

AKADEMISCHES  
FORUM FÜR  
AUSSEN-  
POLITIK -  
ÖSTERREICH

UNION  
ACADEMIQUE  
DES AFFAIRES  
ÉTRANGÈRES -  
AUTRICHE



ACADEMIC FORUM FOR FOREIGN AFFAIRS - AUSTRIA

**UNITED NATIONS YOUTH AND STUDENT ASSOCIATION OF AUSTRIA**

EISENSTADT - GRAZ - INNSBRUCK - KLAGENFURT - LINZ - SALZBURG - VIENNA



VIENNA INTERNATIONAL MODEL UNITED NATIONS  
31 July - 04 August 2011

### Preparation Paper

**United Nations Industrial Development Organization (UNIDO)**

**"Solar Energy for Less Developed Countries  
in Sub-Saharan Africa"**

## **Introduction**

The Industrial Development Board is going to discuss the issue of "Solar Energy for Less Developed Countries in Sub-Saharan Africa", along the following core elements:

- Status of Sub-Saharan Africa's energy sector – energy shortage as a major concern for development.
- The potential of photovoltaic and solar thermal technology in Sub-Saharan Africa.
- The limitations of solar energy in Sub-Saharan Africa.

During the conference we will work towards a draft resolution containing steps to be taken to overcome the above mentioned limitations and to promote solar energy for less developed countries in Sub-Saharan Africa, which we will propose to be adopted by the General Assembly at the end of the conference.

## **United Nations Industrial Development Organization and Industrial Development Board**

The United Nations Industrial Development Organisation (UNIDO) was established by the United Nations (UN) General Assembly in 1966 (resolution 2152 (XXI) of 17 November 1966) as the specialized agency of the UN to foster 'industrial development for poverty reduction, inclusive globalization and environmental sustainability'.

It's mandate is to 'promote and accelerate sustainable industrial development in developing countries and economies in transition and to work towards improving living conditions in the world's poorest countries by drawing on its combined global resources and expertise'.

The Industrial Development Board (IDB) is a policy-making organ within the UNIDO structure that comprises 53 Member States. They are elected on a rotational basis for four years. IDB reviews the implementation of the work programme, the regular and operational UNIDO budgets and makes recommendations to the General Conference.

## **Current energy consumption and demand on energy resources in Sub-Saharan Africa**

The Sub-Saharan African energy sector comprises three main features:

1. A high consumption of low-grade energy sources (wood and traditional biomass as combustible material) and a very low consumption of fuels like coal, natural gas and LPG.
2. Heterogeneity concerning the availability and usage of energy technologies, which can be compendiously labeled as "modern energy technologies", between the different countries in Sub-Saharan Africa. Only five states (two of those RSA and Nigeria) account for 70% of total consumption of modern energy consumption for the region.
3. Enormous social and geographic disparity (between urban and rural areas) concerning access to energy and as a consequence concerning access to [energysuppliedbypipelineandcable](#). This refers to power supply and consumption in general, but in particular to 'modern energy' sources.

The Consumption of 'modern energy' per capita has been decreasing for years due to constantly growing population. The region has 2% of world proven oil reserves, 3% of world proven gas reserves and 6% of world proven coal reserves, of which extensive parts are being exported. The hydropower potential of Africa is almost totally concentrated in Sub Saharan Africa. Especially for countries situated around the Great African Lakes and those situated at the Atlantic coast between Senegal and Namibia. Although having quite big energy resources, Sub-Saharan Africa has the lowest commercial consumption of energy in the world.

## **Solar energy for Africa**

The term 'Solar Energy' basically covers two different technologies: firstly photovoltaic (PV) technology, which converts the sun energy into electrical energy; secondly solar thermal technology, which uses sun

energy to heat (most commonly: water) for generating electric power and as well for many other possible uses (amongst them heating, cooking, desalination, water-pumping and -purification).

Although there had been – varying between the different countries - more or less successful efforts to promote especially photovoltaic technology, the huge potential of the region is still far from being exploited sufficiently.

Firstly, due to the high costs of solar energy technologies, especially PV installations, only parts of the countries and parts of the population can afford them. To the majority of the people they are not affordable without innovative financing approaches.

Furthermore, there is a substantial lack in education concerning efficient energy usage and many households are not aware of the advantages that solar technology can provide.

### **The limitations of photovoltaic and solar thermal energy technology in Sub-Saharan Africa**

#### **a) Political barriers**

Firstly, the majority of African governments do not have a long-term policy on the development and promotion of renewable energy. This causes the situation where renewable energy technologies are developed on an ad hoc basis without being included in national energy development programmes and strategies.

Secondly, in the often already very small national budgets of Sub-Saharan African countries far too few efforts are being taken to promote solar energy, more emphasis is being put on the petroleum and natural gas.

#### **b) Technical barriers**

Technologies like photovoltaic and advanced solar thermal energy require technical know-how not only for developing those technologies, but as well for their installation, usage and maintaining and political efforts to promote them. Despite many efforts, Sub-Saharan Africa still lacks qualified personnel and education programmes in this regard.

Furthermore, there is a lack of basic technical knowledge within the societies that is needed to operate the solar power equipment. Without proper education inhabitants cannot become end users of photovoltaic or solar thermal energy technologies.

#### **c) Financial barriers**

Financing plays a crucial role in the implementation of all renewable technologies. One of the main obstacle to develop solar energy in Africa is the lack of long-term financing. This problem is further complicated by difficult macro-economic situation of many African countries. Since the governments cannot afford subsidizing these technologies, the private sector is left to finance renewable technologies like solar energy technologies.

Photovoltaic and solar thermal energy technologies are not affordable for the majority of individual consumers. The price is furtherly increased by the import of technology components that very often cannot be locally manufactured and must be imported from abroad. Furthermore, banks have not favourable requirements for financing technologies of this kind and this deters potential users. And even if financing mechanism for end users are in place, they are usually not within the reach of the majority of the populations, because rigorous requirements for loan applications exclude the rural population from qualifying.

### **The Industrial Development Board Committee at the VIMUN Conference**

Based on a discussion of the above mentioned energy needs of the population of Sub-Saharan Africa and the potentials and limitations to solar energy technologies in the region, the committees aim is to recommend measures to be taken to overcome the limitations of solar energy technologies in Sub-Saharan Africa, especially focusing on:

- a. Ideal pace of progress and ratio of Renewables in the climate-benefits-costs nexus
- b. Innovative financing of the solar energy projects
- c. Transfer of knowledge and technical assistance
- d. Fostering private investment
- e. Mobilisation and coherent usage of public funds