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**Sustainable management of pastures and community forests in Moldova’s first National Park Orhei to demonstrate climate change mitigation and adaptation benefits and dividends for local communities**

UNDP project ID# 00086149

**Terminal Evaluation Report**

**June 2016**

**Final Report**

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# List of Acronyms

|  |  |
| --- | --- |
| CBA | Cost Benefit Analysis |
| EA | Executing Agency |
| EOP | End Of Project |
| ES | Ecosystem Services |
| EU | European Union |
| FMP | Forest Management Plan |
| GHG | Green House Gas |
| GHG | GreenHouse Gases |
| IA | Implementing Agency |
| ICAS | Forest Research and Management Institute |
| LPA | Local Public Authority |
| MTE | Mid-Term Evaluation |
| NPV | Net Present Value |
| ONP | Orhei National Park |
| PA | Protected Area |
| PB | Project Board |
| PM | Project Manager |
| PMP | Pastures Management Plan |
| PMU | Project Management Unit |
| ROM | Results-Oriented-Monitoring |
| SOC | Stock Of Carbon |
| TE | Terminal Evaluation |
| TVE | Total Economic Value |
| UNDP | United Nations Development Programme |

# Summary Tables

**Table 1. Moldova Pilot Project Summary Table**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Project Title | Sustainable management of pastures and community forests in Moldova’s first National Park Orhei to demonstrate climate change mitigation and adaptation benefits and dividends for local communities. | | | |
| UNDP Project ID | 00086149 | EU Project ID | |  |
| ATLAS Business Unit Award No. 00073227 | MDA10 00073227 | Project Document Signature Date | | 17.06.2013 |
| Country | Republic of Moldova | Date Project Manager hired | | 1.07.2013 |
| Region | Orhei | Inception Workshop date | | 11.09.2013 |
| EU Focal Area/Strategic Objective | EU Eastern Neighbourhood and Partnership Instrument (ENPI) | MTR completion date | | July 2015 |
| Trust Fund | 30079 | If revised, proposed closing date | | December 2016 |
| Executing Agency/Implementing partner | Ministry of Environment /  UNDP Moldova | | | |
| Other executing partners | Moldsilva forest agency  Local Public authorities from Orhei District | | | |
| Project Financing | at CEO endorsement (EUR) | | At FE (EUR) | |
| [1] EU Financing | EUR 535,000 | | 530,000 | |
| [2] UNDP Contribution | N/A | |  | |
| [3] Others | N/A | |  | |
| PROJECT TOTAL COSTS | EUR 535,000 | | 530,000 | |

**Table 2. Summary of Terminal Evaluation Rating for the Moldova Pilot Project**

|  |  |  |  |
| --- | --- | --- | --- |
| **1. Monitoring and Evaluation** | ***Rating at MTE*** | ***Rating at TE*** | ***Qualitative summary evaluation of main criteria at TE*** |
| M&E design at entry | Satisfactory | Moderately Satisfactory | The M&E system of the project at the project’s design and during project implementation did not provide a solid basis for Results-Based Management and impact monitoring despite extensive efforts in assessing the status of forests and pastures in the Orhei National Park. |
| M&E Plan Implementation | Satisfactory | Moderately Satisfactory |
| **Overall quality of M&E** | **Satisfactory** | **Moderately Satisfactory** |
| **2. Implementation & Execution** | ***Rating at MTE*** | ***Rating at TE*** | ***Qualitative summary evaluation of main criteria at TE*** |
| Quality of UNDP Implementation | Satisfactory | Satisfactory | The project has adopted a clear and efficient project implementation and execution arrangements, confirmed through efficient project management systems and strong partnership arrangements. |
| Quality of Execution by Executing Agency | Satisfactory | Satisfactory |
| **Overall quality of Implementation / Execution** | **Satisfactory** | **Satisfactory** |
| **3. Assessment of Outcomes** | ***Rating at MTE*** | ***Rating at TE*** | ***Qualitative summary evaluation of main criteria at TE*** |
| Quality of Project Outcomes | Satisfactory | Satisfactory | The project has efficiently completed all planned deliverables including the management plans, the restoration activities and the monitoring system.  Effectiveness can be however be questioned with regards to lack of provision of technical support to strengthen national capacities.  The project is highly relevant to Moldova in general in terms of ecosystem management of the important natural resources. |
| Relevance | Satisfactory | Relevant |
| Effectiveness | Satisfactory | Satisfactory |
| Efficiency | Satisfactory | Satisfactory |
| **4. Sustainability** | ***Rating at MTE*** | ***Rating at TE*** | ***Qualitative summary evaluation of main criteria at TE*** |
| Financial resources | Moderately Likely | Likely | The TE has confirmed that the project has ensured sustainable results at all level, the financial sustainability has been assessed and quantified, institutional and political aspects are well anchored within the national framework and the environmental benefits are also confirmed through the project’s results. |
| Socio-political | Moderately Likely | Likely |
| Institutional framework and governance | Moderately Likely | Likely |
| Environmental | Moderately Likely | Likely |
| **Overall likelihood of risks to Sustainability** | Moderately Likely | **Likely** |
| **5. Impact** | ***Rating at MTE*** | ***Rating at TE*** | ***Qualitative summary evaluation of main criteria at TE*** |
| **Overall project impact** | **Not available** | **Significant** | Compared to its resources, the project has delivered tangible and positive impacts in pastures and forests management in the Orhei National Park |

|  |  |  |
| --- | --- | --- |
| ***Rating scales to be used in the TE*** | | |
| ***Ratings for Outcomes, Effectiveness, Efficiency, M&E, I&E Execution*** | ***Sustainability ratings:*** | ***Relevance ratings*** |
| 6: Highly Satisfactory (HS): no shortcomings  5: Satisfactory (S): minor shortcomings  4: Moderately Satisfactory (MS)  3. Moderately Unsatisfactory (MU): significant shortcomings  2. Unsatisfactory (U): major problems  1. Highly Unsatisfactory (HU): severe problems | 4. Likely (L): negligible risks to sustainability | 2. Relevant (R) |
| 3. Moderately Likely (ML):moderate risks | 1.. Not relevant (NR) |
| 2. Moderately Unlikely (MU): significant risks  1. Unlikely (U): severe risks | ***Impact Ratings:***  3. Significant (S)  2. Minimal (M)  1. Negligible (N) |
| ***Additional ratings where relevant:***  Not Applicable (N/A)  Unable to Assess (U/A) | | |

# Project description and design

## Project timeframes

The pilot project in Moldova was planned over a duration of 48 months (4 years), extending from January 2013 till December 2016; however, the effective project duration was 42 months given that the project was only initiated in July 2013.

The key project’s timeframes are presented in Table 3 below and are compared with the initially planned key milestones and show that the project was able to meet in a timely manner of all its projected milestones.

Despite the fact that the Terminal Evaluation (TE) was conducted after project completion, the needed support for conducting the evaluation was fully provided by the UNDP-Moldova office as well as the project team given the continuation of their involvement within the UNDP programme in Moldova.

**Table 3. Project key milestones and dates**

|  |  |  |
| --- | --- | --- |
| **Milestone** | **Date** | **Month of project**  **(initially planned month)** |
| Project Document Signature by the Government | June 2013 | 0 (0) |
| Official Project Start | July 2013 | 1 (0) |
| Project Inception Workshop | September 2013 | 3 (3) |
| Mid-Term Evaluation (MTE) | July 2015 | 24 (24) |
| Project Completion (planned) | December 2016 | 42 (48) |
| Terminal Evaluation | February 2017 | 44 (44) |

## Specific problems that the project sought to address

The project targets the pastures and forest degraded lands located in the Orhei National Park (ONP) area and its buffer zone. Orhei National Park area is situated in the center-east part of the country on the Central Codrii Plateau on the area of 33,792 ha which is equivalent to around 1% of the country’s territory (refer to Figure 1 below).

The Park was officially established in July 2013 and covers 18 communities from 4 districts of the country. The area has rich natural, historical and cultural heritage recognized at the national and international level. The territory is covered by 18,551 ha of forests managed by Moldsilva Forestry Agency and 1,392 ha of unmanaged community forests. The National Park Orhei area covers the biggest consolidated forest plot in the center-east of the country consisting mainly from nature type of forests (mostly oak, durmast and other hardwood type of wood).

The rest of the Orhei Park area consists of land used for agriculture purposes, of which 5,890 ha are pasture lands. The territory is home for more than 700 species of flora, including 52 rare and endangered species and 29 species are included in the Red book of Republic of Moldova. The Orhei NP is also home to 11 species of amphibians, 10 species of reptiles, 109 of birds and 41 species of mammals, most of them are included in the Red book of Moldova.

The National Park Orhei territory is highly affected by deep soil erosion (ravines and frequent landslides) in the eastern and western part of the park territory (approx. 1,200 ha), and surface soil erosion in the central part. Moreover, the territory has a high variety of soft rocks, which are friable and very vulnerable to erosion processes under the influence of climatic and external anthropogenic factors.

Another main driver of land degradation is over-grazing by domestic livestock. The grazing capacity of existing pastures is three to four times lower than the existing 14 thousand heads of livestock in the region. Over-grazing and other factors of land degradation have resulted in changes in basic pastures’ composition (Stipa, Festuca, Bothriochloa, Poa sp.), leading to the decline in populations of valuable fodder plants and an increase in weeds and poisonous species (such as crowfoot, thistle, creeping thistle, as well as Euphorbia sequieriana, and Astragalus spp.). The lack of sufficient forage from pasture lands has also increased pressure on forests and other natural landscapes.

This situation has resulted in biodiversity loss, including the loss of forest area and its fragmentation, which constitute major stressors to native fauna and flora populations of the park. Moreover, with the decreasing soil fertility, the majority of flora species present in the park are expected to disappear; similarly, the fauna diversity will continue to diminish, especially as a result of decreasing nutritional capacity of the lands, and lack of sites for reproduction and refuge. The carbon accumulation in soil and vegetation will thus continue to decline in pastures and degraded lands as a result of climate change factors and unsustainable human activities if no active interventions and long term planning measures are undertaken.

As such, there is a strong need for demonstrating improved pasture management under the current climate threats, and for applying state-of-the art rangeland management techniques that reduce emissions of carbon, and provide incentives for farmers for controlling animal numbers in order to safeguard the soil’s conditions and the biodiversity.

|  |
| --- |
|  |
| **Figure 1. Location of the project area in the Orhei National Park** |

Based on the above mentioned problems, the project has been designed with the objective is to **“demonstrate a natural resource management model in the pastures and forests of Moldova which increases ecosystems’ capacity to sequester carbon under pending climate warning risks, while at the same time retain biodiversity and economic values”.**

The project is structured around 3 main Outputs which were designed to include specific Results and their corresponding Activities as presented in Table 4, the main Outputs of the project are the following:

1. **Pasture and community forest restoration plans for Orhei National Park area designed**
2. **Forest and pasture restoration projects implemented**
3. **Carbon assessment and monitoring system in place**

The project was designed in a way it builds upon an existing policy framework for the management of forests and pastures and which included at the time of the project development the following main policies and strategies:

* Strategy for Sustainable Development of Forestry (2001)
* Second National Communication to the UNFCCC (2009)
* Programme for conservation and increase the soil fertility (2011-2020)
* National Strategy for Sustainable Development of the Agricultural Complex of the Republic of Moldova (2008-2015)
* Action Plan for Drought Mitigation Measures in the Agri-Food Sector (2012 -2015)
* National Adaptation Strategy to Climate Change (2013)

The project was also designed to build upon various on-going initiatives at the time of its development and these initiatives were used as a basis of the design and included the following main initiatives:

* GEF/UNDP Project for “Improving coverage and management effectiveness of the protected area system in Moldova”
* ENPI FLEG Program funded by the European Union (implemented by the World Bank, IUCN, WWF) for “Improving Forest Law Enforcement and Governance in the European Neighborhood Policy East Countries and Russia”
* WB- Prototype Carbon Fund Project of the Moldova Soil Conservation

Synergies were also planned with various organizations and programme with special attention to create synergies with FAO’s planned activities in the country for promotion good practices of pasture management, and the development of amendments to the legal framework for pastures and haymaking.

Finally, the project design also built upon methodologies and guidelines developed and tested at national or regional level, including the following:

* Forests management guidelines developed under the "Community Support Program for Sustainable and Integrated Forest Management and Carbon Sequestration through Forestation" funded by the Government of Japan
* Methodological approaches developed under the TACIS project “Sustainable Integrated Land Use of the Eurasian Steppe” in Cahul region
* Access to information from the annual reports on land cadaster, prepared by Agency for Land Relations and Cadastre
* Soil degradation research from the Institute of Pedology, Agrochemistry and Soil protection “N. Dimo”, National Park Orhei Scientific Argumentation, Management plan and zoning.

**Table 4. Outputs, Results and Activities planned under the project**

|  |  |
| --- | --- |
| **Output 1: Pasture and community forest restoration plans for Orhei National Park area designed.** | |
| Result 1.1: Pasture inventory for Orhei National Park area performed | * assess soil and vegetation condition; * evaluation of productivity and production quality of existing pastures; * assessment the hay productivity and cattle support of pastures; * inventory of carbon storage, emission reduction and sequestration potential; |
| Result 1.2: Community pasture management plans developed for Orhei National Park area | * develop pasture management plans; * present, consult and endorse the developed pasture management plans by pasture owners and users from the local communities; |
| Result 1.3: Community forests management plans developed for Orhei National Park area | * preparatory phase (analyzing forest conditions in the selected areas, existing materials and other data; coordination the activities with LPA’s and foresters etc.); * field phase (boundaries delimitation of the community’s forestlands; parcel description for every forest unit incl. vegetation, type of habitat, other forest and mapping parameters; reception of volume of work done according to the legislation); * office phase (field information processed and data based; forest/stands maps developed and verified; management plans developed, consulted with main stakeholders and the final version endorsed to them). |
| **Output 2: Forest and pasture restoration projects implemented** | |
| Result 2.1: 500 ha of pastures restored based on developed pasture management plans | * select the sites of degraded pastures to be restored in a participatory manner; * perform the land preparation and planting activities according to the management plans and selected methodology; * coordinate the activities with pasture owners and users in order to respect the proper pasture management during the project life and after that; |
| Result 2.2: 150 ha of degraded lands afforested based on the national guidelines on scientific forest management and silvicultural practices for degraded lands | * analyze and select the sites of degraded lands to be afforested; * based on each site condition, together with land owners and experts in domain, select the necessary activities to be performed and species to be used for planting; * perform planting activities of afforestation (site preparation, planting, etc.); * ensure the proper protection, completion with seedlings and management of plantations during the project life. |
| **Output 3: Carbon assessment and monitoring system in place** | |
| Result 3.1: System for monitoring of the carbon dividends and ecological integrity of the ecosystem in place | * design a monitoring programme; * conduct monitoring survey of the pasture and afforested lands before and after restoration is completed; * develop recommendations for project experience replication based on the monitoring results. |
| Result 3.2: Awareness and replication of project successful experience fostered | * development and implementation of a training programme for sustainable grassland and forest management; * 2 workshops to present and disseminate the experience of the project at the national, regional and local levels; * publications and other awareness materials developed and disseminated at the national, regional and local levels. |

## Project’s Indicators including Baseline and Targets

The project has not been designed with impact indicators at the level of its objective; it was rather provided with process indicators which were set in the project document at the level of its Outputs (as presented in Table 5 below).

Moreover, the process indicators proposed at project design cannot be considered as SMART indicators as they did not set a results-based approach for monitoring the project activities nor they provided specific and measurable baseline and targets.

Overall, the M&E system captured the fact that all 18 communities within the Orhei National Park would be provided with management plans for pastures and communal forests; however, this did not indicate if these management plans are used as basis for planning and decision making within these communities.

The indicators also provided an indication of the areas to be restored through the project, and which included the following:

* 500 ha of pastures to be restored out of the total area 5,890 ha pasture lands in Orhei park, which is equivalent to around 9% of the total area
* 150 ha of forests to be restored out of the total area of 1,392 ha of community forests in Orhei park, which is equivalent to 11% of the total area

However, this did not allow measuring the changes occurring in the ecosystem as a whole and its productivity in specific before and after the restoration activities given the lack of the related baseline and target. Although the project’s M&E system also aimed at establishing a monitoring system of the ecological values, biomass and carbon of the pastures and forests, no baseline or targets were provided at project design to assess the project’s results and impacts.

As such, the M&E system of the project at the design phase did not provide a solid basis for monitoring the project’s activities and results, notwithstanding its impact.

**Table 5. Project indicators, baseline and targets at project design**

|  |  |  |
| --- | --- | --- |
| **Indicator** | **Baseline** | **Target** |
| **Output 1: Pasture and community forest restoration plans for Orhei National Park area designed.** | | |
| Number of communities with pasture management plans developed | No communities (0 ha) with pasture management plans in place. | 18 communities (5,890.92 ha) with pasture management plans developed. |
| Number of hectares of community forests with management plans developed | 0 ha of community forests with management plans | 1,392 ha of community forests with management plans developed. |
| **Output 2: Forest and pasture restoration projects implemented** | | |
| Number of hectares of pasture land restored | Degraded pasture on the most of the park territory | 500 ha of pasture land restored |
| Number of hectares of degraded lands afforested. | No degraded lands afforested on the park territory. | 150 ha of degraded lands afforested. |
| **Output 3: Carbon assessment and monitoring system in place** | | |
| Monitoring system in place consisting of:  a) ecological integrity of the grassland ecosystem (richness and density of indicator species populations, such as Festuca valesiaca, Bothriochloa ischaemum, Stipa capillata, Poa bulbosa, Poa angustifolia, Artemisia austriaca)  b) volume of biomass growth for forest ecosystems  c) carbon dividends | No monitoring in place | A robust pasture and forest monitoring system in place. |
| Number of people involved in the capacity building and awareness activities at the national, regional and local levels | Insufficient trainings and  awareness in sustainable grassland and forest management | Increased level of understanding at local, regional and national level about sustainable grassland and forest management. |

## Main stakeholders and planned stakeholder participation

The main concerned stakeholders and project partners were clearly identified in the project document in view of establishing needed cooperation mechanisms. As such, the project document indicated all key national and local stakeholders to be involved in the project, these included the following:

* Ministry of Environment,
* Ministry of Agriculture and Food Industry,
* Agency for Land Relations and Cadastre, both at national and local levels,
* Moldsilva Agency,
* Forest Research and Management Institute (ICAS),
* Institute of Pedology, Agrochemistry and Soil protection,
* Academy of Science, Institute of Botany,
* Local Public Authorities at village and district levels and communities in general,
* Local mayors,
* Raional Council of Orhei.

## Management arrangements at project design

The project document provided clear guidance for the project’s management arrangements, in line with UNDP’s direct implementation modality in accordance with UNDP rules and regulations.

The Ministry of Environment is the government institution responsible for the implementation of the project and will act as the Executing Agency (EA). UNDP-Moldova is the Implementing Agency (IA) for the project and will support the Ministry of Environment with implementation support services.

A Project Management Unit (PMU) is established and is composed of the Project Manager (PM) and an Admin/Finance Assistant. The PMU ensures that project planning, review, monitoring, evaluation and reporting requirements are met; that coordination among participants is effective; and that decisions are implemented. Implementation arrangements with partner agencies are set out in the Terms of References which are provided in the project document.

In order to strengthen project’s management, the project document called upon the establishment of the Project Board (PB). The PB is planned to provide strategic direction for the project management and ensures that the project remains on course to deliver the desired outcomes of the required quality. The project document provided clear guidance for the establishment of the PB including its composition which should include members of the following institutions:

* Ministry of Environment (Senior Executive and chairing the PB),
* Ministry of Agriculture and Food Industry;
* Agency “Moldsilva”;
* Agency for Land Relations and Cadastre;
* UNDP Moldova;
* EU Delegation in Moldova;
* A representative from Academy of Science or NGO;
* A representative from Local Public Authorities at first level,
* A representative from Local Public Authorities at raional level.

The management arrangements provided in the project document are presented in Figure 2 below in line with the defined the management responsibilities of the PB, the Project Assurance functions and those of the PMU.

|  |
| --- |
|  |
| **Figure 2. Project Organization Structure as proposed at project design** |

## Linkages between the Pilot in Moldova with the Policy project and with the different Pilots

Linkages between the Pilot and Policy projects within ClimaEast is defined upstream of the project and is not identified within the project document itself; the same applies for the linkages among the different Pilots of ClimaEast.

As such, it is expected that the Pilot Project in Moldova would mainly follow up on ensuring the linkages with the Policy project and other Pilots of ClimaEast in coordination with the UNDP Regional Center.

# Project Implementation

## Adaptive management and changes to the project design

As indicated in the previous sections, the project design was based on a sound understanding of the challenges facing Orhei Park following up on various programmes and initiatives related to the project.

This momentum was sustained throughout the project duration and built upon an adaptive management approach which took into account various initiatives to strengthen the project implementation and include the following:

1. **EU’s Results-Oriented-Monitoring Mission**

EU Monitoring Mission, which was concluded in December 2013, has provided several recommendations to support the overall the project’s objective and activities, without requesting major modifications to the project design.

More specifically, the recommendations of the ROM mission included the following aspects:

* Develop risk management strategies to address potential risks from lack of commitment from Local Public Authorities (LPAs) and the state to invest fees paid by pasture users in order to manage communal pastureland
* Assess existing local institutions involved in pasture management, livestock production and forest management; and ways in which they can be incorporated into pasture and community in an Ecosystem based Approach to Climate Change to acknowledge the value of local as well as scientific knowledge to develop sustainable natural resource management practices.
* Develop sustainability plan in collaboration with key stakeholders, especially local people and LPAs, as soon as possible, taking into account that key stakeholders such as LPAs and Ministry of Environment are understaffed and underfunded
* Develop SMART and SPICED indicators

While these recommendations have not required structural modifications in the project design except at the level of the project’s M&E system (as it will be covered in “Section 2.4.” below), the recommendations were followed up by the project at the level of the Project Board and as an integral part of the project’s activities.

1. **UNDP’s Project Inception Mission**

The inception phase which took place between July and September 2013 and was concluded with a national inception workshop clarified the implementation approach of the project at the level of the local population as well as the central agencies involved in the project. This phase has also provided clear guidance regarding several aspects of the project including: (i) Selection of the pilot plots in the project area, (ii) Forest and pasture management planning and (ii) Carbon monitoring.

The inception phase has also allowed the project to introduce needed changes in the workplan and budget plan in order to reflect the main recommendations received during the inception phase and which included the following:

* Changes were performed in the project work plan and approved by the Project Board.
* The Project Results and Resources Framework was changed in line with the ROM mission’s recommendation and approved by the Project Board.
* The project’s risks and response actions were updated, taking into account the ROM mission’s recommendations.
* Changes to the project work plan and budget were performed in order to implement needed visibility activities related to project starting from the second year of project implementation.

1. **UNDP’s Mid-Term Evaluation Mission**

An independent Mid-Term Evaluation (MTE) of the project was conducted by UNDP in May 2015, and concluded that the overall performance of the project was satisfactory for the exception of the project’s sustainability which was considered to be “Moderately satisfactory”.

The MTE has also provided several recommendations which were reviewed by the project through a rigorous “Management Response” and were addressed as needed; the main aspects of the MTE and the follow up by the project can be summarized as follows:

* Ensuring Experience and Lessons Learned are systematically captured. The project aimed at revising the workplan in order to strengthen needed activities focusing on capturing, analyzing and disseminating key experiences from the projet.
* Assessing socio-economic sustainability of project interventions. Needed resources were allocated for this assessment and the study was completed in 2016.
* Strengthening the technical capacities of LPAs, as well as the legal and institutional aspects related to community management of forests and pastures. Some actions were taken in this regards and collaboration with concerned agencies and programmes to institutional and legal aspects were clarified and strengthened to ensure needed follow up on this aspects (as will be described in the next sections).
* Replication of High level Stakeholder Meetings or similar mechanism into other ClimaEast Pilots. This was not considered as relevant approach given the existing support for such mechanisms through the FLEG programme.

**Overall assessment of adaptive management and changes to the project design**

Based on the above, it can be confirmed that the project team has been able to progress smoothly in the implementation of the project activities building upon a clear project’s design and adapting the project’s strategy and implementation approach to key management instruments of the project.

## Partnership arrangements with relevant stakeholders

The project has ensured strong partnership arrangements and stakeholders’ participation and adopted various proactive modalities in this respect.

At the larger level, the project has established regular meetings of the Project Board (PB) and ensured its functioning under clear mandates and with a strategic focus for decision making. The PB meetings were held 2-3 times per year during the project’s duration, which allowed continuous ownership of the key project partners in the decision making process. The members of the PB represented key stakeholders in Moldova involved in pastures at central level as well as the level of the Orhei National Park.

This has allowed the project to ensure a transparent dialogue with all concerned stakeholders in Moldova and allowed a productive communication to support project’s implementation.

In addition to the large stakeholders’ engagement modalities, the project also built strong partnerships with concerned institutions paving the way for a continuous involvement in forestry and pasture management.

Partnerships were also strengthened through effective and active cooperation through the implementation of the project’s activities with key concerned institutions and included the following key institutions:

* “Moldsilva” Agency, with regards to identification of forestry programming
* Forest Research and Management Institute (ICAS), with regards to the development of forestry and pasture management plans
* Agency for Land Relations and Cadaster, with regards to the identification of soil protection programming
* Association of Mayors of Orhei Rayon, with regards to the development and implementation of the management plans and the restoration measures

## Project Finance

By end of the project, the project’s budget has been completely disbursed and reflects the efficient management of the project’s financing.

Overall, the project expenditures at the level of the different components show a consistent trend with the initially planned allocations; with the expenditures allocated for project management slightly below the planned budget (refer to Table 6 below). This trend reflects adequate financial planning and alignment of the effected activities with the initially planned design, which confirms the strength in the initial project design.

**Table 6. Total expenditures of the project compared to initially planned budget**

|  |  |  |  |
| --- | --- | --- | --- |
| **Project’s Outcome** | **Total Budget**  **(US$)** | **Actual as of 30.12.2016**  **(US$)** | **% spent** |
| **Outcome** 1 | 129,870 | 139,603 | 107 |
| **Outcome** 2 | 389,610 | 413,278 | 106 |
| **Outcome** 3 | 64,935 | 70,579 | 109 |
| **Project Management** | 110,390 | 66,790 | 61 |
| **Total** | **694,805** | **690,250** | **99** |

Moreover, the yearly project expenditures have reflected standard trends in project management, with a low total expenditure in the first year (equivalent to 10% of the total budget in the case of this project). As shown in Table 7 below, the main the expenditures are effected in year 2 and year 3 of the project, with a total yearly expenditure of 53% and 26% respectively. The level of expenditures of 11% of the budget in year 4 also confirms that the project has succeeded to commit its resources well before project completion and can thus ensure proper closure and exit of the project.

**Table 7. Yearly expenditures of the project**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Project’s Outcome** | **Total Budget**  **(US$)** | **Year 1**  **2013** | | **Year 2**  **2014** | | **Year 3**  **2015** | | **Year 4 as of 30.12.2016** | |
| **Actual**  **(US$)** | **% spent** | **Actual**  **(US$)** | **% spent** | **Actual**  **(US$)** | **% spent** | **Actual**  **(US$)** | **% spent** |
| **Outcome** 1 | 129,870 | 35,310 | 27 | 93,286 | 72 | 11,007 | 8 | 0 | 0 |
| **Outcome** 2 | 389,610 | 19,706 | 5 | 237,929 | 61 | 131,239 | 34 | 24,404 | 6 |
| **Outcome** 3 | 64,935 | 3,447 | 5 | 13,061 | 20 | 19,029 | 29 | 35,042 | 54 |
| **Project Management** | 110,390 | 11,362 | 10 | 24,803 | 22 | 16,655 | 15 | 13,970 | 13 |
| **Total** | **694,805** | **69,825** | **10** | **369,078** | **53** | **177,930** | **26** | **73,416** | **11** |

## Monitoring and evaluation during implementation\*

As indicated earlier, the M&E system of the project at the project’s design did not provide a solid basis for Results-Based Management and impact monitoring.

This issue was also raised by the ROM mission which was deployed during the inception phase of the project and which indicated the following in its Report regarding M&E: “*Most indicators on the Project work plan are not SMART. For example, indicators such as ‘number of hectares of pasture land restored’ is ambiguous, it could be improved by listing plant species used by local people which indicate that pastures are healthy, undergrazed or overgrazed*”.

Following this mission and the inception phase, the project included some modifications at the level of “Output 2: Forest and pasture restoration projects implemented” in a way to include representative species of the ecological as well as economic status in pastures and forests management. As such, a list of indicative species was added to the indicators within the indicators at the level of the Output 2 as presented in Table 8 below.

While this could have supported the establishment of a sound impact monitoring system, to be implemented as part of the forest and pastures management plans as well as the restoration activities, it remain fairly broad and was not been complemented with a clear baseline and target to support the consolidation and analysis of the results at the level of the overall surface area of the forests and pastures covered by the project.

Such consolidation would have been an essential step to confirm the impact of the project and more specifically the results and trends which were obtained from the different restoration approaches adopted by the project.

**Table 8. Modifications made to the indicators under Output 2: Forest and pasture restoration projects implemented**

|  |  |  |  |
| --- | --- | --- | --- |
| **Initial/Revised** | **Indicator** | **Baseline** | **Target** |
| **Initial indicator** | Number of hectares of pasture land restored | Degraded pasture on the most of the park territory | 500 ha of pasture land restored |
| **Revised indicator** | Number of hectares of pastures land restored using economic valuable species. | Overgrazed pastures on the most of the park territory (*Botriochloa ischaemum* as indicator species) with weeds and poisonous species (*Centaurea iberica, Carduus nutans, Cirsium sp., Carthamus lanatus, Xanthium strumarium*, etc.) | 500 ha of restored pasture land with economic valuable species in place (e.g. *Festuca sp, Poa angustifolia, Elytrigia repens, Lotus corniculatus, Medicago sp, Trifolium repens, Onobrychis viciifolia, Lolium perenne, Bromus inermis, Dactylis glomerata, Elytrigia repens etc.)* |
| **Initial indicator** | Number of hectares of degraded lands afforested. | No degraded lands afforested on the park territory. | 150 ha of degraded lands afforested. |
| **Revised indicator** | Number of hectares of community degraded lands afforested using native species as lead species (oak, linden, field maple, ash, elm, cherry, poplar, willow). | No community degraded lands afforested with native species as lead species on the park territory | 150 ha of degraded lands afforested with native species as lead species on the park territory. |

The project also established a methodology for its monitoring programme at the inception phase, which included the following:

* **An inventory of 50% of the community forests for which management plans will be developed (662.52 ha out of 1,392 ha).** The field surveys should cover the existing vegetation and plots delimitation in the field of the community forests. As part of the field work, delimitation of boundaries, parcels and sub parcels of the selected forestlands by applying special signs in accordance with the existing regulations developed and approved by the Government should be done. A description for every parcel, sub parcel and forest unit that includes the type of vegetation, type of habitat, soil, road network, other forest and mapping parameters should be done.
* **An inventory of 100% of the pasture area that should be restored (500 ha out of 5890 ha).** The field surveys should cover soil, vegetation, and water resources conditions. The pastures productivity and production quality, hay productivity, pasture cattle support, current pasture carbon storage, emission reduction and sequestration potential will be established during 2014 year in the framework of full inventory process.
* **A pasture and forest monitoring system.** A computer based system (Excel or Access) for monitoring of the carbon dividends and ecological integrity of the ecosystem will be developed, and the soil carbon monitoring on the degraded lands proposed for afforestation will be performed. The above-ground tree vegetation, carbon stocks of dead wood, litter biomass, biodiversity monitoring on afforestated plots, and soil carbon, biomass of herbaceous vegetation, biodiversity on pasture lands will be monitored during the second and last year of project implementation.

However, this methodology was not clearly documented and did not provide a solid basis for understanding the project’s results; and therefore did not provide an overall understanding of the status of forests and pastures in Orhei National Park as a whole as will be described in the next sections of this report.

While it is beyond any doubt that the project has undertaken extensive efforts in assessing the status of forests and pastures in the Orhei National Park, the weak consolidation and analysis of results can be confirmed by the fact that by the end of the project, the technical reports were still referring to the information provided in project document rather than to the project’s results.

As an example, the Carbon Assessment and Monitoring Progress Report No. 3 which covers the period of October 2014-October 2016 of the of the project could not provide an updated analysis of the status of erosion of the pastures as provided in the project document as follows: “*The degradation of land is also obvious in pastures. According to available information[[2]](#footnote-2), the majority of exiting pastures (fields used as meadows and pastures) are degraded or in a very poor condition. A part of the degraded and/or poorly-productive pastures (including because of soil conditions) should be directed towards afforestation*”.

**Based on all the above, it can be concluded that the M&E system both at design and at implementation is Moderately Satisfactory (MS)** **and showed some shortcomings in establishing a clear M&E system for the project and providing a solid basis for reporting on the project’s results and impact.**

## Implementing Agency and Executing Partners\*

**Main implementing agencies and their responsibilities**

As a “Pilot Project” within a larger Regional Project, several partners were involved in the project implementation and execution.

At the national level, UNDP-Moldova is considered as the project’s implementing agency, and it has established a clear and operational basis for project implementation which was defined in the project document and was adopted in project implementation with limited needed modifications.

Project implementation is also supported by the UNDP Regional Coordination Unit based in Istanbul, and which provided input and facilitated coordination of this project with other pilot projects as well as with the Policy component under the ClimaEast umbrella.

The EU delegation was also overseeing project implementation in line with its responsibilities as the project’s main source of funding donor and ensuring the alignment of the project with the overall project objectives as well as EU’s national policy framework in Moldova.

**Main executing partners and their responsibilities**

The main national executing partner of the project is the Ministry of Environment which has clearly played a major role in facilitating project implementation and partnerships at central level as well as at local level. The project has also established a strong cooperation in the project’s execution with the main institutions in charge of forestry and pastures management in Moldova at central level as well as at the level of the Orhei National Park.

**Main aspects related to the implementation arrangements**

The project’s implementation has been aligned with the project’s design has not necessitated many changes to the initial management arrangements of the project.

At the inception phase, the management arrangements adopted at project inception were in line with those identified at project design and mainly with regards to the Project’s Organization Structure including the Project Management Unit, Project Board and Project Assurance.

Although the inception phase has supported further clarification and definition of the different roles and responsibilities, the initial design has served as a basis of the management arrangements of the project. The coherence in the management structure is reflected in the timely implementation of the project despite a challenging technical context.

The key project’s timeframes have confirmed that the project has met the timelines of all its projected milestones and ensured its completion few months in advance and this was the case for most milestones including Project Inception Mission, Mid-Term Evaluation and Terminal Evaluation.

It is based on such a clear implementation and execution responsibilities that the project has been able to develop important partnership arrangements and stakeholders’ participation and could pursue various proactive modalities in this respect.

Moreover, the trends and levels of disbursement of the project’s budget has reflected the efficient management and implementation arrangements put in place by the project and supported by the implementing and executing partners; whereby the project’s funding was almost committed by year 3 of the project.

**Based on the above, the TE considers the Implementing Agency and Executing Partners rating as “Satisfactory” based on clear and efficient project implementation and execution arrangements.**

# Project Results

## Overall results (attainment of objectives)\*

This section presents the activities and results of the project based on the project’s Results and Resources Framework as provided in the initial project document.

### Output/Component 1: Pasture and community forest restoration plans for Orhei National Park area designed.

Under this component, as presented in Table 9 below, the project has met the set targets as follows:

* an area of pastures of 4,285 ha (out of the total of 5,890) has been covered by Pastures Management Plans (PMPs) at the level of all 18 communities of the Orhei NP
* an area of community forests of 1,305ha (out of the total of 1,392 ha ) has been covered by Forest Management Plans (FMPs), at the level of 12 communities of the Orhei NP

In order to reach its targets, the project developed a methodology for the pastures management plans and the forest management plans which was discussed and approved by the local communities in 2014 at the early stage of the project. Based on these methodologies, the pastures and forests were inventoried and a monitoring system adopted.

**The Forest Management Plans were prepared at the early stage of the project in 2014** (within less than 1 year) for the 12 communities in the Orhei National Park, namely Ghetlova, Morozeni, Neculaeuca, Donici, Pohorniceni, Teleseu, Trebujeni, Ivancea, Peresecina, Seliste, Tiganesti, Vatici.

The Forests Management Plans were presented and discussed at the level of the 12 communities; an extensive number of meetings were conducted throughout the project life to support a consultative process for presenting the planning process and results.

It should be noted that the plans are prepared in Romanian and it was therefore not possible for the TE to review the content of these plans. However, the methodology for the FMP provided some information regarding the approach and main findings of these FMP as summarize in Box 1 below.

According to this methodology, the main aspects which are covered under the FMP include the type of vegetation cover of the forests, an identification of areas for regeneration and those where various maintenance activities should be conducted in view of timber production. The methodology also provides an estimation of the total timber which can be produced through the implementation of the FMP over 10 years.

It is also to be noted that the methodology adopted for the FMP was already adopted at the level of various programmes and activities for the past 10 years and is based on the overall directives set forth by the Forestry Code.

**In the case of the Pasture Management Plans, the project constitutes Moldova’s first experience with the development of PMPs** and this experience is based on the national legal framework, namely “*art. 5 of the Law on Livestock; point 13 of the Government Decision No. 667 dated 23.07.2010 to approve the Regulation on pasturing and mowing, which requires the authorities of local public administration (LPA) to compile pastoral management plans and plans for carrying out maintenance, improvement and rational exploitation of public pastures*”.[[3]](#footnote-3)

In the case of the PMPs, the project started by conducting a pasture inventories in 2013 and 2014 and prepared the PMP towards in the second half of the project as follows:

* Pasture Management plan for Putinte in 2015
* Pasture Management plans for Vatici, Seliste, Romanesti, Codreanca, Donici, Morozeni in 2016

According to the methodology provided by the project (refer to Box 2 below), the PMP included an extensive soil and vegetation assessment.

The soil assessment covered 34 soil samples (19 samples from the slopes and 15 samples from the meadow), and extensive number of laboratory tests was performed for the collected soil samples including the following: humus content, mobile phosphor, changeable potassium, pH and carbonates. For the soil samples collected in the meadow, additionally analysis was conducted to identify the origin and fixed residues. In total, about 200 chemical tests were carried out.

The study of the vegetation and productivity of the pastures was conducted in 27 grassland sectors which were selected through the method of stratified sampling out of the 12 communes, which reached a total of 81 sampling areas.

As in the case of the FMP, the PMP were developed in Romanian and the TE could not review the detailed content of these plans. However, it can be concluded from the description provided in the methodology that the PMP structure is fairly detailed and would require extensive resources for developing it (human and financial); this might be beyond the capacity of the LPAs if they decide to develop a PMP through their own resources.

The Pasture Management Plans were approved by the Local Councils in 9 out of the 18 communities and the LPAs have proceeded with the adoption of the proposed pasture use regulations.

**Table 9. Summary of results for Output 1: Pasture and community forest restoration plans for Orhei National Park area designed**

|  |  |  |  |
| --- | --- | --- | --- |
| **Indicator** | **Baseline level** | **EOP target** | **TE level** |
| Number of communities and hectares of pastures managed according to the pasture management plans | No communities (0 ha) of pastures managed according to pasture management plans | 18 communities (5,890.92 ha of pastures) managed according to pasture management plans | 18 communities (4,285.52 ha of pastures) managed according to pasture management plans (the amount is changed according to the pasture inventory). |
| Number of hectares of community forests managed according to the forest management plans | 0 ha of community forests managed according to forest management plans | 1,392 ha of community forests managed according to forest management plans | 1,305.8ha of community forests managed according to forest management plans |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Box1. Summary of methodological approach of the FMP**  The Forest Management Plans were developed in line with the provisions of art. 71-73 of the Forestry Code, which requires planning and keeping the strict records of forestry works performed in lands within parks. FMP are approved by the state forestry bodies or, with their agreement, by other state bodies and are compulsory for managing land plots from the forestry fund and for forestry beneficiaries. Whenever developed, the forestry management plans are included in the state forestry cadaster.  The following Results and conclusions were established for the forests from the mayoralties which are part of the National Park Orhei based on the data of the study:   * the deficient management modality in the past, through repeated cuts in the grove and illegal cuts, led to the increase of the share of brushes originating from sprouts; * there is an unbalance distribution by age classes; * average consistency, medium production class, sanitary condition of the brushes characterizes the concerns regarding the satisfactory forest management; * the horizontal and vertical structure of the brushes allow for transformation into normal optimal structure, which would satisfy in good conditions the functions attributed to the brushes.   Synthetized data are present below based on the study, for the main characteristics of the communal forests’ structure, the suggested works, and the possibility to harvest timber.  **Distribution of communal forests by use category**  **Total of harvested timber for 2014 – 2024**   |  |  |  | | --- | --- | --- | | **Specifications** | **Area (ha)** | **Volume of timber to be extracted (m3)** | | Preserving cuts (suggested to be regenerated) | 243.0 | 8,866 | | Maintenance and control works, total | 253.5 | 582 | | * *cleaning* | 222.7 | 199 | | * *thinning* | 30.8 | 383 | | * *selective hygiene* | 339.1 | 1,971 | | **TOTAL GENERAL FOR THE PERIOD 2014-2024** | **835.6** | **11,419** | | Annual volume | 83.6 | 1,142 | |

|  |
| --- |
| **Box 2.** **Summary of methodological approach of the FMP**  **General considerations**  According to the project objectives, the pasture management plans of the existing 5,890.92 ha of pastures of the 12 communities in the National Park Orhei should be developed, based on the Government Regulation on grazing and mowing.  In order to achieve the aforementioned objective, the project team has to perform the following tasks:   1. Conduct a comprehensive pasture inventory based on the field scientific study, using input data from the Agency for Land Relations and Cadaster at both national and local levels, Institute of Pedology, Agrochemistry and Soil Protection “N. Dimo”, and National Park Orhei Scientific Argumentation in order to assess soil and vegetation conditions, to evaluate productivity and production quality, hay productivity (if any), cattle support, carbon storage, emission reduction and sequestration potential. 2. Develop pasture management plans for each of the communities from the park, based on the performed comprehensive pasture inventory, existing scientific and technical data, and in close consultation with pasture owners.   At the initial stage of activity implementation, the project team developed a draft structure of the pasture management plan and consulted it with representatives of Ministry of Agriculture, Ministry of Environment, Local public authorities and pasture owners and users.  **Pasture inventory methodology**   1. Delimitation of the pasture fund from the other funds of the national economy and establishing the areas of pastures to be managed   The delimitation of pastures is based on 2 maps (orthophoto bases and the geographical evidence). When identified and geo-referenced, some sectors of the pasture needed to be verified through overlap with the geographical information with regards to changes of ownership or land use type compared to existing records of the pasture. This can also be linked to the land balance review conducted once a year by the mayoralty and the Cadaster office.   1. Study of the soil   In total, there were collected 34 soil samples: 19 samples from the slopes and 15 samples from the meadow.  The following laboratory tests were performed for the collected soil samples: humus content, mobile phosphor, changeable potassium, pH and carbonates. For the soil samples collected in the meadow, additionally analysis was conducted to identify origin and fixed residues. In total, about 200 chemical tests were carried out. The results of the agro-chemical research will be used for scientific argumentation to apply organic and mineral fertilizers, as well as for calculating if they are necessary at the parcel level.   1. Study of the vegetation and determining the productivity of the pastures   In total, 27 grassland sectors were selected through the method of stratified sampling out of the 12 communes, which reached a total of 81 sampling areas.  Depending on their productivity (dried mass/ha), the analyzed grassland sectors may be divided in three groups:   * grassland of low productivity ( from 1 t/ha up to 4 t/ha) account for 64% * grassland of medium productivity (from 4.01 t/ha up to 8 t/ha) account for 28% * grassland of high productivity (above 8.01 t/ha) accounts for only 8% |

### Output/Component 2: Forest and pasture restoration projects implemented

Under this component, as presented in Table 10 below, the project has met the set targets as follows:

* 470 ha of pastures were restored (out of the total 500 ha initially planned) with economic valuable species in place
* 150 ha of degraded lands were afforested (out of the total 150 ha initially planned) with native species as lead species on the park territory.

For each restoration site, the project indicated, through individual maps at the level of each LPA, the location of the pastures and forests restoration plots within the LPAs (as presented in Figures 3 below).

Despite the reporting constraints in this component, the project has established detailed procedures for the selection and implementation of pastures restoration activities which included the following:

* Development of selection criteria for pastures to be restored which were approved by the Project Board reflecting : relevance, sustainability, feasibility, impact and sustainability of works
* Identification of the most suitable pasture plots in line with the criteria and following consultations of local councils
* Development of grant operational guidelines to LPAs for the development of project proposals for restoration works
* Signature and implementation of 12 Grant agreements with 12 LPAs for the restoration of 32 plots of pastures covering 470 ha
* Conducting field visits of LPAs to restored pastures and afforestation plots to promote information exchange among LPAs

For afforestation activities, the following process was adopted:

* Identification of degraded lands proposed for afforestation based on consultations with district cadaster office and proposals received from LPAs
* An evaluation team comprising representatives from MoEnv, Moldsilva, District Cadastre, Project team, local mayors and cadastre specialists visited the 19 sites proposed by LPAs and proposed for approval 11 sites (142 ha) where local species can be planted.
* Extensive follow up was made by the LPAs in order to obtain local councils decisions for land allocation.
* Planting projects were developed based on detailed information (description of current situation, GIS soil maps, pedological maps based on pedological analysis and planting scheme, including species selection) for each plot
* Necessary soil preparation activities were performed on the selected degraded lands to support better conditions for plant survival

Although the target surface area for restoration was reached, and extensive information regarding the restoration sites was gathered for the restoration plots as indicated in the selection procedures, the project did not include, as part of its M&E system under this component, information regarding the changes of the status of the vegetation cover of restored areas. As such, the project’s reporting system fell short of providing an analysis of the changes in the status of the restored sites.

However, the project did report that the afforestation activities including maintenance, guarding and protection which were performed in 30 hectares of degraded lands in the 2014 have resulted in 90% survival of the plantation by the end of 2014. By the end of the project in 2016, management, guarding and protection of forest plantations was completed on 150 ha of degraded lands and revealed that 78% overall survival of plantings was possible to achieve according to the forestry technical norms for Orhei region. This was possible to achieve through the LPA’s participation in plantations guarding and protection.

With regards to pastures, technical capacities in pasture management and restoration was strengthened through the establishment of Inter-municipal enterprise “Prosper-Rural” (targeting 6 villages, 839 ha of pasture lands and 12,549 beneficiaries) and through its provision of needed agricultural equipment.

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| --- |
|  |
| **Figure 3. Example of information banner of the pastures and forests restoration site** |

**Table 10. Summary of results for Output 2: Forest and pasture restoration projects implemented**

|  |  |  |  |
| --- | --- | --- | --- |
| **Indicator** | **Baseline level** | **EOP target** | **TE level** |
| Number of hectares of pastures land restored using economic valuable species. | Overgrazed pastures on the most of the park territory (*Botriochloa ischaemum* as indicator species) with weeds and poisonous species (*Centaurea iberica, Carduus nutans, Cirsium sp., Carthamus lanatus, Xanthium strumarium*, etc.) | 500 ha of restored pasture land with economic valuable species in place (e.g. *Festuca sp, Poa angustifolia, Elytrigia repens, Lotus corniculatus, Medicago sp, Trifolium repens, Onobrychis viciifolia, Lolium perenne, Bromus inermis, Dactylis glomerata, Elytrigia repens etc.)* | 470 ha restored pasture land with economic valuable species in place (Predominant garminee: *Festuca sp (Festuca arundinacea), Dactylis glomerata,*  *Poa angustifolia (Poa pratensis), Lolium perenne,*  and Predominant fabaceae: *Medicago sp (Medicago sativa), Onobrychis viciifolia, Trifolium repens, Lotus corniculatus)* |
| Number of hectares of community degraded lands afforested using native species as lead species (oak, linden, field maple, ash, elm, cherry, poplar, willow). | No community degraded lands afforested with native species as lead species on the park territory | 150 ha of degraded lands afforested with native species as lead species on the park territory. | 150 ha of degraded lands afforested with native species as lead species on the park territory. |

### Output/Component 3: Carbon assessment and monitoring system in place

Under this component, as presented in Table 11 below, the project has met the set targets as follows:

* A computer database system was established, baseline data and final data for afforestation and pasture sites collected and entered;
* At least 450 people benefited from trainings and awareness campaigns in sustainable pasture and forest management and climate change risks

The Carbon Monitoring Database was established in 2014 based on data from field measurements for carbon monitoring of degraded lands conducted in 2013. The carbon monitoring and biodiversity assessment was conducted in pastures where restoration activities are planned based on demarcated 34 sample plots (19 from slopes and 15 from meadows). This has allowed establishing the baseline for carbon from soil and carbon from biomass, as well as biodiversity richness and abundance. The carbon assessment showed that carbon sequestration reached 7,346.7 tCO2 from afforestation activities and increased by 139% (around 17,300 tCO2) between 2014 and 2016 from restored pastures (refer to Box 3 and Box 4 below).

With regards to capacity building and awareness raising, the project has conducted an extensive training and awareness campaign at the local level and central level which included the following:

* A training on the importance and way of implementation of the pasture management plans organized with local public authorities.
* A training on integration of gender issues in sustainable land use (forests and pastures) organized with local public authorities.
* A Guide for Sustainable management of the community forests and pastures in Moldova developed and disseminated.
* The results of the project shared during the UN day in Moldova, Biodiversity caravan in Orhei, EU week in Cahul and Balti districts and field visits of the FAO and WB experts.
* Organization of the Environment day in Chisinau and disseminating the project’s results.
* Project results presented at the regional workshops in Ukraine and Georgia.
* Study visits for main stakeholders in Armenia (sustainable forest management) and for farmers in Georgia (rotational grazing, vaccine and pests control and sheep breeding practices).
* Project team participated in the experience sharing in carbon monitoring (Brussels, June 2016).

Moreover, a study on financial instruments for sustainable land management (including compensatory schemes for pasture management and innovative incentive measures) was developed and presented at a workshop with local public authorities in order to provide an in-depth assessment of the socio-economic benefits for LPAs and land users themselves to support sustainable approaches for land management.

**Table 11. Summary of results for Output 3: Carbon assessment and monitoring system in place**

|  |  |  |  |
| --- | --- | --- | --- |
| **Indicator** | **Baseline level** | **EOP Target** | **TE level** |
| Monitoring system in place consisting of  a) ecological integrity of the grassland ecosystem  b) Volume of biomass growth for forest ecosystems  c) Carbon dividends | No monitoring in place | A robust computer based pasture and forest monitoring system in place | Computer database system established, baseline data and final data for afforestation and pasture sites collected and entered |
| Number of people involved in the capacity building and awareness activities at the national, regional and local levels.  Increased level of understanding about sustainable grassland, forest management and climate change risks. | Insufficient trainings and awareness in sustainable grassland, forest management and climate change risks | Increased level of understanding at local, regional and national level about sustainable grassland, forest management and climate change risks. | At least 450 people involved in trainings and awareness in sustainable grassland, forest management and climate change risks activities |

|  |  |  |
| --- | --- | --- |
| **Box 3. Carbon estimation on afforested fields**  The total area of the afforested fields within the ClimaEast Moldova Project accounts for 151.04 ha. The planting and maintenance of forestry crops were carried out by Orhei Forestry Enterprise based on a contract with the project. The planting of forestry crops started in autumn 2013. Due to difficult eco-soil conditions cumulated with the unfavorable climate conditions during 2014-2015 an important part of forestry crops was unsuccessful or partially successful. Hence, during 2015-2016 the majority of areas with forestry crops from the project were subject to ample replanting or/and reparation (completion) works.  The field examination of the project sectors reveals that the planted trees and the shrubs are still very small with heights within the interval of 15 and 75 cm (as shown in the Figure below). Because of the current conditions of the forestry plantations within the project, it was decided not to perform measurements in the field, as they will be irrelevant. As a solution for estimating the changes in the carbon stocks on the afforested fields, there was selected the simulation of calculations based on the results of the “Development of communal forestry sector in Moldova” Project (DCFSMP) from 2012.   |  |  | | --- | --- | | Description: DSC_0511 | Description: IMG_0614 |   **Forestry crops from the CEMP during the summer and autumn 2016**  **Estimation of GHG absorption performed by absorbers in biomass reservoirs (terrestrial and underground), litter and soil**  The changes verified in the carbon stocks *ex post* in biomass reservoirs (underground and terrestrial), litter and soil included the calculation of GHG absorptions by absorbers. As a result of the respective calculations, it was established that the total quantity of GHG absorptions varied out on afforested land plots within the project accounts for **7,346.7 tCO2e**. |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Box 4. Carbon estimations on restored pastures**  For the monitoring of pastures within the ClimaEast Project, an estimation of carbon in biomass was carried out, as the evolution of changes in the organic stock of carbon in the soil (SOC) is relative slow. According to the international recommendations in the area, as well as based on the accumulated national experience, to ensure the efficiency/productivity of the SOC monitoring/measuring events, they should be carried out with a periodicity of minimum 10 years. At the same time, the works for pastures’ improvement within the ClimaEast Project started in autumn 2014, being mainly implemented in 2015. Hence, there is clear irrelevance of re-estimating carbon in the soil in autumn 2016.  Another important aspect is the fact that the improvement/rehabilitation process (partial success) was not yet finished at the stage of initiating the carbon monitoring in pastures in some sectors. The total area of this category accounted for 109.3 ha (6 sectors) or 24.3% of the total pastures envisaged for the improvement/rehabilitation process. Besides, several sectors were excluded from the improvement process (3 sectors; 58.3 ha or 13%).  In order to ensure the quality and the representativeness of the calculations in the monitoring, the sectors in which the process of improvement/rehabilitation was not finished (partial success) were not included in the measurement and estimation of carbon stock.  As such, the estimation of carbon in the biomass was applied to improved (relevant) pastures with the total area of 281.5 ha. All the calculations and modeling were carried out based on these pasture and subsequently related to the total area of the pastures (5,890.9 ha).  **Estimation of biomass on pastures improved within the project**  As presented in the tables below, the productivity of pastures increased in average 2.43 times (2.22 times in slopes; 2.96 times in meadow) between 2014 and 2016, increasing from 2.1 t/ha to 5.56 t/ha in meadows and from 2.04 to 4.59 t/ha in slopes.  **Productivity of meadow pastures within the ONP before and after improvement**   | Name of mayoralty | Name of pasture | Layer | Relief type | | Area, ha | | Productivity before improvement (2014), t/ha | Productivity after improvement (2016), t/ha | Comparative increase of productivity | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | TOTAL | | | | 64.91 | | - | | - | - | | Medium values | | | | | | 2.10 | | 5.56 | 2.96 |   **Productivity of pastures on the slopes within the PNP before and after improvement**   | Name of mayoralty | Name of pasture | Layer | Type of relief | Area, ha | Productivity before improvement (2014), t/ha | Productivity after improvement (2016), t/ha | Comparative increase of productivity | | --- | --- | --- | --- | --- | --- | --- | --- | | TOTAL | | | | 281.49 | - | - | - | | Medium values | | | | | 2.04 | 4.59 | 2.43 |   **Estimating carbon stock in pastures vegetation biomass**  As presented in the table below, the change which occurred in the net stock of carbon in the biomass of the fields with pastures within the project is significant and accounts for 17,251.72 tC or an increase of about 139%.  **Change in the net stock of carbon in the biomass in with pastures within the project**   |  |  |  |  | | --- | --- | --- | --- | | **Element** | **Current net stock of carbon, ex post (tC)** | **Net stock of carbon,**  **ex ante (tC)** | **Change in the net stock of carbon in pastures’ biomass (tC)** | | **TOTAL** | **29,668.62** | **12,416.91** | **17,251.72** | |

### Overall assessment of results

**Based on the above assessment of the project’s outputs, the overall assessment of the project’s results is rated as “Satisfactory” as summarized in Table 12 below.**

**Table 12. Summary of the overall assessment of the project’s results compared to the MTE assessment**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Objective/Outcome** | **Indicator** | **Baseline level** | **EOP target** | **MTE level** | **TE level** |
| Restoration of pastures and community forests within the territory of the Orhei National Park | 500 ha of pasture land restored | Overgrazed pastures on the most of the park territory (*Botriochloa ischaemum* as indicator species) with weeds and poisonous species (*Centaurea iberica, Carduus nutans, Cirsium sp., Carthamus lanatus, Xanthium strumarium*, etc.) | Restored with economic valuable species in place (e.g. *Festuca sp, Poa angustifolia, Elytrigia repens, Lotus corniculatus, Medicago sp, Trifolium repens, Onobrychis viciifolia, Lolium perenne, Bromus inermis, Dactylis glomerata, Elytrigia repens etc.)* | Project will restore 28 ha less than target as only 470 ha was allocated by LPAs –of this planting is complete on 291 ha and remaining planned to be completed in 2015.  Restoration works delayed due to poor weather conditions in autumn and spring 2014.  10 out of 12 LPAs carried out works so far. | By the end of the project, 470 ha of pastures were restored (out of the total 500 ha initially planned) with economic valuable species in place.  As indicated in Section 3.1.3., the productivity of pastures increased in average 2.43 times (2.22 times in slopes; 2.96 times in meadow) between 2014 and 2016, increasing from 2.1 t/ha to 5.56 t/ha in meadows and from 2.04 to 4.59 t/ha in slopes.  However, the baseline and target for the status of restored pastures was not identified as part of the M&E system and as such cannot be assessed by the TE. |
| 150 ha of degraded lands afforested | No community degraded lands afforested with native species as lead species on the park territory | Afforested with native species as lead species on the park territory. | Planting initiated in spring 2014.  Some planting delayed due to poor weather in autumn 2014. By 1st May 2015 a total of 159ha was completed. | By the end of the project, 150 ha of degraded lands were afforested (out of the total 150 ha initially planned) with native species as lead species on the park territory.  As indicated in Section 3.1.2., afforestation activities reached 78% overall survival of plantings in line with the forestry technical norms for Orhei region, and is attributed to the LPA’s participation in guarding and protection.  However, the baseline and target for the status of restored pastures was not identified as part of the M&E system and as such cannot be assessed by the TE. |

## Relevance\*

The project is highly relevant to Moldova in general in terms of ecosystem management of the important natural resources.

Pastures in Moldova cover 350,000 ha which is equivalent to around 15% of total area of the country. The majority of pastures, around 88%, are owned by the territorial-administrative units (mayoralties) while the share of the state is around 10% and private owners hold 1.5% of pastures. Pastures in Moldova are regulated by two main laws: Law on animal husbandry (chapter 4) and the Regulation on grazing and mowing (Government Decision), which require that a Pasture Management Plan is in place. As such, this pilot project has provided Moldova with a first experience in the development and implementation of Pasture Management Plan.

With regards to forests, the national forestry fund accounts for 13.2% of the country’s territory; with the majority of the forests (87.7%) are under the state’s property, while the mayoralties own 12.7% and only 0.6% is private property. Forests are regulated by the Forest code (1996) and the Law on afforestation of degraded lands number 1041 of 15.06.2000, which also call upon the development of a Forest Management Plan.

To complement the national context, the project has focused its efforts on communal forests and pastures in the Orhei national Park, which will allow Moldova to strengthen the management of around 130,000 ha of forests and 316,000 ha of pastures (meadows and grasslands) owned by mayoralties across Moldova. In total, mayoralties manage around 446,000 ha of forestry and pastoral resources, which accounts for 56% of the cumulative area of the registered forests and pastures in Moldova and offers a significant potential for Moldova in ecosystem management.

**Based on the above, the TE rating of the project is considered as Relevant.**

## Effectiveness and Efficiency\*

The project has efficiently implemented the different activities planned within the project document and this is confirmed by a consistent financial delivery reflecting normal disbursement trends with most important commitments engaged at mid-term of the project.

The project has also reflected a rigorous management in engaging needed resources and implementing set activities, including the regular meetings of the Project Board, organizing an extensive number of consultation meetings and events at the national level. Despite its limited budget, the project has also organized important and highly welcomed study tours, including a visit to Armenia for stakeholders involved in sustainable forest management and restoration practices as well as a study tour for a group of farmers to Georgia focusing on rotational grazing and veterinary service.

In addition to the above, the project has efficiently completed all planned deliverables including the management plans, the restoration activities and the monitoring system.

The project has also been effective in responding to the project’s objective and outcomes and ensured that the project’s results are clearly reflecting the needs of the concerned stakeholders by establishing clear methodologies for the development of the pastures and forests management plans, clear methodologies for the selection of the project sites to be restored and practical modalities for implementing them.

Effectiveness can be however questioned with regards to some aspects and the TE raises 2 issues which could have contributed to the effectiveness of the project’s results:

1. Given the fact that the Pasture management Plans constituted the first experience for the development of PMP in Moldova, it would have been opportune if the project would have called upon an external technical support or peer review of the PMP methodology and implementation modalities, in view of strengthening the national capacities and injecting hands-on experience from other countries. Such questioning can be confirmed in light of the limited capacities of the LPAs and which is confirmed by the assessment of the management plans as part of socio-economic assessment conducted under the project and which indicated the following “*1)* *the PMPs and the FMPs do not have very precise provisions about how to monitor the implementation and measure the effects of the implementation in time and 2) the management plans don’t describe in enough details the responsible bodies or stakeholders for the implementation*.”[[4]](#footnote-4)
2. The project fell short of developing a capacity development including public outreach plan which would have provided a strategic framework for the extensive capacity development activities implemented by the project and allowed a clearer identification of needs and results to be achieved.

**Based on the above, the TE rating of the project’s Effectiveness and Efficiency is considered as Satisfactory.**

## Sustainability\*

**Financial sustainability**

Based on a technical assessment of socio-economic benefits of the project, it can be confirmed that the implementation of the management plans elaborated by the project will have a significant economic benefits. The difference in the Net Present Value (NPVs) between the “WITH” and “WITHOUT” management plans scenarios is estimated at EUR 25,097,608 over a 15 years period[[5]](#footnote-5). The assessment also indicates that actions that have been already implemented by the project must be continued through a complete implementation of the provisions of the forest and pasture management plans; otherwise the economic effect of these actions will be lost in several years. During the discussions with the concerned LPAs, the TE has confirmed the interest and willingness of the LPAs to continue with the implementation of the management plans. **As such, Financial sustainability can be considered as Likely.**

**Institutional sustainability**

The project has engaged all concerned stakeholders in the project at planning and implementation levels and has supported the institutional anchorage of the project within the relevant institutional and legal framework. More specifically, the project has actively supported the LPA’s in discussion and approval of the pasture management plans and the forest management plans at the councils’ level, through explanatory meetings. Moreover, the project supported the development of the technical capacities of the exiting “Inter-community municipal enterprise” in the aim of ensuring the continuity of the pasture management and restoration activities.

At the central level, the extensive involvement of the Forest Research and Management Institute in the development and implementation of the forest and pasture management plans ensures the continuation of the activities and experience gathered through this project, this is already confirmed through the various on-going initiative with various donors to implement national programmes including forest and pasture management planning, restoration activities as well as monitoring based on the project’s experience. This includes initiatives under development by the World Bank, IFAD and UNDP/GEF. **As such, Institutional sustainability can be considered as Likely.**

**Socio-political sustainability**

The project has clearly built upon on-going initiatives and plans related to forests’ and pastures’ management in order to complement the policy development aspects and ensure up-scaling of the project results within on-going national efforts for forests and pastures management.

This has included specifically the FAO project “Increasing small-scale farmers’ resistance to drought by adopting best irrigation practices and modern technologies” to support the sustainability of the project’s afforestation results, and the inclusion of afforested lands into the State afforestation programme (chapter maintenance) was recommended to LPA's with the support of the Forest enterprise.

Complementarities and synergies with the ENPI FLEG Programme for “Improving Forest Law Enforcement and Governance in the European Neighborhood Policy East Countries and Russia” were also very important and strengthened the project’s results and sustainability; whereby ENPI FLEG 2 programme prepared pastures management plans for 843 ha of community pastures as well as forests management plans for 6 communities complementing the 12 implemented by the project in order to cover all the communities in the Orhei National Park.

Moreover, the project has supported the strategies and plans of all concerned ministries and more specifically related national planning process within the Ministry of Environment and the Ministry of Agriculture and Food Industry as indicated in the earlier sections of this report. **As such, Socio-political sustainability can be considered as Likely.**

**Environmental sustainability**

Environmental sustainability of the project is a built in within the project’s strategy and implementation process. All the outputs of the project have been structured in a way to secure long-term environmental benefits of the project’s activities.

All the project activities were planned and implemented in a way that can restore environmental services and reduce the carbon emission (through improving stocking rates). The development of management plans and restoration activities have been complemented with needed training sessions in sustainable pastures and forest management for local communities, to ensure sustainability of project activities. The project’s support for the establishment of the Inter-municipal enterprise for management of community pastures and forests in Orhei National Park has also strengthened the environmental sustainability of the project’s results. **As such, Environmental sustainability can be considered as Likely.**

**Based on the above, the TE rating of the project’s Overall Sustainability is considered as Likely.**

## Impact\*

Overall, the project has delivered tangible and positive impacts in pastures and forests managements in the Orhei National Park which can be confirmed through the following measurements:

* Carbon sequestration from afforestation activities was estimated to be 7,346.7 tCO2
* Carbon sequestration from restored pasturelands increased by 239% up to 17,300 tCO2
* The productivity of pastures due to restoration activities increased by 2.43 times, from 2.04 t hay/ha in 2014 to 4.59 t/ha in 2016,
* The overall survival rate of afforestation activities was estimated at around 90% in 2014, and by the end of the project, the survival rate was confirmed to be in line with the national standards of 78%.
* The difference in the Net Present Value (NPVs) between the “WITH” and “WITHOUT” management plans scenarios was estimated at EUR 25,097,608 over a 15 years period

Despite the above, the TE highlights some constraints in the project’s design which should be taken into consideration in the assessment of the project’s impacts and which will be further elaborated in the next Sections of the TE report on conclusions recommendations; these are the following:

1. Lack of impact indicators as well as clear baseline and targets which allow quantifying the ecological status of the pastures and forests in the Orhei National Park.
2. The difficulty to generate meaningful data during the time frame of the project regarding carbon sequestration and improved status of pastures and forests.

**Based on the above, the TE rating of the project’s Impact is considered as Significant.**

# Conclusions, Lessons & Recommendations

## Main conclusions and lessons of the Terminal Evaluation

Based on the finding of the TE, it can be concluded, that despite its limited resources, this project has delivered an impressive amount of results which can pave the way for a long-term management of the ecosystem services of the Orhei National Park.

The project’s intervention logic has been developed based on a matured understanding of the challenges facing the ecosystem of the park, especially territories under the direct management of the Local Public Authorities, which remain weak and lack needed technical and financial capacities for the management and safeguarding of the fragile forests and pastures ecosystems and their services.

In light of this experience which builds upon the various local and national initiatives in Moldova and can be used within the framework of future programmes under development, the main lessons learned from the project can be summarized as follows:

### Development of a methodological approach for the Pastures Management Plans

The project has supported the development of a methodological approach for the Pasture Management Plans which constitutes Moldova’s first experience with the development of PMPs. The PMPs are based on the national legal framework, namely the Law on Livestock and the Government Decision No. 667 dated 23.07.2010 on pasturing and mowing, and which require LPAs to compile pastoral management plans and plans for carrying out maintenance, improvement and rational exploitation of public pastures.

Through the project, the total area of pastures in the Orhei National Park, equivalent to 4,285 ha, at the level of all 18 communities of the Park, has been covered by Pastures Management Plans. Moreover, 470 ha of these pastures were restored with economically valuable species.

Although the target surface area for PMP development and restoration activities was reached, and extensive information regarding the pastures was gathered, some limitations in the PMP process has been identified throughout the TE and include the following:

* The PMP process does not provide a simplified basis for the interpretation of the changes in the status of the restored pastures as part of its M&E system nor its reporting system.
* The PMP do not describe clearly the roles and responsibilities for the parties responsible for their implementation
* The consolidation of the findings of the different management plans at the level of the Orhei National Park has not been conducted in a way to provide an overall description of the status of pastures across the Park.

Given the fact that this is Moldova’s first experience in PMP process, the TE also highlights the fact that such an experience would have benefited from an in-depth technical assessment which would have also provided a peer review of the PMP process or a comparative study with other countries. Such an assessment might have allowed improving the management planning process especially in the case of the PMP given the limited experience in Moldova in this field.

In this respect, the PMP process needs to be assessed with regards to the following aspects which are set forth in the methodology:

1. Delimitation of the pastures

* An analysis of the lessons learned from the delimitation process of pastures, their mapping and clarification of ownership would have contributed to future PMP processes
* Linking the delimitation process to the land balance review conducted once a year by the mayoralty and the Cadaster office would have supported the on-going efforts for land registration in Moldova.

1. Study of the soil

* An analysis of the number of samples and sampling protocols would have supported optimizing the resources of future PMPs taking into account the important number of soil samples was collected and analyzed through the project (34 samples in total), and extensive laboratory tests which were performed for the collected soil samples (around 200 chemical tests).
* An identification of the minimum number of samples and sampling protocols needed to inform the type of organic and mineral fertilizers necessary at parcel level.

1. Study of the vegetation and determining the productivity of the pastures

* An analysis and mapping of the pastures’ productivity (dried mass/ha) across the Orhei NP, in light of the assessment of the 27 pastures’ sectors which were conducted through the project and which revealed the following results:
* low productivity ( from 1 t/ha up to 4 t/ha) account for 64%
* medium productivity (from 4.01 t/ha up to 8 t/ha) account for 28%
* high productivity (above 8.01 t/ha) accounts for only 8%
* An identification of indicator species of vegetation of the pastures would have allowed the optimizing of the PMP assessments as well as the related M&E system.

### Follow up of the methodological approach for the Forests Management Plans

In the case of FMP, the project has adopted exiting methodologies for the FMP process which were already used at the level of various programmes and activities in Moldova for the past 10 years. The FMP process is in line with existing regulations, namely the Forest code (1996) and the Law on afforestation of degraded lands number 1041 of 15.06.2000, which calls upon the development of a Forest Management Plan.

Through the project, the total area of community forests of 1,305ha at the level of 12 communities of the Orhei NP has been covered by forest management plans. Moreover, 150 ha of degraded lands were afforested with native species as lead species on the park territory.

As in the case of the PMP, the project has been able to meet the target surface area for FMP development and restoration activities, and extensive information regarding the forests has been gathered. The FMP process has included at the level of each plan a description of the vegetation cover of the forests, an identification of areas for regeneration and those where various maintenance activities should be conducted in view of timber production.

However, as in the case of the PMPs, some limitations in the FMP process have been identified throughout the TE and include the following:

* The FMP process does not provide a simplified basis for the interpretation of the changes in the status of the restored forests as part of its M&E system nor its reporting system.
* The FMP does not provide a mapping of the zones in which the different type of interventions are planned for timber harvesting but rather an indicative surface area (as shown in Table 13)
* The FMP do not describe clearly the roles and responsibilities for the parties responsible for their implementation
* The consolidation of the findings of the different management plans at the level of the Orhei National Park has not been conducted in a way to provide an overall description of the status of forests across the Park.

**Table 13. Specifications of the harvested timber for 2014 – 2024**

|  |  |  |
| --- | --- | --- |
| **Specifications** | **Area (ha)** | **%** |
| Preserving cuts (suggested to be regenerated) | 243.0 | 29 |
| Maintenance and control works, total |  |  |
| * *cleaning* | 222.7 | 27 |
| * *thinning* | 30.8 | 4 |
| * *selective hygiene* | 339.1 | 41 |
| **TOTAL** | **835.6** | **100** |

### Limitations in pastures and forests monitoring in short-term interventions

Overall, the project has delivered tangible and positive impacts in pastures and forests managements in the Orhei National Park which were confirmed through the following measurements:

* Carbon sequestration from afforestation activities was estimated to be 7,346.7 tCO2
* Carbon sequestration from restored pasturelands increased by 239% up to 17,300 tCO2
* The productivity of pastures due to restoration activities increased by 2.43 times, from 2.04 t hay/ha in 2014 to 4.59 t/ha in 2016,

However, some limitations were identified in establishing an impact monitoring system for the project’s achievements at the level of the status of the pastures and forests within the Orhei NP due to the following main factors:

1. **Difficulty to establish and measure impact indicators which allow quantifying the ecological status of the Orhei National Park.**

Although the project has provided an extensive quantitative assessment of the different activities implemented within its time frame and which showed progress towards the objectives of the project, the establishment of impact indicators complemented with a clear initial baseline and target is a challenging task which requires extensive support and a longer time frame to measure the impacts on the status of the ecosystem. As such, beyond the indicators related to the carbon sequestration and pastures productivity, the ecological status of the forest and pastures in the Orhei National Park as a result of the project intervention could not be measured in a comprehensive manner due to lack of the lack of technical resources as well as limited timeframe of the project.

1. **The difficulty to generate meaningful data during the time frame of the project regarding carbon sequestration**

Given the challenges facing the project in restoration activities of pastures and forests within its limited timeframe, the project has resorted to estimations and assumptions which would have been expected if the conditions were adequate for regeneration and by extrapolating these over a duration of 10 years. As such, in order to conduct the evaluation of carbon sequestration within the project’s limitations, it was necessary to use assumptions of condition which were not necessarily applicable during the project’s lifetime in order to estimate the project’s impact, more specifically these were the following:

* In pastures, calculations and modeling for the estimation of carbon in the biomass was applied to improved (relevant) pastures with the total area of 281.5 ha; these were subsequently related to the total area of the pastures of 5,890.9 ha
* In forest, estimations of the changes in the carbon stocks on the afforested fields were made based on simulations of calculations of the results of the “Development of communal forestry sector in Moldova” Project (DCFSMP) from 2012.

## Key recommendations of the Terminal Evaluation

### Consolidation of the technical information and results of the project

As a pilot project, the project has focused its efforts on the development of an extensive number of PMP and FMP and the implementation of the restoration activities.

It is therefore important that the management planning process can be documented and made available at the level of all concerned stakeholders. It is highly recommended for the project to consolidate, edit and publish in English the results and experience which have been gathered through the project’s activities and more specifically by covering the following aspects:

* Information regarding the methodologies adopted in the development of the PMP and FMP (refer to Box 1 and Box 2 of this report)
* Information on the procedures developed for the selection of pastures and forests for restoration activities under the project (refer to Section 3.1.2 of this report)
* Information on the methodologies and results of the implementation of the restoration activities (refer to Box 5 below)
* Integrating the mapping and results of the forests and pastures restoration activities within the respective management plans. In practice, the management plans have provided vegetation maps of community forests within the FMP of each LPAs (example for Teleseu in Figure 4 below), and identified the vegetation cover of the pastures within the PMP of each LPA. However, the project did not include the mapping and the results of the restoration activities of pastures and forests within the management plans (example for Teleseu in Figure 5 below).
* The consolidation of overall findings of the management plans at the level of the Orhei Park as a whole, given that the project did not provide an overall assessment of the status of pastures and forests at the level of the Orhei Park as a whole, based on the available information within the management plans.

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| --- | --- |
|  | Description: Description: C:\Users\lamia\Documents\ClimaEast FE\Moldova-nov2016\report-lamia\Teleseu730x1070.jpg |
| **Figure 4. Vegetation map of community forests in Teleseu** | **Figure 5. Location of the restoration plots within the community of Teleseu** |

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| **Box 5. Main results of the project’s restoration activities provided by the project**  **Afforestation of degraded lands.** Until the end of August 2014, the soil preparation activities were done in all the sectors. At the same time 30 hectares of degraded lands in Teleseu village of the Orhei district were planted with oak from seeds in March 2014. The results showed that plantings from seeds are more resistant to climate change factors rather than those planted from seedlings (in comparison with plots planted in other years). It is estimated that planting from seeds, initially develop the roots prior to their growing up, and as a result, plantings have more developed roots compared to planted through 1or 2 years-old seedlings.  **Technologies for improving the selected degraded pastures.** Based on the analysis conducted under the project, it has been identified that the most frequent and usual works for improving the majority of the pastures’ sectors under analysis are the following: deforestation of the wood vegetation harmful for grass and animals; destruction of ant hills and soil leveling; soil fertilization; deep aeration of the soil through scarification; over-seeding the existing vegetal carpet with wood species and Gramineae with high productivity and increase capacity of competition. |

### Publishing and disseminating the project’s results to local authorities and other concerned stakeholders

Despite the implementation of an extensive communication and outreach programme, the project has not published some of the important information which is available at its level in order to make it accessible as a basis for decision making at local and central level.

Although an important publication on “*Sustainable management of community-owned pastures and forests*” has been published by the project in 2016, this publication is only available in Romanian and it is not easy to locate it on the internet.

Moreover, the project has prepared a large number of technical reports which require substantive editing to be able to convert them into solid publications accessible to the decision makers as well as to the more specialized technical stakeholders. Once they are edited, it is very important to ensure that the visibility and accessibility of such publication is easily accessible on the internet and as hard copies if possible.

Priority actions in this regards include the following:

* Summarize and publish the PMPs and FMPs in simplified and action-oriented form and provide hard copies to the LPAs;
* Edit and publish the “*Socio-economic assessment report*” (refer to Box 6 below) and prepare an executive summary in Romanian to be made available separately for decision makers
* Translate the publication on “Sustainable management of community-owned pastures and forests” in English and ensure it is accessible on the internet

|  |
| --- |
| **Box 6. Main findings of the assessment of the socio-economic benefits and designing incentive measures to support sustainable approaches for land management in ONP region (June 2016)**  The economic benefits of the implementation of Forest Management Plan and Pasture Management Plan were estimated using the Cost Benefit Analysis (CBA) based on the Total Economic Value (TEV) approach, based on an estimation of the total flow of the Ecosystem Services (ES). The CBA is based on comparing two management scenarios: WITH PMPs and FMPs implementation and WITHOUT it.  In case of pasture management, the cash flow for WITH scenario has a significant decrease in the first years due to the costs for improving the quality of the pastures, especially in Y1 and Y2. As a result of the PMPs implementation, the productivity of the pastures increases steadily to a relatively constant level, corresponding to the potential support capacity. In WITHOUT scenario, the cash flow is constantly diminishing due to the reduction of the production capacity due to ecosystem degradation. The Net Present Value (NPV) for WITH scenario (15 years, 5% discount) was estimated at 47.6 mil EUR and the NPV (15 years, 5%) for WITHOUT scenario is estimated at 22.4 mil EUR.  As such, the difference in the NPVs between the “WITH” and “WITHOUT” management plans scenarios is estimated at EUR 25,097,608 over a 15-years period.  The report confirms that the project activities have significant benefits in increasing local public budgetary resources and financial predictability, increasing employment for local work force, increasing demographic stabilization, premises for better transportation, sanitation and water systems and services, and more enabling business environment especially in the area of animal breading and animal products processing. Main cultural benefits are the strength of local traditions especially in agricultural and forest specific activities, but also in education sector.  The conclusions of the report present strong reasons for promoting and implementing incentive measures for LPAs and other stakeholders to determine the adoption of sustainable land management. The most important incentives are the economic ones, especially those oriented towards LPAs. The economic incentives should be able to cover the short term costs and losses that can be brought by the elaboration and implementation of PMPs and FMPs. The economic incentives should be also accompanied by other types of incentives: use of environmental funds, social and cultural incentives, etc.  The incentives measures implementation requires an enabling environment that should include a series of support measures: regulatory and institutional reform and capacity building, public awareness, training, stakeholder involvement, etc. |

# Annex 1. Itinerary and persons interviewed

| **Time** | **Person, Organization** | **Background / Key discussion topics** | **Venue, address, contact details** |
| --- | --- | --- | --- |
| ***Tuesday, 21 February 2017*** | | | |
| 08:30 – 09:30 | Ms. Inga Podoroghin, State secretary, Ministry of Environment, Member of the Project Board | Discussions about project activities, progress, achievements and challeneges | Ministry of Environment  9, C. Tanase str., of. 604 |
| 09:30 – 10:30 | Mr. Vitalie Grimalschi, Chief of Biodiversity, Protected Areas Unit | Discussions about project activities, the impact and coordination with ongoing and planned biodiversity-related initiatives | Ministry of Environment  9, C. Tanase str., of. 607 |
| 11:00 – 12:00 | Mr. Alexandre Darras, Attache-Project manager, EU Delegation. | Briefing | EU Delegation  Kogalniceanu str. 12,  Tel: 022 - 505 210 (ext. 308)  Mob. 060860237 |
| 13:30 – 14:30 | Mr. Georgi Arzumanyan, E&E Cluster lead, UNDP Moldova | Briefing | UNDP Office  131, 31 August str. 1989 |
| 14:30 – 15:30 | Ms. Angela Dogotari  Ms. Marina Ciobanu,  Ministry of Agriculture and Food Industry, Republic of Moldova, Member of the Project Board | Discussions about project activities, the impact on planned agricultural policy and practices | 162, Ștefan cel Mare și Sfînt blvd., of 506 |
| 16:00 -17:00 | Mr. Alexandru Rotaru, Project manager  Mr. Sergiu Cotaga, Project assistant | Project presentation | UNDP Office  131, 31 August str. 1989 |
| ***Wednesday, 22 February 2017*** | | | |
| 08:10 | Departure from Chisinau to Orhei | From Jolly Alon Hotel | 37 Maria CebotariStr., Chisinau |
| 09:00 – 10:00 | Mr. Ilie Rabii, Deputy Head of Raion Orhei  Mr. Anatolie Iatisin, Head of Agricultural Section  Mr. Ştefan Mihalaş, Head of Ecological Inspection Orhei | Implementing Partner, Member of the Project Board | 2, M. Eminescu bvd., (second floor) |
| 10:15 – 11:00 | Mr. Viorel Petic, Director of Forest Enterprise Orhei | Local branch of Moldsilva Agency. Discussing about afforestation on degraded lands |  |
| 11:30 – 13:00 | Field visit to afforestation interventions | Peresecina, Teleseu, Donici |  |
| 14:15 – 16:00 | Mr. Nicolae Buzu, Mayor of Peresecina  Mr. Matvei Rosca, Director Inter-community enterprise Prosper-Rural, Orhei | Beneficiary of Pasture Restoration Grant, Discussion with mayor and field visit to pasture field  Beneficiary of the Agricultural equipment | Peresecina, Orhei |
| 16:30 – 17:30 | Mr. Petru Dogocher, Former Head of Mayors’ Association from Orhei region. Milk collection entrepreneur | Beneficiary of the project, Former member of the Project Board | Vatici village |

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| ***Thursday, February, 23*** | | | |
| 09:00 -10:00 | Mr. Petru Rotaru, Head of forestry and protected area department, Forestry Agency “Moldsilva” | Implementing Partner, Member of the Project Board | 124, Ştefan cel Mare blvd. (3rd floor) |
| 10:30 – 11:30 | Mr. Victor Cotruta, Clima East Policy national consultant | Discussions about project activities and coordination between policy and pilot components of the CLIMA-EAST project | CLIMA EAST office  156a, Mitropolit Dosoftei str., of 306 |
| 13:00 – 14:00 | Mr. Dumitru Galupa, Director, Forest Research and Management Institute (ICAS) | Discussion about ICAS involvement in project implementation and it’s experience in forest management planning, pasture restoration, CDM projects etc. | ICAS office, 69, Calea Ieşilor str. |
| 14:00 – 15:00 | Mr. Ion Talmaci, Clima East Carbon Monitoring Expert | Discussions about carbon evaluation and monitoring, knowledge sharing and future prospects for carbon monitoring in the country etc. | ICAS office, 69, Calea Ieşilor str. |
| 15:00 – 16:00 | Nicolae Talpa, Key expert for forest management planning | Discussions about forest management planning expectations and results | ICAS office, 69, Calea Ieşilor str. |
| 16:00 – 17:00 | Ms. Aliona Miron, Key expert of the team responsible for pasture management  and  ClimaEast expert responsible for pasture restoration | Discussions about pasture management planning and pasture restoration activities | ICAS office, 69, Calea Ieşilor str. |
| ***Friday, February, 24*** | | | |
| 09:00 – 10:00 | Alexei Negrescu, Head of Department of Land Relations and Soil Protection, Agency for Land Relations and Cadaster | Implementing Partner, Member of the Project Board | str. Puşkin, 47, 3rd floor |
| 10:00 – 11:00 | Mr. Alexandru Postoronca, NGO “Apa Codrilor”, Member of the Project Board | Discussions about project activities, the impact on local communities. | CLIMA EAST office  156a, Mitropolit Dosoftei str., of 306 |
| 11:00 – 12:00 | Mr. Aurel Lozan, ENPI FLEG Programme manager in Moldova | Discussions about collaboration between FLEG programme and Clima East project. | CLIMA EAST office  156a, Mitropolit Dosoftei str., of 306 |
| 12:30 – 14:00 | Mr. Georgi Arzumanyan, E&E Cluster lead, UNDP Moldova  Alexandru Rotaru, Project Manager  Sergiu Cotaga, Project assistant | De-briefing | TBD |
| 17:00 – 17:30 | Mr. Stefan Liller, UNDP Deputy Resident Representative | De-briefing | UNDP Office  131, 31 August str. 1989Tel: 83 99 83 |

# Annex 2. Summary of field visits

The field visit was conducted on 22 February to Teleseu and Peresecina in the Orhei Park, where pilot pastures and afforestation activities have been conducted through the project. In addition to meetings with key local stakeholders in the Orhei district, the field visit provided an understanding of the nature of the field and allowed to show reforestation results obtained through the project.

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| C:\Users\lamia\Documents\ClimaEast FE\Moldova-nov2016\report-lamia\photo-22-2-2017\p4.jpg | |
| C;ear indications of the Teleseu pilot afforestion and pasture restoration activities | |
| C:\Users\lamia\Documents\ClimaEast FE\Moldova-nov2016\report-lamia\photo-22-2-2017\p3.jpg | C:\Users\lamia\Documents\ClimaEast FE\Moldova-nov2016\report-lamia\photo-22-2-2017\p1.jpg |
| Afforestation in Peresecina | Size of seedling shoots in afforstation activities |
| C:\Users\lamia\Documents\ClimaEast FE\Moldova-nov2016\report-lamia\photo-22-2-2017\p2.jpg | |
| Restored pastures in Peresecina with the indication pannel | |
| C:\Users\lamia\Documents\ClimaEast FE\Moldova-nov2016\report-lamia\photo-22-2-2017\p5.jpg | |
| Demarcation of monitoring plots of pastures in Peresecina | |

# Annex 3. List of documents reviewed

**Project Management Reports:**

* Project Document. 2013
* Inception Report. November 2013
* Annual Progress Reports for 2013, 2014, 2015, 2016
* Quarterly Reports for 2013-2016
* TORs for key contracts and consultancies
* Minutes of the Steering Committee meetings
* EU Monitoring Report. December 2013
* UNDP-Moldova Management Response to the EU Monitoring Report. January 2014
* MTR report of ClimaEast project. November 2015
* UNDP-Moldova Management Response MTR report. January 2014

**Project technical reports (in chronological order):**

* Application of the guidance covered by paragraph 37 of the report of the EB 44 meeting with respect to insignificant GHG emissions from selected sources related to A/R CDM project activities. EB 50, Annex 16 16 October 2009 Version 03
* ClimaEast summary results of 2013and targets for 2014
* Gender equity assessment and gender mainstreaming action plan within the “Clima-East: Ecosystem based adaptation and mitigation to climate change in Orhei National Park” Project. 2013
* Executive summary of ClimaEast reports in 2014 covering methodologies of the following issues:
* Forest management planning
* Pasture management planning
* Afforestation of degraded lands
* Pasture restoration
* Carbon monitoring
* Forest management plans in 2014 and maps for Ghetlova, Morozeni, Neculaeuca, Donici, Pohorniceni, Teleseu, Trebujeni, Ivancea, Peresecina, Seliste, Tiganesti, Vatici
* Pasture management plans
* Report on pasture inventory. December 2013
* Report 2 on pasture inventory. October 2014
* Pasture Management plans for Putinte in 2015
* Pasture Management plans for Vatici, Seliste, Romanesti, Codreanca, Donici, Morozeni in 2016
* Carbon Assessment and Monitoring reports:
* Progress report No. 1. November 2014
* Progress report No. 2 June 2015
* Progress report No. 3. October 2014 - October 2016
* Project Submission Checklist Energy Globe Foundation GmbH. 2015
* ClimaEast summary results of 2014 and targets for 2015
* Assessing socio-economic benefits and designing incentive measures to support sustainable approaches for land management in ONP region. June 2016
* Exit strategy for the “ClimaEast: Ecosystem based adaptation and mitigation to climate change in Orhei National Park” Project. 2016

**Communication and outreach:**

* Booklet about sustainable management of community-owned pasture and forests. 2016 (in Romanian)
* Flyer about the Aspects of Sustainable Management of Natural resources in the national Park of Orhei. 2014 (in Romanian)
* Calender about the ClimaEast project in Moldova. 2015 (in Romanian)
* Online stories-Breathing Spaces by Climate Adaptation UNDP - Exposure (still active in English)
* Banner about the ClimaEast project in Moldova. 2014 (English and Romanian)
* Banners in the field related to 12 sites of afforestation and pastures restoration. 2016 (in Romanian)
* Several newspaper and magazine articles (in Romanian)

1. All criteria marked with (\*) must be rated [↑](#footnote-ref-1)
2. EU/UNDP Project “Clima East Moldova: Climate change mitigation and ecosystem-based adaptation in Orhei National Park” to show to the local communities the benefits and the advantages of the measures related to adjustment to climate changes. 2013, Project Document. [↑](#footnote-ref-2)
3. ICAS, 2016. Carbon Assessment and Monitoring reports: Progress report No. 3. October 2014 - October 2016 [↑](#footnote-ref-3)
4. Assessing socio-economic benefits and designing incentive measures to support sustainable approaches for land management in ONP region. June 2016 [↑](#footnote-ref-4)
5. Idem 4 [↑](#footnote-ref-5)