



**United Nations Development Programme  
Global Environment Facility  
Country: Republic of Armenia  
PROJECT DOCUMENT**

**Project Title:** Mainstreaming Sustainable Land and Forest Management in Mountain Landscapes of North-eastern Armenia

**UNDAF Outcome(s):** Environmental Sustainability

**UNDAF Outcome 4:** Environment and Sustainable Development

**UNDP Strategic Plan Outcome 1:** Growth and development are inclusive and sustainable, incorporating productive capacities that create employment and livelihoods for the poor and excluded.

**UNDP Strategic Plan Outputs: 1.3.** Solutions developed at national and sub-national levels for sustainable management of natural resources, ecosystem services, chemicals and waste.

**Relevant CP/CPAP Outcome(s) and Indicator (s)**

**Outcome: 4.1.** Armenia is better able to address key environmental challenges including climate change and natural resource management.

**Output: 4.1.1.** National policies and tools for implementation of and compliance with international environmental agreements are developed and adopted

**Implementing Partner:** Ministry of Nature Protection

**Responsible Partners:** United Nations Development Programme

**Brief Description**

Armenia is located at the junction of the biogeographic zones of the Lesser Caucasus and the Iranian and Mediterranean zones and exhibits both a great range of altitudinal variation and a diversity of climatic zones. Together this has resulted in a diversity of landscapes and ecological communities with a distinct flora and fauna, including many regionally endemic, relict, and rare species. Across much of the country, these landscapes face moderate to severe deforestation and overgrazing pressures, corresponding in high rates of erosion, increasing soil salinity, lowered soil fertility, and loss of biodiversity. The main cause of land and forest degradation in North-Eastern Armenia, where 64% of the forests of the country are located is the deforestation and overexploitation of forest resources. sustainable land and forest management approaches as being postulated under the project. To achieve the shift from current unsustainable to sustainable forest and land use practice, the project objective will ensure sustainable land and forest management to secure continued flow of multiple ecosystem services. This would be achieved through two main components, namely: (i) Integration of sustainable forest and land management objectives into planning and management of forest ecosystems to reduce degradation and enhance ecosystem services in two marzes covering 0.65 million hectares; and (ii) Sustainable Forest Management practices effectively demonstrating reduced pressure on high conservation forests and maintaining flow of ecosystem services.

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of the Republic of Armenia:

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Implementing Partner:

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Agreed by  
UNDP Resident Representative in Armenia:

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## ACRONYMS AND ABBREVIATIONS

AMD	Armenian Dram (Currency)
AFOLU	Agriculture, Forestry and Other Land Uses
ADA	Austrian Development Cooperation
BD	Biodiversity
BMZ	Federal Ministry of Economic Cooperation and Development, Germany
BSAP	Biodiversity Strategy and Action Plan
CR	Critically Endangered
C	Carbon
CC	Climate Change
CO <sub>2</sub>	Carbon Dioxide
CBD	Convention on Biological Diversity
CBO	Community Based Organization
ENPI	European Neighbourhood Policy Instrument
ESCO	Energy Services Company
EU	European Union
FE	Forest Enterprise
FLEG	Forest Law Enforcement and Governance Program
FMP	Forest Management Plans
GEF	Global Environmental Facility
GHG	Green House Gases
GIZ	German Federal Enterprise for International Cooperation
GOA	Government of Armenia
HCV	High Conservation Value
HCVF	High Conservation Value Forests
ICARE	Center for Agribusiness Research and Education
IPCC	Inter-governmental Panel on Climate Change
IUCN	International Union for the Conservation of Nature
LD	Land Degradation
LULUCF	Land Use, Land Use Change and Forestry
LPAC	Local Project Approval Committee
LSG	Local Support Group
Marz (Marzes)	Administrative Divisions of Armenia
Marzpets	Marz Governors
MNP	Ministry of Nature Protection

MOA	Ministry of Agriculture
MOU	Memorandum of Understanding
NAP	National Action Program to Combat Desertification
NFMIS	National Forest Monitoring Information System
NGO	Non-Governmental Organization
NTFP	Non-Timber Forest Product
PB	Project Board
PC	Project Coordinator
PPG	Project Preparation Grant
PIU	Project Implementation Unit
RECC	Regional Environmental Centre for Caucasus
REDD	Reducing Emissions from Deforestation and Forest Degradation
SFM	Sustainable Forest Management
SLM	Sustainable Land Management
SNCO	State Non-Commercial Organization
SPA	Strategic Priority for Adaptation
SVC	Service Value Chain
t	tons
TL	Project Team Leader
UNCBD	United Nations Convention on Biological Diversity
UNCCD	United Nations Conventions to Combat Desertification
UNDP	United Nations Development Program
UNDP CO	United Nations Development Program – Country Office
UNDP RCU	United Nations Development Program – Regional Coordinating Unit
WB	World Bank
WWF	World Wide Fund for Nature

# SECTION I: SITUATION ANALYSIS

## 1. PROJECT CONTEXT

### 1.1 Geographic and environmental context

The Caucasus Ecoregion is one of the Global 200 WWF ecoregions<sup>1</sup>, and one of most endangered terrestrial ecosystems<sup>2</sup>. The Caucasus Ecoregion covers a total area of 580,000 km<sup>2</sup> and consists of six countries, including Armenia. Mountains cover approximately 65% of the ecoregion. The elaborate mountain relief creates a diversity of climate zones, resulting in large variation among different regions. These numerous microclimates support a range of ecosystems. Forests are the most important ecosystem for biodiversity conservation in the Caucasus, covering nearly 20% of the region. Armenia, in its entirety (29,743km<sup>2</sup>), forms part of the Caucasus Ecoregion. The country is a typical highland country – the lowest point is at 375 m above sea level, whereas the highest point is 4,095 MASL. This altitude and relief peculiarities have important implications to the climate of Armenia, which is notable for its aridity nature. Precipitation ranges between 200 – 1,000 mm per year. The country is roughly divided into 4 landscape types: Deserts and semi-deserts, Mountain steppes, Forests, thin forests and shrubs, and sub alpine meadows.

Armenia is located at the junction of the biogeographic zones of the Lesser Caucasus and the Iranian and Mediterranean zones and exhibits both a great range of altitudinal variation (from 375 m to the 4,095 m peak of Mt. Aragats) and a diversity of climatic zones. Together this has resulted in a diversity of landscapes and ecological communities with a distinct flora and fauna, including many regionally endemic, relict, and rare species. Armenia is of particular importance as a center of endemism for wild relatives of economically important crop and livestock species. While encompassing only 5 % of the Caucasus area, Armenia incorporates nearly all types of the vegetation ecosystems found in the southern Caucasus, reflecting the great altitudinal variation and consequent juxtaposition of distinct ecosystems within limited areas. Armenia's position at the junction of biographic zones is also clearly demonstrated through its birdlife, which includes representatives of European and Asian avian faunas. The country also lies on bird migration routes of international importance. Typically the bird fauna in the north of the country is most similar to European and Caucasian faunas, while that in the south is more similar to those found in Iran, north Africa, the Mediterranean, the Caspian, and Asia Minor.

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<sup>1</sup> Olson, D.M. & Dinerstein, E. 2002. *The Global 200: Priority Ecoregions for Global Conservation*. Ann. Missouri Bot. Gard. 89:199 – 224.

<sup>2</sup> Mittermeier, R.A., Myers, N. & Mittermeier, C.G. 2000. *Hotspots: Earth's Biologically Richest and Most Endangered Terrestrial Ecoregions*. Conservation International.



## 1.2 Biodiversity Context

For a small country, Armenia has high species diversity, reflecting the variety of ecosystems and landscapes. Globally, Armenia is important as representing part of the Caucasian biogeographical region, which is an important centre of endemism. Many rare, endemic, and threatened species are shared with neighbouring countries, including Georgia, Azerbaijan, southern Russia, and part of Turkey. In the result, on the small territory of the country there are about 3800 species of vascular plants, 428 species of soil and water algae, 399 species of mosses, 4207 species of fungi, 464 species of lichens, 549 species of vertebrates and about 17200 species of invertebrates. The biodiversity of Armenia is notable for high endemism: about 500 species of fauna (about 3% of the fauna) and 144 species of flora (3.8% of total flora) are considered endemics. All main natural ecosystems of the Caucasus are presented in the country except moist subtropical ecosystems. Based on the density of high vascular plants, Armenia is ranked among the first-place countries in the world with about 107 species per 1000 km<sup>2</sup>.

The territory of Armenia is notable also for intensive speciation processes and it is not accidental that the researchers of flora and fauna of the country often identify new species for the science. Only over the last 10 years more than 50 new species for the science have been described, which are rare species.

Armenia is a globally significant center of origin of agro-biodiversity; wild relatives of numerous cultivated plants and a number of domestic animals still occur on the territory of Armenia. At present in Armenia there are wild sheep, wild goat and wild boar, which have been the predecessors of modern domestic animals.

Armenia is known also for 252 species of wild relatives of cultivated plants, thanks to which the country is considered a global conservation center of wild wheat, rye, barley and aegilops; many species have been disseminated from Armenia throughout the world. The rich diversity of plant genetic resources in Armenia includes also ancient local and modern selection varieties and wild edible plants.

In the Red Book of Plants of Armenia (2010) 452 species of vascular plants (11,89 % of the flora of Armenia) and 40 species of fungi (1,05% of the biota of Armenia) are registered. Of them 141 species of plants and 6 species of fungi were assessed as Critically Endangered (CR) by IUCN criteria and they need urgent protection.

In the Red Book of Animals of Armenia (2010) 308 species, including 155 vertebrates and 153 invertebrates are registered. Of them 50 species of invertebrates and 62 species of vertebrates were assessed as Critically Endangered (CR); they need urgent protection

Of critical concern are species such as sweet flag bulrush (*Acorus calamus*), a valuable medicinal herb, and the Judas tree (*Cercis griffithii*), which is endangered because of agricultural use of the land. Other examples of endangered plants include a newly discovered endemic species of saltwort (*Salsola tamamschjanae*), threatened as a result of sand processing, and the regionally endemic iris, (*Iris grossheimii*). In addition, the status of lower plants has not been fully

assessed, but at least 15 species of mushrooms are considered to be under threat.

The forests of Armenia cover 334,100 ha (11.5% of a historic coverage of 30%), which includes 283,600 ha of natural forests and 50,500 ha of plantation forests. Forests of Armenia outside of official protected areas are managed by the state, through “Hayantar” State Non-Commercial Organisation (SNCO – state-owned enterprises) and its sub-ordinated eleven forest enterprises of the Ministry of Agriculture. Oriental beech (*Fagus orientalis*), the Georgian oak (*Quercus iberica*), the Oriental oak (*Quercus macranthera*), the Caucasian hornbeam (*Carpinus caucasica*) and the Pine tree (*Pinus kochiana*) form 97.2% of the forested territory in Armenia and 97.2% of the overall forest mass. Armenian forests include a number of endemic and rare species<sup>3</sup>.

### 1.3 Current status of forests and land resources in North-eastern Armenia

Across much of the country, landscapes face moderate to severe deforestation and overgrazing pressures, corresponding in high rates of erosion, increasing soil salinity, lowered soil fertility, and loss of biodiversity. 64% of the country’s forests are located in North East Armenia, which is the target of this project. The forest of the North-eastern Armenia is made up of two marzes (provinces), namely Tavush and Lori, covering 649,300 ha. From a socio-economic perspective, Tavush Marz covers 270,400 ha and has a human population of approximately 132,000, living in 5 urban and 57 rural communities. 52.6% of population are living in urban areas. Referring to Armenian social snapshot and poverty report<sup>4</sup> (2014), 27.7% of the population in Tavush Marz is poor, out of which 2.5% is extremely poor. Lori Marz covers 378,900 ha with a human population of approximately 234,700 people, living in 8 towns and 122 villages (59% urban, 41% rural). About 38.6 % of the population in Lori Marz is poor, and among these, 2.7% is extremely poor. The poverty severity in Lori Marz is rated as third one of all provinces in the Republic of Armenia in 2014.

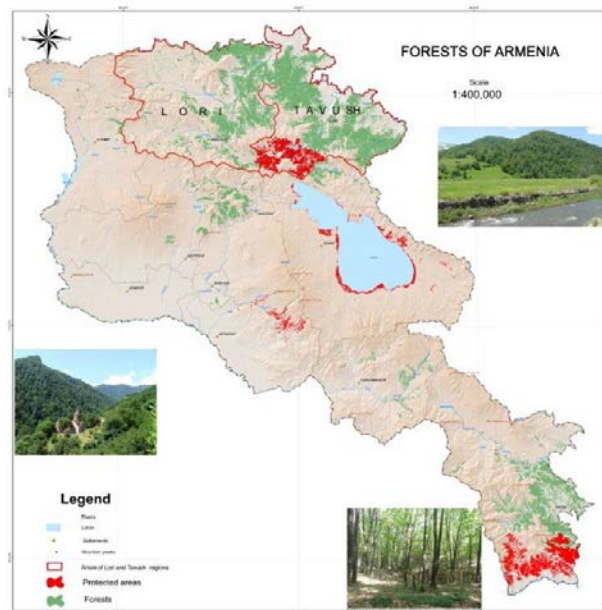
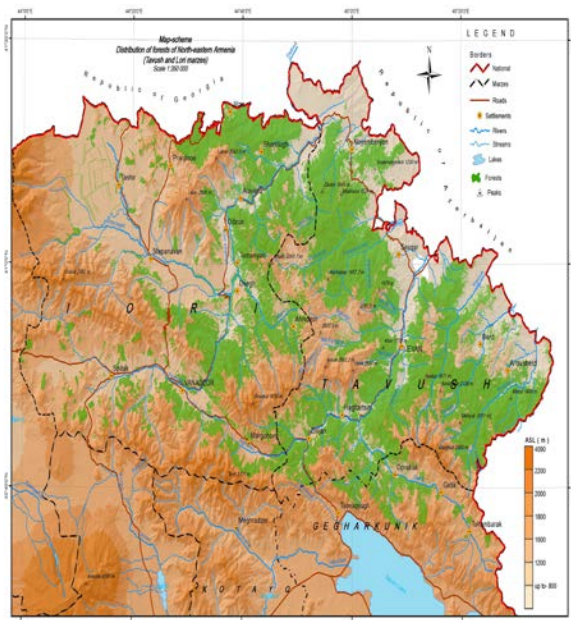
Forest enterprises of North-eastern Armenia together with “Dilijan” National Park that is included in the system of Specially Protected Areas of Nature of the country are occupying 253,500 hectares, of which forest-covered areas occupy 215,337 hectares (including approximately 203,500ha or 94.6% natural forests and silviculture of 11,500 hectares or 5,4%)<sup>5</sup>.

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<sup>3</sup> These include Endemic: *Myosotis claralaghezica*, *Colchicum goharae*, *Merendera mirzoevae*, *Ribes armenum*, *Cotoneaster armenus*, *Pyrus elata*, *Pyrus hajastana*, *Pyrus sosnowskyi*, *Pyrus tamamschianae*, *Pyrus voronovii*, *Rosa sosnovskyana*, *Rosa zangezura*, *Rubus takhtadjanii*, *Rubus zangezurus* and rare species registered in the Red Book of Armenia: *Ophioglossum vulgatum*, *Pteridium tauricum*, *Galanthus alpines*, *Castanea sativa*, *Tulipa confusa*, *Epipogium aphyllum*.

<sup>4</sup> National Statistical Service of the Republic of Armenia. 2014. *Social Snapshot and Poverty in Armenia*.

<sup>5</sup> Forest management plans for 10 Forest enterprises (2004-2009)



The main forest-forming species are the following:

(1) Beech, which occupies 94,200 ha or about 43.8% of the total forest-covered area, (2) oak, which occupies 60,000 ha or 27.9%, (3) hornbeam, which occupies about 31,500 ha or 14.6%, and (4) pine, which occupies approximately 9,000 hectares or 4.2%. The total volume of the two marzes is about 33 million cubic meters, including beech with 20.3 million cubic meters or 61.5% of the total volume, oak with approximately 7.5 million cubic meters or 22.7% of the total volume, hornbeam with about 309 million cubic meters or 11.8 % of the total volume and pine with about 0.9 million cubic meters or 2.7% of the volume. The average composition of the stands are: 3.7 beech, 2.1 oak, 2.3 hornbeam, 0.7 oriental hornbeam, 0.4 maple, 03 ash, 01 walnut, 0.1 lime tree.

Forest vegetation extends from 500 to up to 2,250 to 2,300 meters above the sea level. Forest vegetation is the most typical and dominant vegetation type in the area. About 65% of forests and 80% of the total volume of scarcely forested Armenia are centered here.

Both marzes are rich in wild fruit-bearing species, including apple (*Malus sp.*), pear (*Pyrus sp.*), many species of hawthorn (*Crataegus sp.*), Greek walnut (*Juglans regia*), plum (*Prunus divaricata*), shadberry (*Mespilus germanica*), cherry (*Cornus mas*), which are commonly used by surrounding population. Due to shortsighted human activities, the upper limit of forest is artificially lowered and very often forest vegetation interrupts at 1,800m elevation. Sub-alpine forests have low viability and due to anthropogenic influence are gradually pushed out by prairie vegetation.

Nine specially protected areas are located within the forest branches, including two protected areas that are managed by the Ministry of Nature Protection and seven sanctuaries that are managed by Hayantar, both covering about 53,645 ha in the Lori and Tavush marzes. The seven

sanctuaries that are managed by Hayantar are “paper parks” and have not been demarcated on the ground, have no management plans and are not managed for conservation outcomes (see Table 1 below).

**Table 1: List of specially protected areas in Lori and Tavush Marzes**

No	Name of Protected Area	Year Established	Total area (ha)	Managing Body	Conservation Status
<b>Lori Marz</b>					
1	Gyulaqarak Pine State Sanctuary	1958	2576	Stepanavn Forest Enterprise, Hayantar, Ministry of Agriculture	Relict pine forest
2	Caucasian Snow-Rose State Sanctuary	1959	1000	Gugark Forest Enterprise, Hayantar, Ministry of Agriculture	Relict species protection ( <i>Rhododendron Caucasicum</i> )
3	Margahovit state sanctuary	1971	3368	Gugark Forest Enterprise, Hayantar, Ministry of Agriculture	Moisture-loving forest and relevant fauna
<b>Tavush Marz</b>					
4,5	«Dilijan» National Park, including «Akhnabad» Yew Grow snactuary	2002 (status shift to national park)  1958 (established as state Reserve)	33765	Ministry of nature protection	Unique yew tree growth, oak and beech relict forests
6	Hazelnut State Sanctuary	1958	40	Ijevan Forest Enterprice, Hayantar, Ministry of Agriculture	Relict hazelnut and Yew tree species
7	«Gandzaqar» State Sanctuary	1971	6813	Ijevan Forest Enterprice, Hayantar, Ministry of Agriculture	Mountain forest, red data book animals

8	Ijevan state sanctuary	1971	5908	Ijevan Forest Enterprise, Hayantar, Ministry of Agriculture	Forest landscapes and fauna
9	Zikatar state sanctuary	2010	150	Ministry of Nature protection	Regional specific forest ecosystems and biodiversity

In addition to the above list, there are 23 protected areas with the status of Natural Monuments registered in two marzes, all of which are mostly “paper parks”.

Forest glades, which are considered to be the main resource for forest expansion, occupy 9,900 hectares, the areas transformed into anthropogenic or biological sparse lands and non-regenerating areas occupy 11,900 hectares, agricultural lands occupy 5,375 ha, pasture occupies 3,500 ha, grasslands occupy 1,430 ha, orchards occupy 445 ha, while 9,625 hectares are non-forest lands or water-covered areas (refer Table 2).

The forestland is state-owned, all pasture and hay-fields are community owned or state owned managed by the marzpets, with arable farmland and perennial plantations being privately owned. Hayantar provides for the management, forest resource accounting, protection/control of fires and pests, and rehabilitation and reforestation of forests in areas under their control through Hayantar-employed foresters. As all land in forest enterprises is state owned, the local communities have currently limited management responsibilities, although individual community members lease grazing rights from Hayantar.

**Table 2: Reference on landforms within the balance of Specially protected areas\* and forest enterprises\*\* of the RoA**

Province, marz	Forest Enterprise	Year of forest management planning <sup>6</sup>	Forested areas, ha	Including								Non-forested area, ha	Including				Total area, ha	Total volume, 10 m <sup>3</sup>
				Forest covered areas	Out of which	***Silviculture with non-closed canopy	Nursery	Non-forest covered areas	Out of which				Hayfields	Pastures	Forest parks	Other landforms		
					Silviculture				Completely cut down and non-rehabilitated areas	Sparse areas /01-02 l/ density	Glades							
Tavush	Artsvaberd	2006	42007,8	38664,3	633,1	,8	6,9	3334,8	22,2	1720,5	1592,1	829,2	161	266,6	77,9	323,7	42837	659323
	Ijevan	2004	24256,8	20955,8	484,4	35,5		3265,5	572,4	1938	755,1	1253,8	201	301,8	30	721	25510,6	274826
	Sevqar	2004	19907,9	18237,5	336,9	9,5	2	1658,9	410,1	843,6	405,2	958,5	276,6	379,1	13,1	289,7	20866,4	352074
	Noyemberyan	2007	27945,8	27001,1	624,5	23,1	18	903,6	5	386,1	512,5	1308,2	132	557,7	204,7	413,8	29254	458404
	"Dilijan" National park	2005	26718,9	24679	570,8	3,3	2,1	2034,5		1095,1	939,4	1340,7	265,8	347,3	0,2	727,4	28059,6	349182
<b>Total</b>			<b>140837,2</b>	<b>129537,7</b>	<b>2649,7</b>	<b>73,2</b>	<b>29</b>	<b>11197,3</b>	<b>1009,7</b>	<b>5983,3</b>	<b>4204,3</b>	<b>5690,4</b>	<b>1036,4</b>	<b>1852,5</b>	<b>325,9</b>	<b>2475,6</b>	<b>146527,6</b>	<b>2093809</b>
Lori	Lalvar	2008	25890,2	24339,5	522,4	46	1,8	1502,9	14,3	1189,3	299,3	946,8	12,4	249,7	53,3	631,4	26837	381430
	Jiliza	2008	14966,2	13851,1	179,1	1,5		1113,6	39,3	361,9	712,4	326,8	73		30,8	223	15293	191263
	Gugarq	2008	28258,4	22323,7	2968,2	643	9,8	5281,9	691,6	1797,8	2792,5	1962,5	287,7	1024	16,1	634,7	30220,9	248200
	Dsegh	2007	15132	14505,2	43,8			624,1		307	317,1	185,7	19,2	63			15330	276328
	Stepanavan	2008	6384,5	5674,9	1231,6	51,8	17	640,8	16,7	347,7	276,4	280,5		220,6	0,4	59,5	6665	72736
	Tashir	2008	6629,8	5105,2	3170	37,1	0,8	1486,7		166,9	1319,8	230,2		86,1	17,8	126,3	6860	49233
<b>Total</b>			<b>97261,1</b>	<b>85799,6</b>	<b>8115,1</b>	<b>779,4</b>	<b>29,4</b>	<b>10650</b>	<b>761,9</b>	<b>4170,6</b>	<b>5717,5</b>	<b>3932,5</b>	<b>392,3</b>	<b>1643,4</b>	<b>118,4</b>	<b>1674,9</b>	<b>101205,9</b>	<b>1219190</b>
Total of the two provinces			<b>238098</b>	<b>215337</b>	<b>10765</b>	<b>852,6</b>	<b>58</b>	<b>21847</b>	<b>1772</b>	<b>10154</b>	<b>9921,8</b>	<b>9623</b>	<b>1429</b>	<b>3496</b>	<b>444</b>	<b>4150,5</b>	<b>247734</b>	<b>3312999</b>

\* Specially protected areas of nature are managed by the Ministry of Nature Protection of the Republic of Armenia

\*\* Forest enterprises are managed by "Hayantar" which is under the Ministry of Agriculture of the RoA

\*\*\* Silviculture too small yet to be transferred to the forest balance

<sup>6</sup> All forest management plans were approved in February 2010 (Ministerial Order #23A on 16.02.2010)



#### 1.4 Threats to the Land and Forest Resources of North-eastern Armenia

The main cause of land and forest degradation within the targeted districts **is the deforestation and overexploitation of natural resources**. In the beginning of the 1990's, with the end of subsidized energy following independence and the energy crisis due to the closure of nuclear power plants and the military blockage of the country, most part of the rural and urban population were forced to use wood for cooking and heating resulting in significant levels of deforestation in north-eastern Armenia, in particular. In subsequent years, deforestation was mainly the result of a booming construction industry and felling for fuel-wood, and is currently the most serious source of forest destruction in the North-eastern Armenia. Although, the rate of deforestation has decreased in the past decade as compared to the 1990's, due to the efforts by the Government to address the issue, research suggests that around 630,000m<sup>3</sup> of timber is still illegally logged in Armenia annually. Although comprehensive data on timber consumption is unavailable, a number of studies suggest that households are the largest consumer of domestic forest products, through their reliance on fuelwood for heating.

Based on the surveys conducted under the auspices of the Forest Institutional Support Project (2003), the sole usage of fuel wood by community households is estimated as 568,000 m<sup>3</sup>. As part of the Armenian forestry sector studies in 2010 (under FLEG I), the usage of fuel-wood by households was estimated as 457,000m<sup>3</sup> (whereas the official data is 75,000 m<sup>3</sup>). In the scope of the same project, the International Center for Agribusiness Research and Education (ICARE) Foundation conducted a survey, which states that in accordance to the results of socio-economic impact assessment of unsustainable exploitations of forest resources and illegal logging on the rural population of Armenia (2011) within the 10 km area surrounding the forest, the fuel wood usage is estimated as 457,000 m<sup>3</sup>. Estimates for Lori and Tavush marzes constitutes 82% of total or 375,000m<sup>3</sup> (Tavush – 122,000 m<sup>3</sup> and Lori – 253,000 m<sup>3</sup>).

This means that forest policy reforms, supply and demand solutions, and institutional issues are all, by implication, social issues as well. The main factors behind household fuelwood use are i) low welfare levels, ii) lack of attractive alternatives; iii) widespread availability; and iv) access. Although welfare levels among forest community households have improved slightly in recent years, around one- third of the population is considered poor, which translates into pressure on forest resources. Although Armenia has had a program to deliver gas via mains to rural areas since 2004, it was reasonably assumed that the availability of gas would act as a substitute, moving households away from reliance on fuelwood, and thereby easing pressure on forests. However, this has happened only in part and forests continue to be depleted to provide fuelwood. Moreover, recent increase of gas and electricity prices has been an important driver for increasing pressure on forest resources. As an example, household electricity price in 2014 was 37.26 AMD per KWT/hour in comparison with 20.4 ADM per kWt/hour in 1999. Price for gas was equal to 59 AMD per qm in 2007 in comparison with 156 AMD per qm in 2014. As a result



most of the rural population is currently unable to pay the utility costs and is using wood for heating and cooking almost throughout the entire year.

Despite the fact that each household (from the forest neighborhood communities) has right to annually get 8 qm of fuelwood (fallen wood, off cuts, etc.) free of charge, not all of households can obtain their wood directly from the forests, because of technical and financial difficulties in accessing forests, collecting timber, transporting from the forest to household, etc. Access is sometimes restricted in the name of protecting the forest. However, access restrictions also serves to create rent opportunities, for example, by giving certain groups or individuals favourable treatment in exchange for a share of the revenue generated. A 2010 survey show that more than 64% of households bought fuelwood from a third party, who sell fuelwood in the village, rather than collecting from the forest directly. This is an increase from 52% of households in 2003. In that year, 40% of households collected fuelwood directly from the forest, dropping to 28% in 2010. These are typically brigades, who log the trees themselves and transport logs on trucks. Data from “Hayantar”, reveals that overall wood generated in Tavush and Lori marzes in 2012-14 was 170,000 m<sup>3</sup>, out which 95,000 m<sup>3</sup> was from fallen wood that was provided free of charge to local residents as fuel-wood.

Households cannot be held directly responsible for illegal logging or unsustainable forest use. During the crisis years of the 1990s when a large amount of trees were cut down for fuelwood, households were clearly responsible for deforestation. It was a resource which allowed them to survive harsh winters. It is not at all clear, however, that households continue to be responsible continuing illegal logging. Communities report that it is harder to access the forest and obtain permits, resulting in an increase in purchases of fuelwood from middlemen.

Although the large scale commercial illegal harvesting cannot altogether be ruled out, it is believed not to be widespread. Referring to different assessments (no official data available), between 1990 and 2010, Armenia lost 24.5% of its forests resources. It is believed that around one-third of total official production is made available for commercial production as the forest is already depleted, an amount that is widely considered insufficient to induce investments in the improvement of the forest condition. Further, the small volume generated by the incremental growth, poor accessibility for a large part of the forests, particularly in the North-east and the creaming of the high quality round-wood in the past, there is insufficient volume of raw materials to enable sustainable harvest and utilization. As a result of all of the above factors, Armenia’s forest carbon stock in living forest biomass has reduced during the last 20 years by between 13 and 17 million metric tons. Legal and illegal harvesting is also taking place in an area that potentially qualifies as High Conservation Value Forests. Recent assessments have shown that illegal/illicit or poorly managed harvesting has severely degraded the high quality species structure in accessible areas. This has resulted in a reduction of the variety of species and value of forests, its resilience, and water supply and land slide protection functions. Vast areas of forests have been deforested and converted into agricultural use.

In addition to poor forest management practices, the changes in grazing regimes in post-privatization period has led to decreases in floristic diversity in some areas where grazing has

declined, but more importantly increased habitat degradation in over-grazed areas. Over-grazing has resulted in land erosion, formation of boggy areas and reduction in plant diversity. Over-grazing has also resulted in changes in species composition, with declines in population of valuable fodder plants and increase in weeds and poisonous species (such as crowfoot, thistle, creeping thistle, as well as *Euphorbia sequieriana*, and *Astragalus spp.*). Furthermore, uncontrolled grazing continues to encroach on forestlands more and more each year, degrading forest health, structure, quality, and carbon storage potential.

In addition to anthropogenic impact over the last 100 years, climate change represents an additional significant factor of threat to ecosystems and economic sectors that are already at risk. According to the World Bank assessment, Armenia is among the most sensitive countries in the Europe and Central Asia region in regard to climate change. Increased temperatures and reduced precipitation accelerate the desertification processes and will have a negative impact on sectors that depend on the climate and natural resources. Referring to the Second National Communication of the Republic of Armenia on Climate Change<sup>7</sup>, climate change will result in the expansion of semi desert and arid open forests due to vertical shift of their upper limits. Further, upward shift of steppe on forest ecosystems by 250-300 m will also occur, and at the same time, the forest belt shift will reduce the area of meadow ecosystems. As a result, significant changes in the composition and structure of ecosystems will take place. According to recent studies<sup>8</sup>, forests in mid-mountainous zones will most probably undergo some aridization processes (processes leading to desertification), and there will be an invasion of plants typical of steppes, arid open forest and shibliak (intensively grazed grasslands). The natural reforestation processes will deteriorate and the average annual tree growth rate will decline leading to gradual conversion of forestlands to open arid forests, which in turn will convert to semi desert and steppes with xerophilous plants. It is predicted, that if no adaptation measures are undertaken, by 2030 from 14,000 to 17,500 hectares of forest would be lost. The climate change had also a negative impact on forest ecosystems causing the deterioration of forest sanitary conditions, mass generation of pests and diseases, and increase of fire hazard.

The residual effect of past and present ongoing deforestation and forest degradation, combined with continuing forest fragmentation due to construction of roads and pipelines pose a threat to biodiversity. In other cases, production forest that is not managed for conservation compromises the integrity of adjacent protection forests (e.g. through the creation of access roads and logging trails that facilitate access and poaching). This fragmentation results in the genetic isolation of populations of endangered species and reduces habitat quality. This is especially true for large mammals (carnivores) such as brown bear (*Ursus arctos*) and lynx (*Lynx lynx*) which need large habitat areas for the long-term conservation. Furthermore, forest fragmentation severely undermines the quality and quantities of ecosystem services such as water provision and regulation, soil conservation and carbon sequestration. Large area of grasslands in between the

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<sup>7</sup> <http://www.nature-ic.am/>

<sup>8</sup> Vulnerability assessment under preparation of the Third National Communication to UNFCCC (on-going)

forests, have been degraded in North-east Armenia (some 20,000 hectares), bringing about soil compaction, erosion, loss of vegetation cover, and a drop in net primary production and encroaching on neighboring forests. The forest sector does not currently incorporate ecosystem carrying capacity into their planning and operations considers conservation value of forests, only partially.

There is additional political factor contributing in increase of pressure into forest resources in Tavush marz. Although agricultural land makes up 39% of the territory and constitutes major part of region's GDP, only half of the arable and perennial land is cultivated, since people from bordering communities (more than 45 communities) have limited access to their land plots due to the persistent risk of fire in the bordering territories. This is substantial factor contributing to over-exploitation of forest resources by the population for livelihood purposes, substituting the loss of agricultural income.

### **1.5 Barriers to addressing threats**

In order to reduce pressures on forests and to secure conservation and enhancement of carbon stocks, there needs to be a shift from the current unsustainable practices to sustainable land and forest management to integrated sustainable land and forest management approaches. There are, however, many major barriers to implementing this solution, as described below:

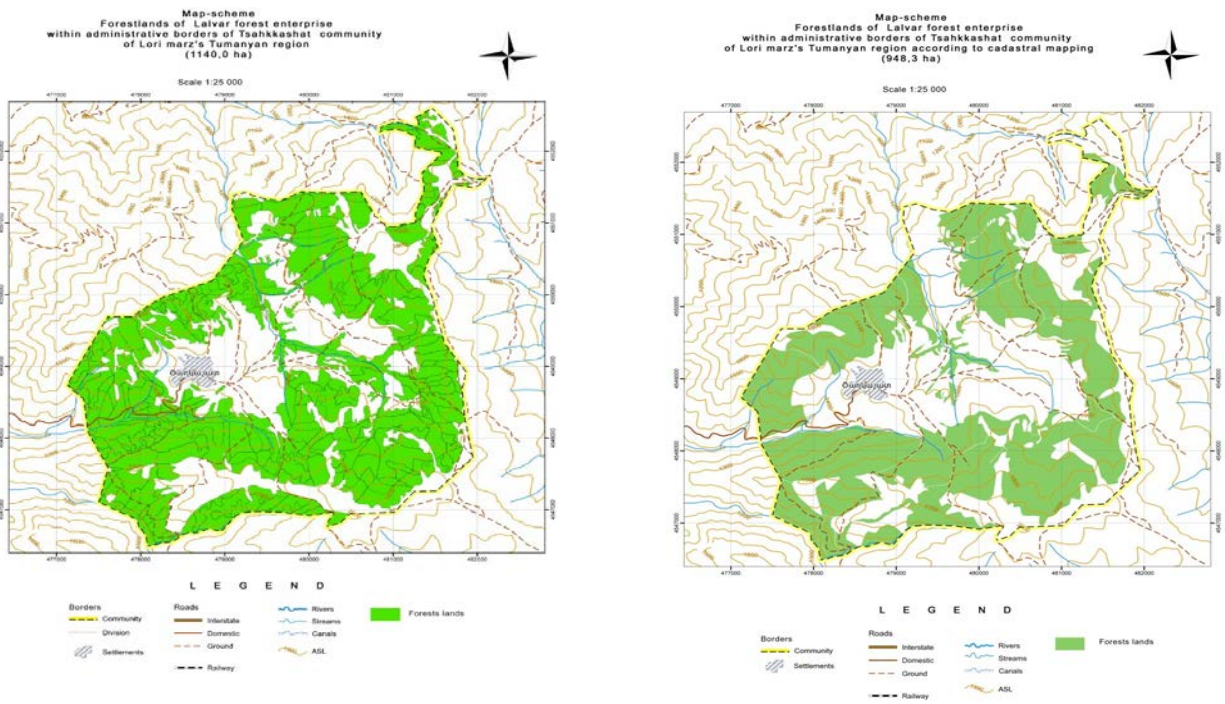
#### ***Barrier 1: Inadequate planning, regulatory and institutional framework for Integrated Forest and Land Resource Management***

In the past, forest management planning in Armenia and allocation of forests for economic uses and the regimes of use has not taken into consideration ecosystem services, climate mitigation, biodiversity conservation and community use of resources. Consequently, forest management planning has been totally decoupled from nature conservation planning and no ecosystem values are taken into account. Recently, GIZ has initiated efforts at introducing ecosystem services in forest management planning through support for multi-functional zoning that has been tested in three pilot areas by Hayantar. The lack of comprehensive principles for sustainable management of forest and land resources has led to the underestimation of the importance of biodiversity and ecosystem services in the political decision making process, and the lack of understanding of the impact of forest logging on ecosystem services and biodiversity. These factors greatly diminish the value that the ecosystems goods and services can provide. Further, once forest land is allocated for production purposes no further consideration is given towards the biological connectivity between and within the ecosystem services and biodiversity habitats within the broader landscape, leading to increased fragmentation and loss of Ecosystem Goods and Services values. The financial and human resources earmarked for baseline programs related to forest and pasture management in the North-east Armenia are deployed and are not adequately coordinated, There is a need to harmonize and coordinate efforts across sectors, and spearhead innovative ways and means of enhancing ecosystem functioning and resilience in an integrated and

coordinated way that balances socio-economic and environmental objectives. The various owners and managers of land and users of forest natural resources in North-east Armenia, including the local community, are not adequately involved in forest management planning and allocation of forest land for various purposes resulting in lack of support towards implementation and further alienation of stakeholders that partly depend on the resources for their livelihoods. Lack of understanding the rationale on which the forest management decisions are based also exacerbates the situation.

Further, decisions on forest resource management are made without a proper understanding of the detailed condition of the resource base, including biodiversity and ecosystem values. There are significant differences in the data on extent and location of forest land and resources between the cadastral surveys and the data available with Hayantar, leading to poor management decisions regarding forest exploitation and management.

According to the expert analysis, a number of inconsistencies can be found within former administrative borders of 134 communities (out of 174) of Tavush and Lori marzes. About 18,600 ha of community forests according to forest management plans are indicated as other lands in cadastral maps, while 13,200 ha of non-forest land categories are mapped as forests. The inconsistency in the information for around 30,000 hectares of forests has been a constraint in enabling appropriate sustainable forest and land management. A sample from the Lalvar forest enterprise branch map is presented to indicate discrepancies in data of Hayantar and State Property Cadaster Committee.



The State Forest Monitoring Center with support of GIZ has come with certain clarifications of differences based on recently conducted forest inventory. However, , more rigorous and detailed field level inventory will be necessary to further proceed with formal correction of cadastral maps. The overall situation with tentative inconsistencies in forest land distribution identified so far is presented in the table below.

**Table 3: Inconsistencies in land distribution**

No	Region/ marz	The number of forest adjacent communities	Community forests (FMP maps) mapped as other lands (cadastral maps)					Actual other lands (FMP maps) mapped as forests (cadastral maps)
			Pastures	Hay fields	Arable lands	Other land forms	Total	
1	Total Lori	92	6397.9	1592.2	684.1	3035.2	11709.5	9175.8
2	Total Tavush	42	2879	648.6	821.7	760.1	5109.4	4031.1
<b>Total (ha)</b>		<b>134</b>	<b>9276.9</b>	<b>2240.8</b>	<b>1505.8</b>	<b>3735.3</b>	<b>16818.9</b>	<b>13206.9</b>

Decision-makers on forest management therefore lack solid information on which to base decisions regarding forest land use allocation and management. Without a proper assessment, monitoring and planning regime for the maintenance of ecosystem goods and services, managers and users have a difficult time effectively evaluating and integrating forest and land degradation risks and threats to biodiversity within decision-making. Important gaps in the regulatory and planning framework stand in the way of a transformative change from a short-term economy focused to a long-term integrated forest land use planning. A set of policies, regulations and guidelines is required in order to incorporate the definition of high value of biodiversity and ecosystem services, prescribe the need to identify and describe the procedure and standards for identification and designation of High Conservation Value Forests, and prescribe the priority for avoiding damage to ecosystem integrity when planning any economic activities at the time of forest management planning. In addition, the marz and community authorities lack the capacity to generate, implement and enforce integrated forest and land use plans. Financial constraints present a further barrier to upscale SFM/SLM levels in Armenia at the level required to successfully arrest land and forest degradation and combat desertification. Ministries, Marzpets and Local Self-governing authorities have a voice in where to channel baseline programme resources for supporting forestry and livestock management but this often focuses on production and technical efficiencies without weighing their negative impacts on land degradation processes. In part this is because there is a dearth of information on long-term costs of land

degradation both in terms of loss in income and reduced ecosystem goods and services. There is a need for the Government of Armenia to provide clear policy guidance on the participatory approach of sustainable forest management, as well as the recognition of the importance of ecosystems services, biodiversity and increased ecosystem resilience to human beneficiaries. The current legislation regarding community participatory forestry is unclear and can lead to conflict and mistrust. Further, there is a disconnect between public expenditures and environmental state budget allocations for environmental purposes, e.g. land degradation<sup>9</sup>.

***Barrier 2: Minimal experience among key government and civil society stakeholders in developing and implementing SFM practices on the ground:***

Forest Management Plans (FMPs) have been prepared for all eleven Forest Business Branches in the Lori and Tavush marzes. Management of forest lands and forests is performed based on these plans. The plans currently focus on determining logging activities for the ten year period of time. Although FMPs have been introduced and developed, there is a “resistance” to implementing them, in part based on lack of knowledge on their utilisation due to both lack of capacity and the academic style of the plans. The plans almost do not take into account the conservation value of forests when assigning it to production purposes neither does it incorporates the value of ecosystem goods and services that are delivered in intact forest patches. There is public perception that FMPs may not be based on accurate data and implementation does not correspond to approved plans. Moreover, State Forest Monitoring Center have proven that logging activities are not in accordance with the mentioned FMPs<sup>10</sup>, and 95% of all recorded logging areas do not coincide with the areas foreseen for logging by the FMPs. There is no established comprehensive monitoring protocol for biodiversity, ecosystem services and carbon accounting in the existing FMPs. The current system of delineating protection forests within the Forest Enterprise Branches results in a number of small isolated protection zones and does not take into account the establishment of connectivity between the areas. Neither does it adequately take account of ecosystem services/biodiversity values when allocating the land use.

Further, Armenia does not have operational, “on-the-ground” examples of sustainable forest management at a landscape level. Although Multi-functional zoning process has introduced, FMPs does not consider connectivity between the different Forestry Enterprise Branches. However, FMPs are developed for individual Branches and the forests therefore managed as independent land units. The situation in North-east Armenia presents a unique opportunity to showcase the integrated forest landscape approach. However, without the access to know-how, proven through demonstration, government decision-makers and resource users do not have the tools and knowledge necessary to decrease land and forest degradation. Although the principles of forest management are well understood, know-how needed to maintain the functional integrity

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<sup>9</sup> As a result of the Law on Nature Protection and Nature Use Payments and the Law on Targeted Utilization of Environmental Payments by Companies, the State budget for environmental management increased from almost US\$ 1.5 million in 1998 to US\$ 29.6 million in 2011. However, this state budget still did not exceed the 50% mark of cash revenues received from the environmental payments.

<sup>10</sup> Biannual report of State Forest Monitoring Center (2013) to State Forest Monitoring Board

of forests is lacking. The long-term resilience of the forests and their ability to provide important ecosystem services will require that certain areas (large forest blocks) are conserved rather than utilized for logging or firewood collection and that connectivity is maintained between the conserved areas by better managing these drivers of degradation – thus removing anthropogenic stressors that are impeding natural forest rehabilitation.

***Barrier 3: The lack of incentives and benefits to local communities to participate in forest management and conservation***

The approach used during the development of the forest management plans, relies entirely on researchers with little to no involvement of the local community and other local stakeholders. Further, the FMPs do not adequately address the livelihood needs of the local communities and elaborate on participatory forest management in achieving sustainable forest management. The continuing of the approach and the enforcement of the FMPs might further alienate local communities that partly depend on forest resources for their livelihoods. There is no involvement of local communities in the management of forests or in the reforestation/afforestation, management of grazing lands within the forests, as well as opportunities for sustainable derivation of direct economic benefits through targeted non-timber forest product programs. There is limited tangible benefits from the forest undermines the successes that such a program could have. Lack of alternative livelihoods in the face of escalating poverty is a barrier to addressing the unsustainable management of the forests. There is an unmet need to test the different means for achieving connectivity, and action in this regard is constrained by insufficient incentives and weak landholders (both public and private) capacities for internalizing sustainable forest and biodiversity management and community forest resource benefit sharing. .

***Barrier 4: Financial***

A chronic barrier to addressing the integrated land and forest management in Armenia like many countries is the lack of enough resources to deal with the issue. While the government has responded to the issue where seen as a national priority and potential threat, this has generally been reactive and constrained in scope by available budget funds. For instance, budget of Hayantar has been reduced twice after economic crisis in late 2008. Currently, state budget resources allocated for Forest sector in Armenia are covering only 80% of major operational needs, while remaining gap amount need to be covered by Hayantar itself from own revenues generated from timber production.

**1.6 Baseline activities/programs and scenario without GEF support**

A number of baseline programs are addressing the threats and barriers described above is being implemented on the levels of national administration, territorial (*Marz*) administration and local

self-governance (communities) that would serve as a foundation for the GEF project. However, under the business-as-usual scenario, they will not be sufficient to enable a shift towards integrated planning and more sustainable management of land and forests on the ground. These are briefly described below, along with the business-as-usual scenarios they entail.

***Planning, regulatory and institutional framework for Integrated Forest Resource Management:***

The country will commit to natural resource management in North-east Armenia and will invest in excess of US\$20 million in Natural Resource Management in North-east Armenia over the project period. This can be loosely divided into four areas; that related to regulation, planning and enforcement and to changing the production practices that is driving land degradation, deforestation and biodiversity loss. During the period of the project, the Ministry of Nature Protection will invest in excess of US\$ 6.7 million for the development of national environmental standards, specifications and guidelines regarding environmental practices and management, as well as GHG inventory and monitoring in land use and forestry sectors. In addition, the State Environmental Inspectorate will invest US\$ 1.9 million over the project period monitoring use of fauna and flora. The Ministry will invest US\$ 4 million for strengthening the protected area system in Tavush and Lori marzes. In addition, resources from the Caucasus Nature Fund will be supplementary to improve management efficiency of protected areas, by the provision of additional support equal to 320,000 Euro in improving management planning and maintenance, including tourism development, as well as providing operational costs for Dilijan National park within the next three years until 2017. Around 60,000 Euro will be provided to Red deer reintroduction project in 2015-2016.

The Ministry of Agriculture will invest in excess of US\$ 0.4 million over the project period for regulation formulation and compliance monitoring role of forestry in the two marzes. The Forest State Monitoring Centre will also invest US\$ 0.25 million over the project period on monitoring forest management activities, focusing on logging operations in line with the agreed management plans. The baseline activities on regulations and policies currently do not have sufficient resources for introduction of standards on High Conservation Value (HCV) Forests, nor for reconciling economic demands with ecosystem carrying capacity.

The European Neighbourhood and Partnership Instrument East Countries Forest Law Enforcement and Governance II Program (ENPI FLEG 2) funded by the European Union and Austrian Development Cooperation is supporting legal and institutional review and reforms, building human resource capacity to address FLEG issues, public awareness and public monitoring of the forests, strengthening sustainable forest management through activities with model forest units such as forest protected areas and alternative livelihood activities on sustainable use of forest resources with involvement of adjacent communities in the Tavush region. Around US\$ 25,000 will be invested into the community program. An amount of US\$101,000 will also be invested for strengthening the protected area system, namely Ijevan, Gandzaqar and Hazelnut sanctuaries through mapping improvements and development of



management plans. Technical and human capacity building of Hayantar SNCO and State Forest Monitoring Center will amount to around US\$ 98,000.

The Sustainable Biodiversity Management in the South Caucasus supported by GIZ seeks to integrate the mechanisms of economically efficient and sustainable use of natural resources in the state, private and civil society sectors as an influential means to conserve these resources. The Programme has developed and piloted concepts for the consideration of multiple ecosystem functions (Multi-Functional Zoning, MFZ) in operational forest management planning. Based on the MFZ as well as new remote sensing data on status and use of biodiversity new methods for a 2-phase forest inventory and operational forest management planning are developed and implemented. To support and enforce the institutionalization of the new management planning approach a National Forest Management Information System (NFMIS) has been developed. Furthermore concepts for rehabilitation of forests have been elaborated and tested in pilot areas. For sustainable pasture management the Programme has developed and successfully tested an approach for communal pasture monitoring and management planning. Overall investment of EURO 20.6 million at regional level (covering three countries) has been provided through the period covering 2011-2015, while an extension or second phase of operational activities is planned until end of 2018.

An estimated US\$ 200,000 will be spent in Northeastern Armenia by the Ministry of Urban Development on the preparation and review of Land zoning and use schemes in residential areas. The Ministries of Agriculture and Nature Protection will invest in excess of US\$ 3 million over the project period in assistance to rural land zoning and use schemes, forest and pasture management planning. This includes funds earmarked for the northeast under the World Bank Community Agricultural Resource Management and Competiveness Project for Pasture/Livestock Management Plans. At the community level, approximately US\$ 0.5 million will be allocated by self-governing bodies to support community development plans and development of land use schemes. The funds above are focusing on agriculture and livestock, forest use is not a primary focal area. At the same time, Hayantar SNCO will invest US\$ 0.1 million over the project period in updating the Forest Management Plans of the ten Forest Enterprise Branches, as needed, however these resources will be dedicated primarily to inventory of economic timber value and will not be sufficient to assess ecosystem values of forests or introduce carbon accounting.

The two marzes and the respective self-governing authorities will invest approximately US\$ 0.5 million through their respective police forces, which will among other duties perform environmental enforcement. Hayantar SNCO will invest US\$ 0.7 million over the project period in enforcement of forest legislation and forest management plans. The various SNCOs involved in enforcement of legislation in specially protected areas will invest in excess of US\$ 1 million over the project period. This enforcement system is based on fines for illegal activities based on

the current land-use plans; if the project introduces integrated land use planning and HCVF, additional resources for training of enforcement agents in compliance with new land use regimes and HCVF principles, will be required, which would not be available from the baseline financing.

***Demonstrating improved sustainable forest and land management practices to reduce pressure on high conservation forests and maintain flow of ecosystem services.***

Hayantar SNCO will invest an amount of US\$ \$0.5 million in afforestation and reforestation activities over the project of 2015-2019, as well as US 0.5 million in forest maintenance. These funds will however only reforest 1,000 hectares at its most, on state land with little involvement of the local communities. The focus will be on increasing forest cover, rather than restoration of ecosystem services and increasing connectivity among forest stands. In terms of pasture lands, the World Bank Community Agricultural Resource Management and Competiveness Project will invest US\$ 13.06 million (of which US\$2 million is potentially earmarked for NE Armenia) over the project period in setting up a Community Fund to implement the Pasture/Livestock management plans to be developed under the same project. That project, however, is not focusing on forests as a primary ecosystem.

The World Wide Fund for Nature (WWF), Armenian Branch under its Forest Landscape Restoration in Northern Armenia is involved in restoration of the natural habitat of critically endangered plant and animal species through reforestation as well as income generation for the local population. It includes restoration of 70 hectares of mountain forest adjacent to Trchkan waterfall near Mets Parni community in Lori Region as well as establishment of a nursery for rehabilitation of threatened forest species on the territory of the Institute of Botany of the NAS RA in Yerevan. Additional sources for income have been created for the local population participating in reforestation works. Restoration of natural state of ecosystem assists the biodiversity conservation in the process of sustainable forest management. The project intends to allocate US\$ 29,600 in 2015 to complete activities.

GIZ is supporting Hayantar in operational forest management planning based on newly recorded information layers which are integrated in NFMIS using a bottom-up approach. In agreement with the Ministry of Agriculture, an amount of 16 million EURO (USD 17.77 million will be invested by GIZ to continue operational forest planning and multi-functional zoning for 19 forest enterprises in the country through the end of 2018.

WWF is also supporting bio-diversity rehabilitation activities through its program on Reintroduction of the Caucasian Red Deer with establishing a breeding center in Dilijan National Park, purchase and transportation of 4 male and 11 female individuals of red deer to Armenia, training of the breeding center staff, keeping and breeding of animals with their further release to nature and monitoring. By the end of December 2016, about US\$ 118,300 will be invested in these activities.

The Ministry of Agriculture with World Bank funding is supporting improved productivity and sustainability of pastures in selected communities. In the course of project implementation the activities on sustainable pasture management will be implemented in 67 communities, out of 55 planned communities in 54 the consumer cooperatives “Union of Pasture Users” are being established and in 49 communities the plans on pasture management and live-stock breeding development are being developed in a participatory approach. Pasture management plans will serve as a basis for creating prerequisites for sustainable management of forest pastures and those adjacent to the forests.

In addition, UNDP Armenia will support sustainable livelihood activities in 45 bordering communities in Tavush region in the next five years within the frame Russia “Integrated Support to Rural Development: Building Resilient Communities” Project is financed by the Government of the Russian Federation. Around US\$ 2.0 million dollars will be invested on rural capacity building, developing integrated community management plans, establishment of small-scale contemporary agro-processing units, establishment/improvement of orchards/vineyards, collection centres, etc.

UNDP investments into piloting carbon stock inventory and monitoring system in forests and pastures within the frame of “Sustainable management of pastures and forest in Armenia to demonstrate climate change mitigation and adaptation benefits and dividends for local communities” project under EU Clima-East initiative is also notable. Around US\$ 250,000 will be invested by end of 2016 into elaboration and testing of methodology for carbon measurement, calculation, accounting and monitoring in land use and forestry sector in Gegharkunik region of Armenia that can be further replicated and up scaled within the frame of the current project.

## **2. STRATEGY**

### **2.1 Rationale and Summary of GEF Alternative**

The long-term solution sought is to facilitate shift from unsustainable to sustainable forest management in NE Armenia. The target area contains 65% of Armenia’s forest resources and provides essential ecosystem services including water provision (for urban use and food production), land slide control and carbon storage and sequestration. The forests also provide critical habitats for wildlife and hosts globally important biodiversity. Notwithstanding this significance, the area’s forests suffer from accelerating degradation, which is undermining ecosystem functions and derivative services. The target area trajectory of the baseline approaches in order to facilitate a transformative shift from unsustainable to integrated sustainable land and forest management. The project will promote an integrated approach towards fostering sustainable forest management – seeking to balance environmental management with development and community needs. It will attempt to reduce conflicting forest land-uses and improve the sustainability of forest management so as to maintain the flow of vital ecosystem services and sustain the livelihoods of local forest-dependent communities (and downstream users). This platform will be underpinned by a robust forest management planning support

system and monitoring framework that will inform plans for the forest estate. Further, the project will demonstrate sustainable forest management practices – testing new management measures, as needed to reduce environmental stressors.

To achieve planned outcomes, the project strategy is to address the barriers described through a coherent combination of corresponding incremental outputs organized into two components/ outcomes, the first one focusing on developing an enabling environment to plan, monitor and adapt sustainable forest and land management that will facilitate incorporation of sustainable forest, land and environmental management objectives and safeguards in forest management planning, forest land allocation and management and compliance monitoring systems at the local level. The second component will help in piloting the implementation of sustainable forest management and ecosystem rehabilitation practices in the eleven forest enterprise branches covering 220,000 ha in Northeastern Armenia as a means to change the way the fundamentals of forest management are undertaken so as to derive multiple forest benefits of biodiversity conservation, carbon improvement, water retention and erosion prevention, grazing management, sustainable community non-timber forest resource use and timber production. Through, such a pilot on-the-ground process, it is expected to enhance forest staff and community capacities to enhance sustainable forest and land management and provide the potential for further expansion and replication in the northeastern marzes, and elsewhere in the country.

The global benefits that will be delivered primarily include the adoption of SLM and SFM practices that will reduce land degradation and secure ecosystem services and mainstream biodiversity conservation within the planning and management of the forested area in two regions in Northeast Armenia (covering 650,000 ha) and testing particular SFM approaches as follows:

Baseline practices	Alternative to be put in place by the project	Selected environmental benefit
<b>Forest Use Planning and Regulation</b>		
<p>Forest management planning does not account for ecosystem values, biodiversity, and carbon pool integrity, leading to continued forest degradation and loss of ecosystem functions</p> <p>Narrow forest sectoral approach prevails in terms of forest land allocation and use</p>	<p>Mainstreaming SLM/SFM principles into forest management planning, compliance monitoring and enforcement:</p> <ul style="list-style-type: none"> <li>- All forest land in target regions is classified in line with the principle of retaining the highest ecological and environmental carrying capacity of land and forest resources, and the compliance is monitored and enforced.</li> <li>- The approach of defining and managing High Biodiversity Conservation Value Forests is</li> </ul>	<p><u>SFM, LD and BD benefits</u></p> <p>Pressures on forest landscapes in two regions (the two regions covering an areas of 650,000 ha) reduced:</p> <ul style="list-style-type: none"> <li>- Improved ecosystem services (such as water supply at forests and land slide protection) as measured by carbon benefits and reduced loss of selected indicator species</li> <li>- Decrease in grazing pressure in forestland and improved condition of forest ecosystems.</li> <li>- Reduced illegal cutting and approaches to reduction of fuel-wood collecting pressure in forest</li> </ul>

<p>decision making; forest planning does not incorporate SFM tools.</p> <p>National policies do not support forest land use optimization to sustain resource resilience nor they allow to operationalize the high biodiversity conservation concept</p> <p>Weak enforcement capacities to ensure compliance with ecological standards in forest land use and high level of trespasses in use of forests</p>	<p>incorporated into forest management in the NE Armenia</p> <ul style="list-style-type: none"> <li>- Biodiversity identified as value and provision made in the Forest Management Plans for the conservation of static and migratory biodiversity.</li> <li>- Community engagement in forest planning and resource use</li> </ul>	<p>and pasture defined with long term prospective of prevention of loss of carbon.</p>
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**Forests**

<p>Degradation of dry forests through:</p> <p>Illicit felling of trees for fuel wood and timber</p> <p>Overgrazing of forest land</p> <p>No rehabilitation of degraded areas</p> <p>No incentive for community forest conservation and management and for participation in sustainable NTFP use</p>	<p>Improved forest management planning operationalized in 11 forest districts.</p> <p>Sustainable forest management practices implemented:</p> <ul style="list-style-type: none"> <li>- Forest exclusion zones and set aside of 85,000 ha as High Conservation Value Forests, replacement of productive logging by conservation forestry with possible engagement of local communities,</li> <li>- Recommendations for reducing wood collecting pressures developed,</li> <li>- Restoration of degraded forests at 4,932 ha through assisted natural forest regeneration incentives for communities to refrain from unsustainable forest use created through the NTFP use and alternative livelihoods support scheme</li> </ul>	<p><u>LD Benefits</u></p> <ul style="list-style-type: none"> <li>- increased water availability, better stream flow and quality</li> <li>- reduced grazing pressure on forests</li> <li>- reduced danger of landslides</li> <li>- increase in Biodiversity Intactness in forests</li> <li>- increase in annual household income from sustainable NTFP and Agro-forestry products.</li> <li>- carbon stocks and sequestration (as below)</li> </ul> <p><u>Climate Change Dividend:</u></p> <p><u>CC benefits</u></p> <p>A. <u>Avoided Benefits:</u> Avoided emissions of 559,110 mt CO2 as a result of introduction of designation of High Conservation Value Forests of 85,000 ha over ten year period</p> <p>According to the results of assessment of the Economic and Social Impact of Unsustainable Forest Practices and Illegal Logging on Rural Population of Armenia /FLEG-1, ICARE, 2010/, the total firewood consumption of 71000 households of settlement of Tavush and Lori marzes within 10km distance from forest amounts to approximately</p>
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		<p>383 thousand m<sup>3</sup> (5.5 m<sup>3</sup> per household). The number of households 10km away from the 85000 ha HCV forests is approximately 26,000. The calculation yields to 70,000 m<sup>3</sup>, considering that about the half of the fuel-wood will be acquired from the given area and the other half from the adjacent forests. The average annual exported volume of waste wood on account of the two marzes is about 33,000m<sup>3</sup>, including 14,000 m<sup>3</sup> from HCV forests (2012-14 reports of “Dilijan” NP).</p> <p>In fact, establishment of HVCF will change regime from economic use to protection and this will reduce timber withdrawal at the area conservatively by 56,000 m<sup>3</sup> of wet timber.</p> <p>The total volume of HCVF is approximately 12.5 million m<sup>3</sup>, of which 59% is represented by predominating beech stands, 2.3% oak stands, 11.5%- hornbeam stands and only 6.5% by other species in total. With the same distribution the calculation yields at 33,000m<sup>3</sup> –beech, 12,900m<sup>3</sup> -oak and 10,100m<sup>3</sup> – hornbeam on account of 56,000m<sup>3</sup>.</p> <p>In order to calculate carbon dioxide changes in the living biomass regional conversion coefficients revised according to species were applied yielding in 55,911tons of avoided emissions per annum and 559,110 metric tons during the 10-year period of the project.</p> <p><u>Calculation method:</u></p> <p>Beech - (0.538 dry mass/wet timber m<sup>3</sup> X 0.4902 carbon content =0.264tons of carbon per m<sup>3</sup>. It converts to 0.264 X 44/12=0.968 tCO<sub>2</sub> per 1m<sup>3</sup> of collected biomass. For 33,000 m<sup>3</sup> the calculation is 33,000 X 0.968= 31,944 tCO<sub>2</sub>.</p> <p>Oak-0.570 m<sup>3</sup>x0.5016=0.286x44/12=1.048x 12900=13,519 tCO<sub>2</sub></p> <p>Hornbeam – 0.640 m<sup>3</sup> x</p>
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		<p> <math>0.5060=0.323 \times 44 / 12 = 1.184 \times 3600 = 4,262 \text{ tCO}_2</math>  Other species – 0.530  <math>m^3 \times 0.4900 = 0.259 \times 44 / 12 = 0.49 \times 6500 = 6,186 \text{ tCO}_2</math> </p> <p> <u>B. Calculation of the sequestration benefit:</u> </p> <p> The following volumes of regeneration of degraded forests of 6 forest enterprises of Tavush and Lori marzes, 3 from each marz, were identified in the result of field visits and respective discussions with Hayantar, including the following activities: </p> <p> The project proposes the assisted natural regeneration of 4,932ha of degraded forest land within the six forest enterprises in the Tavush and Lori Marzes, three in each of the marzes. </p> <p> The proposed restoration activities will include the following: Fencing of of forested areas to prevent cattle access and other violations of forest legislation- 52,000lm in total, which will ensure protection of 4,932ha forests (discussed below): Regeneration of massively logged beech, oak-hornbeam stands. To ensure normal coppice growth and additional growth of springs in 120 ha. Only 2-3 straight and well developed shoots should be left on stumps. Measures to natural regrowth and soil amelioration, preparation of platforms of 1m by 1m for partial sowing of seeds, and maintenance in 4,932ha. </p> <p> These activities will cover a total of 4,932ha of forest regeneration. </p> <p> Taking into consideration the nature of envisaged rehabilitation measures in the areas designed under regeneration the annual growth of above-surface dry biomass will approximately be 1.15t/ha or 0.552ha/t carbon per year (IPCC conversion factor to extract carbon from dry matter is 0.46). </p>
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		<p>Relevant sprout/root ratio is 0.23 (IPCC Table 4.4). There, the growth of carbon per hectare will be <math>0.552 + 0.552 \times 0.23 = 0.679</math> metric tons/ha, or, 2.49 metric tons of carbon dioxide equivalent (tCO<sub>2</sub>-eq) per hectare if we convert this to carbon dioxide <math>0.679 \times 44</math> divided by 12</p> <p>Thus according to calculations the annual benefit of carbon sequestration on account of assisted natural regeneration of 4,932ha of forests will be:</p> <p><math>2.49 \times 4,932 = 12,280</math> metric tons of carbon dioxide per year or 122,800 metric tons of carbon dioxide equivalent on account of 10 years of sequestration.</p> <p><u>BD:</u></p> <ul style="list-style-type: none"> <li>- Increase in management effectiveness of protected areas and high biodiversity conservation set-asides over project period.</li> </ul>
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**2.1.1 Project consistency with GEF focal area strategies**

Most importantly, the project is aligned to the Land Degradation (Desertification and Deforestation) Strategy – Land Degradation Objective 2 “Generate Sustainable Flows of Forest Ecosystem Services in Arid, Semi-Arid and Sub-humid Zones, including sustaining Livelihoods of Forest-dependent People” and through capacity development – forest policy and related legal and regulatory frameworks reformulation and improved decision-making, sustainable management of forests, natural forest regeneration of local species, and Land Degradation Objective 3: “Reduce Pressures on Natural Resources from Competing Land Uses in the wider Landscape” – through capacity development to improve decision-making in management of forest production landscapes to ensure maintenance of ecosystem services important for the global environment and for people’s livelihoods, avoiding deforestation and forest degradation, building technical and institutional capacities to monitor and reduce GHG emissions from unsustainable grazing activities and deforestation(incl. estimating and monitoring associated emissions and changes in carbon stocks). The project is aligned to the Sustainable Forest Management/REDD-plus Objective 1: “Reduce Pressures on Forest Resources and generate Sustainable flows of Forest Ecosystem Services” through the enhancement of the enabling environment within the forest sector and applying good management practices in existing forests. The project is also aligned to the Biodiversity Strategy for GEF V. In particular, it is aligned to Objective Two: “Mainstream Biodiversity Conservation and Sustainable Use into Production



*Landscapes/Seascapes and Sectors*” through the development of spatial land-use planning that incorporates biodiversity and ecosystem valuation. Further, the project is closely aligned to the Climate Change Mitigation Strategy Objective 5: “*Promote Conservation and Enhancement of Carbon Stocks through Sustainable Management of Land Use, and Land-use Change, and Forestry*” through the establishment of carbon stock assessment systems. From the climate change mitigation cost-effectiveness perspective, the total investment from the Climate Change Mitigation focal area of US\$ 1,161,705 (GEF plus co-financing) will conservatively generate total carbon benefits (emissions avoided plus carbon sequestered) amounting to 848,630 tCO<sub>2</sub>-eq over a 10-year time horizon. The unit cost of mitigation is therefore US\$1.34/tCO<sub>2</sub>, which is far below the cost of most of the presently known climate change mitigation approaches.

### **2.1.2 Project consistency with national strategies and plans or reports and assessments under relevant conventions**

Since independence, the Government of Armenia has placed a high priority on addressing the reduction of pollution and eliminating related anthropogenic pressures and impacts to the natural and human environment. Maintaining an efficient utilization of natural resources, with comprehensive environmental regulation and protection is among the factors serving the fundamental values of Republic of Armenia (RA) National Security Strategy adopted in 2007. The document specifically recognizes the importance of increasing the efficient use and protection of the country’s mineral and natural resources, especially its water and forest resources as internal threats.

The project aligns with priorities of Armenian Prospective Development Strategy 2014-2025, that is indicating the importance of measures to be taken to reduce as much as possible the associated environmental risks. In particular environmental risks associated with illegal forest logging resulting from higher gas prices. Further development of Forest national program is indicated also with the aim of forest restoration in the republic, as well as improvement of forest quality indicators both existing one and further planted. The strategy envisages the improvement of control mechanisms against illegal forest logging to be carry out in parallel with forest plantation and recovery activities. Setup of bioresources monitoring and inventory system, as well as improvement of community participation mechanisms in management of natural resources is among priorities. Strategy considers development and introduction of relevant economic and supervision mechanisms for maintaining the targeted use of lands, preventing the current negative trends in changes of land status and regime and land degradation.

RA Government commitment relative to sustainable natural resource management and environmental protection, including climate resilient development is evidenced by the country’s ratification of the all major MEAs, notably the UN Framework Convention on Climate Change and its Kyoto protocol, UN Convention to Combat Desertification, as well as UN Convention on Biological Diversity with its Cartagena Protocol on Bio-safety. A number of activities are specifically mentioned in the “List of measures for implementation of Armenia’s obligations

under multilateral international environmental agreements” approved by the Government of the RA in November, 2011.

The project is in line with the strategic objectives of the National Forest Policy and Strategy of the Republic of Armenia, 2004 through the capacity development of Hayantar, support to the restoration of forest ecosystems, the development of forest management plans, and the improvement of the legislative basis contributing to sustainable forest management. The project will complement and enhance on-going activities toward improvement of national forest monitoring information system and multi-functional zoning.

The project will advance the objectives of the 2014 “National Strategy and Action Program to Combat Desertification in the Republic of Armenia”(NSAP), as well as Action Plan for Specially Protected Nature Areas.

The NAP highlights the need for effective coordination among the environmental institutions and the specification and enhancement of responsibilities of territorial and self-governance authorities in environmental management. It further calls for improved land use planning and improvement of economic mechanisms for natural resource management. It highlights the importance to ensure integrity of ecosystems through improvement of nature use mechanisms, through effective protection and efficient use of natural resources.

The project will also support the implementation of the 10-year UNCCD Strategic Plan especially Strategic Objective 2: To improve the condition of affected ecosystems, particularly Expected impact 2.1: Land productivity and other ecosystem goods and services in affected areas are enhanced in a sustainable manner contributing to improved livelihoods; and Strategic Objective 3: To generate global benefits through effective implementation of the UNCCD, specifically Expected impact 3.1: Sustainable land management and combating desertification/land degradation to the conservation and sustainable use of biodiversity and the mitigation of climate change.

The project responds to a number of needs identified in Armenia’s Second National Communication under the United Nations Framework on Climate Change (2010) namely (i) Establish natural ecosystems’ monitoring system and conduct studies on climate change impacts thereon; (ii) Based on the international experience in application of modern technologies, develop a system for consistent monitoring of the “LULUCF” sector, and assessment of GHG emissions from the sector; and (iv) Include carbon accumulation assessment in forest management plans.

The project will contribute to the Armenia’s Biodiversity Strategy and Action Plan (BSAP) through support to the following objectives: (i) To develop mechanisms which mitigate economic activities that negatively affect biodiversity, while ensuring that a more realistic market value is placed on biological resources; (ii) To increase internal and external investments in order to conserve and regenerate landscapes and biodiversity; and (iii) To conserve, regenerate and sustainably use forest resources, with a resulting increase in healthy forested areas. The

project will also directly support the achievement of Aichi Target's Strategic Goal A: address the underlying causes of biodiversity loss by mainstreaming biodiversity across government and society; particularly Target 2: By 2020, at the latest, biodiversity values have been integrated into national and local development and poverty reduction strategies and planning processes and are being incorporated into national accounting, as appropriate, and reporting systems; Strategic Goal B: Reduce the direct pressures on biodiversity and promote sustainable use; particularly Target 5: By 2020, the rate of loss of all natural habitats, including forests, is at least halved and where feasible brought close to zero, and degradation and fragmentation is significantly reduced; and Strategic Goal D: Enhance the benefits to all from biodiversity and ecosystem services – particularly Target 15: By 2020, ecosystem resilience and the contribution of biodiversity to carbon stocks has been enhanced, through conservation and restoration, including prevention of degradation of natural ecosystems, thereby contributing to climate change mitigation and adaptation and to combating desertification.

Project activities correspond to the main target of the 2012-2015 three-year Marz development program aimed at the improvement of the environment situation in the regions, particularly through: (i) forests rehabilitation and efficient management of forest resources; (ii) improvement of the Protected areas management system; (iii) public awareness on environmental issues, including raising of local self-governance bodies awareness of environmental issues and local environmental NGOs capacity building.

## **2.2 Project objective, outcomes and outputs**

The objective of the proposed project is to enhance sustainable land and forest management in the NE Armenia to secure continued flow of multiple ecosystem services. In particular, it aims at implementation of two components that are aimed at addressing the barriers of inadequate planning, regulatory and institutional framework for integrated forest resource management, and the limited experience among key government and civil society stakeholders in developing and implementing SFM practices on the ground.

The project's incremental value lies with demonstrating, using the case of the pilot forest enterprise branches, how forest management plans can be made sustainable through adding the layer of biodiversity and ecosystem values during the process of revising the plans. A GIS database and maps will be updated for each forest enterprise branch, listing priority areas of high biodiversity conservation, forest and firewood production, and pastures and community resource use. These layers will allow for defining which ecosystems can be manipulated and which should be conserved in order to retain ecosystem integrity and ensure productivity of forest lands in the long term. The project will be able to develop and demonstrate a matrix of SLM/SFM solutions for further replication outside of the pilot territories. The experience will be shared and replicated beyond project boundaries through a series of publications and workshops. This is to be achieved through two main components that are described below:

**Component/ Outcome 1: Enabling environment for the marzes in Northeastern Armenia to plan, monitor and adapt sustainable forest and land management.**

This component focuses on addressing the barrier related to deficiencies in the current inadequate planning, regulatory and institutional framework for integrated forest resource management.

Under this Component, the GEF increment would support the incorporation of sustainable forest and land management objectives and safeguards in the forest management planning, forest land allocation and compliance monitoring system at the local level. FMPs will be adjusted for the eleven existing forest management branches in the two marzes ensuring optimal allocation of land resources to generate development benefits and critical environmental benefits (including biodiversity conservation, climate change adaptation and mitigation and community use and management) in tandem. All important forestland users including the forestry sector and local communities will be involved in the process. The adjustments to forest management planning process will built on ongoing GIZ supported activities and bring together authorities (Ministries of Nature Protection, Agriculture, Territorial Administration and Emergency Situation, Urban Development, Hayantar, State Cadaster, marzpets and local self-governing authorities and local community groups) tasked with opportunities for improving forest management. This collaborative planning process will ensure an integrated approach in the development, implementation and enforcement of FMPs resulting in the optimum use forest and in terms of biodiversity conservation, ecosystem services and socio-economic development, but also ensure agreement on the content of these plans by the local stakeholders thereby increasing the chances of successful implementation of the plans. This component will have five main outputs that contribute to the overall goal of developing integrated forest management plans and establishing capacity for the implementation and monitoring of these plans.

***Output 1.1 Forest management plan guidelines/protocols updated for mainstreaming ecosystem, climate risks and biodiversity considerations into forest management planning in North-east Armenia***

Under this output, the GEF increment will facilitate the improvement and/or adjustment of existing guidelines of forest management planning and monitoring protocols to promote an integrated and sustainable approach to forest resources management that helps to balance competing environmental, social and economic objectives in forest planning and management and associated investments. Integration of climate adaptation/mitigation and carbon accumulation aspects into guiding document will be the main focus of this effort. The revised forest management guidelines would serve as a planning tool for forest and associated land management that take into consideration the allocation and management of forest lands for deriving multiple ecosystem services of water conservation, climate amelioration, and erosion control and biodiversity conservation, grazing management and community resource use. Revised/adjusted protocols for monitoring the implementation of forest management plans would make specific reference to assessing impacts on ecosystem service delivery and benefits from

biodiversity conservation and community use of NTFPs and other productive forest management operations.

The revision of protocols/guidelines will be guided the following activities: (i) review of international and regional best practice in integration of ecosystem perspectives into forest planning decision-making processes, (ii) review of current practices of forest management planning and the extent to which these integrate ecosystem, biodiversity and community resource use; (iii) collation and review of key environmental information required to support the updating of protocols, including information on requirements for maintaining species and habitat, ensuring ecosystem services, managing threats to biodiversity and ecosystem services, environmental risks of climate change and environmental hazards and the state of forest and land degradation; (iv) extensive consultation with key stakeholders, including local communities on their expected needs and services from the forests; (iv) revision of protocols to ensure provision of guidance on conservation assessment tools and technologies to identify and prioritize areas for biodiversity and species conservation, restoration and maintenance of ecosystems and habitats and assessing trade-offs between different forest uses. The outcome of this activity would be a set of protocols and guidelines that would forest managers and land-use planners on the use of ecosystem-based planning approaches in the preparation of forest management plans. The protocols/guidelines will provide instructions on information needs, consultative process and procedures for assessing trade-offs and compromise on allocation of land for different purposes, instruction for management planning and monitoring. Consultants hired by the Project Management Unit will work in close collaboration with Hayantar, Ministries of Agriculture and Nature Protection, Biodiversity Management Agency, State Forest Monitoring Center, LSGs, GIZ and WWF for implementation of this output.

***Output 1.2. Geo-spatial information systems support forest inventory and mapping for forest management planning, development, implementation and monitoring***

Under output 1.2, in order to ensure that FMPs are based on up-to-date and verifiable information, the project would take stock of existing and on-going inventory and mapping of the forest resources integrated into National Forest Management Information System (NFMIS) to better understand the extent and detail of the inventory and mapping tools that are available and define major gaps. The stock taking exercise will evaluate the extent to which the mapping and inventory earlier supported by GIZ has integrated the total value and multi-functions of the forest landscape, including the properties of ecosystem services and carbon capture. The intent of the stock-taking and any additional work would help to present information on the location of critical habitats, have indicators on ecosystem functions and resilience, carbon stocks, impact of climate change and community use. Production of additional information layers for GIS based mapping regarding bio-diversity and ecological corridors, community use of pastures managed by Forest Enterprises (FEs), firewood collection and NTFPs collection and use will be used to

update existing NFIMS. Through the stock-taking and subsequent work, the Ministries, marzpets and local self-governing authorities will be able to validate where critical habitats and endangered and threatened species are, which threats these habitats and species are suffering from, whether a given site has ecosystem values and serve as carbon sinks, what the predominant land use are, what the current as well as potential effects of land degradation on ecosystem services are, and where forests are best suited for multiple benefit sharing and use by local communities. Part of the inventory and mapping updating exercise will be dedicated to analysis of the trade-off between systems for sustainable land and forest management, including valuation of costs/benefits of different SFM/SLM practices and production systems and those that are dedicated for biodiversity conservation, climate protection, ecosystem services and community resource use. The outcome of this activity would be the updating of accurate maps of forest and surrounding community's area and production potentials, main ecosystem types, biodiversity conservation and water protection areas or set-asides, forests rich in NTFPs that are potential sites for community conservation, use and management, areas that are degraded and need for protection and/or natural regeneration, forest grazing lands and pasture management, etc.

GEF funds will be used to contract a national consultant team to support the integration of biodiversity information and ecosystem values into the forest inventory and mapping revision process. The national consultant team will support each Forest Enterprise Branch in the revision and updating of the inventory and maps through the following key steps: (i) review of existing inventory and mapping to evaluate the extent to which biodiversity and ecosystem values have been considered; (ii) collection, collating and maintaining key environmental information (forest, land, pasture, agriculture, etc.) to update of inventory and mapping information to correct any existing deficiencies in forest and other land use in the two marzes; (iii) supporting extensive consultations with forest and sector staff, graziers, forest dependants and other community groups to establish norms and criteria to assess needs and trade-offs; (iv) defining clear guidelines to assist in decisions regarding allocation of forest land for different uses and guidance for assessing and defining trade-offs between different users; (iv) providing technical guidance for integration of environmental information into the mapping and planning processes; and (v) providing on-the-ground training and capacity development for forest and other staff on forest inventory and mapping techniques and in the interpretation of information arising from these exercises; (vi) the final out would be a series of revised maps and technical support for guiding the allocation of forest land for different purposes.

***Output 1.3. Revised forest management plans integrate considerations of biodiversity, ecosystem services, climate mitigation, and community resource use.***

Based on the updated forest management planning guidelines and inventory and mapping exercise that would best define the allocation of forest lands for a multitude of different forest uses, the GEF increment would support the update of forest management plans for 11 (eleven)

forest enterprise branches and selected community development plans<sup>11</sup> in the Lori and Tavush Marzes to ensure mainstreaming biodiversity, climate, carbon stock, grazing, firewood supply aspects into those plans. The updated forest and community management planning system will reconfirm a shift from the current emphasis on land and forest production to a more holistic approach of management of landscape for multiple benefits of biodiversity conservation, climate amelioration, ecosystem services, water retention and erosion control, sustainable non-timber forest product management and community benefit sharing and livelihood improvement. The new and revised management plans would emphasize management practices for the different parcels of land within the forest estate to ensure multiple ecosystem benefits and conservation outcomes.

This output would help establish a range of sustainable forest management practices across the two marzes. The specific activities to be undertaken in this output will include: (i) use of systematic biodiversity conservation and ecosystem services assessment tools and technologies (as found appropriate) to identify and prioritize the forest areas for conservation use, improvement and protection of ecosystem and climate mitigation functions, mitigation of the impacts of fuel wood extraction on sensitive habitats and species, enhancing sustainable community forest resource use, reducing the impacts of unsustainable grazing pressures and potential natural forest regeneration; (ii) for forest areas of high conservation value, facilitation of a consultative process for delineating the areas that are currently outside the protected area network, either as reserved or protected forests; (iii) defining a process for strengthening the management of the delineated high conservation areas, that might include guidelines and procedures for preparation of stand-alone conservation management plans, or the integration of conservation management prescriptions into forest enterprise forest management plans; (iv) support a process for participative development and adoption on guidelines and procedures for delineating fire wood collection areas to mitigate the haphazard harvest and collection of fire wood, in particular from sensitive habitats and species in protection forests; (v) facilitate a consultative process for defining and development of guidelines and procedures for the restoration of degraded grazing lands and their sustainable management by local graziers; (vi) develop criteria for identifying degraded forests for assisted natural regeneration and development procedures for their regeneration; (vii) define, in consultation with forest dependent communities, of a range of measures to ensure sustainable resource use and reduce environmental impacts of unsustainable harvesting of NTFPs; restoration and management; and (ix) provision of technical support and on-the-ground training in sustainable forest management planning to forest staff. A forest and land use planning consortium would work with Hayantar staff of the MOA in facilitating the updating of the forest management plans.

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<sup>11</sup> Community development plans exists for each village (for a 4-year period) that is approved by the village councils and includes development related works. The project will try to integrate sustainable land and forest, and biodiversity conservation principles on a pilot basis in a selected number community development plans

***Output 1.4 System for effective monitoring and enforcement of forest management plans, including clear delineation of roles and responsibilities of key partners and management of participatory processes in forest development***

The GEF increment will ensure that the roles and responsibilities of organizations involved in supervision and enforcement of FMPs are clarified, ensuring that the monitoring and enforcement system draws on the expertise of all relevant actors and clearly allocates roles and responsibilities based on comparative advantage in-line with on-the-ground realities and institutional norms. Monitoring protocols will be updated where necessary as part of the revision of the forest management planning guidelines and the project will support updating protocols (develop recommendations/guidelines) on technical aspects of implementing integrated forest and land and plans to meet SFM and SLM standards, the output will ensure that the monitoring and enforcement system draws on the expertise of all relevant actors and clearly allocates roles and responsibilities based on comparative advantage. Further, compliance monitoring will be strengthened in order to eliminate the silo approach, where for example forest officials will monitor impacts on forestry, biodiversity conservation, sustainable NTFP and community resource use, natural regeneration of logged areas as part of a more integrated approach that allows for monitoring the various aspects of forest services. Planning and monitoring teams comprised of officials from State Forest Monitoring Center, Forest Enterprise Branches and other sectors as relevant will be trained on this new approach.

***Output 1.5 Recommendations for national policy and regulations for facilitating adoption of sustainable forest management practices***

Promotion of SLM and SFM practices at the forest enterprise branch level will be facilitated with a set of necessary recommendations that can guide and influence future national level policies and regulations. Recommendations will be provided for considering adoption of approaches that stipulates the process for identification and setting aside of High Conservation Value Forests (HCVF) in Forest Management Planning; develop structures and methodologies for integrating community participatory forestry or sustainable NTFP and agro-forestry systems into the Forest Management Planning; defining options for assessment of economic services value of ecosystem functions and climate amelioration, impact resolutions of Hayantar will be sought to adopt methodologies and criteria for assessing forests and grazing land condition for the purposes of subsequent forest and land use decision making; recommendations will be developed for securing additional finances for SFM/SLM investments and aligning the existing financial contributions in the forestry and rangeland sectors to support SFM/SLM practices; guidance and resource distribution criteria for allocations – to improve the efficacy of SFM/SLM investments (reduce overlap and redundancy) will be designed; regulations for special management in ecological sensitive areas will be put in place, protocols for identification and demarcation of corridors for wildlife movement; regulations on identification of ecosystem goods and services



that will be mandatory to be addressed in the land use planning. Close collaboration with WWF will be established to achieve output results.

***Output 1.6 Enhanced capacity for sustainable land and forest management within key agencies and communities***

The project will build capacity within the various organizations by focusing on core principles and practical skill development and the use of strategic measures and tools to enable effective sustainable forest and land management. A needs assessment will be conducted to develop a comprehensive and targeted training program with individual training modules designed and implemented. The needs assessment will take into consideration on-going capacity building activities, including those being conducted by GIZ within the framework of the Caucasus Biodiversity management programme. The training will focus upon enabling stakeholders to apply practical steps in their daily work to strengthen the SLM and SFM capacity. The developed modules will form the basis of multi-component training program to be organized and conducted within the MoA over the life of the project. The purpose of the training will be first to inform staff of the existence of these new forest and land planning tools and guidelines and train them in their use. The training will help implement and SLM and SFM policies, strategies and programs. It will focus on key government agencies such as Hayantar, MNP and marz administration on how to implement the new forest management guidelines that would be developed under the project to address the multiple values of forests and ecosystem functions for assessing trade-offs between the varying uses of the forests. Part of the training will be supported through the on-the-ground mapping and inventory exercises and planning processes that would be complemented by specific technical training on use of GIS, MIS and satellite imagery techniques for mapping and inventory and valuation of ecosystem services. Training courses would be conducted to enhance management planning of high conservation value areas, species monitoring and inventory, methodology for community mobilization and community forest management planning and livelihood investments and methodology for assessing ecosystem functions and values and for evaluating trade-offs between the different components. Training of communities is envisaged for planning of community forestry initiatives and socio-economic investments, sustainable grazing and land management and conservation agricultural techniques. Specific training on development of income generating activities, product development and value addition, cost-benefit analysis of income opportunities, market access and financial management would also be available.

In terms of SFM and SLM activities, the training will deal with the basics of land degradation, its causes, and understanding the impact of land use and forest management practices on the health of the forest and land resources, carbon sequestration potential, and returns for pastoralists and other forest dependents. The training will also focus on application of SLM/SFM concepts to the north-eastern region. This will include forest management planning practice, pasture and land

use management planning and training on inventory methods and identifying areas of concern, mapping, data management and related areas. It will also focus on sustainable pasture and forest use practices for grazing management, forest resource use: where improved management efforts are most usefully put and how to apply them and overviews of best practice in pasture and forest restoration, erosion control methods.

Training will also focus on methods for engaging and building consensus among all stakeholders, including forest dependents, including methods for community mobilization and participation in forest management planning, community forest management and livelihood improvement, sustainable grazing management, sustainable forest resource use and agro-forestry approaches. Training of community groups in resource mobilization, alternative income generation (including product development, small business development, processing, value addition and marketing), alternative energy approaches, livestock productivity improvements, as well as monitoring impacts of their action on the state and health of the resource.

**Component/Outcome 2: Investment in demonstrating improved sustainable forest and land management practices to reduce pressure on high conservation forests and maintain flow of ecosystem services.**

This component will demonstrate on-the-ground approaches to improving sustainable land and forest management within a production landscape covering an area of around 220,000 hectares of forest lands in the forest enterprises. The additional inventory and forest mapping exercises and subsequent revised/updated forest management plans will provide the basis to demarcate areas for restricted land and forest use for assigning land use regime to certain areas important for the provision of ecosystem services in the area such as water supply and land slide control, and for priority corridors for wildlife, and areas to be set-aside for community resource use and grazing management.

***Output 2.1 Designation of High Conservation Value Forests covering 85,000 ha of current production and protection forests for species conservation and climate mitigation***

The ecological connectivity between existing protected areas and forests complexes will be enhanced by improved management of 85,000 hectares (which will also include current categories of forests of special significance within production areas) of intact forests as high conservation forest areas (reducing or preventing logging, firewood collection and grazing in these areas). Multi-functional zoning approach tested by GIZ will be applied to define HCVF areas, to the extent it is relevant. As part of this output, the GEF increment will support (i) improved management of one existing protected area (33,765 ha) and eight existing sanctuaries (19,880 ha) that are embedded within the forest estate, the latter are not defined on the ground nor are these managed for biodiversity outcomes. The project will support boundary demarcation, management planning and surveys and monitoring of biodiversity within these sanctuaries, and (ii) identification and setting-aside around 34,000 ha intact forests within the forest enterprise branches for environmental and biodiversity conservation that would be defined

during the forest inventory and mapping exercises. Agreements with communities will ensure that grazing is limited in these areas, while in others the areas will be demarcated and managed. The delineation of forest complexes as High biodiversity conservation forests as well as the identification of areas for rehabilitation will be undertaken with a view towards creating linear ecological corridors (e.g. reforestation adjacent to existing protected areas or protection forests) and stepping stone corridors (e.g. rather proclaim a protection forests or reforest an area between two existing forest complexes rather than a stand-alone site) in order to further increase the functional connectivity of the forest. The boundaries of the protection forests will be delineated and marked and the Foresters and communities capacitated in the management of these forests. This may include the reduction of firewood harvesting volumes in forests important for the delivery of critical ecosystem services, moving high-value forests from the ‘harvested’ to the ‘protected’ category and implementing non-exhaustive forest use in cooperation with local communities. It will also include capacity building to restrict forest felling for heating, forest fire management including early warning systems and fire combating techniques, as well as the control of any grazing activities in these areas through the restriction of grazing in these areas. The GEF increment will also support the preparation of management plans for the protected areas (sanctuaries) and the integration of management prescriptions into forest management plans of the forest enterprise branches to ensure effective management of the high value conservation areas that are outside of the legally defined protected areas. Annual and bi-annual monitoring of bird and butterfly species respectively, would help assess impact of conservation measures in the existing protected areas and set-asides. Monitoring protocols would focus on assessment of change in population trends of five indicator bird species (Coal tit, Eurasian nuthatch, Semi-collared flycatcher, Green warbler and Song Thrush) and change in average number of individual species populations in linear transects for four indicator butterfly species (*Argynnis paphia*, *Brintesia circe*, *Coenonympha arcania* and *Leptidea sinapis*).

### ***Output 2.2 Restoration of forests and pasture lands, and rehabilitation of multiple use forestlands through community forest resource management***

In addition to the improved management of 85,000 ha of high conservation value forests, the GEF increment will directly target on-the-ground SFM and SLM interventions in around 6,000 ha of forests and grazing lands to facilitate forest regeneration and growth and reduce pressures on intact forests from grazing and other anthropogenic factors, as well as additional 3,000 for community sustainable resource use and management. This output will be implemented in six of the eleven forest enterprise branches, three in each of the two marzes with the intent of concentrating these activities in a few areas so as to maximize and achieve collective benefits and demonstrate a more visual image of success, rather than diffuse these activities though the entirety of the marzes. In particular, this output will include the following activities: (i) restoration of 4,932 ha of degraded forests (e.g. burnt forests, past clear-cut etc.) through assisted natural regeneration. There is clear experience in Armenia and elsewhere in the region that

assisted natural forest regeneration is a more cost effective and viable option to regeneration of degraded areas than reforestation, when in particular the track record of reforestation has mostly not been very encouraging and also very costly. By triggering the return of degraded forests to their natural condition, the project will restore their ecosystem functions, including carbon sequestration. The GEF increment will support fencing, thinning, limited soil working and limited seeding with native forest species to facilitate rapid natural regeneration of forests. (ii) Sustainable management of around 1,000 ha of degraded pastures and hay areas in government owned grazing lands to enhance and sustain productivity of these lands and reduce pressure on forest lands for grazing. By triggering the return of degraded pastures to their natural condition, the project will restore their ecosystem functions, as well indirectly help reduce grazing pressure on natural forests. In particular, the GEF alternative will support integrated pasture management that encompasses rotational grazing, social fencing, pasture and grazing land productivity improvements, including native (non-weed) grassy vegetation regeneration based on detailed botanic, soil and hydrological studies and other related investments. (iii) Multi-purpose forestry in around 3,000 hectares of forest lands to be brought under sustainable community NTFP production and agro-forestry to reduce forest degradation and enhance economic benefits to local communities living adjacent to the forests. The forests of the NE Armenia are rich in berries, mushrooms and medicinal plants that can be sustainably harvested and managed to bring additional incomes to local people.

As part of the multi-purpose forestry sub-component, the project will support the further development of the existing school forest district program in an area of around 332 ha in the Noyemberyan Forest Enterprise Branch in the Koghb community area. In particular, this activity will facilitate efforts at forest conservation, natural forest restoration, recreational-cultural conservation and the sustainable harvest of fruits and berries, including the processing and marketing of such products as part of the Noyemberyan FMP process, so as to provide incentives for engaging schools and school children in forest conservation and sustainable use). The GEF alternative will support new and improved methods of harvest and collection, processing and value addition, market access and small business development and support for development and improvement of agro-forestry systems, including valuable perennial tree species and orchards. Community involvement in these schemes and use of local labour will be targeted in order to provide additional incentives to the local community, as well as increase their involvement in the forest enterprise branches.

Forest rehabilitation and restoration activities in the 4,932 ha of degraded lands will be defined following the inventory and mapping exercise. To the extent feasible, the sites for rehabilitation should be selected to represent different forest types, following use of specific criteria that would be based on the potential for rehabilitation linked to the condition and status of the area, availability of seed sources, soil and climatic conditions, existing pressures and disturbances, willingness of adjacent communities to participate in the rehabilitation effort, including forest protection and maintenance, etc. The specific activities that would be undertaken in this output will include the: (i) review of national and regional best practices in forest restoration; (ii)

preparation of a rehabilitation plan for the identified sites, including assessment of best silvicultural and soil improvement methodologies, and protection and maintenance measures; (iii) establishment and maintenance of a suitable mix of protection and social fencing measures to reduce grazing and fire wood collection pressures; (iv) support the implementation and monitoring of the forest rehabilitation plans; (v) document and dissemination success and failures at each of the rehabilitation sites; and (vi) prepare a manual that describes rehabilitation approaches for different forest types.

In terms of rehabilitation of degraded pasture lands, the following activities are envisaged: (i) review of national and regional lessons and best practices in pasture and hay fields restoration; (ii) identification and prioritization of areas, based on the inventory and mapping, and consultative process with graziers. Specific criteria would be used to identify such areas, including state of the pasture and availability of seed material, soil condition, current grazing patterns, age of stand and condition of degradation, erosion status, availability of water supply, willingness of graziers to participate in rehabilitation efforts, and threats and vulnerability. A small selected number of areas for rehabilitation and sustainable pasture management will be identified; (iii) develop rehabilitation plans for each of the sites, in consultation with local graziers, that would identify the best possible options for each site, rehabilitation techniques (seeding, soil treatment, grazing regimes, etc.); (iv) agree on maintenance measures, in consultation with graziers for protection and control of the sites during the rehabilitation process; (v) identification of alternative grazing areas and grazing management in these alternative areas; (vi) support the implementation and monitoring of the pasture restoration process; (vii) develop a sustainable grazing management strategy for each of the rehabilitated sites, including livestock numbers, grazing restrictions, maintenance regimes, etc.; (viii) based on experiences document and disseminate success and failures in pasture rehabilitation.

Specific to the multi-purpose forest investments, the proposed activities would include: (i) review of national and regional lessons and best practices in multi-purpose forest initiatives; (ii) assessing the interest and support for such initiatives among forest dependent communities to identify potential communities for engagement in this initiative, an through the interactive consultative process and supported by the forest inventory and mapping exercise, identify suitable sites and communities for piloting the multi-purpose forest initiative; (iii) assess potential non-timber forest product varieties and sustainable harvest regimes and financial profitability and incomes; (iv) based on the above-mentioned aspects, development multi-purpose development and business plans for each site, identifying potential extents of forests for management, number of households to be engaged at each site based on NTFP production potentials, forest management prescriptions, harvest rates and methods of collection and forest maintenance and monitoring of forest condition; (v) support for processing, value addition, marketing and small business planning and development; (vi) promoting agro-forestry and similar tree-crop initiatives in forest and non-forest lands; and (vi) documentation and dissemination of best practices,

***Output 2.3 Alternative livelihood programs for local communities as incentive to conserve forests and biological resources:***

In order to relieve pressures from local communities on forests resources, limited alternative livelihoods will be promoted through the project. The GEF alternative and technical funding support will be strategically focused on incentivizing the adoption of sustainable natural resources use schemes by local population. It is envisaged that this support will collectively contribute to: improving productivity of ecosystems; protecting key species and habitats; maintaining ecosystem functioning; and improving socio-economic conditions of forest dependent communities.

This output will support implementation of support activities in communities surrounding six forest enterprises, namely Noyemberyan, Ijevan and Artsavberd in Tavush, and Lalvar, Dsegh, Eghegnut in Lori marz respectively. A demand driven “menu of options” outlines the project’s activity mandate from which participating communities/groups in cooperation with PMU and wider stakeholder group will develop their own priority list to balance resource use activities that generate short-term benefits with ecosystem management activities that will collectively generate long-term public benefits. The following specific activities are tentatively included in the “menu of options” such as, but not limited to: (i) introduction of fruit and timber species and sustainable use of these resources, including processing and marketing of fruits, berries, mushrooms, medicinal plants, etc.; (ii) introduction of alternative heating systems (biogas installations, solar heaters, etc.); (iii) income generating activities such as bee-keeping, fish-breeding, etc.; (iv) tourism development, including eco-tourism supporting infrastructure; (v) fruit and timber species nurseries, and orchards, etc.

There two options have been considered at PPG stage for identification of small projects and selection of communities/households.

(a) The PMU in consultation with major stakeholders and regional administration, supported by conducted of field inventories will enable selection of alternative incomes options based on the following tentative criteria: (i) dependence of local communities on rangeland and forest ecosystem services; (ii) level of surrounding forest degradation due to anthropogenic pressure and climate conditions; (iii) biodiversity value in selected sites; (iv) interest and willingness of local communities to participate in the program, including cost sharing (e.g. co-financing); (v) socio-economic conditions of selected communities (poverty level, number of households, etc.); (vi) commitment of local communities to handle post-project activities in the selected sites; and (vii) opportunity for collaboration with similar ongoing initiatives;

The increase of incomes of local communities from forest-friendly and small-business support that has been confirmed by national stakeholders will be targeted, mainly agro-processing of non-timber forest products, apiculture, orchard and tree-species nurseries, etc. The project will build-on experience and knowledge gained in the strengthening and operation of a range of producer groups established by ENPARD Armenia Technical Assistance Project. The GEF

resources, for instance, will support producers to improve knowledge on harvesting techniques, post-harvest handling and storage. Although, the main focus will be on existing groups and cooperatives that have strong aim to engage in processing and other value addition, the project will also work with individuals to promote the use of appropriate harvest, handling and processing technologies which will enhance product safety, quality and marketability. In close cooperation with agriculture extension services, the project will provide technical expertise in (i) advising on harvesting techniques and requirements, (ii) establishing post-harvest and storage systems, and (iii) training and coaching for optimal operations.

(b) Another option is to build on the use of the UNDP-GEF Small Grants Program mechanism. To reduce “entry costs” and avoid reinventing a grant delivery/disbursement mechanism where a successful model already exists, the project may build on rich operational and technical expertise of SGP country program in Armenia and leverage additional funding along with the project funds to contribute to national and global objectives more systematically. The project will make best use of the well-established and highly successful SGP mechanism of Multi-Stakeholder National Steering Committee (composed of national government representatives, UNDP Country Office and civil society members representing NGOs/CBOs, academia, science and private sector, with a majority of them coming from non-governmental sector), which is a central element of the Program responsible for selection and approval of grants. The PMU will be invited to participate in the NSC in deliberations relevant to the project. SGP’s bottom-up approaches in formulation of project ideas and methodologies in reaching out remote and vulnerable communities will be applied to ensure successful implementation of the community-based projects (e.g. project participatory formulation, strong community involvement, co-funding commitments, post-project monitoring etc.). The project will assist rural producers to apply resource efficient and environmentally friendly technologies (for instance solar fruit driers, biogas production, etc.) in order to showcase the benefits of cleaner production for both environment and populations.

Both options will be further explored at the first year of implementation to define best setup for establishing an institutional/financial mechanism for the community support schemes; developing and administering the protocols and procedure for funding applications; and their processing; disbursement of grants and monitoring if impact.

As part of the effort to ensure the sustainability of these small-scale production systems, the project team will collaborate with UNIDO on application of existing methodology<sup>12</sup> for project/investment appraisal and feasibility analysis to facilitate financial planning. It will enable access to existing government and private micro-finance schemes, including Small and Medium Entrepreneurship Development National Center, etc. The project will further work to identify other options and innovative financing facilities and services to link households/producer groups to existing financial schemes. The exact modalities for supporting alternative income generation

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<sup>12</sup> COMFAR – Computer Model for Feasibility Analysis and Reporting

activities would be defined through an interactive process during early project implementation with relevant stakeholders.

***Output 2.4 Integrated strategy for management of firewood collection and distribution from forests***

With the elimination of the subsidized energy following independence, the dependency on firewood for household energy has placed a greater burden on the remaining forests in the country. The government recent policy to provide each household with 8 (eight) cubic meters of firewood has further placed heavy burden on the forestry sector to find solutions to meet this need without compromising on the efforts to manage forest degradation. The issue of firewood demand and supply is hence a complex issue that would require an integrated management approach that takes into consideration options for provision of alternative sources of energy on the one hand, sustainable forest management and energy subsidies on the other. Given the complex nature of the fire wood issue, it is felt that dealing with issues of alternative energy and energy subsidies were beyond the scope of the project. The project approach would be restricted to defining an alternative strategy for management of firewood collection and distribution from the forest. The GEF alternative will therefore support technical assistance and study to develop a strategy to address the management of firewood collection and distribution. The process of development of the strategy will entail (i) review of current policy, legislation and practice governing the collection, transport and use of fire wood; (ii) assessing the historical patterns of fire wood use and impacts on the forests and biodiversity; (iii) consultative processes for understanding the needs of the local people and options and perceptions of local community on the provision and use of alternative sources of energy; (iv) review feasibility of alternative options of energy to fuel-wood and implications in terms of policy, supply and demand, technical feasibility, economic and social aspects etc. (v) provide recommendation for dealing with alternative energy needs of local communities, including options for improved management of fuel wood harvest and collection, alternative sources of energy and mechanisms for their implementation.

***Output 2.5 Carbon stock assessments and coefficients for key forest types in NE Armenia***

The GEF alternative will support C stock assessments and development of coefficients for key forest types in NE Armenia as part of a longer term strategy for establishing a carbon stock monitoring system in the country. The project would finance a monitoring system to set up a series of representative sample sites that will be subject to a series of above-ground and below-ground biomass measurements, in different biotypes and land uses. This would enable the obtaining country specific values and application of IPCC Tier 2 method for various pools which are currently unavailable. The sample data would be used to extrapolate into the broader forest landscape using remote sensing and building on the inventory and mapping conducted under Component 1.

The following are the main components of the field carbon assessment program: (i) field assessment of carbon methodology - will build upon, modify and be integrated into the current



forest inventory methodology. Carbon measurements will occur regularly as a subset of the fixed plots used in the forest inventory. This inventory places forest types (dominant forest species) into bonitet classes based on tree volume (height and diameter (dbh)). Volume can be converted to biomass using various algorithms<sup>13</sup>. Other important measurements to provide a sound measure of reduced removals from deforestation and forest degradation are not provided by the forest inventory (soil carbon, litter, down wood, below ground biomass). Using IPCC Tier 2 Method soil carbon and below ground biomass can be estimated. Because the forest inventory does provide an estimate of volume it is logical to build upon this inventory to provide additional measures of forest carbon; (ii) Carbon will be tracked using web-based carbon tracking tools developed by *The Carbon Benefits Project (CBP)*<sup>14</sup> as the basis for measurement, reporting and verification (MRV) and monitoring of forest carbon. The CBP carbon tracking tools provides a means to measure, monitor and model carbon stock changes. These tracking tools will be a modular, web-based system, which will allow this project to collate, store, analyze, project and report net C stock changes for baseline and project scenarios in SFM and SLM interventions. This methodology provides a cost effective system integrating cutting edge remote sensing technology and analysis, ground based measurement, new rapid laboratory techniques for soil testing, and rigorous statistical analysis. The objective of the carbon monitoring is to provide a cost-effective and sound monitoring system that allows for testing of methods to ensure currently available algorithms are accurate. The methodology will be compatible with national reporting and will use both remote sensing and ground based measurement as well as community based monitoring in several pilot forests. The inventory information will be open to the public from a web-based server.

For that a methodology for transferring field data on carbon to the current Armenia forest inventory system will be developed, together with extrapolation techniques, data protocols and other remote sensing parameters. Existing experience in localising carbon benefit methodology in Armenia applicable for mountain forest and pasture areas tested within the framework of EU funded Clima-east Pilot project will be studied and used. Once the initial instrumental measurements are fed into it and extrapolated properly, the remote system will produce relatively high-precision knowledge of the ecosystem carbon contained in the targeted six forest enterprises where forest management interventions will be implemented. Further, due to incorporation of remote sensing, the system will enable tracking of carbon stock changes on annual basis or any other frequency. The remote sensing technique will enable to trace removal of biomass due to logging, and natural threats, such as fires. The software that is currently used under the Forest Inventory of Armenia will be implemented in the GEF project, so that reports generated by this system are available for decision makers and reporting to UNFCCC.

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<sup>13</sup> FAO (2000). Global Forest Resources Assessment

<sup>14</sup> Milne, Eleanor et al (2010). Estimating the carbon benefits of sustainable land management projects: the carbon benefits project

The protocols will describe monitoring, reporting, and methods of accuracy assessment for carbon measurements. Effective development, adoption, and utilization of such monitoring protocols will require cooperation across departmental boundaries within the responsible ministries. The project will conduct capacity needs assessment to clarify and define the specific training needs of the ministries and related agencies for carbon monitoring, which will be completed by middle of Year 1 and will inform the development of the training program. The training will focus upon introducing modern forest inventory methods together with carbon measurement protocols to be used during the next national forest inventory. GEF resources will complement those of the governmental entities to develop and adopt a systematic long-term approach to capacity building for SFM/SLM. Likely components of the training program will include: (i) specialized instruction on the importance of forest carbon in emissions and sequestration of carbon; (ii) the importance of SFM in maintaining and improving forest carbon; (iii); the sources and sinks of carbon in forests (aboveground biomass, belowground biomass, litter, dead wood, and soil carbon); and (iv) relevant policies, conventions and programs (REDD+, LULUCF, UNFCCC, etc.) associated with control of GHG. The training will demonstrate methods used for monitoring forest carbon, reporting methods, as well as improved methods of forest inventory using new equipment. In addition, the training will provide instruction on the value of community or user participation in monitoring, especially of their municipal forests or other.

### **2.3 Socio-Economic Benefits including Gender Dimensions**

The main livelihood options of local communities in North-east Armenia are related to livestock husbandry, forestry, and collection of firewood and other NTFP. The project will enhance the resilience of the resource base on which people depend, in the case of the no-project scenario the resilience of the ecosystems to withstand threats would keep declining. Specifically, under the business as usual scenario, the forest enterprise branch planning does not consider the long-term resilience of the resource base on which surrounding communities rely on. Under the GEF alternative, local communities living in and around the forest branches in 2 marzes covering over 650,000 ha of multiple use lands will, through the forest management planning process benefit from the improved forest resource base on which they depend on agriculture and livestock, that will be more productive in the long term, that will ensure a more stable water quality and supply and other ecosystem services. This will yield national benefits in the form of reduced costs associated with erosion and increased flooding in the Caucasus mountain regions of northeastern Armenia. This will yield local benefits in the form of improved land productivity, which translates into improved animal health and increased incomes for pastoralists selling healthier animals, while also reducing erosion and destructive mud-slides and other costly natural disasters.

By rough assessments, over 400,000 people living in semi-arid and mountain landscapes of North-eastern Armenia would directly or indirectly benefit from the project through improved

forest ecosystem services. Through the project, local graziers will have improved knowledge, and skills on improving livestock management, which ultimately will translate into higher productivity. It is estimated that degraded pastures reduce the productivity of livestock by at least 15%, which translates to significant loss to local economies. As discussed in the description of the baseline projects, this would not be available under the business as usual scenario. 600 families are expected to directly benefit from improved pasture management, sustainable forest resource use and alternative livelihood programs, leading to at least a 20% rise in the yearly family income after year 4 from the start of business activity. The project expects that at least 30% of the recipients will be women. The project will further seek to involve women as community leaders/representatives in the discussion of forest management plans, and implementation of forest regeneration, pasture land management and multi-purpose forestry and agro-forestry systems. Targeting communities as primary recipients of capacity building and incentives is justified not only from the micro-economic reality, but also from the global Land Degradation benefit perspective. Since communities is the key category of land users, a transformative change to a more sustainable land use ultimately depends on them, and the achievement of the global land degradation benefits (such as rise in productivity, retention of ecosystem services such as water supply) depends on the adoption of the SLM practices primarily by communities. As can be seen from the overall project design, the project addresses this through a systemic approach – targeting policy, forest management planning, capacity, know-how, and micro-economic aspects of forest land use decision making at the local level.

Sustainable management of forests and protection of biodiversity and ecosystem services in the northeast will result in multiple, interlinked benefits. At a global scale, it will contribute to climate change mitigation by enhancing carbon storage while simultaneously conserving biodiversity within a diverse and threatened terrestrial biome. At the local level, the project is expected to bring about visible and long-standing benefits as a significant portion of the project focuses on working with poorer communities in rural areas whose practices are currently unsustainable but who require incentives and support to shift to sustainable alternatives. The activities are expected to have a strong impact on family and local economies and would reach around 2,500 direct beneficiaries who will receive training for adoption of sustainable management practices in their properties. This in turn will generate in the medium and long term increased incomes of these families as a result of diversified production and higher yields, hence improving their livelihoods.

The project is designed to recognize important gender dimensions of its work both at the national and regional level and at the local community level. At the national level, project resources will mainstream a gender perspective into the forest management planning process under Outcome 1. For example, forest management guidelines will provide clear instructions on integration and recognition of gender-specific roles in forest and pasture management and integrate such understanding into SLM and SFM measures such as improved forest resource use and prescribed grazing regimes. At the local level, the project will use participatory approaches to involve all

members of the community in planning. The project's stakeholder engagement work will further clarify gender roles, including the different types of gender specific roles in natural resource-dependent communities. Men and women have distinct roles and responsibilities, which give rise to differences in vulnerability. In mountain communities of the Caucasus, women are adversely affected by land degradation and its impacts on water availability and/or domestic animal health and thus income to the family. The project will address gender issues by promoting full and equitable participation of women in the conservation and landscape management approach, particularly through their involvement in the investments and capacity building activities that will provide sustainable livelihoods and ecosystem services upon which they depend. The Project will facilitate the access of women to project benefits, and will take into account: (i) proportional representation of women in community organizations associated to the project; (ii) contents and schedule of training activities will be tailored to ensure that women are proportionally represented in each event. Moreover, the project interventions will benefit women in several manners. In regards women are expected to benefit indirectly from the increased family incomes through diversified production and higher yields to be achieved through adoption of more sustainable practices. Socio-economic benefits derived from the implementation of sustainable value chains will have direct and positive impacts over women and the active participation of women in production, harvesting and processing of non-timber products. The project will also promote access of women to existing credit lines, to the extent feasible.

In terms of activities and outputs that explicitly include the gender dimension, the proposed project will use the same existing mechanisms available through the State agencies to encourage and ensure that women participate in the benefits of the project. Specifically village committees at the project level will have at least 30% of its members who are rural women. The project provides training specific for women both to improve agro-forestry, grazing management skills as well as to generate additional family income from agricultural and non-agricultural activities. Women participation in Value Chains (SVC) to be promoted by the project, improved pasture management (Component 2) and agro-forestry systems will involve and benefit women directly. Training and technical assistance activities will be designed with this in mind.

## **2.4 Cost-effectiveness**

The project is designed primarily to ensure that investments are the most cost-effective to ensure that project approaches and institutional mechanisms are easily replicated and scaled up existing budgetary constraints that operate within the region and country. Removing the barriers to the sustainable forest and land management as discussed in previous sections of this document that currently impede the sustainable and efficient conservation of such resources will increase the conservation dividend of the resources and provide a real incentive for local communities to engage in sustainable management and conservation of the resource. Cost effectiveness will be ensured by the following project design features:

The project will use existing government, marz and local level institutional arrangements for delivery of project interventions, rather than create additional and costly alternative project-specific institutions. The project will operate through the existing institutional arrangements within the Ministry of Agriculture, including in particular Hayantar SCO to help coordinate, oversee and implement project related activities and will work within the existing protected areas through the Ministry of Nature Protection and protected area administration.

At the village level, the project will work through existing village institutions to the extent feasible, but will institute a local level planning process to plan and deliver activities that are related to community forest management, agro-forestry and community forestry, grazing and livestock management and community livelihood investments, as well as help coordinate other socio-economic development investments available at the marz and local level. The planning process will be instituted through administrative approaches that are envisaged under existing government policy rather than create new systems that are not cost-effective

The project will make available lower-cost methods and tools to aid in SLM and SFM. Improved livestock production is dependent on proper management of pastures, proper health and fodder management. The proper management of pastures is critical as this is the least expensive feed source for animals. The environmental benefits of the project's proposed alternative also contribute to the cost-effectiveness, sustainability and feasibility of the low cost project alternative. These benefits include a maintenance and enhancement of natural pasture and forest ecosystem functioning through better grazing and reforestation measures reliant upon natural regeneration and re-forestation of forests in areas where forests were before as opposed to afforestation in areas that are not naturally fit for forests to grow. Finally an important measure of cost-effectiveness is GEF funding per ton of CO<sub>2</sub> benefit. In this project, that cost of mitigation of climate change is far below the cost of most of the presently known mitigation approaches.

## **2.5 Social, Economic, and Financial Sustainability**

This project is building on a strong baseline. First, a policy and institutional framework for mainstreaming biodiversity and integrating natural resource management into land use planning already exists. Secondly, there is a strong commitment from Government to address the forest and land degradation issues in North-eastern Armenia, as this is where two-thirds of the forests of the country are found and the source of many rivers. Thirdly, the project has financial sustainability written into it, through the review and realignment of public expenditure and the brokering of additional public and private funding towards natural resource management. The key gaps in the current process are capacity and coordination among all the spheres of Government to recognise the values of natural resources and the ecosystem values it provides and the application of this recognition in the land use allocation and permitting process – which this project is designed to address. The project aims to empower local stakeholders (self-governing bodies, private landowners, communities, foresters) to become custodians of the

important natural resources. Specifically, the project will: (a) Improve capacity of key regulatory authorities that impact on forests and other natural resources at a regional and community level and support the embedding of this by developing sustainable mechanisms for institutional cooperation and coordination amongst agencies and civil society that are responsible for natural resources management and effectiveness; (b) Recommend realignment of public expenditure streams and brokering additional funds for sustainable forest and land management; (c) Empower local decision-making bodies and communities to co-manage natural resources.

The project's institutional arrangements are based on existing Government of Armenian (GoA) institutional systems, program management, flow of funds, and accounting and reporting. In particular, it will support GoA's ongoing efforts at strengthening capacity and organizational structures within the MNP to systematically and effectively coordinate and better manage land and forest degradation prevention activities. The project's approach of working with existing GoA institutional structures, rather than creating new ones, will entail institutional strengthening capacity development and thereby ensure institutional sustainability in dealing with land and forest management.

From a fiscal standpoint, the project is not expected to impose long-term burdens on the national or marz budgets. The aim of the project is to improve the effectiveness of existing budgetary allocations for the forestry sector at the forest enterprise level and not to expand public deficits. Project expenditure at the forest enterprise level will largely focus on improving planning and management of the forest estate and instituting capacity and expertise to maximize and sustain benefits from the forest and land resources that are commensurate with good environmental governance and improved ecosystem benefits that will accrue to the country and its people, as a whole. One-time expenditure on-the-ground is aimed at demonstrating good practices at land and forest management with community participation, the benefits of which is expected to catalyse its expansion later on. The proposed integrated approach to forest and land management is expected to generate cost savings by avoiding the duplication of efforts and lost opportunities at sustainable resource management in generating multiple benefits and increasing the effectiveness and productivity of the resource base. To test the financial sustainability and government commitment to the new approach, the project will finance limited SFM and SLM investments in a few of the forest enterprises with the expectation that the visible benefits created through the pilots would generate government interest and commitment to expand this approach. The implementation of activities in terms of grazing management, community forest management and livelihood improvements would be undertaken by the community so that there will be additional burden placed on Hayantar staff.

In terms of sustainability at the forest enterprise level, three reasons suggest that this should not be a major concern. First, during project preparation meetings Hayantar staff and community representatives revealed strong support for the project activities. There is also strong commitment of the MoA to the project. Second, the proposed activities are consistent with the mandate and priorities of both the government and the marz administrations to reduce forest and

land degradation and enhance the ecosystem benefits of these resources. Thirdly, the project proposes capacity building and skills development that will ensure better understanding and commitment to sustainable forest and land management.

## **2.6 Replicability**

The practicability of replicating SFM and SLM models and governance and capacity building programs is the basis for the success of this FSP. The overall goal of widely integrating SFM and SLM into policies, and programs throughout north-eastern Armenia implies that the models developed in the targeted communes are replicable outside of those communes. The project's approach of integrated forest land planning and management and the introduction of new planning and monitoring guidelines specifically for sustainable forest management under the first component will provide basis for application in other regions of the country as well. The project introduces participatory preparation of integrated forest and pasture management and rehabilitation plans by directly involving community members in the process. The participatory forest and pasture management planning can be replicated in other areas in the country affected by increasing land degradation due to inappropriate practices aggravated by climate change.

To this end, Component 1 is expected to provide strong justification of the benefits of mainstreaming SFM/SLM at a larger macro-economic policy level. This will require facilitating an understanding at the national level amongst decision makers that forest and land degradation is a constraint to economic development and poverty alleviation. This component, through various communications mediums, will serve to provide targeted support to sectorial economic development planning at various levels to facilitate mainstreaming of SFM/SLM issues. Successful implementation of this component will create an enabling framework for SFM/SLM replication throughout the country.

The Project's investment component will seek to develop synergies among rural development actors and programs with an objective of raising additional investments that will fund sustainable resources use practice models and other alternative livelihood generation activities within and outside of the targeted communes of this FSP. This component will also seek to catalyze a process whereby regional and local NGOs, CBOs and government rural development agencies obtain commitments from state budget and donors for SFM/SLM and broader community actions.

The Carbon monitoring component of the project aims at testing guidelines and practical tools for carbon monitoring and measurement in land use and forestry sector that will be further adopted as part of national carbon monitoring framework and used at national level for preparation of green- house gases inventory and national communication to UNFCCC.

## **3. STAKEHOLDER ANALYSIS**

As in most countries a wide array of institutions are involved with various aspects of land and forest management in the country. These institutions have specific interest in the project on account of the potential impacts or benefits that they may encounter from the project, or more importantly through existing statutory obligations and responsibilities that they are responsible for. The principle and governing stakeholder institutions for the project are the Ministry of Nature Protection (MNP) and Ministry of Agriculture (MoA). The MNP is a national designated authority responsible for coordination of implementation of the country's commitments under major Rio conventions, namely UNCBD, UNFCCC and UNCCCD. MNP has comprehensive regulatory authority over the conservation and sustainable use of natural resources, including management of most of protected areas in Armenia, ranging from policy development on the one end to operational licensing for resource utilization and environmental inspection, on the other. The Ministry of Agriculture is the national authority responsible for forest and pasture management, including policy making and monitoring, with a number of obligations in the land management sector. The roles and function of the major institutional stakeholders that would be involved, or could be potentially involved in the projects is summarized in the table below:

**Table 4: List of stakeholders**

<b>Ministry/Department/Subsidiary Organization</b>	<b>Roles and Functions (in accordance with adopted legislation and regulations)</b>
<p><b>Ministry of Nature Protection</b></p> <ul style="list-style-type: none"> <li>-Biodiversity Policy Division</li> <li>-Bio-resources Management Agency</li> <li>-Environment Legal Department</li> <li>-State Environmental Inspectorate</li> <li>-State non-commercial organizations (e.g. Dilijan National Park SNCO)</li> </ul> <p><i>(Government Decree 1237 N of August 8, 2002)</i></p>	<p>Within the limits of its powers, the design and monitoring of state policy programmes and strategies related to conservation and reasonable use and reproduction of natural resources (with the exception of extractable resources) of the Republic of Armenia's environment, including mineral resources, land, water, air, flora and fauna, as well as specially protected nature areas.</p> <p>Provision of State Management for prevention or reduction of harmful effects on environment, including mineral resources, land, water, air, flora and fauna, including specially protected nature areas, as well as conservation of specially protected nature areas, reasonable use and reproduction of natural resources (with the exception of extractable resources)</p>
<p><b>(i) State Environmental Inspectorate of the MNP</b></p> <ul style="list-style-type: none"> <li>-According to Government Decree of January 15, 2004, State control powers for forest conservation, protection, reproduction and use rests with MNP.</li> <li>-According the law on "State Environmental Protection", state control over use of natural resources and environmental conservation is reserved to the Inspectorate</li> </ul>	<p>The aims and objectives of the Inspectorate are:</p> <ul style="list-style-type: none"> <li>(a) Ensuring implementation of environmental control over environmental conservation and reasonable use of natural resources, implementation of the norms of legislation in the Republic of Armenia territory; and</li> <li>(b) Contributing to prevention and reduction of harmful effect on the environment caused by economic activities</li> </ul>



<p>-State environmental control is implemented by a separate division of MNP: State Environmental Inspectorate and its territorial divisions</p>	
<p><i>(II) Bioresources Management Agency of MNP</i> Has a status of a separate division of RA Ministry of Nature Protection administration.</p>	<p>The aims and objectives of the Agency are:</p> <ul style="list-style-type: none"> <li>(a) ensuring scientific research, conservation, reproduction and sustainable use of natural ecosystems, including forests, landscape and biological diversity, living species of flora and fauna, nature legacy on the territory of the Republic of Armenia, as well as support to development and management of state policy in those areas,</li> <li>(b) ensuring diversity and conservation of Bioresources and reproduction of ecosystems</li> <li>(c) ensuring enumeration, inventory of flora and fauna, creation and management of information bank and Bioresources cadaster</li> <li>(d) ensuring creation of biodiversity monitoring system and its implementation; and</li> <li>(e) coordination of works of conservation and sustainable use of Specially Protected Nature Areas,</li> </ul>
<p><i>(iii) “Dilijan” National Park SNCO</i> The management of the organization is implemented by the MNP, the MNP Collegial governing body – the Council and the Executive body – the Director.</p>	<p>The subject and aim of “Dilijan” National Park state non-commercial organization is ensuring scientific study, conservation, protection, reproduction, enumeration, inventory, observation of natural ecosystems, landscape and biological diversity, nature legacy of “Dilijan” National Park territory, as well as sustainable use of natural resources of the park. The park is a Specially Protected Nature Area of Republic importance.</p>
<p><b>Ministry of Agriculture (MOA)</b> According to <i>Government Decree 1516-N of 5 September 2002</i>, the charter and the structure of the Ministry have been established. Structural units of staff implementing forest resources management are: -Forest Economy Department, --- Plant Production and Protection Division, -Land Use and Reclamation Division, -Legal Department, -State non-commercial organizations handed over to the management of the MOA. <i>Government Decree 1054-N of July 25, 2002</i> established “Hayantar”</p>	<p>Design and implementation of monitoring of programmes in forest conservation, protection, reproduction and use, as well as efficient use of forest resources.</p> <p>Design and implementation monitoring of programmes in compliance with legislation aimed at increase of productivity and reclamation of agricultural lands’ use.</p> <p>Implementation of state monitoring of forests.</p> <p><b>The Article 26 of RA Forest Code states that:</b></p> <ol style="list-style-type: none"> <li>1. State Forest Service monitors the implementation of forest legislation.</li> <li>2. Forest conservation and protection is implemented by State Forest Service acting within the system of authorized body of public administration.</li> <li>3. The order of operations of State Forest Service is prescribed by law.</li> </ol>

<p>SNCO and by the Decree 388-N the charter of SNCO has been established.</p> <p><i>Decree 1152-N of 28 July, 2005,</i> “State Forest Monitoring Centre” SNCO has been created.</p>	
<p><b>(I) Hayantar SNCO</b></p> <p>The management of the organization, is its authorized state body, the MOA and its Director.</p> <p>“Hayantar” was founded for management of Specially Protected Areas.</p> <p>Although there is Forest Inventory and Cadastre Department functioning at “Hayantar” SNCO, the cadaster system has not been introduced yet.</p>	<p>The subject and aim of “Hayantar” SNCO activities is implementation of state programmes for conservation, reproduction and use of State Forest Fund of Republic of Armenia.</p> <p>The aim of “Hayantar” SNCO activities is ensuring conservation, protection and productive use of State Forest Fund (hereinafter called the Forest Fund).</p>
<p><b>(II) “State Forest Monitoring Centre” SNCO</b></p> <p>The management of the organization by, its authorized state body and its Director.</p> <p><i>By Decree N 234-N of 11 October, 2007.</i></p> <p><i>Government Decree N 198-N of 25 January, 2007</i> on “Regulation of procedures for State Forest Monitoring Implementation”.</p>	<ul style="list-style-type: none"> <li>a) Implementation of research for the purpose of prevention of illegal logging, wood transportation and use and other negative actions are the activities of “State Forest Monitoring Centre” SNCO.</li> <li>b) The subject and aim of “State Forest Monitoring Centre” SNCO activities is implementation of state forest monitoring</li> </ul>
<p><b>(III) State Forestry Monitoring Council</b></p> <p>State governing bodies and representatives of non-governmental organizations are included in the Council.</p>	<p>The main objectives of the Council are:</p> <ul style="list-style-type: none"> <li>a) prevention of illegal logging in RA, efficiency increase of fight against illegal logging, coordination of activities implemented by authorized state bodies in the sphere of illegal logging prevention</li> <li>b) supporting prevention of illegal logging, transportation, use of wood and other actions as a result of illegal logging, efficiency increase of the fight against such phenomenon on RA territory</li> <li>c) ensuring transparency of the fight against illegal logging</li> </ul>
<p><b>Ministry of Territorial Administration and Emergency Situations</b></p>	<p>Elaboration and application of provisions of territorial administration policy, laws, programs and plans, socio-economic development of territorial administration and local self-government bodies, secure and safe use of state-owned water infrastructures, elaboration and implementation of investment procedures for water infrastructure policy. This ministry provides preventive measures for the protection of the population in case of emergency situations. Improvement of the efficiency of the territorial administration bodies and ensuring the links between the state and local self-governance bodies among major tasks.</p>

<b>Ministry of Urban Development</b>	<p>The goals and tasks are to be implemented though, but not limited to the following functions:</p> <ul style="list-style-type: none"> <li>- elaborate the main provisions of the state policy on urban development and the territorial development programs and monitor the implementation thereof;</li> <li>- coordinate the drafting of chief layouts and zoning projects of communities, elaborate the strategy on the sustainable urban development of territories and residential areas;</li> </ul> <p>Supporting spatial planning and overseeing master plans development processes, including for communities. Establishing the principle of "green urban development", ensuring the harmonious, mutually complementary development of natural and cultural landscapes.</p>
<b>State Committee of Real Estate Cadastre adjacent to the Government of the Republic of Armenia</b>	<p>Development of the balance of the land surface of the Republic of Armenia according to the regulations; Development of the real estate cadastre and topographic maps, formation of digital cadastral and topographic mapping; Development and implementation of the targeted geodesic and cartographic programs. Within its jurisdiction development of the principles of land relationships, land policy and land resources management, in terms of land rights and land market formation. Within its jurisdiction support to development of targeted land construction and lands consolidation programs; Development and implementation of the targeted geodesic and cartographic programs.</p>
<b>Marz Administration</b> (Nature Resource and Agricultural Units, Program Development Units, Land Management Units)	<p>Responsible for state policy elaboration and implementation in marzes, including implementation of the state programs on nature protection, development of the projects of state programs on nature and environment protection; Ensuring compliance and enforcement of the environmental legislation at the territory of the marz. Responsible for implementation of the studies and surveys of the situation with forests protection, safeguard and usage in the marz, analysis of the results of the aforementioned studies and provision of corresponding recommendations. Coordinates community development programs and budget allocations.</p>
<b>Local Self-Government (communities and villages)</b>	<p>LSGs participate in state policy formulation, drafting state program in land and forestry sectors at local level; The Activity of the Chief of a Community in the Sphere of Urban Development and Land Use related to compilation of the draft of master plan, as well as the community lands zoning and use schemes, which upon agreeing with the respective authorized state body through the Regional Governor, shall submit to the Community Council for approval; the community carry out land balance of the community in accordance with the established procedure, manages pasture and key project stakeholder with executive authority for regulating and administering community land resources.</p> <p>Involved in development, approval and implementation of community development plans as well as forest management and, partially, monitoring activities.</p>
<b>Community Support Organizations (CSOs)</b>	<p>Organizations, on their own initiative or on the initiative of the state or the local self-governance bodies, may fully implement or participate in the social, healthcare, educational, teaching, cultural, sport and other socially significant programs and actions of the state or the local self-governance bodies by concluding written contracts or other agreements of mutual understanding.</p>

	Provides good knowledge based support, conducts public awareness campaigns, etc.
<b>World Wide Fund (WWF) Armenia</b>	Developing and strengthening protected areas (PAs) of Armenia (reserves, national parks, sanctuaries, etc.); Ensuring conservation of threatened species, conservation and restoration of ecosystems as a whole; Supporting environmental awareness and education. Proceeding with research and analysis, inventory and monitoring of biodiversity, landscape management. Introduction of economic mechanisms for alternative livelihood for local communities in order to promote sustainable use of natural resources and to protect biodiversity is among priorities in their mandate.
<b>Caucasus Nature Fund</b>	Inter-governmental foundation providing long-term support and management assistance for the protected areas of Caucasus. CNF seeks to conserve the unique flora, fauna and ecosystems of the Caucasus for future generations while at the same time improving the lives of local people today. CNF works through public-private partnerships with the government committing to long-term incremental support for the protected area' operation. CNF stresses the importance of long-term planning processes that meet international standards, including local community involvement in ecosystem management.

A detailed stakeholder analysis that describes the roles and responsibilities of the different stakeholders is provided in Annex 3.

#### **4. COORDINATION WITH OTHER INITIATIVES**

The proposed project adds value to a number of related initiatives as set out below:

The UNDP-GEF project “*Adaptation to Climate Change Impacts in Mountain Forests Ecosystems in Armenia*” aims to achieve a normative situation whereby forestry and biodiversity sectors in the Syunik region of south-eastern Armenia are managed in a way that forest ecosystems are better able to adjust to climate change. The main outcomes of the project are: (i) The enabling environment for integrating climate change risks into management of forests ecosystems is in place; (ii) Forests and protected area management in the Syunik region 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. The project has reviewed Forest Management Plans for three Forest Enterprises based on climate change models and international expertise. Reforestation works were undertaken and forest fire prevention and early response measures were emplaced. Lessons learnt under this project will be incorporated into the new proposed project.

The UNDP-GEF Project “*Enabling activities for the preparation of Armenia’s Third National Communication to the UNFCCC*” aims to respond to the objectives of the UN Framework Convention on Climate Change (UNFCCC) in accordance with its commitments as a Party to the Convention mandated by Articles 4 and 12 of the UNFCCC and subsequent COP decisions. The Third National Communication of Armenia to the UNFCCC will be prepared under the project. It will consist of updated information on: i) national circumstances; ii) national greenhouse gas inventory; iii) assessment of vulnerability to climate change and steps taken to adapt to climate

change; iv) policies and measures undertaken to mitigate climate change; v) capacity building to develop, transfer, assess environmentally sound technologies and know-how, modalities to absorb them and host projects; vi) public awareness, education, training, research and systematic observation.

The UNDP/GEF Project “*Catalysing Financial Sustainability of Armenia’s Protected Area System*” has the objective to secure long-term financial sustainability of the Armenian Protected Area System. The objective will be achieved through two components: (i) ensuring sufficiency and predictability of revenue sources for the Protected Area System and (ii) raising cost-effectiveness and capacities of Protected Areas. The project is progressing with substantial resource mobilizing by the Caucasus Nature Fund and increased grant allocation to the Protected Areas of Armenia.

While developing alternative livelihood options for rural communities, the project will utilize experience and lessons of the UNDP-GEF Small Grants Program (SGP) in Armenia.

Regular meetings will be held between the different projects to leverage synergies and ensure efficiency in implementing the projects. The studies conducted and information gathered under the projects will be integrated into project development and implementation, as relevant.

The Table below provides a list of ongoing projects that are relevant and useful to the GEF alternative, that would be monitored to identify opportunities and lessons that could be applied and complement the GEF project.

**Table 5: List of relevant and complimentary projects**

Project Title	Period	Implementing Agency	Funding Source	Expected Outcomes	Relationship to GEF Project
“European Neighbourhood and Partnership Instrument East Countries Forest Law Enforcement and Governance II Program” (ENPI FLEG 2)	2013-2016	World Bank (WB),  International Union for Conservation of Nature (IUCN)  World Wide fund for Nature (WWF)	European Union (EU) and the Austrian Development Cooperation (ADA).	To support legal and institutional review and reforms, building human resource capacity to address FLEG issues, public awareness and public monitoring of the forests, strengthening sustainable forest management through activities with model forest units such as forest protected areas and activities on sustainable use of forest resources with involvement of adjacent communities.	All the activities will contribute to introduction of sustainable forest management in target regions of the programme. Currently, “Ijevan” and “Gandzaqar” reserves’ management plans, as well as the standards and indicators of ecological forests of high value are being developed.
EU ENRTP Caucasus - Increasing the resilience of forest ecosystems against climate change in the South Caucasus Countries through forest transformation	2011-2015	WWF-Armenia.	European Union	The objective of the project is to increase the resilience of forest ecosystems in the Lori and Tavush marzes against climate change impacts and to improve biodiversity and livelihoods of local populations. As a result of the project, 150 ha of monoculture forest stands will be transformed to forest stands that are highly resilient to climate change, the potential of forest stands to enhance the livelihoods of neighbouring communities will be increased, forest administration staff will be more aware on climate change and motivated to develop strategies for making forests more resilient	Abilities of forest sphere workers in development of climate resilient forestry strategies have increased. Forestry guides have been developed and published and the awareness of local communities about reduction of negative consequences of climate change has been raised.
Forest Landscape Restoration in	2012-2015	WWF-Armenia.	WWF-	The project objective is	Additional sources of income

Northern Armenia			Switzerland	restoration of the natural habitat of critically endangered plant and animal species through reforestation as well as income generation for the local population. It includes restoration of 70 hectares of mountain forest adjacent to Trchkan waterfall near Mets Parni community in Lori Region as well as establishment of a nursery for rehabilitation of threatened forest species on the territory of the Institute of Botany of the NAS RA in Yerevan.	have been created for the local population participating in reforestation works. Restoration of natural state of ecosystem assists the biodiversity conservation in the process of sustainable forest management.
Sustainable Biodiversity Management in the South Caucasus	2008-2015 (second phase 2015-2018)	GIZ Ministry of Agriculture, Territorial Administration and Emergency Situations	BMZ	The aim of the project is to integrate the mechanisms of economically efficient and sustainable use of natural resources in the state, private and civil society sectors as an influential means to conserve these resources. In the frame of the project, technical support has been provided to the “State Forest Monitoring Center” SNCO and “Hayantar” SNCO as well as the activities on forest rehabilitation have been implemented on about 20 ha and support to regrowth through coppicing on an area of 350 ha.	The programme supports the development of national forest programmes and provision of advisory support in the drafting of forestry policies and legislation. Forest monitoring systems are being developed that draw on satellite imagery. This ensures transparency regarding the extent and condition of the forests, and therefore supports the formation of well-informed policy decisions. Multifunctional zoning concept in forest management has been established and piloted. Cooperating with non-governmental organisations, the programme has developed incentives to promote a better understanding of traditional cereal and vegetables varieties and livestock breeds among local people, and to help them to

					produce these sustainably (protection of agro-biodiversity).
Support Development of Biodiversity Conservation Policies and Practices in Mountain Regions of the South Caucasus	2011-2014	Regional Environmental Centre for the Caucasus (RECC)	Norwegian Ministry of Foreign Affairs	The major goal of the project is to build capacity of local communities and authorities to address biodiversity loss in forest ecosystems of mountain regions of the Southern Caucasus in order to improve participatory biodiversity management. To achieve the goal it was envisaged to raise awareness and knowledge of local communities, local authorities in mountain regions and decision-makers at national level on values of forest ecosystems and biodiversity, the benefits of conservation and sustainable use as well as to increase their willingness to protect biodiversity	Reforestation works have been held in two communities of Tavush region (marz), the awareness and knowledge about forest ecosystems and values of biodiversity, their sustainable use and benefits of their conservation have been increased for local communities, local authorities of mountainous regions and decision-makers on national level.
Creating a management plan and long-term activity plan for Dilijan National Park	2014-2015	Ministry of Nature Protection	Caucasus Nature Fund	The project will use a participatory approach that will address issues regarding the park's internal zoning, biodiversity monitoring and tourism and recreational development. The management plan will be created to international standards and will be used as a template for other parks in Armenia.	According to the approved Terms of Reference, the preparation of "Dilijan" national park management plan for 2015-2019 would include: Operational (Administrative, Operative) Management plan, projects on conservation, monitoring, scientific research, ecological education and awareness raising, and tourism. The implementation of the plan will improve the management system of the park, increase the staff potential and abilities and improve the conservation activities.



Community Agricultural Resources Management and Competitiveness	2011-2016	Ministry of Agriculture	World Bank	The main objective of the project is to improve the productivity and sustainability of pastures in selected communities. In the course of project implementation the activities on sustainable pasture management have been implemented in 67 communities, out of 55 planned communities in 54 the consumer cooperatives “Union of Pasture Users” have been established and in 49 communities the plans on pasture management and livestock breeding development have been developed in a participatory approach.	Pasture management plans can serve as a basis for creating prerequisites for sustainable management of forest pastures and those adjacent to the forests.
“Producer Group and Value Chain Development” Technical Assistance Project under European Neighbourhood Programme for Agriculture and Rural Development (ENPARD) in Armenia	2014-2016	UNIDO/UNDP, Ministry of Agriculture	The European Union	The overall objective of the Technical Assistance project is to support the Government of Armenia in ensuring an efficient and sustainable agriculture that contributes to better conditions in rural areas of the country. The primary outcome of the project is to increase rural household incomes through increased production and value addition in targeted value chains and marzes.	The EU funded project will survey types, sizes, and activities of existing groups and initiatives in the marzes where multiple producers have joined together (e.g., cooperative, association, limited liability company, other legal entity, informally) to address issues such as input and capital procurement, equipment availability and utilization, harvesting, marketing, transportation, technical information, processing, storage, etc. These capacities will be considered and relevant institutions involved into participatory planning mechanisms while identifying priority and developing alternative livelihood activities funded by the GEF.

## SECTION II: STRATEGIC RESULTS FRAMEWORK (SRF)

This project will contribute to achieving the following Country Programme Outcome as defined in CPAP or CPD:

Country Programme Outcome Indicators:

Primary applicable Key Environment and Sustainable Development Key Result Area (same as that on the cover page, circle one): 1. Mainstreaming environment and energy OR

2. Catalyzing environmental finance OR 3. Promote climate change adaptation OR 4. Expanding access to environmental and energy services for the poor.

Applicable GEF Strategic Objective and Program: BD 2, LD 2 & 3, CCM 5, SFM/REDD 1

Applicable GEF Expected Outcomes:

**SFM-REDD-1:**

- **Outcome 1.2** *Good management practices applied in existing forests.*

**LD 2**

-**Outcome 2.3:** *Sustained flow of services in forest ecosystems in drylands*

**LD-3**

- **Outcome 3.1:** *Enhanced, cross-sectoral enabling environment for integrated landscape scale management*

**CCM-5**

- **Outcome 5.2:** *Promote conservation and enhancement of carbon stocks through sustainable management of land use, land use change and forestry*

**BD -2**

-**Outcome 2.1** *Increase in sustainably managed landscapes and seascapes that integrate biodiversity conservation.*

Applicable GEF Outcome Indicators:

**SFM-REDD-1:**

**Outcome 1.2 Indicator:** *Integrated management plans developed and implemented*

**LD-2.**

**Outcome 2.3 Indicator:** *Sustainable SFM interventions to increase/maintain natural forest cover in dryland production landscapes*

**LD-3**

- **Outcome 3.1 Indicator:** *Integrated land management plans developed and implemented*

**CCM-5**

**Outcome 5.2 Indicator:** *Number of tons of CO2 equivalent (tCO2e) avoided and/or sequestered*

**BD-2**

**Outcome 2.1 Indicator:** *National and sub-national land use plans (11) that incorporate biodiversity and ecosystem services valuation.*

	Indicator	Baseline	Targets End of Project	Source of verification	Risks and Assumptions
Project Objective <sup>15</sup>  Sustainable land and forest management in the Northeastern Armenia secures continued flow of ecosystem services (equivalent to output in ATLAS)	Number of forest management plans integrating considerations of biodiversity, ecosystem services, climate mitigation and community resource use (integrating sustainable forest management principles)	0	11  5 Community development plans updated	Updated Forest management plans Updated community development plans	<b>Assumptions:</b> -The GoA and MNP/MOA actively promoting and supporting sustainable forest management principles -The GoA maintains suitable policies and legal frameworks to ensure land use changes do not undermine forest conservation  <b>Risks:</b> -Failure to generate adequate revenues from SFM might change government priorities -Failure to effectively engage local stakeholders (herders, land owners, forest dependents and other stakeholders leads to conflict)
	Total avoided and/or sequestered carbon benefits over ten-year period due to improved sustainable management of forests.	N/A	681,990 metric tCO2	Updates on forest cover, carbon monitoring reports	<b>Assumptions:</b> -The GOA remains committed to sustainable management of forests and land, as well as set-aside of areas conservation from currently logged areas -GOA institutions develop capacity and skills for monitoring and assessing C benefits -The affects of climate change on forests is unlikely to be significant to undermine forest rehabilitation

<sup>15</sup> Objective (Atlas output) monitored quarterly ERBM and annually in APR/PIR

					<b>Risks:</b> -Reduced revenues from timber exploitation and demands from communities for timber and fuelwood might shift government priorities away from sustainable use and conservation.
	Extent in hectares of forest area managed for multiple sustainable forest management and ecosystem benefits	0	250,000	Annual forest enterprise branches monitoring reports and independent evaluation reports	<b>Assumption:</b> -The GoA is committed to management of the forest for multiple benefits and not just timber production  <b>Risks:</b> -Management of forests for multiple benefits might impinge on user rights and misunderstandings that needs to be managed
Outcome 1 <sup>16</sup> Integration of sustainable forest and land management objectives into planning and management of forest ecosystems in NE Armenia to reduce degradation and enhance ecosystem services in two marzes covering 0.65 million hectares	Number of forest management plan protocols/guidelines for mainstreaming ecosystem, climate risk mitigation and biodiversity considerations into forest management in NE Armenia	0	One set approved by Ministry of Agriculture	Revised forest management guidelines/protocols	<b>Assumptions:</b> -Government and MOA commitment to sustainable forest management and shift from timber production to ecosystem benefits and biodiversity conservation  <b>Risks:</b> Inability to assess economic benefits of ecosystem services and derive direct measurable benefits to local economy may result in reluctance to move away from forestry related economic activities

<sup>16</sup> All outcomes monitored annually in the APR/PIR. It is highly recommended not to have more than 4 outcomes.

(equivalent to activity in ATLAS)	Number of sets of forest inventory and maps in support of sustainable forest management for forest enterprise branches	0	11	Forest inventory and maps	<p><b>Assumptions:</b></p> <ul style="list-style-type: none"> <li>-District governments and Hayantar remain committed to integrated forest planning and management</li> <li>-Hayantar and other implementing entities have adequate staffing, capacity and counterpart funding for forest inventory and mapping</li> </ul> <p><b>Risks:</b></p> <ul style="list-style-type: none"> <li>Rapid turnover of staff can undermine capacity improvements for inventory and mapping skills</li> </ul>
	Number of forest enterprise branches effectively applying consideration of the needs for biodiversity, climate mitigation, forest ecosystem services and community sustainable use	0 (partial application in FMPs)	11	Forest management plans	<p><b>Assumptions:</b></p> <ul style="list-style-type: none"> <li>-District governments and Hayantar remain committed to integrated forest planning and management</li> <li>-Hayantar and other implementing entities have adequate staffing, capacity and counterpart funding for forest management</li> <li>-Stakeholders are willing to participate in conservation and protection</li> <li>-Incentives are adequate and targeted to correct recipients, and benefits are equitable and fair</li> </ul> <p><b>Risks:</b></p> <ul style="list-style-type: none"> <li>Longer gestation period to see visible benefits may hamper efforts at selling SFM principles to policy makers</li> </ul>

	Number of forest monitoring protocols to assess effectiveness of adoption for SFM in forestlands	0 (Existing practice, monitoring protocols used for recording forest violations and fires, not for consideration of ecosystem values and functions)	One set of protocols approved and adopted by Ministry of Agriculture	Forest management plan monitoring reports	<b>Assumptions:</b> -Monitoring protocols would be easy to measure, be low cost and do not need highly developed skills. -Implementing entities have established monitoring system and capacity to monitor threats and impacts of conservation actions
	Number of marz and enterprise branch forest staff trained in the use of ecosystem based planning tools	0	60	Training records and training evaluation reports	<b>Assumptions:</b> -Staff are provided adequate incentives for training and capacity development for SFM -Training designed for practical and on-the-job application  <b>Risks:</b> -staff turnover may constraint improvement in capacity development and retention
	Number of pasture stakeholders undergone technical and skills training and development in sustainable pasture management	0	100 (of which at least 30 are women)	Training records and training evaluation reports	<b>Assumptions:</b> -Pasture stakeholders willingness to engage in management of forest pastures  <b>Risks:</b> - Failure of Hayantar to effectively engage local pasture stakeholders in forest management decision-making
	Number of forest dependents trained in technical skills for sustainable forest resource use	0	500 (of which at least 150 are women)	Training records and training evaluation reports	<b>Assumptions:</b> -Hayantar committed to community forest management and resource use -Training design simple and easy to apply in the field

					<b>Risks:</b> -Failure of Hayantar to recognize potential opportunities for engagement of households in training
	Number of recommendations on accounting for ecosystem services valuation and community resource use	0	One set of recommendations	Policy notes	Assumptions: -GoA willing and committed to sustainable forest management  Risk: -GoA and Hayantar would be less conducive to make changes from existing narrowly focused forest production priorities
Outcome 2  Sustainable Forest Management practices effectively demonstrating reduced pressure on high conservation forests and maintaining flow of ecosystem services (equivalent to activity in ATLAS)	Hectares of high biodiversity conservation value forests designated identified and effectively managed for biodiversity and climate mitigation	0	At least 85,000	Protected Area management plans Forest management plans include conservation management prescriptions	Assumptions: -Hayantar willingness to staff and resource mobilization for meeting biodiversity conservation outcomes in areas already assigned for this purpose - Additional areas set-aside for conservation are based on clearly defined criteria for biodiversity conservation  Risk: -Government priorities may change from forest protection to industrial use.
	Change in population trends for five indicator bird species	The coefficient of $x$ value in the ten-year linear trend equation (which refers to $y=ax+b$ ) is --0.0965; -0.0455; --0.0338; -0.1156 and -0.0346 for Coal Tit, Eurasian Nuthatch, Semi-	Population of indicator bird species stable or increase over baseline values	Annual Forest surveys and inventory at 25 selected sites	Assumptions: -Adequate resources and training provided to staff and researchers to conduct inventory and monitoring

		collared flycatcher, Green Warbler and Song Thrush respectively.			
	Change in population trends for five indicator bird species	Average number of individuals per 1km transect for the 4 species are 10.3-16.5; 8.6-12.9; 15.3-21.7 and 18.9-27.2 for <i>Argynnis paphia</i> , <i>Brintesia circe</i> , <i>Coenonympha arcania</i> and <i>Leptidea sinapis</i> respectively.	Population changes of indicator butterfly species stable and/or do not decrease	Bi-annual count at 25 selected transects in forest	Assumptions: -Adequate resources and training provided to staff and researchers to conduct inventory and monitoring
	Number of hectares of degraded forests regenerated through assisted natural regeneration	0	4,932	Hayantar records of forest cover and regeneration	Assumptions: -Areas selected for natural regeneration are based on potential for natural regeneration, including availability of seeding stocks, land fertility and other climatic considerations  Risks: -Climate change impacts may increase to the extent that even if the project implements activities to improve condition in forest lands it may not be enough to make a difference
Number of hectares degraded pasture and hay fields rehabilitated under sustainable management practices to reduce pressure on forest lands	0	1,000	Hayantar records of pasture development and grazing incidents	Assumption: -Local herdsman are willing and cooperate in implementation of rotational grazing and other grazing management approaches  Risks:	



					Climate change impacts may increase to the extent that even if the project implements activities to improve pasture lands may not be enough to make a difference
	Number of hectares of forest land under multiple use regimes (sustainable NTFP production and agro-forestry) with participation of forest dependent communities	0	3,000	Community surveys and records of forest improvement and increased incomes and production of NTFP  Independent evaluations	Assumptions: -Local forest dependent communities derive sufficient incentives and financial benefits from multi-purpose forestry  Risks: -Low buy-in from communities might undermine the impact of this activity
	Percentage decrease in number of livestock using natural forests for unsustainable grazing practices in targeted forest branches	Baseline to be developed after forest inventory and mapping completed and locations identified for grazing management	15%	Marz and Forest enterprise records of livestock numbers and grazing patterns	Assumptions: - Alternative grazing lands and grazing management provide adequate replacement fodder  Risks: -Herders may be reluctant to associate themselves and participate in grazing lands management and controls. -Increased negative attitude of local people due to restrictions of access may restrict opportunities for collaboration
	Percentage reduction in forest firewood collection areas in targeted forest branches Reduced areas of felling in target state forests	Baseline to be developed after forest inventory and mapping completed	15%	Hayantar records of firewood extraction volumes and areas of harvest	<b>Risks:</b> -Climate change impacts may increase to the extent that even if the project implements activities to improve land condition in pasture and forest lands it may not be enough to

					make a difference
	Number of recommendations for management of dependencies in firewood use from forests	No integrated strategy exists to deal with the complex nature of firewood dependencies	One set of recommendation developed by Ministry of Agriculture	Report and recommendations  Number of consultations meetings regarding topic	Assumptions: - Political willingness to engage in the highly complex and contentious issue of firewood use and entitlements
	Percentage of households reporting increased incomes from forest and non-forest resources in target communities, including percentage of beneficiaries among women	Baseline incomes would be assessed once forest inventory and mapping completed and locations for community forest use identified	20%, of which at least 30% of beneficiaries are women	Social surveys and reports at village level	<b>Risks:</b> -Engaging local stakeholders more robustly contains some risk in Armenia, where centralized approaches are still the norm. -Elite capture at local level would prevent marginalized groups and forest dependents from generating benefits of project
	Number of carbon stock assessment completed for key forest types in NE Armenia	0	One set of baseline assessment completed and monitoring	Forest (biomass) carbon inventory/baseline (emission data) and deforestation rate (activity data)	Assumptions: -GoA commitment to carbon inventory and monitoring and available financing and staffing  Risks: -Lack of capacity and skills for assessments
	Emissions of metric tCO2 avoided from conservation set-asides over a 10-year period	0	559,110 metric tCO2	Forest (biomass) carbon inventory/baseline (emission data) and deforestation rate (activity data)	Assumptions: -MoA willingness to set-aside areas for conservation from current production -GoA commitment and resources available for carbon monitoring Risks: -Lack of capacity and skills for assessments
	Improvement in carbon sequestration	0	122,880 metric tCO2	Forest (biomass) carbon	Assumption: -Criteria for selection of

	capacity in metric tCO2 of restored forests over a 10-year period			inventory/baseline (emission data) and deforestation rate (activity data)	degrade lands assisted natural regeneration has adequate soil and biological conditions conducive for forest regeneration  Risks: -Lack of capacity and skills for assessments of carbon
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## TOTAL BUDGET AND WORKPLAN

<b>Project ID:</b>	<b>00081940</b>	<b>OutputID:</b>	<b>00091048</b>
<b>Award Title:</b>	FSP_Sust. land & forest mngmt in Northeastern Armenia		
<b>Business Unit:</b>	ARM10		
<b>Project Title:</b>	Mainstreaming sustainable land and forest management in dry mountain landscapes of North-Eastern part of Armenia		
<b>PIMS no.</b>	4416		
<b>Implementing Partner (Executing Agency)</b>	Ministry of Nature Protection (NIM execution )		

GEF Outcome/Atlas Activity	Responsible Party/Impl. Agent	Fund ID	Donor Name	Atlas Budgetary Account Code	ATLAS Budget Description	Amount 2015 (USD)	Amount 2016 (USD)	Amount 2017 (USD)	Amount 2018 (USD)	Amount 2019 (USD)	Total (USD)	See Budget Note:
<b>Component 1:</b> Enabling environment for the marzes in NE Armenia to plan, monitor and adapt sustainable forest and land management.	<b>MNP</b>	<b>62000</b>	<b>GEF</b>	71200	International consultants	0	30,000	30,000	30,000	15,000	105,000	1
				71300	Local consultants	5,000	5,000	5,000	5,000	5,000	25,000	2
				71400	Contr. services- individuals	3,600	10,800	23,300	23,300	26,200	87,200	3
				71600	Travel	0	25,000	0	0	0	25,000	4
				72100	Contractual services - companies	23,000	194,325	320,000	155,000	26,000	718,325	5
				72200	Equipment&furniture	53,000	0	0	0	0	53,000	6
				72300	Materials & goods	0	30,000	20,000	0	0	50,000	7

				72800	Information technology equipment	20,000	0	0	0	0	20,000	8
				73400	Rental&maint. of other equipment	2,900	2,500	2,500	2,500	2,475	12,875	9
				74200	Audio visual&print. Production costs	2,000	2,000	2,000	2,000	2,000	10,000	10
				74500	Miscellaneous	1,000	2,000	2,000	2,000	1,000	8,000	11
				75700	Workshops	6,000	17,000	17,000	15,500	5,500	61,000	12
					<b>sub-total GEF</b>	<b>116,500</b>	<b>318,625</b>	<b>421,800</b>	<b>235,300</b>	<b>83,175</b>	<b>1,175,400</b>	
					<b>Total Outcome 1</b>	<b>116,500</b>	<b>318,625</b>	<b>421,800</b>	<b>235,300</b>	<b>83,175</b>	<b>1,175,400</b>	
<b>Component 2:</b> Investment in demonstrating improved sustainable forest and land management practices to reduce pressure on high conservation forests and maintain flow of ecosystem services.	<b>MNP</b>	<b>62000</b>	<b>GEF</b>	71200	International consultants	0	14,000	0	0	0	14,000	13
				71300	Local consultants	5,000	5,000	5,000	5,000	5,000	25,000	14
				71400	Contractual services-individuals	3,600	13,900	17,000	17,000	16,700	68,200	15
				72100	Contractual services-companies	30,000	282,083	282,083	282,083	234,750	1,110,999	16
				72300	Materials&goods	10,000	110,000	10,000	10,000	0	140,000	17
				72500	Supplies	1,000	1,300	1,500	1,500	1,000	6,300	18
				72600	Grants	0	60,000	100,000	40,000	0	200,000	19
				74200	Audio visual&print. Production costs	1,000	5,000	5,000	5,000	5,000	21,000	20
					<b>sub-total GEF</b>	<b>50,600</b>	<b>491,283</b>	<b>420,583</b>	<b>360,583</b>	<b>262,450</b>	<b>1,585,499</b>	
					<b>Total Outcome 2</b>	<b>50,600</b>	<b>491,283</b>	<b>420,583</b>	<b>360,583</b>	<b>262,450</b>	<b>1,585,499</b>	

<b>Component 3: Monitoring, learning, adaptive feedback, outreach, and evaluation</b>	<b>MNP</b>	<b>62000</b>	<b>GEF</b>	71200	International consultants	0	0	20,000	0	20,000	40,000	21
				71600	Travel	1,000	2,000	2,000	2,000	1,000	8,000	22
				74100	Prof. services (Audit)	0	0	15,000	0	0	15,000	23
				75700	Workshops	3,000	875	875	875	5,875	11,500	24
					<b>sub-total GEF</b>	<b>4,000</b>	<b>2,875</b>	<b>37,875</b>	<b>2,875</b>	<b>26,875</b>	<b>74,500</b>	
					<b>Total Outcome 3</b>	<b>4,000</b>	<b>2,875</b>	<b>37,875</b>	<b>2,875</b>	<b>26,875</b>	<b>74,500</b>	
<b>Project Management</b>	<b>MNP</b>	<b>62000</b>	<b>GEF</b>	71400	Contractual services-individuals	6,400	10,400	11,850	6,250	9,500	44,400	25
				71600	Travel	1,150	1,900	1,150	1,155	1,150	6,505	26
				72400	Communications & Audio visual equipment (phone, fax, internet)	500	0	0	0	0	500	27
				73300	Rental&maint. of info tech. equipment	1,050	0	0	0	0	1,050	28
				74598	UNDP cost recovery chrgs-bills	11,164	22,329	22,329	22,329	11,164	89,315	29
					<b>sub-total GEF</b>	<b>20,264</b>	<b>34,629</b>	<b>35,329</b>	<b>29,734</b>	<b>21,814</b>	<b>141,770</b>	

	<b>MNP</b>	<b>04000</b>	<b>UNDP</b>	71400	Contractual services-individuals	0	16,800	18,400	24,000	16,000	75,200	30
				72400	Communications & Audio visual equipment (phone, fax, internet)	0	1,000	1,000	1,000	500	3,500	31
				73300	Rental&maint. of info tech. equipment	0	2,100	2,100	2,100	1,050	7,350	32
				74200	Audio visual&print. Production costs	2,500	7,000	7,000	7,000	5,448	28,948	33
				74500	Miscellaneous	2,084	16,250	16,250	16,250	14,168	65,002	34
					<b>sub-total UNDP</b>	<b>4,584</b>	<b>43,150</b>	<b>44,750</b>	<b>50,350</b>	<b>37,166</b>	<b>180,000</b>	
					<b>Total Management</b>	<b>25,848</b>	<b>79,779</b>	<b>82,079</b>	<b>80,584</b>	<b>59,480</b>	<b>327,770</b>	

<b>PROJECT TOTAL (GEF only)</b>	<b>191,364</b>	<b>847,412</b>	<b>915,587</b>	<b>628,492</b>	<b>394,314</b>	<b>2,977,169</b>	
<b>PROJECT TOTAL (incl. UNDP)</b>	<b>195,948</b>	<b>890,562</b>	<b>960,337</b>	<b>678,842</b>	<b>431,480</b>	<b>3,157,169</b>	

**Summary of Funds:**

	Amount \$ Year 1	Amount \$ Year 2	Amount \$ Year 3	Amount \$ Year 4	Amount \$ Year 5	<b>Total \$</b>
<b>GEF</b>	191,364	847,412	915,587	628,492	394,314	2,977,169
<b>UNDP (cash)</b>	4,584	43,150	44,750	50,350	37,166	180,000
<b>UNDP (in-kind)</b>						720,000
<b>Ministry of Nature Protection (in-kind)</b>						6,055,000
<b>Ministry of Nature Protection (cash)</b>						2,595,000
<b>Hayantar SNCO (in-kind)</b>						1,277,235
<b>Hayantar SNCO (cash)</b>						2,500,000
<b>World Wide Fund for Nature (Armenia) (cash)</b>						376,500
<b>Caucasus Nature Fund (cash)</b>						286,200
<b>TOTAL</b>						<b>16,967,104</b>

**Budget Notes**

1. Support in improvement of management guidelines, monitoring protocols for assessing outcomes of forest, ecosystem, BD and socio-economic functions of forest estates (150 w/d x \$700, travel included);
2. Supporting in development of improved management guidelines 333w/d x 75\$/day;
3. 50% Salary of Technical task leader, (24 months x \$1,800); 46.6% Salary of Project coordinator (14 months x 3100 USD/months);
4. Study tour/travel cost for 10 persons x 5 days to developing or country with economy in transition to get acquainted with successful application of economic mechanisms (PES, green funds, community revolving funds, etc.) in community based sustainable land and forest management;
5. Inventory and mapping of forest & land resources in 2 marzes, update of 7 FMPs and preparation of 4 new ones; Trainings and workshops to facilitate enhanced capacity of community groups for forest and land management planning and monitoring of

- ecosystem outcomes; Workshops and consultations for supporting of development of integrated planning guidelines for SFM; Consultations, Workshops and meetings for development and validation of forest resources maps; Supporting consultative and stakeholders meetings and workshops to facilitate FMPs; Workshops to facilitate and reach consensus of policy recommendations and their dissemination; Training workshops to enhance capacity of government staff on GIS, MIS, mapping, inventory, monitoring etc.
6. Purchase of vehicle and respective equipment for project needs (4x4 off-road vehicle and related components (tires, radio, etc.) for project operation, equipment for biodiversity inventory and monitoring, such as trap cameras, binoculars, etc.);
  7. Purchase of satellite maps and miscellaneous equipment;
  8. Office equipment: 4 work stations & 2 notebooks, phones, printer, scanner, copier, etc.
  9. Vehicle maintenance costs;
  10. Translations and promotional materials;
  11. Miscellaneous costs (Bank charges, claims and adjustments, sundry);
  12. Trainings and workshops, including inception, final and interim workshops;
  13. To support with development of integrated strategy to address firewood dependencies and carbon stock assessment for the forests in the NE Armenia, technical monitoring and evaluation 20w/dx700\$/day;
  14. Local experts 333 w/d x 75 \$/day, community mobilization and alternative livelihood planning, carbon stock assessment
  15. 26.6% Salary of PC (8 months x 3100 USD/month), 50% salary of Technical task leader (24x1,800 USD/month);
  16. Improved management of 1 existing PA and 8 existing sanctuaries, management of parts set aside for environmental and biodiversity conservation; restoration of degraded forests, sustainable management of degraded pastures and hay areas, community mobilization and alternative livelihood planning, carbon stock assessment, etc.;
  17. Field equipment (for BD and forest monitoring, carbon measurement equipment, etc.);
  18. Office stationery;
  19. Community grants for alternative livelihood activities (resources to be directly disbursed in the form of small grants to community based organizations and local NGOs for implementation of alternative income generation activities as incentive to conserve forests and biological resources. Details of grant's mechanism will be further explored during the first year of implementation);
  20. Printing and publication of project materials;
  21. Mid-term & final evaluation (50 w/d x \$700 per day and international travel cost);
  22. Monitoring visits;
  23. External financial audit;
  24. Inception and final workshops, meetings of Technical Advisory Board, meetings of Project Board;



25. 26.6% Salary PC (8 months x 3,100 USD/month + Assistant 6 months x 1,200 USD/month + Driver 15 months x 800 USD/month);
26. Field visits;
27. Land phone charges, postage and pouch costs, internet connectivity;
28. IT-support services, E-mail & firewall;
29. Direct Project Service Costs;
30. Salary Assist. 42 months x 1,200 USD/month + Driver 31 months x 800USD/month;
31. Land phone charges, postage and pouch costs, internet connectivity;
32. IT-support services, E-mail & firewall;
33. Publication of information and promo materials;
34. Sundry.

## 5. MANAGEMENT ARRANGEMENTS

The project will be implemented through UNDP national implementation modality (NIM)<sup>17</sup>. The Ministry of nature protection will act as the Implementing partner, while UNDP CO will act as the GEF implementing agency for the project and support project implementation activities in accordance with UNDP rules and procedures and in line with the GEF requirements. The UNDP CO will ensure project accountability, transparency, effectiveness and efficiency in implementation. UNDP will provide the Implementing Partner with the following major support services for the activities of the project in accordance with UNDP corporate regulations, such as: (i) Identification and/or recruitment of project personnel; (ii) procurement of goods and services; (iii) financial services.

As GEF Implementing Agency, UNDP is ultimately accountable and responsible for the delivery of results, subject also to their certification by the Ministry of nature protection, as Implementing Partner. UNDP shall provide project cycle management services that will include the following:

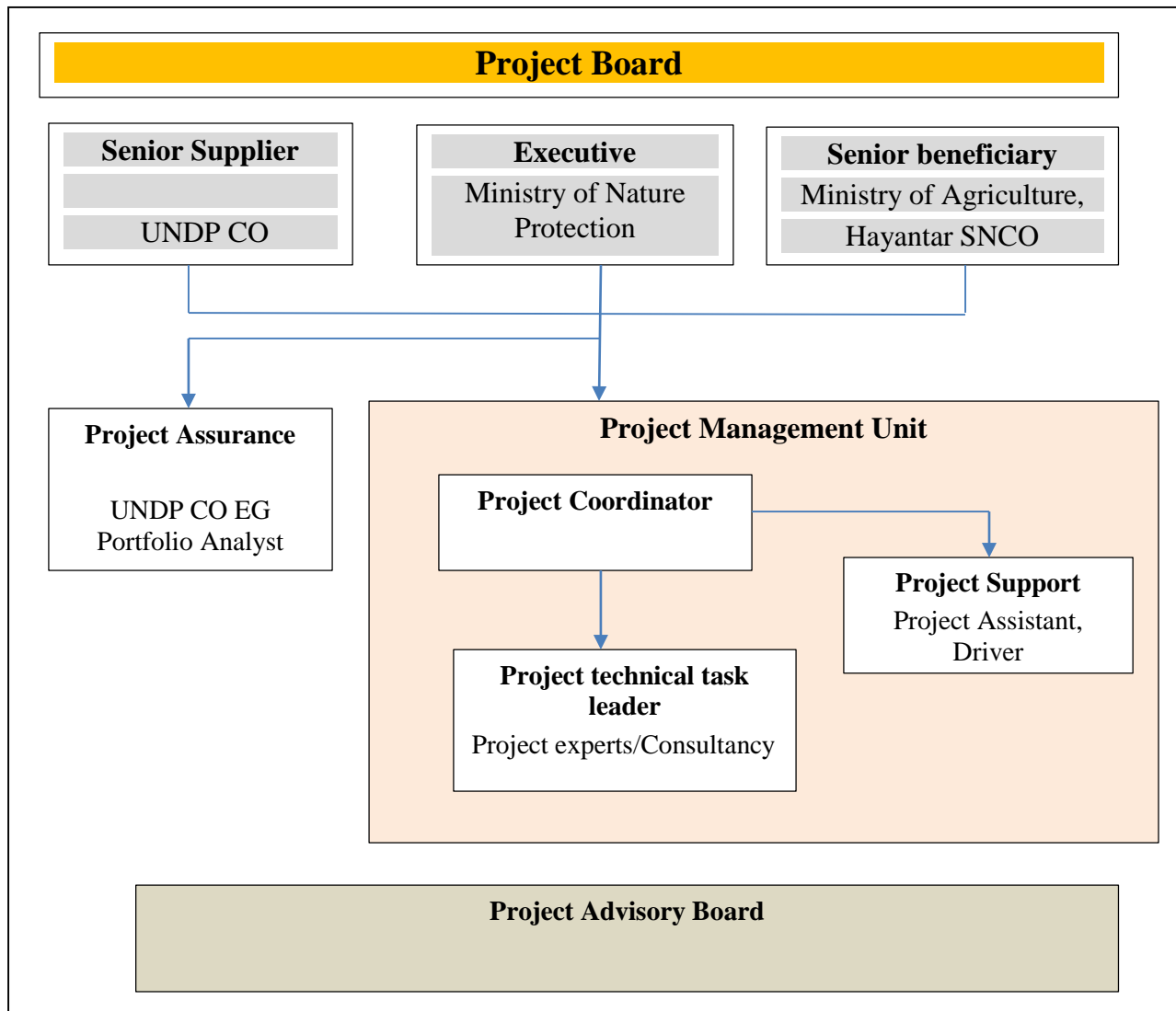
- Providing financial and audit services to the project
- Overseeing financial expenditures against project budgets,
- Ensuring that activities including procurement and financial services are carried out in strict compliance with UNDP/GEF procedures,
- Ensuring that the reporting to GEF is undertaken in line with the GEF requirements and procedures,
- Facilitate project learning, exchange and outreach within the GEF family,
- Contract the project mid-term and final evaluations and trigger additional reviews and/or evaluations as necessary and in consultation with the project counterparts.

At the request of the Government of Armenia, UNDP shall also provide Direct Project Services (DPS) specific to project inputs according to its policies and convenience. These services, and the costs thereof, are specified in the Letter of Agreement in Annex 9. In accordance with GEF requirements, the costs of these services will be part of the executing entity's Project Management Cost allocation identified in the project budget.

The project organization structure (summarized in the figure below) will be aligned with UNDP's rules for Result Based Management and will be composed of: (i) Project Executive Group- Project Board (PB), (ii) Project Assurance, (iii) Project Management, as well as Advisory Committee. The governance structure is described below:

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<sup>17</sup> In line with standing GEF and UNDP policies, the project will be nationally executed by the Government (referred to as 'national implementation' in UNDP terminology). The Government has key control functions related to all aspects of project leadership, management and implementation (e.g. provides the National Project Director, heads and manages the Project Board, considers and approves key milestones within its jurisdiction – such as annual work plans, budgets, management responses to mid-term and final evaluations, participates in monitoring, etc., as further described in the Management Arrangements).



**Project Board (PB)** will be responsible for making consensus-based decisions, in particular when guidance is required by the Project Coordinator (PC). The Board will play a critical role in project monitoring and evaluations by assuring the quality of these processes and associated products, and by using evaluations for improving performance, accountability and learning. The Project Board will ensure that required resources are committed. It will also arbitrate on any conflicts within the project and negotiate solutions to any problems with external bodies. Specific responsibilities of the PB should include:

- (i) For the processes of justifying, defining and initiating a project:
  - Appraise and approve work plans submitted by the Project Coordinator;

- Delegate Project Assurance roles as appropriate;
  - Commit project resources required by the work plan.
- (ii) For the process of running a project:
- Provide overall guidance and direction to the project, ensuring it remains within any specified constraints;
  - Review project quarterly and annual plans and approve any essential deviations from the original plans;
  - Review and approve progress and annual, as well as mid-term and final evaluation's project reports, make recommendations for follow-up actions;
  - Provide ad-hoc direction and advice for exception situations when project manager's tolerances are exceeded;
  - Assess and decide on conceptual project changes if necessary;
  - Assure that all planned deliverables are delivered satisfactorily and programme management directives are compiled;
- (iii) For the process of closing a project:
- Assure that all products/outputs are delivered satisfactorily;
  - Review and approve the end project report;
  - Make recommendations for follow-up actions and post project review plan;
  - Notify project closure to the stakeholders.

Project Board decisions shall be made in accordance with international standards that shall ensure management for development results, best value for money, fairness, integrity, transparency, and effective international competition. Members of the Project Board will consist of key national government representatives, UNDP senior official and other stakeholders. Potential members of the Project Board will be reviewed and recommended for approval during the Local Project Appraisal Committee (LPAC) meeting. The Project Board will contain of three distinct roles:

***Executive Role:*** representing the project ownership. It is expected the Ministry of Nature Protection will serve as a major implementing partners for the project. The Ministry of Nature Protection has overall legal and regulatory authority for natural resource management and environmental protection. It serves as the focal point ministry for the relevant international conventions, in particular UNFCCC, UNCBD and UNCCCD. The decision-makers from the above mentioned ministry will be nominated to the Project Board and will co-chair the group.

***Senior Supplier Role:*** This requires the representation of the interests of the funding parties for specific cost sharing projects and/or technical expertise to the project. The Senior Supplier's primary function within the Board will be to provide guidance regarding the technical feasibility

of the project. This role will rest with UNDP Armenia and represented by the Deputy Resident Representative.

**Senior Beneficiary Role:** This role requires representing the interests of those who will ultimately benefit from the project. The Senior Beneficiary's primary function within the Board will be to ensure the realization of project results from the perspective of different stakeholders and beneficiaries. The Ministry of Agriculture is the primary beneficiary based on the mandate in addressing agriculture and forest policy. In this particular case beneficiary role will also rest with "Hayantar" SNCO that will act in the same proponent capacity as the "owner" of the forest enterprises.

The project will be subject to the Project Board meetings that would be held at least twice every year and on an ad hoc basis, whenever deemed necessary

**Project Assurance:** The Project Assurance role supports the Project Board Executive by carrying out objective and independent project oversight and monitoring functions which are mandatory on all projects.

The Project Assurance role supports the Project Board by carrying out objective and independent project oversight and monitoring functions. Project Assurance has to be independent of the Project Coordinator; therefore the Project Board cannot delegate any of its assurance responsibilities to the Project Coordinator. The Project Assurance role will rest with the Environmental Governance Portfolio Analyst of UNDP CO.

The following list includes the key suggested aspects that need to be checked by the Project Assurance throughout the project as part of ensuring that it remains consistent with, and continues to meet, a business need and that no change to the external environment effects the validity of the project:

- Maintenance of thorough liaison throughout the project between the supplier and the customer;
- Beneficiary needs and expectations are being met or managed;
- Risks are being controlled;
- Adherence to the Project Justification (Business Case);
- Constant reassessment of the value-for-money solution;
- The project remains viable, the scope of the project is not "creeping upwards" unnoticed;
- Internal and external communications are working;
- Applicable standards are being used and followed;
- Any legislative constraints are being observed
- Adherence to quality assurance standards.

**Project Management:** Project Management Unit (PMU) will be established under the UNDP Environmental Governance management team comprising of permanent staff including a Project

Coordinator (PC), Technical task leader (TL) and a Project Assistant. The Project Coordinators role will belong to UNDP CO nominated staff with the authority to run the project on behalf of the Implementing Agency within the constraints laid down by the Board.

The PC will be responsible for overall project coordination and financial management. The project team will be formulated to support in daily implementation. The team will be led by Technical Task Leader, which will recruited on a competitive basis with the authority to run the project technical and operational activities on a day-to-day basis and provide technical backstopping to the PC. The project task leader's prime responsibility is to ensure that the project produces the results specified in the project document, to the required standard of quality and within the specified constraints of time and cost. Development and consolidation of work plans, preparation of quarterly/annual progress reports, supervision the work of the project thematic experts, etc. are major responsibility of the TL. Technical team of long-term and short term national and international consultants, as well as professional consultancy services will be brought at the different stage of implementation. Under the direct supervision of the PC, the Project Administrative Assistants will provide programme support and be responsible for full administrative, logistical and financial issues.

In order to ensure smooth startup and successful implementation of the project activities, it is strongly recommended to use the accumulated knowledge, expertise and capacities generated at the project preparatory phase (PPG).

**Advisory Board:** The main requirement for successful implementation of the project is sustained political commitment and broad-based public support. Thus the involvement of other national, regional and local authorities and stakeholders will be necessary. For this purpose multi-stakeholder advisory committee will be established as an advisory body to provide technical and operational guidance for project implementation policy ensuring the project's consistency and synergy with the other ongoing development processes in the country. In addition to Ministries of Nature Protection (MNP) and Agriculture (MoA), representatives from line ministries, such as Ministries of Territorial Administration and Emergency Situation, Health, Finance, Transport and Communication, Regional Administration of both marzes, representatives from selected LSGs, CBOs and NGOs, scientific sector will be invited for membership. Advisory Board will be co-chaired by representatives from UNDP CO and MNP. The meeting of the Board will be held once in a year unless otherwise required and will be guided by decisions and recommendations of the project board.

## 6. MONITORING FRAMEWORK AND EVALUATION

The project will be monitored through the following M& E activities. The M& E budget is provided in the table below.

### Project start

A Project Inception Workshop will be held within the first 2 months of project start with those with assigned roles in the project organization structure, UNDP country office and where appropriate/feasible regional technical policy and programme advisors as well as other stakeholders. The Inception Workshop is crucial to building ownership for the project results and to plan the first year annual work plan. The Inception Workshop should address a number of key issues including:

- Assist all partners to fully understand and take ownership of the project. Detail the roles, support services and complementary responsibilities of UNDP CO and RCU staff vis à vis the project team. Discuss the roles, functions, and responsibilities within the project's decision-making structures, including reporting and communication lines, and conflict resolution mechanisms. The Terms of Reference for project staff will be discussed again as needed.
- Based on the project results framework and the relevant GEF Tracking Tool if appropriate, finalize the first annual work plan. Review and agree on the indicators, targets and their means of verification, and recheck assumptions and risks.
- Provide a detailed overview of reporting, monitoring and evaluation (M&E) requirements. The Monitoring and Evaluation work plan and budget should be agreed and scheduled.
- Discuss financial reporting procedures and obligations, and arrangements for annual audit.
- Plan and schedule Project Board meetings. Roles and responsibilities of all project organization structures should be clarified and meetings planned. The first Project Board meeting should be held within the first 12 months following the inception workshop.

An Inception Workshop report is a key reference document and must be prepared and shared with participants to formalize various agreements and plans decided during the meeting.

### Quarterly

- Progress made shall be monitored in the UNDP Enhanced Results Based Management Platform.
- Based on the initial risk analysis submitted, the risk log shall be regularly updated in ATLAS. Risks become critical when the impact and probability are high. Note that for UNDP GEF projects, all financial risks associated with financial instruments such as revolving funds, microfinance schemes, or capitalization of ESCOs are automatically

classified as critical on the basis of their innovative nature (high impact and uncertainty due to no previous experience justifies classification as critical).

- Based on the information recorded in Atlas, a Project Progress Reports (PPR) can be generated in the Executive Snapshot.
- Other ATLAS logs can be used to monitor issues, lessons learned etc. The use of these functions is a key indicator in the UNDP Executive Balanced Scorecard.

### **Annually**

- Annual Project Review/Project Implementation Reports (APR/PIR): This key report is prepared to monitor progress made since project start and in particular for the previous reporting period (30 June to 1 July). The APR/PIR combines both UNDP and GEF reporting requirements.

The APR/PIR includes, but is not limited to, reporting on the following:

- Progress made toward project objective and project outcomes - each with indicators, baseline data and end-of-project targets (cumulative)
- Project outputs delivered per project outcome (annual).
- Lesson learned/good practice.
- AWP and other expenditure reports
- Risk and adaptive management
- ATLAS QPR
- Portfolio level indicators (i.e. GEF focal area tracking tools) are used on an annual basis as well.

### **Periodic Monitoring through site visits**

UNDP CO and the UNDP RCU will conduct visits to project sites based on the agreed schedule in the project's Inception Report/Annual Work Plan to assess first hand project progress. Other members of the Project Board may also join these visits. A Field Visit Report/BTOR will be prepared by the CO and UNDP RCU and will be circulated no less than one month after the visit to the project team and Project Board members.

### **Mid-term of project cycle**

The project will undergo an independent Mid-Term Evaluation at the mid-point of project implementation (insert date). The Mid-Term Evaluation will determine progress being made toward the achievement of outcomes and will identify course correction if needed. It will focus on the effectiveness, efficiency and timeliness of project implementation; will highlight issues requiring decisions and actions; and will present initial lessons learned about project design, implementation and management. Findings of this review will be incorporated as



recommendations for enhanced implementation during the final half of the project's term. The organization, terms of reference and timing of the mid-term evaluation will be decided after consultation between the parties to the project document. The Terms of Reference for this Mid-term evaluation will be prepared by the UNDP CO based on guidance from the Regional Coordinating Unit and UNDP-GEF. The management response and the evaluation will be uploaded to UNDP corporate systems, in particular the [UNDP Evaluation Office Evaluation Resource Center \(ERC\)](#).

The GEF Focal Area Tracking Tools for Biodiversity, Climate Change, Land Degradation and SFM/REDD will also be updated during the mid-term evaluation cycle.

### **End of Project**

An independent Final Evaluation will take place three months prior to the final Project Board meeting and will be undertaken in accordance with UNDP and GEF guidance. The final evaluation will focus on the delivery of the project's results as initially planned (and as corrected after the mid-term evaluation, if any such correction took place). The final evaluation will look at impact and sustainability of results, including the contribution to capacity development and the achievement of global environmental benefits/goals. The Terms of Reference for this evaluation will be prepared by the UNDP CO based on guidance from the Regional Coordinating Unit and UNDP-GEF.

The Terminal Evaluation should also provide recommendations for follow-up activities and requires a management response that should be uploaded to PIMS and to the [UNDP Evaluation Office Evaluation Resource Center \(ERC\)](#). The relevant GEF Focal Area Tracking Tools will also be completed during the final evaluation.

During the last three months, the project team will prepare the Project Terminal Report. This comprehensive report will summarize the results achieved (objectives, outcomes, outputs), lessons learned, problems met and areas where results may not have been achieved. It will also lay out recommendations for any further steps that may need to be taken to ensure sustainability and replicability of the project's results.

The GEF Focal Area Tracking Tools for Biodiversity, Climate Change, Land Degradation and SFM/REDD will also be updated during the final evaluation cycle.

### **Learning and knowledge sharing**

Results from the project will be disseminated within and beyond the project intervention zone through existing information sharing networks and forums. The project will identify and participate, as relevant and appropriate, in scientific, policy-based and/or any other networks, which may be of benefit to project implementation through lessons learned. The project will identify, analyze, and share lessons learned that might be beneficial in the design and

implementation of similar future projects. Finally, there will be a two-way flow of information between this project and other projects of a similar focus.

## Audit

Financial reporting will follow the provisions of UNDP/GEF. The project will undergo audit by a certified independent auditor. Audits will be conducted in accordance with the UNDP Financial Regulations and Rules and applicable audit policies on UNDP project.

**Table 6: M& E work plan and budget**

Type of M&E activity	Responsible Parties	Budget US\$ Excluding project team staff time; all figures are indicative	Time frame
Inception Workshop and associated arrangements	<ul style="list-style-type: none"> <li>• Project Coordinator (PC)</li> <li>• UNDP CO</li> </ul>	3,000	Within first two months of project start up
Inception Report	<ul style="list-style-type: none"> <li>• Project Team</li> <li>• UNDP CO</li> <li>• National and International consultant support if needed</li> </ul>	0 (included in routine project staff activities)	Immediately following Inception workshop
ARR/PIR	<ul style="list-style-type: none"> <li>• PC</li> <li>• UNDP CO</li> </ul>	0 (included in routine project staff activities)	Annually
Meetings of Project Advisory Board and relevant meeting proceedings (minutes)	<ul style="list-style-type: none"> <li>• PC</li> <li>• UNDP CO</li> <li>• Other stakeholders</li> </ul>	2,000	Following Project Inception Workshop at least once a year
Meetings of Project Board and relevant meeting proceedings (minutes)	<ul style="list-style-type: none"> <li>• PC</li> <li>• UNDP CO</li> <li>• National Implementing Agencies</li> </ul>	1,500	Twice a year, ideally immediately following Technical Advisory Board Meetings
Quarterly Status Report	<ul style="list-style-type: none"> <li>• Project Team</li> </ul>	0 (included in routine project staff activity)	To be determined by Project team and UNDP CO
Technical monitoring, evaluation, and reporting within project components	<ul style="list-style-type: none"> <li>• Project Team</li> <li>• National and International Consultants, as needed</li> <li>• Safeguards monitoring</li> </ul>	10,000	Continuous, starting at project inception
Mid-term Evaluation (external)	<ul style="list-style-type: none"> <li>• Project Team</li> <li>• UNDP CO</li> </ul>	13,000	At the mid-point of project

Type of M&E activity	Responsible Parties	Budget US\$ Excluding project team staff time; all figures are indicative	Time frame
	<ul style="list-style-type: none"> <li>• UNDP/GEF RCU</li> <li>• External Consultants (i.e. evaluation team)</li> </ul>		implementation.
Final Evaluation (external)	<ul style="list-style-type: none"> <li>• External Consultants (i.e. evaluation team)</li> <li>• Project Team</li> <li>• UNDP CO</li> <li>• UNDP/GEF RCU</li> </ul>	17,000	At the end of the project
Final Report	<ul style="list-style-type: none"> <li>• External Consultant</li> <li>• Project Team</li> <li>• UNDP CO</li> </ul>	0 (costs included in terminal evaluation above)	At least one month before the end of the project
Compilation of lessons learned	<ul style="list-style-type: none"> <li>• Project Team</li> <li>• UNDP CO</li> <li>• UNDP/GEF RCO</li> </ul>	0 (included in routine project staff activity)	Annually
Financial Audit	<ul style="list-style-type: none"> <li>• UNDP CO</li> <li>• Project Team</li> </ul>	15,000	at least in lifetime of project
Visits to field sites	<ul style="list-style-type: none"> <li>• PC</li> <li>• UNDP CO</li> <li>• UNDP/GEF RCU (as appropriate)</li> <li>• National Implementing Agency</li> </ul>	8,000	Regularly, as appropriate
Project Final Workshop	<ul style="list-style-type: none"> <li>• Project Team</li> <li>• UNDP CO</li> <li>• UNDP/GEF RCU</li> <li>• Other stakeholders</li> </ul>	5,000	At least one month before the end of the project
TOTAL indicative COST (Excluding project team staff time and UNDP staff and travel expenses, government in-kind contribution)		US\$ 74,500	

## 7. COMMUNICATION AND VISIBILITY REQUIREMENT

Full compliance will be maintained with UNDP's Branding Guidelines. These can be accessed at <http://intra.undp.org/coa/branding.shtml>, and specific guidelines on UNDP logo use can be accessed at: <http://intra.undp.org/branding/useOfLogo.html>. Amongst other things, these guidelines describe when and how the UNDP logo needs to be used, as well as how the logos of donors to UNDP projects needs to be used. For the avoidance of any doubt, when logo use is required, the UNDP logo needs to be used alongside the GEF logo. The GEF logo can be accessed at: [http://www.thegef.org/gef/GEF\\_logo](http://www.thegef.org/gef/GEF_logo). The UNDP logo can be accessed at <http://intra.undp.org/coa/branding.shtml>.

Full compliance will also be maintained with the GEF's Communication and Visibility Guidelines (the "GEF Guidelines"). The GEF Guidelines can be accessed at: [http://www.thegef.org/gef/sites/thegef.org/files/documents/C.40.08 Branding the GEF%20final\\_0.pdf](http://www.thegef.org/gef/sites/thegef.org/files/documents/C.40.08_Branding_the_GEF%20final_0.pdf). Amongst other things, the GEF Guidelines describe when and how the GEF logo needs to be used in project publications, vehicles, supplies and other project equipment. The GEF Guidelines also describe other GEF promotional requirements regarding press releases, press conferences, press visits, visits by Government officials, productions and other promotional items. Where other agencies and project partners have provided support through co-financing, their branding policies and requirements should be similarly applied.

## **8. LEGAL CONTEXT**

This document together with the CPAP signed by the Government and UNDP which is incorporated by reference constitute together a Project Document as referred to in the SBAA and all CPAP provisions apply to this document.

Consistent with the Article III of the Standard Basic Assistance Agreement, the responsibility for the safety and security of the implementing partner and its personnel and property, and of UNDP's property in the implementing partner's custody, rests with the implementing partner.

The implementing partner shall:

- put in place an appropriate security plan and maintain the security plan, taking into account the security situation in the country where the project is being carried;
- assume all risks and liabilities related to the implementing partner's security, and the full implementation of the security plan.

UNDP reserves the right to verify whether such a plan is in place, and to suggest modifications to the plan when necessary. Failure to maintain and implement an appropriate security plan as required hereunder shall be deemed a breach of this agreement.

The implementing partner agrees to undertake all reasonable efforts to ensure that none of the UNDP funds received pursuant to the Project Document are used to provide support to individuals or entities associated with terrorism and that the recipients of any amounts provided by UNDP hereunder do not appear on the list maintained by the Security Council Committee established pursuant to resolution 1267 (1999). The list can be accessed via <http://www.un.org/Docs/sc/committees/1267/1267ListEng.htm>. This provision must be included in all sub-contracts or sub-agreements entered into under this Project Document.

## ANNEX 1: RISK ANALYSIS

**Risk Analysis.** Use the standard UNDP Atlas [Risk Log template](#). For UNDP GEF projects in particular, please outline the risk management measures including improving resilience to climate change that the project proposes to undertake

Risk	Rating	Management Strategy
Proposed enabling legal and institutional framework is not modified/adopted or adoption is not timely.	Moderate	The project is led by the government agencies responsible for setting up environmental policies in Armenia; the local ownership of the project is high. The Government of Armenia has initiated the reform of its environmental policies. Inevitably, the fundamental changes to the roles of the state under a reformed land management and forest management system will be difficult unless there is clear political understanding of the need for these changes, and a full commitment to making this. To some extent this understanding and commitment have already been built. This will be further strengthened in making the economic case for SFM/SLM and biodiversity conservation and showcasing its value in NE Armenia. In order to further mitigate this risk, UNDP will maintain a watching brief over commitment and work with national and regional authorities to expedite legal and policy reforms.
Conflicts and misunderstandings among public institutions, private sector partners, NGOs and resource users undermine partnership approaches and implementation of cooperative governance arrangements	Moderate	Clearly, the establishment of new pasture, forestry and biodiversity user rights will inevitably cause some initial misunderstandings and potential disagreements. Communities and individual land users lack experience of collaboration with each other. The project is designed with the view to mitigate this risk through a participatory approach to SFM and SLM, a strong focus on local capacity building and awareness raising. The project will help developing incentives for land users exercising sustainable and climate resilient forest and land management. Where possible, formal agreements/MoUs will be used to define roles and responsibilities. Training will be provided to stakeholders on governance and conflict resolution. Activities will be designed and implemented in a win-win manner, beneficial to all, as far as possible. The sustainable development of the landscape will be emphasized with arguments that are supported with long-term economic forecasts.
Land owners/users float planning regulations leading to multiplication of illegal logging and overgrazing	High	Establishment of landscape level forest management for a and landscape level management planning through mapping and inventory, supported by participatory processes, as well as robust implementation of monitoring mechanisms for biodiversity and ecosystem resilience will work towards minimizing the risk. A dialogue with the forestry industry and farmers will be undertaken as part of the process of regional integrated sustainable forest and land management planning – to address concerns, so as to improve compliance.
Low buy-in from communities to the Livelihood Support Scheme	Moderate	The experience of UNDP-GEF projects in the region pointed that the way to mitigate this risk lies in professional reach out and marketing of the incentives [product, as well as with careful selection of the host institution, and negotiations on scheme management and communication with residents. This is why, in addition to triggering the capitalization, the incremental value of the GEF rests with support to the deployment of the scheme through providing: (i) initial establishment of the mechanism, (ii)

		<p>assistance in the marketing of the scheme to local communities, (iii) assistance to villagers in feasibility assessments and application process; (vi) guidance on implementation of specific activities. Focusing GEF resources incrementally on mitigating the risk of non-marketing of the incentive products, has shown to play a critical role in defining the success of the similar schemes in the region: in Croatia COAST project, where the UNDP-GEF project has set a model of integrating green business budget lines into municipal credit schemes; in Russia Komi and Kamtchatka projects, where UNDP-GEF projects set up financial partnerships to support green businesses, and more recently, in the UNDP-GEF Kazakhstan wetlands project which supported local residents in alternative livelihoods at steppe and wetland ecosystems. A detailed feasibility analysis for the livelihood support scheme will be confirmed early in project implementation.</p>
<p>Increased negative attitude of the local community towards forest management due to enforcement of restrictions of access to and subsistence collection of firewood</p>	High	<p>The risk will be mitigated by employing a participatory planning approach in developing/revising Integrated Forest Management Plans. As these plans will be participatory developed and the local communities will be very much involved and as much as possible incorporated in the actual management of the forest enterprise branches, it is believed a sense of ownership will also be installed and at the overall community level a system of self-enforcement will also be established. The project will further employ a ‘carrot’ approach - in order to relieve pressures from local communities on forests resources, areas within the Forest Enterprise Branches will be identified during the FMP development stage for community forestry management and Hayantar and the CBOs will enter into legal agreements, providing strong financial incentives to the community through agreed wood harvesting. Further, the system for allocating permits for logging and/tickets for sanitary felling/harvesting wood in areas not co-managed within the Forest Enterprise Branches will also be made more transparent and priority will be given to community based organisations in the undertaking of such services. Also, alternative livelihoods/compensation scheme will be promoted through the field-testing of a subsidy/grant scheme. Apiculture, processing of non-wood forests products (berries, mushrooms, medicinal herbs) and community-based ecotourism ventures will be the focus. Programs that increase income of local communities from forest-friendly small-business activities is considered by national stakeholders as a viable strategy to ensure community support for conservation. However, a detailed feasibility analysis for the alternative livelihoods scheme is necessary during project implementation. It is envisaged that if the alternative livelihood scheme proves to be a feasible strategy that through these recommendations that Government will increase its investment in this sphere and that the replicating the field-tested scheme to a wider audience in the NE Armenia can be implemented.</p>
<p>Elite capture power at local levels so that the marginalized groups will have lesser authority to wield planning and</p>	Moderate	<p>Develop transparent and inclusive arrangements for power sharing with local bodies responsible for sustainable forest and land management in village. This would facilitate the participation of traditionally marginalized groups (landless, women, youth). CBOs will be strengthened and forest governance mechanisms will be improved, creating incentives for heads of CBOs to be more responsive to the</p>

generating benefits.		concerns of their members and local government authorities.
Climate change risk: pasture and forest degradation caused by CC passes the point when the consequences cannot be dealt with through adaptation measures.	Moderate	While during the lifetime of the project, the effects of climate change on the NE Armenia pastures and forests are highly unlikely to be particularly serious; over the longer term climate change is expected to take its toll on the forests. The project is addressing this risk by considering climate change aspects in the integrated land and forest use plans.

## **ANNEX 2: TERMS OF REFERENCE FOR KEY PROJECT STAFF**

The following are the indicative Terms of Reference (TORs) for the key project management staff to be recruited under the project. TORs for these positions will be further reviewed and discussed by UNDP so that roles and responsibilities and UNDP GEF reporting procedures are clearly defined and understood.

### **Project Task Leader (TL)**

The TL will be responsible for the day-to-day management of project activities and the delivery of its outputs. The TL will support and coordinate the activities of all partners, staff, and consultants as they relate to the implementation of the project. The TL will report to the UNDP Project Officer and will be responsible for the following tasks:

#### *Tasks:*

- Prepare detailed work plan and budget under the guidance of the Project Board (PB) and UNDP;
- Make recommendations for modifications to the project budget and, where relevant, submit proposals for budget revisions to the PB and UNDP;
- Facilitate project planning and decision-making sessions;
- Facilitate relevant agreements with stakeholders and the day to day liaison with them
- Organize the contracting of consultants and experts for the project, including preparing TORs for all technical assistance required, preparation of an action plan for each consultant and expert, supervising their work, and reporting to the UNDP Project Coordinator (PC);
- Provide technical guidance and oversight for all project activities;
- Oversee the progress of the project components conducted by local and international experts, consultants, and cooperating partners;
- Coordinate and oversee the preparation of all outputs of the project;
- Foster, establish, and maintain links with other related national and international programs and national projects, including information dissemination through media such as web page actualization, etc.;
- Organize PB and other meetings as well as annual and final review meetings as required by UNDP, and act as the secretary of the PB;
- Coordinate and report the work of all stakeholders under the guidance of UNDP;
- Prepare PIRs/APRs in the language required by the GEF and the UNDP's CO and attend annual review meetings;
- Ensure that all relevant information is made available in a timely fashion to UNDP regarding activities carried out nationally;



- Prepare and submit quarterly progress and financial reports to UNDP as required, following all UNDP quality management system and internal administrative process;
- Coordinate and participate in M&E exercises to appraise project success and make recommendations for modifications to the project;
- Prepare and submit technical concepts and requirements about the project requested by UNDP, or other external entities;
- Perform other duties related to the project in order to achieve its strategic objectives;
- Ensure the project utilizes best practices and experiences from similar projects;
- Ensure the project utilizes the available financial resources in an efficient and transparent manner;
- Ensure that all project activities are carried out on schedule and within budget to achieve the project outputs;
- Solve all scientific and administrative issues that might arise during the project.

*Outputs:*

- Detailed work plans indicating dates for deliverables and budget;
- Documents required by the control management system of UNDP;
- TORs and action plan of the staff and monitoring reports;
- Quarterly reports and financial reports on the consultant's activities, all stakeholders' work, and progress of the project to be presented to UNDP (in the format specified by UNDP);
- A final report that summarizes the work carried out by consultants and stakeholders during the period of the project, as well as the status of the project outputs at the end of the project;
- Minutes of meetings and/or consultation processes;
- Yearly PIRs/APRs;
- Adaptive management of project.

*Qualifications (indicative):*

- A graduate academic degree in natural sciences;
- Minimum 5 years of experience in project management;
- Experience on abs legislation, natural product development, research and development, knowledge on the institutional framework on abs and related issues.
- Experience facilitating consultative processes, preferably in the field of natural resource management;
- Proven ability to promote cooperation between and negotiate with a range of stakeholders, and to organize and coordinate multi-disciplinary teams;
- Strong leadership and team-building skills;

- Self-motivated and ability to work under the pressure;
- Demonstrable ability to organize, facilitate, and mediate technical teams to achieve stated project objectives;
- Familiarity with logical frameworks and strategic planning;
- Strong computer skills;
- Flexible and willing to travel as required;
- Excellent communication and writing skills in Russian and English;
- Previous experience working with a GEF-supported project is considered an asset.

### **Project Assistant (PA)**

This Project Assistant Position is responsible for Administrative support with the following duties:

- Provide assistance in the operational management of the project according to the project document and the NEX procedures.
- Provide support in preparing project events, including workshops, meetings (monthly, quarterly and annual), study tours, trainings, etc., as required.
- Take care of project telephone, fax, and email system;
- Assist with preparation of TORs and contracts for consultants for project activities.
- Prepare quarterly advance requests to get advance funds from UNDP in the format applicable.
- Support to organize meetings, workshops/training as required in the project quarter work plan, as per requested by the project coordinator/manager.
- Provide translation to maintain working flow among national and international consultants;
- Keep track of project documents and regularly report to PIU.
- Other tasks as requested by the PIU

### *Qualifications and Skills*

- University degree in accounting, finance or related fields;
- Solid experience of budgeting, planning and reporting on foreign funded project.
- Knowledge in administrative and accounting procedures of the Government
- Good computer skills in common word processing (MS Word), spreadsheet (MS Excel), and accounting software.
- Appropriate English and Russian language skills, both spoken and written.

### ANNEX 3: Stakeholder Involvement Plan

The project included a wide range of consultations during the PPG stage. Initial stakeholder analysis during the PIF stage was followed up with consultation during the PPG stage of the project in terms of the design and expectation of the project. During the PPG stage, this stakeholder analysis was updated and elaborated following consultations undertaken by the national consultants addressing both institutional stakeholders in the context of their statutory involvement in the project, and more broadly for non-governmental stakeholders including forest dependent communities in the two marzes in NE Armenia. Two major workshops were held during project preparation, namely: (i) Inception workshop on October 2014, and (ii) Draft Project Document Stakeholder Consultation Workshop in March 2015. Additionally, a formal stakeholder analysis was undertaken by the national consultant team and documented as part of the project.

The formulation of the stakeholder participation plan has the following objectives: (a) to clearly identify the basic roles and responsibilities of the main participants in this project in relation to the project, including in Outcome 2 for the testing of sustainable forest management activities on-the-ground; and (b) to ensure full knowledge of those involved concerning the progress and obstacles in project development and to take advantage of the experience and skills of the participants to enhance project activities. The ultimate purpose of the stakeholder participation plan will be the long-term sustainability of the project achievements, based on transparency and the effective participation of the key stakeholders.

The stakeholders participation will be secured by using the following mechanisms: a) regular meetings and conference calls will be scheduled and organized (on a monthly basis for instance, etc.) to communicate and disseminate project progress or identify difficulties in achieving the development outcomes and milestones; b) face to face meetings will be also organized (e.g. each quarter or bi-annually) with the different stakeholders with the aim of discussing forest planning and development progress, steps taken and future corrective actions needed for the full achievement of the project objectives; c) exchange of reports (written and oral) will be established to inform all the stakeholders adequately about project implementation; and d) the contractual arrangement to be negotiated with the private companies involved in this project will also set coordination mechanisms. These mechanisms will promote and ensure that all the relevant shareholders receive and share information and provide technical advice on the project implementation.

A description of the roles of key stakeholders is presented in the following table:

Stakeholders	Roles and Responsibilities	Potential Role in the Project
<b>Ministry of Nature protection</b>	The MNP has overall legal and regulatory authority for natural resource management and environmental	MNP will serve as a major implementing partner for the project. Co-chair the project management board

<p><b>(MNP), including:</b></p> <ul style="list-style-type: none"> <li>- Bio-resources Management agency;</li> <li>-State environmental Inspectorate;</li> <li>-Dilijan national park&gt;&gt; SNCO;</li> <li>-Environmental project Implementation Unit” state entity</li> </ul>	<p>protection in the country.</p> <p>MNP has oversight for scientific research, conservation, reproduction and sustainable use of ecosystems as well as support development and management of policies affecting natural resources</p> <p>Management of national parks</p> <p>The Ministry is responsible for ensuring compliance with the provisions of the relevant international conventions, in particular UNFCCC, UNCBD and UNCCCD as a designated national authority.</p> <p>Provision of State Management for prevention or reduction of harmful effects on environment, including mineral resources, land, water, air, flora and fauna, including specially protected nature areas, as well as conservation of specially protected nature areas, reasonable use and</p>	<p>and advisory committee.</p> <p>Support the project management unit in facilitating negotiations and cooperation with the relevant government authorities to ensure integration of conservation and sustainable use measures into forest and land use plans.</p> <p>Support identification of HCVF areas,</p> <p>Development of relevant monitoring protocol and guidelines for mainstreaming ecosystem services, biodiversity and climate change aspects in forest and local development planning.</p> <p>Provide technical support and guidance for elaboration and consideration of monitoring mechanism in protected areas, as well as forest management and operational work plans.</p> <p>Facilitate coordination with other internationally funded programs and initiatives related to the subject and will actively participate in the monitoring of project implementation.</p>
<p><b>Ministry of Agriculture, including:</b></p> <ul style="list-style-type: none"> <li>-Hayantar SNCO,</li> <li>- State Forest Monitoring Centre, SNCO</li> <li>-State Forestry Monitoring Council</li> </ul>	<p>Design and implementation of programs in forest conservation, protection, reproduction, as well as efficient use of forest resources</p> <p>Design and implementation of monitoring programs in compliance with legislation aimed at increase in productivity and reclamation of agricultural land use</p> <p>Hayantar SNCO is responsible for implementation of the state programs for conservation, reproduction and use</p> <p>The State Monitoring Centre is responsible for research for purpose of prevention of illegal logging, wood transportation and other negative activities on forests</p> <p>The State Forest Monitoring Council responsibilities are prevention of illegal forestry activities, coordination of activities amongst state bodies engaged in control of illegal activities, etc.</p>	<p>MOA will be the primary beneficiary of the project based on the mandate in addressing state policy in agriculture and forestry and exercises control over the forest management and use of agricultural lands.</p> <p>MOA will co-chair the project management board.</p> <p>The project beneficiary role will also rest with “Hayantar” SNCO that will act as a main proponent for regulating field level activities, developing SFMs, monitoring system, maintaining information database, etc.</p> <p>MOA and Hayantar will be directly involved in forest and land use integrated planning process, developing and approval of monitoring protocols and guidelines for multi-functional zoning, setup of HCVF, including delineation of protected areas.</p> <p>MOA will provide technical and financial input into pasture rehabilitation and management, as well as forest protection and rehabilitation activities.</p>

		<p>MOA (through Hayantar and Forest Enterprise Branch Offices) It will be involved in the implementation of forest management plans and community-based forest monitoring program, including public awareness raising and capacity building activities.</p> <p>State Forest Monitoring Center will ensure maintenance of updated GIS based forest inventory database, will conduct Performance Monitoring and will be involved in the improvement of the overall monitoring and information management system and capacity building programmes.</p> <p>MOA will help coordinate with other internationally funded programs and initiatives related to the project.</p>
<p><b>Ministry of Territorial Administration and Emergency</b></p>	<p>Elaboration and application of provisions of territorial administration policy, laws, programs and plans, socio-economic development of territorial administration and local self-government bodies, secure and safe use of state-owned water infrastructures, elaboration and implementation of investment procedures for water infrastructure policy. This ministry provides preventive measures for the protection of the population in case of emergency situations. Improvement of the efficiency of the territorial administration bodies and ensuring the links between the state and local self-governance bodies is among major tasks.</p>	<p>Member of the project advisory board.</p> <p>Provide operational direction and coordination of overall territorial planning and development processes.</p> <p>P support in multi-functional zoning and mapping exercises, and support in community mobilization activities.</p> <p>Facilitate coordination with other agencies working in regional and local development areas and ensures project coordination between national, regional and local levels.</p>
<p><b>Ministry of Urban Development</b></p>	<p>The goals and tasks are to be implemented though, but not limited to the following functions:</p> <ul style="list-style-type: none"> <li>- Elaboration of the main provisions of the state policy on urban development and the territorial development programmes and monitor the implementation thereof;</li> <li>- Coordination of the drafting of layouts and zoning projects of communities, elaborate the strategy on the sustainable urban development of territories and</li> </ul>	<p>Member of the project advisory board</p> <p>Involved in the activities related to the development of integrated forest and community development plans.</p> <p>Guide and support development/update and approval of norms, standards and guidelines related to multi-functional zoning,</p> <p>Participate in design of community development plans and clarifications of inconsistencies in maps.</p>

	<p>residential areas;</p> <p>Supporting spatial planning and overseeing Master plans development processes, including for communities. Establishing the principle of "green urban development", ensuring the harmonious, mutually complementary development of natural and cultural landscapes.</p>	
<p><b>State Committee of Real Estate Cadastre</b> adjacent to the government of the Republic of Armenia</p>	<p>Development of the balance of the land surface of the Republic of Armenia according to the regulations;</p> <p>Development of the real estate cadastre and topographic maps, formation of digital cadastral and topographic mapping; Development and implementation of the targeted geodesic and cartographic programs.</p> <p>Within its jurisdiction development of the principles of land relationships, land policy and land resources management, in terms of land rights and land market formation.</p> <p>Within its jurisdiction support to development of targeted land construction and lands consolidation programs;</p> <p>Development and implementation of the targeted geodesic and cartographic programs.</p>	<p>The committee will be a member of the project advisory board within its competence in formulation land policy and land management principles, supervision of land use, preparation of land balance of the RA.</p> <p>Support project in clarification of cadastral and topographic maps, including digital ones, to avoid inconsistencies in land distribution between state forest and adjacent communities.</p>
<p><b>Marz administration</b> (nature resource and agricultural units, program development units, land management units)</p>	<p>Responsible for state policy elaboration and implementation in marzes, including implementation of the state programs on nature protection, development of the projects of state programs on nature and environment protection;</p> <p>Ensuring compliance and enforcement of the environmental legislation at the territory of the marz. Responsible for implementation of the studies and surveys of the situation with forests protection, safeguard and usage in the marz, analysis of the results of the aforementioned studies and provision of corresponding recommendations. Coordinate community development</p>	<p>Representatives from the regional administration will be involved into the project advisory board.</p> <p>Two regional administrations will be involved in development of forest management and community development plans and will support the alignment of those plans at different sectors of government.</p> <p>Support PMU in coordination of community involvement, participatory and awareness campaigns, as well as participate in field inventory and mapping for clarification of land distribution schemes.</p> <p>Involve in design and selection of communities for livelihood development</p>

	programmes and budget allocations.	activities.
<b>Local self-government (including forest dependent communities)</b>	<p>LSGs participate in state policy formulation, drafting state program in land and forestry sectors at local level.</p> <p>The Activity of the Chief of a Community in the Sphere of Urban Development and Land Use related to compilation of the draft of master plan, as well as the community lands zoning and use schemes, which upon agreeing with the respective authorized state body through the Regional Governor, shall submit to the Community Council for approval;</p> <p>The Community Carry out land balance of the community in accordance with the established procedures, manages pasture and hayfield have rights to dispose of, manage and use its lands in accordance with the order defined by the legislation.</p> <p>Supporting national authorities in implementation of environmental plan and policies, incusing compliance enforcement. Cooperate with local braches and territorial unit of state ministries.</p>	<p>Key project stakeholder with executive authority for regulating and administering community land resources.</p> <p>Will be main partner in the development, approval and implementation of community development plans as well as forest management and, partially, monitoring activities.</p> <p>Will be main partner in the development, approval and implementation of community development plans as well as forest management and, partially, monitoring activities.</p> <p>Communities will be directly involved into mapping and site inventory activities, and will approve new territorial maps and plans.</p> <p>Will be engaged in strategy development to improve fire wood and NTFP collection and use, in consultation during the forest inventory, mapping and management plan preparation process</p> <p>Will take lead and be a major proponent for alternative livelihood development projects and pasture rehabilitation activities,</p> <p>Will be engaged in strategy development to improve fire wood and NTFP collection and use.</p> <p>Community administration will support project activities through enabling interaction with land users, different resource association and cooperatives, ordinary farmers and other local stakeholders.</p> <p>Will provide technical and logistical support to project activities at local level.</p> <p>The LSG will coordinate with other internationally funded programs and initiatives related to the project at local level.</p>
<b>CSOs (including NGOs, media, private companies),</b>	<p>Organizations, on their own initiative or on the initiative of the state or the local self-governance bodies, may fully implement or participate in the social, healthcare, educational, teaching,</p>	<p>Important stakeholders will be involved in forest planning, management and sustainable land and ecosystem protection program.</p> <p>Sector experienced CSOs representatives</p>

	<p>cultural, sport and other socially significant programs and actions of the state or the local self-governance bodies by concluding written contracts or other agreements of mutual understanding.</p>	<p>will be member of the project advisory board.</p> <p>Will be involved in information dissemination and awareness campaigns, public monitoring.</p> <p>Will provide knowledge-driven advice, support the development of community development plans, and design of alternative income-generation activities.</p>
<b>WWF Armenia</b>	<p>Developing and strengthening protected areas (PAs) of Armenia (reserves, national parks, sanctuaries, etc.)</p> <p>Ensuring conservation of threatened species, conservation and restoration of ecosystems as a whole</p> <p>Supporting environmental awareness and education.</p> <p>Proceeding with research and analysis, inventory and monitoring of biodiversity, landscape management.</p> <p>Introduction of economic mechanisms for alternative livelihood for local communities in order to promote sustainable use of natural resources and to protect biodiversity is among priorities in their mandate.</p>	<p>Key partner for the project and member of the project advisory board.</p> <p>Will provide financial input into optimisation of three forest sanctuaries in Tavush region, including mapping and clarification of boundaries, development and implementation of management plans.</p> <p>Will support PMU and state authorities in identification and developing national toolkit on HCVF, as well as support with methodology for bio-resources inventory and monitoring.</p> <p>WWF will be involved into preparation and implementation of alternative income-generation activities in communities.</p>
<b>Caucasus Nature Fund</b>	<p>Inter-governmental foundation providing long-term support and management assistance for the protected areas of Caucasus.</p> <p>CNF seeks to conserve the unique flora, fauna and ecosystems of the Caucasus for future generations while at the same time improving the lives of local people today.</p>	<p>Key partner to ensure operationalization and financial sustainability of HCVF areas.</p> <p>Will support preparation of Dilijan management and operational plans.</p> <p>Will provide technical guidance on developing MFZ and integrated FM plans, as well as support in preparation of tourism development plan.</p>

The MNP will serve as a major implementing partner for the project, MOA will be the primary beneficiary of the project based on the mandate in addressing state policy in agriculture and forestry and exercises control over the forest management and use of agricultural lands.

## *2. Approach to stakeholder participation*

The approach to be employed by the project for involvement and participation of stakeholders during project implementation is premised on the principles of ensuring inclusiveness of all relevant stakeholders, transparency, and fair access to information and results, accountability on the part of the government agencies and all stakeholders, fairness in treatment of all stakeholders,



accessibility and access to information, flexibility in design and implementation, good coordination, ensure management of the project in terms of public interest, developed on the basis of needs of all stakeholders, providing options for redress of grievances, and value addition of the project.

#### *4. Stakeholder Involvement Plan*

The project's design incorporates several arrangements to ensure effective stakeholder consultation and participation in the implementation of the project. The mechanisms for facilitating involvement and active participation of different stakeholders in project implementation and monitoring is presented in the text that follows:

(i) Project inception workshop to enable stakeholder awareness of the start of project implementation

Project implementation will be initiated or launched by a multi-stakeholder workshop. This workshop, that will be held, within the first three month of project effectiveness, will provide an opportunity to provide all stakeholders with the most updated information (objectives, components, activities, roles and responsibilities of stakeholders, financial information, timing of activities and expected outcomes) on the project and the project work plan. It will also establish a basis for further consultation as the project's implementation commences.

The inception workshop will address a number of key issues including: assisting all partners to fully understand and take ownership of the project; detail the roles, support services and complementary responsibilities of the MNP and MOA, and their respective agencies, Marz and local administration, NGOs and local communities in terms of implementation of sustainable forest and land planning and management; and discussion of the roles, functions, and responsibilities within the project structure, including reporting and communication lines, monitoring and conflict resolution mechanisms.

ii) Constitution of Project Advisory Committee to ensure representation of all stakeholder in the project

An Projecty Advisory Committee will be constituted to ensure broad representation of all key interests throughout the project's implementation. The representation, and broad terms of reference, of the Advisory Committee are further described in Section II, Part 5 (Management Arrangements) of the Project Document. The Project Advisory Committee will be established to provide technical and operational guidance for project implementation policy ensuring the project's consistency and synergy with the other ongoing development processes in the country. In addition to Ministries of Nature Protection (MNP) and Ministry of Agriculture, it would include representatives of the line ministries, such as Ministries of Territorial Administration and Emergency Situations, Finance, Health and Regional Administration of both marzes, representatives of local support groups, community organizations and non-governmental organizations.

The Advisory Committee will give guidance on the annual work-plans and project implementation and progress to ensure that the project's resources made available and the

outputs produced meet the requirement of beneficiaries and the Government. The Advisory Committee will be co-chaired by MNP and MOA and will meet annually and additional meetings can be arranged if deemed necessary.

(iii) The Project Management Unit

The Project Implementation Unit (PIU) - comprising a Project Manager (PM), Project Administrative Assistant (PAA), Human Resources specialist and other technical staff as relevant. The PIU, in collaboration with the Marz administration and Hayantar will have operational and administrative responsibility for facilitating stakeholder involvement and ensuring increased local ownership of the project and its results. The PM, PAA and other technical specialists HR specialist will be located in Yerevan to ensure coordination among key stakeholder organizations at the federal level during the project period, while some technical staff will be located in or close to the projects targeted Marz Administrative locations Districts to ensure close working relationships with operational field staff of the partner institutions and with the local stakeholders and communities.

(iv) Project communications to facilitate awareness and participation of project

The project will develop, implement and maintain a communications strategy to ensure that all stakeholders are informed on an ongoing basis about: the project's objectives; the projects activities; overall project progress; and the opportunities for involvement in various aspects of the project's implementation. This strategy will ensure the use of communication techniques and approaches that appropriate to the local contexts such as appropriate languages and other skills that enhance communication effectiveness. The project will develop and maintain a web-based platform for sharing and disseminating information on forest planning, grazing management, community forestry and management practices across the project area.

(v) Stakeholder consultation and participation in project implementation

An extensive stakeholder consultation and participation process will be developed and implemented for the following activities:

- Output 1.1 – assisting with MOA in updating of the forest management planning guidelines for mainstreaming ecosystem, climate risks and biodiversity considerations for management of forests.
- Output 1.2 – assisting Hayantar and the consortium of forest management staff to collect and validate geo-spatial forest and land-use information, including correcting of existing deficiencies in forest and land use data.
- Output 1.3 – Participating in the forest management planning process to assess needs and requirements of local communities for grazing, fuel wood, timber and minor forest

products to guide decision making on allocation of land for different uses and prescriptions in the use of the forests and land resources

- Output 1.4 – assisting the State Forest Monitoring Center in assessing the effectiveness and enforcement of forest management plans, in particular to ensure that decisions made in outputs 1.2 and 1.3 are effectively implemented on the ground, including ensuring that implementation actions are in harmony with sustainable forest management practice
- Output 1.5 – reviewing practices to assess impact of on-going programs and outcomes of forestry and land management programs, identifying underlying policy, institutional and other constraints to sustainable practice and provide recommendations for facilitating adoption of new approaches
- Output 1.6 – participating in capacity and skills development training and engagement
- Output 2.1 – assisting in the identification of existing forest areas that are suitable for conservation, assessing biodiversity values of these areas, participating in field-based species monitoring exercises, assessing habitat improvement and protection measures, etc.
- Output 2.2 – assisting Hayantar in identifying locations for forest and pasture restoration, and for multiple use management; participating in restoration and maintenance works, supporting social fencing to reduce pressure on rehabilitating areas, and in terms of multiple use areas supporting planning, forest resource enrichment, engaging in sustainable harvest and protection and monitoring of the status of these lands
- Output 2.3 – collaborating in alternative livelihood improvement programs, defining and implementing reciprocal commitments in protecting adjacent forests, monitoring state of the forests, etc.
- Output 2.4 – assisting MOA in evaluating alternatives to current practice of unsustainable use of forest resources as fire wood
- Output 2.5 – assisting MNP in plot selection, laying out sample sites, assessing carbon in forest types and monitoring.

A participatory approach will be adopted to facilitate the continued involvement of local stakeholders including the vulnerable and marginalized members of the community (including women) and institutions (such as NGOs and CSOs) in the implementation of the project activities within the targeted Administrative/Forest Districts. Wherever possible, opportunities will be created to train and engage local residents (particularly forest dependents) from proximity to the forests targeted for project intervention (e.g. sites targeted for restoration/rehabilitation of degraded forests and pasture; sites targeted for multiple use forestry, etc.

To facilitate the participation of local communities in project activities, the project will support establishment of forest protection committees, pasture development committees and forest use

communities as institutional mechanisms to improve communication, collaboration and cooperation between forest dependents, tenure holders, natural resource users and the local forest and marz administration.

(vi) Capacity building

All project activities are strategically focused on building the capacity - at the systemic, institutional and individual level - in order to ensure sustainability of initial project investments. Significant resources are directed at building the capacities of: regional and district forest management staff; local pasture and forest tenure and rights holders; regional and local professional and technical land use planners; administrative district land use planning enforcement staff; administrative district pasture extension support staff; pasture and forest users, etc. Wherever possible, the project will also seek to build the capacity of local communities (e.g. local community groups and vulnerable and marginalized segments) to enable them to actively participate in project activities. The project will, wherever possible, use the services and facilities of existing local training and skills development.

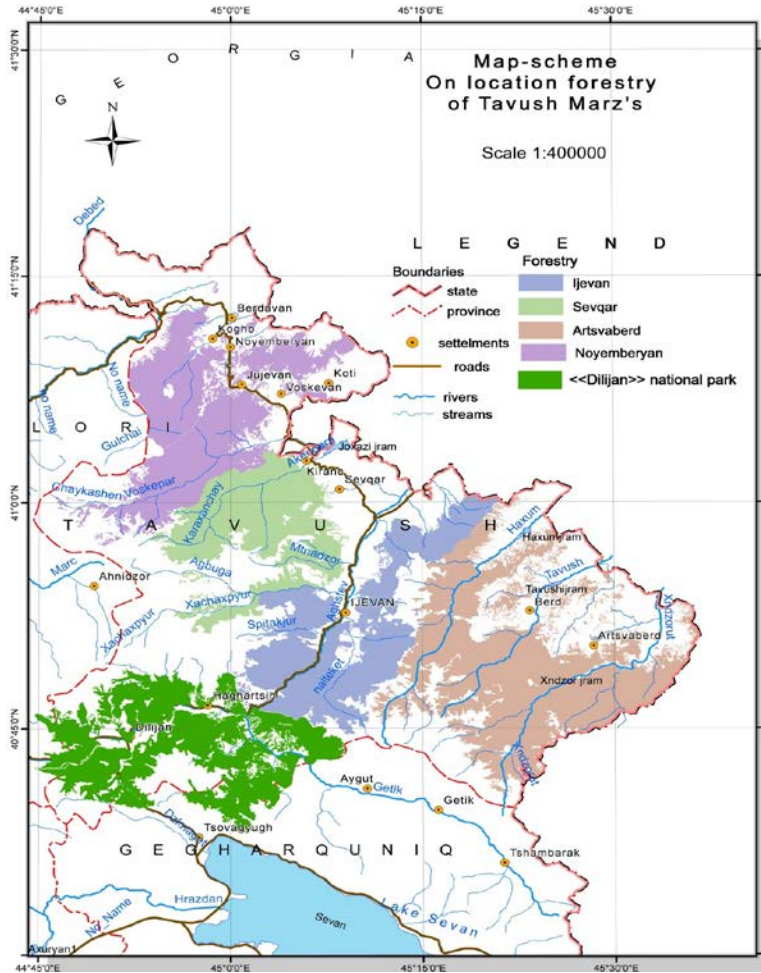
## **ANNEX 4: UNDP ENVIRONMENTAL AND SOCIAL SCREENING (SESP)**

Submitted as a separate file due to the large file size.

## ANNEX 5: PILOT DISTRICT AND SITE DATA SHEETS

The project will finance activities in six forest enterprise branches, three branches in each of the two marzes. The next section of this Annex describes characteristics of each of the six pilot forestry branches.

### TAVUSH MARZ



#### 1. Noyemberyan Forest Enterprise

The forests of the Noyemberyan forest enterprise branch are distributed at elevations between 500 and 1,850m above the sea level. Around 3.8% (or 1,015.4 hectares) of the forest-covered area is located in elevations below 800m, 46.8% (or 12,627.4 hectares) between 801-1,200m, 40.8% (11,032.3 hectares) between 1,201-1,600m and 8.6% (or 2,327.6 hectares) at altitudes higher than 1600m. The main forest-forming species of the forest enterprise are Eastern Beech stands occupying an area of 40.6% (or 10,966.3 hectares) of the forest area and having a volume of 2,572,670m<sup>3</sup> (56.1% of the total volume in the forest) and Oak stands occupying 35.5% (or 9,589.4 hectares) of the forest and having a volume of 1,361,770 m<sup>3</sup>

(29.7 % of total volume of the forest). Hornbeam stands occupy 12.7% (or 3,426.9 hectares) of the forests with a total volume of 503,540 m<sup>3</sup> (or 11% of the total volume of the forest), Oriental hornbeam stands occupy 8% (2,150.3 hectares) and having a 71,540 m<sup>3</sup> volume (or 1.6 % of the total volume of the forest) and pine stands occupy 1.3% (or 344.8 hectares) with a volume of 37,670 m<sup>3</sup> (0.8% of the total volume of the forest) respectively. The average age of forest is 99 years with a site class of III-5 and average density of 0.54 and the average volume of 170 m<sup>3</sup>/ha.

The average composition of the stands of the forest enterprise is represented by 3.4 Beech, 2.8 Oak, 2.2 Hornbeam, 0.9 Oriental hornbeam, 0.3 Ash, 0.1 Maple, 0.1 Walnut, 0.1 Lime tree, 0.1 Pine, Pear, Apple, Elm, Yew, Cherry, Chestnut, Poplar and other species.

According to the forest management plan of 2005 in the Noyemberyan forest enterprise, the planned logging of all types of wood during the 10 years of management constitutes 88,220 m<sup>3</sup> on 2,988ha area of forest at an extraction rate of 8,822 m<sup>3</sup>/year. In recent years, logging volumes prescribed for the Noyemberyan forest enterprise by “Hayantar” are almost half of the prescribed figure, which means that the planned logging volumes are not realistic and the reduction of logging volumes is defined by technical difficulties, especially related to construction of new roads, upgrading of machinery parks and realization of timber, especially construction wood.

The total area of agricultural lands within the forest enterprise amounts to 697.4 hectares, of which arable lands are only 7.7 hectares, grasslands/hayfields occupy 132 hectares and pastures around 577.7 hectares. Around 88 hectares of pasture are located on high and steep slopes where intensive grazing will contribute to activation of erosion processes.

Fourteen communities out of 18, with total population of 25,000 people (8000 households) of Noyemberyan sub-region are located within 5 km of the boundary of the forest enterprise, while 4 communities (1,000 households) are located between 15 to 25km away from forests. Although, about 70% of households are supplied with natural gas, the main source of heating for the forest adjacent communities is still firewood. The minimum firewood demand for the communities prescribed in the FMP is 39,000 m<sup>3</sup>/year. The waste wood is estimated at 31,000 m<sup>3</sup>, with only 40% of it being of recent origin of between 1-3 years (a large volume of fallen timber is scattered in the forest that cannot be removed because of difficulties of access on account of technical constraints).

Different studies show that 20- 25% of the total annual income of community residents is generated from cattle breeding, 10-15% from crop production, 15% from benefits and pensions, 15-20% through labor, 15-20% from overseas remissions (CIS countries/or seasonal migrant labor), and the income generated from the forests is only 10-15% considering high potential of non-timber products in the forest.

Noyemberyan forests are rich in fruit and berry species. The population collects nuts, cornel, pears, blackberry, and rose hip primarily for personal and household needs. According to FMP the expected harvest of fruit and berry species was estimated at about 700 tons which is sufficient to satisfy the fruit and berry demand for operating fruit processing plants.

Five communities (Koghb, Berdavan, Jujevan, Voskevan and Koti) located adjacent to the forest enterprise have been involved in the community forest management projects within the framework of the Natural Resources Management and Poverty Reduction project of the World Bank during the period from 2006 to 2009. FMPs for all 5 communities were developed within the same project. Activities aimed at evaluation of ecosystem services of forests and regeneration of 40 ha of degraded forests were implemented in Koghb and Jujevan communities by Regional Environmental Centre for the Caucasus (REC).

## **2. Ijevan Forest Enterprise**

The forests of the forest enterprise are distributed on elevations between 600 and 2000m above the sea level. Moreover, 467 hectares (2.2 %) of the total forest-covered area are located on up to 800m, 8,837 hectares between 801-1200m (or 42.2%), 9,080 hectares (43.4 %) between 1201-1600m, 6880 ha (27 %) and 2571.8 ha (12.2%) on altitude higher than 1600m.

49.8% of forests and 48.7% of the total volume of the forest enterprise forests are distributed on 21-30° slopes, 15.3% of forests and 12.2% of volume are located on slopes up to 20° and 34.9% of forests and 39.1% volume on slopes steeper than 30°. The main forest-forming species of the forest enterprise are Eastern Beech stands occupying an area of 1,024.3 hectares with 1,911,950m<sup>3</sup> total volume or 47.8% of the total forest-covered area and 63.9% of the total volume, oak stands occupying 2,904.8 hectares with 332,390 m<sup>3</sup> volume (13.9 % of forest-covered area and 14.1% of the total volume), hornbeam stands occupying an area of 4,010.4 hectares, including 3,544 hectares of seed origin, with total volume of 485,030 m<sup>3</sup> (19.5 % of the total forest-covered area and 16.2% of the total volume), oriental hornbeam stands occupying 2,639.9 hectares with 156,660 m<sup>3</sup> volume (respectively 11.3 and 3.6 %).

About 80% of forests of the forest enterprise were involved in planned and uncoordinated extensive logging during the last 25 years. Only remote and to some extent inaccessible border forest lands refrained from cuttings.

The average age of forest is 106; the average density is 0.47 evidencing about extensive uncoordinated logging in the forests of the forest enterprise thus resulting in undesirable change of species composition; the average volume per hectare is 143 cubic meters.

The average composition of the stands of the forest enterprise is represented by 4.8 beech, 2.3 hornbeam, 1.7 oak, 0.5 oriental hornbeam, 0.4 maple, 0.4 ash, 0.1 walnut, 0.1 juniper + apple, lime, elm, pine, yew and pear.

The minimum firewood demand of the 10 communities with 7,200 households located within the 5km forest zone of the forest enterprise is estimated to be 49,000 m<sup>3</sup> /6,8m<sup>3</sup> per household/, while the total waste wood is estimated at 54,000m<sup>3</sup> of which wood with preserved technical properties and suitable for use is about 25,000m<sup>3</sup> and are located in remote inaccessible areas.

The total natural waste wood of the forest enterprise is about 12,000m<sup>3</sup> while only 5,500 m<sup>3</sup> can be used.

Three protected areas under State sanctuary status are currently present within Ijevan forest enterprise, including Gandzaqar, Ijevan and Hazelnut state sanctuaries.

### **3. Artsvaber forest enterprise**

The areas of the forest enterprise are distributed on elevations between 600 and 2000m above the sea level. 235.1 ha areas are located on altitude up to 750m (0.6 % of the total area), 3,909.1 ha (9.9 %) on elevations between 751 and 1000m, 8521.3 ha (21.6 %) on elevations between 1001 and 1250m, 13,754.2 (34.9 %) ha on elevations between 1251 and 1500 m, 10,279.8 ha (26 %) on elevations between 1501 and 1750m and 2,734.5 ha (6.9 %) on elevation above 1751m. Main forest-forming species in the forest enterprise are Eastern Beech symbiosis occupying an area of 19,464.4 hectares and represents 4,279,380m<sup>3</sup> of total volume or occupies 49.3% of the total forest-covered area and 64% of the total volume, oak symbiosis occupying 11,109 hectares and representing 1,577,280 m<sup>3</sup> volume (28.1% of forest-covered area and 23.6% of the total volume), hornbeam stands occupying an area of 4,115.9 hectares, including 3,640.5 hectares of seed origin, with total volume of 595,320 m<sup>3</sup> (8.9% of the total forest-covered area and 10.4% of the total volume), oriental hornbeam stands occupying 3,600.2 hectares with 126,180 m<sup>3</sup> volume (respectively 9.1 and 1.8 %) and other remaining species occupying 1,197 hectares with 106,270 m<sup>3</sup> total volume and respectively 3% of forest-covered area and 1.6 % of the total

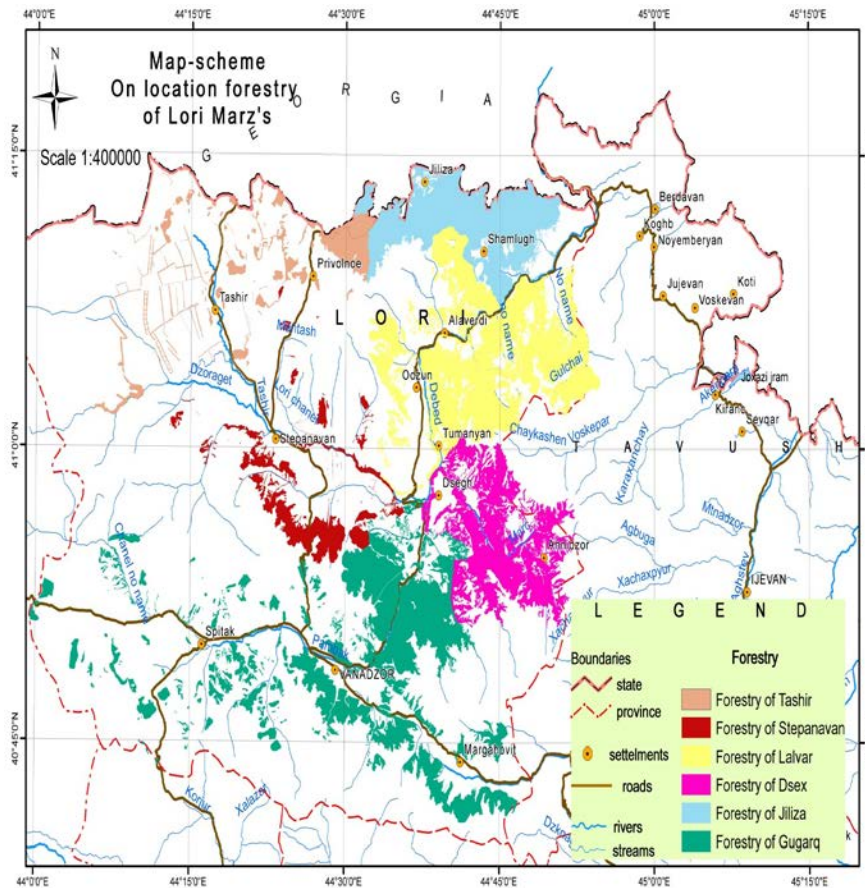


volume. The average age of forest is 99, while the average density is 0.52. The average composition of the stands of the forest enterprise is represented by 4.1 beech, 2.1 oak, 1.9 hornbeam, 0.9 oriental hornbeam, 0.4 ash, 0.4 maple, 0.1 coppice origin oak, coppice origin hornbeam+ walnut, Apple, pear, lime, pine, aspen, willow, etc.

During the last 25 years planned and irregular logging activities were conducted on about 32,000ha area which constitutes almost 70% of the forest enterprise's total area. Only remote and to some extent inaccessible border forested areas refrained from logging. Communities with a total of 8000 households of Berd region are located in close proximity to the forests of the forest enterprise and within the 5km zone. The main source of heating is firewood and minimum firewood demand is 54,000 solid m3 (at rate of 6.8m3 per household). The mentioned wood demand exceeds the planned harvesting volume four times, while the volume of the natural waste wood is 42000m3.

The mentioned timber demand exceeds estimated volumes of all types of logging prescribed by FMP about four times. Agricultural lands cover 656. Hectares, including the 5 hectares of arable land, 149, 5 grassland and 502.3 ha pastures of which about 22% are located on 21 degree and higher slopes. About 13% of pastures are land plots not exceeding 5 hectares, while 58% are 5-10ha and only 29% extend more than 10 hectares.

**LORI MARZ**



**1. Lalvar Forest enterprise**

Forests of the enterprise are distributed at altitudes between 800 and 2200m above the sea level, moreover, 833.6 hectares and 49,960m3 total volume are located at 800 m (3.4% of the total forested area and 1.3% of the volume), 6332.3 hectares and 629,420m3 total volume at 801-1200m altitudes (26% and 16.5%), 12,348.2 hectares and 2,228,640m3 of volume at 1201-1600m (50.7% and 58.4%), 4,485.6 ha and 85,2310m3 of volume at 1601-1800m (18.4% and 22.3%) and 339.8 hectares with 53,970m3 total volume

(1.4% and 1.4%) at 1801 m and above. Main forest-forming species are eastern beech communities occupying 10,924.3 hectares and representing 2,461.150 m<sup>3</sup> of total volume (about 44,8 % of the forest-covered area and 64,3% of total volume), oak stands occupying 6475 ha and representing 760,110 m<sup>3</sup> total volume (26.5% of the forest-covered area and 29.8% of the total volume), hornbeam stands occupying 3186 ha and representing 432,040 m<sup>3</sup> total volume (13.2 % of forest-covered area and 11.4 % of the total volume), oriental hornbeam stands occupying 2,255.1 hectares and representing 61,510 m<sup>3</sup> volume (respectively 9.2% and 1.6%), pine stands occupying 179.6 hectares (0.7%) and representing 11,820 m<sup>3</sup> (0.3 %). Remaining tree stands occupy 1,302 hectare and represent 101,900m<sup>3</sup> volume (5.3% of the total forest-covered area and 2.7% of the total volume, respectively).

Average age of enterprise forests is 104, average site class is 3.8, the average density is 05, average volume per hectare is 157m<sup>3</sup> and the average composition of the forest is 3.7 beech, 2.2 hornbeam, 2.0 oak, 1.0 oriental Hornbeam, and 1.0 other species.

Communities (with the total of 6,000 households) are mainly distributed within the immediate 10-km forest zone of the forest enterprise in Lalvar sub region. Source of heating for the forest adjacent communities is still firewood, whereas the minimum heating demand for firewood is about 20,000 m<sup>3</sup>:

In Lalvar sub region communities with the total of 6,000 households are mainly distributed within the immediate 10-km forest zone of the forest enterprise: Source of heating for the forest adjacent communities is still firewood, whereas the minimum heating demand for firewood is about 20,000 m<sup>3</sup>:

The mentioned wood demand exceeds the planned harvesting volume 4.5 times, while the volume of the natural waste wood is 56,000m<sup>3</sup>.

Annual average volume of natural waste-wood in the forests of the forest enterprise is approximately 10,500 thousand m<sup>3</sup> of which 4,000 m<sup>3</sup> is within the 5km zone surrounding communities, which is almost completely used by the population for heating.

Planned total volume of all kinds of cuttings on 165 hectares amounts to 3961 m<sup>3</sup> including 3460 m<sup>3</sup> consumable volume.

The area occupied by pastures is estimated to be 250 hectares (mainly on flat areas) and only 11 hectares are located on slopes higher than 25° gradient.

## **2. Dseqh forest enterprise**

Forests of the forest enterprise are distributed at altitudes between 800 and 2200m above the sea level. Total of 11.7 ha (0.01%) forests are distributed on elevations lower than 800 m above the sea level, 1,316.9 ha (9.09%) forests are situated at altitudinal range between 801 and 1200, 7152.8 ha (49.31%) at 1201-1600 m and 6023.8 ha (41.59%) at 1601 and higher. It is worth mentioning that 67.3% of forests of production significance are situated at altitudinal range between 1200 and 1600m above the sea level.

Average age of enterprise forests is 114, the average density is 0.53, average volume per hectare is 191m<sup>3</sup> and the average composition of the forest is 5.1 beech, 2.0 oak, 1.9 hornbeam, and 1.0 other species.

The total area of agricultural lands amounts to 82.2 ha, including pastures of which 45 hectares are located on slopes above 21° where intensive grazing can contribute to activation of erosion processes. Total area of hayfields is 19.2 hectares. Communities of the Dsegh forest enterprise are mostly surrounded by forests and the population is in regular contact with the forest and the main source of livelihood is livestock breeding.

Dsegh forest enterprise is characterized by most of its communities being surrounded by forests. This means that the population is in everyday contact with forests and the main source of livelihood is cattle breeding.

The communities of this forest enterprise are mainly located within 5km immediate forest zone (1,800 households at the total). The main source of heating especially for the forest adjacent communities is firewood and the minimum firewood demand is 12,000 cubic meters.

The mentioned volume of firewood demand exceeds the volume of all kinds of logging planned under forest management.

### **3. Eghegnut forest enterprise**

According to the Decree of the Minister of Agriculture Gugarq forest enterprise was restructured and Eghegnut forest enterprise with the total area of 14082ha was accordingly separated. FMP for Gugarq forest enterprise with the total area of 30,228 ha was prepared in 2007. Currently both forest enterprises work based on united documentation thus hindering SFM.

The forests of the forest enterprise are distributed on elevations between 750 and 2300m above the sea level. Moreover, 12.9 hectares (0.1 % of the total forest-covered area) are located on up to 800m, 954.5 hectares (8.1%) on 801-1200m, 5,542 hectares (46.8%)/on 1201-1600m and 5,317.4 ha (45 %) on altitudes higher than 1600m.

The total forest-covered area of the forest enterprise is 11,826.8 ha including 277.4 ha silviculture. burnt, logged or non-rehabilitated forests occupy 815 ha area while forest glades occupy 126 ha. Total non-forested areas occupy some 886 ha area, including 149.3 ha hayfields and 506 ha pastures.

Main forest-forming species are eastern beech communities occupying 5,167.3 hectares and representing 1,078,280 m<sup>3</sup> of total volume (about 43.7 % of the forest-covered area and 62.1 % of total volume), oak stands occupying 2,540.4 ha and representing 300,710 m<sup>3</sup> total volume (21.5 % of the forest-covered area and 17.3 % of the total volume), hornbeam stands occupying 3,097.4 ha and representing 252,190 m<sup>3</sup> total volume (26.2 % of forest-covered area and 14.5% of the total volume. Remaining tree stands occupy 6.8 % of the total forest-covered area and 6.1 % of the total volume, respectively).

Average age of enterprise forests is 127, the average density is 0.50, average volume per hectare is 192 m<sup>3</sup> and the average composition of the forest is 3.0 beech, 2.7 oak, 2.4 hornbeam, 0.6 maple, 0.4 pine, 0.4 lime, 0.2 ash and 0.3 other species.

Extensive unregulated logging activities implemented in 1991 and the following years in Gugarq forest enterprise adversely affected high-value and high-stem stands (beech, oak, ash, lime, pine and other species).

Natural pine stands are in poor condition which is related to irregular logging activities due to which almost 200ha was clear cut leaving the area with some alone-standing pine trees.

10 large communities are located in 5km immediate forest zone of the forest enterprise (1,000 households). The main source of heating especially for the forest adjacent communities is firewood and the minimum firewood demand is 10,000 cubic meters. The mentioned volume of firewood demand exceeds the volume of all kinds of logging planned within forest management 7 times.

Forest understory is quite rich with fruit and berry species which can be expected to be used for production purposes.

## **ANNEX 6: CARBON CALCULATIONS (USING ANNEX A FROM PIF AS A START)**

The Republic of Armenia is distinguished by a pronounced vertical zonation and continental climate where intense anthropogenic pressures, as well as changes of natural-climatic factors manifest their negative impact on the forest ecosystems and development of their vertical borders. The protective ecological features such as water, wind, snow, soil-protective features, as well as water and climate regulatory peculiarities are among the most important features of forests. However, the unsustainable management of forests and strong anthropogenic pressure observed during the last decade has resulted in the degradation of the forests. As a result of the abovementioned impacts, besides the decline of the forest areas, undesirable species changes have occurred resulting in the substitution of high-value stands (oak, pine, beech) with low-value and less-productivity hornbeam, oriental hornbeam, aspen and other stands of coppice origin<sup>18</sup>.

However, the complete and accurate data regarding these changes is absent as a result of lack of regular inventory of forests, which in turn hinders the management of GHG cadastre in the forestry sector. According to the requirements of the forest code of the Republic of Armenia<sup>19</sup>, forest stocktaking activities are to be implemented every 5 years, however, the last official inventory was carried out in 1993.

The absence of systematic mechanism of forest stock inventory has adverse consequences for forest management planning activities and understanding of the qualitative and quantitative changes taking place in the forests (particularly, regarding afforestation and reforestation of burnt stands or stands infected with pests and diseases), which are important for management of LULUCF sector in national cadastre of GHG.

### **Current practices and methodology of greenhouse gas inventory in the forestry and land-use sectors of Armenia**

Currently, only living biomass carbon stock change evaluation is carried out within the national greenhouse gas inventory, which is based on the difference between the biomass growth and loss. The aforementioned estimations are based on the average annual growth of wood (m<sup>3</sup>/ha/year) and baseline wood density (tons of dry matter/m<sup>3</sup> wet volume), as well as carbon coefficient in dry matter. Complete calculations are based on management plans of forest enterprises and SPAs and respective data regarding volumes of annual cuttings, plantation establishment, availability of waste wood, illegal logging and etc. provided by the governing bodies.

However, in order to implement a complete inventory of greenhouse gases it is necessary to account for the grass cover (aboveground and underground biomass) and dead organic matter (in

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<sup>18</sup> Matsakyan, V.G., Upper Zone rain communities of Lori marz's in Gugark region and their interaction, Biological Journal of Armenia, 2012, pages 24-29

<sup>19</sup> Republic of Armenia, Forest Code (2005)

soil and leaf litter). This results in the absence of complete data on forestry in the national greenhouse gas inventory.

In order to estimate the carbon stock in the forest, firstly it is necessary to clarify and classify the possible “pools” of carbon accumulation, and secondly choose appropriate methods for the assessment of the resources.

The following are carbon pools:

1.1 Above-ground and below-ground live biomass

1.2 Above-ground live biomass includes the living biomass of trees, shrubs and herbs above the soil including stem, stump, branches, bark, seeds and foliage.

1.3 Below-ground biomass includes the root system/2 mm diameter may be excluded as they often cannot be distinguished from soil organic matter or litter. The assessment of below-ground biomass in various forest types is carried out based on correlation ratio between below-ground and above-ground biomass for a specific country.

The accumulation of carbon is conditioned by the growth of live biomass, while the loss is due to forest logging, fires, pests and diseases that lead to substitution of live biomass with dead materials.

2. Pool of dead organic matters includes:

2.1 Pool of waste wood carbon contains coarse wood (more than 10 cm in diameter) and dead root debris, standing dead trees and dead biomass that are not included in the pools of felt and soil carbon.

2.2 Felt (scattered) includes dead mass in different stages of decomposition that is less than 10 cm in diameter. The carbon accumulation depends on the quantity of falling leaves, shoots, branches, fruit, flowers, barks and decomposition rates.

3. Carbon pools in soil are estimated to be at up to 30 cm depth including up to 2 mm live and dead roots.

It is necessary to know above-ground and below-ground biomass volumes (by species) and their correlation, baseline densities of wood, carbon volumes according to species in dry matter, masses of young stands and understory and so on to get the real picture of the carbon stock in the biomass (live and dead). According to the IPCC 2006 guideline, two methods are proposed for the estimation of annual movement of biomass, including methods of entry and loss and volume differences. The first method has practical efficiency and requires initial data/baseline, such as forest inventory and assessment results after which the annually accumulated (annual growth of biomass) and emitted (deforestation, fires and other possible losses) carbon stocks are added or deducted for any year.

In order to calculate greenhouse gas emission and accumulation "Forest economy" subsection is separated into two subcategories:

1.a. Forest lands - remaining forest lands - these lands (forests) should not have undergone land use changes for the preceding 20 years.

1.b. Lands transformed into forest lands - these lands are in transition phase and were transformed into forest lands due to land use change during 20 years that precede the reporting year.

According to the best practice guidance of the Intergovernmental Panel on Climate Change (IPCC), forestlands are all those lands covered with trees that meet the standards of forestlands within GHG national inventory.

According to the calculation given in IPCC 2006 guideline, increased efficiency is defined as the use of local coefficients in the calculation of biomass (average annual growth of wood, baseline density of wood and etc.).

Biomass growth and loss difference based carbon stock change assessment in live biomass is performed with the help of such coefficients as average annual growth of wood (m<sup>3</sup>/ha/year), baseline density of wood (tons of dry matter/ m<sup>3</sup> wet volume) and others.

**Table 1: Regional coefficients of baseline density of wood**

Type	Baseline density of wood (tons of dry matter/m <sup>3</sup> wet volume)
Pine	0.415
Juniper	0.447
Yew	0.474
Fir	0.365
Oak	0.57
Beech	0.538
Hornbeam	0.64
Ash	0.648
Maple	0.557
Elm	0.535
Lime	0.366
Birch	0.459

Plane	0.522
Walnut	0.49
Pear	0.564
Poplar	0.423
Willow	0.38
Acacia	0.65
Hackberry	0.53

**Table 2: The average annual growth of wood in the woods of the Republic of Armenia**

Dominant tree species	The average annual growth of wood (m <sup>3</sup> /ha/year)
Coniferous	
Pine	1.97
Juniper	0.19
Yew	0.48
Broadleaved	
Oak of seed origin	1.18
Oak of coppice origin	0.43
Beech	1.76
Hornbeam of seed origin	1.58
Hornbeam of coppice origin	1.09
Ash	1,4
Maple	0.99
Elm	0.9
White acacia	0.35
Birch	0.16
Lime	1.5
Asp	1.6



Poplar	2.1
Willow	0.25
Oriental hornbeam	0.87
Pear	0.37
Apple	0.9
Walnut	0.78
Plane	1.1
Almond	0.06
Poplar	0.52
Promise	0.05
Plum	0.8
Average (Armenian forests)	1.4

In the calculations, the carbon adsorption in all forests of Tavush and Lori marzes' forest enterprises and SPAs for all five carbon pools based on forest inventory, accounting and evaluation results performed in the mentioned areas during 2005-2008 have been included.

Carbon accumulation in the forests of North-Eastern Armenia (Tavush and Lori)

**Table 3: Assessment of biomass of the dominant tree species**

Type	Stand volume (thousand m <sup>3</sup> )	Baseline density of wood (t/m <sup>3</sup> )	Trunk biomass (000' tons)	Biomass growth factor	Biomass (000' tons)	Root/sprout ratio	Biomass (000' tons)
Beech	19933.54	0.538	10724.2				5416.20
Oak	7637.62	0.57	4353.44				2128.73
Hornbeam	3988.8	0.64	2552.8				1140.69
Pine	570.75	0.415	236.86				107.17
Oriental	534.0	0.63	336.42				153.31

Type	Stand volume (thousand m <sup>3</sup> )	Baseline density of wood (t/ m <sup>3</sup> )	Trunk biomass (000' tons)	Biomass growth factor	Biomass (000'. tons)	Root/ sprout ratio	Biomass (000' tons)
hornbeam							
Juniper	24.20	0.57	13.79				5.96
Poplar	15.94	0.35	5.58				2.54
Lime	53.95	0.366	19,75				30.00
Ash	244.86	0.648	158.66				66.26
Maple	189.34	0.557	105.46				45.70
other species	585.4	0.45	263.43				67.74
Total in 2006	33778.0		18970.39	1.4	26558.55	0.23	6108.46
Dry and dead wood biomass	1200	0.49	588.0				588.0

**Table 4. Calculation of carbon accumulated in live and dead biomass**

Category	Biomass volume (000' tons)	IPCC coefficient	Carbon content (000' tons)
Above-ground biomass	26,558.55	0.48	12,748.1
Below-ground biomass	6,108.46	0.47	2,870.97
Dry and fallen wood biomass	588.0	0.46	270.48

**Table 5: Calculation of carbon accumulation in soils (thousand tons)**

Area (000' ha)	Carbon accumulation/ ha/ton	Carbon accumulation (000' tons)
238	38	9,044
238		9,044

**Table 6: Calculation of carbon content in the litter (thousand tons)**

Forest-covered area (000' Ha)	Carbon content in the forest litter ha/tons/litter thickness 10cm	Carbon accumulation (000' Tons)
215	28.2	6,063

**Table 7: Calculation of the total carbon content in forests (2006)**

<i>Category</i>	Carbon content (000' tons)
Carbon content in the above-ground biomass	12,748.1
Carbon content in the below-ground biomass	2,870.97
Total in the live biomass	15,619.07
Carbon content in dry and fallen wood	270.48
Carbon content in litter	6,063.0
Carbon content in dead biomass	6,333.48
Carbon content in soils (in 30cm depth)	9,044.0
Total carbon content	30,996.45

### **Project Interventions and Avoided Deforestation**

According to the results of assessment of the Economic and Social Impact of Unsustainable Forest Practices and Illegal Logging on Rural Population of Armenia/FLEG-1, ICARE, 2010, the total firewood consumption of 71,000 households in settlements of Tavush and Lori marzes within 10km distance from forest amounts to approximately 383,000 m<sup>3</sup> (calculated at the rate of 5.5 m<sup>3</sup> per household).

The number of households living within 10kms from the boundary of the 85,000 ha HCV forests is approximately 26,000. It is assumed that these households acquire about half of the fuel-wood from the HCV area and the other half form other adjacent forests. Based on this assumption, it is calculated that 70,000 m<sup>3</sup> of the firewood requirements of the 26,000 households will be obtained from the HCV area. The average annual exported volume of waste wood from the

marzes is about 33,000m<sup>3</sup>, including 14,000m<sup>3</sup> from HCV forests (2012-14 reports of “Dilijan” NP).

The establishment of HVC forests will change regime from economic use to protection and this will reduce timber withdrawal at the area that is conservatively estimated at 56,000m<sup>3</sup> of wet timber.

The total volume of HCV forests is approximately 12.5 million m<sup>3</sup>, of which 59% is represented by predominating beech stands, 2.3% oak stands, 11.5% hornbeam stands and only 6.5% by other species in total. Based on these figures, the yields are estimated at 33,000m<sup>3</sup> for beech, 12,900m<sup>3</sup> from oak and 10,100m<sup>3</sup> from hornbeam, making a total of 56,000m<sup>3</sup>.

In order to calculate carbon dioxide changes in the living biomass regional conversion coefficients revised according to species were applied yielding in 55,911 tons of avoided emissions per annum and 559,110 metric tons during the 10-year period of the project.

#### Calculation method

A. Beech: 0.538 dry mass/wet timber m<sup>3</sup> X 0.4902 carbon content = 0.264tons of carbon/m<sup>3</sup>.

When converted to 0.264 X 44/12=0.968 tCO<sub>2</sub>/m<sup>3</sup> of collected biomass.

For 33,000m<sup>3</sup>, the calculation is 33,000 X 0.968 = 31,944 tCO<sub>2</sub>.

B. Oak: 0.570 dry mass/wet timber m<sup>3</sup> X 0.5016 = 0.286 X 44/12 =1.048 X 12900 =13,519 tCO<sub>2</sub>

C: Hornbeam: 0.640 dry matter/wet timber m<sup>3</sup> X 0.5060 = 0.323 X 44/12 =1.184 X 3600= 4,262 tCO<sub>2</sub>

D. Other species: 0.530 dry matter/wet timber m<sup>3</sup> X 0.4900 = 0.259 X 44/12 = 0.949 X 6500 = 6,186 tCO<sub>2</sub>

A total of 559,110 metric tons of avoided carbon is estimated during a 10-year period.

### **Project Interventions from Carbon stock sequestration/restoration**

The project proposes to support the assisted natural regeneration activities at 4,932 ha of degraded forest land within the six forest enterprises in Tavush and Lori Marzes - three in each marz

.

The proposed restoration activities will include the following:

1. Fencing of forested areas to prevent cattle access and other possible violations - 52,000 lm in total, which will ensure the protection of 4,932 ha of forests (discussed below);
2. Regeneration of massively logged beech, oak-hornbeam stands, to ensure normal coppice growth and additional growth of springs at 120 ha. Only 2-3 straight and well developed shoots should be left on stumps;

3. Measures directed to support natural growth and soil amelioration, preparation of platforms of 1m to 1m for partial sowing of seeds, and maintenance at 4932 ha.

These forest regeneration activities will cover a total area of 4,932 ha.

Taking into consideration the nature of envisaged rehabilitation measures in the areas - planned to be covered by these activities the annual growth of above-surface dry biomass will approximately constitute 1.15t/ha or 0.552ha/t carbon per year (IPCC conversion factor to extract carbon from dry matter is 0.46). The respective sprout/root ratio is to constitute 0.23 (IPCC Table 4.4).

The growth of carbon per hectare will be  $0.552 + 0552 \times 0.23 = 0.679$  metric tons/ha, or 2.49 metric tons of carbon dioxide equivalent (tCO<sub>2</sub>-eq) per hectare, if converted to carbon dioxide -  $0.679 \times 44 / 12$ .

Thus according to the calculations the annual benefit of carbon sequestration in account of assisted natural regeneration of 4,932ha of forests will constitute:

$2.49 \times 4,932 = 12,280$  metric tons of carbon dioxide per year or 122,800 metric tons of carbon dioxide equivalent on account of 10 years of sequestration.

**ANNEX 7: TRACKING TOOLS**

**LAND DEGRADATION TRACKING TOOL (LD-PMAT)**

**CLIMATE CHANGE MITIGATION TRACKING TOOL**

**SFM/ REDD TRACKING TOOL**

**BIODIVERSITY TRACKING TOOL**

\*\*\*All tracking tools have been submitted as a separate file due to the large file size.

## ANNEX 8: INCREMENTAL COST MATRIX

This Project aims to enhance sustainable land and forest management in north-east Armenia to secure the continued flow of multiple ecosystem benefits. The project's incremental value lies in demonstrating that forest management plans can be made sustainable through adding layers of ecosystem and environmental services so as to generate development and environmental benefits, such as biodiversity conservation, water conservation, climate mitigation and carbon sequestration, land slide control, and community use and benefit generation.

**Baseline trends:** The Government of Armenia has identified that a paradigm shift from unsustainable to sustainable forest management is necessary to reverse deforestation and over-exploitation of forest resources in north-east Armenia. This paradigm shift requires a better understanding of the functions and values of the forests and the recognition of the multiple services and benefits that forest could provide to local and regional development. There are a limited number of on-going programs that are aimed and addressing the threats and barriers that constraint the implementation of a more sustainable approach to forest resource management. These measures are being implemented at various levels at the national, marz and local level that could serve as a foundation for the GEF alternative. However, under the existing scenario, these programs are few and not sufficiently coordinated to engineer a shift to a more integrated planning and targeted approach towards a sustainable management of land and forest resources. Efforts to date have been inadequate to remove the existing barriers to the introduction of an effective forest and land management that will contribute towards biodiversity conservation and encourage sustainable use of forests and biological resources, therefore the threats of ecosystem degradation, deforestation and land conversion remain, forgoing the opportunity of deriving future ecosystem benefit options.

**Without GEF investment in the proposed project,** the incorporation of sustainable forest and land management objectives and safeguards in the forest management planning, forest land allocation and compliance monitoring at the local level and implementation of integrated forest management plans would take considerably longer, and it would be more difficult to maximize the array of full and essential ecosystem services that the forests are capable of providing. It would be more difficult to convince upstream decision-makers that the sustainable land and forest management policy and regulations are required, and to put in place appropriate institutional mechanisms for their implementation. The lack of technical expertise towards the development of integrated forest, land and ecosystem planning and regulations will affect the completion and quality of forest management, and supporting information, guidance and on-the-ground experiences and best practise materials may not be readily available. Inter-agency coordination for sustainable and integrated planning will remain weak, resulting in potential conflicts and

confusion which may adversely affect the reversal of forest destruction trends and its over-exploitation and reduce the confidence of local communities to participate in such efforts.

Lack of capacity will continue to be one of the key constraints for the introduction of a more integrated approach to forest and land management across a wide range of stakeholders and at all levels – national, local/ community and sectoral. Resources will not be adequate to support the level of capacity building needed to bring Hayantar, sector entities, local marz administration and local communities and stakeholders to implementation readiness in the short term, and local experience and information-sharing on the development of sustainable forest management plans that integrate ecosystem service and biodiversity values will remain inadequate. On-the-ground implementation of community forest and multiple use activities, grazing management, assisted natural forest regeneration and sustainable use of non-wood forest products will continue to be weak, therefore forest dependent communities in the north-east would remain at risk of not fully benefiting from the full services associated with the forests and there will be little incentive for improving the security of forest, land and biological resources at local level.

Levels of awareness among decision makers, sectoral agencies, the commercial sector and local forest dependent communities amongst others concerning the potential benefits of an effective forest and land management system will continue to remain low. At the national level, there is little understanding of sustainable forest and land management issues and the ecosystem services that can be derived through direct conservation and development of forests and biological resources.

The Government of Armenia therefore aims to ensure that all stakeholders, including the national and marz administration and local forest dependent communities stand to benefit through an integrated and sustainable management regime and the realization of the full, fair and equitable distribution of benefits from the forest estate. Efforts to date have been inadequate to remove the existing barriers to the introduction of an effective and sustainable management regime that will contribute towards biodiversity conservation and encourage sustainable use of forest biological resources, while reaping the full benefits of the ecosystem services that the forest can provide, therefore the threat of forest and ecosystem degradation remains, which may reduce future potential benefits and services from the forests. Overall, the constituency and financial resources for sustainable forest and land management will not advance beyond baseline levels.

**Global environmental benefits:** The project intervention will achieve incremental global environmental benefits by directly addressing the GEF LD-2 Focal Area objective – *Generate sustainable flows of forest ecosystem services in arid, semi-arid and sub-humid zones*, including sustainable livelihoods of forest-dependent people. The global benefits from sustainable land and forest management would include increased water availability and better stream flows, increased biodiversity intactness of forests and increased household incomes from sustainable non-timber



forest products and agro-forestry practices. GEF LD-3 Focal Area Objective – *Reduce pressure on Natural resources from competing land uses in the wider landscape* through the enhancement of decision making in the management of land and forest resources, avoiding deforestation and forest degradation by reduced grazing pressure on forests, reduced incidence of landslides and increased opportunities for community benefit sharing of forest resources. The project is aligned to the Sustainable Forest Management/REDD-plus Objective 1: *“Reduce Pressures on Forest Resources and generate Sustainable flows of Forest Ecosystem Services”* through the enhancement of the enabling environment within the forest sector and across sectors and applying good management practices in existing forests. The project is also aligned to the Biodiversity Strategy in particular to Objective Two: *“Mainstream Biodiversity Conservation and Sustainable Use into Production Landscapes/Seascapes and Sectors”* through the development of spatial land-use planning that incorporates biodiversity and ecosystem valuation. Further, the project is closely aligned to the Climate Change Mitigation Strategy Objective 5: *“Promote Conservation and Enhancement of Carbon Stocks through Sustainable Management of Land Use, and Land-use Change, and Forestry”* through the establishment of carbon stock assessment and monitoring systems. From the climate change mitigation cost-effectiveness perspective, the total investment from the climate change focal area of US\$ 265,819 (GEF) will conservatively generate total carbon benefits (emissions avoided plus carbon sequestered) amounting to 681,990 tCO<sub>2</sub>-eq over a 10-year time horizon. The unit cost of mitigation is therefore far below the cost of most of the presently known climate change mitigation approaches.

**In the Alternative scenario enabled by the GEF**, the project aims to develop and implement sustainable forest and land management objectives and safeguards in the forest management planning and forest land allocation for different uses to enhance the ecosystem and biological conservation benefits from the forest estate, build national and regional capacities and facilitate the implementation of ecosystem based forest management regimes in north-east Armenia. The project will support the revision of forest management plans at the forest enterprise level, and the development, operationalization and promulgation of the forest management rules and regulations encompassing sustainable ecosystem values and services. It will build the necessary capacity within Hayantar and the Ministry of Nature Protection and other related stakeholders for the implementation of the new framework and guidelines. The national forest management planning and monitoring protocols will be revised and operationalized. At least ten forest enterprise management plans would be revised to assign ecosystem and biodiversity values to different components of the forests based on inventory, mapping and application of ecosystem based tools and approaches, and these areas managed for their key aspects. In addition over 4,932 hectares would be supported for regeneration through assisted natural regeneration, 1, 000 hectares of pasture land improved through vegetation and garazing management and another 3,000 hectares managed for sustainable non-timber forest products and agro-forestry by local

communities along with a 30% decrease in number of livestock using forests in an unsustainable manner and a reduction of 15% of area from which firewood is collected. Intensive awareness raising and capacity building efforts will ensure that all concerned stakeholders understand the principles behind integrated and sustainable forest and land management, the requirements for its implementation, and the potential benefits that can be realized to different parties. The project will also facilitate that benefits from community multi-purpose and agro-forestry agreements will provide incentives for biodiversity conservation and galvanizing the benefits of ecosystem services from the forest estate. Through the pilot projects, the inclusion of appropriate incentives and agreements in sustainable resource use and product development processes will be demonstrated. Knowledge resources on key aspects of sustainable forest management and implementation, including best practices and lessons, will developed from the experience in the country and disseminated through publications and a national seminar. These in turn can also provide useful guidance to the ongoing regional and global processes related to sustainable forest management.

**Summary of Costs:** The Baseline associated with this project is estimated at US\$ 5,520,000. The GEF Alternative has been costed at US\$ 16,966,904. Of this amount, \$2,977,169 is solicited from GEF. GEF funds have leveraged US\$ 13,989,000 in co-financing for the Alternative strategy. Costs have been estimated for four years, the duration of the planned project Alternative. These costs are summarized below in the incremental costs matrix.

**Table 7: Incremental Cost Matrix**

<b>Cost/Benefit</b>	<b>Baseline (B)</b>	<b>Alternative (A)</b>	<b>Increment (A-B)</b>
<b>BENEFITS</b>			
<b>Global benefits</b>	Forest management planning does not account for ecosystem values, biodiversity, and carbon pool integrity, leading to continued forest degradation and loss of ecosystem functions  Narrow forest	The project aims to establish a national practice and policy and implementing regulations on mainstreaming SFM/SLM into forest management planning, and the institutional framework and supporting measures for their implementation. This national system will enable Armenia to try to retain the full ecological and environmental value of its forests.  Strategic awareness raising and	The introduction of guidelines and practices that facilitates introduction of SFM and SLM approaches, forest mapping and inventory and technical assistance and training for upgrading and improving forest management planning for multiple benefits that will towards biodiversity conservation and encourage sustainable use of globally significant genetic resources.

Cost/Benefit	Baseline (B)	Alternative (A)	Increment (A-B)
	<p>sectoral approach prevails in terms of forest land allocation and use decision making; forest planning does not incorporate SFM tools.</p> <p>National policies do not support forest land use optimization to sustain resource resilience nor they allow to operationalize the high biodiversity conservation concept</p> <p>Weak enforcement capacities to ensure compliance with ecological standards in forest land use and high level of trespasses in use of forests</p>	<p>capacity building will be conducted for target groups and to secure an operational environment in order to facilitate development of the tools, techniques and capacities to generate revenue and benefits from maintaining and enhancing the natural capital of its forest resources.</p> <p>Demonstrated development of pilot investment will exemplify practical implementation, with attention to the core sustainable ecological, ecosystem and biological combined with capacity building and awareness raising to enhance understanding of the value of biological resources and measures for their improved security among local forest dependent communities</p>	<p>Increased awareness of the existence, use and option values of global biological diversity and ecological functions among key audiences.</p> <p>Contributions towards the maintenance of globally significant biodiversity and ecosystem services through allocation and zoning of forest lands for purposes that are in line with international norms and practices</p>
<b>National and local benefits</b>	<p>Degradation of dry forests through:</p> <ul style="list-style-type: none"> <li>- Illicit felling of trees for fuel wood and timber</li> <li>- Overgrazing of forest land</li> <li>- No rehabilitation of degraded areas</li> </ul> <p>No incentive for community forest</p>	<p>The project will strengthen incentives for forest and biodiversity conservation for local communities through measures for their active participation in forest planning and management, sharing of NTFP and other forest related benefits through multi-purpose forestry activities, improving grazing management and livelihood improvement opportunities from sustainable forest resource use.</p>	<p>Greater economic benefits to the government and other stakeholders from improved management of forest and land resources enabled through the improved forest inventory and planning, thereby providing incentives for biodiversity conservation and ensuring ecosystem benefits;</p> <p>Communities that are using</p>

<b>Cost/Benefit</b>	<b>Baseline (B)</b>	<b>Alternative (A)</b>	<b>Increment (A-B)</b>
	conservation and management and for participation in sustainable NTFP use	Demonstration of integration of ecosystem and biodiversity approaches into pilot community development plans and ensuring sharing of benefits from forest resource management	forest are provided with livelihood options that result in economic benefits, thereby reducing pressures for unsustainable use of forest resources and conversion of ecosystems; and critical wildlife habitats;  National development strategies and economic growth are supported, reducing poverty and poverty-associated threats to ecosystem integrity.
<b>COSTS</b>			
<b>Outcome 1:</b> Integration of sustainable forest and land management objectives into planning and management of forest ecosystems in NE Armenia to reduce degradation and enhance ecosystem services in two marzes covering 0.65 million hectares	<b>Baseline:</b> <b>\$2,520,000</b>  <u>Breakdown:</u> (i) European Neighbourhood Partnership (FLEG) - \$0.22 m (ii) GIZ Sustainable Biodiversity Management project - \$1.0.m (iii) Ministry of Urban Development - \$0.2 m (iv) Other SCNO's - \$1.0m (v) Hayantar \$0.1 (updating FMPs)	<b>Alternative:</b> <b>\$9,214,295</b>	<b>GEF:</b> <b>\$1,177,400</b> <b>COF:</b> <b>\$ 5,516,895</b>  <b>TOTAL</b> <b>\$6,694,295</b>
<b>Outcome 2:</b> Sustainable	<b>Baseline:</b> <b>\$3,000,000</b>	<b>Alternative:</b> <b>\$12,644,839</b>	<b>GEF</b> <b>\$1,657,999</b>

Cost/Benefit	Baseline (B)	Alternative (A)	Increment (A-B)
forest management practices effectively demonstrating reduced pressure on high conservation forests and maintaining flow of ecosystem services	(i) Russian Federation Building Community Resilience - \$2 m  (ii) World Bank CARMC Project - \$1 m		<b>COF:</b> <b>\$7,772,840</b>  <b>TOTAL</b> <b>\$9,430,839</b> <hr/>
<b>Project Management</b>          <b>TOTAL COSTS</b>	<b>0</b>          <b>Baseline:</b> <b>\$5,520,000</b>	<b>Alternative</b> <b>\$841,770</b>          <b>Alternative:</b> <b>\$22,700,904</b>	<b>GEF</b> <b>\$141,770</b> <b>COF:</b> <b>\$700,000</b> <b>TOTAL</b> <b>\$841,770</b>   <b>Total Increment</b> <b>Project Cost</b> <b>\$16,966,904</b> (GEF \$2,977,169 CoF \$13,989,735)

## **ANNEX 9: LETTER OF AGREEMENT ON DIRECT PROJECT SERVICES**

1. Reference is made to consultations between officials of the Government of *Armenia* (hereinafter referred to as “the Government”) and officials of UNDP with respect to the provision of support services by the UNDP country office for nationally managed programmes and projects. UNDP and the Government hereby agree that the UNDP country office may provide such support services at the request of the Government through its institution designated in the relevant programme support document or project document, as described below.

2. The UNDP country office may provide support services for assistance with reporting requirements and direct payment. In providing such support services, the UNDP country office shall ensure that the capacity of the Government-designated institution is strengthened to enable it to carry out such activities directly. The costs incurred by the UNDP country office in providing such support services shall be recovered from the administrative budget of the office.

3. The UNDP country office may provide, at the request of the designated institution, the following support services for the activities of the programme/project:

- (a) Identification and/or recruitment of project and programme personnel;
- (b) Identification and facilitation of training activities;
- (a) Procurement of goods and services;

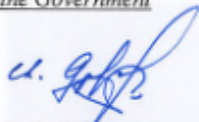
4. The procurement of goods and services and the recruitment of project and programme personnel by the UNDP country office shall be in accordance with the UNDP regulations, rules, policies and procedures. Support services described in paragraph 3 above shall be detailed in an annex to the programme support document or project document, in the form provided in the Attachment hereto. If the requirements for support services by the country office change during the life of a programme or project, the annex to the programme support document or project document is revised with the mutual agreement of the UNDP resident representative and the designated institution.

5. The relevant provisions of the SBAA between the Authorities of the Government of Armenia and the United Nations Development Programme (UNDP), signed by the Parties on 8 March 1995, including the provisions on liability and privileges and immunities, shall apply to the provision of such support services. The Government shall retain overall responsibility for the nationally managed programme or project through its designated institution. The responsibility of the UNDP country office for the provision of the support services described herein shall be limited to the provision of such support services detailed in the project document.

6. Any claim or dispute arising under or in connection with the provision of support services by the UNDP country office in accordance with this letter shall be handled pursuant to the relevant provisions of the SBAA.

7. The manner and method of cost recovery by the UNDP country office in providing the support services described in paragraph 3 above shall be specified in the annex to the project document.
8. The UNDP country office shall submit progress reports on the support services provided and shall report on the costs reimbursed in providing such services, as may be required.
9. Any modification of the present arrangements shall be effected by mutual written agreement of the parties hereto.

For the Government



Aramays Grigoryan  
Minister of Nature Protection  
of the Republic of Armenia

Signed on behalf of UNDP



Claire Medina  
UNDP Resident Representative in Armenia u.i.

Date: 20.05.2015

Date: 20.05.2015

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## DESCRIPTION OF UNDP COUNTRY OFFICE SUPPORT SERVICES

1. Reference is made to consultations between the Ministry of Nature Protection, the institution designated by the Government of Armenia and officials of UNDP with respect to the provision of support services by the UNDP country office for the nationally executed project “Mainstreaming sustainable land and forest management in dry mountain landscapes of North-Eastern part of Armenia” GEF” Project ID 00091048.

2. In accordance with the provisions of the letter of agreement signed and the project document, the UNDP country office shall provide support services for the Project as described below.

3. Support services to be provided:

	Description of services	Reimbursement amount based on the <u>Universal Price List 2015</u> used by UNDP for cost recovery with other UN Agencies (in USD)	UNIT
1	Payment Process	29.85	Per voucher
2	Credit card payment	31.80	Per transaction
3	New vendor creation in ATLAS	15.44	Per vendor
4	Payroll validation	30.91	Per person, quarterly
5	Leave monitoring	4.42	Per person, quarterly
6	IC and SC recruitment, including	180.54	Per person
6a	Advertisement	36.11	
6b	Short listing	72.22	
6c	Contract Issuance	72.22	
7	Issue IDs	29.93	Per ID
8	F10 Settlement	24.82	Per item
9	Ticket request	24.40	Per ticket
10	Hotel reservation	10.97	Per booking
11	Visa request	20.00	Per person
12	Vehicle Registration	29.13	Per item
13	Procurement process involving local CAP or RACP/ACP	416.29	Per case
13a	Identification and selection	208.14	
13b	Contracting/Issue PO	104.07	
13c	Follow-up	104.07	
14	Procurement not involving review bodies	167.81	Per case
14a	Identification and selection	83.91	
14b	Contracting/Issue PO	41.95	
14c	Contract follow-up	41.95	
15	Disposal of equipment	211.73	Per lot

4. The total amount for provided support services will not exceed 89,315 USD.



**ANNEX 10: CO-FINANCING LETTERS**

Submitted as a separate file due to the large file size.