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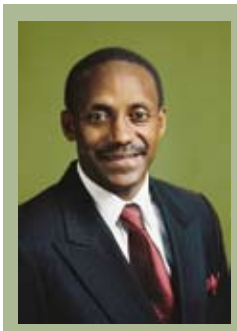
UNIDO Green Industry Newsletter

Issue One, September 2008

Renewable Energy

UNITED NATIONS
INDUSTRIAL DEVELOPMENT ORGANIZATION



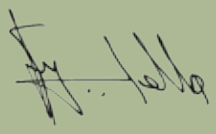
Message from the DG

At the last meeting of the Industrial Development Board, I stated that we would soon be launching an initiative on green industry. As I said then, international standards for emissions and other environmental regulations are an increasing fact of life.

In addition, the increasing concerns about climate change will place ever stronger pressures on industry worldwide to make fundamental changes to their energy usage patterns. As part of this new initiative, and to ensure that UNIDO's ongoing work on greening of industry reaches a wider audience, I have decided to launch a quarterly Green Industry Newsletter.

Each issue will cover one of the aspects of UNIDO's work in this field. I am pleased to forward to you the first issue, which is focused on UNIDO's efforts to promote the use of renewable energy by industry.

It is our hope that you will find the information it contains interesting and useful. We welcome any feedback you might have, to make future editions of the Newsletter even better.



Dr. Kandeh K. Yumkella
UNIDO Director-General

Demonstration Projects

Solar Energy to Fight Poverty

Southwest Bolivia

Llama-farming communities in this remote region of the country have long been obtaining low quality wool, with correspondingly low returns on their product. This has been due to the absence of an energy supply and the weak transportation infrastructure of the region. These factors have caused farmers to make use of such rudimentary tools as pieces of tin can, broken glass or kitchen knives to shear wool - their primary source of income.

From 2005 to 2006, the Bolivian government enlisted UNIDO's help in addressing the question of how to improve shearing practices. UNIDO's solution was to introduce a technological package. This solution would use renewable energy to power shearing equipment and ultimately help pave the path out of extreme poverty for thousands of rural Bolivians.

The package consisted of a solar cell system for each farm and portable shears for each association of llama farmers. The improvement of shearing practices using the equipment introduced by UNIDO yielded an immediate result: better crude fibres that could be sold at higher prices. Fibre production had thereby become more attractive, with a sample of artisanal llama yarn exported to Italy with good market acceptance. The potential for a large section of rural Bolivia to participate in the global economic market is therefore high. It is a little known fact that good quality llama yarn is finer than alpaca yarn, which is widely considered a valuable commodity in the global textile market.

"It is our highest priority to replicate this experience in the entire Aymara region in Bolivia, Peru, and Chile with the support of local, regional, national governments and international organizations."

Mr. Alejandro Choque Castro,
Head
Rural Municipalities Association

In addition to the benefits gained by the llama-farming associations, some 240 families now also have access to a modern source of energy via the solar home systems provided to them through this project. What makes the system sustainable is that the solar home system is used for shearing during only one or two days each year. This productive use pays for each family's basic energy supply for the remainder of the year.

Around 750 other families in the region have similarly improved their shearing practices due either to technical assistance from the project or imitation of the project innovations. By using solar energy, roughly one thousand Bolivian families can now enjoy an improved means of creating a livelihood for themselves without having to make recourse to health- and environmentally-hazardous diesel fuels as would commonly have been the case.

Zero-Emission Community Power Centre Lights Up Kenya

Kirinyaga, Kenya

Rural communities in the Kirinyaga district are for the first time enjoying the benefits of various modern energy services thanks to the first zero-emission Community Power Centre in Kenya developed through a community initiative supported by UNIDO and the Kenyan Ministry of Energy.

Kenya's first zero-emission Community Power Centre

The Kibai Community Power Centre was inaugurated on 26 May 2008, in Kibai village, Kerugoya division, Kirinyaga district. In her keynote address, Hon. Martha Karua, Legislator and Minister for Justice, Constitution and National Cohesion, praised the concept of the Centre and noted that many areas in the country would gain from a replication of this project.

"The potential for generating electricity in Kenya with water resources alone is around 3,000 megawatts, three times the installed capacity."

Mr. Alexander Varghese, UNIDO Representative Kenya and Eritrea

The Community Power Centre uses solar and micro hydro-power (the latter obtained from the nearby Mukengeria River), to offer a variety of services. These services help to stimulate and develop the sustainable growth of communities and their micro-economies by providing the most crucial growth element – power.

The project's socio-economic co-ordinator, Ms. Cecilia Wangechi, said the Kibai villagers are concentrating on making productive use of the electricity rather than just consuming it. This, she said, will help them own the project and make it sustainable. "The community has to own the project and the more business ideas they have, the better," said Ms. Wangechi. Some of the low-energy micro-enterprises that are currently being run in the Community Power Centre include a poultry hatchery, a soap-making venture, fruit juice production and maize meal milling. The community is also planning to start a fish farm at a dam located at the power generation site.

Thanks to the electricity available at the Centre, the community now also has a variety of services such as mobile phone charging, light-emitting diode (LED) lamp recharging, computer and internet facilities at hand. Previously, Kibai villagers would have had to walk for an entire day to obtain such services. They now save significant time and money, which can be devoted to other productive activities.

Additionally, the green energy generated and distributed by the Centre is positively impacting the health of the villagers and their surrounding environment. For instance, it curbs the use of hazardous kerosene lamps and instead promotes the use of LED lamps, which can be recharged on site.

Hon. Martha Karua, Minister for Justice and National Cohesion, and Hon. Henry Kosgey, Minister of Industrialization, donate LED lamps to local villagers

As only ten per cent of Kenya's rural population has access to electricity, the Kibai Community Power Centre is a bright example of the possibilities and rewards that the use of renewable energy in rural industry can offer.

Heating Nicaragua With Solar Thermal Energy

Nicaragua

Solar thermal energy has become the energy of choice for heating water in hotels, food processing companies, student residences and a hospital in Nicaragua as a result of UNIDO's NICATEC project. This project has helped build up Nicaragua's national capacity to design and install solar thermal systems.

The Hotel Mansión Teodolinda, where two solar thermal systems were installed by engineers trained in the NICATEC programme, has already won two national awards for its innovative heating system. "Aside from the large economic benefits from the project, the unforeseen benefit has been the publicity that the hotel has gained because of the installation of the solar thermal system," said Mr. Neville Cross, the owner of the hotel.

Installation of the solar thermal system at Hotel Mansión Teodolinda

As a general result of UNIDO's project, Nicaraguans have gained the capacity to design, install, and maintain solar thermal systems. Fifteen engineers are now competent in installation and fifteen others in design and layout, while five national solar companies are now able to design and install solar thermal systems. Before the project was launched, solar energy had been used only to generate electricity. This project has demonstrated that solar energy is just as effective, if not more so, in producing heat.

Based on the positive results achieved, the project has been extended in scope to promote legislation designed to improve access to subsidies for solar energy companies in Nicaragua. It is expected that the Congress will debate the "Law for Promotion of Energy Generation Using Renewable Sources'' by the end of the year. This piece of legislation will pave the way for the solar energy industry to lead the energy economy of Nicaragua.

Sisal Waste to Produce Organic Fertilizer and Green Electricity

Korogwe, Tanzania

Tanzanian sisal plantation

Tanzania is one of the world's leading producers of sisal fibre, made from the sisal plant. The customary industry practice is to throw away 96% of the sisal plant and use up to 10,000 gallons of water per hour to push the waste to dumps. This results in intensive water consumption, ground and surface water contamination, as well as atmospheric pollution.

To increase productivity and to reduce pollution, the Tanzanian government requested UNIDO's expertise in implementing a pilot project to produce electricity and fertilizer from sisal waste. On 17 July 2008, this effort resulted in the world's first sisal waste-based power plant that uses discarded sisal residue to produce organic fertilizer and green electricity.

"The launch of the plant heralded the culmination of efforts to add value to the crop and contributes to efforts to solve the longstanding energy problem, which also affected the [sisal] industry."

H. E. Mr. Jakaya Kikwete,
President
United Republic of Tanzania

The people and the environment of the Korogwe District have already been benefiting from the project. Farmers are using the locally-produced organic fertilizer, sold at very affordable prices, to increase productivity of the land while conserving the soil. Instead of having to depend on an unreliable power supply generated from fossil fuels, the nearby hammer mill is now self-sufficient thanks to green electricity. Furthermore, the water used to push the waste to the dumps is saved, thus eliminating the associated ground and surface water contamination.

World's first sisal biogas plant

The sisal waste, which otherwise would degrade in a landfill and produce methane, a major greenhouse gas, is now being used productively. In addition, 14 local engineers have been trained and have gained technical experience to help maintain the project. In the future, it is hoped that this total utilization of the crop - and the multiple benefits derived from this - will revive the sisal fibre industry in Tanzania and other sisal producing countries.

Local Manufacturing of Small Wind Turbines

Egypt

"We need UNIDO assistance to find out how to introduce our products into Europe and to gain the know-how to employ local materials in manufacturing for our local market and Europe. In this way, we can find solutions in areas where there is no local distribution of electricity", says Mr. Sameir Soliman of HIDELECO, an Egyptian hydro power company now looking to expand into small wind turbine manufacturing.

Remote areas in Egypt typically suffer frequent power outages due to an unreliable power supply leading most consumers in these areas to use mainly diesel and kerosene to generate power. As the prices of these fuels are rising rapidly, wind energy, with its financial and environmental benefits, is becoming increasingly attractive. Yet, the price and lack of technical knowledge remain barriers to the spread of renewable energy technology in developing countries. Local manufacturing of hardware would help develop technical capacity as well as reduce costs, thus enabling a direct transition to renewable energy.

Since February 2006, UNIDO's Investment and Technology Promotion Office (ITPO) in Italy, with financial support from the Italian government, has been identifying and promoting environmentally-friendly investment projects in collaboration with the offices in Egypt and Morocco. UNIDO gives technical assistance to viable proposals, which includes negotiation and business plan preparation advice, as well as assistance in locating sources of funding.

As a result of this effort, UNIDO's Investment Promotion Unit in Egypt and the ITPO Italy collaborated to assist HIDELECO in finding an Italian partner to produce small wind turbines in Egypt. An Italian company joined HIDELECO to participate in the Sahara International Exhibition in Cairo where they presented a small turbine and reported excellent results in evaluating the market potential for wind turbines. With UNIDO's support, the two companies are in the process of negotiating a formal agreement of partnership for manufacturing and assembling small wind turbines in Egypt.

Global Forum Activities

Creating Wealth from Rice Husk Waste

Ebonyi state, Nigeria

The Ebonyi state government recently approached UNIDO, due to its experience with successful rice husk power plant projects in Southeast Asia, to help build a rice-husk fired power plant in the Abakaliki rice mill cluster. The cluster runs 700 rice mills, discarding approximately 50,000 tons of rice husks each year. The project that is currently being developed aims to turn these mountains of rice husk into a natural source of energy for the entire region.

Mountains of rice husk define the landscape

The energy generated by the rice husk waste would be used to power the nearby rice mills, which currently lack an affordable energy source and are spending around two million US dollars every year for diesel fuel. Furthermore, the rice husk ash from the generator makes for a useful industrial catalyst, and can be sold for around 50 US dollars per ton.

The community will be able to benefit financially from savings resulting from use of this new source of energy and the income generated from the sales of the ash. In addition, the reduction in carbon dioxide emissions resulting from using rice husk as fuel is also of significant environmental value.

The project has already attracted the interest of the Austrian government as a development partner since it qualifies as a Clean Development Mechanism (CDM) project under the Kyoto Protocol. CDM allows industrialised countries with a greenhouse gas reduction commitment to invest in projects that reduce emissions in developing countries in order to earn Certified Emission Reduction credits that can be counted towards meeting Kyoto targets.

For the people of the Ebonyi state and the rice cluster, the rice husk power plant would mark a significant step towards meeting the Millennium Development Goals of poverty reduction, education, women's empowerment, health and the environment by ensuring a green electricity supply to businesses, households, schools and hospitals.

International Conference on Renewable Energy in Africa

Dakar, Senegal

The African Union (AU), the German Federal Ministry for Economic Cooperation and Development, the Government of Senegal and UNIDO jointly organized the International Conference on Renewable Energy in Africa on 16-18 April 2008 in Dakar, Senegal. In view of the very low level of energy access and security, discussions at this landmark conference focused on promoting market-based scaling up of renewable energy in Africa. The conference brought together 500 participants, mainly high-level representatives of various stakeholders.

In opening the conference, the President of the Republic of Senegal, H.E. Mr. Abdoulaye Wade, stated that the conference contributes to the development of renewable energy and the alleviation of poverty in Africa. Discussions to develop human resources and equip research laboratories in order to create a favourable institutional environment for renewable energy development in Africa is crucial to this end. Mr. Wade also reiterated the need to plan for Africa's future energy needs today.

Mr. Samuel Sarr, Minister of Energy of Senegal noted that "renewable energy is an indisputable alternative [to oil] for the future and the conference demonstrates the partnership between the African Union, Germany, and Senegal to share and contribute to this vision for [renewable energy] in Africa's future."

Dr. Kandeh Yumkella, Director-General of UNIDO, stated that the "Time is ripe for a strong political sign and commitment... It is critically important to have political commitment at the highest level to lead the way. In our opinion, a ministerial body is needed to provide leadership and to guide the process to develop the vast renewable energy potential of the region."

The watershed conference made use of experiences from various projects implemented in Africa to develop results-oriented recommendations. During the ministerial segment, these recommendations were consolidated into a Plan of Action: the "Dakar Declaration on Scaling Up Renewables in Africa".

The Plan of Action hinges on the need to scale up renewable energy investments to US$10 billion between 2009-2014 and

Panel members and participants of The International Conference on Renewable Energy in Africa

... continuation from page 5

proposes five key programme dimensions to achieve this vision. In addition, the Plan of Action recommends that the AU and UNIDO, in collaboration with other relevant development partners, establish a ministerial level policy advocacy group, supported by a coordination unit.

In closing, Mr. Cheikh Soumaré, Prime Minister of Senegal, congratulated the organizers of the conference and reiterated the need to translate the high quality conclusions and recommendations from the conference into programmes and projects that would assist African countries to cope with the current energy crisis. He also underlined the need for financial and technical assistance in harnessing Africa's renewable energy potential.

Some of the conference's 1,500 participants

Regional Workshop on Renewable Energy in the Carpathians

Lviv, Ukraine

The Regional Workshop on Renewable Energy in the Carpathians held in Lviv, Ukraine on 6-7 May 2008, provided a platform where EU and non-EU countries of the Carpathian region could share knowledge and exchange experiences on the current status, barriers and opportunities to harness the vast potential of renewable energy sources in the region.

The Interim Secretariat of the Carpathian Convention, hosted by the UNEP in Vienna, requested the support of UNIDO in organizing the workshop funded by the Government of Hungary. The regional workshop brought together over 60 representatives from the governments of the Carpathian Convention countries, research institutions, private companies, universities and NGOs active in the field of renewable energy.

Following the workshop, UNIDO is preparing a baseline report on renewable energy policies and financial instruments in the EU and non-EU member countries of the Carpathian Convention. The report will include inputs from the member states collected at the Workshop and will be available in the summer of 2008.

As a further outcome of the workshop, UNIDO is currently developing a joint project with FAO, UNEP and regional partners. The aim of this EU-funded project will be to enhance renewable energy development in the Carpathian region.

Regional workshop participants

Global Renewable Energy Forum

Foz do Iguaçu, Brazil

The Global Renewable Energy Forum held in Foz do Iguaçu, Brazil, from 18-21 May 2008, jointly organized by the Brazilian Ministry of Mines and Energy, Eletrobrás, Itaipu Binacional and UNIDO, brought together over 1500 participants from a wide range of backgrounds in the fields of energy and industry.

The Brazilian representatives found the Forum a valuable platform to share experiences and exchange information. Mr. Edison Lobão, the Brazilian Minister of Mines and Energy, remarked: "I recently noted some criticisms about Brazil's ethanol policy, which I believe is a major success, not just as an alternative fuel supply, but also as a project to reduce greenhouse gas emissions and combat climate change. This Global Forum is a great opportunity to show to the world our successful experience with renewable energy here in Itaipu."

Mr. Paulo MacDonald Ghisi, Mayor of Foz do Iguaçu, noted: "This meeting

Hon. Edison Lobão, Minister of Mines and Energy, Brazil

inaugurates a new phase for finding solutions in the energy sector, especially through public and private sector partnerships. Solutions for global environmental problems will come from sharing knowledge and ideas on wind, water, plants, and the sun."

Other participants who learned from the Brazilian experience included Ms. Ousmane Alioune Ngom, Minister of Mining and Industry, Senegal, who noted: "This Global Renewable Energy Forum is a great opportunity for us to confirm and see with our own eyes that an alternative to fossil fuels is viable."

Mr. Thomas Stelzer, Assistant Secretary-General for Policy Coordination and Inter Agency Affairs, UN Department of Economic and Social Affairs (UN DESA), recognized that "the Global Forum advanced the objective of increasing access to energy and reducing poverty, which is key to achieving sustainable development and the Millennium Development Goals (MDGs)".

One of the many promising outcomes of the event is that UNIDO and Itaipu are working on the establishment of a strong concordance that allows not only for an externalization of Itaipu's best experiences in renewables, but would also promote renewable energy technologies worldwide.

To this end, UNIDO and Itaipu are working together to establish a bridge between Brazil and Africa to exchange experiences and knowledge and to promote interregional investment projects.

International Energy Conference
Kolasin, Montenegro

Hon. Djukanovic, Prime Minister of Montenegro, delivering the opening speech

Some 100 international investors gathered in Kolasin, Montenegro from 10-13 July 2008 to learn about investment opportunities in that country's energy sector. UNIDO, as the co-organiser of the conference, has in the past two years assisted the Ministry of Economic Development in the preparation of an Energy Strategy and the Action Plan to implement this strategy.

Investors and donors viewed the conference as a welcome opportunity to personally witness the commitment of the government to attract foreign investment.

Mr. Stefan Marouschek of Voith-Siemens Hydro Power Generation remarked: "I very much enjoyed the open mind of the Montenegran government and I'm positively impressed that they have a broad approach to energy development. I'm convinced that they will be very professional."

Ms. Dragica Sekulic of KfW Bankengruppe noted: "It is an important conference in the sense that the government is committed to promoting reform of the energy sector and that it is keen and willing to co-operate with the private sector."

Mr. Graeme Preston of the European Commission noted the Montenegran commitment to the environment in the conference: "Projects within the EU are required to undergo strict Environmental Impact assessments and I welcome the commitment of Montenegro to require the same. We cannot obtain energy security at the expense of our future."'

Mr. Tomáš Vyskocil of RPG, a Czech industrial investment company, would like to see the conference replicated in other countries. "This is a very useful event and I wished other countries in the region would do the same. We can get an overview of all the initiatives and plans the government has in the near future", he said.

Knowledge Management Tools

Books Under Preparation

The Bioenergy Sourcebook

The Bioenergy Sourcebook will provide full analysis, practical and clear information for policymakers faced with having to understand the key issues surrounding bioenergy. The Sourcebook will cater to the needs of the policymaking community and deliver the necessary information for effective bioenergy policy choices. The sourcebook is part of the larger Bioenergy Capacity Building Project (BIOCAB). BIOCAB will develop a comprehensive training package for policymakers and entrepreneurs to enhance their engagement in shaping a sustainable bioenergy industry in developing countries.

Guidebook on Modern Bioenergy Technologies in Africa

Given its high dependency on mostly traditional biomass use, Africa stands to benefit immensely from widespread deployment of modern bioenergy conversion technologies. To this end, the first high-level Biofuels Conference in Africa, organized by the African Union and UNIDO in 2007, recommended that a Guidebook on Modern Bioenergy Technologies in Africa be prepared to provide comprehensive information and accumulated knowledge on modern bioenergy conversion technologies applicable to countries in Africa.

Online Information Platforms

Biomass Conversion Technology On-Line Information Platform (BIOTIP)

In 2007, UNIDO commissioned a study to thoroughly assess existing information sources on biomass conversion technologies available to developing countries. Recommendations were also made on what role UNIDO could play in improving information flows. Simultaneously, UNIDO approached its network of Cleaner Production Centres

to determine what technological information an entrepreneur would require. The outcome of these studies led to the preparation of a project for the establishment of a Biomass Conversion Technology On-Line Information Platform (BIOTIP).

BIOTIP (which is scheduled for release in 2009) will become a one-stop-shop on commercially available bioenergy technologies for entrepreneurs interested in implementing a biomass conversion system in a developing country. The project addresses capacity building and information sharing as well as technology transfer issues in detail.

BIOTIP Sample Templates

The Observatory for Renewable Energy in Latin America and the Caribbean

By establishing an information exchange platform and thereby fostering substantial increases in investments in the renewable energy field, the Observatory for Renewable Energy in Latin America and the Caribbean strives to unify efforts inside and outside the region to alleviate poverty and increase energy security.

To improve the access of different players in the energy sector to know-how within their area, an internet-based portal was established. The portal eases the exchange of information on aspects of the renewable energy industry such as: technology, legislation, policy, education, research and finance.

Hon. Jorge Lepra, Minister of Industry of Uruguay, welcomes conference participants

The initiative dates back to September 2006, when the General Secretariat for the Iberoamerican Summit (SEGIB), the Government of Uruguay and UNIDO organized the Iberoamerican Ministerial Meeting on "Energy Security in Latin America: Renewable Energy as a Viable Alternative" in Montevideo. One of the main achievements of this meeting was a ministerial declaration that highlighted the need to increase the utilization of renewable energy in Latin America and the Caribbean and encouraged governments to establish a Regional Observatory on Renewable Energy. Today, in addition to the 13 countries that signed the declaration, endorsement letters have been received from the authorities of another eight Latin American and Caribbean countries, helping them move towards a prosperous and secure future.

Training Packages

Bioenergy training manual

In the context of the Bioenergy Capacity Building Project (BIOCAB), an expert group meeting was recently held in Vienna to assemble a bioenergy training manual. Bioenergy training experts and representatives of cleaner production centres and technical centres from developing countries discussed the contents of the manual. Various means of making this training easily available to as many entrepreneurs, industrial associations and policy-makers working within the bioenergy industry as possible were also considered. It was eventually decided that the five areas of technologies, policy and socio-economic issues, financial and project development issues, sustainability and environment issues and industrial applications for productive use were to be developed into training clusters that would in the future provide a basis for entrepreneurs to make realistic business decisions.

Readers are invited to send their comments and opinions to:

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