



Terms of Reference

UNDP/GEF Project: Moldova Sustainable Green Cities – Catalysing investment in sustainable green cities in the Republic of Moldova using a holistic integrated urban planning approach

National Consultant for developing a Pre-Feasibility Assessment
of urban Biomass Waste to Energy potential in Chisinau

Duty station: Chisinau, Moldova
Contract type: Individual contract

The activities of waste management in Moldova are the primary responsibility of the Local government bodies, who have to organise collection and disposal of municipal waste. Currently only between 60 – 90% of municipal waste collection coverage is achieved in urban areas. In rural areas there is limited coverage at only 10-20% and there are also some areas with no waste management services. In Chisinau, the daily rate of waste produced per person is 1.3 kg (source: National Waste Management Strategy for Moldova), that is higher than in other parts of Moldova. However, this figure is thought to be as a result of better collection and monitoring of waste rather than actual greater quantities of waste being generated. It is projected that solid municipal waste will increase by 5% annually in both rural and urban settlements despite an expected population decrease. The General Housing Department of the City of Chisinau has overall responsibility for waste management services which is currently executed through Regia Autosalubritate, the “Company” that provides collection, transportation and disposal of municipal waste as well the operation of the landfills. Approximately 1.5 million tons per year of waste (with up to 60 percent organic and 25 percent recyclable content) is collected using the company’s fleet of 58 specialised waste transportation vehicles. Waste is transported to the existing transfer station and then into the temporary dump site in Ciocana district in Chisinau or Tintareni landfill located 30 km from Chisinau. Some plastic and glass are manually separated at the transfer station, although there is no sorting plant currently in place. The other municipal waste such as biomass from green zones, street waste, construction waste, etc. is not managed in a centralized way. As an example, the Municipal Enterprise “Green Areas Management Association” is facing with problems of depositing the waste from green zones cleaning, most of which now is transported and dumped to the municipal landfills.

In order to overcome the existing waste problem, the municipality of Chisinau is planning to design and to build the platform/facility for collection of the city garden waste and other kind of urban waste not managed by Autosalubritate. The platform is supposed to have several units: composting from urban biomass (leaves), briquetting (briquets from urban biomass) and construction waste recycling. The produced briquettes must be distributed to 3,664 of poor and vulnerable families which are currently using coal and wood heating and being supported by the special fund established by the Chisinau Municipal Council.

II. Project Background Information

The goal of this assignment is to develop a Pre-Feasibility Assessment of urban Biomass Waste to energy potential in Chisinau and reducing fuel poverty in poorer households. The proposed assignment is linked with activity of General Housing and Planning Directorate of the Chisinau Municipality. This project will reduce the incidence of fuel poverty in areas not served by the District Heating network and natural gas supplies and reduce the cost to the Municipality in subsidizing the cost of coal and winter fuel payments to the poorest households. Beside supporting the required behaviour change programs to support the implementation of resource efficient waste management strategies and related waste management hierarchy (reduce, reuse, recycle, waste to energy, disposal), there are possible synergies and co-operation opportunities also for the required investments addressing, for instance, the treatment of the "green waste" i.e. the biomass generated by harvesting and cleaning the green areas of the city.

Based on the initial estimates, the production capacity of the wood briquette plant would need to be about 3,000-4,000 tons per year to replace about 1,600 tons of coal, thereby contributing to CO₂ reduction of 4,300 tons per year or 86 ktons of CO₂eq over 20 years.

III. Duties and responsibilities:

The consultant will have the following responsibilities:

1. Develop a detailed structure of the Pre-Feasibility assessment and consult it with UNDP and Municipality Housing department.
2. Identify the exact quantity and typology of the urban waste: Sources of raw material, collection, transportation and depositing methods of vegetal waste;
3. Identification of the number of poor and vulnerable families which are currently using coal and wood heating and being supported by the special fund established by the Chisinau Municipal Council. Identify how many of the household beneficiaries have heating equipment that can burn briquets.
4. Propose the most cost-efficient methods of vegetal waste collection, transportation and production potential, including the cost/benefit analysis.
5. Calculation of the following climate related parameters:
 - a. The CO₂ reduced by replacing the burning of coal with wood briquettes;
 - b. Reduced CH₄ emissions from the landfill;
6. Take lead in presenting the draft Pre-Feasibility assessment report at the meeting with key stakeholders (Ministry of Agriculture, Regional Development and Environment, Municipality, State hydrometeorological service, Academia)

IV. Expected Deliverables and estimated timing

The assignment will be carried out in maximum **2 months** after signature of the agreement. All the deliverables shall be submitted within the timeframe shown in the table below:

	Deliverable(s)	Estimated timing
1.	Detailed structure of the Pre-Feasibility Assessment, methodology and working plan submitted and approved	By August 5, 2019 3 working days
2.	Draft Pre-Feasibility Assessment report developed containing:	By September 30, 2019 40 working days
	- Technical report on quantity and quality of biomass waste generated in Chisinau vs quality biofuel production potential, including the cost/benefit analysis. Report on calculation of the CO ₂ and CH ₄ potential reduction emissions.	
	- Comprehensive report assessing current number of households (supported by the special fund established by the Chisinau Municipal Council) that use coal and wood heating. Report on poor households potential to shift to briquets for heating purposes.	
3	Final assignment report submitted after consultation with the key stakeholders in the joint meeting.	By October 10, 2019 7 working days

V. Institutional arrangements:

The consultant will work under the direct supervision of the MSGC Project Manager and UNDP Cluster Lead. The consultant shall take overall responsibility on the quality and timeliness of project implementation process within its competency. The consultant is responsible for the compilation and editing of the draft material, presentation and the final product in Romanian language.

The consultant should calculate the possible costs associated with the current assignment such as transportation, logistics, acquiring various maps, layouts and other relevant documents or information required for successful finalisation of all tasks. UNDP shall not accept any additional expenses which are not included in the financial offer.

All primary data, reports, and other documentation produced during this assignment shall be made available to UNDP in appropriate electronic format (word, excel, PDF, etc.) depending on the nature of its content. All data acquired, and products developed in the course of the assignment will be in the ownership of UNDP and cannot be used by the Consultant without prior written permission from UNDP.

VI. Qualification requirements:

- University degree in energy systems, energy efficiency, energy management and/or other related fields;
- At least 5 years of professional experience in designing biomass production and processing services or another relevant field;
- Minimum 4 previous assignments pertinent to conducting technical studies in the field of biomass production and processing.