

Annex III. Pilot Project Ideas

It was considered by the mitigation team that solar water heating technology does not require a specific pilot project and it can be embedded within the general. The major barrier for this technology is lack of local manufacturing, high cost and lack of information that can be addressed e.g. within the suggested efficient construction

There have been a big number of pilot installations of the solar water heaters, however the information and outreach components of these projects were not strong enough to properly address the deficiency of technical and economic information. The information on solar water heater benefits and costs spreads over the word of mouth rather than. Therefore it was decided to include the pilot installation of solar water heaters as a component of more comprehensive efficient construction pilot project.

Efficient Wood Stove Pilot Project

Introduction

TNA/TAP process has identified efficient biomass combustion and namely efficient wood stoves (EWS) as a top priority technology for climate change mitigation being in line with development priorities of Georgia. The main barriers to deployment and dissemination of this technology are: 1. Lack of public and specialist information about efficient biomass combustion and energy use, as well as lack of information for policy makers to develop adequate strategy in this direction. 2. Another key barrier is the need for adaptation of technology to specific regional conditions and specific needs of consumers taking into account local climatic conditions, cultural preferences, affordability and availability of wood fuel.

An important missing component of enabling environment for EWS technology is the long term strategy for fuel wood – which is second most important indigenous energy source in Georgia. This is largely because of the lack of sufficient information for policy making.

Project description

It is suggested to conduct technology adaptation and manufacture different types of efficient wood stoves in Georgia and to demonstrate their efficiency as well as effective methods of weatherization and heat management in the schools of one of the regions of Georgia.

In many regions schools are being heated by fuel wood which is in short supply or is harvested in unsustainable manner. Therefore demonstration of efficient wood stove technology will ease the students can become an effective information agents to disseminate the awareness of efficient fuel combustion and heat management to their families.

Project Goal

The goal of current proposal is to effectively overcome the barriers to deployment of efficient biomass combustion technology and stimulate the market for EWSs in rural areas of Georgia.

Project Objectives:

- Stimulate technology transfer and manufacturing of EWSs in Georgia
- Increase awareness and stimulate the use of EWS in the regions of Georgia
- Develop R & D lab and advisory services for efficient biomass combustion in Technical University of Georgia
- Develop the base information for efficient biomass combustion and forestry strategy for policy

The project can be implemented in the Mskheta, Dusheti and Tianeti districts of Mtkheta-Tianeti region of Eastern Georgia. This region has a cold climate and scarcity of wood fuel. The deputy governor of the region has been actively involved in stakeholder group and is willing to support the project. There is a readiness to implement the project in 67 schools where up to 7.7 thousand students and more than 1 thousand of teachers will get familiar

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with the EWS technology. Preliminary discussions have been conducted with NGOs who have worked on promotion of EWS technology as well as with the thermal technology department of Georgian Technical University (GTU) who is capable of providing the technology and R & D support to the project. The stoves can be manufactured in Tbilaviamsheni or Kutaisi Mechanical Plant or Bioenergy Ltd. in Tbilisi and experience of previous donor projects used.

Project Activities

Year 1 – Pilot phase

I Preparation

1. Prepare the project recipients (Mtskheta-Tianeti region) (Implementing NGO)
 - a. Survey of wood consumption in selected regions and consumer preferences, climate conditions, wood availability and prices in pilot region(s) (Implementing NGO)
 - b. Survey of recipients - schools and local municipalities - visits and preliminary agreements (Implementing NGO)
 - c. Develop specialist support for EWS technology (International Expert)
2. Establish a R & D lab with equipment and program for EWS technology support and consultancy (Georgia Technical University, NGO)
 - a. Develop and customize designs of efficient wood stoves, including upgrade of existing models, Select and customize potential designs including cooking, heating, combined and greenhouse stoves (NGO and R & D lab)
 - b. Develop classification and certification scheme
 - c. Develop a guide on efficient wood combustion and heat management
3. Assess manufacturing options, material and labor possibilities (including non-traditional e.g. clay stoves), develop final specifications (NGO, R &D)
4. Develop stove performance monitoring plan, policies, procedures questionnaires (Local NGO)

II Implementation

1. Tender for manufacturing of stoves to specification (Implementing NGO)
2. Manufacture the stoves of 3-4 designs
3. Install EWS for heating in 67 schools of Mtskheta-Mtianeti region, conduct simple weatherization of classrooms
4. Arrange for greenhouse refurbishment and installation of EWS for greenhouse heating 5 sites – Mtskheta-Tianeti region
5. Implement monitoring and data collection plan
6. Trainings, guiding material etc. (R&D)
7. Monitoring feedback (Implementing NGO)
8. Results analysis and conclusions (Implementing NGO together with implementing stoves business)

Year 2 - Deployment

III Deployment

1. Conduct an outreach campaign
 - a. Conferences –workshops, TV shows, You tube videos, articles, advertizing (Implementing NGO)
2. Commercialization and technology transfer to vendors
 - a. Technology and knowledge transfer to willing entrepreneurs including:

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Drawings, specifications, Performance information (certified by experience) (Implementing NGO) and manufacturing technology

- b. Support in setting up the business activity
3. Stimulating customers
 - a. Develop financing schemes (lease, revolving fund) (Implementing NGO)
 - b. Conduct advisory service for consumers over continued publications and internet (Implementing NGO)

Estimated Budget for 2 years

	Activity	000' USD
1	Technical Assistance	50
2	Project Operation costs	250
3	setting up and operation of R& D lab	150
4	Manufacturing	150
5	Installation and School simple weatherization	100
6	Revolving fund for financial aid	200
	Total	900

Project relation to Georgia's sustainable development priorities

One of the main sustainable development priorities of Georgian government is regional development, reduction of poverty and improvement of living conditions as well as improvement of environmental conditions and increase of economic activity. Implementation of EWS project contributes to these all. By improving the economic and living conditions of rural residents, saving wood from excessive felling for fuel, promoting manufacturing and sale of EWSs by small businesses and reducing the dependence on imported fuel.

Possible challenges and complications

Although EWS technology has strong benefits, its implementation in Georgia can face some challenges.

At present there is active gasification of rural regions and according to ambitious plans of local gas distribution companies in several years almost every rural family will be gasified. Therefore, there is a risk that certain portion of local population will switch to gas use before EWSs come on scene.

The most important challenge for the technology will be the risk of inefficient administration of the forest code that may leave easy access to wood felling for fuel and continue forest devastation.

Another challenge is people's reaction to a new product. Rural residents may take a conservative approach to the new EWS technology and be slow in its adoption. Therefore, the process of introduction of new technology should be carried out very carefully, with due consideration of local conditions

Sustainability

School is a place of knowledge exchange. During the lifetime of installed stoves school teachers, students and their parents will witness the benefits of efficient stoves. This can serve as a good advertisement. Moreover, during the monitoring process they can suggest the ways of improving stoves to better adjust to local household needs and preferences. Stimulated demand will stimulate supply.

The designs and manufacturing know-how will be transferred to local manufacturers who will be able to carry on the business development. Wide dissemination of information about EWSs will assure initial stimulation of market.

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If no follow up activities are implemented after pilot project is completed, its effect will diminish over time, however, will last at least 4-5 years.

Sustainable Social Housing Pilot Project

Background

Efficient and sustainable construction has been identified as a top priority mitigation technology by TNA/TAP process, being in line with development priorities and technological advancement needs of Georgia. The main identified barriers to deployment and dissemination are: Lack of awareness and adequate information for all market chain participants as well as decision makers, and absence of enabling policy/regulatory framework including relevant standards and norms for design and construction.

The proposed pilot project envisages the measures to effectively address the information barrier and to prepare the grounds for decision making on policies and standards for efficiency in construction. It addresses the housing needs for vulnerable population to provide them decent living conditions in future. The project has a great potential for being replicated in Tbilisi as well as in other cities of Georgia.

Project Goal: Reduce energy consumption in buildings and associated GHG emissions in Georgia by stimulating deployment of efficient building design and construction technology through construction of efficient social housing.

The Project will:

- Stimulate the use of Energy Efficient sustainable construction and integrated design practices
- Promote EE construction materials and equipment industry
- Training and educate the architects and constructors in Sustainable Integrated Building Design and Construction
- Demonstrate the energy saving and economic benefits of Sustainable construction on the example of new multi-apartment pilot building (design and construction)
- Result in Design and construction of a 20 family residential house for socially vulnerable families to provide decent living conditions to vulnerable homeless households in Tbilisi
- Support Tbilisi City Hall in meeting the obligations under the Covenant of Mayors
- Increased awareness of consumers and policymakers
- Stimulate the introduction and enforcement of new EE building codes and standards

Project Activities and deliverables shall include:

- Practical workshop on sustainable integrated building design for architects, developers and constructors. The main principles and methods used in Integrated Building Design and sustainable construction will be presented and discussed with the group of Architects and developers interested in sustainable design the workshop to be organized as a one week retreat with the aid of International expert
- Preparation of designs proposals for social housing settlement by participants. Up to five preliminary designs to be prepared and reviewed by the group.
- The winning design proposal shall be taken to develop a **construction design of a typical multi-apartment social housing residential building for 20 families** based on EU efficiency standard for similar climatic conditions. The process shall be aided by international expert. Locally available energy efficient material shall be used.
- A conference - trade show for architects, developers, constructors and material suppliers to describe developed efficient design, negotiate construction and material prices and solicit the participation of material and equipment providers
- Tender - to select the construction company and construction. Construction oversight and installation of monitoring equipment in apartments will be conducted during the construction process