



UN-HABITAT



UNEP

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**Brief on the Dialogue on  
"Access to Energy services and Sustainable Transport"**

UN-HABITAT and UNEP organize a dialogue within the framework of the World Urban Forum to provide for a debate on the importance of implementing access to affordable, modern energy services and sustainable transport systems for a sustainable human development and for achieving each of the MDGs. The dialogue is structured in 3 Modules, the first about Energy use, the second about Transport and the third about Sustainable energy future.

**Scope of Module 1: Access to Modern Energy Services**

Access to affordable, modern energy services is a pre-requisite for a sustainable human development and for achieving the MDGs. Currently, one third of the global population (at least 1.6 billion people) do not have access to electricity for lighting, refrigeration, mechanical power, telecommunications and other beneficial uses. Most of them live in developing countries, mainly in South Asia and in Sub-Saharan Africa. They depend on traditional fuels, such as wood, crop waste, and animal dung for cooking and heating, that means a significant number of hours being spent each day gathering wood, primarily by girls and women. Moreover, the greatest pollution hazard coming from the burning of traditional biomass for cooking, heating and even lighting causes high levels of respiratory infections and mortality among woman and children, particularly in informal settlements.

Cities in developing countries require a rapid increase in energy production and consumption to accelerate economic development, alleviate poverty and meet the basic needs of their population. Equitable and affordable access to energy services in an economically efficient and environmentally sound manner can play a variety of roles to help achieve the Goals:

- Facilitate economic development and create additional employment opportunities, by extending micro-enterprise and livelihood activities beyond daylight hours.
- Reduce hunger and improve access to safe drinking water through pumping facilities.
- Reduce disease and child mortality and support the health system, through refrigeration for homes and clinics, sterilizing equipment and transport to clinics.
- Facilitate the achievement of universal primary education and the empowerment of women, reducing time spent fetching water, firewood, and other daily drudgery. Light at home enables children to study after dark.
- Promote environmental sustainability, sustainable use of natural resources, and reduce harmful emission.
- Promote sustainable solutions to urban transport dilemmas by integrating energy and environmental planning.

Under today's policies and investment trends in energy infrastructure, 1.5 billion people will still lack access to electricity in 2030. Current patterns of energy production, distribution and utilization are unsustainable; and there are wide disparities in the level of energy consumption within and between developed and developing countries. Governments in the developed world are adopting policies and strategies to promote renewable energy and to increase energy saving initiatives. In developing countries, some governments have put in place special programs to explore and promote renewable energy to meet their needs. But despite the quest for reliable, affordable, economically viable, socially acceptable and environmentally sound

energy services, their wider use and application remain very limited. Weak political will and limited resources for energy saving devices are among the constraints. But new ways of saving energy and reducing pollution are being explored and put use in many countries. Denmark, Holland, Germany, the United States and other developed countries have invested considerably in wind energy. Electricity from huge wind tower generators goes direct to the national grid. Some countries like India, China, Egypt, have developed extensive wind farms to produce electricity. Recently, a small engineering company based in Nairobi's Kibera slums has started manufacturing and installing small-scale wind generators for domestic use to produce electricity for household needs.

### **Scope of Module 2: Sustainable Transport**

In today's cities, sustainable transportation systems are crucial to fostering economic activity and raising standards of urban living. Finding a transport model that meets society's need to move freely, communicate, and gain access to jobs, education, hospitals, and other facilities is thus a primary challenge of sustainable development.

Transportation systems define the quality of life for millions of city-dwellers worldwide. Unfortunately, the negative impacts of urban transport, including hazardous levels of air pollution, congestion, noise, sprawl, and threats to public safety, restrict the potential for greater economic growth. The rise of mega cities with more than 10 million people has only amplified these problems. Growth rates of private vehicle ownership in the developing world continue to soar, despite the fact that automobiles are major consumers of non-renewable energy and major contributors to carbon emissions and pollution.

To promote sustainable solutions to urban transport dilemmas is necessary to integrate energy and environmental planning and better income generation for the urban poor by linking energy and transport service provision with livelihood creation. Bogota in Colombia and Curitiba in Brazil are a well-known example of how a well-planned city can create a very energy efficient transport system. The Bus Rapid Transit (BRT) systems developed in these cities can save large amounts of motor fuel, and reduce large amounts of green house gas emissions at relatively low cost. There is a clear potential for using BRT and related measures (e.g. pedestrian and cycling enhancements) to provide large reductions in fuel use and CO<sub>2</sub> emissions at quite low cost compared to vehicle and fuel technology-oriented solutions.

Many cities in the developing world still possess the basis for a more sustainable future through public transport and non-motorized transport walking and cycling. Unfortunately, the quality of these modes is often quite poor with regard to security, comfort, convenience and prestige. Perhaps the principal challenge that must be faced to get BRT systems built is political will.

### **Scope of Module 3: Sustainable Energy Future**

In the year 2100, the world population will be in excess of 12 billion people. If the current trends in technological progress and innovation continue, the demand for energy then will be five times greater than what it is now. If the policy of using coal, oil and gas continues at the present rate, then by the year 2100 the global temperature will have increased by two degrees Celsius. The global population has overshot the capacity of natural systems to "fix" the carbon output, and scientists have conclusively established that this is contributing to complex global warming. The fossil fuel gluttony poses serious health risks; surface ozone causes respiratory disorders; particulate matter increases the incidence of heart attacks and cancers; and new research indicates that enhanced plant growth in a carbon-enriched atmosphere will increase airborne allergens. This situation increases the risk of flooding in lowland areas, the processes of desertification and changing climate all over the world.

Supporting and enhancing the utilisation and implementation of renewable energy sources, that are both environmentally safe and economically sustainable, if coupled with energy planning and conservation measures, could provide for more than half of our future energy needs without depleting primary energy resources. To move from the current global renewable energy share of about 11% of the World's primary energy supply, it is necessary to refocus the energy planning toward the diversity of energy resources (water, sun, plants, trees, winds, thermal storage in the earth's surface, the earth's core and tides). With

appropriate coordination by governments, communities, the private sector and citizens, along with maximizing the efficiency of how we use energy, we can reach a 60% target for the contribution of renewable energy to the world total supply.

Every wood residue (beehive) burner next to a sawmill, every sewage treatment plant or solid waste landfill represents an untapped biomass energy opportunity. If coupled with a community energy system that distributes heating and cooling services to multiple facilities, these resources could provide for virtually all energy needs of nearby neighborhoods or industries. Passive solar building designs maximize the useful contribution of solar energy into homes and offices at a low net cost, reducing needs for lighting, heating and cooling energy inputs. The earth, air, ground and surface water contain solar and earth energy that can be tapped to provide for about two-thirds of the heating needs in buildings. Solar thermal energy technologies can be used to provide hot water for buildings, agriculture and light industry, for example, providing one-third to one-half of the total energy needs in a typical home. The wind power resource potential is probably equivalent to at least half of our entire electricity demand in most regions. Other renewable energy technologies include tidal and wave energy resources in coastal areas, solar electricity using photovoltaic cells, and geothermal heat and power in areas with energy from the core of the earth. These are not yet competitive with other supplies but have significant prospects for the future. This may take 20 years, during which time it is necessary to develop resource-neutral energy distribution systems. Using neutral distribution systems within buildings and communities ensures that as additional technologies mature, it is possible to switch to renewable energy without needing to make major adjustments to the design of buildings, vehicles, or industrial plants. The transportation sector is heavily dependent on fossil fuels such as gasoline and diesel. Yet, countries like Brazil use renewable ethanol energy from sugar cane and other products for about one quarter of their vehicle energy needs. Biomass energy from agricultural crops, grasses and shrubs, trees, or even waste, can be combusted directly to produce heat and power or used to produce any number of liquid or gaseous fuels, including ethanol, bio-oil, bio-diesel and methane.

The model to achieve a sustainable energy future is premised on a community-centric energy planning approach. This will redefine how energy supply options are evaluated, promote energy conservation and efficiency in the design of cities and towns, maximize the use of renewable energy, and facilitate the awareness of energy issues by citizens.

### **Organization of the Dialogue**

The Moderator will present a 5 minutes video to introduce the dialogue. Afterwards, he will briefly introduce the scope and procedures of the dialogue and will ask the 2 experts per Module to make 2 or 3 challenging statements (max. of 5 min. each) to induce the discussion. Then, the Moderator will invite the other 4 panelists (which are not experts in the field) and the guest commentator to react. The discussion would then be opened among the participants. To induce the debate, every questions and reactions will be write on a screen. Finally, the Moderator will draw general conclusions based on the discussion.

The two-hour dialogue will be structured as follows:

- Video on "Energy and Transport" (5 minutes).
- Brief introduction by the moderator on the scope and procedures of the dialogue (10 minutes).
- Module 1 on "Energy Use" (25 minutes).
- Module 2 on " Transport" (25 minutes).
- Module 3 on "Sustainable Energy Future" (25 minutes).
- Open debate among participants (20 minutes).
- Final conclusions by the moderator (10 minutes).