



MOLDOVA ENERGY AND BIOMASS PROJECT 2011- 2014

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**Implementing Agency: UNDP Moldova in collaboration with
Ministry of Economy and Agency for Energy Efficiency**

Context

The Republic of Moldova is highly dependent on energy imports. Over 95% of Moldova's energy needs are ensured through imports. The dependency on the external sources of energy has led to a constant rise in price for energy and to accumulation of large debts for external provider. The energy sector is a key sector for the economy of the Republic of Moldova, being vital for the successful implementation of the national economic development program. The Government has committed itself to reform the energy sector by increasing the energy security of the country, attracting investments in infrastructure, and participating in an energy market based on equitability principles and mutual advantages.

The Republic of Moldova has a great potential to produce energy from renewable sources, which at the present time has not yet been harnessed. Studies show that one of the most secure and easy to access alternative sources of energy is straw and other agricultural wastes, called biomass. There is also a consensus that wheat straw waste is the Republic of Moldova's renewable energy source with the biggest short- to medium-term potential. Annually, the Republic of Moldova produces, on average, 700 thousand tons of straw, which makes it possible to generate about 700 million KWh of thermal energy per year.

The diversification of the energy sources is one of the Government's objectives stipulated in the Government Programme for 2011-2014, numerous ratified international acts, and adopted laws and policies (Law of RM on Renewable Energy No. 160 of 12.07.2007; Law of RM on Energy Efficiency No. 142 of 02.07.2010; Resolution nr. 958 as of 21.08.2007 on Energy Strategy of the Republic of Moldova until 2020 etc.). The authorities wish to achieve a renewable target of 20% energy generation in the country by 2020 – a target set in the National Energy Strategy.

The Energy Strategy of the Republic of Moldova deals with objectives, measures and activities oriented towards a more efficient, competitive and reliable national energy

industry whilst ensuring the country's energy security, the upgrading of energy-related infrastructure, improved energy efficiency and use of renewable energy sources, and its integration into the European energy market. There is thus a detailed strategic framework in place which is aligned to the energy objectives of the European Union.

Project objectives and outputs

The overall objective of the project is to contribute to a more secure, competitive and sustainable energy production in the Republic of Moldova through a targeted support to the most viable and readily available local source of renewable energy, namely biomass from agricultural wastes.

The project purpose is to increase the use of renewable energy technology significantly through fuel switching and energy efficiency. The project primarily focuses on improving heating comfort levels in rural public sector buildings including schools, kindergartens and community centres by using readily available waste straw supplied from local agricultural enterprises. The project also stimulates local markets for improved household heating; industrial cogeneration, and biomass-based briquetting, as well as raises local capacity in the biomass sector, and promote the benefits of biomass energy and the project.

The project consists of four inter-related outputs:

1. Municipal biomass heating and fuel supply markets established

Activities under this output aim to improve municipal heating of public buildings in rural areas and establish related fuel supply markets. Under this output about 130 thermal heating systems primarily burning agricultural wastes, in form of straw bales, briquettes and pellets will be installed, totalling about 35 MW, for the provision of heating for public buildings in rural communities in Moldova. Market mechanisms are used to support the involvement of local fuel suppliers to prepare, store and supply the fuel needed for the installed heating plants.

Very focused low-cost actions on policy, regulation, and contracting are also made under this component to support the market environment in Moldova.

2. Foundations laid for establishment of efficient household heating, industrial cogeneration and biomass briquetting markets

Under output 2 three emerging technology options for biomass energy in Moldova, which will be assessed, developed, and piloted: domestic heating in rural areas, addressing the need for improved efficiency of heating and possibly cooking; deployment of industrial cogeneration based on feed stocks from agri-industry; and biomass briquetting.

3. Capacity for growth of biomass markets at regional and local levels is built in Moldova

Output 3 aims to ensure that the benefits of biomass energy demonstrated and deployed under the project are delivered in a lasting and long-term way and that local capacities for further replication are ensured. For each stakeholder type to be reached, the first step is the development of training materials, to be placed in the public domain. These materials provide an accessible repository of key information, and are used in the training activities delivered under the project. The key targeted stakeholders include: municipal management including mayors, civil servants, and teachers; biomass-fired boiler operators; fuel suppliers; and school children.

4. The opportunities and benefits of biomass energy for Moldova are well known locally, and visibility of project results promoted

Output 4 is to facilitate widespread dissemination on the general and specific advantages and impacts of using biomass energy in Moldova and promote the visibility of the partnership and impact of the action. It is implemented primarily through a national wide media campaign at national and local levels focusing on raising awareness on benefits and best practices related to the use of renewable energy. A National Awards on Renewable Energy and Energy Efficiency is annually organized to reward the most active and valuable promoters and beneficiaries of the energy produced from renewable sources and encourage new initiatives on renewable energy and energy efficiency. It operates on an annual basis during the project lifetime, and afterwards will be taken over by the Agency for Energy Efficiency, under high-level patronage, and with the support of sponsors. However, special emphasis under this output is put on continuously communicating and giving publicity to the results obtained within the project, and on promoting the impact of joint actions of Government of the Republic of Moldova – UNDP - EU and national/ local partners.

Project national partners

Ministry of Economy, Agency for Energy efficiency, Ministry of Agriculture and Food Industry
Ministry of Environment, Ministry of Regional Development and Construction, Regional Development Agencies from North, Centre and South regions, Local

Public Authorities at district and community level from all the districts of the country, Local agricultural entrepreneurs, NGOs and Community Based Organizations, Mass media, Individual experts and consulting companies, Representatives of academia

Summary of implementation progress and achievements

Moldova Energy and Biomass project was launched in May 2011.

Promotion

Until September 30, 2012, Moldova Energy and Biomass Project has been promoted and launched, through the organization of district awareness raising workshops, in the following 21 districts of the Republic of Moldova. About 1125 representatives of the rayon administration, state departments of the districts, NGOs, local public authorities and representatives of the public institutions from rural communities and local agricultural producers received information on the objectives of the project, its components and management of biomass heating projects, selection criteria of the beneficiary communities, benefits after implementation of the projects, the role of local public administrations and of the communities in the implementation of the projects. Participants to the workshops have also been trained in the drafting of the Expressions of Interests, and were given the Guide on initiation of a municipal heating project at local level that was elaborated for this purpose.



Promotional meeting in Cuhurestii de Sus, Floresti district, 17.08.2012



Project promotion in Floresti district, 24.07.2012

Selection of the biomass projects for investment

As a result of district and community awareness raising activities, as well as, following a transparent process of energy auditing of public buildings and participatory evaluation of communities' needs and capacities to implement biomass projects, MEBP Projects Selection Committee has finally approved for the investment as many as **104 communities** from 21 target districts.

Memorandums of Understanding (MOU) were signed between UNDP and Local Public Administrations of target communities. The purpose of this MOU is to provide a framework of cooperation and facilitate collaboration between the Parties on a non-exclusive basis.



Signing of Memorandums of understanding, Glodeni district, 18.04.12

Results:

- 35 biomass heating projects from the districts Stefan Vodă, Leova, Cantemir, Hincesti, Telenesti, Singerei, Falesti and UTAG have been completed during first half of 2012.



Briquettes fired boiler plant, Dumbravita, Sangerei district

- 24 on-going biomass heating projects from districts Glodeni, Donduşeni, Râşcani and Soroca will be completed by the middle of November 2012.
- 25 biomass heating projects from the districts Şoldăneşti, Rezina, Orhei, Ungheni and Anenii Noi

have started the works and will be completed by March 2013,

And a group of 20, recently approved, biomass heating projects from the districts Cahul, Cimislia, Basarabasca and UTA Gagauzia can be completed by May 2013.



Briquettes fired boiler plant, Bilicenii Noi, Sangerei district

Thus, in 104 target communities, approved since the beginning of MEBP project, new biomass heating systems will be installed in 120 public buildings, from which 75 are schools, 38 kindergartens, 4 community centres, 2 mayor offices and 1 school dormitory, totalling a capacity of 26MW, out of 35MW targeted by the end of the MEBP Project. Around 75442 of population from target communities (children - 22061, staff of public institutions – 4074, parents and other categories of population – 49307) will benefit of new biomass heating systems and improved heating contort.

- In order to establish local fuel supply markets, leasing mechanisms have been developed to support the involvement of both farmers and briquette / pellet producers, to prepare, store and supply the required biofuel for the installed heating plants, in the form of straw bales, briquettes and/or pellets. While the straw baling and handling equipment is leased by PIU 2KR, briquetting equipment is leased by the Agency for Energy Efficiency, the two organizations identified as having the best potential to successfully implement this activity.
- In order to support the market environment in Moldova, a specialized technical committee, created under the roof of the National Institute for Standardisation, have adopted 35, the most important, European standards for producing biomass based fuel in the Republic of Moldova.

Stimulation of the market for biomass domestic heating systems suitable for rural areas

- A study in this sense was carried out by PROERA Group Ltd, a local consulting company. The market research had determined: consumer needs, attitudes and motivations, products already available on the local market and how these meet needs, products available internationally and 'fit' for local markets, as

necessary, analysis of local production potential (costs and licensing), stakeholder analysis (importers, producers, installers, buildings, shops, etc.), including capacity, attitudes and motivations, determination of criteria for support of an entrepreneur or a householder, etc. Based on this market study, a matrix of feasible household heating solutions was developed. Using the conclusions of the study a household from Republic of Moldova can identify the most feasible, in terms of costs and efficiency, solution for its heating. The report is being translated for public presentation.

- For testing purposes 3 boilers of different types (on briquettes, on pellets and combined burning boilers) were installed within public buildings similar to household sizes were tested during the heating season of the winter 2011/2012. A group of national stakeholders and local entrepreneurs attended the 20th European Biomass Conference and Exhibition held in Milano, Italy aiming to identify potential partners for collaboration in manufacturing and/or assembling biomass boilers locally, as well as get a better understanding of EU biomass market developments. Some activities in identifying European companies willing to establish collaboration in assembling biomass boilers in Moldova with local companies are carried out. It is planned to assist, until the end of the year, several (3-4) local companies in developing a new business direction in assembling biomass boilers locally and distributing under a subsidy mechanism, developed by MEBP.

Deployment of industrial co-generation

- A country wide competition was launched to identify potential companies ready to adopt and implement co-generation technologies. The competition announcement was published in the local mass media and on the official web-site of Energy Efficiency Agency www.aee.md. By the end 2012 it is planned to identify the winning company having the potential and being ready to implement this type of technologies.

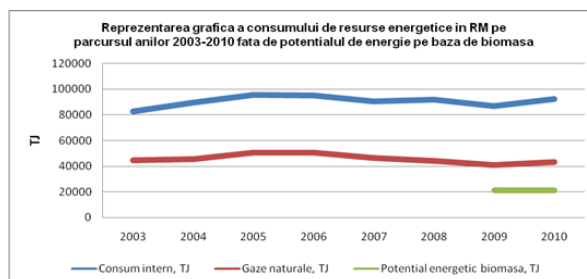
Market solutions for briquetting

This activity aims at supporting the creation of at least one commercial briquette business of approximately 1,000t per year using biomass derived from agricultural wastes or from by-product(s) of an agri-industrial process.

IDIS “Viitorul”, a consulting company, conducted a study /survey on the potential of biomass for briquetting in Moldova. List of districts with the biggest potential of different types of biomass for briquetting was identified

and presented also briquettes were distributed to 100 households for testing purposes.

By the end of 2012 it is planned to identify suitable locations for setting up a briquetting plant. This will be done based on the result of the study as well as by launching a nationwide competition among LPAs (level I and II), and provide financial assistance to at least one LPA in establishing a PPP, in procuring and installing the briquetting equipment.



IDIS Viitorul research on “Biomass potential for briquetting in Moldova”. Energy consumption comparing to biomass potential

Capacity built for growth of biomass markets at regional and local levels

- The activities carried out under the Component 3 of Moldova Energy and Biomass project during the reporting period focused on identifying the capacity needs in the target communities, designing and deploying activities and resources in order to address them in an accessible and lasting manner promising an efficient and effective implementation of biomass heating solutions installed in rural public buildings with the assistance of MEBP.

In total, a number of **2,552 trainees** participated in the capacity building and training activities organized during 2011 and up to September 30, 2012 on specific topics as shown in Table 1. In addition, up to **1,500 school children** learned about all types of renewable energy, principles of energy efficiency and actively involved peers, community leaders and their parents in activities promoting sustainable energy production and consumption practices. As facilitators of the educational activities were **76 teachers and school principals** which received proper training and have been equipped with didactical materials prior to the commencement of the educational initiative and during its implementation.

Training and Capacity Building Activities	Target group	No. of participants		
		2011	by 30.09.12	Cumulative
Specialized training and capacity building activities				
<i>Training in Community and Resource Mobilization</i>	mayors, Project Committees' members, entrepreneurs, representatives of local NGOs, managers of social institutions	437	687	1124
<i>Training in Community Project Implementation and Management</i>	mayors, Project Committees' members, entrepreneurs, representatives of local NGOs, managers of social institutions	421	248	669
<i>Training in Management of Biomass Heating Systems</i>	mayors, local council members, managers of public institution	188	77	265
<i>Induction Training on Biomass Boiler Functionality, Maintenance and Security</i>	biomass boiler operators, managers of public institutions, technical staff of public institutions	146	51	197
<i>Training on Quality, Financial and Economic Aspects of Biomass Fuel Production</i>	local entrepreneurs - potential biomass fuel suppliers	46	65	111
<i>Training on project sustainability and participatory monitoring and evaluation</i>	mayors, Project Committees' members, entrepreneurs, representatives of local NGOs, managers of social institutions	0	104	104
<i>Hands-on training on boiler functionality, maintenance and safety by design-build contractors</i>	boiler operators, representatives of LPA	0	6	6
Sub-total training participants		1238	1238	2476
Local Study Visits				
<i>Functionality of biomass heating systems and biomass fuel production</i>	mayors and managers of public institutions receiving straw-fired boilers within MEBP	60	16	76
Sub-total study visits		60	16	76
Total participants in training & capacity building activities		1298	1254	2552
School Education Initiative on Renewable Energy and Energy Efficiency				
<i>Principles and methods of Renewable Energy and Energy Efficiency Education in Schools</i>	School teachers, school principals	0	76	76
<i>Educational activities on Renewable Energy and Energy Efficiency (extra-curricular activities and summer camp)</i>	School children (7 th -8 th grade)	0	1500	1500

Communication on the opportunities and benefits of biomass energy for Moldova and visibility and promotion of project results

- The switching to new biomass heating systems implies changes in attitudes and behaviours. In order to be successful in replacing fossil fuels with renewable sources, a Media Strategy was developed, which applies the standards of integrated communication. Besides the outreach communication actions (video/audio spots, TV/Radio shows, press articles, posters, brochures), the Media Strategy implies interpersonal communication, direct contact with the target group, mobilization of communities. The Strategy was developed according to the Joint Visibility Guideline for EC-UN Actions in the

Field and approved by the Project Board on 16 September 2011. During the reporting period, a set of awareness raising materials were produced, public national and local events were organized, media field trips were undertaken and other relevant actions.

- Printed materials** are widely distributed within project events, other public events with project participation, being a tool to support all communication actions carried out:

Project Info Sheet, Poster for rural communities, Leaflet promoting the benefits of using energy from biomass, Desk calendar for 2012-2013, other materials;

- **Video and Audio materials** are broadcasted on TV and Radio channels, placed on partners web pages, disseminated via social media (Facebook, YouTube)

Since its start, the project organized and participated at **15 awareness raising events** of different format, where we succeeded to communicate directly with large and diverse target groups: mass media general public, business community, national and international partners, youth. The format of events was organised and the messages were spread out based on respective target group needs. All events were widely and intensively promoted in media, on social media, UNDP, partners' web pages.



Desk calendar



Project participation at Europe Day, 07.05.2011, Chisinau

Radio, Newspapers, news agencies and web portals). A media log was created and updated on regular basis.

Enquiries log was created and updated on regular basis. From May 2011 to June 2012, **over 530 persons**, mostly agricultural entrepreneurs, local public authorities, managers of public institutions from rural areas, NGOs, requested information from project team by e-mail, phone, letters, visits to project office about project activities and next year's interventions. The PMT responded to each enquiry in a timely and comprehensive way.

As a result of integrated communication activities, from March 2011 to April 2012, **more than 150.000 people were reached by direct communication** (public events, thematic discussions, awareness raising meetings, project presentations, community mobilization actions, lessons in schools, interpersonal communication etc.), and **around 2 million by outreach communication actions** (video/audio spots, TV/Radio shows, press articles, newsletters, posters, brochures, leaflets, billboards, visibility materials etc).



Europe Day, 12.05.2012, Chisinau



Inauguration first biomass heating system in Ermoclia, 23.01.2012, Stefan Voda

- More than **500 media materials** were spread about the opportunities and benefits of biomass energy for Moldova, and project results/activities (by TV,

Annual national awards

In 2011, the Ministry of Economy and the Energy Efficiency Agency have launched, with the support of Moldova Energy and Biomass Project, National Awards on Renewable Energy and Energy Efficiency (Moldova Eco-Energetica Awards). It introduces a new tradition of Annual Awards that will operate on annual basis during the project lifetime from 2012 until 2014, and afterwards will be taken over by the designated Government institutions under high-level patronage, and with the support of external sponsors. The first edition of the Moldova Eco-Energetica Awards was successfully conducted on 7 December 2011. More than 200 persons - representatives of the Government of RM, embassies, donors, economic entities, academia, civil society - participated at the event. However, the number of people interested to attend the event was much higher. More than 20 journalists attended the event and spread widely positive news, stories related to the event. **5 video success stories were identified and produced, 1 short movie on renewable energy in Moldova, 1 video spot and 1 audio spot** announcing the event were produced.



Moldova Eco-Energetica, 07.12.2011, Chisinau

The **Moldova Eco-Energetica Awards contest** has been **launched** on 2 July 2012. All information regarding Moldova Eco-Energetica 2011 edition (info presentation,

video materials, photo gallery etc.) and 2012 edition (Competition regulation, Submission form etc.) were placed on www.aee.md web page.

Project information

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