

NS-285 - Waste to Energy (WTE) NAMA in The Republic of Moldova

Republic of Moldova

NAMA Seeking Support for Implementation

A Overview		
A.1 Party	Republic of Moldova	
A.2 Title of Mitigation Action	Waste to Energy (WTE) NAMA in The Republic of Moldova	
A.3 Description of mitigation action	The waste sector in The R. of Moldova accounts for 12.2% of the country's greenhouse gas (GHG) emissions, with estimated emissions of 1,565,800 tCO₂e. The sector's emissions come from solid waste. At present, increased attention is being paid to improve overall municipal waste management, with the Moldovan gov recognizing the need for improvement of the entire system, including the collection, transfer, treatment and disposal of regional landfills and closure of existing dumpsites. The effort to improve the system has been supported by numerous agencies with GIZ, European Investment Bank and Czech Development Agency funding feasibility studies for all eight management regions of the country. The NAMA's WTE facilities will be installed at the solid waste disposal sites (SWDS) as part of these efforts, though the scope of the NAMA does not include improvement of waste management public services per se. The NAMA, to take place in SWDS, involves installation of systems of equipment to achieve the following elements in relation to GHG mitigation: Collection of landfill gas (LFG) and destruction of the methane contained in it; and Use of the LFG for renewable electricity generation without reliance on fossil fuel. Total generation capacity installed per NAMA and working capacity is equal to 4 MW.	
A.4 Sector	☒ Energy supply ☐ Residential and Commercial buildings ☐ Agriculture ☒ Waste management ☐ Other	
A.5 Technology	☐ Bioenergy ☐ Energy Efficiency ☐ Hydropower ☐ Wind energy ☐ Carbon Capture and Storage ☒ Land fill gas collection ☐ Other	
A.6 Type of action	☐ National/ Sectoral goal ☐ Strategy ☒ National/Sectoral policy or program ☐ Other	
A.7 Greenhouse gases covered by the action	☐ CO ₂ ☐ N ₂ O ☐ PFCs ☐ Other	
B National Implementing Entity		
B.1.0	Name	Ministry of Agriculture, Regional Development and Environment
B.1.1	Contact Person 1	Vasile Scorpan
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B.1.9	Contact Person 3	

B.1.10	Address	
B.1.11	Phone	
B.1.12	Email	
B.1.13	Comments	

[Add Additional Entity](#)

C Expected timeframe for the implementation of the mitigation action

C.1	Number of years for completion	15
C.2	Expected start year of implementation	2018

D Currency

D.1	Used Currency	USD v
Conversion to USD: 1		

E Cost

E.1.1	Estimated full cost of implementation	15,027,976 Conversion to USD: 15,027,976
E.1.2	Comments on full cost of implementation	The investment cost per each of ten (10) individual intervention is estimated as USD 1,502,798. The financial plan developed for the NAMA involves the public providing interest-free bridge loans initially, on the understanding that they will be refinanced by national finance sources after three years of successful WTE (waste-to-energy) each SWDS. The amount of bridge loans required for full implementation is USD 7,449,675. Added to the cost for the NAMA intervention are the estimated one-off cost (a grant) of USD 150,000 for a WTE feasibility study, as well as an estimated 750,000 for NAMA management, capacity building and awareness building to be borne by the Moldovan government as part of the country's national adaptation plan, potentially with funding support from other programmes. Without such an assumption, the cost of international NAMA support will be USD 0.85 - USD 1.00 per tCO₂e, representing a reasonable level. Total number of years for NAMA implementation 31 years, including 15 for construction
E.2.1	Estimated incremental cost of implementation	15,027,981 Conversion to USD: 15,027,981
E.2.2	Comments on estimated incremental cost of implementation	This NAMA cost is an incremental one as the project is mainly oriented to mitigate GHG emissions reduction. According to country's Waste Management strategy LFG collection and utilization for electricity production is not planned.

F Support required for the implementation of the mitigation action

F.1.1	Amount of Financial support	8,349,675 Conversion to USD: 8,349,675
F.1.2	Type of required Financial support	☒ Grant ☐ Guarantee ☐ Loan (sovereign) ☐ Equity ☐ Loan (Private) ☐ Carbon finance ☒ Concessional loan ☐ Other
F.1.3	Comments on Financial support	Donors' contribution is considered the primary funding source to support NAMA implementation. Donors' support is requested in the form of grant in the amount of USD 900,000 (USD 150,000 – Grant for detailed feasibility study; USD 750,000 - Grants for capacity building and NAMA management) and in the form of Concessional loan of USD 7,449,675.
F.2.1	Amount of Technological support	
F.2.2	Comments on Technological support	
F.3.1	Amount of capacity building support	750,000 Conversion to USD: 750,000
F.3.2	Type of required capacity building support	☒ Individual level ☒ Institutional level ☐ Systemic level ☐ Other
F.3.3	Comments on Capacity Building support	Several capacity development needs have been identified: - Capacity at the NAMA central coordinating unit: Central institutional knowhow must be developed for many aspects of the NAMA intervention so that it will be able to share their knowledge base to guide individual NAMA participants. Specifically, these skills to be transferred include: Basic WTE technology knowhow; Negotiating a renewable energy tariff; MRV requirements and procedures. - Technology: The technology in itself is proven in many parts of the world. The capacity to be developed is first-hand knowledge of the application of VRE technologies in the local context

3. Regulatory: Capacity development is required to formulate an enabling tariff setting methodology, which starts with the understanding and appreciating different nature of investors for different types of power projects.
4. Effective disbursement of international funds: Capacity building is required to existing entities that already handle international funds, so that there is no reliance on commercial banks so that more funds can reach the intervention project owner.
5. MRV: Measurement and reporting requirements for NAMAs, geared towards GHG and SD accounting, are specialized and a baffle even those technically familiar with operation of a landfill or a biogas power plant operation. A capacity building program for MRV activities for NAMAs is essential.

G Estimated emission reductions

G.1 Amount	3.387
G.2 Unit	MtCO ₂ e v
G.3 Additional information (e.g. if available, information on the methodological approach followed)	NAMA GHG emission reduction has been calculated based on CDM tool "Emissions from solid waste disposal sites" and CDM methodology AMS-III.G "Landfill methane recovery". For details, please consult PDD NAMA Waste report attached

H Other indicators

H.1	Other indicators of implementation
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I Other relevant information

I.1 Other relevant information including co-benefits for local sustainable development	This NAMA will provide SD co-benefits beyond the reduction of GHG emissions. Positive contribution on the following areas of SD are expected: - Air quality: Odour is one of the major concerns of a Solid Waste Disposal Site (SWDS) or landfill, where the wet wastes decompose and release methane (CH₄ gas) and odour-causing gases (e.g. sulfides and ammonia) that emit a distinctive odour. This leads to both health and safety impacts on the nearby community. - Climate change adaptation and mitigation: The WTE NAMA will achieve GHG mitigation via (a) reduction of methane emissions from the landfill, and (b) displacement of fossil fuel-based electricity generation; - Quality of employment: The skill level of workers/employees will be enhanced through the training sessions about methane collection and power generation provided by the WTE NAMA; - Access to clean and sustainable energy: Clean and sustainable electricity will be generated by using the collected methane gas released from the landfill. This will be exported to the grid to displace the corresponding amount of fossil fuel-based electricity; - Income generation: The WTE NAMA will create new job opportunities during the construction (i.e. temporary basis) and operation phases (i.e. permanent basis) increasing income generation by way of remuneration to the employees; - Job creation: With the presence of the WTE NAMA, both temporary and permanent job opportunities will be created; and - Compliance with laws and regulation: Sustainable development benefits, which is one of the designated goals to be achieved by the NAMA, can be tracked and evaluated by using the NAMA SD Tool.
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J Relevant National Policies strategies, plans and programmes and/or other mitigation action

J.1 Relevant National Policies	In 2010, the Republic of Moldova joined the Copenhagen Accord and submitted an emission reduction target to the UNFCCC Secretariat. The Environmental Strategy for 2014-2023 and the action plan for its implementation were approved in 2014. According to the Strategy, 15% GHG emissions reduction compared to BAU is to be achieved by 2020 in the waste sector. According to the Strategy for Waste Management in the Republic of Moldova for the years 2013-2027 the country will establish a legal and institutional framework to support the gradual alignment of waste management practices to those of the European Union, which is to "prevent waste generation and to promote its reuse, recycling and recovery in terms of environmental protection" combating GHG emissions for the waste sector. The draft of Low Emission Development Strategy (LEDS) is planned to be adopted in 2016. This NAMA pertains to the list of LEDS's measures to achieve the INDC reported to Paris COP21 by Moldova in September 2015. According to the country Energy Strategy 2030, one of two policies geared towards increasing energy security is "attracting the renewable energy source to the energy balance", aiming to increase the mix of renewable energy to 20% of demand by 2020.
J.2 Link to other NAMAs	(none)

K Attachments

K	Attachments	<table> <tr> <th>Title</th> <th>Description</th> </tr> <tr> <td colspan="2">No records to display.</td> </tr> </table>	Title	Description	No records to display.	
Title	Description					
No records to display.						
K.1	Attachment description					
K.2	File	Choose File No file chosen				

L Support received

L.1 Outside the Registry

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L.2 Within the Registry

Support provided	SupportType	Amount	Comment	Date
No records to display.				