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| **Conceptual Framework for MRV of NAMAs** **Republic of Moldova** |
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| **12/01/2015** |

# Acronyms

|  |  |
| --- | --- |
| AUS ETS | Australia - Emission Trading Scheme |
| BAU | business-as-usual  |
| BUR | Biennial Update Report |
| CCO | Climate Change Office |
| CDM  | Clean Development Mechanism |
| COP  | Conference of Parties |
| DNA  | Designated National Authority |
| EU ETS | European Union – Emission Trading Scheme |
| GHG | Green House Gases |
| GIZ | Deutsche Gesellschaft für Internationale Zusammenarbeit  |
| GWP | Global-warming potential |
| IPCC | Intergovernmental Panel on Climate Change  |
| LECB | Low Emission Capacity Building |
| LEDS | Low Emission Development Strategy  |
| MoEN  | Ministry of Environment |
| MRV  | Measurable, Reportable, Verifiable |
| NAMA  | National Appropriate Mitigation Action |
| NGO | Non-Governmental Organisation |
| UNFCCC | United Nations Framework Convention on Climate Change |
| WBCSD | World Business Council for Sustainable Development |
| WRI | World Resources Institute |

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# Executive Summary

Moldova is committed to participate in different financial mechanisms, including NAMAs, of the UNFCCC in order to increase its contribution to global mitigation efforts.

Moldova supports reliable and transparent MRV of NAMAs to secure international confidence of national mitigation actions. The future MRV of NAMAs in Moldova should therefore be in line with an international set-up of MRV.

In Moldova can be built capacities on LECB and particularly on MRV component based on the local existing specialists and experts. The country has begun the implementation of different structural project and based on this were built the capacities on projects writing and analyzing. Were prepared specialists in different fields for analyzing and estimating the technical aspects of the implemented projects and programs, among these can be found and developed specialists in MRV that will make this system functional.

Moldova has the experience in developing and reporting on the environment projects concerning the GHG emissions. It was prepared National Communications and GHG Inventory reports. In the country are active some parallel programs on environment and some of them has the MRV component in it. Carbon Finance Unit is reporting on the implemented projects and monitors the emission level for the financed projects under the mission. The Moseff program is making assessment reports with strong MRV component for the projects to be implemented in energy field. The capacities of the national experts in the technical assessment field are also developed under Energy efficiency agency of Moldova

The Ministry of Environment (MoEN) will have the overall responsibility for the MRV of NAMAs and NAMAs and an existing National Commission will be delegated the responsibility to prioritize, evaluate, approve/reject and monitor NAMAs and related MRV systems and it is line with that the National Commission already has the mandate to communicate with UNFCCC and process CDM projects.

A Technical Committee to support the National Commission will be established and its main task will be to evaluate the specific NAMAs including the integrated MRV system in all phases of the project cycle. The Technical Committee should have permanent members to secure stability and uniform evaluation of MRV of NAMA and NAMAs.

A MRV-NAMA Group should be established and it should consists of a group of 10-15 experts. The most complex part of the NAMA project will be setting up and managing the MRV system and therefore the most required expertise in the MRV-NAMA Group should be MRV. The MRV-NAMA Group can support the NAMA Project Developers in preparing MRV of NAMAs, follow-up on the MRV when a project has been implemented, support the dialogue between the NAMA Project Developers and verifiers. perform training of stakeholders, support the national data management system of the MRV of NAMAs and support the Technical Committee.

MoEN should be overall responsible for a national data management systems for all the MRV of NAMAs and probably MoEN should delegate part of the day to day administration to the MRV-NAMA Group.

The MRV-NAMA Group should have an administrative set-up under MoEN and the MRV-NAMA Group can also have formal interactions directly with the National Commission and Techincal Committee.

A proposal for setting-up an approval process MRV of NAMAs will cover both NAMA and MRV as MRV should be considered as an integrated part of a NAMA. A NAMA proposal should be presented to the National Commission in two steps. The first step should be the NAMA Concept Note and the second step should be NAMA Design.

The overall MRV framework could consists of the following:

|  |  |
| --- | --- |
| MRV element | Moldova |
| Scope | CO2 (all 6 Kyoto Protocol gases) and co-benefits |
| Set-up | MoEN, National Commission, Technical Committee and MRV-NAMA Group  |
| Appeal | National Commission and National Courts  |
| Issuance and Compliance Body | National Competent Authority - MoEN |
| Standards | National or EU adopted standards on MRV. Approved methodologies  |
| Monitoring & Reporting. | The NAMA Project Developer will be responsible. MRV\_NAMA group will support and follow-up as required.  |
| Verification  | A contracted certified international verifier  |
| Accreditation | If needed it shall be an international accreditation system |
| MRV Reporting at National Level | MoEN will have overall administration of the National Registry and national data management system with the support from the MRV-NAMA Group  |
| Penalty | No |

An action plan has been has been proposed and it consists of medium-term (>2-5 years) and short-term actions (<2 years). The medium-term actions require a significant effort through many years and with significant input. Most of the short term actions can be initiated accordingly. Some of the short term actions will also be input to the medium term actions and these short-terms actions will contribute to more focused medium-term actions.

The medium term actions will for instance be setting up and administration of the national NAMA and MRV framework and incorporate MRV in strategies, policies and action plans.

The short term actions could be urgently to secure the mandate for the National Commission, Technical Committee and MRV-NAMA Group, develop templates and the MRV Manual and perform training courses on MRV.

There will be a need for international support to the implementation of the different proposed actions, as experience and knowledge from other countries should be taken into consideration when developing and implementing a unique MRV of NAMAs and NAMA model for Moldova.

This assignment has been performed in the period November 2014 to January 2015 by Coordinator ApS in close cooperation with Climate Change Office. The Assignment has been financed by UNDP Moldova.

# Introduction

## Background

The contract “Low-Emission Capacity Building Project – Republic of Moldova” has been signed ultimo November 2014. This assignment has been performed in the period 25th November 2014 to 31th January 2015.

This assignment shall support Republic of Moldova (Moldova) preparing conceptual framework for Measurement, Reporting and Verification (MRV) of National Appropriate Mitigation Actions (NAMAs) in the context of the Low Emission Development Strategy (LEDS) of Moldova.

The assignment will be fulfilled by a team of national consultants and experts in cooperation of the international consultant. The international consultant shall have two missions to Moldova in the project period.

This report has been prepared by Mr. Sergiu Ungureanu,, Mr Marius Ţăranu, Mr. Ion Comendant, Mr. Vasile Scorpan and Mr. Morten Pedersen.

## The need for action and MRV of NAMAs

The major challenge of international climate policy is to reduce GHG emissions to a level consistent with the 2°C objective. This objective requires global emissions to peak before 2020 and have emission levels in 2020 around 44 GtCO2e. The greatest abatement potential is in the developing countries.

The challenge is to consider the global requirements for achieving the 2°C objective while at the same time continuing national development priorities, for instance for Moldova. This translates into the implementation of national long-term policies and strategies for sustainable development, while reducing GHG emissions and seizing opportunities for green growth.

To support this development Moldova needs to develop domestic MRV of NAMAs.

National Appropriate Mitigation Action (NAMA) is a term introduced in the international climate negotiations. No internationally agreed definition of NAMA exists; however two types have been recognized by UNFCCC so far, namely Unilateral NAMA and International Supported NAMA.

Measurement, Reporting and Verification (MRV) can be described in the following way:

* The measurement of CO2 emissions using established standardized measurement and calculation methodologies and tools,
* The reporting of information using standardized definitions, units and performance indicators to internal and external stakeholders,
* The verification of the adequate application of the methodologies by the reporting entity, with the purpose to provide assurance of the quality and reliability of the reported information.

It should be noted that there is no strict definition of MRV. The task of the MRV system is to keep track of the overall performance of the NAMAs.

# National context

## National strategy and policy on climate change

Moldova has adhered to the United Nations Framework Convention in Climate Change (June 1995), thus recognizing the significance of the climate change related problems of humanity. As a developing country and Party to the Convention, Moldova has undertaken the commitment to contribute, as far as possible to the international efforts to moderate the anthropogenic impact on global climate. In this aspect, activities in various areas were and will be implemented like: preparation of the greenhouse gases inventory, estimation of the different sectors vulnerability to climate change, development of actions for abatement and adaptation to climate change, as well as education, training and awareness building among the population, especially the younger generation.

Moldova associated itself with the Copenhagen Accord and submitted an emission reduction target, which is specified in Annex II to this Agreement “National Appropriate Mitigation Actions of the developing countries”:

The target of the appropriate mitigation actions of the Moldova envisaged in this Agreement represent: “A reduction of no less than 25% of the base year (1990) level total national GHG emissions have to be achieved by 2020 through implementation of global economic mechanisms focused on the climate change mitigation, in accordance with the Convention’s principles and provisions.”

This target is provided without specific NAMAs, identified and quantified, or further clarification on the support needed. However, it is recognized that to achieve this target significant financial, technological and capacity building support will be needed, which can be provided by UNFCCC mechanisms.

Moldova is supporting and contributing to the global imperative to stabilize the greenhouse gas concentrations , in line with the effort to limit the increase of the global average temperature by 2°C at most during the following one hundred years, and Moldova has decided to make a transition to low emission development path, and as a first step developing a Low-Emissions Development Strategy (LEDS).

The Strategy is under development and it will allow access to the fast start financing, as well as long-term financing committed by developed Annex I countries to support developing non- Annex I countries, including Moldova, in implementing LEDS and NAMAs.

## Legislation and administrative set-up

### Mandate of “National Commission”

The “National Commission for Implementing Provisions of the United Nations Framework

Convention on Climate Change and Provisions and Mechanisms of Kyoto Protocol” (National Commission) establish through the Government Resolution No. 1574 as of 26.12.2003 has the mandate to communicate with the UNFCCC and to evaluate specific CDM project and issue national Letter of Approval of CDM projects. The National Commission doesn´t have the mandate to prioritise, evaluate, approve/reject and monitor NAMAs and related MRV systems.

### Emission Permits and Polluter Pays Principle

The enterprises are monitored for the emission of GHG by the Ecology Inspectorate of Moldova. Before starting the operation each enterprise has to obtain an emission permit with an upper limit.

Every year the enterprises that are monitored (energy sector, industry, transport etc.) are presenting a special form of reporting the consumption of fuels and the pollution of the environment. If the limits are overwritten, the Inspectorate has the right to enforce a financial punishment on the enterprise. Also if will be find some extra emissions as result of an accident on the production site or on the operation that had a pollution impact this also will be estimate by the inspectors on environment and will issue financial sanctions on the polluter.

A legal act to enforce the “polluter pays principle” doesn´t exist yet. It is mainly a task of Ecology Inspectorate to control, and punish the polluters if they have overwritten limits of pollution.

Every fourth year or when the production process change the enterprise forward an application with amendments and updated pollution limits will be issued.

### Accreditation

At the moment there is not an accreditation system for monitoring and verification of the environmental impact experts and the monitoring and verification bodies.

### National Standard

The Ministry of Environment (MoEN) is the state authority responsible for the development and promotion of policies and strategies addressing environment protection, rational use of natural resources and biodiversity conservation. MoEN is in charge for implementation the international environment treaties to which the Republic of Moldova is a Part (including Rio Conventions). Within the MoEN, the Climate Change Office is totally responsible for National Communications and National Inventory Reports preparation activities. The National Inventory Team is responsible for estimating emissions by categories of sources and removals by categories of sinks, key sources analysis, quality assurance and quality control activities, uncertainty assessment, documentation and archiving of the information related to GHG inventory preparation process

In the process of preparing the national GHG inventory, the Climate Change Office employed a centralized approach. The national GHG inventory consists of the National Inventory Report (NIR) and the inventory itself in the IPCC standard reporting framework – a series of standardized Sectoral and Summary Report Tables.

For some measurements, the equipment of measuring is used.

All the measurements that are made in the electricity are done using tested and certified metering equipment. These are tested yearly in special laboratories of Moldova Standard state organisation. In every transporting and distribution station of the network are installed meters that are transmitting online the data to special units and to the network operator. The meters are installed at the separation points of network for commercial reasons, like between the transporting company that operates the high voltage lines (110kV and higher) and distribution companies (RED Nord, Red Nord-Vest and Red Union Fenosa), that are buying the electricity and are counting very exactly how much electricity has been delivered so that will be known how much should be payed for this. Also very exact and tested meters are installed at every generating group in the power plants so that the injected energy in the network to be known very exactly.

The meters are installed at the border power stations that are operated by the transporting company, for metering the electricity that is coming from outside the country.

For pollution metering there is no clear regulation what and how should be measured, this issue is controlled by the Ecology Inspectorate of Moldova. The inspection is monitoring the enterprises with potential to pollute the environment and monitors yearly the equipment and elements that are leading to pollution. Also is made a permanent control of pollution level by inspecting the sites and registering the possible pollution cases if these appears somewhere. The biggest polluters like thermal and power plants are obligated also to monitor their level of pollution in the exhausted gases. These measurements are made on the daily bases with special equipment in 3 points beginning from the fire of the boiler and to the stock gases. The equipment are also tested by a certified company Moldova Standard.

## Monitoring, reporting and verification (MRV)

### Environment – MRV

The MRV on the environment is presented in the inventory reports and National Communications. The experts from different sectors with impact on the environment are preparing reports and establishing the evolutions per sector of the emission level and impact on the environment.

As a part of continuous efforts to develop an accurate, complete, consistent, transparent and reliable inventory, Moldova developed a Quality Assurance and Quality Control Plan, the key attributes of which include detailed Tier 1 (general procedures) and Tier 2 (source-specific) procedures and standard verification and quality control forms and checklists, that serve to standardize the process of implementing quality assurance and quality control activities meant to ensure the quality of the national inventory; peer reviews (technical audits) carried out by experts not directly involved in the national inventory drafting and development process; activity data quality check, inclusive by comparing data obtained from different sources, as well as further documentation of the national inventory development process.

Inventory quality assurance activities were supported by experts representing: Institute of Power Engineering of the Academy of Sciences of Moldova – for Sector 1 ‘Energy’; the Technical University of Moldova – for Sector 2 ‘Industrial Processes’ and Sector 3 ‘Solvents and Other Products Use’; the Agribusiness and Rural Development Management Institute and Institute of Pedology, Agrochemistry and Soil Protection ‘N. Dimo’ – for Sector 4 ‘Agriculture’ and partially for Sector 5 ‘Land Use, Land-Use Change and Forestry’; the Forest Research and Management Institute – for Sector 5 ‘Land Use, Land-Use Change and Forestry’; the State Ecological Inspectorate – for Sector 6 ‘Waste’.

### Health and Safety – MRV

In the health and safety the MRV is a task of the Ministry of Health, in this regard there are established verification commissions on medicines, on the hospitals, on the health on the working places and hygienically control body on the national level.

### Energy (supply) – MRV

The energy sector is the main branch of national economy and, therefore, it requires a high level of energy security. Regretfully, the energy security is currently not ensured due to a multitude of causes:

1. The own resources of hydropower and fossil fuels are insignificant, the country importing up to 94-98% of the necessary energy resources;
2. The gas imported from one supplier (Gazprom, Russian Federation) account for about 40-50% of the country’s energy balance;
3. Over 70% of the energy demand on the right bank of the Nistru river is brought from outside;
4. The energy equipment is depreciated in proportion of 70-75%, the lifespan of power sources has literarily expired;
5. The energy efficiency is low, and the energy intensity is three times higher than in Western Europe;
6. Being recognized as the poorest country in Europe, the Republic of Moldova does not have own financial resources to develop this sector.

Considering the low energy security, Moldova assumed the commitment to overcome the current challenges, by developing and initiating appropriate policies. They are reflected in the Energy Strategy of the Republic of Moldova by 2020, the National Development Strategy of the Republic of Moldova 2012-2020 „Moldova 2020” and the Energy Strategy of the Republic of Moldova by 2030.

 These documents establish the following priority objectives:

1. energy supply security;
2. promotion of energy efficiency and economy;
3. development of competitive markets and their integration with the regional and European markets; and
4. environmental sustainability and combating climate changes.

The policy instruments envisage increasing the share of renewable energy sources in the country’s energy balance up to 20 percent by 2020, and covering up to 10 percent of the demand with locally produced renewable energy by 2020.

Energy-related activities are by far the largest source of GHG emissions. The Energy Sector includes emissions of all GHGs from fuel combustion for the primary purpose of delivering energy. Emissions in this sector are classified as either fuel combustion (94.5 per cent of total emissions per sector in 2010) or fugitive releases defined as intentional or unintentional releases of GHGs from the production, processing, transmission, storage, and delivery of fossil oil and natural gas (5.5 per cent of total emissions per sector in 2010) Overall, these emissions accounted, in 2010, for 67.3 per cent of total Republic of Moldova’s GHG emissions. Between 1990 and 2010, total GHG emissions from Energy Sector decreased by circa 74.1 per cent: from 34.5204 Mt CO2 eq. in 1990 to 8.9465 Mt CO2 eq. in 2010.

The 1A1 ‘Energy Industries’ contribute more than any other category to Moldova’s emissions, accounting for circa 46.9 per cent of the total per sector in 2010 (56.2 per cent in 1990). Other relevant categories are represented by 1A3 ‘Transport’, accounting for circa 21.3 per cent of the total (11.7 per cent in 1990) and 1A4 ‘Other Sectors’, accounting for 18.9 per cent of the total per sector (23.3 per cent in 1990)

### Building – MRV

The current legislation requires the development of state standards for the use of renewable energy and for technical regulations, standardisation, certification and methodological support of energy efficiency and renewable energy. They also insure development and introduction of Energy Performance Certificates for buildings and development of standards for compulsory energy audits for certain categories of consumers.

Development and implementation of economic and financial mechanisms for energy efficiency are included in the Terms of References of the Energy Efficiency Agency, so that the enterprises that implement energy efficiency measures may request loans or investment guarantees from the Energy Efficiency Fund.

Given the above mentioned, it is worth stating that the National Program on Energy Efficiency 2011-2020 stipulates development and approval of the draft Law on Energy Performance of Buildings to promote the energy performance of buildings, taking into account the impact of external and internal weather factors and the cost-efficiency of the undertaken measures. The program also stipulates that the authorized public authority in the buildings sector shall develop regulations on the minimum energy performance of buildings and their elements. The requirements will be established taking into accounts the optimal balance between the costs/investments and energy savings, which will be achieved during the buildings’ operation period.

In most cases the buildings in Moldova can´t fulfill the European Standards on thermal insulation and energy conservation.

The buildings are monitored and the energy or natural gas suppliers on the commercial bases measure the consumption of energy.

### Industrial – MRV

The Industrial Processes Sector represents an important GHG emission source that includes emissions generated by non-energy industrial activities. In 2010, this sector accounted for 4.2 per cent of the total national GHG emissions (4.4 per cent in 1990). During 1990-2010 time periods, total sectoral GHG emissions decreased by circa 70.3 per cent: from 1.9010 Mt CO2 eq. in 1990, to 0.5650 Mt CO2 eq. in 2010.

Between 2008-2009 respective emissions decreased by 49.1 per cent as a consequence of the global economic crises that significantly affected the industrial sector in Moldova. However, between 2009 and 2010, the total national GHG emissions increased by 8.6 per cent, in particular as a result of cement production growth, widespread use of limestone and dolomite, of soda ash (Na2 CO3 ), as well as due to the increased use of halocarbons and SF6.

The most important source of emission in this sector is represented by 2A1 „Cement Production”, with a share of circa 61.9 per cent of the total sectoral emissions in 2010 (51.1 per cent in 1990)

The National Program on Energy Efficiency 2011-2020 stipulates that the Government shall encourage the industries to invest “in energy efficiency by creating new favorable tax incentives, as well as relevant support funds”. The program also envisages energy efficiency measures for the industrial sector, including:

* Preparing and submitting volunteer agreements by which the industrial sector assumes the commitment to implement energy efficiency measures to decrease the energy demand;
* The volunteer agreements must contain information about staged and measurable objectives, as well as information about monitoring and reporting;
* The Government will also support lending of energy facilities for the industrial sector;
* The Energy Efficiency Fund will provide opportunities for industrial enterprises with a view to implement energy efficiency projects;
* The energy consumption in the industrial sector will be monitored by the Energy Efficiency Agency by compulsory questionnaires and inquiries, which shall be prepared by the industrial enterprises with the highest energy consumption at the end of each calendar year.

### Transportation – MRV

The objectives related to mitigation of greenhouse gas emissions in the transportation sector are stipulated in the Energy Strategy of the Republic of Moldova until 2020. Thus, according to the strategy, the following types of activities are regarded as short and medium term priorities in decreasing the impact of the transportation sector on the environment:

* replace the traditional fuels with less polluting compressed gas and liquefied petroleum gas;
* develop and implement national environment protection standards and norms according to the EU standards with the view to decrease harmful emissions, including in the transportation sector;
* implement Directive 93/76/EEC to limit carbon dioxide emissions, Directive 94/63/EEC and Directive 96/59/EEC;
* improve awareness in this area among preselected target groups, as well as among the general public;
* develop a creative financing scheme by replicating the programs that were implemented successfully in other countries.

The National Program on Energy Efficiency 2011-2020, the National Development Strategy of the Republic of Moldova 2012-2020 “Moldova 2020”, respectively the Energy Strategy of the Republic of Moldova until 2030 refresh the objectives related to the mitigation of the greenhouse gas emissions in the transportation sector and request to increase the share of biofuels used in the transportation sector by 2020, with an intermediate objective of 4 percent by 2015.

### Waste – MRV

Waste Sector is an important source of GHG emissions: CH4 emissions from ‘Solid Waste Disposal on Land’ (Category 6A) and ‘Wastewater Handling’ (Category 6B), as well as N2O emissions from ‘Human Sewage’ (Category 6B). At the moment, in RM there are no registered emissions from 6C ‘Waste Incineration’ category. In 2010, Waste Sector accounted for circa 11.9 per cent of the total national direct GHG emissions (3.8 per cent in 1990). In the time series from 1990 through 2010, total GHG emissions from this sector decreased by circa 3.0 per cent: from 1.6274 Mt CO2 eq. in 1990, to 1.5783 Mt CO2 eq. in 2010 (Table 2-8). At the same time, between 2009 and 2010, GHG emissions from Waste Sector increased by 0.9 per cent. Reduction of total GHG emissions from the Waste Sector within 1990-2005 is explained by the economic decline that occurred in the Republic of Moldova during the period under review, by a significant drop in the wellbeing of population, and respectively, capacity to generate solid and other types of wastes. At the same time, starting with 2006, there has been a clear growing trend of direct GHG emissions from the ‘Waste Sector’ (Figure 2-16). In 2010 the largest source of GHG emissions within the Waste Sector was Category 6A ‘Solid Waste Disposal on Land’, accounting for circa 87.9 per cent of the total sectoral emissions (81.2 per cent in 1990)

### Agricultural – MRV

The overall objective of the National Strategy for Sustainable Development of the Agro-Industrial Sector for 2008-2015 consists in ensuring the sustainable growth of the agricultural sector and food industry, which will improve the quality of life in the rural area by boosting the productivity and competitiveness of this sector.

The Program on Soil Fertility Conservation and Enhancement for 2011-2020 stipulates measures aimed at recovering the green protective layer of forest strips around agricultural lands and water basis, planting trees around highly degraded lands, planting grass on highly eroded lands located on a slops, planting vineyards and orchards, promoting the culture of planting grass between the lines of trees in orchards to prevent soil erosion, which overall will impact level of carbon capture and greenhouse gas emissions. The Program lists a series of other measures that contribute directly or indirectly to the accomplishment of this objective, such as:

* *use of green fertilizers (leguminous plants mixed with grass ):* introduce in the soil the carbon of temporary vegetation between the harvesting periods of the main agricultural cultures;
* *incorporate the vegetal residuals in the soil*: increase the carbon content in the soil by incorporating the agricultural residuals remained after the harvesting of the main crop;
* *optimize the use of fertilizers*: a lower use of chemical nitrogenous fertilizers will decrease the emissions of N2O;
* *crop rotation:* use of rotation of crops, including the frequently sown cultures may increase significantly the sequestration of carbon in the soil;
* *include leguminous plants in the crop rotation scheme:* inclusion of nitrogen-fixing leguminous plants, such as beans, peas, soybeans, vetch, alfalfa, sainfoin decreases the need for nitrogenous fertilizers, respectively the related emissions of N2O and CO2 will decrease and the content of organic carbon in the soil will increase.

 As stipulated in the Program on Soil Fertility Conservation and Enhancement for 2011-2020, the optimized structure of agricultural cultures plays a significant role in conserving the carbon in the soil. Besides, a way of reducing the carbon losses from agricultural soils and, therefore, to enhancing the agricultural productivity, is to decrease the area of uncultivated (fallow) land, improve and replicate the soil fertility, including of the degraded ones, combat the soil erosion and use the lands with a low productivity, introduce some sustainable practices of soil fertilization with manure, sidereal fertilizers and incorporation of vegetal residuals in the soil.

‘Prescribed Burning of Savannas’, as for the emissions from 4F Field Burning of Agricultural Residues, these are monitored in the LULUCF Sector, under the category 5B ‘Cropland’. In 2010, Agriculture Sector accounted for circa 16.0 per cent of the total national GHG emissions (11.8 per cent in 1990). Between 1990 and 2010 total GHG emissions originated from this sector decreased by circa 58.4 per cent: from 5.1202 Mt CO2 eq. in 1990, to 2.1324 Mt CO2 eq. in 2010, in particular, due to a sharp drop in such indicators as: domestic livestock and poultry population, amounts of synthetic nitrogen and organic fertilizers applied to soils, amounts of agricultural crop residues returned to soils, carbon losses from mineral soils and changes of tillage practices. Between 2009 and 2010, direct greenhouse gas emissions originated from Agriculture Sector increased by circa 10.8 per cent, in particular as a result of increase of N2 O emissions from 4D ‘Agricultural Soils’ and 4B ‘Manure Management’. In 2010, the largest source of emission was 4D ‘Agricultural Soils’, accounting for 45.8 per cent of the total sectoral emissions (35.8 per cent in 1990). Other relevant sources are represented by 4A ‘Enteric Fermentation’, accounting for 28.1 per cent of the total (35.8 per cent in 1990) and 4B ‘Manure Management’, accounting for circa 26.1 per cent of the total sectoral emissions (32.0 per cent in 1990)

### Forestry – MRV

The existing policy instruments in the forestry sector include a series of provisions that influence directly or indirectly the sector ability to increase the carbon capture capacity. Focus will be made on the extension of the forest areas, conservation of biological diversity, strengthening of institutional and human capacity, international cooperation, etc.

Articles 78 and 80 of the Forest Code (1996) prohibit fragmentation and reduction of the forest area and areas outside the forest fund covered with forest vegetation, except for the special cases.

The Law on Afforestation of Degraded Lands (2000) regulates the allocation and afforestation of degraded lands. The afforestation and tree planting works (design, planting and taking care of the new forests and forest protection belts until they become solid wood) should be funded from the funds designated for the enhancement of degraded lands, allocations from the state budget, national and local environmental funds, external funding, sponsorships, etc. The central forestry authority, assigned as technical coordinator of the actions aimed at enhancing the degraded lands, will provide sibling material and will plant trees on the degraded lands.

According to the Strategy of Forest Sector Sustainable Development (2001), the direct contribution of the forest sector to the sustainable development of the Republic of Moldova will be achieved by two main strategic directions: regeneration and extension of areas covered by forests and strengthening the bioprotective and ecoproductive potential of the existing forests.

According to the Strategy, during the period between 2003 and 2020, the forested areas of the Republic of Moldova should be extended by about 150 thousand ha. The further policy and planning documents divided this objective in specific afforestation objectives for the natural and assisted regeneration, planting of new forests, protective belts, etc. These efforts will decrease the greenhouse gas emissions by carbon sequestration.

## Administrative set-up towards UNFCCC

Ministry of Environment (MoEN) is the national focal point for communication with UNFCCC, for instance National Communication, BUR, CDM and NAMA proposals. UNFCCC has developed a special NAMA registry system where national stakeholders can register as NAMA developers and ask for approval for UNFCCC National Focal Point which is the so-called NAMA approver.

The national NAMA approver for the UNFCCC NAMA registry on behalf of MoEN is Mr. Marius Ţăranu.

## CDM - Status

Below is an overview of the CDM projects in Moldova.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Status UNFCCC | Reg.no | Project Title | Annual reduc-tion in Tonnes CO2  | Methodo-logy | Status Verification |
| Registered 20 Jan 06 | 0159 | Moldova Biomass Heating in Rural Communities (Project Design Document No. 1) | 17888 | AMS-I.C. ver. 6 AMS-II.E. ver. 6 AMS-III.B. ver. 6 | Monitoring report covering 20 Jan 2006 - 30 Apr 2012. Awaiting issuance request |
| Registered 20 Jan 06 | 0160 |  | 17888 | AMS-I.C. ver. 6 AMS-II.E. ver. 6 AMS-III.B. ver. 6 | Monitoring report covering 01 Jan 2008 - 30 Apr 2012. Awaiting issuance request |
| Registered29 Jan 06 | 0173 | Moldova Energy Conservation and Greenhouse Gases Emissions Reduction | 11567 | AMS-II.E. ver. 6 AMS-III.B. ver. 6 | 29 Jan 2006 - 30 Apr 2012. Awaiting issuance request |
| Registered 30 Jan 09 | 1948 | Moldova Soil Conservation Project | 179242 | AR-AM0002 | Monitoring report: 01 Oct 2002 - 31 Dec 2011 (485 KB)Issuance request state: IssuedCERs requested up to 31 December 2012: 851911 |
| 15 Nov 12 | 8244 | Moldova Community Forestry Development Project - Issuance Request | 39056 | AR-AM0002 ver. 3 | CERs issued up to 31 December 2012: 328,809 |

Table 3‑1: CDM project with minimum a monitoring report in Moldova

Until now 8 CDM projects have been registered. 5 projects have monitoring reports. 3 of these projects are awaiting issuance request and the remaining 2 projects have a verification report and CERs have been issued.

The Moldova Community Forestry Development Project has used the CDM-EB developed Sustainable Development Tool.

These CDM already have a manageable MRV system and these can be a basis for setting up a MRV system for NAMA in these sectors in a simplified manner.

These CDM projects can maybe be extended and converted to NAMA projects.

## NAMA activities

The National priorities of NAMAs in 6 sectors were presented at a meeting the 28 November 2014 in Climate Change office. Two priority projects for each sector were presented.

It should be noted that MRV of the prioritized projects have not been developed yet.

|  |
| --- |
| **NAMA under prioritisation and development** |
| Energy Supply |
| 1 | Implementation of power plants operating based on Municipality Solid Waste |
| 2 | The connstruction of cogeneration power plants based on internal combustion engines and gas turbine of 1 MW and higher |
| Buildings |
| 1 | Replacing incandescent bulbs with LED energy efficient bulbs |
| 2 | Use of solid biomass for heat and electricity production by implementing 1-5 kWe Stirling power engines in rural villages |
| Industry |
| 1 | Cement manufacturing technology to reduce the amount of clinker |
| 2 | Substitution of SF6 and HFC-134a with Novec 612 |
| Transport |
| 1 | Biodiesel production |
| 2 | Bus rapid transit system |
| Waste |
| 1 | Primary collection and waste disposal in urban and rural areas |
| 2 | Regional landfill construction and transfer stations in Region 5 - Ungheni, Nisporeni, Calarasi |
| Agriculture |
| 1 | Replacing the harrow plough with heavy discs plough to process the soil up to 20 cm in depth without introducing the organic fertilizers. |
| 2 | Implementation of crop rotation involving only often sown crops (straw grains, legumes grasses, perennial grasses) on slopes with inclination greater than 5 degree.  |
| Forestry |
| 1 | Reconstruction / rehabilitation of windbreaks agricultural fields |
| 2 | program management to support communities |

Table 3‑2 NAMA under prioritisation and development

# International context

## NAMA and MRV

According to the Bali Action Plan developing countries should consider the implementation of NAMAs in the context of sustainable development, supported and enabled by technology, financing and capacity building, in a measurable, reportable and verifiable (MRV) manner.

The Cancun Agreements in 2010 reinforced the notion, stating that NAMAs should aim to achieve a deviation from business-as-usual (BAU) emissions in 2020, and NAMAs seeking international support shall be recorded in a registry and subject to international MRV.

At the COP 19 in Warsaw the general guidelines for domestic measurement, reporting and verification of domestically supported nationally appropriate mitigation actions by developing country Parties has been proposed and adopted.

### Nationally Appropriate Mitigation Action (NAMA)

*Types of NAMAs*

The task of the MRV system is to keep track of the overall performance of the NAMAs. As the MRV system must reflect the objective of the activity that is to be documented, it is very important to understand the differences between the NAMA types and how this may impact on the design of the MRV system.

No internationally agreed upon definition of NAMA exists; however two types have been recognized by UNFCCC so far, namely Unilateral NAMA and International Supported NAMA.

In case of a carbon market, above NAMA types could receive complementary funding in the form of carbon credits for emission reductions (often called “NAMA crediting”. It should be noticed that the credited NAMAs has not been acknowledge in the UNFCCC decisions. The structure of the credited NAMA could be either a sector crediting NAMA or a sector trading NAMA.

An Overview of the different NAMA types in below table:

|  |
| --- |
| International recognised NAMAs |
| Unilateral supported NAMAs | This is solely a domestic administrated and supported system |
| International supported NAMAs | This is international supported system with different type of support. |
| Possible future credited NAMAs |
| Sector crediting | Sector crediting would be based on an agreed emissions threshold or “no-lose target” at sector level. |
| Sector trading | Sector trading would follow the cap-and-trade approach |

Table 4‑1 : The different type of NAMAs

The need and requirements for MRV could be different dependent on the type of NAMA. The more strict requirements to MRV will be expected for the future credited NAMAs

### Measurable, reportable and verifiable (MRV)

#### Description of the core value of MRV

MRV are key elements for ensuring greater transparency, accuracy and comparability of information with regard to climate change.

MRV can be thought of as a knowledge-management system for tracking greenhouse gas (GHG) emissions, actions to reduce GHG emissions, and climate change mitigation support.

Recent decisions within the international climate negotiations demonstrate a growing global consensus that common forms of measuring, reporting and verifying information are needed to track such knowledge.

MRV can also in the future be a system to describe the co-benefits.

The MRV system will help

* Underpin national GHG data quality
* Identify national priorities (including NAMAs), as well as challenges and opportunities
* Policy planning, prioritization and improving policy coherence, to ensure continuous improvement of MRV systems and implementing NAMAs
* Keeping a record of NAMAs in place, tracking progress of the effectiveness of NAMAs (e.g. emission reductions and progress to achieving objectives)
* Assure data quality, which is important to access climate finance and participate in market mechanism (e.g. emission trading system)
* Demonstrate to donors the emission reduction and impacts of NAMAs

#### Three types of MRV

**1. MRV of Emissions**

MRV of emissions is a concept to measure, report and verify quantifiable emissions data at national, regional and sectoral levels. MRV of Emissions underlies national ownership and is under constant negotiation.

A comprehensive MRV System is essential to improve the basis of information and to monitor mitigation actions for national planning, implementation and coordination of individual mitigation activities of bottom- up actions and policies and top-down goals.

MRV of Emissions includes the identification and/or definition of clearly defined roles and institutional responsibilities to ensure the smooth flow and standardization of information to all entities producing, reporting and verifying GHG estimates.

*What is measured?*

* Emissions and emission reductions from emission sources on national, regional, sectoral levels based on IPCC Guidelines

*What is reported?*

* Emissions from emission sources on national, regional, sectoral levels based on UNFCCC intended contributions (e.g. through National Communications, Biennial Update Reports, GHG Inventory)

*What is verified?*

* Emissions from emission sources on national, regional, sectoral levels based on national emission targets, indicators - compared to baselines
* Implementation of quality assurance and quality control

***2. MRV of NAMAs***

MRV of actions is a concept to measure, report and verify the impacts of mitigation policies and actions. Activities of the action are assigned their own indicators, whether they seek to measure GHG reductions or other benefits. Therefore, the indicators determine what gets measured, reported and verified.

MRV of Actions helps to identify challenges and opportunities, as well as the overall effectiveness of Mitigation Actions (e.g. emission reductions and progress to achieving objectives and co-benefits).

At COP 19 in Warsaw the General Guidelines on domestic MRV for nationally supported NAMAs have been agreed. They should help countries to set up their national MRV systems for policies and measures based on existing domestic processes, arrangements, methodologies and experts.

Little focus to-date on the MRV of mitigation actions, including non-comprehensive descriptions in National Communications often lead to a vague understanding of mitigation impacts.

*What gets measured?*

* Emission reductions according to emission baseline scenario
* Progress of achievement of sustainable development goals/co-benefits

*What gets reported?*

* Data on emission savings and methodologies/sustainability objectives, coverage, institutional arrangements and activities, based on the qualitative and quantitative guidelines for submission of Biennial Update Reports (BURs)

*What gets verified?*

* All quantitative and qualitative information reported for the mitigation action
* Guidelines for verification are still under negotiation in the UNFCCC; Data may be verified through national procedures, International consultation and Analysis and should apply Transparency, Completeness, Consistency, Comparability, Accuracy (TCCCA) criteria.

***3. MRV of Support Received***

MRV of support can vary significantly depend on the type of support.

MRV could for instance be:

* financial flows and their impacts
* technology transfer and their impacts
* capacity building and their impacts

### Co-Benefits and Mitigative Capacities achieved by NAMAs

Depending on the scope of MRV for the NAMA, the NAMA may also seek to monitor and report non-GHG reduction outcomes, such as the NAMAs’ contribution to development goals and/or the improvement of mitigative capacities amongst NAMA stakeholders.[[1]](#footnote-1)

Co-benefits may include a wide range of national development goals, such as:

* Job creation
* Gender
* Health and safety
* Improved Water or Air quality
* Protection of Biodiversity

Improved Mitigative Capacity may include:

* Institutional arrangements are in place to promote low-emissions development
* Technical and human resource capacities are strengthened
* The policy environment for low-emission development is improved

### MRV – different levels

The MRV system can be developed at different level depending on the purpose of the MRV system.

|  |  |
| --- | --- |
| Level | Description |
| Country level | All emissions or the major part of emissions at a national level. This is also what is needed to be reporting in the national communication. |
| Sector level | All emissions within a sector, for instance a specific industrial sector or a municipal sector, for instance municipal waste. |
| Corporate level | All emissions within boundary of a corporate level, which can include for instance many companies belonging to the same group. |
| Company level | All emissions within boundary of a company |
| Facility level | All emissions within boundary of a project or installation |
| Product level | Product Carbon Footprint methodology and calculation tool enables to calculate the carbon footprint. It follows the GHG protocol[[2]](#footnote-2) |

Table 4‑2 Description of the different level of which MRV can be performed.

## MRV of different NAMAs

Different type of NAMAs can also require different type of MRV system or MRV frameworks. The complexity and level of requirement can vary dependent on the country and institution that shall set-up MRV system. One approach can be to illustrate approximate Minimum MRV system requirements for type of NAMAs.

A number of options are available in order to design effective MRV framework for NAMAs. First of all, the scope and the institutional and legal elements of the MRV framework must be established. Subsequently, it will be important to provide transparent and well-defined monitoring, reporting and verification procedures for the large variety of NAMA types and country and sector specific priorities and targets.

The capacity and capabilities of developing countries to implement these MRV elements will differ. It is important to establish a set of minimum MRV requirements for different NAMAs for guidance. The table below provides a suggested list of minimum requirements with some key characteristics.

The below table is an indication of the level which should as minimum be reach, but probably in many cases a higher level will be proposed and achieved.

|  |  |  |  |
| --- | --- | --- | --- |
| MRV building block | Unilateral supported NAMAs | International supported NAMAs | Credited NAMAs |
| Scope emissions | Activity which impacts emissions of one of the KP gases | Activity which impacts emissions of one of the KP gases | Activity which impacts emissions of one of the KP gases |
| Scope co-benefits | Activity which impacts on of the agreed parameters | Activity which impacts on of the agreed parameters | None |
| Level of needed high level involvement  | Government | Multilateral | International Body |
| Minimum level of set-up  | National incentive programme | National legislation in place in two countries | International binding agreementNational accredited verifiers |
| Issuance and compliance  | Government body | Government body recognized by bilateral agreement | Government body recognized by international agreement |
| Monitoring and control entity | First and second parties | Third parties or Government Body | Third party |
| Reporting | National available | Public available | Public available |
| Standard | National standard | Bilateral standard | International recognized standard |

Table 4‑3: Minimum MRV for the different types of NAMAs

## International best practices for MRV

Moldova is part of Europe and Moldova also supports the approximation of the national legislation to the European Union legislation. As Europe Union in the same time has had a well-developed MRV system with the EU-ETS and therefore it is interesting to observe the differences between the initial steps of a domestic MRV system in Moldova and a well-established and tested system in Europe.

Probably the largest voluntary MRV system is within the cement industry through the Cement Sustainable Initiative (CSI). This initiative is a private sector driven MRV by the cement industries themselves.

The Greenhouse Gas Protocol has developed two standards relevant to MRV for NAMAs. These standards are 1) Policy and Action Standard and Mitigation Goals Standard.

Most NAMAs from other countries have limited experience with MRV and it will also be very country specific, so the description of best practice will have the starting point in the above mentioned options.

### EU-ETS.

The European Union Emissions Trading System (EU-ETS) regulates absolute direct CO2 emissions from stationary sources and links a financial cost to the CO2 emission through the CO2 allowance market price. The reduction of CO2 emissions of a defined number of sectors and sizes of installations are the main content of the EU-ETS.

EU-ETS is covering all member states of the European Community and it is legal setting is the EU Directive and the legal content is operationalized into national legislation. As the MRV is set-up through national legislation it will vary significant between different countries.

### Cement Sustainable Initiative (CSI).

The Cement Sustainability Initiative (CSI) is a global effort by 24 major cement producers with operations in more than 100 countries who believe there is a strong business case for the pursuit of sustainable development. Collectively these companies account for around 30% of the world’s cement production and range in size from very large multinationals to smaller local producers.

To date the CSI remains one of the largest global sustainability programs ever undertaken by a single industry sector.

The CSI has built up a well-establish reporting system and a company can compare performance of own company with other companies without knowing the name of these companies. Through this system a company has a unique possibility to identify areas of potential development.

### Policy and Action Standard.

Policy and Action Standard: how to estimate the greenhouse gas effects of policies and actions (including NAMAs)

The Policy and Action Standard helps users assess and report the GHG effects of policies and actions in an accurate, consistent, transparent, complete, and relevant way, in order to support policymakers and other decision-makers design and implement more effective GHG reduction strategies.

### Mitigation Goals Standard

The Mitigation Goals Standard was developed by the Greenhouse Gas Protocol (GHG Protocol). The GHG Protocol is a partnership of businesses, NGOs, governments, academic institutions, and others convened by the World Resources Institute (WRI) and the World Business Council for Sustainable Development (WBCSD).

The first draft of the Mitigation Goals Standard was developed in 2012 by a Technical Working Group, with strategic input from the project’s Advisory Committee, and reviewed by the Review Group. In 2013, the second draft was pilot tested for several goals to test how the standard works in practice. Pilots were conducted at the national or subnational level in: Chile, India, Israel, South Africa, the United Kingdom, and the United States. The standard will be published in October 2014 following a public comment period in July.

## International NAMA templates with evaluation of MRV component.

At least 6 templates for NAMAs have been developed and they are suitable for different purposes. The focus in this section is to present whether these NAMA templates have an important MRV component.

|  |  |  |
| --- | --- | --- |
| NAMA Template | Specific remarks | MRV focus |
| UNFCCC Template (Project for implementation) | It seems to be suitable for attracting partners for dialogue on potential support. | No focus on how a MRV should be. |
| UNEP DTU NINO (2012) | It seems suitable for projects that would like to develop in a UNFCCC context | Brief description of national system for data collection |
| UNDP MDG CARBON NAMA TEMPLATE (2014) | The template includes some guidance. UNDP has proposed to use it in a specific country. | Focus on MRV  |
| NAMA Facility (2014) | It seems to be suitable for applying funds as a supported NAMA. | Brief description of national system for verification |
| Ecofys (2012) | It seems good for initial screening of projects and gathering of information | Limited attention to MRV |
| CCAP (2011) | Only as pdf and it seems not in use any more. | Only in the generic description it is mentioned that a data collection system for MRV should be developed as part of the NAMA |

Table 4‑4: Overview of NAMA templates with MRV presented for applying support to NAMAs

# Analyses and discussion

## Main gaps and barriers

The implementation of MRV of NAMAs in Moldova have many gaps and barriers. An overview of the different gaps and barriers are presented below.

|  |
| --- |
|  International experience and cooperation  |
| The introduction of a new mechanism will require a significant effort to get confidence that this NAMA system with a MRV component can and will actually benefit Moldova.For supported NAMAs there are only limited attention to support Moldova and in many programmes Moldova has been excluded. For the time being it is excellent that Moldova actually receive significant support to cover this gap, but is still minor compared to the needs. |
| Capacity  |
| Limited awareness on economic and environmental benefits of technologies which will give difficulties when structuring a MRV. Very limited experience with NAMA and thereby international MRV systems. As one of the few countries Moldova has real experience with MRV of re-forestation projects. The problem is that forestry projects have unique MRV characteristics compared to other type of projects.  |
| Social  |
| The unfamiliarity with new technologies will be a barrier as the socially accepted use of traditional methods in energy consumption and so on will be preferred.Probably many stakeholders will consider MRV as solely a control and financing instrument from the central authorities. Probably the potential positive drivers will be overlooked. |
| Economic and financial  |
| There are many barriers for implementation high investment costs, long payback period, inappropriate financial initiatives and low tariffs. Due to the already existing barriers it is important to establish a MRV with limited costs otherwise it will not be a priority |
| Policy and regulatory  |
| Limited experience in using the policy instruments and for instance the use of incentive structures. |
| Technological  |
| Limited knowledge of new technologies, including also research institutions and suppliers in Moldova. This will be a limiting factor when trying to structure and set-up a new innovative MRV system. |

Table 5‑1 Overview of gaps and barriers

The gaps and barriers have been taken into consideration when presenting and discussing a possible set-up in Moldova.

## MRV system

### Legal mandate and administrative set-up.

Moldova has a well-functioning set-up for approval of CDM projects and therefore it is recommended to consider the similar set-up or at least with the same main characteristics when setting up a legal and administrative structure for NAMAs and related MRV systems.

The „National Commission for Implementing Provisions of the United Nations Framework

Convention on Climate Change and Provisions and Mechanisms of Kyoto Protocol” (National Commission) doesn´t have the mandate to prioritize, evaluate, approve/reject and monitor NAMAs and related MRV systems. It can be considered as an efficient administrative system if these activities are included in the mandate of the National Commission.

It is should be considered to establish a Technical Committee as technical support to the National Commission. The Technical Committee shall have the role to support the National Commission in the evaluation of the specific NAMA including the integrated MRV component. It is important that the Technical Committee will cover the different expertise areas which a NAMA proposal will require.

MRV can be considered as the most complex part of a NAMA project and therefore it is recommended to establish an expertise group mainly to support the MRV part of a project, but it can also cover other aspects of the NAMA development. The expertise group could be called the MRV-NAMA Group.

### Data Management System

For a country of the size of Moldova it should be sufficient to have one organization to have the responsibility for compiling and evaluating the MRV information on the national level. A national data management systems needs to be established.

MoEN will probably be the most suitable national authorities to have this responsibility. MoEN can delegate part of the day to day administration to the MRV-NAMA Group.

Probably MoEN should also agree with resort Ministries to handle part of the data processing and evaluation.

### MRV

The focus will be the institutional arrangements for a domestic MRV of NAMAs in compliance with an expected future international agreement. It will be the MRV framework and the framework will at least include: scope, set-up, appeal, issuance and compliance body, standards, measurement, reporting, verification, national registry and penalty.

Depending on the specific NAMA the MRV could be country, sector, corporate, company and/or facility level.

Facility level. Probably it is still pre-mature to develop product level MRV in Moldova.

### CO2 emission and co-benefit

The MRV of NAMAs should include both CO2 emissions and co-benefits.

Probably it should be recommended to include all six Kyoto Protocol gases.

The inclusion of co-benefits is important for two reasons; it can be the driver for the investments and it has social impact.

Monitoring of co-benefits can be considered as an extra monitoring cost. Therefore for co-benefit it should be considered to develop a model which is more a description of the achieved benefits than a quantification based on actual survey and monitoring.

### National and international drivers when setting up MRV

Setting up MRV of NAMAs can have wide implication. The MRV can be the driver for the development in Moldova and in an international context.

*National Drivers*

* MRV systems underpin national GHG data quality
* MRV can if used correctly support business development
* MRV helps identify national priorities
* MRV demonstrate to donors the emission reduction and impacts of NAMAs
* Can support lessons learned

*International Drivers*

* Improve trust amongst Parties
* International recognition for national performance
* Data quality is key to address national reporting obligations to the UNFCCC mechanisms and progress national engagement in the UNFCCC process

Most often the MRV is seen as an extra burden and a control mechanism from the authorities. Therefore it is important to focus on the potential advantages and drivers when establishing MRV of NAMAs. Probably it should be carefully discussed with business that MRV can be seen positive and based on the principle that you can “only manage what is measured”.

### Monitoring

The specific monitoring will dependent on the mitigation actions. It can be illustrated with a NAMA for the municipal waste sector. For this sector the monitoring is dependent on the technological solutions and it can be illustrated with two technological solutions, which in the same time require different monitoring. The two examples could be 1) Extraction of methane from a landfill and 2) establishing a waste incinerator. This can also influence the reporting and verification.

When establishing monitoring of MRV of NAMAs in Moldova it should be considered to include experience from the Danish model for registering energy savings. In this model the amount of savings can be documented either by specific measurements or by default values for a number of standardized solutions. Default values could be a cost-effective solution when establishing MRV of NAMAs. MRV based on default values for standardized solutions could have an advantage especially for household NAMAs and small and medium size enterprises (SMEs) NAMAs with limited capacity and experience with monitoring.

### Reporting

It will be the overall responsibility of a NAMA Project Developer to secure the proper reporting of a NAMA.

For many specific NAMAs the NAMA Project Developer will use the existing reporting requirements in Moldova and this should be supported to built up a low-cost administrative system of NAMAs.

### Verification

*Verification at the national level*

The structuring of the verification process may include different institutions for domestic MRV. For verification at least four control entities or verifiers can be identified for MRV of NAMAs. There are presented in below table:

|  |  |
| --- | --- |
| Type of verifier or control entity | Description |
| First Party | An internal audit that an organization performs on itself. Often part of an organization’s internal quality assurance procedures. |
| Second Party | Verification conducted by a buyer, a supplier, or another organization that has a direct interest in the results of the verification. |
| Third Party  | Verification conducted by an independent and qualified individual or organization |
| Government Body | Government institution |

Table 5‑2: Overview of possible verifiers of NAMAs

A combination of the different verifiers should be considered to increase the quality of the verification. This could be a First Party verification and a Third Party verification in the same project.

For most facilities in a NAMA it is expected that the involved first party facilities will make self- monitoring or an internal audit. The First Party will probably also make the reporting.

To ensure international and national credibility it is proposed to have an international system of verifiers.

### Accreditation

For NAMAs and MRV of NAMAs it is not recommended to establish a national system of accreditation system, as the proposed third party verification system should be of international standard and therefore the accreditation system should also be of international standard and set-up.

The accreditation system under CDM has been a cumbersome and costly process and a future UNFCCC accreditation should be evaluated carefully. In case a UNFCCC accreditation should be established it could be considered to transfer all CDM accredited companies to NAMA approval team through a simplified system.

### Standard

For each type of the NAMA a standard should be proposed. It could be Domestic Standard, ISO Standard, International Recognised Standard (UNFCCC, IPCC, CDM EB, etc.), EU standard or a bilateral standard.

If Moldova has a standard it should be used as a starting point until an international standard is formally agreed by UNFCCC for a specific NAMA. The UNFCCC set-up will take several years and therefore it should be considered to use EU standards or ISO standards in the transition period.

### Penalties and payments

In order to have an effective MRV of NAMAs that is taken seriously by all stakeholder a penalty component should be considered.

The penalties are issued when the NAMA Project Developer (implementing entity) and related facilities do not follow the rules and procedures agreed for the NAMA and as such have failed its MRV.

In some climate change programs the implementing entity will have to pay a fee for not being in compliance (e.g. EU ETS, AUS ETS), while in others the penalty is that that offsets generated by the implementing entity is not being recognized and therefore will not get issued (e.g. CDM).

In addition to the monetary penalties, the implementing entity can also be penalized in its emission targets whereby any shortfall in the original reporting period will have to be made good in the next reporting period in addition to its normal reduction target (EU ETS).

The penalty system will normally allow the penalized entity to seek recourse on decisions that they believe are incorrect. As such, the penalty system and the levels of the penalties are well defined within the MRV part of the legislation, as most systems rely on the national court system to settle any disputes in relation to the level of the penalty and the actually validity of the penalty.

The penalty systems is mainly of importance for possible future credited NAMAs and this will not be the case for many years in Moldova and therefore penalty should not be focus for the next years.

### Appeal

Any decision of the National Commission can have a huge financial impact for the NAMA Project Developer and therefore an appeal system must be established.

## Comparison of the MRV framework for EU-ETS, CDM and a model for Moldova

An overview of the MRV framework for EU-ETS, CDM and a possible model for Moldova is presented below.

|  |  |  |  |
| --- | --- | --- | --- |
| MRV element | EU-ETS | CDM | Moldova |
| Scope | CO2 emissionsSpecified Installations | 6 Kyoto Protocol Gases | CO2 (all 6 Kyoto Protocol gases) and co-benefits |
| Set-up | EU Commission with National government transition into local legislation | COP/MOPCDM EB | National Commssion Technical CommitteeMRV Group  |
| Appeal | European Court. National Courts | CDM EB | National Commissionand National Courts  |
| Issuance and Compliance Body | Competent Authority | CDM EB | National Competent Authority - MoEN |
| Standards | EU Directive. Installation specific monitoring plan | CDM Modalities & Procedures. Project Activity specific approved methodology. | National or EU specific adopted standards on MRV. Approved methodologies  |
| Monitoring & Reporting. | Individual Installations | Project Proponent implementing the project activity | On the each concrete NAMA proposal will be adopted MRV actions. An MRV before and MRV after implementation will be adopted. The NAMA Project Developer will be responsible. MRV\_NAMA group will support and follow-up as required. |
| Verification  | Third Party Entities | Designated Operating Entity | The verification will be made by third party, a contracted certified international verifier  |
| Accreditation | National | CDM accreditation panel | If needed it shall be an international accreditation system |
| MRV Reporting at National Level | National Registries | Non / CDM Registry | In line with national and international registries.MoEN will administer the National Registry and national data manage-ment system with the support from the MRV-NAMA Group.  |
| Penalty | Yes | No | No |

Table 5‑3 Comparison of MRV frameworks

# Conclusions and recommendations

## Strategy and policy

In Moldova there is no specific strategy or policy directly related to MRV of NAMAs. Moldova is interested in participation in different financial mechanisms, including NAMAs, of the UNFCCC in order to increase its contribution to global mitigation efforts.

Moldova is fully aware of the need to set-up a proper and reliable MRV system to secure international confidence to national mitigation actions. The future MRV of NAMAs in Moldova should therefore be in line with an international set-up for MRV.

For the international climate negotiation it is the right time to seek influence of how a future MRV system shall be developed. Probably it should be a priority for Moldova to work for an international set-up based on confidence and transparency and Moldova should also work for a non-rigid system.

## Main characteristic of a future MRV of NAMAs

### Administrative set-up

The administrative structure for MRV of NAMAs and NAMAs is described below and the administrative structure includes MoEN, National Commission, Technical Committee and a MRV-NAMA Group.

This is the first proposal for setting-up a suitable framework and it is a start of a clarification process. When the overall framework has been agreed the detailed communication lines need to be clearly defined to secure a smooth and efficient administration.

**MoEN and National Commission**

It is recommended that the MoEN shall have the overall responsibility of MRV of NAMAs and NAMAs and therefore a mandate to prioritize, evaluate, approve/reject and monitor NAMAs and related MRV systems shall be delegated to the „National Commission for Implementing Provisions of the United Nations Framework Convention on Climate Change and Provisions and Mechanisms of Kyoto Protocol” (National Commission).

The National Commission can have up to one monthly meeting. In the first years it will probably be less.

**Technical Committee**

It is also recommended to establish a Technical Committee as technical support to the National Commission. The Technical Committee shall evaluate of the specific NAMA including the integrated MRV component in all phases of the project cycle. The Technical Committee should have permanent members to secure stability and uniform evaluation of MRV of NAMA and NAMAs.

It should be considered to have at least 5 permanent members in the Technical Committee covering the key aspects of a NAMA. A NAMA project will include the following main sections: 1) legal and administrative aspects, 2) policy and strategy, 3) financing, 4) technical aspects and 5) MRV.

Probably the Technical Committee will have roughly the same number of meetings as the National Commission.

The Technical Committee will work based on TOR and budget for each NAMA forwarded by the National Commission. The Technical Committee shall forward evaluation reports to the National Commission. The Technical Committee with the support from the MRV-NAMA Group should have informal consultations with NAMA Project Developers to clarify issues in the NAMA proposals.

**MRV-NAMA Group**

Furthermore a MRV and NAMA support group should be established and it should consists of a group of maybe 10-15 experts. The most complex part of the NAMA project will be setting up and managing the MRV system and therefore the most required expertise in the group should be MRV. The MRV-NAMA Group should also cover all the expertise areas which is required for the NAMA development.

Probably it will be an advantage to establish a permanent MRV-NAMA Group which can support the development of the climate mitigation project, but it should also be mentioned that several expertise areas will not require full time work and therefore part of the MRV-NAMA Group should consist of members which will work on ad-hoc basis. Part of the MRV-NAMA Group will therefore consist of a roster of experts.

Maybe a group of 5 permanent staff employees, mainly with MRV expertise, can support the NAMA Project Developers in preparing MRV of specific NAMAs and also follow-up on the MRV when a project has been implemented, support the dialogue between the NAMA Project Developers and Verifiers. perform training of stakeholders, secure the national follow of the MRV of NAMAs and support the Technical Committee.

The MRV-NAMA Group should have an administrative set-up under MoEN and the MRV-NAMA Group can also have interactions directly with the National Commission and MoEN.

The MRV-NAMA group will work based on TOR and budget forwarded by the National Commission or MoEN.

**Administrative Structure**



Figure 6‑1 Administrative set-up and main communication lines

### NAMA and MRV approval process

A proposal for setting-up an approval process MRV of NAMAs will cover both NAMA and MRV as MRV should be considered as an integrated part of a NAMA.

A NAMA proposal should be presented to the National Commission in two steps. The first step should be the NAMA Concept Note and the second step should be NAMA Design.

The NAMA Concept Note includes a description of the project and it more or less equals the pre-feasibility study level. MRV will be important in all NAMA project, so the initial considerations of a MRV system should be described in the concept note. As a guideline the NAMA Concept Note should be 10 – 15 pages.

The NAMA Design includes a detailed description of the NAMA to be implemented and it more or less equals the feasibility study level. The NAMA Design will include a detailed description of the proposed MRV system. As a guideline the NAMA Design should be 60 – 80 pages.

The proposed detailed MRV system should be prepared during the development of the NAMA Design and therefore it will be an advantage if the National Commission already at the stage of approving the NAMA Concept Note will guide the NAMA Project Developer in preparing this MRV system. The National Commission should therefore have prepared MRV guidelines for this. Furthermore the MRV-NAMA Group can support the NAMA Project Developer as appropriate.

The National Commission should after the evaluation of a NAMA Concept Note or NAMA Design issue a letter of Approval or letter of Rejection.

NAMAs are long-term projects and therefore it is recommended that the National Commission requires annual reporting from each NAMA under implementation and in the monitoring phase after implementation. This shall follow the approved MRV system of the NAMA project.

As NAMA and MRV are not well-defined terms internationally the administrative system in Moldova should be based on the Moldovan interpretation and this is best done through the preparation of standard templates and guidelines.

The followed standard documents should be developed: Annotated NAMA Concept Note Template, Annotated NAMA Design Template, Template for Annual Report prepared by NAMA Developer, Standard letter of Approval NAMA Concept Note, Standard letter of Approval NAMA Design, Standard letter of Rejection of a NAMA Proposal and MRV Guidelines. Template for evaluation report for Concept Note, Template for evaluation report for NAMA Design and Template for evaluation report for Annual Report.

At the time of approval of the NAMA Concept Note it should also be decided who shall have the communication with UNFCCC for the registration of the NAMA.



Figure 6‑2 Processing of MRV of NAMAs and NAMAs

The table includes a schematic illustrates of the communication lines for processing of NAMA proposals.

1. NAMA Project Developer can and/or shall forward to the National Commission the following documents. NAMA Concept Note, NAMA Design and Annual Report.
2. The National Commission can request the Technical Committee to review NAMA Concept Note, NAMA Design and Annual Report.
3. The NAMA Project Developer and Technical Committee can have a clarification process to clarify and improve the forwarded documents for review. The Technical Committee can also guide and/or train the NAMA Project Developer in order to improve the NAMA and MRV aspects of the documents.
4. The Technical Committee shall forward evaluation reports to the National Commission
5. The National Commission will officially forward decisions and guidance documents to the NAMA Developer.
6. The MRV-NAMA group will support the NAMA Project Developer and the Technical Committee in the processing of the documents.

The MRV and NAMA process in Moldova should consists of three steps

|  |
| --- |
|  Step 1 : NAMA Concept Note  |
| NAMA Project Developer | Forward NAMA Concept Note  |
| National Commission | Request the Review of NAMA Concept Note,  |
| Technical Committee | Forward Evaluation Report of NAMA Concept |
| National Commission  | Meeting and Minutes of Meeting |
| National Commission | Forward the Decision and MRV guidance document |
| Step 2 : NAMA Design  |
| NAMA Project Developer | Forward NAMA Design  |
| National Commission | Request the Review of NAMA Design,  |
| Technical Committee | Forward Evaluation Report of NAMA Design |
| National Commission  | Meeting and Minutes of Meeting |
| National Commission | Forward the Decision |
| Step 3 : MRV Annual Report  |
| NAMA Project Developer | Forward MRV Annual Report  |
| National Commission | Request the Review of MRV Annual Report, if needed,  |
| Technical Committee | Forward Evaluation Report of MRV Annual Report |
| National Commission  | Meeting and Minutes of Meeting |
| National Commission | Forward comments and request for adjustments if needed |

Table 6‑1 MRV of NAMA and NAMA process

The MRV-NAMA Group will be the advisory group, but directly responsible and part of the formal approval process.

### MRV Manual

The purpose of the MRV Manual is to support the NAMA Project Developer in developing a robust MRV for the specific NAMA and also to have a cost-effective monitoring, reporting and verification after the implementation of the NAMA projects.

The standard requirements for MRV in Moldova should be presented.

For the important sectors Energy supply, buildings, industry, transport, waste, agriculture and forest possible indicators should be presented.

The MRV Manual should describe how an MRV system should be set-up and probably 2 -3 illustrative examples should be presented.

### Key characteristic of the future MRV Framework

Below table summarizes the main characteristics of a future MRV framework.

|  |  |
| --- | --- |
| MRV element | Moldova |
| Scope | CO2 (all 6 Kyoto Protocol gases) and co-benefits |
| Set-up | MoEN, National Commission, Technical Committee and MRV-NAMA Group  |
| Appeal | National Commission and National Courts  |
| Issuance and Compliance Body | National Competent Authority - MoEN |
| Standards | National or EU specific adopted standards on MRV. Approved methodologies  |
| Monitoring & Reporting. | On the each concrete NAMA proposal will be adopted MRV actions. An MRV before and MRV after implementation will be adopted.  |
| Verification  | The verification will be made by third party, a contracted certified international verifier  |
| Accreditation | If needed it shall be an international accreditation system |
| MRV Reporting at National Level | MoEN will administer the National Registry and national data management system with the support from the MRV-NAMA Group.  |
| Penalty | No |

## Capacity needs

As mentioned earlier Moldova has limited experience with MRV systems and also NAMA development of international standard and therefore gaps and barriers needs to be addressed.

This requires a significant effort to increase the awareness. Part of the awareness shall maybe focus on the understanding at the installations and entities by training and making user friendly manuals.

A fundamental issue is also to have an in-depth understanding of MRV and MRV of NAMAs and a systematic approach to increase the MRV capacity is needed. This can for instance also be done by setting up a training and capacity building approach on MRV. Therefore it is of critical importance to have a team of dedicated experts to support the development of NAMAs and these should mainly focus in supporting the MRV component of a NAMA project. This could be an important role of the proposed MRV-NAMA Group.

The capacity needs are integrated in the below presentation of the proposed needed actions.

## Recommendations

### Needed actions

Moldova has taken the first steps in preparing a model for implementing MRV of NAMAs and NAMAs with a contract between UNDP and the Climate Change Office. This secures that capacity development and knowledge will remain in Moldova.

There will still be a need for international support to the implementation of the different proposed actions, as experience and knowledge from other countries should be taken into consideration when developing and implementing a unique model for Moldova.

The proposed actions have been split in to medium-term and short-term actions. The medium-term actions require a significant effort through many years and with significant input. Most of the short term actions can be initiated accordingly. Some of the short term actions will also be input to the medium term actions and these short-terms actions will contribute to more focused medium-term actions.

The specific supplementary input for both international and national consultants has not been described as it will require detail knowledge of actual contract between UNDP and the Climate Change Office.

|  |  |
| --- | --- |
| No | Medium term actions (> 2 years < 5 years) |
|  | Description |
| 1 | Setting up administration of the national NAMA and MRV framework. Focus shall be on clear role description of all involved partners and the implementation. It shall include all the key elements: scope, set-up, appeal, issuance and compliance body, standards, measurement, reporting, verification, national registry and penalty. |
| 2 | Improve the actual monitoring and reporting system. It will include all monitoring aspects and t**h**e experience from the concrete implementation. It can be handle separate and in parallel with proposal 1. If it is handled in parallel some concrete results can be achieved before the full scale implementation of the MRV framework is completed.  |
| 3 | Contribute to the international climate negotiations with focus on MRV and NAMAs |
| 4 | Incorporate MRV in strategies, policies and action plans whenever it is relevant |
|  | Short term actions (< 2 years) |
|  | Description |
| 5 | Change the mandate for the National Commission for Implementing Provisions of the United Nations Framework Convention on Climate Change and Provisions and Mechanisms of Kyoto Protocol to include NAMA and MRV. Establish the mandate for the Technical Committee and the MRV-NAMA Group.  |
| 6 | Prepare the following standard documents: Annotated NAMA Concept Note Template, Annotated NAMA Design Template, Template for Annual Report prepared by NAMA Project Developer, Standard letter of Approval NAMA Concept Note, Standard letter of Approval NAMA Design. Standard letter of Rejection of a NAMA Proposal, Template for evaluation report for Concept Note, Template for evaluation report for NAMA Design and Template for evaluation report for Annual Report. |
| 7 | MRV Manual |
| 8 | Training courses on MRV for installations, entities and also public institutions |

Table 6‑2 Proposal of medium term and short term actions

### Indicative time-schedule

For each of the proposed actions an indicative time-schedule have been proposed in below table. The table covers a 5 year period. A specific year has not been indicated as actions are dependent on the available funds. For sure international donor support will be needed to secure progress for the main part of the proposed actions.

For the two of the medium-term actions a breakdown in sub-actions have been made.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| No. | Tasks | 1 Year | 2 Year | 3 Year | 4 year | 5 year |
| 1Q | 2Q | 3Q | 4Q | 1Q | 2Q | 3Q | 4Q |  |  |  |
| 1 | Setting up and administration of the national NAMA and MRV framework | x | X | X | x | X | X | x | x | x | x | x |
| 1a | Set-up committee for MRV for NAMAs | x |  |  |  |  |  |  |  |  |  |  |
| 1b | Describe of the MRV framework |  | X | X |  |  |  |  |  |  |  |  |
| 1c | Stakeholder consultations and national approval |  |  |  | x | x | X |  |  |  |  |  |
| 1d  | Final version of MRV framework |  |  |  |  |  |  | x | x |  |  |  |
| 1d  | Prepare and implement legislation |  |  |  |  |  |  |  |  | x |  |  |
| 1e  | Daily administration |  |  |  |  |  |  |  |  |  | x | x |
| 2 | Improve the actual monitoring and reporting system. | x | X | X | x | x | X | x | x | x | x | x |
| 2a | Prepare the specific TOR | x |  |  |  |  |  |  |  |  |  |  |
| 2b | Implementation and enforcement |  | X | X |  | x | X | x |  | x | x | x |
| 2c | Review and optimization  |  |  |  | x |  |  |  | x |  |  |  |
| 3 | Contribute to the international climate negotiations | x | X | X | x | x | X | x | x | x | x | x |
| 4 | Incorporate MRV in strategies, policies and action plans | x | X | X | X | x | X | x | x | x | x | x |
| 5 | Mandate for the National Commission, Technical Committee and MRV-NAMA Group | x | X | x | x |  |  |  |  |  |  |  |
| 6 | Templates | x | X |  |  |  |  |  |  |  |  |  |
| 7 | MRV Manual |  | X | X |  |  |  |  |  |  |  |  |
| 8  | Training courses on MRV |  | X |  | x |  | x |  | x | x | x | x |

x = Activity will be performed.

Table 6‑3 Indicative time-schedule

# Appendices

Appendix A: List of key stakeholders met during the missions

# Appendix A – List of key stakeholders met during the missions

This appendix includes an overview of the stakeholders met during the missions to Moldova. The function and contact details are presented for each organisation or institution.

Table A‑1: List of authorities, organisations and institutions

|  |  |  |
| --- | --- | --- |
| **Organisation or Institution** | **Function** | **Contact details** |
| Ministry of Environment, Carbon Finance Unit | Technical assistant | Name: Stefan SeracutaE-mail: seracyta.stefan@yahoo.com |
| Ministry of Environment, Environmental Inspectorate  | Vice Director | Name: Vadim Stingaci + team of 7 inspectors  |
| UNDP | Project coordinator | Name: Nadja VettersE-mail: nadja.vetters@undp.org |
| GIZ and GOPA | Team Leader | Name: Nikota DoychinovE-mail: Nikola.Doychinov@gopa.de |
| Energy Efficiency Agency | Experts | Name: Denis Tumuruc Name: Igor Zanoaga  |
| Energy Efficiency Fund | Executive Director | Name: Calin NeguraE-mail: calin.negura@aee.md |
| MoSEFF | Senior Energy Audit Expert | Name: Alexandru BologaE-mail: Alexandru.Bologa@moseff.org |
| ICAS | Director and Project expert  | Name ; Dumitru Galupa Ion Talmaci  |
| ANRE | Energy and tarif experts  | Name; Sula AndreiName: Vladislav Lozan  |

1. GIZ, 2014 MRV Tool: How To Set up National MRV Systems [↑](#footnote-ref-1)
2. http://www.ghgprotocol.org/about-ghgp [↑](#footnote-ref-2)