



RENEWABLE ENERGY

FOR A BETTER URBAN FUTURE

UN  HABITAT

THE NEED FOR RENEWABLE ENERGY IN THE MEKONG REGION

Countries within the Greater Mekong Subregion have witnessed rapid economic growth in recent years; the Mekong Region is now home to some 250 million people. However, the incidence of poverty still remains high in countries like Lao PDR. The rapid growth has far outstripped the extension of basic services and the lack of these services is becoming a constraint to environmentally sustainable growth.

Energy has long been recognized to be essential in meeting basic human needs, in stimulating and supporting economic growth and in enhancing the quality of life in human settlements. Increased energy use means increased ability to produce the necessities of life such as food, shelter, clothing, communications and health care.

Reliable and sustainable supply of energy is vital for survival and economic development. The per capita energy consumption and the type of energy resources used depicts the economic growth and well being of any country. While energy consumption is still relatively low in the countries around the Mekong region, the demand is expected to grow exponentially in the coming years. As large areas in the region are yet to be electrified, people rely on traditional and unsustainable energy sources such as biomass and charcoal, or imported oil.



SOME ENERGY FACTS – LAO PDR

- Currently approximately 60% of households have been electrified
- The demand for energy has been predicted to double by 2025 in the country
- Renewable energy currently accounts for approx 0.2% of all electricity produced
- Government target is that by 2025, 30% of the total energy produced should come from renewable sources



LINKING RENEWABLE ENERGY TO WATER AND SANITATION

UN-HABITAT currently runs two major water and sanitation related programmes in the Mekong region: Water for Asian Cities (WAC) and the Mekong Region Water and Sanitation Initiative (MEK-WATSAN).

Water and sanitation are two of the most logical entry points to address the energy gap and needs. The promotion of combined management of water and renewable energy resources and services can play an important role in achieving sustainable development.

Environmental problems can also be addressed through waste-to-energy technology. This technology would solve two major issues our society is facing today: energy shortage and garbage disposal. It provides for the safe disposal of waste with less harmful emissions to the atmosphere, while transforming huge volumes of garbage into much-needed energy.

CASE FOR BIOGAS

The remaining natural resources in Lao PDR are under tremendous pressure from mining and logging operations. The electricity grid in Lao PDR is concentrated mainly in the towns and cities, but many poor urban households continue to rely on firewood for cooking and kerosene for lighting.

There is a vast potential to adopt biogas technology in the country: An estimated 4 million metric tons of animal dung generated per year, and the gas value that could be produced by the biogas technology amounts to about 280 million cubic meters.

Biogas, as a renewable energy source, is directly related to Millennium Development Goal 7, which aims to ensure environmental sustainability. Domestic biogas can help to achieve sustainable use of natural resources as it does not require tree felling.

Furthermore, systems of waste recycling provide the opportunity to create energy from waste, to facilitate income generation in the process of waste collection and sorting, and to improve environmental health.

WHAT IS BIOGAS TECHNOLOGY?

Biogas is a mixture of methane and carbon dioxide that is generated from organic material broken down through the anaerobic digestive process. This can be a dry process without water in which the bacteria degrades waste to produce biogas: a renewable energy source.

These digesters can be fed with energy crops such as maize silage or biodegradable wastes including sewage sludge and food waste. Biogas can be used as fuel for cooking, heating and lighting.

This technology will help to reduce the rate and effects of deforestation, and reduce greenhouse gas emissions from the waste of animal dung.

PILOT PROJECT WITH BIOGAS DIGESTERS

In 2010, UN-HABITAT completed a pilot project with the National Authority for Science and Technology (NAST) Lao PDR to implement a demonstration of biogas digesters in Houn district, Udomxay province. The aim of the project was to link environmental sanitation to renewable energy sources and to make the communities aware of the possibilities of using waste as an energy source.



Households and one public hospital in five different villages were selected as sites for the demonstrations, based on their ability to have local material available for the digesters. Some of the 6m³ digesters use pig manure as feedstock, and others (including one installed in the hospital) use a mixture of human manure and kitchen waste.

Local artisans were trained in the construction and maintenance of the biogas digesters and a revolving fund was set up to ensure the continuation of the project. The users received a loan which they will pay back in affordable monthly repayments. The accumulating funds will be used to install more biogas digesters in the area.

“The project achieved its goals... All biogas users are satisfied with the performance of their biogas plant and enjoy cooking with clean fuel”.

Mr Houmpheng Theuambounny, Deputy Director of NAST



UN-HABITAT AND RENEWABLE ENERGY

UN-HABITAT, with its extensive experience of working with local communities, is now looking to complement its activities in WATSAN with those of Renewable Energy. For this UN-HABITAT is linking renewable energy with water and sanitation projects undertaken under the aegis of the Water Sanitation Trust Fund (WSTF) funding.

The WSTF strategy and Water Sanitation Section (WSS) II core activities in Asia are:

- Focus on more energy-efficient and renewable energy options for better delivery of affordable and reliable water and sanitation services to poor people living in urban settlements.
- Assessment of how renewable energy can improve access to pro-poor basic public services.
- Assessment of energy consumption patterns and efficiencies from both the supply and demand sides of water utilities and water consumers.
- Exploration of biogas options as part of an ecological sanitation approach and opportunities for carbon trading, particularly in relation to capture of greenhouse gases in relation to solid waste management and excreta collection and disposal.

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Our partner in the project on biogas:

Prime Minister's Office
National Authority for Science and Technology (NAST)
Science and Technology Research Institute (STRI)

UN-HABITAT, the UN agency working with issues to do with human settlements and urbanisation, is mandated to address the issue of climate change in the context of urban planning and development. Urban areas are major producers of greenhouse gas (GHG) emissions and therefore have a significant impact on climate change. Urban planning has become increasingly important as reflected in UN-HABITAT's Medium Term Strategic and Institutional Plan (MTSIP 2008-2013), as it has a direct impact on climate change.

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