



First Encounter of Professionals in Solar Energy

A Report of the Meeting Proceedings

Within the framework of the *African Network for Solar Energy* (ANSOLE), the first ever meeting of professionals in the domain of solar energy took place in the conference hall of the Ministry of Energy and Water Resources in Yaounde on the 1st of April 2011 under the auspices of the Minister of Energy and Water Resources under the general supervision of the Secretary General of the Ministry of Energy and Water Resources.

Main activities of the meeting included: (i) registration of participants, (ii) opening ceremony, (iii) the session articulated around the topic transnational and national network in the area of solar energy, users of the technology and some current research projects within the university milieu in the solar energy domain, as well as an orientation towards the organisation of solar energy days in 2012, and (iv) the closing ceremony.

1. Registration of participants

Participants registered were from the public, private sectors and the civil society. Ninety six (96) participants were registered.

2. Opening ceremony

Opening ceremony was marked by a word from the Representative of ANSOLE in Central Africa, a delayed speech of the 1st Secretary to the German Embassy to Cameroon and the opening speech of the Secretary General of the Ministry of Energy and Water Resources who was the personal representative of Cameroon's Minister of Energy and Water Resources.

3. The session

During the session proper, presentation of the first theme was made on transinternational and transnational network, second theme on actual users of the technology as well as some current projects or works within the university milieu and the last theme on an orientation towards the organisation of solar energy days in 2012 in Cameroon.

3.1. The transnational and national network

3.1.1. Pr. Dr. AYUK MBI EGBE, General Coordinator of the African network for Solar Energy (ANSOLE), made a presentation on the exigencies, the logo and the actual structure of the said network. He also indicated the evolution of the structuring of the network.

Any moral, physical person or association can become a member of the ANSOLE network by simply filling a form available on the web site <http://www.ansole.com>, thus the webmaster is M. Pierre TELEP. Meanwhile physical persons would need to forward their curriculum vitae.

3.1.2. M. BELLE DIMITE of the African Network for the Development of Renewable Energies (RAFDER) brought out the two main objectives of the association: i.e: (i) accessibility to solar technology to address the population's basic needs of lighting, cooking and drying as well as, (ii) the search for technologies that could be absorbed with local realities.



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The network also promotes the use of solar energy for community development, training in the use (project development, construction of technically efficient stoves) and entrepreneurship (application to works that limit green house gases, fabrication of solar cookers and driers, assembling of solar lamps). The network is developed in a technical and financial cooperation partnership with the following organisations: Centre for Environment and Development (CED), African Indigenous Women Organization, Central African Network (AIWO-CAN), GREENPEACE.

- 3.1.3.** M. PRISO LONGE on his turn presented CED. CED, in partnership with AIWO-CAN and Cameroonian non governmental organisations in collaboration with GREENPEACE, developed a community solar energy project in 18 communities of the Centre and East Regions of Cameroon. This project constitutes a component of the program “Organisation and Development of Communities”.

The project envisages an approach whereby, communities are given the means to address their own problems using their own potentials. The program in question begins with the solar component through an expression of the needs of the community in lighting based on a sample of 600 questionnaires distributed as well as audio visual communication. The theoretical approach of the program and the related projects is based on the “psycho-sociocultural methodology” of Pr. Guilherme Dos Santos Barboza. In effect this approach according to Neil is basically centred on sociological observations on the field.

- 3.1.4.** M. SONG, of the International Network for Access to Sustainable Energies (RIAED), presented the objectives of his network: (i) capacity building and know-how of francophone experts operating in the area of access to energy, in the domain of electrification as well as household combustion, (ii) promote in developing countries, new francophone expertise in energy, and (iii) facilitate a better consideration of national expertise in defining new concepts and future programs on access to energy. RIAED is a project that has been supported for the past three years by European Energy Intelligent Commission, IEPF (Francophonie Institute of Energy and Development) and ADEME (Environmental Agency and Energy Management) and, since September 2009, had as a privileged partner GVEP International.

3.2. Real users of the technology and some technologies at the national level and some works and projects in the universities

Users of the technologies linked to solar energy (treated under the 2nd theme) were treated in two ways: (i) the absorption of the technology and their diffusion and dissemination by national enterprises and (ii) some university works and research projects whose orientations and general paradigms were centred on interpretation of research results (oriented towards the search for the direction, and updating of the significant of the results) and critiques (that targets the social construction of how to criticise in view of social changes) without altering the problem.

- 3.2.1.** Five presentations were made under the coordination of Pr. Georges ELAMBO NKENG.

3.2.1.1. M. Billy YARRO exposed on the concept of Ligth4all that aims at (i) replacing kerosene lamps with solar lamps, (ii) supporting and accompanying the creation of jobs through a network of distribution-sales of solar products.

3.2.1.2. M. Arthur PAKI of ENER-SOL, pointed out the two main photovoltaic systems that are available in the country, which are: the systems that are connected to the grid (example



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NGANHA in the VINA Division of the ADAMAWA Region) and the off-grid system that is common for residential households, telecommunication equipment etc). Users of the systems constructed in Cameroon are the State of Cameroon, private individuals or non governmental organisations. ENER-SOL had participated in solar energy projects for solar water pumping (for human, animal use or irrigation), autonomous street lighting (for semi urban and rural areas) as well as refrigeration (for the conservation of vaccines in health centres). The presenter also presented the global distribution of the cost of photovoltaic installation.

- 3.2.1.3.** M. ASONGLEFAC FONDI, representative of group TALESS, presented the activities of his group TALESS-Dry Food, associated to a Common Initiative Group (CIG) which is also involved in conservation through fruit drying, vegetable and species and supply of community tele centres through solar energy.
- 3.2.1.4.** M. NUMFOR Jude, made a presentation of an experience on rural electrification through solar electrification at the community level, at very little cost in three villages of Cameroon: LINGHAM (3 000 inhabitants), ALLAT (5 000 inhabitants) and MBEM (3 000 inhabitants). According to him a solar power plant of installed capacity of 1.5kW can satisfy the basic energy needs of a community (residential lighting, some hours of public lighting, water pumping during the day time, grinding mill for collective use, music within residential areas, some forty households within a radius of 3km) at the cost of 700FCFA per household per month for those who are within a radius of 3km and 400FCFA for those beyond this limit. This is to support the cost of running the project. The experience can be replicated in semi urban areas of Cameroon. Other complementary experiences on solar driers and cooking are ongoing.
- 3.2.1.5.** Pr. FON ABI, making a presentation on indirect solar drier of agricultural products used the following terms: *The climate in most parts of Cameroon permits open sun drying and as such it is possible to harness this solar energy for use in an indirect solar dryer to process some locally produced foods in order to enhance their quality and limit post harvest losses. Such a dryer will be composed of a Solar Collector, a Drying Chamber and an Air Evacuating System. The solar collector absorbs sun radiation and ensures accumulation of heat energy by putting into practice the principles of Black Body radiation and Green House Effect. The drying chamber receives air from the solar collector and is constructed with the provision of shelves in such a way that it protects the food being dried from animals, insects, dust and rain.*

The chamber walls are made of insulating material to avoid heat losses. The air leaving the drying chamber is channeled to the environment through the evacuating system. The performance of the dryer is evaluated by collecting and analyzing the meteorological data of the area comprising ambient temperature, relative humidity, atmospheric pressure, sunshine and wind speed followed by conducting experimental studies under natural and forced convection by measuring ambient temperature (T_{amb}), relative humidity (R_{Hamb}), the temperature (T_{in}) and relative humidity (R_{Hin}) at the entrance into the drying chamber.

- 3.2.1.6.** In his presentation on the role of the sun in buildings and public works (BTP), Dr. TALLA, in the name of groupe NKENG / TALLA, indicated the branch of BTP that actually absorbs the technologies linked to solar energy. In effect, *energy needs are important during the initial phase of assembling material (adhesive aggregates) as well as the realisation phase of construction (pumping and vibration of the pillars for example). With solar energy, we*



fashion construction material as well as the putting in place of infrastructural edifices, especially in the supply of electric motors during the phase where mechanical energy is needed (mixing of concrete for example), and then in thermal form during the phase where energy is consumed in the form of heat (drying of tiles in minibrick works for example). Solar energy can play an important role in buildings, particularly in lighting, production of hot water and thermal comfort (air conditioning). If solar energy is taken into consideration this could lead to cost reduction in the construction and use of structures and the money saved could be oriented towards good quality and environmentally friendly structures.

- 3.2.2.** Pr. KAPSEU taking the floor as coordinator indicated the elements to be taken into consideration in a partnership towards raising capital on the international scene to fund research in Cameroon. The search for funds could be optimised only by turning to economic institutions that express the extra national wish for sustainable development.

It came out from the three exposes that were under the coordination of Pr. César KAPSEU that:

3.2.2.1. According to the interesting presentation made on behalf of groupe TCHAMI / DOKA / KAYEM by M. TCHAMI, the quadripartite limiting the starting of a pump that runs on solar energy, conceived and realised by them constitutes an equipment that can safeguard the solar panel and the pump itself thereby increasing the life span of solar pump installations.

3.2.2.2. The expose of M. PENE, made on behalf of groupe PENE/KAPSEU/ELAMBO/EGBE, presented the state of instruments to be used in deciding the choice of photovoltaic solar cells. A majority of the 24 instruments identified are conceived for use in the West or within OECD countries. Only the RETScreen software has an international standard that could be used every where.

3.2.2.3. After the expose of Dr. TCHITNGA, it is worth indicating that the studies carried out by the energy laboratory of Geology and Mining Research Institute (IRGM) in 1983 showed that Garoua has an average daily solar irradiance of 3000Wh/m² throughout the whole year.

Solar maps have been realised by actors in the sector, civil societies and research networks that have found interest in the topic of solar energy. Actually data is gathered within the framework of a program initiated and supported by Hewlett Packard / UNESCO with Cameroonian universities titled « *Local Capacity building for a study of climate change and their consequences in multiform* ».

3.3. Orientation towards the organisation of a solar energy days

On the third theme of the session under the coordination of Dr. NKECK, a theme relating to the orientation towards the organisation of the solar energy days in Cameroon, it is worth nothing that:

- Different subvention options available, it shall be done in a partnership that would see to it that the objectives of ANSOLE are met, realise projects supported by ANSOLE and to organise the solar energy day in Cameroon in 2012.
- The days in question would comprise a scientific forum whose theme to be confirmed could be titled « *Solar Energy and Sustainable Development* ».
- The days of solar energy would also comprise an exposition that could take place simultaneously in three (03) locations: Maroua, Ngaoundere and Yaounde; this with the aim of seeing the level of



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evolution of the most advanced technologies in the world, the level of absorption of the technology at the level of Cameroon and the production of new realities from the absorbed technologies.

- The working languages are English and French in collaboration with a translation unit depending on the availability of funds. Meanwhile all communiqués (articles, summaries, presentations) must be made in English which is the language of communication that is mostly used. Translation into the French language could be done depending on the budgetary allocation set aside for this operation.

4. Closing ceremony

Madame DEUNI, Research Assistant with the Communication Unit of the Ministry of Energy and Water Resources then made a brilliant oral resume of the session.

Dr. TCHITNGA, on behalf of all the participants expressed the word of appreciation of the participants.

Dr. NKECK officially closed the session on behalf of the Minister of Energy and Water Resources.