finance for a number of new and promising clean energy enterprises in Africa.

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Investment Advisory Facility (IAF) Considers Carbon



Carbon trading and carbon credits are now part of the IAF targeted assistance to financial decision makers.

"Carbon is an interesting area where financiers are looking for IAF assistance to understand the risk and opportunities of investing in clean energy," says UNEP's Eric Usher.

As part of this assistance, the IAF recently approved support to Dexia-Fondelec's Eastern European energy efficiency fund to assess the carbon value of its \$65 million portfolio of investments in energy service companies (ESCOs). The carbon credits from a 20 MW windfarm at Wingham – Jamaica's first - has been short-listed by the Dutch Cerupt programme. The IAF has helped the windfarm developer, RES, to assess the carbon value and find a buyer.

Most IAF support is aimed at the type of finance barriers that can be removed through improved information; in effect, helping financiers minimize "transaction costs" - the costs of establishing and financing clean energy investments. This is an approach to market development where the IAF helps financial institutions to "buy down" the transaction costs instead of some of other support, such as a capital cost subsidy.

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Financing Renewable Energy in the Southern Mediterranean

UNEP and the International Energy Agency (IEA) will investigate different options to increase finance for renewable energy projects in southern and eastern Mediterranean. The one million euro project is part of the Italian Ministry of Environment and Territory's effort to develop viable commercial renewable energy markets.

Over 18 months, UNEP and the IEA will create and test a range of financial instruments that support renewable energy in the region. These instruments could include:

- "patient capital" funds utilizing a mix of public and private funds, which allows for long finance periods and lower rates of return
- Certified Emission Reductions units generated by CDM projects and tradable renewable energy certificates
- Investment Advisory Facility (IAF) type support.

"This project brings together the work we are doing in many other areas such as REED and the IAF, and gives us an opportunity to assess which policies are most appropriate for the southern Mediterranean region", says Mark Radka, manager of the UNEP Energy programme, which will implement the project. Although the target area initially is North Africa, Radka says the approach could be a model for expansion to other areas, including countries in central and Eastern Europe.

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SWERA Developing New Wind Maps

The *Solar and Wind Energy Assessment* (SWERA) project is progressing towards high-resolution wind maps for a number of developing countries. The \$9 million project is collaboration between 21 organisations, including UCCEE and UNEP, with primary funding of \$6.8 million from the Global Environment Facility (GEF).

"We think that SWERA will identify significantly more renewable wind energy potential than is commonly believed to exist," according to SWERA coordinator, Tom Hamlin, who based his observation on previous wind mapping in the Philippines and other countries

As part of this effort, SWERA has completed a series of weeklong training programmes for representatives from Brazil, Cuba, El Salvador, Guatemala, and Honduras. The training focused on the Wind Analysis and Assessment Program – or WASP – developed at Risoe. Hamlin says national agencies will be able to use the software to assess the wind "climate" in their region and use local meteorological records to validate computer-modeled wind maps developed from upper atmosphere measurements taken by weather balloons.

"WASP allows you to remove the effect of buildings or other objects close to a measurement site," says Hamlin. The software also allows energy planners to conduct detailed analyses to optimize the siting of wind turbines and windfarms. The SWERA team hopes to publish its first maps in 2003, all of which will be available on line and in the public domain. Hamlin says this is important because some useful wind data is not accessible due to a number of commercial and political reasons.

SWERA is also actively seeking investment for its programme of measuring wind energy potential in developing countries. The project has already attracted the German Technology Project (GTZ) and its programme to finance wind measurements for grid-connected wind capacity.

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PUBLICATIONS

Books

Climate Change and Sustainable Development – Prospects for Developing Countries, Halsnæs and Markandya, Earthscan, June 2002.

Wind Energy in the 21st Century – Economics Policy Technology and the Changing Electricity Industry, Redlinger, Andersen, Morthorst and Palgrave, UCCEE, 2002

Reports

Implementation of Renewable Energy Technologies - Opportunities and Barriers; Summary of Country Studies (specific case study reports are also available for Ghana, Zimbabwe and Egypt). Download from <http://www.uccee.org/RETS/Africa.htm>. Hard copies available from UCCEE

Barriers to the Diffusion of Renewable Energy Technologies; A Case Study from the State of Maharashtra, India. download from: (<http://www.uccee.org/RETS/India.htm>). Hard copies available from UCCEE.

Proceedings

"Proceedings from the Sustainable Development and Climate Change Workshop" (Paris 24-25 October 2001), UCCEE, Kirsten Halsnaes and Anne Olhoff



Power Sector Reform and Sustainable Development

At a May meeting on power sector reform (PSR) in Paris, 26 representatives from energy and development institutions concluded that "without explicit and targeted public interventions, power sector reforms could have negative social and environmental impacts on sustainable development". The "brainstorming" meeting, sponsored by UCCEE, the International Energy Agency (IEA) and UNEP, explored the main trends in PSR. These included a range of issues, including overall regulation in the sector, privatisation and commercialisation issues, price regulation and development of self-generation by end-users, and transition towards smaller-scale generation facilities and technologies.

General discussion noted the treatment of environmental issues and objectives as "after-thoughts" by decision-makers, and market reforms characterized by lack of coordination between environmental regulation and PSR policy. Also discussed was the marginalisation of environmental concerns by private sector investors and international donor agencies and financial institutions that have diluted environmental obligations that may complicate the privatisation process.

Participants concluded that significant public fiscal and human resources will be needed to ensure PSR does not ignore social and environmental impacts, as well as the need for new reform models.

As part of their follow-up activities, UNEP and IEA will consider PSR proposals that identify, support and sustain training activities and applied research efforts to develop new models and analytical tools for measuring the social and environmental impacts of power sector reforms. Proposals that define and evaluate policies to secure social and environmental objectives can also be supported.

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E+ provides information on the activities at UCCEE and UNEP. The views expressed here do not necessarily represent those of UNEP, Risø National Laboratory or Danida. Back issues can be found at www.uccee.org/newsletters.htm. To receive an electronic or printed copy of E+, please register on our website www.uccee.org or contact Maria Andreasen (maria.andreasen@risoe.dk) at the UCCEE number below. For all other information or comment, please contact the editor, Stine Skipper (stine.skipper@risoe.dk).

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