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Ministry of Nature Protection
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Adaptation to Climate Change Impacts in Mountain Forest Ecosystems of Armenia UNDP/GEF Project Accomplishments

Project Objectives and Overview

The "Adaptation to Climate Change Impacts in Mountain Forest Ecosystems of Armenia" UNDP/ GEF project was launched in June, 2009. The long-term development goal of this medium size project is to assist Armenia in beginning a process by which strategies to moderate, cope with, and take advantage of the consequences of climate change are enhanced, developed, and implemented. The specific objective of the project is to enhance adaptive capacities of the vulnerable mountain forest ecosystems to climate change in the Syunik region of Armenia.

Armenia's forest ecosystems are identified as a biodiversity hotspot and a global conservation priority falling under the Caucasus-Anatolian-Hyrcanian Temperate Forests Ecoregion. The high level of biodiversity is one of the most important features of the Syunik region in south-eastern Armenia. The region has been identified as a critically vulnerable region of the country, especially in terms of the risk posed by climate change to its unique mountain forest ecosystems. This conclusion comes from the comprehensive vulnerability and adaptation assessment undertaken for Armenia in the face of potential climate change under the aegis of its First and Second National Communications to the UNFCCC, an initiative supported by GEF and UNDP.

The main expected outcomes of the Project are: (1) The enabling environment for integrating climate change risks into management of forest ecosystems is in place; (2) Forest and protected area management in the Syunik Marz integrates pilot adaptation measures to enhance adaptive capacity of mountain forest ecosystems; (3) Capacities for adaptive management, monitoring and evaluation, learning, and replication of project lessons are developed. Lessons from the project are expected to be replicated in other mountain forest ecosystems of central and northern Armenia.

While the project planned to be of broader relevance to all mountain forest ecosystems in Armenia, the immediate focus of pilot adaptation measures will be in the Syunik region in south-east of Armenia. The project will undertake activities in 2 of the 3 forestries in Goris and Kapan districts of Syunik (Syunik and Kapan forest enterprises) and "Arevik" National Park in Meghri district.



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Selected target areas for the pilot projects are: Shurnukh forest area of the Syunik(Goris) forest enterprise, Davit Bek forest area of the Kapan forest enterprise, and Shvanidzor sector of "Arevik" National Park.

Selected adaptation measures will comprise measures to reduce **forest fragmentation** and improve ecological restoration as well as to mitigate increased **pest outbreak** and **forest fire risks** exacerbated by climate change.

Public Outreach and Advocacy strategy has been developed to underpin the Project's main outcomes, define and work with project target groups and stakeholders to raise their awareness and build capacities for sustainable management of forests vulnerable under forecasted climate change, define their roles and responsibilities and promote actions reducing human induced damage to the forests in the Syunik region. The strategy is put into implementation through three main streams which include **awareness raising and advocacy campaigns, capacity building initiatives** for target groups and **community actions** involving community active groups participation in designing, planning and implementation project's initiatives in reforestation, pest outbreak and forests fire monitoring and mitigation.

Among target groups and stakeholders of the project are defined national authorities, regional administration and local self-government bodies, institutions involved in the early warning and response system, community members, youth, educational and scientific research institutions, local and international organizations working in the sphere of environment, community development, culture and tourism.

Piloting Selected Adaptation Measures

- **Forest Rehabilitation Pilot Projects in Syunik Region**

Based on recommendations done during the Project Inception Workshop back in 2009 to engage Syunik based local organisations in piloting forest rehabilitation measures in order to ensure local ownership and commitment for long term sustainability, UNDP Armenia Country Office has signed a Letter of Agreement with "Hayantar" SNCO (national forest authority) to implement forest rehabilitation pilot projects in the Syunik region. Further reforestation was done in compliance with pilot project designs developed by "Hayantar"(ArmForest) SNCO.



The first pilot entails forest ecosystem rehabilitation works in Shurnukh forestry of the Syunik (Goris) forest enterprise in order to create better conditions for forest's natural resilience to climate change impacts as well as for integrity and connectivity of forest ecosystem. The first phase of land preparation and planting in this pilot project area started in the beginning of November 2009.



Projected Impact:

Locally, the Project will aim to enhance national capacities to adapt to anticipated climate change impacts in the affected south-eastern forests of Armenia.

Globally, the Project will aim to reduce the risk of global biodiversity loss and enhance protection of mountain forest ecosystems and their sustainable use in the context of anticipated climate change over the next 25- to 50-year timeframe.

The second phase was implemented in April-May 2010. In total, 70,000 two-year seedlings of only aboriginal tree species such as of oak, ash-tree, elm-tree, maple, and wild apple species were planted on the 15 ha area. Scheduled 2,700 sq m fencing work is accomplished.

The second pilot is a unique experience for Armenia taking into consideration that this sort of restoration has not been implemented in Armenia over the last three to four decades. Normally juniper species grow on degraded/eroded lands and forest authorities have been considering juniper as not valuable from productive forest perspective. However, juniper species are extremely important for ecosystems in terms of land and ground water protection as well as for prevention of further land erosion.



Burnt juniper forest area rehabilitation is under the implementation in the David Bek forestry of the Kapan Forest Enterprise. Land preparation and planting works for juniper forest rehabilitation started in April 2010. By the end of May 2010, in total, 7,000 two- and three-year seedlings of two aboriginal juniper species were planted on the 10 ha land area and irrigation works are performed. Scheduled 2,000 running meters fencing work is accomplished. Reforestation works on 10 more ha is planned by the end of 2010.

The third forest rehabilitation pilot is launched in "Arevik" National Park established by the Government of Armenia in Syunik region with total area of 34,400 ha that includes the area of former Meghri forest enterprise too. The pilot project document has been designed and the approaches for planned pilot project on the 20 ha area of the national park are adjusted considering the existing legal requirements to management of protected areas. In this respect a Letter of Intent was signed between Ministry of Nature Protection of Armenia, UNDP and WWF Armenia on joint actions to strengthen capacities of the Specially Protected Areas in Syunik and Particularly of "Arevik" National Park.



Project
Beneficiaries:

Mountain forest ecosystems, local communities, local forest authorities.

Climate Change Adaptation Related Studies

- ***Syunik Forests Vulnerability Assessment***

Study and mapping of Syunik forests from perspective of vulnerability and enhancement of adaptation to climate change impacts is accomplished taking into account the following factors: altitude of forest belts above sea level, mountain slopes, damage from forest fires and pest invasions, shifts in upper and lower forest boundaries, changes in natural regeneration process and species composition. Initial proposals to mainstream the activities aimed at mitigation of climate change impacts and enhancement of adaptation into forest management plans of forestries and protected areas in Syunik region are developed. The recommendations entail development of comprehensive programmes for forest fire monitoring, prevention and risk reduction, improved pest monitoring and control, including shift to environmentally sound measures as well as change of tree species composition planned for planting on forest lands.

- ***Facilitation of Environmentally Sound Pest Control; Identification of Climate Change Impact Bio-indicators***

Piloting a new approach for pest monitoring such as counting of larva and imago has been conducted under the project by experts of American University of Armenia on 27 sites and covered area of 110 ha in Syunik region. This is a combination of international and local practices and allows obtaining data in perspective at about 9-10 months ahead of the potential pest outbreak. The study results will serve as a basis for future recommendations to improve the monitoring system for pest invasions.

Testing of biological pest control measures such as use of pheromone-glue compounds is done for selected pests affecting forests under a state budget programme (parallel project funding component). Based on the results of the research this methodology is recommended as an effective tool for forest pest monitoring. The recommendations will be considered on the stage of the comprehensive recommendation package preparation under the project.

The field data on species composition and abundance of potential indicator species (birds and butterflies) for monitoring the climate change impacts on forest ecosystems was collected and to be analysed.

- ***Assessment of Armenia's Forest Fire Management and Pest Control Frameworks***

Assessment of Armenia's forest fire management and pest control legal and institutional structure, functions as well as current practices was conducted; critical gaps such as weak capacities of forest management authorities for monitoring and early response, improper coordination of activities between different agencies involved, shortcomings in related regulations identified in relation to climate risk management of the forests as well as low public awareness.



Public Awareness Raising, Cooperation and Capacity Building

- *Putting Collaboration Grounds with Local Stakeholders*

Two round-table discussions have been organized with local partners in Kapan and Goris towns in November, 2009,. Representatives of local NGOs, tourism businesses and forest management and protection authorities were present at the meetings. The main goal and objectives of the project, major reasons for choosing the particular project location, as well as the main streams of project implementation were outlined to the participants.



The accent was put on the importance of collaboration with NGO and private sectors in the Syunik region. Participants were very active and brought a number of suggestions applicable for future community engagement campaigns. The emphasis was given to the youth involvement, acknowledging them as future leaders and decision makes. The results of the mission served a ground for designing Public Outreach and Advocacy Strategy and future awareness raising and community engagement campaigns.

- *Workshop on Climate Change Risks Assessment*

The subject of Climate Change risks integration into management of forest ecosystems in Syunik region was discussed during the workshop held on May 7th, 2010. Representatives from the stakeholder ministries, Syunik regional administration and self-government authorities, tourism businesses as well as project national experts participated in the discussion.



The project experts presented and discussed current and future efforts in forests vulnerability assessment, study of pests and pestholes with focus to CC, as well as forest fire management problems in the Syunik region. International experience on approaches to assess forest vulnerability to CC impacts and European forest adaptation initiatives has been shared with the local stakeholders by the project's International Technical Adviser.





- ***UNDP Climate Change Programme Sponsored and Participated in the “Earth Day 2010 Armenia” Campaign***

Through the dates of April 15 to 22, 2010 UNDP Armenia Climate Change Programme participated in a number of events in the frames of the “Earth Day 2010 Armenia” campaign, organized by Young Biologists Association (YBA), Armenia Tree Project (ATP) and Public Environmental Information (Aarhus) Center in Yerevan.



This campaign was organized to celebrate the 40th anniversary of the Earth Day. Presentations on Adaptation to Climate Change issues were made during the seminar on “How to Live Green and Stop Climate Change” and the discussion on Climate Change “The Time to Speak Up”.

The Project staff participated in the tree planting event taken place at the surroundings of St. Sargis Church in Nor Norq district. The winners of the painting competition “Live Green” organised for children under the age of 12 were awarded with special prizes from the project side.



- ***Awareness Raising Seminars on Forest Biodiversity and Climate Change Issues in Syunik Region***



Through the dates of May 13- 15, 2010, seminars on Forest Biodiversity and Climate Change issues were organized for secondary schools teachers and students in Goris and Kapan. 41 teachers from 26 secondary schools of Goris, Kapan and surrounding communities participated in the seminars.





57 students from two schools in Goris and Kapan participated in specially designed seminars on the same issues. They were assigned to write essays on the questions of interest. The authors of the best works were awarded with acknowledgement certificates and prizes.



Based on the seminars' results and suggestions brought by students and teachers development of the future study curriculum for these target groups is initiated.

- *Awareness Raising Seminar for Armenian Media Representatives*

Seminar on "Vulnerability of Mountain Forest Ecosystems and Enhancement of Adaptation to Climate Change Impacts" took place on 17-18 September 2010 in Goris town. The seminar aimed at raising awareness of Armenian media representatives on climate change related issues with respect to Armenia's mountain forest ecosystems. **17 reporters from 9 republican and 6 regional media of Syunik** attended the event.

By the end of the seminar the participants were proposed to write an article, interview or scenario on forest vulnerability and adaptation to climate change impacts issues for publication with particular focus on Syunik region. The best selected articles will be posted on the web-site of the Climate Change Information Center of Armenia, the authors of the five best articles will receive the acknowledgement certificates, and the author of the best article will also receive a financial award.





- *Web-page of the “Adaptation to Climate Change Impacts in Mountain Forest Ecosystems of Armenia” Project*

The web-page for “Adaptation to Climate Change Impacts in Mountain Forest Ecosystems of Armenia” project was re-designed and re-structured to be more user-friendly and having new additional features.



The page is placed on the Climate Change Information Center website (www.nature-ic.am). The web-page is regularly updated with reports, documents and other information related to the project.

- *Signboards for Promotion of Fire-prevention Attitude and Actions*

Some of the most damaging consequences of human casual actions are the forest fires, particularly in the forest recreational areas during the dry season and aggravated due to climate change. Advocacy campaigns are organized to develop an appropriate human attitude to address the issue and prevent the human-induced forest fires. A signboard (warning sign) was designed and produced to inform about actions that can ensure fire-prevention. 35 signboards were installed in the forest recreational and tourist attractive sites in Syunik region.



www.nature-ic.am

- *Branded Items and Project Leaflet*



In the frame of the Public Awareness Raising component branded items have been developed. They included bags, mugs, caps and T-shirts with climate change slogan – “Save Climate - Secure Our Future”. These items are distributed to the community members involved in the forest area rehabilitation works and other public outreach activities of the projects.

A leaflet on “Adaptation to Climate Change Impacts in Mountain Forest Ecosystems of Armenia” project has been developed in Armenian and English. It comprises information on Syunik forests biodiversity and vulnerability, Climate Change facts, adaptation enhancement measures as well as brief on activities under the project.



Syunik Local Community Involvement

- *Survey on Communities' Dependency on Forest Recourses in Syunik Region*

Through the period of August 28 – 5 September, 2010 a survey was conducted in 9 communities of Syunik region. 22 targeted multiple-answer questions were designed on the subjects of forest resources, cattle-breeding, forest fires, pest outbreaks, heating methods and forest monitoring issues. The main purpose of the survey was to comprehend dependence of the communities on the forest resources, evaluate awareness and capacity gaps. In total representatives of **137 households** of the mentioned communities have been surveyed. The results of the survey are in the process of analysis. Findings will serve basis for future actions planning and targeted initiatives implementation.

Besides, temporary jobs were created for local community members. 42 persons were employed (29 male and 13 female) during the forest rehabilitation pilot project implementation in Goris and Kapan districts. This approach has to be strengthened in project further activities.



Upcoming Tasks

- ***Tourist-oriented brochure on Syunik region forest conservation issues and sustainable tourism development***

The main objective of the brochure is to promote sustainable tourism development and encourage actions reducing human induced damage to the forests in the Syunik region. The brochure will have two versions: Armenian-English and Russian-English. It will include general facts on Syunik region as well as information on Syunik rich biodiversity, forest conservation issues and Eco-Tourist Code of Ethics. The brochure has to be presented to tourism businesses and tourist during the major tourism events.

- ***Production of a Documentary and a Public Service Announcement on forest fires***

It is planned to produce a Documentary and a Public Service Announcement on forest fires, their consequences for forest ecosystems, and forest fire management issues under climate change conditions in Armenia and, particularly, in the Syunik marz. Materials plan to highlight the causes and consequences of forest fires in terms of damage to forest ecosystems, stress services provided by forests as well as focus public attention on the human attitude and actions that can prevent forest fires in Armenia.

- ***Support to Establishment of Forest Fire Early Response System***

With assistance of the project's International Expert on Forest Fire Management it is planned to increase the technical capacities of forest management authorities in forest fire management and to procure forest fire early response equipment such as fire backpacks, pumps, etc. in order to support establishment of mobile groups in forest management units in Syunik to that could respond to forest fires in early stages. These activities will complement the ones implemented by WWF-Armenia, an organisation active in Syunik biodiversity protection and strengthening the protected area management system in Syunik particularly. Along with the planned improvement of forest fire monitoring system and development of the response plan to be undertaken in consultation with stakeholders, establishment of such mobile groups has to prevent and minimise the forest fire risks.

