Forum: G-77
Issue: Energy development programs in LDCs
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Introduction

One of the great challenges in our world today is to diminish the inequalities concerning the development of energy, notably the said inequalities between MDCs and LDCs.
The development of energy must be sufficiently important to provide energy for industry as well as domestic energy. While this expectation is met in MDCs, it is a serious issue in LDCs. There are thus strong global inequalities that are clear on several levels. Firstly, the household access to affordable energy, such as the basic household access to electricity, is essential in LDCs as part of a program to increase the generally poor living conditions in these countries. Secondly, the access to energy for industry that is inherent in MDCs should be developed in LDCs insofar as it is essential for industrialization and thus ultimately economic growth.
In addition to this clear need for sufficient energy development on a global scale, it is important to consider the current environmental issues that very much link to energy development and use. While MDCs are mainly responsible for the environmental effects of unsustainable energy production like global warming, these effects will hit LDCs hardest due to the poor conditions and to the difficulty of recovery in these countries. As part of the global plan to reduce inequalities between MDCs and LDCs, the fight for sustainable energy development should be led on a larger, if not global scale. This implies important funding of international scientific research as well as global cooperation in the aim of developing new long-term energy development models.
Moreover the issue of energy security should be considered inasmuch as the current instability of the price of energy due to economic interferences originating in MDCs affect LDCs greatly. Indeed the discontinuous access to affordable energy in LDCs interrupts and disrupts industrial and economic growth and puts the population at risk.
This is why we can consider three main axes and objectives that condition the discussions concerning the issue of energy development programs in LDCs: affordability, sustainability and security.

Definition of key terms

Energy: Energy is scientifically defined as being “a fundamental entity of nature that is transferred between parts of a system in the production of physical change within the system and usually regarded as the capacity for doing work”. Concretely, energy is what produces or provokes change, be it temperature change, movement, light, or another form of physical change.

Energy Development: Today, energy is mainly accessible thanks to the generation of electric power in power stations that are driven by heat engines fueled by the burning of fossil fuels or by nuclear fission. The burning of fossil fuels such as coal and oil is also very considerable on a global scale despite major environmental drawbacks. New models of energy development are emerging, mainly in MDCs, as part of the promotion of energetic sustainability.

LEDC: An LDC is a Less Economically Developed Country: it is a country with a lower living standard, a less developed industry and a less developed economy relatively to other countries. The idea of a LDC is opposed to the idea of a MDC (More Developed Country). The nations of Egypt, Mali, Haiti, Ghana, Ukraine for example, are LDCs while the nations of Canada, Japan, France, Taiwan and Australia are MDCs.

Sustainability: Sustainability is described as the capacity to last or to endure. Energy is central to achieving sustainable development goals. The challenge with energy and sustainability resides in the necessary conciliation of the strong demand for energy with sustainable models of energy production that reduce or eliminate impacts of energy development on the environment.

Sustainable Energy Development Models: Several energy development models that are active today are described as being sustainable. The term “renewable energy” also qualifies energy that has been developed sustainably. Three technological generations can be set apart. First generation technologies emerged from the Industrial Revolution and include hydropower, geothermal power and biomass combustion. Second generation technologies originated from the energy security concerns after the first oil crises in the 1970s and mainly include wind power and solar photovoltaics. They are the main technologies present today. Third generation technologies are still developing today and include tidal power, solar thermal power, biomass gasification and different nanotechnological projects. In spite of false ideas, LDCs have important renewable energy resources and the development of these sustainable models could reduce LDCs’ dependence on hydrocarbons that are mainly extracted and exported by MDCs.

Energy Security: Energy Security is the term that is used to define the long-term stability of energy prices and the guaranteed accessibility to energy. On one hand, energy security concerns the industrial sector insofar as the instability of energy prices can stop vulnerable industries and thus restrain economic growth. On the other hand, energy security also concerns individuals in the sense that the rise of energy prices reduces the accessibility to this energy, mainly in LDCs, where households are more economically vulnerable.

Hydrocarbon: Hydrocarbons are organic compounds consisting solely of carbon and hydrogen. They are found on earth due to the decomposition of organic matter mainly in the form of crude oil or petroleum, which is a complex mixture of basic hydrocarbons as well as various other chemical elements. Basic hydrocarbons include methane, ethane, propane, butane, pentane, hexane etc. Hydrocarbons and their compounds, such as petroleum are highly flammable and produce energy during combustion. This is why the

combustion of hydrocarbons currently constitutes the main energy development model on a global scale. Nonetheless it is now widespread knowledge that in addition to the energy that is produced during the combustion of hydrocarbons and their compounds, different chemical elements are also produced, including carbon dioxide. It is now widely accepted that this carbon dioxide is exacerbating the greenhouse effect, thus causing climate change.

Nuclear Energy: The term “nuclear energy” qualifies energy that is developed thanks to the exploitation of prompted nuclear fissions to produce heat which in turn indirectly produces electricity. Nuclear fission is a nuclear reaction during which an atom’s nucleus is split into smaller parts, releasing neutrons and protons in the form of gamma rays as well as tremendous amounts of energy. Uranium is the most used element for nuclear fission today due to its chemical qualities for this reaction. An very important disadvantage to this model is the production of radioactive waste that is extremely harmful to most, if not all, forms of life and that is active for several thousand years. Scientists have been trying to develop another form of potentially exploitable nuclear reaction known as nuclear fusion which consists in the prompted collision of two atomic nuclei, which once again produces energy, but this model has not been exploited on considerable scales.

Fossil Fuel: Fossil fuels are fuels resulting from the decomposition of organisms. This decomposition lasts several million years. Fossil fuels include petroleum, coal and natural gas and are composed of hydrocarbons. The fact that fossil fuels take millions of years to form make them one of the non-renewable and thus unsustainable energy development sources.

Biomass: Biomass describes organic material such as vegetation or agricultural waste that is used as a fuel (biofuel) or as an energy source. The combustion of biomass such as firewood, especially in rural areas, constitutes an important portion of energy development models. Despite the clear environmental effects of combustion, biomass has the advantage of being renewable, which fossil fuels are not, for example. Research is being led to introduce and develop the use of biofuel to power automobiles for example with biodiesel made from vegetable oils and animal fat. Biomass and more particularly biofuel is expected to represent a more important portion of total energy development and is presented as an alternative for the use of fossil fuels.

Background Information and Overview

Although the issue of energy in LDCs has been discussed and studied before, the issue is particularly relevant today, in the sense that we find ourselves in a sort of environmental turning point thereby either we continue unsustainable energy development, in which case there will be an environmental crisis, either we find sustainable alternatives to the current energy development models.
Energy development programs are essential in the social development of LDCs in the sense that the transition towards modern energy development models makes the

difference between traditional and modern societies. Furthermore, LDCs should be given aid for the development of domestic energy production in order to reduce the dependence of LDCs on MDCs caused by energy imports. However, one of the challenges mentioned above with the issue of developing energy programs in LDCs is the issue of managing to combine energy efficiency and sustainability, in other words, can new sustainable energy development models provide enough energy for LDCs?
The current situation is such that technological expertise regarding potential innovative and sustainable energy development is poor if existent in LDCs while it is important in MDCs due to better scientific research potentials. In addition to this, different global tensions make international cooperation difficult, especially in the field of technological and scientific expertise.
Not only did sustainable energy consumption account only for 8% of the global energy consumption in 2011 (no considering biomass heat as a sustainable model), but the energy developed sustainably was almost exclusively developed and consumed in developed countries. It is thus clear that the access to sustainable energy development as well as to sustainable energy consumption is very limited for developing countries.
It is important to consider the different energy development model possibilities that exist today and which is predominant. Three main sources for energy development can be identified: fossil fuels (which include hydrocarbons as well as coal and others), nuclear energy and renewable energy sources.
Fossil fuels accounted for approximately 80.6% of the global energy development sources in 2010. Their impact on the environment is not to be neglected and is the main reason for the current attempt for a transition towards other energy development models. Fossil fuels account for an significant fraction of total energy development sources in LDCs.
Nuclear energy accounted for approximately 2.7% of global energy development sources in 2010. This relatively small portion can be explained by the fact that nuclear energy is only accessible to developed countries and by the fact that the access to nuclear power is very limited due to the risk of the manufacturing of illegal nuclear weapons. Thus only thirty countries have operational nuclear power stations and several of them such as Germany and Switzerland plan to stop the use of nuclear power due to the production of radioactive waste evoked in the Definition of Key Terms section (ii.).
Renewable energy development sources accounted for approximately 16.7% of the global energy development sources in 2010 considering biomass as a renewable source, which is debatable. Biomass accounted for 11.4% of the renewable sources, meaning that “true” sustainable energy sources accounted for approximately 5%. Hydroelectricity is the main active sustainable model today.

Major Countries and Organizations involved

United Nations Development Program (UNDP)
The United Nations Development Program is an executive board within the United Nations General Assembly. The UNDP concentrates its work in developing countries and focuses on different objectives such as poverty reduction, HIV/AIDS, democratic

governance, energy and environment, social development, and crisis prevention and recovery. The UNDP Millennium Development Goals were defined in the purpose of meeting these objectives.

United Nations Industrial Development (UNIDO)
The United Nations Industrial Development Organization is a specialized agency of the United Nations that promotes industrial development for poverty reduction, inclusive globalization and environmental sustainability.

LEDCs
Different LEDCs (Less Economically Developed Countries) that have a major energy accessibility or energy security problems or that are willing to develop institutionally and environmentally sustainable models for energy development with the financial and technological aid of the international community will be active in this issue.

G-77: The Group of 77 was established in 1964 by 77 developing countries. There are now 131 countries. The Group of 77 is the largest intergovernmental organization of developing countries in the United Nations. It aims to articulate and promote the collective economic interests of countries of the South in order to achieve their common development.

UNECE: The United Nations Economic Commission for Europe is a commission that was founded in 1947 and that aims to promote economic cooperation between its 56 member states.

ECOSOC: The United Nations Economic and Social Council aims to coordinate the economic and social work of the different United Nations agencies.

CSD: The Commission on Sustainable Development is a commission of the United Nations Economic Commission and Social Council.

UNCSD: The United Nations Conference on Sustainable Development, also known as Rio +20 or Earth Summit 2012 was the third international conference organized by the United Nations and aiming to conciliate global economic activities with sustainability goals. It was preceded by the UNCED (United Nations Conference on Environment and Development) in 1992 and that produced the Agenda 21 action plan.

Non-Governmental Human Rights Organizations
Several Human Rights Organizations such as Amnesty International or Human Rights Watch will be particularly active in this issue insofar as the access to affordable energy can be considered as a human right.

IEA
The International Energy Agency focuses on several themes including the theme of energy security and works towards equality in the distribution and the access to affordable energy on a global scale.

MDCs
Insofar as most MDCs have the technological expertise and infrastructure for energy development as well as for the development of innovative energy development models, their role is essential for the a solution to the issue at hand.

Timeline of Events

1964	First UNCTAD (United Nations Conference on Trade and Development) in Geneva - Concern of energy and development
1965	Creation of the United Nations Development Programme (UNDP)
1974	Creation of the IEA
1992	Agenda 21
2000	Millenium Development Goals

Relevant UN treaties and events

Rio 20
Rio 20 is the common name that is given to the United Nations Conference on Sustainable Development which has a main theme of the access to energy in LDCs.

Agenda 21
Agenda 21 is the term that describes an action plan implemented in 1992 by the United Nations for the UN, other multilateral organizations, and individual governments around the world. It can be executed at local, national, and global levels and aims to promote and gives means for sustainable development.

MDGs
The Millennium Development Goals established by the United Nations to fight poverty in LDCs during the Millennium Summit of the United Nations in 2000 defend the access to proper energy services as being part of vital infrastructures that should be improved in developing countries.

Previous Attempts to solve the issue

See the different international agreements involving the various organizations evoked previously form previous attempts to solve the current issue.

Possible Solutions

Several axes can be defined for a possible solution to the issue of energy development in LDCs:
Promoting the development of sustainable energy production models in LDCs by encouraging cooperation between technologically advanced countries and the said LDCs
Ensuring both affordability of energy as well as its security either by introducing innovative energy development models that satisfy these conditions or by providing the technological means that are necessary for the improvement of the current energy development models already in place in LDCs
Regulating and supervising fair importation of energy in order to satisfy energy security and its affordability
Regulating, controlling and discouraging the use of unsustainable energy development models in LDCs through the possible creation of a specialized agency of the UN
While these axes provide a possible solution, one must consider the industrial and economic compromises that will have to be found between LDCs and MDCs with contrary policies and expectations as to energy production and trade. Ensuring cooperation and the communication between both organizations and countries is essential for this issue.

Bibliography

1.<http://www.undp.org/content/undp/en/home/ourwork/environmentandenergy/strategic_themes/integrating_environmentintodevelopment.html?page=1> , *United Nations Development Program - Our Work - Energy and Environment*

2.<http://www.unohrlls.org/UserFiles/File/LDC%20Documents/Turkey/Energy.pdf>,*United Nations Ministerial Conference of the Least Developed Countries, Making Globalization Work for the LDCs Istanbul, Energizing the Least Developed Countries to Achieve the Millennium Development Goals: The Challenges and Opportunities of Globalization* July 11, 2007

3.<http://sustainabledevelopment.un.org/index.php?menu=198>, *United Nations Sustainable Development Knowledge Platform, Energy*

4.<http://www.unece.org/energy/>, *United Nations Economic Comission for Europe (UNECE), Sustainable Energy*

5. U.S. Congress, Office of Technology Assessment, *Energy in Developing Countries,* OTA-E-486 (Washington, DC: U.S. Government Printing Office, January 1991), Energy and the Environment in Developing Countries, Chapter 5

6. <http://www.g77.org/doc/CPA-E.html>*, The Group of 77, Energy*

Ahuja, Dilip; Tatsutani, Marika, *Sustainable Energy for Developing Countries,* Academy of Sciences for the Developing World (TWAS), 2008

8.<http://www.g77.org/doc/>, *The Group of 77 at the United Nations, About the Group of 77*

9.<http://www.unido.org/index.php?id=7840>, *United Nations Industrial Development Organization, UNIDO in Brief*

10.<http://www.undp.org/content/undp/en/home/ourwork/environmentandenergy/overview.html>, *United Nations Development Programme, Our Work, Environment and Energy*

11.<http://www.unece.org/energy.html>, *United Nations Economic Commission for Europe, Sustainable Energy*

12. United Nations Development Program; World Health Organization, *The Energy Access Situation in Developing Countries, A Review Focusing on the Least Developed Countries and Sub-Saharan Africa,* November 2009

13. UNCTAD, Special Unit on Commodities, *Commodities at a Glance, Special Issue on Energy,* February 2012