



ADAPTATION FUND

PROJECT/PROGRAMME PROPOSAL TO THE ADAPTATION FUND

PART I: PROJECT/PROGRAMME INFORMATION

Project/Programme Category:	Regional project
Country:	Armenia and Georgia
Title of Project/Programme:	Increased climate resilience of South Caucasus mountain communities and ecosystems through wildfire risk reduction
Type of Implementing Entity:	MIE
Implementing Entity:	UNDP
Executing Entity/ies:	UNDP
Amount of Financing Requested:	\$7,475,650 (in U.S Dollars Equivalent)

Project / Programme Background and Context:

Summary

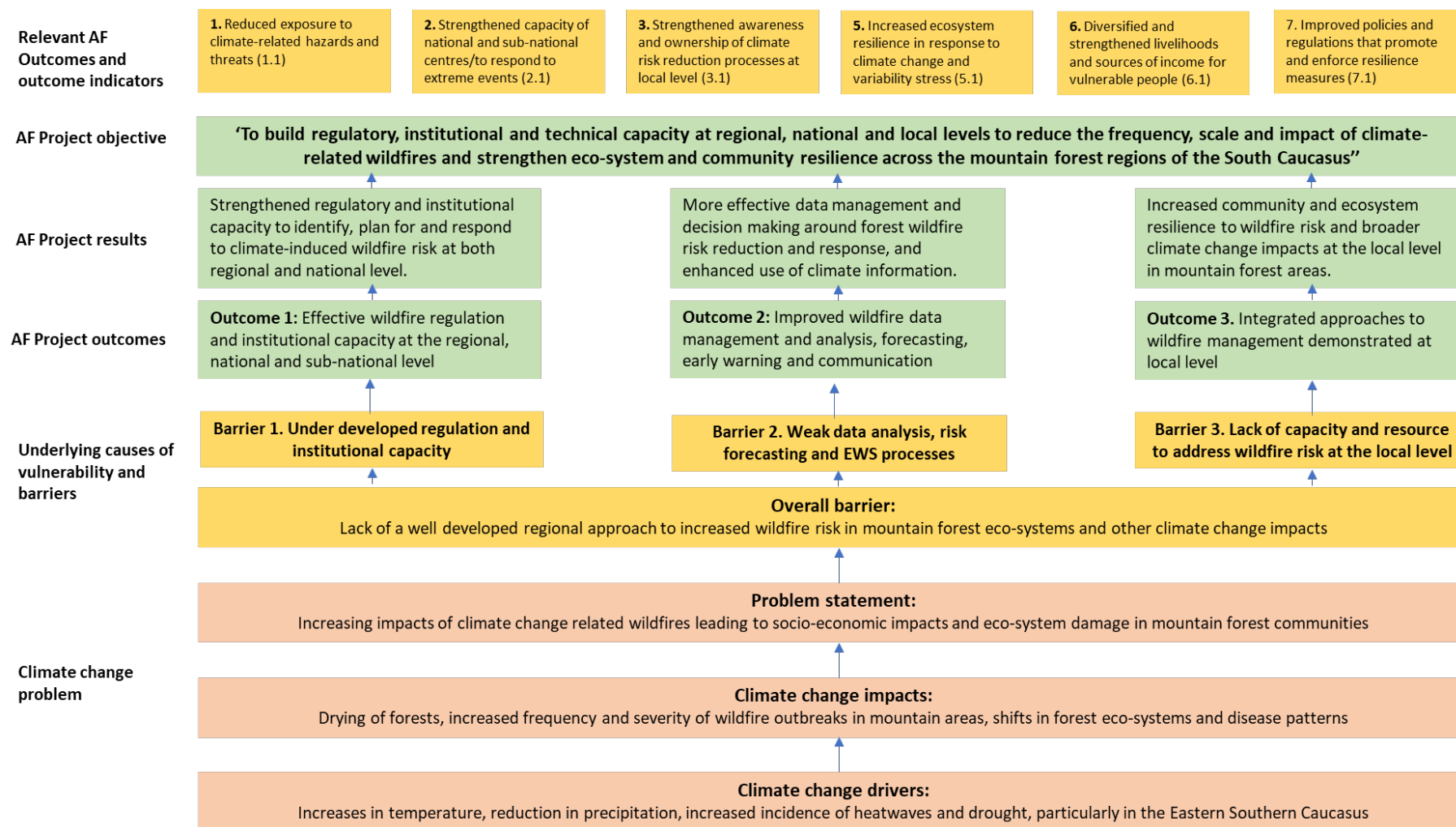
1. This project seeks to increase the resilience of mountain communities and forest ecosystems to climate-induced hazards, and in particular to the increasing risk of forest wildfire in mountainous regions of the Southern Caucasus. By doing so, the project aims to improve the safety and livelihoods of forest-dependent communities, reduce bio-diversity losses and other environmental impacts, reduce the costs associated with large scale wildfire response, loss of life and other damages, and maximise ancillary benefits associated with sustainable forest management, including the role of forests as carbon sinks.
2. The forest biome of the South Caucasus covers around 20% of the Caucasus Ecoregion. The region is listed by WWF as a global conservation priority area with extremely rich biodiversity. The project activities will be undertaken in two countries of the Southern Caucasus - Armenia and Georgia which contain a significant proportion of the forest resources.
3. Wildfires in forest mountain eco-systems in the two countries have shown an increasing trend over recent years, having historically been of less importance. While the evidence indicates that the most significant cause of these wildfires is anthropogenic (e.g. agricultural residue burning, recreational tourism), their increasing frequency and severity clearly reflects changes in the climate.



Higher temperatures and changes in precipitation are making the forests drier and more susceptible to combustion and rapid wildfire spread. Climate change is a significant threat multiplier.

4. Future climate predictions indicate that wildfire risk is likely to increase further over time, particularly in less humid and temperate forests away from the Black Sea coast and towards the Central and Eastern area of the Southern Caucasus. This has the potential to impose significant costs on mountain forest communities, who together with the local forest agencies act as stewards of the landscape forest resource. Communities not only benefit from livelihoods supported by forest resources (timber products, fuel wood, forest products, tourism, agriculture) but are also important participants in wildfire identification and response.
5. The project will seek to both reduce the risk of wildfire outbreak as well as build capacity for more effective engagement when wildfires do occur to minimize environmental and economic damage. It will also promote sustainable eco-systems and enhance the livelihoods of those living in mountain forest regions. It will seek to do this by building an integrated regional wildfire management approach with the following components:
 - a. Regional regulatory and institutional capacity to reduce risk and improve response;
 - b. Enhanced use of data for wildfire forecasting, early warning and decision making;
 - c. More effective wildfire and sustainable forestry management at the local level.
6. Given the regional and transboundary nature of the problem, addressing wildfire risk offers an opportunity for strong coordination and alignment between countries. There are already high levels of joint response in fighting major wildfire incidents. The common challenges create an opportunity for greater regional alignment in regulation, vulnerability assessment, data analysis, forecasting, and learning. The project will promote common approaches and strengthen regional coordination and learning mechanisms where these add value.
7. The regional approach will allow building cooperation between the two countries on regulatory reform (e.g. volunteering), hydro-meteorological, forest and wildfire data management, harmonizing hazard assessment methodologies, monitoring and forecasting of wildfires and other climate-induced disasters, and setting up joint Early Warning Systems. The project will develop common modelling tools for risk and vulnerability assessment, common SOPs on information collection, storage and dissemination, as well as reporting standards on climate induced hazards. Regional cooperation on fire surveillance and firefighting also will be strengthened. Finally, the regional project will facilitate sharing of lessons on ecosystem-based climate change adaptation and the role of communities in reducing risk.
8. The project will work directly with the forest and protected area agencies and the emergency services in the respective countries for project implementation. Activities will be undertaken at a regional, national and local (e.g. forest district or enterprise) level and are likely to help improve the resilience of 500,000 ha of mountain ecosystems and the safety and livelihoods of 800,000 people in the two countries.

Figure 1: Theory of Change for the proposed project

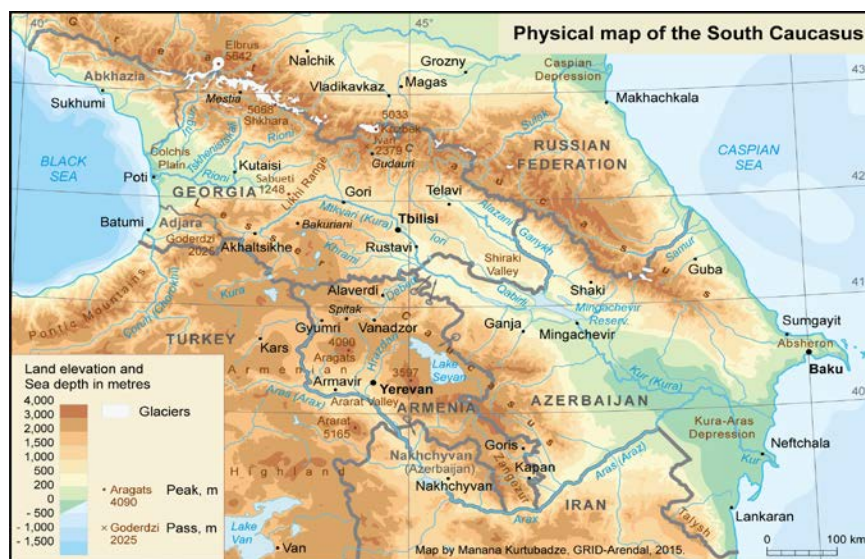


Overview of South Caucasus region (Armenia and Georgia)

South Caucasus Profile

9. This project will be implemented in the South Caucasus region, with project activities focused in the Republics of Armenia and Georgia. Both countries are situated to the South of the High Caucasus mountain range that runs West to East along the Russian border. They are surrounded by Turkey to the West, Iran to the South and Azerbaijan to the East. Armenia is landlocked, whereas Georgia enjoys access to the Black sea coast.

Figure 2: Map of Caucasus region



10. The Republic of Armenia is a mountainous, landlocked country with the total area of 29,743 square km. The majority of Armenia's territory (76.5%) is situated on the altitudes of 1000-2500 m above sea level with the lowest point at 380m in the gorge of Debed river and the highest point being Mount Aragats with an elevation of 4090m. Administratively, the country is divided into ten units (Marz), plus the capital Yerevan. In 2018, the population stood at approximately 3 million with approximately 37% of the population living in rural areas in 2018.¹ In Armenia, the poverty rate in 2016 was 29.8%, while the World Bank forecast that the poverty rate would fall to 22.2% in 2019.² Unemployment in Armenia remains high and volatile – 18%. Unemployment is mostly concentrated in urban areas, among the young and women. Youth unemployment (36.6%) is higher than that of the population aged 25 to 64.³
11. Armenia is considered by the International Union for Conservation of Nature (IUCN) as one of the 25 worldwide biodiversity hotspots.⁴ Most of the high biodiversity hotspots are linked to forests or forestlands. Due to intensive use, the level of anthropogenic impacts on natural landscapes in Armenia is high. Overexploitation has resulted in pollution and reduction of wild biodiversity, loss of habitats of certain species and changes in the services provided by ecosystems.

¹ See <https://data.worldbank.org/indicator/SP.RUR.TOTL.ZS>

² See <http://www.am.undp.org/content/armenia/en/home/sustainable-development.html>

³ Ibid

⁴ As a part of the Caucasus-Anatolian-Hyrcanian Temperate Forests Ecoregion, which is listed by WWF as a Global 200 Ecoregion, the forests of Armenia have been identified as a global conservation priority. Additionally, significant shares of Armenia's territory belong to the Caucasus and the Irano-Anatolian biodiversity hotspots identified by Conservation International.

12. The Republic of *Georgia* is situated between Russia to the North, Azerbaijan in the East and Armenia and Turkey to the South. It borders the Black Sea in the West. The total area of Georgia is 69,700 square kilometres. Administratively, the country is divided into nine regions and one city. There are also two autonomous republics. The population of Georgia was approximately 3.7 million, with 41% of the population living in rural areas in 2018.⁵ The unemployment rate declined from 13.9 percent in 2017 to 12.7 percent in 2018. The poverty rate was 16 percent in 2017 (16.4% in 2016) and is expected to fall to 13.4 per cent in 2019.⁶
13. Georgia's landscape is varied - humid subtropical coastline, lowlands and wetlands, plains, semideserts, highlands, and mountains covered by forests and glaciers. Much of the landscape is mountainous, with 54 percent of land at an altitude over 1,000 m above sea level. Nearly 40 percent of land is covered by forests, mainly located in the mountainous areas. Georgia is a country rich in biodiversity, most of which can be found in the forests, freshwater habitats, marine and coastal ecosystems and high mountain habitats.

Profile of forests in the South Caucasus

14. The South Caucasus is home to a varied range of forest landscapes (sub-tropical, temperate and coniferous) which support rich biodiversity. The forest patterns are set out in Figure 3 below. The Caucasus forest belt can be subdivided into three major elevation zones: broad-leaved forests (50–900m), coniferous forests (900–1700 m), high mountain subalpine forests (1700–2000 m) with krummholz forest at higher elevations (2000–2800 m).⁷

Figure 3: Overview of forest and landscapes in South Caucasus Region



Source: Grid Arendal

15. In *Armenia*, it is estimated that forests currently represent approximately 11.2% of the overall territory. This represents 334,100 ha which includes 283,600 ha of natural forests and 50,500 ha of plantation forests. Armenia is thought to contain 110 tree and 152 shrub species. The dominant tree species are broadleaf deciduous trees.

⁵ See <https://data.worldbank.org/indicator/SP.RUR.TOTL.ZS>

⁶ ECA Macro Poverty Outlook, Spring 2019 (World Bank) - <http://pubdocs.worldbank.org/en/896101492021924164/data-geo.pdf>

⁷ See Forest Habitat Restoration in Georgia (2015). http://www.cleanup.ge/documents/tkis_habitati-2015_eng.pdf

16. A mix of oak, beech and hornbeam make up the majority of Armenian forest cover (81.3%). Pine trees (mostly in plantations) represent 5.3%, while the remainder (10.9%) is a mix of juniper and other broadleaf deciduous trees. The north-eastern and south-eastern parts of the country and the eastern bank of Lake Sevan offer the most favourable climatic and environmental conditions for forest growth. At present, 62% of the forest cover is found in the northeast, 36% in the southeast, and only 2% in the central region of the country.
17. While there is evidence that up to 30% of Armenia was once forested, forest cover has been relatively limited in Armenia over the recent years. Forested areas were heavily impacted following Armenian independence in 1991, with the collapse of country energy system and the rise of illegal logging and community use of timber resources. However, reliable data on forest resources remains limited.

Figure 4: Distribution of forest in the South Caucasus



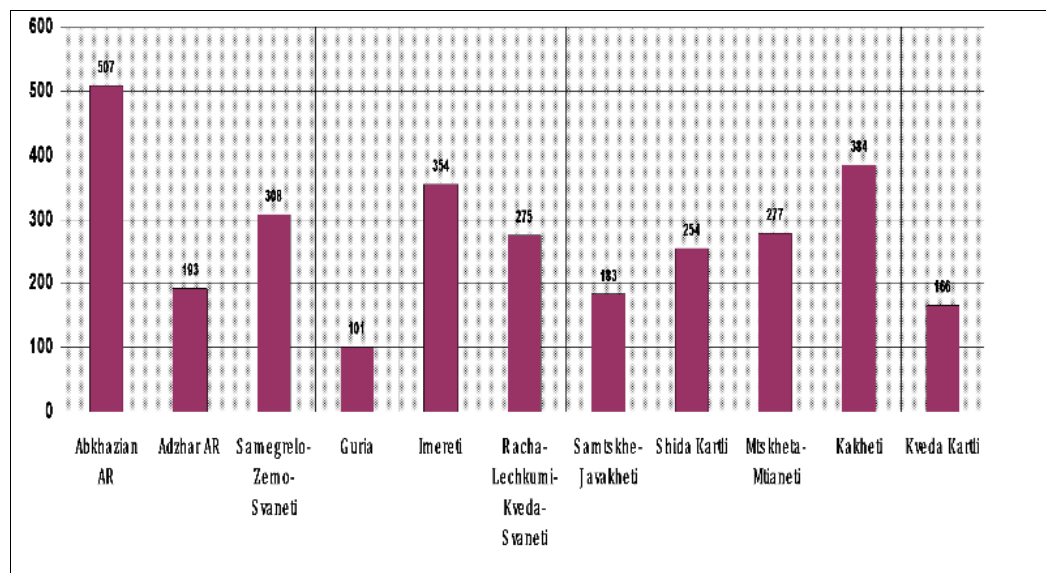
Source: Grid Arendal, <https://www.grida.no/resources/7908>

18. Georgia has significantly higher levels of forest cover than Armenia (estimated at 2.8 million ha or approximately 43% of Georgian territory), in part a reflection of the different topography and climate, making it a forest-rich country.⁸ Approximately 97% of forests are located in mountainous areas, with 80% on steep slopes (of 21 degrees or more). It is estimated that c. 600 thousand ha are virgin forest. Forests are diverse and shaped by elevation, soil conditions and climate.

⁸ National Biodiversity Strategy and Action Plan of Georgia (2013-2020)

19. Broadleaf species are mainly beech, Georgian oak, hornbeam and chestnut. The Colchic foothills in Western Georgia are dominated by chestnut and beech forests. Dark coniferous forests, made up mainly of oriental spruce and Caucasian fir, are found in the western part of the Lesser Caucasus Range and on both sides of the western and central Greater Caucasus Range. Native pine forests occur in the northern parts of Georgia in the high mountains of Khevsureti. They are also found in the southern Caucasus in the Kura River watershed. Arid open woodlands can be found on dry, rocky slopes in south-eastern Georgia, consisting of pistachio juniper, and hackberry. Forests are generally distributed across the territory of the whole of Georgian Territory as set out in Figure 5.

Figure 5: Distribution of forest in Georgia by region (000s ha) (2012)



Source: Reram (2016)⁹

20. As in Armenia, Georgian forests have suffered over exploitation, with canopy cover reaching critically low thresholds in more than 55% of forested areas. At these levels, forests begin to lose their protective functions and regeneration capacity which can impact on biodiversity. Climate change is a key driver of degradation, alongside logging, grazing, alien species and unsustainable use.¹⁰
21. Both Georgia and Armenia suffer from a lack of an up-to-date forest inventory and poor monitoring systems, both of which reflect the economic and structural challenges since the collapse of the Soviet Union. Efforts are ongoing in both countries to undertake new forest inventories and set up monitoring systems that will allow for better data and support improved decision making and resource allocation for forest conservation and regeneration.

South Caucasus climate

22. The South Caucasus has a varied climate due primarily to the large variation in elevation and the mixture of lowland plains and mountains and upland plateaus.
23. *Armenia's* climate is influenced by the Caucasus Mountains, and ranges from dry sub-tropical to cold alpine. The average annual air temperature is 5.5°C, but ranges from 12-14°C to below zero at altitudes above 2,500 m. Summers are temperate: the average

⁹ See <http://www.innovawood.com/LinkClick.aspx?fileticket=zc%2BHfaX9NfU%3D&tabid=497&mid=2338>

¹⁰ See EPNI-FLEG <http://enpi-fleg.ge/index.php/ka/2-uncategorised/9-georgian-forests>

temperature at the end of July is 16.7°C, while in Ararat valley it ranges between 24-26°C. The recorded absolute highest temperature is 43.7°C. Winters are cold. January is the coldest winter month, with an average temperature of -6.7°C, but with lowest minimum recorded at -42°C. Winters in the northeastern and southeastern parts of the country are temperate.

24. Armenia's average annual precipitation is 524 mm (1960-2015), over 40 percent occurring April through June; with average annual precipitation of 200 to 250 mm in low-land areas, and 800 to 1,000 mm at higher altitudes.

Figure 6: Average temperatures in the South Caucasus



Source: ENVSEC¹¹

25. Georgia has a diverse climate, with two distinct climatic zones separating the East and West. On the West coast, along the Black Sea, the climate is humid and subtropical, with average annual temperatures of 14°C to 15°C and extremes from -15°C to 45°C. The East is more varied, with a dry subtropical climate in the plains and an alpine climate in the mountain regions.
26. The Greater Caucasus mountain range plays an important role in moderating Georgia's climate and protects the nation from the penetration of colder air masses from the north. The Lesser Caucasus Mountains partially protect the region from the influence of dry and hot air masses from the south. The average annual temperature is 11°C to 13°C in the plains, and 2°C to 7°C in the mountains, with a minimum of -25°C and -36°C, respectively.
27. Annual precipitation in Georgia is 400 to 600 mm in the plains, and 800 to 1,200 mm in the mountains. Precipitation in Western Georgia tends to be consistent throughout the year, although it can be particularly heavy during the autumn months. The foothills and mountainous areas experience cool, wet summers and snowy winters, with snow cover

¹¹ See <http://www.envsec.org/publications/climatechangesouthcaucasus.pdf>

often exceeding 2 meters in many regions. Annual precipitation in Eastern Georgia ranges from 400–1,600mm, and is considerably less than in Western Georgia.

Figure 7: Average precipitation in the South Caucasus



Source: ENVSEC (2011)

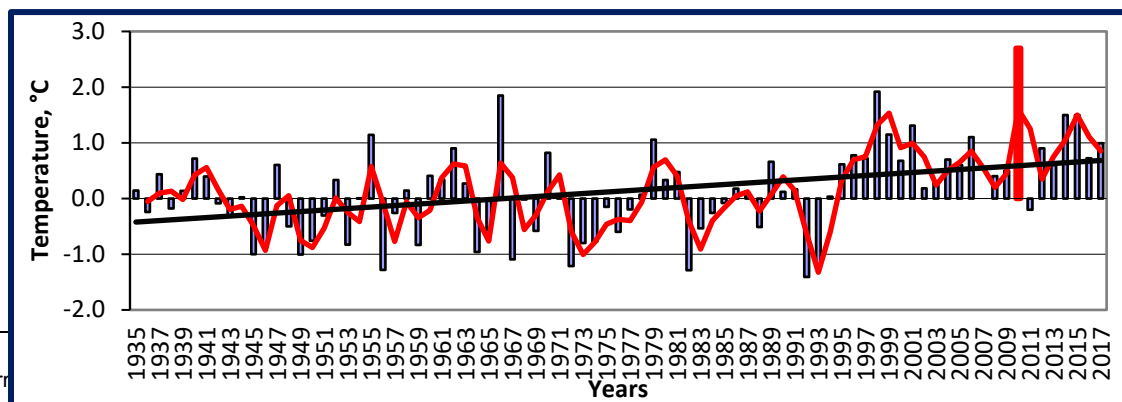
Historic climate change

28. There is significant evidence that the climate has been changing over recent decades across the South Caucasus region in both Armenia and Georgia.

Temperature

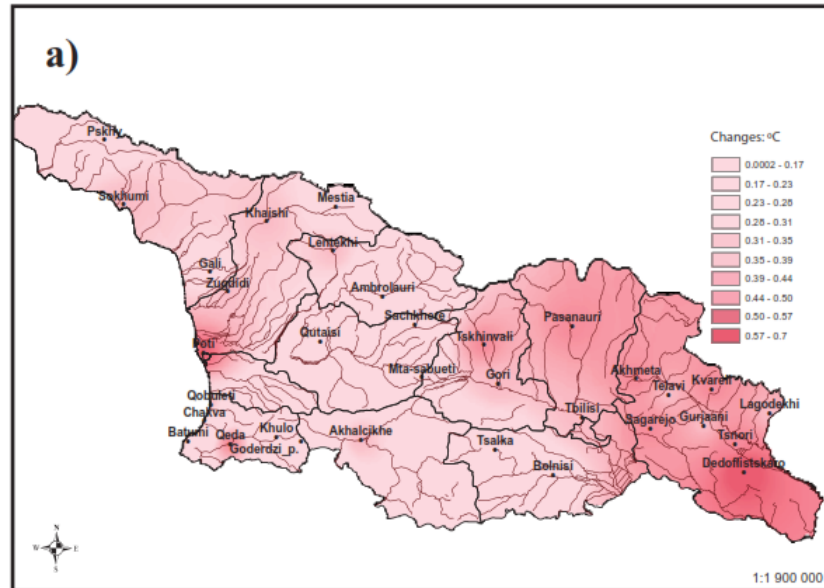
29. In *Armenia*, temperatures have been rising steadily over recent years (see Figure 8). In 2015, the Third National Communication to the UNFCCC reported an annual mean temperature increase of 1.03C against the 1935-1996 average. There is some variation in season, with summer temperatures increasing by an average of 1.1C but winter temperatures recording much lower levels of increase.¹² In recent years, there has been a significant increase in the number of heat related extreme events in Armenia which can be a significant cause of wildfire. The number of days over 25C has significantly increased particularly in arid semi-desert and steppe zones, and the duration of heat waves has increased. The average value of heat waves in the different climatic zones of Armenia varies between 12-26 days with the maximum value ranging from 34-70 days.

Figure 8: Armenia: Annual changes in observed temperature vs. 1961-1990 average



30. In Georgia, temperatures have also been increasing across the whole country, with increases in the East (0.5C) generally higher than in the West (0.3C). Between two reference periods (1961-1985; 1986-2010), the maximum increase was 0.7C in Dedoplistskaro in the far East of the country, with a maximum increase in the West (Poti) of 0.6C.

Figure 9: Spatial distribution of changes in temperature in Georgia 1961-85 vs. 1966-2010 averages

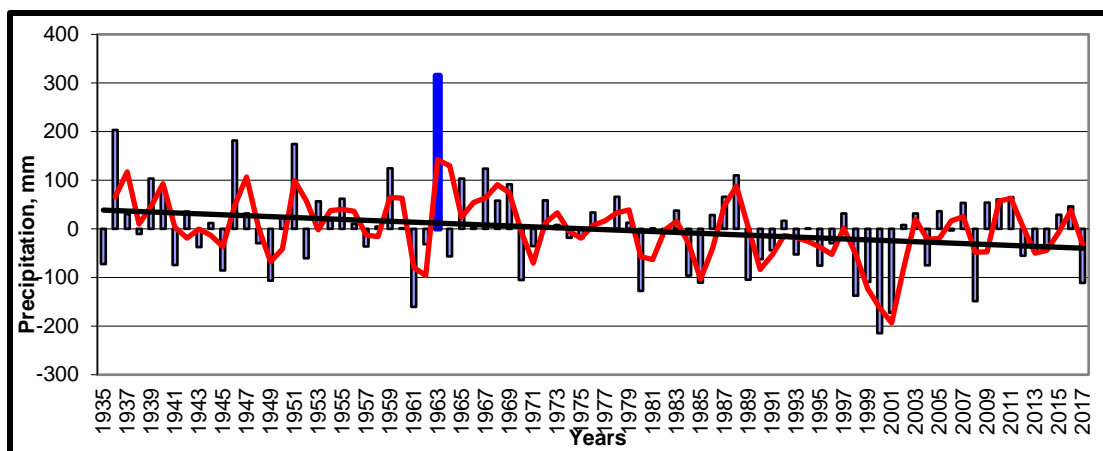


Source: Georgia Third National Communication to the UNFCCC

Precipitation

31. There has been decreasing precipitation trend in Armenia with a decrease of 10% over the period 1935-1996. There is also significant spatial distribution, with north-eastern and central regions becoming more arid, while precipitation has increased slightly in southern and north-western regions and across the western part of Lake Sevan basin. The average number of consecutive dry days has also increased. Dry periods are high in Meghri and Ararat (averaging 61 and 58 days). Over the period 1935-2012 the number of dry days increased across almost all zones of Armenia, with the greatest increases in the dry sub-tropical zone.

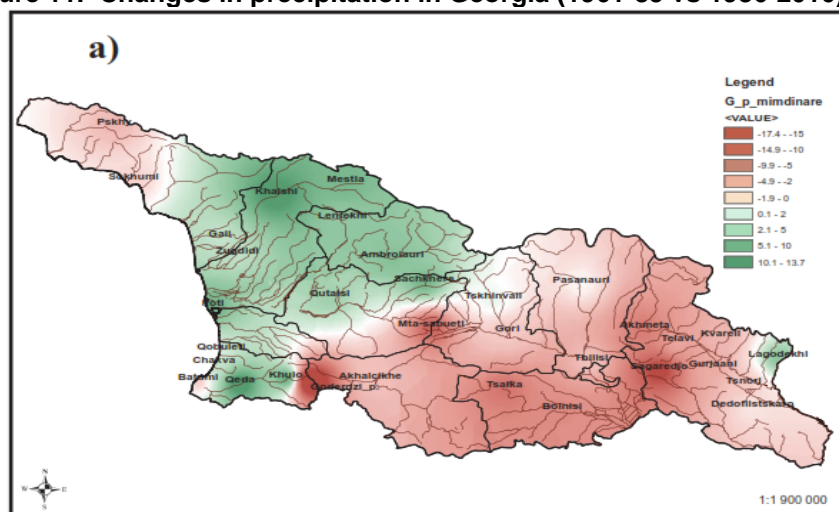
Figure 10: Armenia: Annual changes in precipitation vs. 1960-1991 average



Source: Climate Change Information Centre of Armenia

32. Since 1960, there has been a general pattern of increasing precipitation in the west of Georgia. The mountain areas of Svaneti and Adjara both saw increases of 14 percent. There have been decreases in the central and eastern areas of Georgia with lower precipitation along the Likhi Ridge and to the East, which in turn has the potential to increase the risk of wildfire.

Figure 11. Changes in precipitation in Georgia (1961-85 vs 1986-2010)



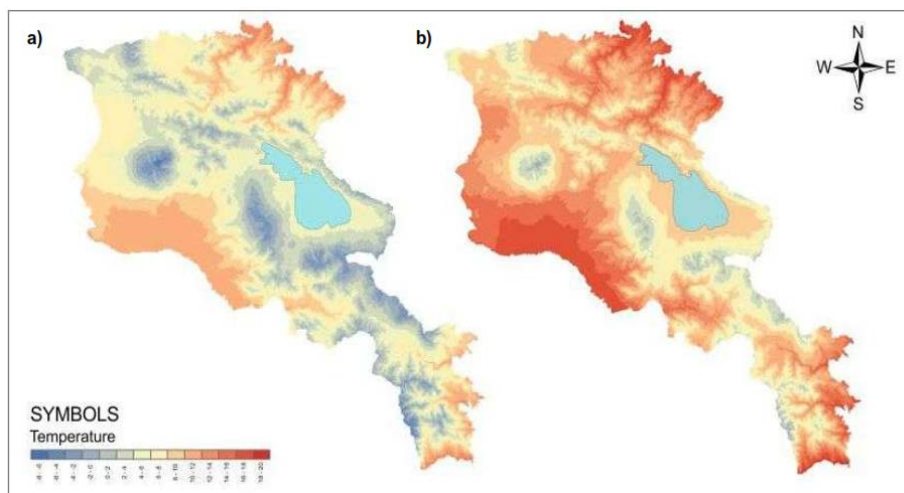
Source: Georgia. Third National Communication to the UNFCCC

Projected Future Climate change

Temperature

33. In *Armenia*, the Third National Communication to the UNFCCC reports projections for temperature increases by 1.7C by 2040, 3.2C by 2070 and 4.7C in 2100 under an A2 emissions scenario, and 1.3C, 2.6C and 3.3C respectively under the B2 emissions scenario. There are indications that the already hot and dry conditions associated with summer will worsen, creating significant impacts across a range of sectors. Temperatures increases are projected to accelerate significantly after 2040. As a result, annual mean negative temperatures will be maintained only in the highlands of Aragats, Geghama and the Zangezur mountains.

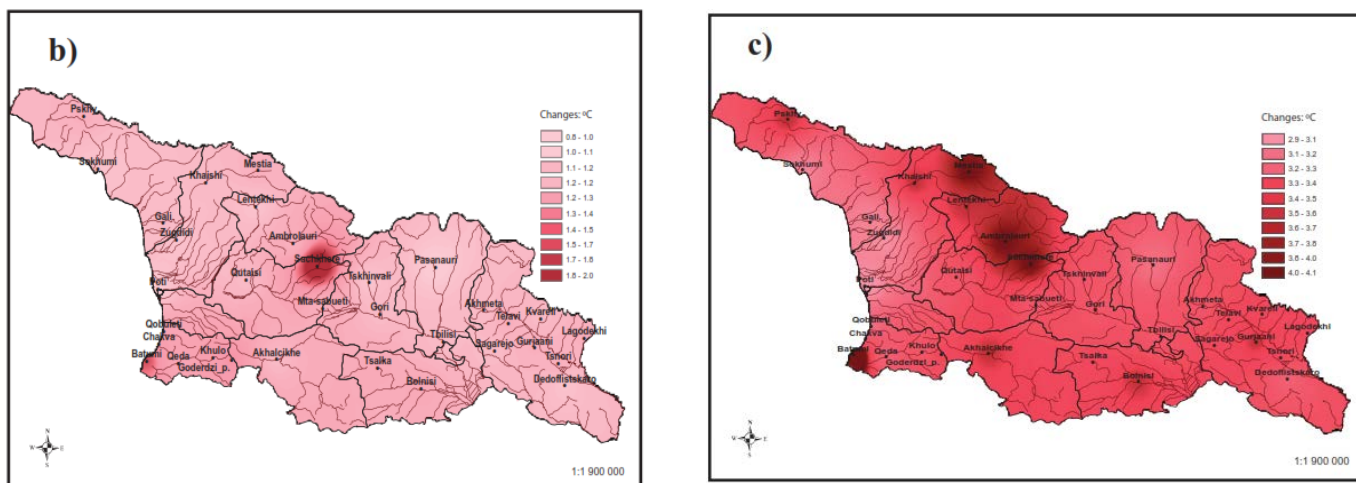
Figure 12: Annual average temperature in Armenia: (a) 1961-1990 vs b) 2071-2100 (RCP 8.5 Scenario)



Source: Armenia: Third national communication to the UNFCCC

34. In *Georgia*, average annual temperatures are expected to increase by 0.8°–1.4°C by 2050 and 2.2°–3.8°C toward 2100 with the greatest increases in the Northwest mountains. There will also be an increase in the number of hot days (which may double in some mountain areas), with more frequent heat waves June–August.

Figure 13: Projected increase in temperature in Georgia vs historic baseline (b)2050, c)2100

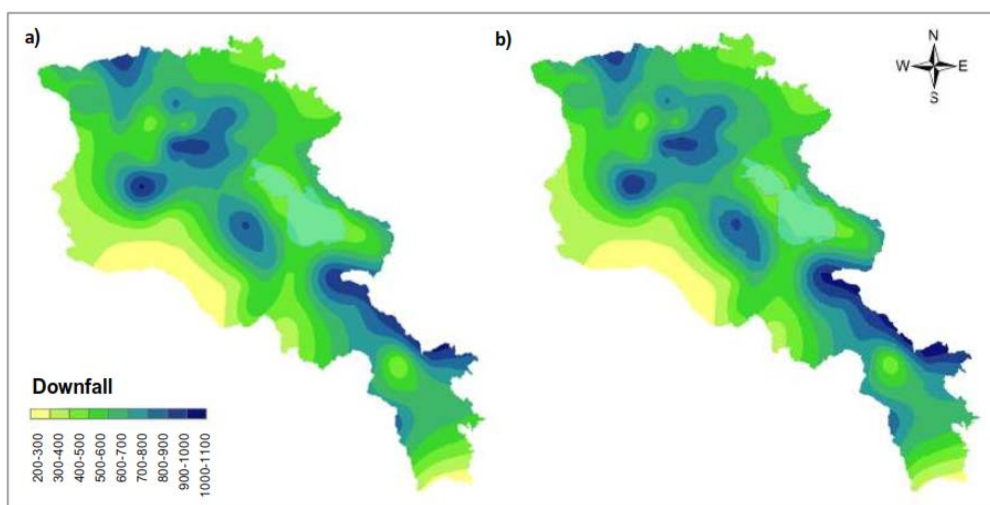


Source: Georgia: Third National Communication to the UNFCCC

Precipitation

35. Annual precipitation trends in *Armenia* are projected to be relatively flat, with inconsistent signals across the models and emissions scenarios. However, summer precipitation is expected to decrease across all three time periods (2040, 2070 and 2100) by 23% compared to the baseline average (1961-1990)

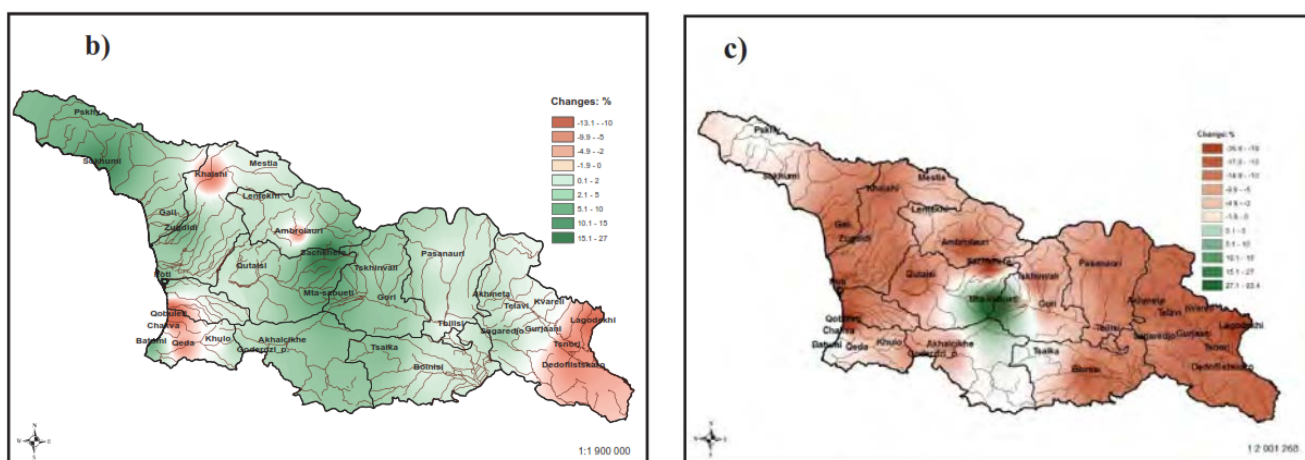
Figure 14: Distribution of annual average precipitation in Armenia in (a) 1961-1990 and (b) projections for 2071-2100, RCP 8.5 Scenario



Source: Armenia: Third National Communication to the UNFCCC

36. In *Georgia*, there is likely to be an overall increase in precipitation compared to historic averages over the period to 2050, followed by a period of more significant decline in overall precipitation levels (of up to 24%) in the period to 2100. Drying effects are likely to be greatest in the East of Georgia.

Figure 15: Projected changes in precipitation in Georgia vs historic baseline in (b)2050 and (c)2100



Source: Georgia: Third National Communication to the UNFCCC

37. Relative humidity is also predicted to decline across the majority of stations over the period to 2100, which has significant implications for wildfire risk.

Impacts of climate change

38. The South Caucasus is already witnessing significant impacts associated with climate change. Increased temperatures and changes in precipitation are accompanied by increased frequency of extreme events (drought, floods, high winds and storms). These impacts of climate change are expected to be felt across a range of sectors (agriculture, eco-systems, health, infrastructure, tourism and water resources).
39. The higher temperatures and lower precipitation/drying associated with climate change lead directly to loss and damage to forest ecosystems. This occurs not only due to increased

fire risk but also from the wider degradation and the increased prevalence of pests and diseases. In turn, a number of sectors are directly impacted. Livelihoods are affected (e.g. through lower forest productivity, forest loss, loss of biodiversity and impacts on tourism). Infrastructure is directly at risk. Human and animal health is impacted due to increased heat stress. Further details on overall impacts of climate change at the sector level are provided in **Annex 4**.

The problem that the project will address - wildfires in mountain forest eco-systems

40. The project will focus on addressing the increasing **wildfire risk in mountain eco-systems** associated with rising temperatures and declining precipitation and humidity. It will do so by focusing on forest areas in the Central and Eastern parts of the South Caucasus where these climate signals and associated risk are already strong, and where the greatest changes are predicted to occur in the future. By addressing this risk, the project will improve the resilience of mountain forest communities and address the wider challenges of climate change impacts on their livelihoods.

41. Wildfires are a significant and increasing threat to Armenia and Georgia. They regularly impact upon significant areas of forest, resulting in significant ecological damage, evacuation of local communities, and occasional death, injury and destruction of infrastructure and property.¹³ Fire damage can lead to secondary disasters such as landslides, mudflows or floods especially in mountain terrain as the loss of tree cover can destabilize soil integrity on steep slopes. Fires on terrain contaminated by unexploded ordnance and land mines – both remnants of previous conflicts – can pose an additional threat to personnel involved in firefighting and civilians.¹⁴



Figure 16: International wildfire response in Borjomi national park, Georgia (2017)

42. Forest fires in both countries are caused by a combination of both natural and anthropogenic factors. The main causes of anthropogenic fires are proximity to the residential areas (negligence of population, existence of landfills etc.), practice of burning agricultural areas, absence of fire breaks, and the violation of forest use rules. A smaller portion of forest fires are solely due to natural causes (e.g. extreme heat, lightning) such as the outbreaks in Georgia in summer 2014. However, high temperatures and low precipitation act as a significant catalyst to exacerbate the probability and impacts of man-made fires.¹⁵

¹³ Decree of Georgian Government N 4 on approval of the Disaster Risk Reduction strategy 2017-2020 and Action Plan, January 11, 2017

¹⁴ Proposal for a National Fire Management Policy of Georgia, ENVSEC, 2014

¹⁵ Decree of Georgian Government N 4 on approval of the Disaster Risk Reduction strategy 2017-2020 and Action Plan, January 11, 2017

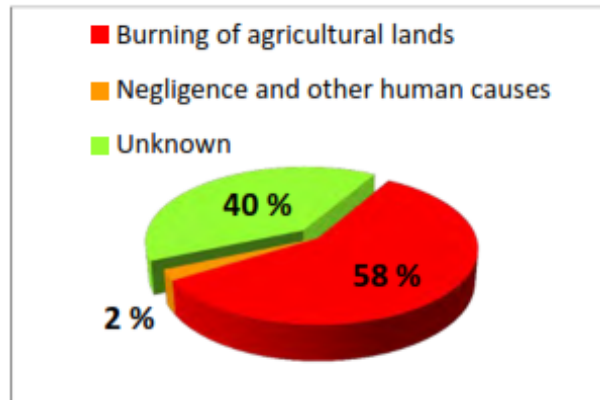
Table 1: Causes of forest wildfire (Project team analysis)

Causes/origins of wildfires in South Caucasus	Root causes	Drivers of exacerbated probability/scale/impact	Mitigation measures – Adaptation solutions
Agricultural residue/field burning	Cultural practice Lack of awareness Lack of residue uses	Lack of fire breaks near fields Lack of fire controls for burning Climate change and variability Combustible material Poor forest management Weak firefighting response (e.g. tools), suppression equipment	Farmer education and awareness Enforcement and fines Training in field management Fire breaks/field gap construction Mineralisation Productive uses of agri residues Improved fire response capacity
Irresponsible forest users/ tourism	Lack of awareness Deliberate vandalism	Lack of zoning and facilities Climate change and variability Forest drying/combustible material Poor forest management Weak firefighting response (e.g. tools), suppression equipment	Improved signage More robust enforcement/fines Recreational zones/fire pits Awareness raising Early warning/risk communication Improved fire response capacity
Landfills	Poor solid waste management	Climate change and variability Forest drying/combustible material Poor forest management Weak firefighting response (e.g. tools), suppression equipment	Improved solid waste management collection and disposal
Electricity cables (transmission, transport)	Siting close to forest areas	Climate change and variability Forest drying/combustible material Poor forest management Weak firefighting response (e.g. tools), suppression equipment	Improved siting
Natural causes (lightning)	Natural phenomena	Lower precipitation and humidity Increased temperatures Pest outbreaks / deceases Poor forest management	Improved forest management Residue removal Pest and decease control Firefighting access and water

43. In both countries, anthropogenic causes are the main cause of forest fire (estimated at up to 90%). For example, according to one report, at least 60% of forest fires in Armenia had human origins between 2007-2011, with only 2% being identified as being of purely natural causes.¹⁶

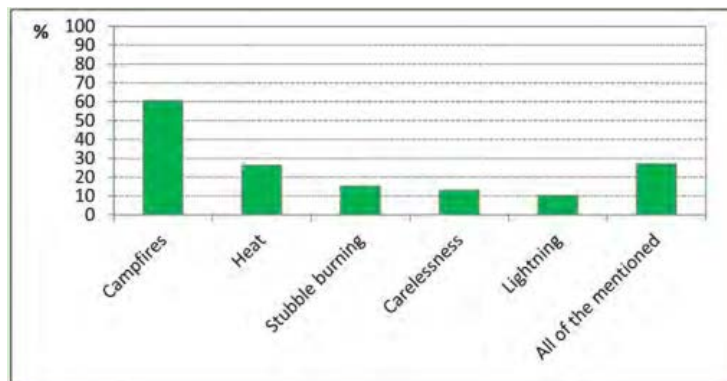
Table 2: Causes of forest fire in Armenia (UNDP/GEF 2012)

¹⁶ See https://www.un.am/up/library/Wildfire%20Management_eng.pdf



44. However, perceptions of the anthropogenic causes of fire risk among local populations are much lower, suggesting that awareness of risks could be improved. The following chart shows the perceptions among forest communities in one of the project locations in Syunik province in southern Armenia as to the perceived causes of forest fire.

Figure 17: Perceptions of the causes of forest fire in Syunik Province, Armenia (UNDP/GEF 2012)



Historical trends

45. In both Georgia and Armenia, there has been a consistent upward trend in the number of forest wildfires and the area impacted over recent years.
46. In *Armenia*, incidence and scale of forest fires has increased dramatically. The number of fires per annum has increased from less than ten in 2000 to more than fifty on average by 2018. Likewise, the scale of forest damaged per annum increased from less than 50ha in 2000 to more than 400ha in 2017. The incidence of large-scale fires has also been noticeable. For example, in wildfires in the Khosrov Forest Reserve, and Vayots Dzor and Aragatsotn Forestry areas destroyed more than 1000 ha of forest in 2017 with significant biodiversity loss.¹⁷

Figure 18: Incidence of reported forest fires in Armenia

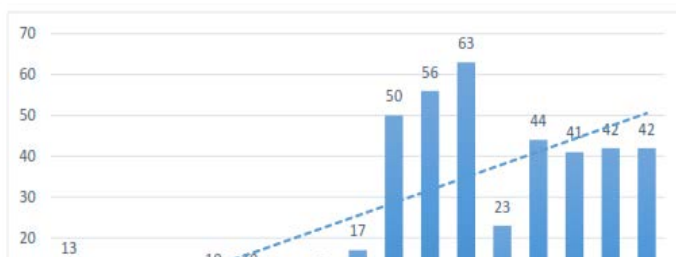
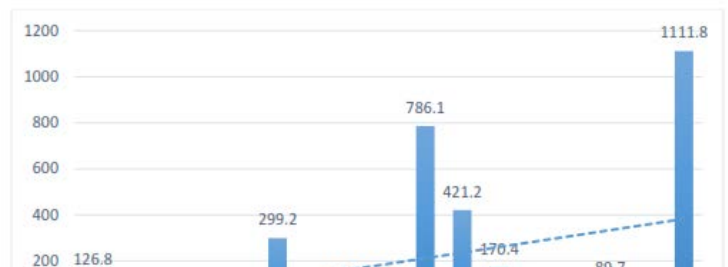


Figure 19: Armenia: Reported hectares of forest destroyed by wildfire

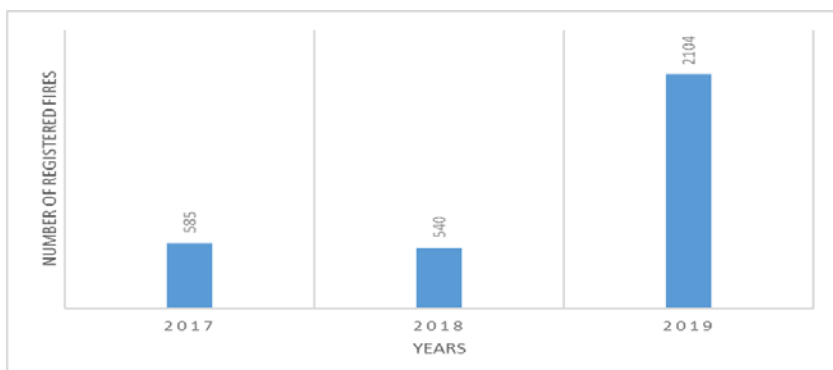


Source: Armenia Statistical Committee

Source: Armenia Statistical Committee

47. The number of fires in vegetated areas has grown significantly by 2019 as set out in Figure 20. For example, in the first half of 2017 there were 585 cases of wildfires, while in 2019 2109 cases were registered. So, the number of fires in the vegetation areas increased by 1364, which is a rather serious indicator.

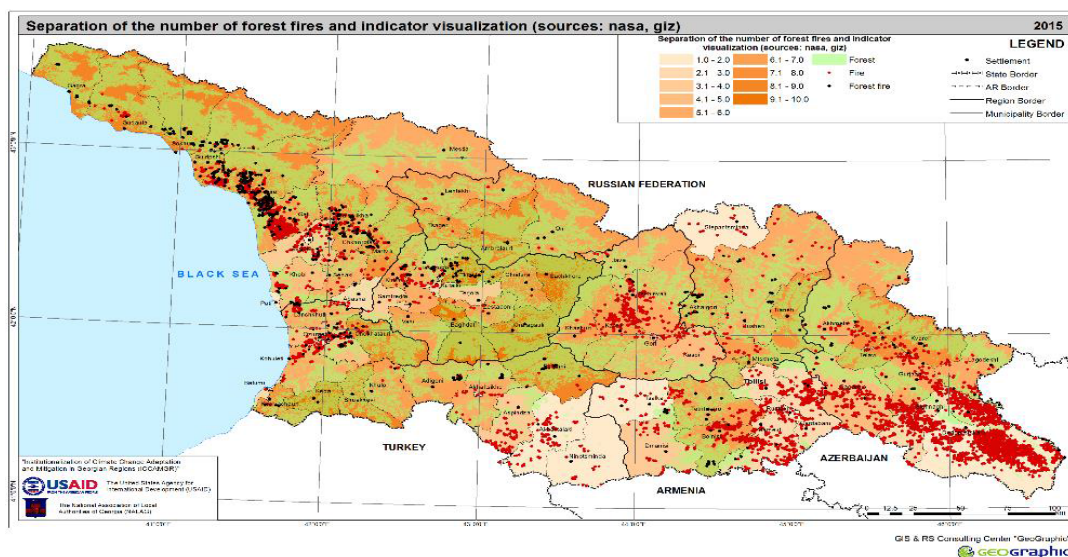
Figure 20: Number of registered fires in vegetated areas of Armenia (2017-2019)



Source: Armenia Statistical Committee

48. In *Georgia*, forest fires are also a significant problem. From 2000 to 2015, a total of 6,000 fires were recorded in Georgia (see Figure 21). Over the period 1998-2011, the average number of forest fires registered was approximately 25 per annum with an average annual area of destroyed forest of 270 ha.

Figure 21: Geographic distribution of wildfires in Georgia 2000-2015



Source USAID

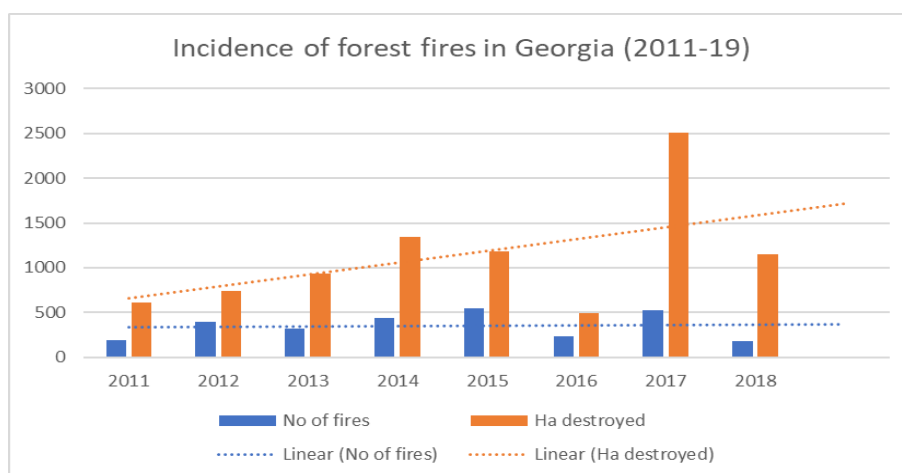
49. Over recent years, there have been significant increase in large-scale wildfire events in Georgia. For example, there were major incidents in 2006 (765 ha), 2008 (1270 ha) and 2010 (430 ha) which show a growing risk of larger-scale fire disasters.¹⁸ According to the National Forestry Agency (NFA), fires cause significant damage every year, with the Samtskhe-Javakheti region most heavily impacted in this regard.¹⁹
50. Protected Areas (PAs) occupy about 9.55% of Georgia's territory with forests covering approximately half of this area. Over the period 2012-2018, 79 cases of fires were observed within PAs, covering 6,967ha. Most of the fires occurred in coniferous and broadleaf forests of semi-arid ecosystems. Within the protected areas, forests at risk include the Borjomi-Kharagauli National Park (Akhaltzikhe, Adigeni and Borjomi municipalities). The coniferous forests of Tusheti protected areas are also considered high risk, as well as mixed forests of Algeti National Park. The coniferous forests of Mariamjvari Strict Nature Reserve on southern slopes of Gombori ridge are also considered to be under heavy fire risk.²⁰
51. The Georgian Emergency Management Service, National Forest Agency and the Agency for Protected Areas report significant numbers and damages associated with wildfires in forested areas between 2011-2019 (see Figure 22). While the trend for the number of fires is slowly increasing, there has been a significant increase in the overall trend for their scale and impact of these fires. This is in part due to extensive wildfire damage in 2017, caused by high temperatures and very dry climatic conditions.

Figure 22: Forest wildfires in Georgian forests 2011-2019 (National Forest Agency)

¹⁸ These statistics does not include forest areas burnt due to military activities during the war in 2008

¹⁹ Source: National Forestry Agency, May 2019

²⁰ Source: Agency of Protected Areas of Georgia, May 2019



Source: Emergency Services Georgia

Projected future changes

52. Wildfire risk is projected to increase under all climate change scenarios, along with other risks to the sustainability of forest resources in the South Caucasus. For example, according to Armenia's Second National Communication on Climate Change, with the expected aridification of climate, the probability of more intensive forest fires will increase. This particular danger is relevant for forests in central, southern and south-eastern forested areas of the country. In total, climate change related wildfires may account for up to 1300 ha of lost forest eco-system by 2030 (above the existing baseline).

Table 3: Projected losses of forest stock in Armenia due to climate change by 2030

Vulnerability factors	Possible losses of forest areas (ha)	Carbon accumulation reduction (T/year)
Changes in the boundaries of forest ecosystems	3000-4000	1625-2200
Fires	1200-1300	650-700
Pests and diseases	10000-12000	5420-6500
Total	14200-17300	7695-9400

Source: Armenia Second National Communication

53. In Georgia, modelling suggests that the increasing occurrence of extreme dry spells and heat waves currently observed, as well as climate modeling-based predictions (general circulation models), suggest that extreme weather periods favoring the recurrence of more frequent and larger fires and higher associated damages will aggravate in the coming years and decades.²¹

Socio-Economic impact of forest fires

54. In general, there is limited information on the socio-economic cost of forest fires in the South Caucasus. While government agencies record the area ha of forest lost and any details of death and injury (for example the death of a forest ranger in the 2018 Borjomi National Park),

²¹ The Georgian Road Map on Climate Change Adaptation, NALAG, 2016

there is little consideration of losses that affect livelihoods or the wider economic value of forests (e.g. timber, forest products, tourism, grazing etc.).

55. It should be noted that forest fires are only one component of economic damage associated with climate change. One estimate in Armenia suggests that climate change has the potential to degrade between 21-34 percent of the country's forested lands. An economic valuation (based only on timber and firewood values) estimates that this would be in the range of US\$230-370 million -or equivalent to 0.04% of GDP lost each year in forestry revenues, on average each year between 2010-2100. Note that this excludes other types of socio-economic benefits and livelihoods.²²

Selection of Project sites

56. The project has identified a number of project territories based on high level risk analysis and through discussions with national and local stakeholders. The selection of forest areas is based on the following criteria:

- a. *Climate risk*: (i.e. prioritizing those forest regions where current and projected climate signals are strongest (heat, precipitation, number of drought days);
- b. *Fire risk*: Higher prevalence of existing fire risk (whether due to natural or anthropogenic factors);
- c. *Forest type*: Targeting drier rather than temperate or humid (sub-tropical) forests;
- d. *Cooperation opportunities*: Aligning with other existing or historic forest investments and donor programmes (e.g. inventories, capacity building)
- e. *Economic value*: Having potential to support socio-economic resilience by addressing areas with active forest and agricultural communities;
- f. *Transboundary cooperation*: Maximising opportunities to promote transboundary cooperation (i.e. forest areas close to the border between Armenia and Georgia.

57. This multi-criteria analysis has informed the selection of a shortlist of **six** forest areas across the two countries where the project activities will be targeted. The regions have been discussed and agreed with the respective government agencies involved as fulfilling the above criteria. The selected regions are as follows:

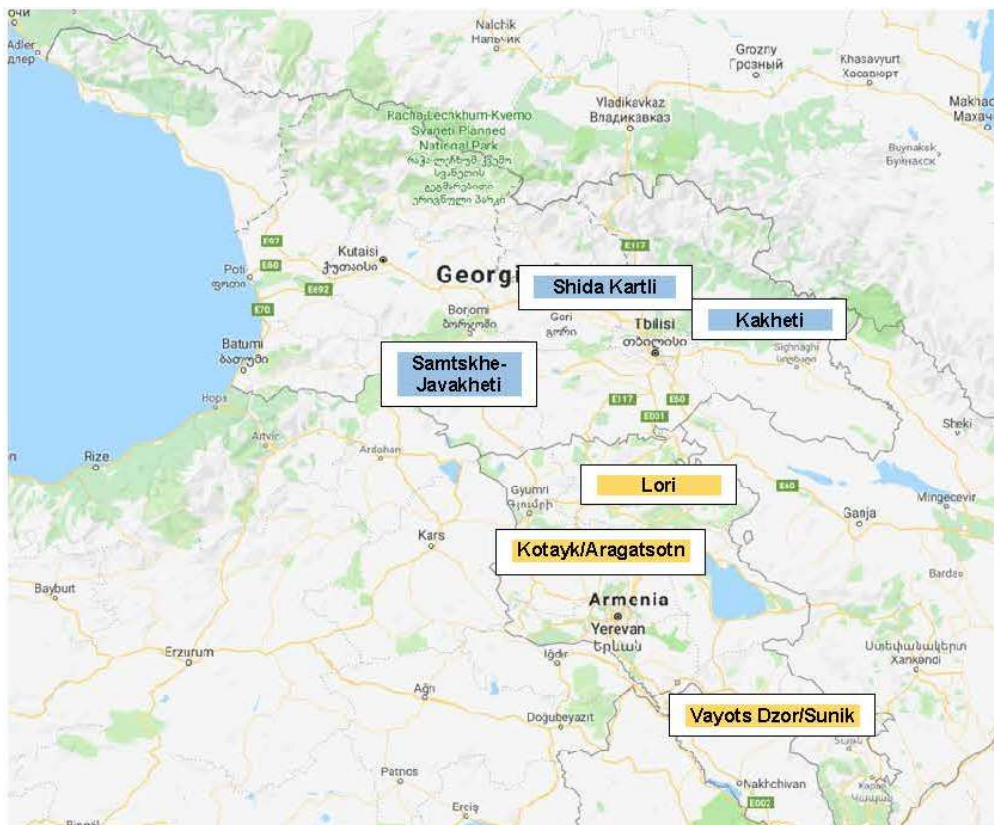
- a. Armenia
 - i. North Western Armenia (Lori forest enterprises)
 - ii. Central/West Armenia (Kotayk/Aragatsotn forest enterprises)
 - iii. Southern Armenia (Vayots Dzor/Syunik forest enterprises)
- b. Georgia
 - i. Samtskhe Javakheti region

²² The Socio-Economic Impact of Climate Change in Armenia (2009)
<https://www.undp.org/content/dam/armenia/docs/Report%20SOI%20of%20CC.pdf>

- ii. Kakheti region
- iii. Shida Kartli region

58. These project territories are located to the Central and Eastern areas of the South Caucasus, where the climate signals (temperature increase, drying and aridification) are greatest, and are areas where there is already significant history of wildfire risk.

Figure 23: Proposed project territories in Armenia and Georgia



59. More detail is provided on the individual project areas below and in the Annexes 5 and 6:

- a. *Lori Province (Armenia)*: Lori province represents one of the most heavily forested area of Northern Armenia with more than 100,000 ha of forest under management by State Forest Enterprises. The region is on the Southern border of Georgia, making it interesting from the perspective of trans-boundary fire planning (given that there are areas of shared border forest and wildfire risk).
- b. *Kotayk/Aragatsotn Provinces (Armenia)*: Aragatsotn and Kotayk are the key areas of the remaining surviving forests in Central Armenia in what is now a heavily deforested area and have significant biodiversity and economic value.
- c. *Vayots Dzor/Sunik Provinces (Armenia)*: Vayots Dzor and Sunik are the Southern Provinces of Armenia and the second largest forest area in Armenia. The increasingly dry and arid climate make these forests highly susceptible to fire risk.

- d. *Samtskhe-Javakheti region (Georgia)* is considered by Georgian EMS to have the most significant wildfire risk and is within the Borjomi-Kharagauli Protected Areas where there have been significant large-scale forest wildfires.
- e. *Kakheti region (Georgia)* is a heavily forested area, including a significant Protected Areas, such as Tusheti and Vashlovani protected areas. With more than 288,435 ha of forest, and a major tourist area it is already subject to significant wildfire risk and impacts.
- f. *Shida Kartli (Georgia)* has more than 115,325 ha of forest under state management. The area, a middle section of lowland between the Greater and Lesser Caucasian mountain range in East Georgia is highly exposed to the greatest impacts of climate change. The following table sets out the basic parameters of the chosen sites, including population, ha under management by forest enterprises and protected area agencies and Global Forest Watch assessment of forest integrity (canopy cover).

Table 4: Overview of key parameters for selected sites

	Population	Forest enterprises (FE)	Forest enterprise managed ha	Ha of forest cover integrity (GFW) ²³
Armenia (Provinces)				
Lori	235,537	Gougark FE Dsegh FE Jiliza FE Lalvar FE Stepanavan FE Tashir FE Yeghegnut FE	101,279ha	65,500 ha
Aragatsotn	132,925	Aragatsotn FE	10,848ha	2,860 ha
Kotayk	254,397	Hrazdan FE	23,213ha	5,220 ha
Vayots Dzor Sunik	58,324 141,771	Vayots Dzor FE Syunik FE Kapan FE Sisian FE	15,046ha 60,202ha	2,650 ha 32,400 ha
Georgia				
Samtskhe Javakheti region	154,100	Samtskhe Javakheti regional forestry service: Akhaltsikhe forestry unit Borjomi forestry unit Bakuriani forestry unit Adigeni forestry unit Aspindza-Akhalkalaki forestry unit Agency of Protected Areas: Borjomi-Kharagauli Protected Areas Administration Javakheti Protected Areas Administration	32,997 ha 19,697 ha 26,291 ha 76,365.46 ha 200.02 ha	29,037 ha 15,695 ha 24,714 ha
Kakheti region	312 500	Kakheti regional forestry service: Akhmeta forestry unit Kvareli forestry unit Sagarejo forestry unit	64,945 ha 54,496 ha 42,598 ha	61,698 ha 51,771 ha 39,616 ha

²³ Global forest watch data measures forest integrity (canopy cover >30%) <https://www.globalforestwatch.org>

		Telavi forestry unit Gurjaani forestry unit Lagodekhi-Dedoplistskaro- Signaghi forestry unit Agency of Protected Areas: Vashlovani Protected Areas Administration Tusheti Protected Areas administration, Agency of Protected Areas Tusheti Protected Landscape Administration, Akhmeta municipality	6,375.5 ha 18,154 ha 5,029 ha	
Shida Kartli region	257 300	Shida Kartli regional forestry service: Kareli forestry unit Khashuri forestry unit Gori forestry unit Kaspi forestry unit	23,697ha 26,473 ha	21,801 ha 24,620 ha
Total	1,552,254		607,905.98 ha	463,705.98 ha

Source: Project team research, Global Forest Watch

60. More detailed information on the proposed sites is set out in **Annexes 5 and 6**.

Baseline

Armenia – forest sector institutions and policies

61. In Armenia, the forest sector is primarily managed by the Ministry of Environment, which takes responsibility for wildfire risk reduction among other aspects of forestry management. Within the Ministry, there are a number of relevant divisions, the most relevant of which is the Biodiversity and Forest Policy Department. The Ministry oversees a number of external agencies of relevance to the project, including:

- a. State Forest Committee
- b. State Forest Monitoring Centre (SNCO)²⁴
- c. State non-commercial organisations (SNCO) overseeing national parks (e.g. Dilijan) under the Biodiversity Management Agency
- d. Hayantar (Forest Enterprise Agency SNCO) under the State Forest Committee (Ministry of Environment)
- e. State Hydromet Service²⁵

62. Currently, about 75% of forest areas including 13 sanctuaries (out of total 27) are managed by “Hayantar” and its 19 branches although these are currently undergoing administrative review and restructuring.

63. In *Armenia*, wildfire response is managed centrally through the Ministry of Emergency Situations (MES) and its regional and local structures. MES is a fully vertically integrated

²⁴ Previously under the Ministry of Agriculture, but recently transferred to the Ministry of Environment in July 2019

²⁵ Previously under the Ministry of Emergency Situations, but transferred to the Ministry of Environment in July 2019

structure, with all local emergency services managed directly from the Ministry, rather than with the involvement of local authorities. MES cooperates with Hayantar structures at the local level to manage wildfire risk reduction and response.

64. Communities in Armenia play an ad hoc role in supporting wildfire response. The role of the public tends to be confined to wildfire identification. Local authorities provide support to emergency services and NFA during larger scale wildfire firefighting operations.
65. The *Armenian* forest sector is overseen by a range of policy and strategy documents, supported by a number of by-laws.
 - a. National Forest Policy and Strategy (2004)
 - b. National Forest Program 2005-2015 (2005)
 - c. Forest sector improvement strategy and action plan (2017)
 - d. Forest Code (2005) plus subsequent regulations
 - e. RA Law on SPNAs (2006), the revised version is in the process of approval.
 - f. RA Strategy and National Action Plan for 2016-2020 on Conservation, Protection, Reproduction and Use of Biological Diversity (2015)
 - g. RA State Program and Strategy on Specially Protected Nature Areas (SPNA), their Conservation and Use (2014)
 - h. Illegal Logging Action Plan (2005)
 - i. State Forest Monitoring Program (2006)
66. The National Forest Policy of the Republic of *Armenia* is the key document governing sustainable management of forests and forest areas and setting out the importance of forest conservation. The objectives of the National Forest Program are to protect forest ecosystems, rehabilitate degraded forest ecosystems, continuous and effective use of forest resources and implementation of the policy on sustainable forest management. Important objectives of the program include activities on mitigation and prevention of illegal logging, eradication of economic and social causes of illegal logging, improvement of environment, institutional improvement, scientific-educational development and capacity building. The National Forest Program, approved on July 21, 2005 included a plan of action with deadlines. It covered the period to 2015 but was only partially implemented. A new programme has not yet been prepared, despite the 2014 National Development Strategy stressing the importance of forestry management.

Georgia institutions and policies

67. In Georgia, the forest sector is managed by the Ministry of Environment Protection and Agriculture (MEPA). The Ministry includes Biodiversity and Forestry Policy Department and number of agencies, including National Forestry (NFA), the Agency for Protected Areas (APA), Environmental Information and Education Centre (EIEC) and the Department of Environmental Supervision. Forest resources are managed separately between the NFA and APA, although within a common policy framework.[28] The National Forestry Agency is

[28] Note that the Adjara Autonomous Republic and Tbilisi City Hall also have independent management roles for forests

authorized to manage almost two million hectares of forest in the country (including maintenance, restoration, renewal, regulation and inventory).

68. MEPA is responsible for promoting wildfire risk reduction within a broader framework of sustainable forestry management. The NFA acts as a support agency for the Emergency Services in wildfire response and provides detailed cartographic data to support this.[29] The Agency of Protected Areas (APA) is also under MEPA and oversees activities on its territories, including coordination with Emergency Management Services in the event of wildfire and other extreme events. [30]
69. Governing law for emergency management, including wild forest fires, is the Law on Civil Safety. The latter defines the scale of emergencies (national and local) based on which specific roles assigned to each member of National Civic Protection System.
70. National Security Council, through National Crisis Management Center (department) is responsible to provide policy guidance to Prime Minister during the national level emergencies, as well as ensure coordination of emergency response of various Ministries through Situation Room[31].
71. Emergency wildfire response is managed through the Emergency Management Service (EMS) under the Ministry of Internal Affairs. The EMS has a vertically integrated structure delivering national response services through its own structures at the local level. The EMS is responsible for prevention, preparedness and response of emergency situations, organizing restoration activities within the emergency zones, and implementation of national plan on civil protection .[32] The firefighting and Rescue Forces Department is responsible for firefighting and rescue activities. The department acts through Tbilisi division, Adjara AR division, and 9 regional divisions.[33] The EMS takes responsibility for wildfire response and suppression with the NFA as a supporting institution.
72. Local communities also play a role in forest management and wildfire response. Local municipalities have responsibility for management of forest and water resources that belong to the local municipality. There are no specific provisions for their involvement in wildfire response. However, they are engaged in addressing the impacts of local emergencies of local level (emergencies within the border of one or bordering municipalities) and in some cases, have an operational oversight in managing protected areas (as is the case in Akhmeta municipality, where the Tusheti Protected landscape is partially managed by the local administration). In practice, where significant wildfires occur, local municipalities generally are engaged to provide support in the response to the EMS and NFA. [34]
73. The forestry sector in Georgia is framed by a number of recent reform processes:
 - a. The sector is governed by the Forest Code (1999).

[29] Source: National Forestry Agency of Georgia, May 2019

[30] Source: Agency of Protected Areas of Georgia, May 2019

[31] Source: # 337 Decree of the Government of Georgia on Approval of the Charter of Office of the National Security Council, 17 July, 2019

[32] Decree N 387 of Georgian Government on approval of the Statute of the Emergency Management Service, July 31, 2018

[33] Source: Organigram of the EMS, May 2019

[34] Georgian Code of Local Self-Governance, №1958-III, 05/02/2014

- b. In 2012, the GoG undertook comprehensive sector reform through the adoption of the National Forest Concept – Georgia’s first national forest policy which sets the current regulatory and institutional framework for sustainable forest management.
- c. In 2013, the National Forest Program (NFP) process was launched to support Forest Sector Reform. Based on the NFP, a forest sector reform strategy and action plan has been developed and approved as part of the National Environmental Strategy and Action Plan 2017-21.
- d. In 2019, the new Forest Code was submitted to the Parliament for approval, setting out sustainable forest management, planning, fuelwood supply approaches and regulations
- e. The development of Georgia’s first National Forest Inventory is also underway, and the government is working on the development of a Forest Information and monitoring system.

Regional Coordination

74. Given the long border and limited capacities at a national level, regional cooperation on wildfire management is important, particularly from a response perspective. Regional approaches can also help align systems and planning and create economies of scale for relatively small economies. However, regional cooperation and alignment on wildfire related issues is under-developed. There are formal structures to support inter-governmental cooperation in the event of wildfires and other natural disasters but these tend to be responsive and ad-hoc. There is limited pro-active planning in relation to capacities, interoperability of systems, cross-border coordination and training and only limited access to technical expertise to support such a dialogue. Cross border exercises have only tended to happen in the context of regional projects and it has been a number of years since such practical exercises were undertaken. Despite this, there has been successful cooperation on major wildfires. For example, more than 70 Armenian firefighters responded to the large 2017 wildfire in Borjomi national park at the request of the Georgian government. Both countries often have to call upon support from larger countries with regards to air support (for example Russia provided a large airplane to address the large fire in Khosrov State Reserve in Armenia in 2017).

Forest fire risk forecasting and data

75. Several efforts have been undertaken over recent years to strengthen the information systems that support wildfire risk identification, forest monitoring and wildfire damage impact assessment. These break down into the following:
 - a. *Wildfire risk forecasting:* Ministries of Environment and their respective forest agencies are responsible to assessing the fire risk within forests. Both Armenia and Georgia have piloted wildfire risk forecasting systems that draw upon meteorological and forest inventory data to forecast risk levels. These models combine forest, soil and hydro-meteorological data to provide spatial assessment of risks and potential hotspots. The approaches have been derived using different technical models (although with similar theoretical approaches), with Armenia deriving from Russian experience (supported through UNDP by the Government of the Russian Federation) and Georgia developing a system based on Canadian models and classifications. In both countries, these systems have not been fully operationalized, although the technical approach and methodologies have been developed.
 - b. *Forest inventories:* In both Armenia and Georgia, forest inventories are outdated (with the last complete baseline undertaken in the 1980s). Significant changes have taken place in

the profile of forest cover in the intervening years (mostly due to socio-economic factors). Partial inventories have since been completed since as part of scientific or project research. For example, in Georgia, the recent forest management level inventories (and 10-year forest management plans elaborated based on these results) only cover up to 13% of the whole forest area. A range of international organisations is currently supporting both countries to build more robust National Forest Inventories (NFIs). For example, GIZ is currently supporting Georgia to update its forest inventory on the basis of a statistical methods approach.

- c. *Wildfire damage impact assessment:* In both countries, governments use remote sensing and satellite data to estimate the spatial impacts of wildfires, rather than for their identification. Currently, resource constraints mean that both governments tend to rely on publicly available lower resolution data available from MODIS and VIIRS which allow the tracking of thermal anomalies at a 1km resolution. There is currently no system to assess the economic damage associated with spatial impacts in either country. Assessments are undertaken on an ad-hoc basis. NGOs such as Global Forest Watch monitor the number and scale of forest fire events using available satellite data.
- d. *Forest management information systems.* Both countries are developing Forest Management Information Systems (FMIS) as a basis for integrating a range of spatial and numerical data sets and this work is on-going. In addition, in 2019 FAO and UNECE have released guidelines for national forest monitoring systems, including indicator sets to support sustainable forest management and these are being promoted at a regional level, including in Armenia and Georgia under the project Accountability Systems for Sustainable Forest Management for the Caucasus and Central Asia.²⁶ There are also wider environmental management information systems for reporting on international conventions in both countries into which forest data could be integrated. Currently, sources of data are not well integrated or presented in such a way that supports decision making.

Wildfire risk management capacity

- 76. *Wildfire management plans:* In both countries, wildfire risk reduction is integrated at the local level into Forest Management Plans (FMPs). These are developed and managed by the local forestry agencies and set out the overall approach to forest management, of which wildfire risk is a small subset. In terms of wildfires, the FMPs include measures to reduce risk (e.g. forest thinning, pest control, removal of combustible material) and support response (water sites, access, mineralized strips). They also set out overall roles and responsibilities for the Forest Management Agencies and their coordination with other agencies (including emergency services) in case of fire. In practice, the implementation of FMPs is constrained by a lack of funds and capacity. There is also a concern that FMPs do not exist for all forest or protected area agency sites in either Armenia or Georgia, and where they do exist, they are based on outdated forest inventory information.
- 77. *Early warning systems* to communicate risk to populations are generally underdeveloped in both countries. While national hydromet services and Ministries of Environment are responsible for issuing general fire risk warnings on the basis of hot and dry weather in practice, these warnings are very general and not oriented towards specific locational risks or behavioral change. Often these warnings are more oriented towards public bodies than

²⁶ See <https://sdg.iisd.org/news/fao-unece-share-sfm-criteria-and-indicator-guidelines-for-caucasus-and-central-asia/>

towards communities who are the primary cause of fire risk, and limited attention is paid to the types and channels of messaging that might be successful in changing risk behavior.

78. *Awareness* is an issue for both countries, with poor compliance among forest communities with sound wildfire risk management practices. In both countries, there are periodic attempts in both countries to systematically raise awareness with specific groups (e.g. farmers, tourists) around fire risk. This is done through awareness raising meetings at the local level (e.g. between farmers and local EMS) and the installation of signs prohibiting fires in forested areas or warning of the risks. However, attempts to change behavior have been relatively unsuccessful to date, partly due to weak enforcement of existing laws (around agricultural residue burning) and a lack of capacity to provide sufficient oversight at the local level. There has also been limited exploration of the role that mobile and social media might play in communicating risk and changing attitudes. Recreational zoning (e.g. for tourism or hunting) is not well developed, leading to uncontrolled use of fires for cooking purposes.

Wildfire identification and response capacity

79. *Wildfire identification* in both countries is based on community support, with community members or rangers raising the alarm and contacting local authorities, emergency services (e.g. 112) or forest services directly. There is currently no centralized system in either country for the use of ground- or satellite-based remote sensing to identify wildfire outbreaks. The topography of both countries (with significant mountain forest areas) makes ground based visual systems challenging, although there might be more use made of observation towers. All stakeholders consulted shared the view that that fire identification was a lesser issue than capacity to respond, given the relatively small territories of both countries, high population densities and strong levels of community level engagement. However, stakeholders also recognised that delays in fire identification can result in slower response times, allowing small fires to take hold and expand before emergency services can engage. The efficiency and effectiveness of inter-agency coordination and communication following a wildfire alarm was raised as a bigger challenge in both countries in terms of response delays.
80. *Technical capacity and equipment* in fire response were identified a key area of concern. Emergency services generally have the primary mandate for response and are generally better equipped than forest agencies to engage, particularly with large-scale fires with access to heavy equipment and fire trucks. However, in practice, rangers from forest/protected area agencies are more likely to play the role of first responder and still require smaller-scale technical capacity in terms of tools and manual suppression equipment. Capacities vary significantly between forest agencies (depending on the scale of forest under management) and between countries. However, in general, the availability of fire-fighting equipment across both types of institutions (forest agencies and EMS) is limited and that equipment which does exist is often outdated (e.g. protective equipment, communications equipment, firefighting tools and pumps). For example, visits to local forest agencies in both countries revealed that many of the existing backpack water carriers and pumps were not functioning. A key gap in relation to mountain areas is in the availability of all-terrain vehicles that can support both rapid small-scale (e.g. quadracycles for forest agency staff) and large-scale response (e.g. all terrain trucks for EMS). Even where EMS has trucks, they often struggle to reach steep sloped forest areas. Both countries lack aerial capacity (e.g. planes, helicopters) that can engage in firefighting and often rely on international assistance in this regard. In both countries, EMS and forest agencies are often dependent on support from local communities (both in terms of manpower but also tractors and bulldozers) to engage with larger fires. Low salaries also contribute to capacity

constraints, with rangers and firefighters often moving to better paid employment after training. Annex 7 sets out national level needs equipment assessment for forest agencies and EMS in the respective countries.

Community livelihoods and resilience

81. Communities in mountain forest eco-systems are not only exposed to the risks of climate change but are also key contributors to enhancing climate risk (through poor agricultural and recreational practices). A key issue is the disconnect between the collective need to preserve the forest, and how it is used as an economic and social resource at the individual level. Communities have typically relied on the forest in unsustainable ways for socio-economic reasons (fuelwood during periods of economic and political instability), exploiting forest resources for food, forest products and tourism. This has been compounded by weak governance and oversight by local authorities and forest agencies. There is little collective or institutional incentive to ensure that forests are protected from risk.

Adaptation solution: reversal of the problem

82. Reducing the increased climate-change related risks of wildfires requires a multi-pronged regional approach that brings together institutional, informational and community level interventions to improve the resilience of mountain forest eco-systems and associated community livelihoods. Key areas for intervention include:
 - a. A strong legal, regulatory and institutional basis to support regional and national level wildfire preparedness, coordination and response;
 - b. Better use of observation, information systems and data analysis to support improved wildfire forecasting, monitoring, and resource allocation;
 - c. Effective risk reduction strategies and supporting resilience solutions at sub-national and community level, building capacity and awareness to address wildfire risk.

Barriers to the adaptation solution:

83. A range of barriers exist to achieving these solutions as set out below:

Legal, regulatory and institutional capacity barriers:

- a. *Incomplete policy and regulatory frameworks:* Policy frameworks and regulations for wildfire management remain incomplete in both Armenia and Georgia. At the regional level, there is a lack of harmonised standards and operating protocols which makes regional liaison and international cooperation more challenging. There is also limited consideration of climate change trends (increased temperatures and lower precipitation) in relation to strategic planning for wildfire management, meaning that climate change is poorly reflected in wildfire planning resource allocation at regional, national and sub-national level. Local forest management plans are broadly well developed, although some remain only partially complete and there is little consideration of community involvement or economic incentives. National level wildfire regulations (e.g. recommendations developed previously under the ENVSEC project) are not yet fully elaborated or implemented in either country. Key regulatory frameworks that would facilitate community-level engagement in both countries (e.g. rules around volunteer groups for fire response) are also yet to be developed, which in turn reduces the ability of community level capacity to be fully leveraged and once again confirming need to establish functional volunteer groups. There is also a lack

of clear frameworks at the local level to reduce wildfire risk and respond effectively (e.g. poorly elaborated community wildfire management and response plans).

- b. *Challenges in institutional cooperation:* Cooperation between the relevant agencies responsible for wildfire risk reduction, identification and response is an area that could be improved in both Armenia and Georgia, and at a regional level between the two countries. While on paper, national roles and responsibilities are elaborated, in practice, the roles played by forest management agencies and emergency services can be much more fluid, with forest agencies acting as first responders and undertaking smaller scale fire suppression activities. However, this role is often not well recognised in terms of resource allocation, equipment and training. At the regional level, mechanisms for joint response and coordination between the two countries exist, but in practice these are responsive, ad-hoc, and lack clear protocols and resources. A more pro-active and capacitated regional mechanism is required.
- c. *Limited capacity to plan and respond to wildfire risk:* In both countries, the responsibilities for wildfire risk reduction, identification and response are spread across a large number of stakeholders (emergency services, forest management and protect areas agencies, local authorities, community teams). There is limited awareness of best practice in relation to wildfire risk reduction and response among senior decision makers in government, key responsible agencies and among community leaders. There are also limited opportunities for multi-stakeholder wildfire training and drills that would allow for assessment and improvement of existing capacity. Drills would allow for streamlining of procedures and protocols, and provide valuable experience to the respective agencies, whether at a regional, national or sub-national level. Previous experience of international coordination for major wildfire events suggests that there are challenges (linguistic, protocols, equipment interoperability) which also present barriers to effective response. A greater focus on transnational collaboration in training exercises would also be beneficial in this regard (whether in border areas or as a joint response to large-scale events).
- d. *Lack of equipment and technology for effective wildfire response:* In both countries, emergency response teams, forest agency staff and community level fire response teams lack sufficient equipment to monitor wildfire risks and respond effectively to engage in fire suppression. Existing equipment is often old or functions poorly when used tested in operations. This is true both of small-scale response (e.g. where forest rangers are expected to address localized fires without support from the emergency services), as well as larger scale response (where vehicular access and more specialized fire-fighting technology is required, often with EMS involvement). There is limited use of advanced monitoring technology (e.g. cameras, sensors) to provide rapid identification of wildfire outbreaks.

Data analysis, forecasting and communication barriers

- e. *Underdeveloped systems for fire risk monitoring, forecasting and analysis:* In both Armenia and Georgia, initial work has been undertaken to support the uptake of more developed fire risk forecasting systems based on international best practice (e.g. Canadian and Russian risk forecasting approaches). These systems incorporate climatic monitoring with forest cover variables to assess wildfire risk across the countries involved. However, these systems, while piloted, have not yet been operationalized at scale nor fully adopted by key agencies. Similarly, agencies in both countries are not making full use of forest wildfire emergency response data to understand how anthropogenic-induced wildfires clustered, and how preventative

measures and resources might be better organised as a result. At a broader level, capacity to gather data is constrained, with limited use of GIS or ground-based systems for monitoring or impact assessment. As a result, there is limited data available for senior policy makers who are charged with making decisions around strategic planning or operational resourcing. This also extends to the challenge of incorporating an understanding of wildfires in the national GHG inventories and the NDCs.

- f. *Limited effectiveness of early warning systems to communicate risk:* Even where robust forest wildfire risk data exists, there is limited use of effective early warning systems to communicate risk, change behaviours and increase preparedness. Currently, there is some communication to inform key constituencies (policy makers, local agencies and authorities, general public) about wildfire risk (although this can be as limited as a fax issued to relevant ministries at the national level). Public messages can also be issued (e.g. on radio or television). However, the messages, channels and formats are often very general, lack specificity and are not well designed to create a specific risk reduction response among potential stakeholders. They lack a 'user-focused approach' and end users are often not clear as to what the implications are or how to interpret warnings.
- g. *Weak data management around forest inventories and wildfire risk and impacts:* Currently data sets useful for improving the understanding and forecasting of fire risk are too fragmented and lack common standards, thereby preventing interoperability at both national and regional level. Institutional fragmentation, frequent restructuring of responsible agencies and a culture of institutional siloes also discourage data sharing. This can reduce the capacity to manage data over time, which can in turn impact upon the ability to identify and analyze trend data. In both countries, there is a general lack of integration of forest inventory information, weather and climate data, economic impact data, and response cost assessment. This makes evidence-based policy making challenging. There are also disparate technical data standards and a lack of common data protocols. This is reflected at regional level where there is a fragmentation of wildfire risk assessment approaches, and no common approach towards risk and vulnerability assessment to improve wildfire response planning and resource allocation.
- h. *A lack of innovation and adoption of wildfire monitoring and forecasting technologies.* The development of more advanced monitoring, data analysis and communication technologies can provide an opportunity to innovate around how wildfires are identified (sensors, drones), and how risk can be better assessed and reduced (big data analysis). Such advances have the potential to reduce the costs of wildfire monitoring, response and wildfire impacts. However, the uptake of new approaches is relatively limited in both Armenia and Georgia, in part due to lack of awareness among policy makers, and in part due to the lack of formal mechanisms to promote the testing, adoption and funding of such technologies within publicly managed forest and EMS institutions and systems. Platforms and windows need to be created that allow for low cost – low risk trialing of such technologies and business models explored that allow for private sector engagement with public budgets.

Capacity and awareness barriers at the local level

- i. *Lack of capacity to address fire risk reduction and response at the local level:* In both Armenia and Georgia, there are capacity and resource challenges associated with effective wildfire risk reduction and response at the local level (shared by forest enterprises, local emergency services, local authorities and communities). These

capacity issues include poorly elaborated forest fire risk management and response plans and protocols (as set out earlier), but also derive from limited investment over recent years in effective forest management practices that can contribute to reduced risk (forest thinning, pest control, fuel removal, control over agricultural burning) as well as in response and fire suppression infrastructure (maintenance of forest access routes, water storage sites, fire suppression equipment, vehicles, communications and monitoring).

- j. *Weak community forest conservation practices and economic incentives.* A significant and shared challenge across both countries relates to the relationship between forests and the communities that live in proximity and use forest resources. While there are strong cultural ties to the forest landscape, communities lack the economic incentives to engage in better forest management and improved stewardship. This results in unregulated forest access and resource use, gradual deforestation and increased risk of anthropogenic wildfire incidence. By improving the structure of interaction between communities and their forest resources (encouraging fuel clearance, sustainable forest products and tourism, reducing uncontrolled burning of agricultural residues and fields) and encouraging reforestation activities, it is possible to build greater awareness among forest communities of the value of their resources, diversify forest community livelihoods, and improve the broader resilience of these communities to climate change.
- k. *Low levels of awareness of fire risk and good behavioral practice at the local level:* A key challenge relates to low levels of awareness of the links between anthropogenic activity and forest wildfire risk in mountain regions. Despite best efforts by the respective forest management agencies in Armenia and Georgia, key stakeholder groups continue to ignore these risks. Such groups include forest users (recreational tourists, hunters etc.) who continue to set fires in increasingly hot and dry conditions, as well as agricultural communities, who maintain strong cultural belief in the value of field and residue burning as a form of land productivity improvement. While in theory regulations exist to prevent both types of activity, in practice these are not strictly enforced, leading to the need for better awareness and education among target groups.

Project Objective:

84. The project objective is as follows: 'To build regulatory, institutional and technical capacity at regional, national and local levels in order to reduce the frequency, scale and impact of climate-related wildfires and strengthen eco-system and community resilience across the mountain forest regions of the South Caucasus'.

85. The project will achieve the following results:

- a. Strengthened regulatory and institutional capacity to identify, plan for and respond to climate-induced wildfire risk at both regional and national levels.
- b. More effective data management and decision making around forest wildfire risk reduction and response, and enhanced use of climate information.
- c. Increased community and ecosystem resilience to wildfire risk and broader climate change impacts at the local level in mountain forest areas.

Project / Programme Components and Financing:

Project Components	Expected Outcomes	Expected Outputs	Countries	Amount (US\$)
1. Strengthening policy, regulatory and institutional frameworks	1.1 Strengthened regulatory and institutional capacity to identify, plan for and respond to climate-induced wildfire risk at both regional and national level.	<p>1.1.1 <i>Policy and regulatory frameworks are enhanced and aligned:</i> Regional assessment and enhancement of wildfire-related regulatory and policy frameworks and their enforcement in place, with targeted interventions to mainstream understanding of climate change in wildfire risk management systems, create harmonised regional wildfire standards and protocols, and facilitate improved response at the local level (e.g. through volunteering regulations).</p> <p>1.1.2. <i>Institutional cooperation strengthened at regional, national and local levels:</i> Assessment and enhancement of institutional roles, responsibilities undertaken at regional, national and local level, with recommendations made for clarifying operational roles and resources, and support provided for improved coordination at all levels.</p> <p>1.1.3. <i>Human and technical capacity for wildfire response enhanced at national and regional level:</i> A system for regular training on wildfire risk reduction and response in place involving all relevant agencies at regional and national level, including undertaking regular multi-stakeholder extended drills.</p> <p>1.1.4. <i>Technical capabilities for wildfire response improved:</i> Firefighting response capacities of forest and protected area staff, regional emergency units and relevant community voluntary firefighting groups are strengthened at the local level through provision of equipment.</p>	Armenia, Georgia	1,587,800
2. Improving the use of climate and wildfire risk information by decision makers	2.1. More effective data management and decision making around forest wildfire risk reduction and response, and enhanced use of climate information	<p>2.1.1. <i>Strengthened wildfire risk monitoring and forecasting system:</i> Common modelling tools and data analysis approaches for vulnerability assessment, wildfire risk monitoring and forecasting developed and implemented at regional level to improve decision making and resource allocation.</p> <p>2.1.2. <i>Effective early warning system communications in place:</i> Existing climate information and wildfire-related Early Warning System (EWS) products improved and further tailored to sectoral and end user needs.</p> <p>2.1.3. <i>Harmonized protocols for data collection, storage and reporting:</i> Set of common SOPs on information collection, storage and dissemination, as well as internal reporting standards on climate induced hazards developed for at regional scale and implemented in both countries.</p> <p>2.1.4. <i>Private and third sector innovation supported through the CCTA:</i> Climate Change Technology Accelerator funds universities and private developers to innovate and operationalise new wildfire monitoring and forecasting technologies, and trial data analysis techniques.</p>	Armenia, Georgia	910,800
3. Reducing wildfire risk and promoting forest eco-system	3.1 Increased community and ecosystem resilience to wildfire risk and broader climate	3.1.1. <i>Wildfire risk reduction activities prioritised at the local level:</i> In-depth community vulnerability profiling and participatory scoping undertaken to prioritise investments in local adaptation measures for wildfire risk reduction and	Armenia, Georgia	3,977,850

adaptation at the local level	change impacts at the local level in mountain forest areas	<p>response and community level activities promoting resilient sustainable forestry.</p> <p>3.1.2. <i>Integrated forest fire risk management measures implemented:</i> Integrated eco-system and forest fire management measures implemented, reducing wildfire risk and improving response at the local level (measures identified in 3.1.1).</p> <p>3.1.3. <i>Community forest eco-system enterprises supported:</i> Increased community involvement in eco-system-based adaptation (EbA), sustainable forest management, increases resilience and reduces wildfire risk (measures identified in 3.1.1).</p> <p>3.1.4. <i>Public awareness campaigns organised:</i> Public awareness campaigns implemented to change behaviours among forest users and farmers most likely to be the cause of wildfires in climate vulnerable areas.</p>		
4. Project/Programme Execution cost				413,550
5. Total Project/Programme Cost				6,890,000
6. Project/Programme Cycle Management Fee charged by the Implementing Entity (if applicable)				585,650
Amount of Financing Requested				7,475,650

Projected Calendar:

Milestones	Expected Dates
Start of Project/Programme Implementation	2020
Mid-term Review (if planned)	2023
Project/Programme Closing	2025
Terminal Evaluation	2025

PART II: PROJECT / PROGRAMME JUSTIFICATION

A. Describe the project / programme components, particularly focusing on the concrete adaptation activities of the project, and how these activities contribute to climate resilience. For the case of a programme, show how the combination of individual projects will contribute to the overall increase in resilience.

86. The project aims to address the increasing risk of wildfires in forest eco-systems across the Southern Caucasus, while also promoting more sustainable forest management practices, protecting biodiversity and enhancing the capacity of forest communities to adapt to climate change. It has three components:

- a. Strengthening policy, regulatory and institutional frameworks
- b. Improving the use of climate and wildfire risk information by decision makers
- c. Reducing wildfire risk and promoting forest eco-system adaptation at the local level

87. These three components are described in more detail below.

Component 1: Strengthening policy, regulatory and institutional frameworks

88. In both Armenia and Georgia, the enabling policy, regulatory and institutional frameworks for wildfire management will be strengthened to support wildfire risk reduction, increase preparedness, and improve regional cooperation and alignment on wildfire management. Institutional capacity will be strengthened through the organization of training (including transboundary drills) and the provision of technical equipment. The following outputs are envisaged:

Output 1.1. Policy and regulatory frameworks are enhanced and aligned

89. Output 1.1 seeks to improve the effectiveness of the policy and regulatory framework in each country, and to improve their alignment at the regional level.

- a. The current policy and regulatory framework for wildfire management will be assessed from an effectiveness perspective to identify gaps related to climate risk management. This will be done at a regional, national and local level;
- b. At a regional level, the project will develop a common roadmap for the harmonized implementation of wildfire management policy using common standards, risk assessment procedures and response protocols;
- c. At national level, wildfire management policy approaches, including those elaborated under previous support (ENVSEC, Russian Trust Fund and GEF/SPA in Armenia) will be reviewed and updated, and their adoption and implementation supported. The project will address any identified gaps in implementing regulation;
- d. Regional guidance on wildfire risk reduction and CC adaptation will be developed. National Forest Management Plans, DRR documents and forest community development plans will be revised to incorporate resilience measures;

- e. Regulations to facilitate the functioning of voluntary community level response and rescue teams will be enabled in both countries, to include questions of liability and insurance, roles and responsibilities, and interface with government agencies.
- f. Enforcement of regulations will be strengthened to ensure that policy is operationalized in an effective manner on the ground.
- g. Mainstreaming of wildfire risk into other government plans and strategies where appropriate (e.g. forest, environmental and bio-diversity plans, national development strategies, community development plans, sector plans).

Output 1.2. Institutional cooperation strengthened at regional, national and local levels

90. Output 1.2 seeks to streamline and strengthen the institutional frameworks for wildfire risk reduction, detection and response. It will review the roles and responsibilities of relevant institutions, as well as their coordination and operational mechanisms at regional, national and local levels. The following activities are envisaged:

- a. A review of the institutional frameworks and protocols at regional, national and sub-national level, in particular identifying areas of split responsibilities between institutions and perverse incentives (e.g. resource allocation decisions) with a view to making recommendations to improve institutional coordination and response;
- b. At a *regional* level, the project will support the development of more effective cross-border coordination mechanisms. These will include:
 - i. Options to establish a Regional Advisory Council to provide technical and operational guidance to decision makers on fire risk management;
 - ii. Support to existing national interagency bodies, such as the Inter-Governmental Task Force on DRR to improve awareness of fire risk;
 - iii. Recommendations to improve functioning of bilateral “Agreement between the Republic of Georgia and the Republic of Armenia on cooperation in the field of prevention of natural and man-made disasters and elimination of their effects”.
- c. At a *national* level, the project will work with responsible agencies and DRR Platforms to improve clarity around institutional roles and responsibilities for fire monitoring, forecasting, identification and response (e.g. between forest management and emergency response agencies), and provide recommendations for improvement, together with an assessment of resource allocation implications.

Output 1.3. Capacity for wildfire response enhanced at national and regional level

91. Output 1.3 will undertake a detailed review of capacity development needs for key institutions involved in wildfire management and response. This will be done at regional, national and local levels. Key stakeholders will include emergency services, forest management agencies, protected area authorities, local authorities and community teams. On the basis of this assessment, a series of training events and emergency drills will be organised to strengthen capacity improve wildfire management and response and a system for regular training will be developed.

92. At a *regional* level, the project will support multi-level training to improve alignment between Georgia and Armenia fire management authorities. This is likely to include:
- Extended transboundary wildfire training exercises in suitable locations in forest areas along the Georgian/Armenian border. This will be done in order to assess the interoperability of response protocols, communications and other equipment. Lessons learned will be used to further align national level approaches and improve the efficiency and effectiveness of response mechanism.
 - Training for policy officials in key institutions (emergency services, forest management, local government, etc.) in relation to institutional, regulatory and technical best practices to minimize fire risk (e.g. emerging technologies) and improve response coordination.
93. At *national* and *community* level, technical capacities of the fire-fighting emergency units and sectorial responsible units (forest and protected areas entities, local communities) will be strengthened to ensure adequate monitoring and response to climate induced wildfires through professional training based on the packages developed with support of Global Fire Monitoring Center under the umbrella of ENVSEC project. This will be done in close coordination with wider fire risk reduction and adaptation investments made under Component 3.

Figure 24: Forest wildfire training exercise in Georgia (GFMC 2010)



Output 1.4. Technical capabilities for wildfire response improved

94. Output 1.4 will improve the technical capabilities of forest and protected area staff, regional emergency units and relevant community voluntary firefighting groups through the provision of equipment. This will be done both at a national level, and in the targeted areas. This will include procurement of the following types of equipment:
- Specialized vehicles (quadracycles, off road water carrying vehicles, bulldozers/tractors)
 - Water tanks and pumps
 - Protective equipment (uniforms, helmets, glasses, respirators, gloves, shoes)
 - Mobility equipment (sleeping bags, flashlights, backpacks)
 - Hand tools (rakes, chainsaws, petrol scythes, spades, axes, backpack and fans)

f. Communications equipment and GPS

95. Annex 7 provides the submitted equipment requirements and needs assessments made by the respective authorities in Armenia (Hayantar) and Georgia (Emergency Management Service). These discussions have informed the sizing of the budget for component 1.4 in order to meet the specific demands of the six project regions, as well as improve overall national capacity. However, more detailed scoping and prioritisation will be undertaken with the relevant authorities in each country in targeted regions during inception phase. Resources will be prioritised for the 6 targeted project areas (particularly for large items such as vehicles and tanks) with some national level support provided to build national capacity for smaller scale tools and equipment. The selection of supporting equipment will be done in close coordination with wider fire risk reduction and adaptation investments envisaged under Component 3. Where appropriate, procurement activities will be undertaken at a regional scale to ensure value for money.

Component 2: Improved use of climate and wildfire risk information by decision makers

96. Component 2 will address gaps in the generation and use of climate and fire risk information in order to strengthen decision making and improve early warning activities. The project will review existing wildfire forecasting and early warning systems with a view to developing improved capacity at the regional and national levels. It will do this in part by harmonizing and improving the management of climate and wildfire risk data to support easier institutional cooperation and risk platform development. The outcome will be improved access to more robust and accessible decision-making tools that can support decision makers to communicate risk information to relevant stakeholders and allocate resources appropriately.

Output 2.1. Strengthened wildfire risk monitoring and forecasting system

97. Output 2.1 will support the development of more robust approaches to the forecasting and classification of wildfire risk. This will build upon existing preparatory work undertaken in both countries to support the implementation and uptake of an integrated risk management system. Common regional approaches will be sought where appropriate, with common data systems and protocols (see Output 2.3). Activities envisaged include:

- a. Operationalization and scaling of integrated fire risk forecasting models (incorporating weather and forest data), building upon earlier pilot work in both Armenia and Georgia and liaising with ongoing forest inventory processes;
- b. Exploring the predictive role of 'big data' in understanding the relationship between the frequency and location of emergency services response, climate risk and anthropogenic factors (e.g. agricultural burning, tourism);
- c. Reviewing options for remote-based sensing to improve risk and vulnerability assessment, as well as cataloguing outbreaks of fire, including improved GIS mapping and database management in key agencies;
- d. Explore options to enhance ground-based observation networks to monitor risk and improve forecasting reliability (e.g. improved hydro-meteorological network coverage, station upgrades, cameras);

- e. Providing modelling and advisory support to strategic decision makers (e.g. national security teams, development planners) on likely changes in wildfire threat levels due to climate change and broader socio-economic development;
- f. Supporting understanding of linkages between forest fire risk and carbon sinks for the purposes of strengthening national GHG inventories and improving NDC development and implementation.

Output 2.2. Effective early warning system communications in place

98. Output 2.2 will seek to improve the dissemination, relevance and accessibility of wildfire risk information for end users. This is with a view to both reducing risk (e.g. through changing behaviours) and improving preparedness (e.g. management of response). A review of existing EWS services will be undertaken as well as a mapping of potential users and demand. The project will develop 'user case assessments' to understand their preferred information requirements, formats, language and dissemination channels, thereby improving the 'last mile' delivery of EWS.

99. Data and ICT protocols will be developed to support the piloting of 2-3 EWS products which will be tailored to sectoral and local needs. Examples include the issuance of threat warnings to economic groups (e.g. local farmers engaged in agricultural burning), better targeted and disaggregated communications on threat levels to key institutional stakeholders (local emergency response teams, forest managers), and geo-cell based mobile telephone network warnings to the public entering areas of heightened risk.

Figure 25: Forest fire in Borjomi Valley region (2017)

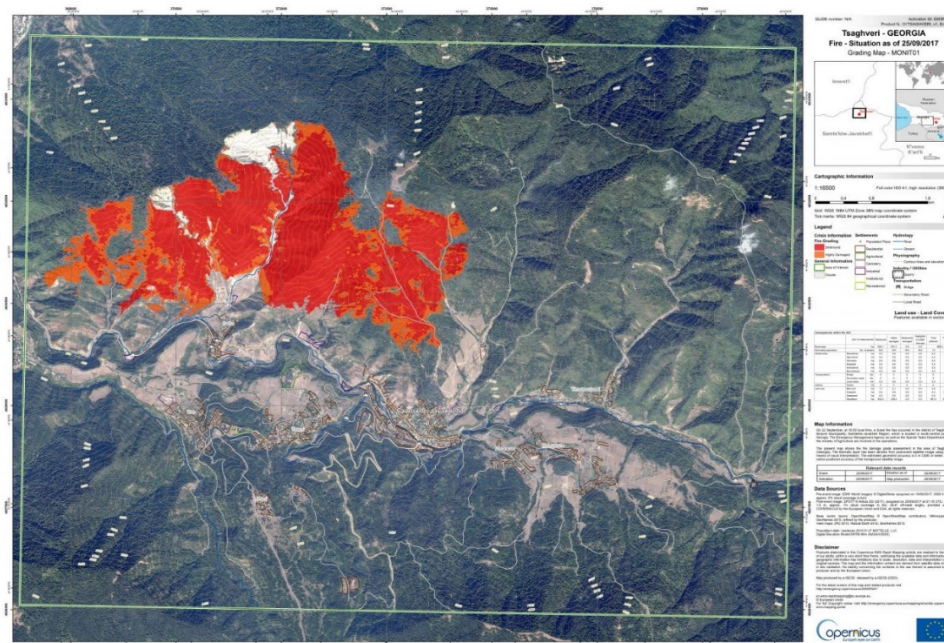


Output 2.3. Harmonized protocols for data collection, storage and reporting

100. Currently data sets useful for improving the understanding and forecasting of fire risk are too fragmented and lack common standards, thereby preventing interoperability at both national and regional level. Institutional fragmentation also discourages data sharing and reduces capacity to manage data over time. This can result in loss of valuable trend data over time. Output 2.3 will seek to support the standardization and integration of key data sets with a view to improving the quality of wildfire risk assessment, forecasting and reporting. The following activities are envisaged:

- a. Mapping of relevant data sources in key ministries and other agencies (including legacy projects) to include fire frequency and type, weather and climate data, forest inventories, economic costs and emergency response data;
- b. Harmonize classification and reporting frameworks for wildfires and other climate induced hazards (e.g. threat level, impacts, economic costs) at both national and regional level to ensure common definitions and risk assessment;
- c. Develop common technical standards to allow for interoperability between systems, allowing modelers or risk platform developers to work on common platforms (database, GIS);
- d. Support integration of existing data sets into unified repositories under management of a single national responsible institution to encourage better data management over time;
- e. Agree permissions and protocols for data sharing and access between different ministries and agencies as well as between countries to overcome institutional silos and protectionism;

Figure 26: Satellite mapping and data impact assessment of wildfire impacts and losses in Georgia



Source: Copernicus EU

Output 2.4. Private and third sector innovation supported through the CCTA

101. The project will support the development and scaling of innovative approaches to wildfire risk reduction and response through the Climate Change Technology Accelerator (CCTA). CCTA is currently managed through UNDP Armenia (as part of a wider UNDP Impact Investment Vehicle concept) together with the ISTC Foundation, Founders Institute Yerevan and Enterprise Incubator Foundation. It offers an independent platform that aims to develop different, field-based acceleration programs to support early stage and

established start-ups that address identified gaps of achieving the Sustainable Development Goals (SDGs).

102. CCTA in Armenia has already piloted innovative private sector approaches to forest fire monitoring and EWS systems. Early stage ventures already been supported during 2017-2019 include ForestBerg, Forest Guard and DataThon, which supported the detection and early warning of forest-related risks as well as analyzing wildfire spread. On the basis of competition, these start-ups were awarded funds and technical support to support the development of remote sensor-based networks capable of monitoring smoke, humidity, temperature and sound in real time, based on wireless, off grid, geolocation-based technology. Target audiences included National Parks, Ministries of Environment, Green NGOs, and B2B sector (private foresters).
103. Output 2.4 will support the CCTA to look to support the scaling of these concepts in Armenia and Georgia and to explore innovation around other aspects of risk monitoring and response (e.g. big data, remote sensing, drone technologies). Private companies, universities and research institutions will be encouraged to engage with policy makers to create systemic improvements in national capacity, whilst also supporting the development of markets to address key climate risks.

Figure 27: Examples of innovative technologies funded through CCTA Armenia



Component 3: Reducing wildfire risk and promoting forest eco-system adaptation at the local level

104. Component 3 will focus on the implementation of concrete adaptation actions that will increase adaptive capacity and resilience of communities and ecosystems in vulnerable mountain forest areas. In total, the project will engage with 6 forest areas (3 per country) further described below. Supported by new tools developed and applied under Component 2, the project will carry out vulnerability analysis in targeted communities and ecosystems to prioritise wildfire risk reduction and other adaptation measures that promote more sustainable forest management. Lessons learned will be captured and disseminated through regional workshops, publications, online, and tailored to different groups.

Output 3.1. Wildfire risk reduction activities prioritised at the local level

105. For each forest area, the project will undertake an in-depth participatory consultation to develop a detailed profile of wildfire risk and wider climate vulnerability. The project will engage with key stakeholders (forest managers, emergency response, local authorities, forest and agricultural communities) to develop this risk assessment. Working collaboratively, the project will draw up a prioritised and costed list of risk reduction and resilience measures for implementation. Opportunities will also be identified to reduce risk and improve resilience through local forest management plans and other local development strategies. Recommendations will be implemented under Outputs 3.2 and 3.3.

Output 3.2. Integrated forest fire risk management measures implemented

106. On the basis of the risk and vulnerability assessment, the project will support and co-finance the implementation of a number of best practice measures to enhance fire risk reduction and preparedness in the priority regions. These measures will include:
- a. *Fire breaks and access routes:* The project will provide funds to creating mineralized roads and firebreaks to minimize wildfire spread and promote access for both forest management teams and emergency response;
 - b. *Water storage facilities:* The project will rehabilitate existing ponds and tanks and establishing water storage facilities for fire suppression and control purposes (e.g. through creating natural dams in streams);
 - c. *Improved monitoring approaches:* The project will deploy innovative fire monitoring technologies to identify fire and issue alarms to relevant response services, including those piloted through CCTA (Component 2.4);
 - d. *Forest thinning:* The project will support the introduction of improved forest management techniques to reduce the intensity and reduce the fire carrying capacity of selected forest areas;
 - e. *Fuel removal:* The project will review local regulations for firewood removal and pilot community level incentives to promote the sustainable collection and removal of wood fuel to ensure that fire risk is reduced;
 - f. *Pest control:* The project will support research and analysis of (climate related) forest pests and diseases that are creating a surplus of dead wood and combustible material in forests in order to reduce fire risk and promote better forest health and support treatment or mitigation activities;
 - g. *Forest rehabilitation/reforestation:* The project will review the impact of climate change on the type of species and growth patterns and engage in *reforestation* where existing degradation has occurred (including wildfire impacts), using native species suitable to emerging climatic conditions.

Figure 28: Forest wildfire outbreak in Aragatsotn project region, Armenia (2017)



107. Currently, there is limited information in terms of the quantified costs and benefits of individual interventions. As part of the programme the project will undertake cost benefit

analysis of selected community level interventions under 3.2 to support prioritization and help develop the evidence base.

Output 3.3. Community forest eco-system enterprises supported:

108. Output 3.3 will increase the resilience of forest and adjacent agricultural communities by promoting activities that support the adaptation of forest eco-systems to climate change. It will also aim to improve the resilience of forest communities by diversifying economic activity away from those that can impact negatively on sustainable forest management or increase fire risk.
109. The project will work with selected communities to identify and prioritise economic resilience activities, prioritizing those that also reduce fire risk and increase the attractiveness of sustainable forest management. Typical activities are likely to include the following:
 - a. *Briquetting facilities:* Creating an economic supply chain for the production of fuel briquettes to ensure markets for waste wood and incentivize thinning and fuel removal. Investment in briquetting facilities will also help reduce unsustainable forest use, thereby supporting reduced deforestation and enhancing carbon sinks;
 - b. *Supporting opportunities for forest eco-system services:* The project will explore opportunities to increase the economic value of forests to local communities, including sustainable tourism, forest products (medical, food, materials) while ensuring that these do not increase fire risk. Competitive grants will be offered to co-finance the establishment of sustainable forest-related enterprises;
 - c. *Promoting sustainable land management practices:* Output 3.3 will work with local agricultural communities to raise awareness of fire risk from uncontrolled burning of residues and promote sustainable land management practices.

Figure 29: Briquetting facility in Manavi, Eastern Georgia (UNDP)



Output 3.4. Public awareness campaigns implemented

110. The project will work with local stakeholders in identified communities to build capacity and awareness around key forest fire management issues, as well as on broader climate resilient livelihoods and forest adaptation. In each region, the project will convene seminars for key stakeholders (agriculturalists, forest managers, emergency services, local authorities) to promote awareness of best practices. The project will work through a range of channels to change attitudes and behavior to wildfire risk, including:
- a. Targeted field seminars with farmers engaged in residue burning
 - b. Promoting wildfire risk through public schools and other educational facilities
 - c. Engaging with volunteer groups supporting wildfire and forest management
 - d. Using local NGOs and environmental activist networks to raise awareness
 - e. Partnering with emergency services and forest managers on signs
 - f. Engaging with local media (press, tv, social media) to promote best practice
111. These best practices and experiences will be compiled and disseminated at the regional level through internet, publications, case studies and round tables. These will be disseminated through national channels and stakeholders, as well as through UNDP regional and global learning platforms (ALM).

B. Describe how the project /programme would promote new and innovative solutions to climate change adaptation, such as new approaches, technologies and mechanisms.

112. The programme will bring a range of innovative approaches, technologies and mechanisms that support improved forest fire risk reduction and response within the South Caucasus region. The integrated approach of the project (bringing together policy, institutional, technological and socio-economic risk management approaches) is in itself innovative as the root causes of forest fire risk are complex. The project will involve a number of areas of intervention that are new for both Armenia and Georgia:
- a) Strengthening regional cooperation mechanisms between governments that allow for more pro-active risk management and resource planning (through more consistent risk assessment, training, response mechanisms), and shifting away from ad-hoc cooperation on disaster response;
 - b) Piloting new approaches to community engagement in wildfire response in both Georgia and Armenia by addressing the legal and institutional barriers to the formation of community volunteer brigades and helping to equip and train these groups in pilot regions;
 - c) Aligning standards and approaches to fire risk categorisation and reporting at a regional level, and linking fire risk planning to climate change/adaptation in sectoral and national development planning for more integrated policy making;
 - d) Developing and operationalising new and more effective approaches to fire risk forecasting, drawing upon technical and scientific approaches developed in other regions (e.g. Russia, Canada), and integrating hydromet and forest inventory data to issue more accurate fire risk warnings;
 - e) Supporting the development and piloting of new and innovative fire risk identification and forecasting technologies (e.g. remote sensing, big data mining)

by the private sector/universities through the Climate Change Technology Accelerator;

- f) Addressing the root causes of forest fire risk by addressing cultural and behavioural norms (e.g. agricultural residue burning, irresponsible forest recreation) and supporting public awareness campaigns;
- g) Building innovative approaches to community-level forest management that create incentives for improved forest stewardship and align economic incentives among forest users (e.g. through supporting sustainable forest enterprises, briquetting).

C. Describe how the project / programme provides economic, social and environmental benefits, with particular reference to the most vulnerable communities, and vulnerable groups within communities, including gender considerations. Describe how the project / programme will avoid or mitigate negative impacts, in compliance with the Environmental and Social Policy of the Adaptation Fund.

Socio-economic benefits

113. The programme, through the strengthening of regional wildfire management approaches and improvements in forest management resilience will deliver social and economic benefits for an estimated 800,000 people living in identified mountain forest regions. This includes those directly dependent on forest services (e.g. wood fuel, timber, tourism, forest products) as well as those living in adjacent agricultural communities. Indirectly, the project will enhance adaptation capacities and climate risk knowledge among a much larger number of households and enterprises.
114. Through the reduction of wildfire risk, communities living in mountain forest regions in Armenia and Georgia are less likely to face threats to their livelihoods and economic wellbeing associated with wildfire. Those engaged in forest-related economic activities will benefit from more sustainably managed forest resource that underpin future prosperity. These communities are also less likely to suffer losses (death, injury, infrastructure damages) associated with fire risk.
115. Under Component 3.3., communities directly supported will also receive additional socio-economic benefits associated with income diversification and the promotion of eco-system services that also reduce wildfire risk. Potential investments include the development of briquetting facilities, support for forest product enterprises, implementation of sustainable tourism zoning and recreational facilities, as well as promoting more sustainable agriculture and land management in forest-agriculture border areas. Farmers and forest communities will be encouraged to explore forest-eco-system services in order to strengthen the commercial value proposition of sustainable forest management and exploitation.
116. More broadly, reducing the incidence and scale of forest wildfires reduce the potentially economic losses associated with wildfire damages as set out earlier as well as reduce the large national (and often international) economic burden placed upon local and national response agencies that deal with firefighting and eco-system restoration. However, there is currently no robust or reliable estimate of the economic costs of wildfires in the South Caucasus region, nor an estimate of the current costs of responding to existing wildfire risk. Cost benefit analysis indicates that the returns of investments in

improved wildfire management are substantial with cost-benefit ratios reported in the international literature well in excess of up to 30:1 for activities supporting wildfire awareness and education.²⁷ Further cost benefit analysis will be undertaken for individual investments made in the selected communities (state, private, community-level) to build the basis for better decision making.

117. As the project is implemented in close cooperation with the government structures in both countries, there is strong potential for the replication and scaling of benefits more broadly across Georgia and Armenia to support other forest communities and surrounding agricultural communities.

Social benefits (including gender):

118. The project has been carefully structured to ensure that project activities are targeted at those regions and communities that are most vulnerable to climate change and fire risk in Armenia and Georgia. The six targeted regions are relatively under-developed and are distant from large urban centres, with the primary source of livelihoods based around agriculture, forestry and associated activities. These regions generally have lower incomes and asset bases than in more developed parts of the country. In selecting community level investments, the project will incorporate social vulnerability methods to support prioritisation those likely to bring the greatest benefit to economically deprived groups and other populations at risk (Output 3.1.).
119. Gender considerations will be fully mainstreamed into project implementation. Please refer to the detailed Gender Assessment and Action Plan (GAAP) in the **Annex 11**. The project will actively consider the roles of women within the project structure and seek to promote a rethinking of existing perspectives in the sector where this is culturally and politically feasible. This will include ensuring the role of women in any legal or regulatory amendments (e.g. around volunteering in wildfire response) and supporting the consideration of female perspectives in any communication or training materials developed.
120. Consideration will be given to prioritizing female access to resources, training and inclusion in local political processes which govern forest management and emergency response. Regional experience shows that insufficient attention is paid to participation of women in forest management and wildfire risk, and that without leadership examples women do not try to engage in management structures. Women at the local level generally have less access to decision-making, capacity building and knowledge.
121. Participants in community level planning activities (vulnerability assessment, identification of sustainable community-based forestry management approaches) will be selected to ensure adequate representation of women, considering prevailing social norms around roles and responsibilities within the forestry sector. The project will aim to ensure that at least 30% of participants in consultation or training activities are women and that there is fair and equal opportunity to access resources. The project will also reach out pro-actively to potential female entrepreneurs in Component 3.3 for development of sustainable forest enterprises. The project will gather gender-

²⁷ See www.srs.fs.usda.gov/factsheet/pdf/fire-economic.pdf

disaggregated data for evaluation purposes and use gender sensitive indicators (particularly around beneficiaries) to facilitate planning, implementation and monitoring.

122. As necessary the project will partner with local NGOs and women's cooperatives in order to integrate and support on-going local initiatives, and to make capacity-building and other implementation activities gender-sensitive (adjusting factors such as content and training times to ensure that the needs of female beneficiaries are equally accounted for). The project will also build upon lessons learned from development projects where successful women's participation has been supported in sectors traditionally dominated by men.
123. Implementation strategies to deliver these targets will be designed and delivered by the project team in conjunction with key project partners. This will be done through the clear setting of targets in project agreements, payment by results and regular monitoring of progress.

Environmental benefits:

124. At its core, the project will seek to deliver significant environmental benefits through the reduction of wildfire risk, and a shift towards more sustainable forest management practices. The integrated approach adopted by the project is likely to deliver significant environmental benefits at both national and local level. Benefits are likely to arise from the following types of outcomes:
- a. Reduced incidence and severity of forest wildfire
 - b. Improved forest management practices, leading to forest restoration
 - c. More sustainable agricultural practices in forest border regions
125. Environmental benefits arising as a result of the project are likely to be as follows:
- a. Conservation and improvement of biodiversity in 500,000 ha of mountain ecosystems in forest regions
 - b. CO2 emissions reduction and enhancement of carbon sinks

Risk mitigation

126. In regard to environmental and social risk assessment and mitigation, the programme is committed to complying with the Environmental and Social Principles (ESP) of the Adaptation Fund, with UNDP's Social and Environmental Standards (SES), as well as with applicable national and international policies, laws and regulations.
127. The project is comprised of low risk capacity building activities as well as downstream pilot activities for which detailed design and site-specific details are not yet known. To manage E&S risks an Environmental and Social Management Framework has been prepared that addresses risks identified for the known activities and provides a mechanism for screening and impact management of downstream activities. Key environmental and social risks will be incorporated into the project risk register and will be fully monitored during programme implementation, with formal review of any potential issues by the project team and the project board.
128. The Environmental and social screening activities completed to-date indicate that the proposed project has risks and potential impacts consistent with a Category B project. It was determined that the risks identified at this time are low to moderate when evaluated against the AF's ESP principles. Risks identified at this stage have potential adverse

impacts that are few in number, small in scale, localized, and reversible or easily mitigated. Actions that contribute to reduce and manage risks are:

- a) Stakeholder participation and utilization of participatory community planning, detailing the specific objectives, adaptation activities, implementation arrangements and commitments, partner institutions and beneficiaries.
- b) Adherence to UNDP's established work practices including travel safety and security, procurement including vetting and monitoring of contractors, and monitoring and evaluation
- c) Mainstreaming of the human rights approach to development and gender equality and women's empowerment.
- d) Use of the environmental and social management framework to screen, assess and manage potential environmental and social effects of downstream activities (Annex 9).
- e) Development of a permit plan for each downstream activity that identifies all regulatory permits that are required prior to implementation, including EIA approval as determined in consultation with
- f) Use of grievance redress mechanism to capture and address stakeholder grievances.

129. The project will consist of activities and downstream implementation of programmes for which site-specific details will not be fully known until later in the project cycle. For this reason, an Environmental and Social Management Framework has been prepared to provide a mechanism for the social and environmental screening, impact assessment and impact management of the future, downstream activities, including risks associated with: biodiversity, community health and safety, core labor rights (including worker health and safety), and pollution prevention and abatement. The screening completed to date indicates there is low risk adverse trans-boundary or global environmental impacts. This will be confirmed in the additional screening for each site-specific activity, along with screening for potential secondary or consequential development, and cumulative effects.

130. The proposed project will not result in significant greenhouse gas emissions nor would exacerbate climate change impacts, but rather has been designed to mitigate anticipated impacts of climate change. Furthermore, the benefits from improved forest management, afforestation and recovery can include reduced greenhouse gas emissions from the soil and improved carbon storage. The project will therefore indirectly increase social and environmental resilience to climate change now and in the future through mitigation benefits, in addition to its explicit goal of enhancing environmental and social resilience in the face of climate change through adaptive agricultural practices.

131. The project will not support site-specific activities that require physical displacement. It is anticipated that the site-specific demonstration activities will be implemented on state land under the management of the respective National Forest or Protected Area Agencies, which would not exacerbate land tenure arrangements and/or community-based property rights/customary rights to land, territories and/or resources. However, as per the ESMF additional screening will be completed for each site-specific activity to identify risks and impacts related to land tenure and livelihoods.

132. More detailed environmental and social assessment, which may take the form of an Environmental and Social Impact Assessment (ESIA) depending on the scale and type

of infrastructure, will be undertaken with regards to any direct investments in infrastructure (e.g. community level facilities such as briquetting) as to ensure that potential direct and indirect negative impacts are mitigated. For further information on environmental and social risk mitigation, please refer to the Social and Environmental Screening Report.

D. Describe or provide an analysis of the cost-effectiveness of the proposed project / programme.

133. The project is designed to ensure that its investments are undertaken in the most cost-effective manner, and that project approaches and institutional mechanisms are easily replicated and scaled up using existing facilities and platforms in country. The project will use existing national and local institutional arrangements for delivery of project interventions, rather than creating additional and costly alternative project-specific alternatives. These include:

- a. *Using existing platforms and implementation modalities:* The project will be carried out in cooperation with the respective existing regional and national structures for fire risk forecasting (e.g. hydromet, risk reduction (national forest agencies) and response (emergency management services). The project will work directly through the respective national and sub-national structures already tasked with wildfire management. The project does not seek to replicate or develop new implementation structures, but to build and strengthen capacity within the existing system.
- b. *Partnering with programmes and other delivery partners where possible:* The project is seeking to maximise the presence of previous and ongoing initiatives (including the soon to be completed UNDP implemented wildfire support programme in Armenia), and to partner with projects, including support to the national forest inventory (e.g. GIZ) and other ongoing forestry projects in both countries (see section F).

134. Investment in wildfire management in Georgia and Armenia is likely to be highly cost-effective. Reducing the incidence and spread of forest fires reduces costs across several areas, including:

- a. Suppression costs (i.e. firefighting response costs)
- b. Infrastructure damage
- c. Loss of life and injury (to local communities, firefighters)
- d. Impact upon livelihoods in affected communities (tourism, forest products)
- e. Eco-system and other natural capital losses (temporary and permanent)

135. Currently, limited data exists for Armenia and Georgia that would allow for a structured assessment of the relative costs and benefits of more effective wildfire response. However, there is a significant body of evidence in the international literature that indicates that the costs of improved preparedness are significantly lower than the potential benefits from reduced response and damage costs associated with wildfire.

Benefit cost ratios for investment in wildfire prevention education and the reduction in wildfire related losses and firefighting costs for example were assessed as high as 35:1 in an international study.²⁸

136. In terms of promoting the wider resilience of mountain forest communities and ecosystems, there is a strong body of literature that supports the cost effectiveness of typical interventions to promote more sustainable forest management (e.g. briquetting, forest enterprises, and SLM practices). Given the lack of available data on the costs and benefits of interventions in the South Caucasus context, the project will undertake additional work to strengthen the knowledge base by undertaking more specific cost benefit appraisal in relation to selected interventions financed under Component 3. This will ensure that all investments maximise the socio-economic benefits to the relevant beneficiaries. The process that will be followed is set out in more detail below:

- a. Under component 3.1, the project will undertake ex-ante economic assessment on the costs and projected benefits of selected EbA and forest fire management measures (3.2) and community forest management (3.3) activities.²⁹ This work will help contribute to the general awareness and understanding of the value for money of wildfire management.
- b. This will be done through support provided by the project team to communities and local agencies developing and prioritizing intervention activities. The project team will be supported by an experienced national economist able to undertake cost benefit analysis where this capacity does not exist.
- c. Each proposal for funding will include an ex-ante cost benefit analysis (based on the likely avoided losses and productivity returns at the community/firm/state entity level). It should be noted that the economic returns are highly context specific and therefore challenging to apply the same assumptions across all projects (although they can provide an indicative indication);
- d. The results of the cost-benefit analysis will be used as one factor in the selection and prioritisation of local agency or community interventions and will influence which of the interventions are selected and presented to the project board for approval;
- e. As part of the approval process, the cost-benefit analyses will be formally reviewed by the technical working group and an international economist as part of a quality assurance mechanism;
- f. The selection criteria will be focused around the benefit-cost ratio (BCR) and the likely payback period (yrs.) of the interventions. Those interventions that cannot demonstrate a BCR in excess of 2:1 and a payback period of less than 10 years will not be funded. Proposals will be ranked on the basis of their economic returns as part of the selection process;

137. The cost-benefit analysis will be one of a broader set of criteria used to identify the cost effectiveness of individual investments in wildfire risk reduction, response or

²⁸ <https://www.srs.fs.usda.gov/factsheet/pdf/fire-economic.pdf>

²⁹ Forest fire management includes fire prevention, fire identification and fire suppression

sustainable forest management to be used by the Project Board. These criteria will include:

- a. *Targeting most vulnerable groups*: Extent to which the intervention will be relevant to/supportive of vulnerable communities or high value natural resource and biodiversity exposed to wildfire climate risk;
 - b. *Deliverability*: Assessment of the feasibility of the intervention from a technology and project management perspective (including timing and budget parameters);
 - c. *Alignment with national/local priorities*: Extent to which the intervention is aligned with national/and or local priorities in terms of reducing wildfire risk and increasing resilience (including evidence of co-development of proposals with key stakeholders);
 - d. *Economic case*: Evidence that the socio-economic returns are likely to be higher than the costs of the project (as evidenced by estimated payback period and benefit cost-ratios);
 - e. *Sustainability*: Evidence that interventions are likely to be maintained over time post-project in terms of operations, maintenance and/or commercial viability;
 - f. *Replicability*: Extent to which proposals are likely to be replicated and/or scaled within the project area or through national structures.
138. The programme team, together with the beneficiaries will undertake ex-post analysis as part of the project following implementation to review and assess the actual socio-economic impacts of the interventions in order to learn from experience and feed through into future national planning;

E. Describe how the project / programme is consistent with national or sub-national sustainable development strategies, including, where appropriate, national or sub-national development plans, poverty reduction strategies, national communications, or national adaptation programs of action, or other relevant instruments, where they exist.

139. The project has been developed in close partnership with a range of government agencies (forest, protected areas, emergency services) in each country and is fully aligned with existing national development plans and strategies related to climate change, disaster risk reduction and sustainable forestry as well as wider national development strategies. Key enabling strategies, plans and frameworks that support and are aligned with project objectives and activities are set out below:

Climate change

140. The project is aligned with core National Communication documents and Nationally Determined Contributions (NDCs) in both Armenia and Georgia that recognise forest wildfire threat and broader issues of forest degradation:
141. Armenia

- a. *Third National Communication on Climate Change (2015)*: The 3rd NC identifies wildfires as a key and increasing climate change impact on forest ecosystems in Armenia and has a commitment to restore degraded forest ecosystems.³⁰
- b. *Armenia NDC*: Promotes an increase in Armenia's forest cover from about 11.8% to 20.1% by 2030, supports the adaptation process of key ecosystems including forest ecosystems; establishes institutional mechanisms to overcome barriers for the introduction of innovative technologies for climate change adaptation; supports the establishment of consistent processes for professional training and education on climate change related issues in the forest governance domain, as well as enhance cooperation at the international and regional levels

142. Georgia

- a. *Georgia's Third National Communication to the UNFCCC (2015)*: The 3rd NC identifies wildfires as an important climate impact and details trends and impacts across the sub-regions of Georgia.³¹
- b. *Georgia NDC*: Recognizes the role of forests in climate change mitigation and the impacts on forest ecosystems driven by climate change, including increased frequency of forest fires. NDC states that "Climate change adverse impacts pose severe threats to Georgia's forests. Rising temperatures, changes in precipitation patterns, reduced water availability, increased frequency of forest fires, as well as pests and disease outbreaks have reduced carbon sequestration ability of forests." The NDC includes national commitment for SFM and protection of forests to reduce CO2 emissions.

Disaster risk reduction

143. Armenia

- a. *National Disaster Management Strategy and Action Plan (2017)*: The strategy identifies wildfire risk as a key risk related to climate change and forest degradation and the action plan reviews measures to improve response and recovery.³²
- b. *National Program and Comprehensive Action Plan for Improving Fire Safety in Forests and Other Vegetation Area (2013)*. This government protocol sets out the current framework for managing and reducing fire risk in forests and elsewhere.³³
- c. *National Fire Fighting Policy, its Implementation Strategy and Action Plans in Forest Lands, Specially Protected Areas, Agricultural Lands and Settlements (2015)*: Setting out policy for firefighting and emergency response.³⁴

³⁰ See <https://unfccc.int/sites/default/files/resource/armnc3.pdf>

³¹ See <https://unfccc.int/documents/106898>

³² See www.mes.am/files/legislation/477.doc

³³ See <https://www.arlis.am/DocumentView.aspx?docid=83710> (In Armenian)

³⁴ See <https://www.arlis.am/DocumentView.aspx?docID=95474> (In Armenian)

144. Georgia

- a. *The Disaster Risk Reduction strategy 2017-2020 and Action Plan* set out the approach to dealing with natural and human-induced disasters. Wildfire management is one of the key DRR areas for the government (Annex 2) and the strategy calls for improved cooperation and coordination. Annex 3 sets out actions aligned to the project, including access, water reservoirs, mineralized fire breaks, equipment and vehicles for transportation and rescue.³⁵
- b. *Georgia NDC*: highlights an increase in frequency and impact of climate-induced natural disasters and states that “Establishment of Early warning systems for climate related extreme events is considered as priority measure by the Government of Georgia”.
- c. *Law on the rule of planning and coordination of the national security policy* includes a mandate to develop conceptual documents that address critical situations, including planning and risk reduction.³⁶
- d. The *Georgian law on Civil Security* defines a range of measures, including prevention of disaster risk and sets out the actions, categories of risk and the structure of response.³⁷
- e. *The National plan on civil security* (2015) sets out the rules and responsibilities for addressing disaster risk, including forest fires. The Emergency Services are nominated as the lead institution, with others as supporting agencies.³⁸
- f. The *Emergency Management Plan of the Ministry of Environment Protection and Agriculture* is under development.

Forestry management

145. Armenia

- a. *Forest sector improvement strategy and action plan (2017)*: Sets out fire risk in Armenian forests and incorporates strategy for risk reduction and creation of wildfire management plans.³⁹
- b. *National Forest Policy and Strategy (2004)*: Supports the sustainable management and protection of forest resources in the country.

³⁵ Decree of Georgian Government N 4 on approval of the Disaster Risk Reduction strategy 2017-2020 and Action Plan, January 11, 2017

³⁶ Georgian law on the rule of planning and coordination of the national security policy, N3126-III, March 4, 2015

³⁷ Georgian law on Civil Security, N2608-III, June 27, 2018

³⁸ Resolution N508 of Georgian Government on approval of national plan on Civil security, September 24, 2015

³⁹ See <http://www.irtek.am/views/act.aspx?aid=92963> (In Armenian)

- c. “Approval of national target programmes for improving fire safety in forests and other plant covered areas, and on approval of the list of comprehensive activities intended for improving fire safety in forests and other plant covered areas”.

146. Georgia

- a. The *Rule on forest Tending and Reforestation* is the regulatory basis for the National Forest Agency. It provides an overview of types of fires, mineralized zones etc. as a mandate for fire prevention and eradication support to EMS.^{40 41}
- b. The *Statute of the National Forestry Agency* defines the functions of the Agency related to emergency situations on forest fund territory (excluding under licence) and ensuring fire prevention rules are followed and inform EMS in case of fire.⁴²

National development strategy

147. Armenia

- a. *Armenia Development Strategy for 2014-2025* does not mention wildfire as a risk, but does have specific objectives relating to forest protection, restoration and biodiversity enhancement as part of a wider environmental protection focus.⁴³
- b. *Action Plan of the Government of the Republic of Armenia for 2019* promotes sustainable forest management and action to promote forest conservation and preventative measures.⁴⁴

148. Georgia

- a. *The Socio-Economic Development Strategy of Georgia 2014-18* does not include wildfire management but does note the importance of forest conservation and protection and the value of forest eco-system services in supporting livelihoods.⁴⁵
- b. *The Rural Development Strategy of Georgia 2017-2020* identifies forest wildfire as a risk and stresses the need for more sustainable forest management practices, and forests as a key resource in terms of socio-economic development.⁴⁶

F. Describe how the project / programme meets relevant national technical standards, where applicable, such as standards for environmental assessment, building codes, etc., and complies with the Environmental and Social Policy of the Adaptation Fund.

⁴⁰ Decree No. 563A from 29 May 2013

⁴¹ Decree N241 of Georgian Government on the Rule of Forest Tending and Reforestation, August 13, 2010

⁴² Source: National Forestry Agency of Georgia, May 2019

⁴³ See https://eeas.europa.eu/sites/eeas/files/armenia_development_strategy_for_2014-2025.pdf

⁴⁴ See <https://www.gov.am/files/docs/3133.pdf> (In Armenian)

⁴⁵ See <https://www.adb.org/sites/default/files/linked-documents/cps-geo-2014-2018-sd-01.pdf>

⁴⁶ See <http://enpard.ge/en/wp-content/uploads/2015/05/Rural-Development-Strategy-of-Georgia-2017-2020.pdf>

149. The project will mostly be focused on capacity building, regulatory reform and equipment and enterprise support. Procurement of equipment (e.g. wildfire fighting tools, clothing, transport) will be undertaken in agreement with government agencies and to national government specifications. The project will also involve downstream implementation of pilot and demonstrations activities for which site-specific details will not be fully known until later in the project cycle. The downstream pilot activities will be small-scale capital investment in community level wildfire preparedness, prevention and response. Typical investments might include mineralization of roads, construction of fire breaks, and water reservoirs for firefighting. In addition, there will be some funds allocated to community level interventions in forest areas to support adaptation such as briquetting facilities and forest product services.
150. An ESMF (Annex 9) has been prepared to provide a mechanism for the social and environmental screening, impact assessment and impact management of downstream activities in accordance with AF and UNDP environmental and social safeguard policies and guidelines. Downstream pilot activities will also be planned and implemented in accordance with applicable law, including compliance with EIA, land use, waste management, and building permit regulations.
151. The Environmental and Social policy of the Adaptation Fund, as well as UNDP Social and Environmental Standards, calls for consultative processes in the development of projects/programmes with “particular reference to vulnerable groups, including gender considerations.” Consultation completed as part of project preparation is summarized in Section I and **Annex 10** of this project proposal. Commitments to stakeholder engagement as part of project implementation are set out in the ESMF (Annex 9).
152. During the implementation phases of any project, a person or group of people can be adversely affected, directly or indirectly due to the project activities. The grievances that may arise can be related to social issues such as eligibility criteria and entitlements of selected beneficiaries, gender norm changes, access to project benefits by marginalized groups, disruption of services, temporary or permanent loss of livelihoods and other social and cultural issues. Grievances may also be related to environmental issues such as impacts on water quality, damage to infrastructure due to construction or transportation of raw material, noise, decrease in quality or quantity of private/ public surface/ ground or surface water resources during implementation of livelihoods assets or water provision, damage to home gardens and agricultural lands etc. In order to address any grievances that may arise, in addition to any grievance mechanisms available at the local or national levels, all project stakeholders have access to the UNDP Stakeholder Response Mechanism (SRM) as well as the Adaptation Fund’s grievance mechanism. These are both noted in the ESMF (Annex 9).
153. All UNDP supported donor funded projects are required to follow the mandatory requirements outlined in the UNDP Programme and Operational Policies and Procedures (UNDP POPP). This includes the requirement that all UNDP development solutions must always reflect local circumstances and aspirations and draw upon national actors and capabilities. In addition, all UNDP supported donor funded projects are appraised before approval. During appraisal, appropriate UNDP representatives and stakeholders ensure that activities have been designed with a clear focus on agreed results. The appraisal is conducted through the formal meeting of the Project Appraisal Committee (PAC) established by the UNDP Resident Representative. The PAC representatives are independent in that they should not have participated in formulation of the project and

should have no vested interest in its approval. Appraisal is based on a detailed quality programming checklist which ensures, amongst other issues, that necessary safeguards have been addressed and incorporated into the design.

G. Describe if there is duplication of project / programme with other funding sources, if any.

154. There are several initiatives of relevance to the proposed AF project that are ongoing, or recently completed and upon which the project builds. Efforts have been made to ensure that there is no duplication with other initiatives and that potential synergies are explored. UNDP has been implementing a series of relevant projects and initiatives in both Armenia and Georgia that have generated lessons, pilots, baseline analysis in the areas of sustainable forest management, forest fire management, risk and vulnerability assessment, climate and disaster information systems, EWSs to be used by the proposed project. Extensive stakeholder consultation has been undertaken with the major donors in the forestry sector in both Armenia and Georgia, including the World Bank, European Union, selected bi-lateral donors (GIZ, KfW, FAO, etc.). The primary previous, current and planned activities of relevance are identified as follows:

Table 5: Summary of Previous, current and planned projects related to wildfire risk management in the South Caucasus

N	Title of the project	Description	Implementing agency	Donor	Duration	Main activities	Potential alignment with the project
1	Forest resilience of Armenia, enhancing adaptation and rural green growth via mitigation (Armenia)	Large scale forestry programme	FAO MNP	GCF	2020-25 (est.)	Reforestation activities Energy efficiency activities to promote sustainable forest management Community forest governance and monitoring strategy	Under development. Concept submitted to GCF. Will look more generally at integrated forest management. The concept references wildfires as a risk, but the project team has met with KfW and this will not be a core component of the project support in terms of capacity, systems development or technical support.
2	Scaling-up Multi-Hazard Early Warning System and the Use of Climate Information in Georgia (Georgia)	Building integrated EWS programme across a range of hazards and sectors	UNDP MEPA	GCF	2019-25 (est.)	Expanded hydro-meteorological observation network and modelling capacities Multi-hazard early warning system and new climate information products supported with effective national regulations, coordination mechanism and institutional capacities Participatory community risk assessment and adaptation planning Municipal disaster preparedness plans; enhanced capacities of first respondents	Program is under implementation. Current programme excludes wildfire as a risk category. The Adaptation Fund programme will work to integrate wildfire risk into this wider DRR and EWS framework and will be able to benefit from enabling work undertaken by relevant stakeholders
3	National Adaptation Plan (NAP) to advance medium and long-term adaptation planning (Armenia)	Developing national action plan for climate change adaptation (CCA)	UNDP	GCF	2019-22	Identified information and capacity gaps to improve synergies and coordination between and across sectorial initiatives. Strengthened institutional, functional and technical capacities to plan for gender sensitive CCA Established climate change adaptation monitoring	Project is under implementation. It targets improvement the existing climate-related knowledge and evidence base to support more comprehensive and consistent assessments of climate risks, vulnerabilities and impacts to efficiently and effectively integrate CCA into national and sectorial planning and management. The project will also support the engagement of the private sector through a comprehensive assessment of the enabling environment and barriers, in line with Armenia's

						capacity to efficiently and effectively integrate CCA into national and sectorial planning and management. Developed a CCA financing strategy.	priorities for the development of the private sector.
4	Addressing climate change impact through enhanced capacity for wildfires management in Armenia (Armenia)	Targeted programme in 2-3 areas of Armenia exploring models for better	UNDP Ministry of Nature Protection Ministry of Emergency Situations	Govt of Russian Federation	2017-2020	Revising legislative standards and acts in Armenia on forest and wildfire management Building community capacity for rescue and response Supporting entrepreneurship to prevent and mitigate wildfire risks Innovation in adaptation in the forestry sector	A relatively small project, it has undertaken valuable preparatory work which has fed into the design of this Adaptation Fund proposal. It will close in early 2020 before the Adaptation Fund regional project begins. The AF project will be able to support the scaling and deepening of reforms and activities identified.
5	Adaptation to climate change impacts in mountain forest ecosystems of Armenia (Armenia)	Climate risk management in forest ecosystems piloted in Syunik Province, national policy development on forest fire management	UNDP Ministry of Nature Protection	GEF/SPA	2009-2013	The project aimed to bolster fire management capacities by training and equipping early response forest firefighting teams in Syunik Province, helping to shape national policies to control fires, and improving public awareness through a grass-roots campaign. A second prong involved increasing abilities to monitor and control pests, and a third entailed establishing three pilot projects to restore forests.	The project helped improve forest health and forest fire management on more than 100,000ha and spearheaded the development of national forest management legislation that takes climate risks into account. The early response teams have successfully prevented the spread of multiple grassland fires to neighbouring forests, spurring replication of the model. The National Assembly amended the Law on Atmospheric Air Protection to reduce the causes of forest fires, and the first National Action Programme for Forest Fire Prevention and Response was developed. The new Adaptation Project will learn from the local community-based work of the GEF/SAP initiative and will build upon the policy work by enhancing the enforcement.
6	Global Forest Watch (Georgia)	Online platform that provides data and tools for monitoring forests. Real time information. Georgian Forest and Land Use Atlas.	World Resources Institute (WRI) Managed by MEPA	Multiple donors	2016-2019	- Identification of direct drivers of tree cover loss/tree cover gain Geo-statistic database of wildfires using MODIS and VIIRS satellite data	The project included activities related to forest fires, such as creation of statistics database on wildfires, and assessment of the areas burned during the fires which will be useful in Component 2. The project will be completed by the time the Adaptation Fund program begins.

						Assessment of burnt areas and development of a report on natural regeneration of forests and soil erosion	
7	Integrated Biodiversity Management in Caucasus (IBiS) (Regional)	Regional biodiversity programme in South Caucasus	GIZ	German Federal Ministry of Economic Cooperation and Development (BMZ)	Dec 2015 - Nov 2019	General support to biodiversity across southern Caucasus across a range of landscapes	In 2018, the IBiS project supported training in wildfire management for forestry authorities in Kakheti, involving authorities from Kvareli, Dedoplistskaro and Akhmeta municipalities
8	Enhancing National Capacities on Fire Management and Wildfire Disaster Risk Reduction in the South Caucasus (ENVSEC) (Regional)	Reducing fire risks in the South Caucasus Countries through enhancement of potential for effective response and deepening regional cooperation	Former Ministry of Environment and Natural Resources Protection of Georgia (currently MEPA), Forest Policy Service, LEPL National Forestry Agency, LEPL Agency of Protected Areas	ENVSEC Finnish Govt	2012-2014	Draft National Policy on Forest Fire management has been elaborated (not approved) Regional trainings on fire management has been conducted, which also supported regional experience exchange for the South Caucasus countries	The only project that has focused on natural disasters and forest fires at a regional scale; The project supported building the capacity of different institutions on preparedness and response; Within the project a draft National Policy on Forest Fire management has been elaborated. The ENVSEC can serve as the basis for further legislative reform and provides useful materials for training.
9	Training in forest fire management for APA staff (Georgia)	Introductory course on firefighting and restoring burned scars	USAID department of Interior	-	2009-2010	Trainings of APA staff	Historic project supporting the capacity of APA staff in firefighting and restoring burned areas.

155. In summary, the project will be highly complementary to existing initiatives, whilst avoiding duplication in the few cases where this might exist. Where possible, the project will seek to build on the systems and infrastructure of past or ongoing initiatives (e.g. using existing sites for training and capacity building, engaging with existing programme participants as potential resilient extension service providers for the private sector). Where potential activities overlap (e.g. capacity building and policy support) the Adaptation Fund project will target thematic areas relevant to its core mandate (e.g. wildfire risk reduction rather than wider forest sector reform). In all cases, the project team will liaise and coordinate with other projects to maximize synergies given that the reform process is a dynamic one. Ongoing discussions will be held with other stakeholders (such as the FAO, GIZ, KfW) to monitor and align programming activities with potential emerging initiatives.

H. If applicable, describe the learning and knowledge management component to capture and disseminate lessons learned.

156. The knowledge management strategy forms a core element of the project. While budgets and activities are mainstreamed across the three project components, in operational terms the implementation of the knowledge strategy will be managed and coordinated centrally within the core project team by dedicated staff resources (estimated at an average of 0.5 FTE over the course of the project), with the Project manager also playing an oversight role in coordination and delivery of the strategy. Technical inputs and products will be developed as part of the mandate of the international and national consultant teams.

157. During project implementation, the project team will work with project partners (primarily the respective Forestry Agencies and Emergency Services in the development and dissemination of knowledge products as well as through online systems. Consultations with these partners confirm that they are both committed to building and disseminating knowledge on wildfire prevention, preparedness and response to relevant stakeholders within the project framework and beyond.

158. These partners already have good capacity to engage with knowledge development and dissemination activities on the basis of their existing mandates and institutional structures. Where necessary, UNDP will provide capacity support to knowledge partners to maximise the effectiveness of outreach and communication through their channels.

159. Lessons learned will be captured across the three main components and will include the following:

- a. *Component 1:* Regulatory and institutional improvements to address wildfire risk;
- b. *Component 2:* Insights from improving data and decision-making tools;
- c. *Component 3:* Lessons learned from wildfire risk reduction at the local level.

160. In addition, the project's annual reporting will create summaries of lessons learned. The project will systematically document key lessons, good practices and challenges experienced in supporting wildfire risk reduction, preparedness and response and moving

towards more resilient policies at national level. The Adaptation Learning Mechanism (ALM) <http://www.adaptationlearning.net> and other relevant platforms will be used for knowledge dissemination.

161. As major adaptation programme in Armenia and Georgia, the AF project envisages a process of dissemination of findings both to the respective Governments and to the wider donor and civil society communities. It is expected that the Steering Committee will act as the main point of dissemination for the participating Ministries. The project team will hold regular briefings with the Steering Committee in this regard. Component 1 will involve close cooperation with the Steering Committee in terms of addressing institutional development and scale up of practices proven to be effective under Components 2 and 3.
162. In parallel, regular meetings will be held with relevant programmes within UNDP, the EU, GIZ, FAO and KfW, who represent the most active funding and implementation agencies of forestry and climate related technical assistance in the region. This will allow for AF project findings to inform the scope and to be incorporated into the design phase of other donor initiatives where relevant.
163. Key findings will be prepared in a format for dissemination to key stakeholder audiences. These may include government officials, foresters, private sector farmers, emergency response teams. It is also envisaged that a number of training and consultation events will be held under the various component work-streams, and the outcomes of these events will be captured.
164. The project will create a Facebook page or similar social media platform in each country and establish a link to the existing UNDP website on which all relevant reports, documents and findings will be posted for access by interested parties.
165. With regards to longer term sustainability of knowledge transfer and uptake, the following strategy is envisaged:
 - a. Learning materials developed to explain regulatory and legislative development will be transferred to the relevant ministries as well as other partner institutions for further dissemination and/or update. It has been agreed that these will continue to be disseminated as part of the mandate of these institutions and form part of their knowledge offering;
 - b. Capacity and materials developed around improved decision making and information will be mainstreamed into those structures responsible for data management and information systems. These materials and climate resilience best practice guidance notes will continue to be maintained and disseminated;
 - c. Lessons learned from the community level interventions will be transferred to the relevant departments in the Ministries of Environment, Forest Agencies, Protected Area agencies and Emergency Services institutions where they can serve as the basis for improving forest management practices through the relevant research institutes and other Ministry structures. The Ministries and relevant agencies have already discussed and confirmed their willingness to engage on this approach;
 - d. All lessons learned will be used as input to consultative workshops and meetings with project stakeholders and disseminated to other donors and relevant agencies.

I. Describe the consultative process, including the list of stakeholders consulted, undertaken during project preparation, with particular reference to vulnerable groups, including gender considerations, in compliance with the Environmental and Social Policy of the Adaptation Fund.

166. This proposal has been developed in full consultation with a broad range of stakeholders in Armenia and Georgia over several visits and consultation events.

167. During the project proposal development process, detailed stakeholder consultations were organized at national, provincial and local levels. The project development process included numerous local community meetings/visits, two missions of international consultants, and extensive stocktaking and validation stakeholder consultations with relevant government counterparts and civil society.

168. Furthermore, during these consultations gender specific vulnerabilities and needs were identified. During these consultations the roles and responsibilities of key stakeholders and the specific mechanisms and strategies for their direct involvement in project activities were identified. Considerations of vulnerability, participation and gender empowerment in the formulation of activities will be a key focus area, while gender mainstreaming tools will be applied in the development of technical guidelines for integration of climate change adaptation into planning processes. The project will ensure that both men and women are able to participate meaningfully and equitably, have equitable access to project resources, and receive equal social and economic benefits.

169. Key institutions and groups consulted in the development of this proposal include:

Table 6: Institutions and groups consulted during project preparation

Armenia	Georgia
<ul style="list-style-type: none"> • Aparan community • Aparan Forest Enterprise • Aragatsothn rescue service • Armenia Hydromet • Armenian Rescue Service • Armenia Climate Change Center • Dilijan National Park Administration • FAO Armenia Representative Office • GIZ Armenia Representative Office • Gugark Forest Enterprise • Eghegnut Forest Enterprise • Kotayk Emergency Services • Lori Rescue Service • Ministry of Emergency Situations • Ministry of Environment • Razdan Forest Enterprise • State Forest Committee • State Forest Monitoring Center • Tavush rescue Service • UNDP programme teams • WWF Armenia • Vanadzor Municipality • Vanadzor Branch of State Agrarian University 	<ul style="list-style-type: none"> • Agency of Protected Areas (APA) • Akhmeta municipality and local forestry service • Caucasus Nature Fund (CNF) • CENN (NGO) • Centre for Biodiversity Research & Conservation – NACRES (NGO) • Emergency Management Service of Georgia • Environmental Information and Education Center (EIEC) • Geo Outlook (NGO) • GIZ Georgia representative office • Global Forest Watch • Green Alternative (NGO) • Ministry of Internal Affairs, 112 emergency service • Ministry of Environment Protection and Agriculture (MEPA) • National Forestry Agency • PPRD East project team • Regional Environmental Center (REC) • Tianeti municipality and local forestry service • IUCN • UNDP programme teams

<ul style="list-style-type: none"> • Vayots Dzor Forest Enterprise • Yeghegnadzor Municipality 	<ul style="list-style-type: none"> • World Bank • WWF Caucasus
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170. In addition, two multi-stakeholder workshops were held in Tbilisi and Yerevan for policy makers, NGOs and academics with more than 30 attendees. Three community level consultation events were also held at potential project sites as set out below:

Table 7: Example of community consultations conducted during the project development and validation in Armenia:

<u>Date</u>	<u>Community</u>	<u>Number of people attending</u>
15th April 2019	Aparan (Aragatsoth region, Armenia) – EMS, local administration, forest agency, community members	20
17 th April 2019	Vanadzor (Lori region, Armenia) - Farmers, foresters, surrounding community heads, EMS, local administration	40
17 th July 2019	Yeghegnadzor (Vayots Dzor region, Armenia) – local administration, forest agency, NGO, community members	18

171. A validation workshop with the national stakeholders has been conducted in Yerevan prior to the submission of the proposal, 20 representatives from relevant Governmental and development organizations (including Deputy Minister of Environment, Chair of the State Forest Committee, Deputy Head of Armenian Rescue Service, Director of Hayantar, GIZ, etc.) attended this Stakeholder Consultation Meeting to review final draft document and provide final recommendations. Participants welcomed the proposed project scope and strategy, and stressed the importance of systemic approach applied in the project (from policy and regulatory measures to local level adaptation and CB). A more detailed information and meeting notes on stakeholder and community consultations are presented in the **Annex 10**.

J. Provide justification for funding requested, focusing on the full cost of adaptation reasoning.

172. The programme costs are additional to other costs associated with wildfire management currently being met by the governments of both countries. The success of the intervention from an adaptation perspective is not dependent on co-financing activities by other parties. The proposal aims rather to build on existing public platforms to fund the additional costs of adaptation associated with emerging climate risk as a threat multiplier.

173. It is expected that going forward, project partners will continue to make their own investments (both financial and in-kind) into the development of effective wildfire and forest management strategies. The project will fund the full costs of adaptation, such as legislative reform and capacity development for promoting climate resilience within wildfire risk reduction policy, as well as the full costs of any investments in local level wildfire

response and risk reduction activities not currently being met by regional authorities or local communities.

174. The project is structured to allow a high proportion of funds to flow into capacity building, policy development and institutional activities associated with the promotion of climate resilience for forest communities and agencies. As such, the components are expected to result in a significantly higher adaptation benefit than would otherwise be the case under a baseline scenario. A significant component of poor wildfire management and response remains structural in nature (lack of adequate policy, institutional frameworks, preparedness and response platforms), and requires investment in these enabling aspects to change behavior, and build awareness of best practice, both among policy makers and forest communities. Further cost of adaptation reasoning is set out below:

Component 1: Strengthening policy, regulatory and institutional frameworks

175. Baseline (Without AF funding):

- a. Without AF funding, institutional processes would continue to operate with a poor degree of institutional clarity, particularly in relation to the division of roles and responsibilities between agencies (e.g. emergency response and forest management/protected area agencies, local communities). At a regional level, there would be no common methodologies or approaches for wildfire management. Inter-government cooperation would remain ad-hoc and reactive to emerging wildfire situations. There would be limited opportunities for wildfire drills at both national and regional level, and responders would not be sufficiently equipped and trained for firefighting response in the face of increasing wildfire risks.

176. AF Additionality (With AF Funding):

- a. With AF funding, both Armenia and Georgia will be able to strengthen their institutional capacity for wildfire management in a coordinated manner, drawing upon common understanding of risk assessment and response protocols and sharing best practice on a regional basis. They will develop common roadmaps for wildfire assessment and classification, data management and share lessons learned in the mainstreaming of resilience into forest management plans and DRR strategies. Roles and responsibilities will be clearer and capacity increased due to additional wildfire training and drills at local, national and regional level. Regional communication and interaction will be more structured, with higher technical capacity and greater knowledge sharing between the countries at all levels. As a result, these more efficient wildfire management systems at the regional and national levels will be able to more effectively prevent and respond to the wildfires in the face of climate change.

Component 2: Improved use of climate and wildfire risk information by decision makers

177. Baseline (Without AF funding):

- a. Without AF funding, national governments in both Armenia and Georgia will fail to maximise the value of available information that can support better national and regional planning around fire risk reduction and response in mountain forest areas. Fire event databases, forest inventories, emergency response data and economic impact assessments will continue to be collected in a piecemeal and poorly

coordinated manner by different agencies, limiting the ability for more integrated risk forecasting and informed analysis at a national and regional level. Risk assessment and wildfire forecasting systems will remain only partially developed, limiting the development and effectiveness of user-oriented Early Warning Systems (EWS) that can support better preparedness, behavioral change and resource positioning. Innovation around fire risk forecasting and early warning would be slow.

178. AF Additionality (With AF funding):

- a. With AF funding, there will be a stronger and more integrated approach towards data collection, analysis and communication of risk to decision makers. Fire risk forecasting models will be strengthened, alongside better mapping of anthropogenic causes of fire risk through emergency response data. Monitoring networks will be strengthened (both remote and ground based) to allow improved forecasting, fire identification and estimate of damages. Senior decision makers (e.g. national security council, climate adaptation planning) will have access to improved information on the basis of which to make informed long-term planning decisions around resources and reforms. Early warning systems will be trialed for specific user groups, build upon more integrated and higher quality data sets. New and innovative approaches to fire risk monitoring and communication will be developed in conjunction with the private sector and academia.

Component 3:

179. Baseline (Without AF funding):

- a. Without AF funding, those mountain forest regions and communities in Armenia and Georgia at greatest risk of wildfire will continue to operate with limited technical and organisational capacity to reduce the growing wildfire risk associated with climate change. The relevant agencies (Forest management, EMS) will continue to struggle to access to sufficient resources, technical capacity and planning expertise to implement sustainable forest fire management practices from both a risk reduction and response perspective. Targeted communities will continue to exploit forest resources in a non-sustainable manner that both increases fire risk and causes environmental degradation. There will be more limited implementation of forest eco-system services that can build better community stewardship over forest resources. Awareness in relation to wildfire risk associated with poor agricultural and forest management practices would remain low.

180. AF Additionality (With AF funding):

- a. With AF funding, highly vulnerable mountain forest areas and communities will be supported to identify their vulnerabilities. Investment plans will be drawn up to address key vulnerabilities in their forest management practices, both in terms of fire risk reduction (e.g. pest, residue management) and fire suppression (e.g. access roads, water availability, mineralized breaks). Communities will be better supported to engage in economic activity that both reduces forest fire risk (e.g. briquetting, sustainable tourism, sustainable agricultural burning). Different stakeholder groups will be more aware of the potential risks for wildfire and best practices in how to reduce the incidence and impact.

K. Describe how the sustainability of the project/programme outcomes has been taken into account when designing the project / programme.

The programme has been designed to ensure sustainable outcomes in the following ways:

181. *Component 1* is designed to create sustainable institutional capacity and long-lasting regulatory reform, using common regional approaches. The project is working with existing state institutions in both countries (EMS, National Forest/Protected Area Agencies) to ensure that knowledge and know-how is mainstreamed into key responsible institutions. The project builds upon earlier work undertaken by UNDP, OSCE, GIZ and others to support reforms in the forestry and DRR sectors with a view to creating sustainable change. At a regional level, the project will build the capacity of existing regional coordination structures and mechanisms. At a national level, guidelines on wildfire risk management and climate change adaptation will be fully adopted and mainstreamed into government processes. At a local level, the project will enable a solid legal basis for volunteer group participation in wildfire response. Institutional reform and capacity strengthening can create a template for wider strengthening of wildfire institutions across the South Caucasus region.
182. *Component 2* builds upon existing national data collection and analysis systems, and communication processes in order to ensure that outputs have ownership by national and regional stakeholders.
- a. Improvements in *wildfire forecasting* (2.1) will build upon existing pilot and demonstration activities (2.1) undertaken under previous projects and ensure that their further development is fully embedded within the relevant national institutions. Investments in improved remote sensing and ground-based monitoring systems will also be fully embedded in national fire risk and climate monitoring systems.
 - b. *Early warning systems* (2.2.) will be developed in conjunction with key institutions (e.g. 112 EMS, Forest Agencies) and implemented as part of their operational activities on the basis that they will form the basis of an ongoing service offering supported by the respective national budgets. In Georgia, the program will be designed so that it can be integrated into the wider UNDP/GCF MHEWS project supporting the Government to build systems that provide early warning and response to a broader set of disaster risks beyond wildfire.
 - c. Improved *data management approaches* (2.3) will be implemented through the provision of support to the existing nominated data agencies and align with other ongoing national processes (e.g. forest inventory processes). Where there is uncertainty in relation to ongoing reforms or institutional restructuring, the project will wait until these reform processes and institutional responsibilities are clear before engaging.
 - d. Innovation around wildfire monitoring and data analysis (2.4) will be made sustainable in part by supporting the scale-up of existing successful pilots that have already achieved a level of institutional acceptance and credibility among state agencies in Armenia and Georgia. New innovations will be undertaken with the close cooperation of the relevant state agencies (e.g. in terms of enabling access to data or testing sites) to maximise the chances of long-term success.

Component 3

183. *Component 3* activities will be planned and executed with a high degree of community and local authority participation and ownership to maximise the likelihood of long-term success.

- a. *Participatory planning* around vulnerability assessment and investment prioritisation (3.1) will involve all relevant stakeholders at the local level, including forest and protected area management agencies, emergency response, local authorities and wider communities of foresters and agriculturalists. By engaging a broad cross section of the community is important to obtain buy-in and agreement around a shared vision for local interventions that can be broadly supported.
- b. Investments in *improved forest fire risk management at the community level* (3.2) in the selected municipalities will be grounded and build upon existing sub-national plans, processes and institutions, working through the relevant local agencies of the forest and emergency services with a view to developing a more coherent system. Participating forest agencies and emergency management services will continue to receive funding from central government post project, and activities under Component 1 will strengthen and support the relationship between policy and practice at a sub-national level. The sustainability (financial, environmental) of interventions will be included as a criterion in project selection.
- c. Investments in *community level forest resilience activities* (3.3) including briquetting, forest enterprises and recreation areas, more sustainable agricultural practices will be developed on the basis of economic sustainability (natural resource availability, potential markets). Grants will be made to assist with capital costs, but activities will only be funded on the basis that there is clear private or local authority ownership, and that operating costs can be met out of envisaged revenue streams or budgets.
- d. Awareness raising activities (3.4) are focused on delivering long term behavioral change among key constituencies.

184. These proposals have been discussed at the highest level with the Governments of Armenia and Georgia who both recognise the importance of building capacity around better wildfire management and are both committed to supporting improvements in wildfire risk reduction and response over the medium-long term with increased strategic focus and resource allocation, as reflected in key climate change and DRR strategies.

L. Provide an overview of the environmental and social impacts and risks identified as being relevant to the project / programme.

185. The proposed project activities were evaluated against the AF ESPs to identify potential risks. Actions have been identified to mitigate and manage risks, including procedures to screen for and manage risks of downstream activities. Table 8 provides an overview of the environmental and social risks organized according to the AF ESPs, along with corresponding mitigation and management actions. The screening and assessment considered the following:

- a) Readily available published information on environmental and socio-economic conditions in the beneficiary countries including mapping and databases, reports

generated by development aid and other organizations, and government generated information including census data;

b) Information received during consultations with government agencies and stakeholders;

c) National regulations; and,

d) Professional experience with projects of a similar nature.

186. Based on the screening and assessment results, as summarized in Table 8, from an environmental and socioeconomic risks perspective, the project is considered as Category B (across all three components). Risks identified at this stage have potential adverse impacts that are relatively few in number, small in scale, localized, and reversible or readily mitigated.

187. Additional information is provided in the Environmental and Social Management Framework (ESMF) provided in Annex 9, and in the Gender Action Plan provided as Annex 10.

Table 8: Overview of Potential Environmental and Social Impacts and Risks organized according to the Adaptation Fund's Environmental and Social Principles, along with corresponding Mitigation and Management Measures

Principle	Potential impacts and risks	Mitigation and Management Measures
Compliance with the Law	<p>UNDP is established in both Armenia and Georgia and have long standing operations in line with all applicable laws.</p> <p>It is anticipated that the proposed project and site-specific pilot activities will comply with the applicable laws and regulations of each country, including laws and regulations addressing environmental and social safeguards.</p> <p>None-the-less, it is possible that demonstration activities could take place without proper permits in place.</p>	<p>UNDP Armenia and UNDP Georgia Country Offices have in place procurement process that require contractors to implement environmental, health, and safety management procedures to address site-specific conditions of approval, country law, and UNDP standards.</p> <p>A permitting plan will be prepared for each site-specific action that identify all permits needed and provides an action plan to secure and maintain the applicable permits.</p> <p>For site-specific activities UNDP will apply a Permit Compliance Management System that includes provisions for: i) listing permitting requirements; ii) connecting legal requirements to permits; iii) create and track compliance actions related to permits; and iv) provide record-keeping of checklists, notes, documents, etc. related to permits. UNDP will provide an annual report detailing the permit compliance of site-specific pilots</p>
Access and Equity	<p>The project activities are not anticipated to affect individuals or communities' access to basic health services, clean water and sanitation, energy, education,</p>	<p>To mitigate potential conflicts between beneficiaries and non-beneficiaries, avoid elite capture, as well to ensure transparency and non-discriminatory selection, the selection criteria and the</p>

Principle	Potential impacts and risks	Mitigation and Management Measures
	<p>housing, safe and decent working conditions, and land rights.</p> <p>The majority of project activities will be undertaken at the institution level and at the community level, with a small number of activities supporting individual entrepreneurs developing sustainable forest enterprises. For the majority of project activities benefits are anticipated to accrue to host communities as a whole, including communities that may be marginalized or vulnerable.</p> <p>In the case that there are activities directed to individuals or individual households then there is potential for “elite capture” with benefits flowing to those in position of power.</p>	<p>planning process will be clearly documented, explained, and vetted in stakeholder consultations with beneficiary communities during the initial phase of implementation. If appropriate a primary beneficiary list will also be publicized, and a timeframe will be announced to allow for complaints about the selection process and specific selection. In addition, the project will establish a robust Grievance Redress Mechanism (GRM), which is gender and vulnerable group sensitive. The GRM will provide an avenue for any complaints in case of any conflict or discrimination as well as a mechanism for resolution of such conflicts.</p>
Marginalized and Vulnerable Groups	<p>In Georgia and Armenia marginalized and vulnerable groups may include ethnic and religious minorities, displaced persons, the elderly. There is a risk that such groups may be excluded from project activities and that existing inequality and discrimination will be perpetuated. According to the November 2014 census in Georgia, ethnic minorities make up 13.2% of the Georgian population. Azeris and Armenians are the two largest minority groups. Azeris account for 6.3% of the total population and constitute a significant group in the region of Kvemo Kartli which borders Armenia and Azerbaijan to the south. The Armenian minority accounts for 6% of the total population and is a significant group in the region Samtskhe Javakheti bordering Turkey and Armenia in the south. Other smaller ethnic groups communities include Russians, Ossetians, Yezidis, Ukrainians, Chechens, Greeks and Assyrians. Both Azeri and Armenians tend to live in specific parts of the country, which historically have been less developed than the cities occupied by Georgians. Further, Georgia has small populations of ethnic Roma and Meskhetians. As of 2018 it was estimated that were 293,000 refugees present, some displaced in the 1990s as a result of conflicts in Abkhazia and South Ossetia, and some displaced in 2008 by</p>	<p>Each pilot activity will be further screened at the site-specific level to determine if there is a risk associated with marginalized and vulnerable groups and if so, a site-specific plan will be prepared and implemented.</p> <p>To mitigate potential conflicts between beneficiaries and non-beneficiaries, as well to ensure transparency and non-discriminatory selection, the selection criteria and the planning process will be clearly documented, explained, and vetted in stakeholder consultations with beneficiary communities during the initial phase of implementation.</p> <p>If appropriate a primary beneficiary list will also be publicized, and a timeframe will be announced to allow for complaints about the selection process and specific selection. In addition, the project will establish a robust Grievance Redress Mechanism (GRM), which is gender and vulnerable group sensitive. The GRM will provide an avenue for any complaints in case of any conflict or discrimination as well as a mechanism for resolution of such conflicts.</p>

Principle	Potential impacts and risks	Mitigation and Management Measures
	<p>fighting between Georgia and Russia over South Ossetia⁴⁷. Rural-urban disparities have reinforced existing inequalities experienced by some minority populations⁴⁸.</p> <p>According to the 2011 census over 98% of the population of Armenia identify as ethnic Armenian. About 1.2% of the population are Yezidis. The balance of the population is composed of very small numbers (~.1%) of Russians, Georgians, and others. There are 22 rural settlements in Armenia with Yazidi majority. The biggest Yazidi village in Armenia is Verin Artashat in Ararat Province with 4,270 residents. As of 2018 it was estimated that there are approximately 14,700 refugees present in the country who are ethnic Kurds displaced from Syria⁴⁹.</p>	
Human Rights	<p>No specific concerns for human rights were raised during the stakeholder engagement activities completed during proposal planning.</p> <p>Human rights issues that have been flagged in Armenia include: gender equality and violence against women, and rights issues associated with persons with disabilities, elderly, child poverty, and LGBTI⁵⁰ individuals.⁵¹</p> <p>Human rights issues flagged in Georgia include security forces abuses including treatment of citizens along the administrative boundary lines (ABLs) with the Russian-occupied regions of Abkhazia and South Ossetia; corruption of government officials; and crimes</p>	<p>1. With respect to conflict and violence, UNDP benefits from participation in the UN system including awareness of conflict situations. The project will consult with UN system on potential conflict risks of each site-specific pilot area.</p> <p>2. The project will mainstream a human rights-based approach through:</p> <ul style="list-style-type: none"> • Contributions to improved livelihoods of poor and vulnerable people; • Disclosure of information and providing for meaningful participation of stakeholders during the planning and implementation of site-specific activities including as

⁴⁷ "The World Factbook" United States Central Intelligence Agency. Available at: <https://www.cia.gov/library/publications/the-world-factbook/geos/gg.html> [accessed 21 July 2019]

⁴⁸ Minority Rights Group International, "World Directory of Minorities and Indigenous Peoples – Georgia" January 2016, available at: <https://www.refworld.org/docid/4954ce09c.html> [accessed 20 July 2019]

⁴⁹ "The World Factbook" United States Central Intelligence Agency. Available at: <https://www.cia.gov/library/publications/the-world-factbook/geos/am.html> [accessed 21 July 2019]

⁵⁰ Lesbian, gay, bisexual, transsexual and intersex

⁵¹ "Report of The Commissioner For Human Rights of The Council of Europe, Dunja Mijatović, Following Her Visit To Armenia From 16 To 20 September 2018" 29 January 2019. Available at: <https://rm.coe.int/report-on-the-visit-to-armenia-from-16-to-20-september-2018-by-dunja-m/168091f9d5>

Principle	Potential impacts and risks	Mitigation and Management Measures
	involving violence or threats targeting LGBTI persons. ⁵²	<p>part of site-specific E&S screenings and assessments. This will facilitate equitable access to project benefits and avoidance of elite capture and potential perpetuation of historical inequality;</p> <ul style="list-style-type: none"> • Public awareness activities in beneficiary communities on human rights; and • Use of UNDPs grievance mechanism to provide access to remedies for individuals aggrieved as a result of project activities <p>UNDP will report on successes and challenges with implementation on a yearly basis.</p>
Gender equity and women's empowerment	<p>Existing gender inequality factors in Armenia and Georgia include limited engagement of women in planning and decision making, and traditional distribution of gender roles in families and communities. Therefore, women may not be adequately represented with regards to decision-making or participation in the design/implementation of the project's activities. As a result, they may have limited access to resources, opportunities and benefits. Also, women may not have enough time to assist to meetings or activities for take decisions and/or men which are head of family could decide in behalf of them.</p>	<p>Specific "gender mainstreaming actions" have been identified in the gender action plan (Annex11). A gender specialist position has been provided for in the project's management team and budget to advocate for and lead gender mainstreaming actions.</p> <p>The gender plan takes into consideration the following:</p> <ul style="list-style-type: none"> • Specific strategies to achieve a minimum of 30 % participation by women in community level planning, • Consideration of female perspective in communication and training material • Engaging local NGOS and other organizations to make capacity-building and other implementation activities gender-sensitive • Pro-actively seek potential female entrepreneurs in Component 3.3 for development of sustainable forest enterprises. • Gathering gender-disaggregated data for evaluation purposes and use gender sensitive indicators (particularly around beneficiaries) to facilitate planning, implementation and monitoring.

⁵² "Georgia 2018 Human Rights Report". United States Department of State. Available here: <https://www.state.gov/wp-content/uploads/2019/03/GEORGIA-2018-HUMAN-RIGHTS-REPORT.pdf>

Principle	Potential impacts and risks	Mitigation and Management Measures
Core labour rights	<p>A UN Mission to Georgia identified occupational safety and health in the construction and infrastructure sectors as a challenging issue across the country and that a large number of injuries and fatal accidents occur in these sectors.⁵³</p> <p>The mission determined that there is a shortage of inspectors available, that in cases of accidents on construction sites companies generally blamed employees for being negligent, and that many workers did not have insurance, which is likely to contribute to an underreporting of accidents and injuries.</p> <p>There does not appear to be a significant risk of child labour. First, both Armenia and Georgia have regulations banning use of child labour for hazardous work such as construction or forestry. Second, In Armenia. and Georgia most child labour (~94 to 95%) is associated with the agriculture sector⁵⁴. The project does not contemplate agriculture sector projects, thereby avoiding the sector at highest risk for child labour.</p>	<p>The project will be completed as Direct Implementation Modality – meaning UNDP will directly engage contractors for construction and other activities. UNDP has procurement procedures to addressing labour-related issues including worker health and safety and guarding against use of child and forced labour.</p> <p>The project will make visual inspections of work sites to check the occupational health and safety management of contractors. These visits will take place no less that once per week during periods of active construction. Contractors shall also provide a weekly health and safety report identify any incidents or near misses and corrective actions implemented.</p>
Indigenous populations	Not applicable - There are no indigenous people as defined by the United Nations ⁵⁵ present in Armenia or Georgia ⁵⁶ .	
Involuntary Resettlement	There is a risk that a site selected for a pilot activity could result in physical displacement of people or livelihood activities (by, for example, acquisition of land currently in use for agricultural production for a reforestation pilot).	UNDP will screen candidate pilot activities and not proceed with any pilot that require physical displacement. Existing land uses and livelihood activities will be determined for each pilot activity, and where loss of livelihood is anticipated a site specific livelihood

⁵³ “Statement at the end of visit to Georgia by the United Nations Working Group on Business and Human Rights. 12 April 2019”. Available at: <https://www.ohchr.org/EN/NewsEvents/Pages/DisplayNews.aspx?NewsID=24474&LangID=E> [accessed 20 July 2019]

⁵⁴ “Child Labour and Forced Labour Reports: Armenia” U.S. Department of Labour. available at: <https://www.dol.gov/agencies/ilab/resources/reports/child-labour/armenia> [Accessed 07 July 2019] and “Child Labour and Forced Labour Reports: Georgia” U.S. Department of Labour. available at: <https://www.dol.gov/agencies/ilab/resources/reports/child-labour/georgia> [Accessed 07 July 2019]

⁵⁵ United Nations Forum on Indigenous People Fact Sheet: “Who are indigenous peoples?”. available at: https://www.un.org/esa/socdev/unpfii/documents/5session_factsheet1.pdf [Accessed 07 July 2019]

⁵⁶ Minority Rights Group International, “World Directory of Minorities and Indigenous Peoples – Georgia” January 2016, available at: <https://www.refworld.org/docid/4954ce09c.html> [accessed 20 July 2019] and “Minority Rights Group International, World Directory of Minorities and Indigenous Peoples - Armenia: Yezidis & Kurds” 2008, available at: <https://www.refworld.org/docid/49749d60c.html> [accessed 20 July 2019]

Principle	Potential impacts and risks	Mitigation and Management Measures
		<p>restoration plan will be prepared and implemented.</p> <p>UNDP will promote awareness of the grievance mechanism which provides a means for redress of aggrieved stakeholders.</p>
Protection of natural habitats	<p>Pilot activities may be planned and executed in forest areas located within areas designated as protected, posing risk of impacts to natural features subject to protection.</p> <p>There is a risk that activities undertaken in forest and other natural areas could displace wildlife and disrupt breeding activities.</p>	<p>There are many forest areas that are degraded and in need of improved practices for wildfire management but there are also within designated protected areas. Locations for pilot projects will be selected in cooperation with regulatory agencies, and in subject to consultation with communities. UNDP will screen each candidate pilot UNDP's SESP and AF's SES and not proceed with any site located in an area considered to be critical habitat. All potential pilot activities to be carried out will be carried out in accordance with applicable regulations, and with all conditions of approval for the activity imposed by the applicable regulatory authorities.</p> <p>Activities will be planned to address potential impacts to wildlife, including breeding activity. A site-specific plan will be prepared to address potential direct impacts to wildlife including birds, mammals, and herpetofauna including specification of construction windows to avoid disruption of breeding or denning activities.</p>
Conservation of biological diversity	Afforestation and reforestation, if undertaken as pilot activities pose a risk of introduction of alien invasive species (AIS).	<p>UNDP will prohibit use of alien invasive species for any reforestation and afforestation. Species lists will be cleared with the forestry authorities in each country and against international AIS databases and checklist (such as Global Invasive Species Database http://www.iucngisd.org/gisd/howto.php). Purchased seed material, if used, will either be certified AIS free or subject to germination tests to verify AIS free.</p>
Climate change	<p>The project does not involve any activities with significant emissions of greenhouse gases (GHGs).</p> <p>Minor GHGs emissions will occur due to use of fossil fuels for transportation (air</p>	<p>To minimize the project's carbon footprint UNDP will:</p> <ul style="list-style-type: none"> • promote use of energy efficient tools, technologies and designs for project activities; • use and promote use of energy efficient equipment and waste

Principle	Potential impacts and risks	Mitigation and Management Measures
	<p>travel, road vehicles), office operations, and other project related activities.</p> <p>Overall, the project seeks to protect and enhance forests, and thereby should contribute to enhanced carbon sequestration and storage. Small scale briquetting plants, if supported, are small scale sources of emissions. However, life-cycle analysis indicates briquetting can contribute to an overall net reduction of GHG emissions.</p>	<p>minimization in project offices and activities;</p> <ul style="list-style-type: none"> • promote use of on-line meetings rather than in-person meetings – especially meetings that would otherwise require air travel; • mandate that project related air travel is in economy class.
Prevention of pollution and efficiency of resources	<p>Proposed project activities associated with capacity building and planning do not pose risk of pollution.</p> <p>Project activities that use mechanical equipment, including construction of roads, pose risks typical of construction sites and activities including worker and public health and safety, generation of hazardous wastes (such as waste lube oil, batteries), brush and wood waste, nuisance noise and dust, compaction and erosion of soils.</p> <p>Briquetting facilities, if supported, have emissions to air as well as other waste streams with potential for negative effects on the receiving environment.</p>	<p>All physical-type works will be screened and where potential risks are identified a site-specific management plan prepared. Where required by host country law an EIA approval will be secured, as well as any other permits governing pollution prevention such as permits to discharge or dispose of wastes.</p> <p>Effective management measures are available to reduce risks to acceptable levels. UNDP Armenia and UNDP Georgia Country Offices have in place procurement process that require contractors to implement environmental, health, and safety management procedures to address site-specific conditions of approval, country law, and UNDP standards. UNDP activities, and those of any organizations contracted by UNDP, will implement and adhere to all UNDP country office security and safe work practices. Project activities controlled by government entities will adhere to government safety standards and protocols.</p>
Public health	<p>One of the overall aims of the project is to reduce the impact of forest wildfires on communities and individuals, including loss of life. To the extent the project is successful in limiting loss of life then then it will have a clear positive effect on Public Health.</p>	<p>With respect to water storage, UNDP will mandate such reservoirs take measures to eliminate mosquito breeding.</p>

Principle	Potential impacts and risks	Mitigation and Management Measures
	<p>Small scale water reservoirs may have potential to provide breeding areas for mosquitos which represent a nuisance and can act as a disease vector. At present there is no local transmission malaria or other important mosquito borne diseases, although WHO warns there is a risk of resurgence⁵⁷.</p> <p>Pilot activities may expose individuals in target communities, as well as workers, to typical health and safety risks associated with construction and field activities including but not limited to motor vehicle accidents, personal security incidents, vehicle raised dust, and construction site hazards (e.g., trips and falls, hazardous materials).</p>	<p>All site-specific pilots will be screened for potential risks to the public health. The typical health and safety risks associated with construction, including traffic safety and worker health and safety, are well known and effective management measures are available to reduce risks to acceptable levels. 1. UNDP Armenia and UNDP Georgia Country Offices have put in place safe work and personal security practices for their operations in Armenia and Georgi based on the minimum requirements for UN operations globally. UNDP activities, and those of any organizations contracted by UNDP, will implement and adhere to all UNDP country office security and safe work practices. Project activities controlled by government entities will adhere to government safety standards and protocols. 2. Contractors will be required to prepare and implement procedures that address public safety issues including traffic management, dust control, and site access control. UNDP will undertake periodic site inspections to verify contractor compliance.</p> <p>UNDP will promote awareness of the grievance mechanism which provides a means for redress of aggrieved stakeholders.</p>
Physical and cultural heritage	<p>All site-specific pilot activities will be designed through a participative approach and with support of key government institutions. For these reasons there is low risk of negative effects to know physical and cultural heritage features. However, there may be features present that are at risk from wildfire, and there may be unknown features during implementation (also known as “chance finds”).</p>	<p>Site-specific pilot activities will not be permitted within or nearby known heritage features, unless such pilot activities, to be identified by the Government, are needed to protect such features (from wildfires). In such cases a detailed plan will be developed with the applicable authorities in consultation with stakeholders to ensure protection of the protected features from project activities.</p> <p>Contractors shall be required to have a chance finds procedure in place to guard against loss or damage to archaeological or history artifacts exposed during any earthworks.</p>

⁵⁷ World Health Organization Vector Born Diseases by Country. Available here: <http://www.euro.who.int/en/health-topics/communicable-diseases/vector-borne-and-parasitic-diseases/malaria/country-work/georgia>. [Accessed 21 July 2019)

Principle	Potential impacts and risks	Mitigation and Management Measures
Soil and soil conservation	The project does not involve any pilot activities that may have significant negative effects on soils or soil conservation. There is potential for minor, localized effects of soils, including noise mixing and loss of soil due to erosion at construction sites for activities such as water storage facilities and mineralized roads. Construction process for pilot activities such as water storage reservoirs and mineralized roads has a risk of exposing land to erosion and physical disturbance of soils. However, this will be small in scale and mitigation measures from EIAs that will be required for such activities can guard against and monitor for significant effects.	All physical-type works will be screened for potential soils related impacts and where potential risks are identified a site-specific management plan prepared. It is anticipated that site specific plans will utilize measures that are well known and proven to be effective in managing soils issues such as stripping and stockpiling of topsoil, water control, silt fencing, and procedures to stop work in wet conditions. effective are available to protect soils

Checklist of environmental and social principles	No further assessment required for compliance	Potential impacts and risks – further assessment and management required for compliance
Compliance with the Law		✓
Access and Equity		✓
Marginalized and Vulnerable Groups		✓
Human Rights		✓
Gender equity and women's empowerment		✓
Core labour rights	✓	
Indigenous populations	✓	
Involuntary Resettlement		✓
Protection of natural habitats		✓
Conservation of biological diversity		✓
Climate change	✓	
Prevention of pollution and efficiency of resources		✓
Public health		✓
Physical and cultural heritage		✓
Soil and soil conservation		✓

PART III: IMPLEMENTATION ARRANGEMENTS

A. Describe the arrangements for project / programme implementation.

188. At the request of the Governments of Armenia and Georgia, UNDP is the Multilateral Implementing Entity (MIE). As a Multilateral Implementing Entity, UNDP is responsible for providing a number of key oversight and specialized technical support services. These services are provided through UNDP's global network of country, regional and headquarters offices and units and include assistance in project formulation and appraisal; determination of execution modality and local capacity assessment; briefing and de-briefing of staff and consultants; general oversight and monitoring, including participation in reviews; receipt, allocation and reporting to the donor of financial resources; thematic and technical backstopping; provision of systems, IT infrastructure, branding, and knowledge transfer; research and development; participation in policy negotiations; policy advisory services; programme identification and development; identifying, accessing, combining and sequencing financing; troubleshooting; identification and consolidation of learning; and training and capacity building.
189. As outlined in UNDP's application to the Adaptation Fund Board for accreditation as a Multilateral Implementing Entity, UNDP employs a number of execution modalities determined on country demand, the specificities of an intervention, and a country context. The project will be executed by **UNDP Country Office in Armenia in close cooperation with UNDP in Georgia** under the UNDP Direct Implementation Modality (DIM) in line with UNDP's Programme and Operations Policies and Procedures and Standard Operating Procedures for Regional Programme Management. **UNDP Armenia will be the Lead Country Office** for the regional project management and will be responsible for delivery of the project outputs. UNDP Armenia will be responsible for overall management, quality assurance, coordination, ensuring project coherence, the preparation and implementation of work plans and annual audit plans; preparation and operation of budgets and budget revisions; disbursement and administration of funds; recruitment of national and international consultants and personnel; financial and progress reporting; and monitoring and evaluation. UNDP GEF Regional Technical Advisor based in the Istanbul Regional Hub will provide technical advice and expertise to the project's activities. The **UNDP Country Offices (COs)** will implement in-country activities as per agreed workplans. The assigned CO staff will support the project implementation, monitoring, and contribute to the financial and operational closure and final reporting.
190. A Regional Project Board (RPB) will serve as the project's coordination and decision-making body. The RPB's role will include: (i) providing overall leadership, guidance and direction in successful delivery of outputs and their contribution to outcomes under the regional programme, ensuring the project remains within any specified constraints; (ii) overseeing project implementation; (iii) approving all work plans and budgets, at the proposal of the Project Manager (PM), for submission to UNDP-GEF; (iv) approving any major changes in plans or programmes; (v) reviewing annual progress reports and end project report; (vi) ensuring commitment of resources to support implementation; (vii) arbitrating any conflicts within the project and/or negotiating solutions between the project and any other stakeholders. The RSC will also be the focal point for data sharing and dissemination through its existing transboundary coordination functions and links with the national structures. UNDP-GEF Unit will represent UNDP in the RPB along with representatives from UNDP country offices. Senior level officials from the Ministry of Environment and the Ministry of Emergency Situations from Armenia, as well

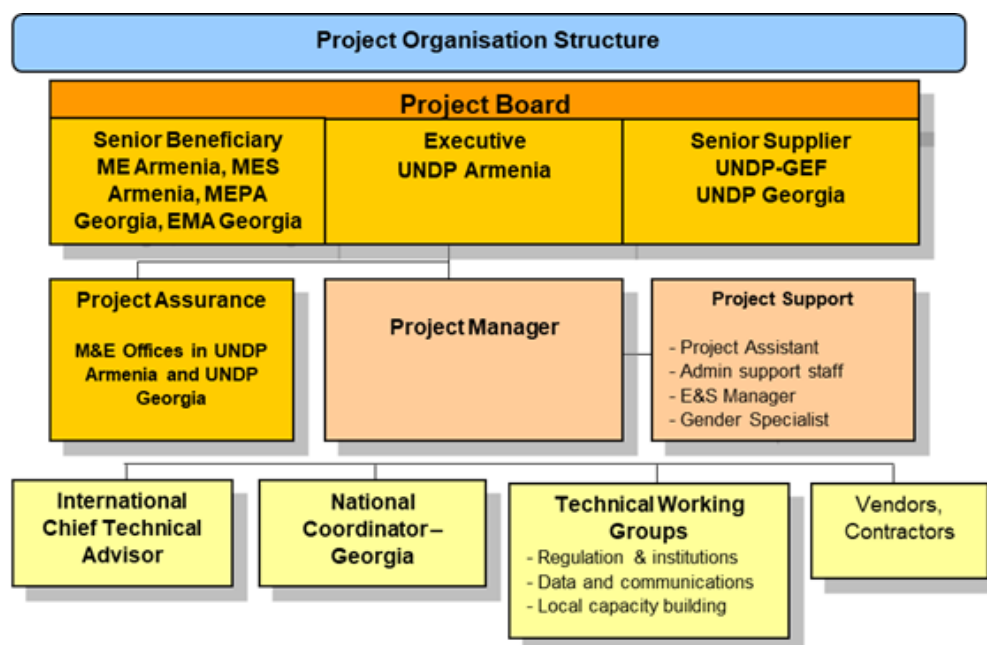
as Ministry of Environment Protection and Agriculture and Ministry of Internal Affairs. from Georgia will represent governments in the RPB. RPB will meet according to necessity, but not less than once in 12 months, to review progress, approve work plans and approve major deliverables.

Key National Stakeholders/Partners	Roles and responsibilities
Ministry of Environment, Republic of Armenia	Member of the project board. The Ministry of Environment will provide oversight of and support implementation of national and sub-national wildfire risk reduction activities in relation to forest areas (forest enterprises, national parks) as well as coordinate on regional risk reduction activities. The role of the Ministry will incorporate representatives from key agencies under the Ministry including 'Hyantar' Forest Enterprise agency and the State Forest Monitoring Agency (currently under Ministry of Agriculture, but undergoing institutional reform).
Ministry of Emergency Situations Republic of Armenia	Member of the project board. The Ministry of Emergency Situations will provide project oversight in relation to national and subnational elements related to wildfire response in Armenia as well as coordinate on regional fire response activities. The MES is a vertically integrated agency that provides emergency response capabilities at both national and local level. It will incorporate representatives of Armenia Hydromet and other relevant agencies that currently sit under the ministry.
Ministry of Environment Protection and Agriculture Republic of Georgia	Member of the project board. The Ministry of Environment Protection and Agriculture will provide oversight of and support implementation of national and sub-national wildfire risk reduction activities in relation to forest areas (forest enterprises, national parks) as well as coordinate on regional risk reduction activities. The role of the Ministry will incorporate representatives from key agencies under the Ministry, including the Agency for Protected Areas (APA), National Forestry Agency (NFA) and Environmental Information Centre.
Emergency Management Service Republic of Georgia	Member of the project board. The Emergency Management Service (EMS) under the Ministry of Internal Affairs will provide project oversight in relation to national and subnational elements related to wildfire response in Georgia as well as coordinate on regional fire response activities. The role of the Ministry will incorporate representatives from relevant agencies including 112 and the crisis management council.

191. The **National Project Boards or Steering Committees** in the two beneficiary countries will be established to oversee and guide project implementation at the country level, including implementation of forest fire management and community engagement activities at the national and local levels. The national Steering Committees will be composed of the national project stakeholders and will be co-chaired by UNDP Country Offices. Nominees from the Ministry of Environment with its subordinated agencies, such as "Hayantar" SNCO, State Hydrometeorological Service, "Forest Monitoring Center" SNCO, Armenian Rescue Service, National Statistical Committee, as well as the Ministry of Economy will represent national project board in Armenia. In Georgia, the NPB membership will include (but not limited to) the representatives from MEPA, EMS, APA and NSC. Representatives from regional administration, selected local communities, enforcement agencies, such as Police, Ministry of Health, academia and other relevant entities may be invited to the PB

meetings. Final composition of the National Project Boards will be decided at the PAC meeting.

192. **Project Assurance:** UNDP Country Offices will support project implementation by monitoring project budgets and expenditures, recruiting and contracting project personnel and consultant services, subcontracting and procuring equipment. UNDP Armenia will monitor the overall project implementation and achievement of the project outcomes/outputs and ensure the efficient use of donor funds through an assigned UNDP Project Manager. UNDP IRH will support Project Assurance.



193. **Mechanisms for local participation:** the project will use the existing locally established mechanisms for local consultation and participation.

194. The day-to-day administration will be carried out by a Project Manager (PM) and Project Assistant (PA), who will be located within the UNDP Armenia and by the National Coordinator (NC) for Georgia based at UNDP Tbilisi. The PM will, with the support of the PA and NC, manage the implementation of all activities, including: preparation/updates of work and budget plans, record keeping, accounting and reporting; drafting of terms of reference, technical specifications and other documents as necessary; identification, proposal of consultants to be approved by the PB, coordination and supervision of consultants and suppliers; organization of duty travel, seminars, public outreach activities and other events; and maintaining working contacts with partners at the central and local levels. The Project Manager and NC will liaise and work closely with all partner institutions to link the project with complementary national programmes and initiatives. The PM is accountable to UNDP and the RPB for the quality, timeliness and effectiveness of the activities carried out, as well as for the use of funds. The PM will produce Annual Work and Budget Plans (AWP&ABP). The PM will further produce quarterly operational reports and

Project Performance Reports (PPR). These reports will summarize the progress made versus the expected results, explain any significant variances, detail the necessary adjustments and be the main reporting mechanism for monitoring activities. The PM will be technically supported by contracted national and international service providers, based on need as determined by the PM and approved by the PB. Recruitment of specialist services will be done by the PM, in consultation with the UNDP and in accordance with UNDP's rules and regulations.

195. The PM will be supported by an **International Chief Technical Advisor (CTA, part time)** recruited by UNDP for this project. CTA will provide (i) state of the art technical advice and (ii) associated policy advice to the programme and its activities. S/he will provide guidance and advice to the Project Manager and National Coordinator on identifying the best methods to ensure that the project achieves maximum impact, in accordance with international best practice, towards its adaptation objectives.

196. UNDP will provide Direct Project Services (DPS). DPS costs are those incurred by UNDP for the provision of services that are execution driven and can be traced in full to the delivery of project inputs. Direct Project Services are over and above the project cycle management services. They relate to operational and administrative support activities carried out by UNDP. DPS include the provision of the following estimated services: i) Payments, disbursements and other financial transactions; ii) Recruitment of staff, project personnel, and consultants; iii) Procurement of services and equipment, including disposal; iv) Organization of training activities, conferences, and workshops, including fellowships; v) Travel authorization, visa requests, ticketing, and travel arrangements; vi) Shipment, custom clearance, vehicle registration, and accreditation. These service costs are assigned as Project Management Cost, identified in the project budget as Direct Project Costs. Eligible Direct Project Costs should not be charged as a flat percentage. They should be calculated on the basis of estimated actual or transaction-based costs and should be charged to the direct project costs account codes: "64397 – 'Services to projects - CO staff' and 74596 – 'Services to projects - GOE for CO'. UNDP recognizes that these services are not mandatory and will only be provided in full compliance with the UNDP recovery of direct costs policies. The DPS will be charged annually using the UNDP Universal Price List.

B. Describe the measures for financial and project / programme risk management.

Risk	Risk Rate	Action
Reluctance of decision makers to adopt recommendations on new legislation or regulation	Medium	Active engagement of Ministry partners at senior level. Project design phase has included close consultations with Ministries and includes elements that are considered realistic within given timescales. The project has engaged closely with government stakeholders during development, and builds upon extensive relationships between UNDP and the respective governments
Institutional conflict (e.g. between EMS and forest agencies) or between national governments prevents the	Medium	Strong focus on stakeholder consultation and alignment, bringing together EMS and Forest and protected area agencies with other stakeholders. Work to strengthen existing bi-lateral coordination mechanism at the regional level

development of a strategy for improved wildfire management		
Due to staff turnover at the target Ministries and agencies, trained staff may leave for other job opportunities undermining installed technical capacity	Medium	Special training conditions and / or training for trainers will be arranged to leave the trained staff at the target Ministries.
Ongoing institutional reform and reorganization create challenges for more integrated and aligned wildfire management processes	Medium	Ensure that significant structural reform processes are completed before identifying institutions to host EWS product development or database management
Lack of willingness among public and community level partners to engage in local activities.	Medium	Provide strong facilitation support for vulnerability and prioritisation processes at the local level
Local stakeholders may be unwilling to change existing livelihoods and cultural practices in relation to fire	Medium	Review uptake of awareness raising and capacity building activities and undertake course correction where necessary. The project will be introducing incentives for sustainable livelihoods and forest management practices in the targeted communities.
No finances are available for proper operation and maintenance of the equipment and structural/non-structural fire prevention measures	Medium	Both countries are upscaling budgetary support for forest and wildfire management. Activities will only be implemented in the context of ongoing sustainable finance from government and this will be agreed in advance with key stakeholders
Weather extremes/natural climate-induced disasters (heat waves, etc.)	Medium	Climate sensitive activities will be screened for potential exposure to changing climate and extremes (e.g. reforestation, water storage).

C. Describe the measures for environmental and social risk management, in line with the Environmental and Social Policy of the Adaptation Fund.

197. UNDP's management of environmental and social risks is comprised of the following:

- a. For unspecified downstream sub-projects an Environmental and Social Management Framework was prepared as a mechanism for risk screening and preparation of a site-specific environmental and social impact assessments and environmental and social management plans for the downstream activities for which detailed design and site-specific details are not available at this time (Annex 9);
- b. Stakeholder engagement as part of planning and implementation of site-specific activities;
- c. Grievance Redress Mechanism designed to capture and address stakeholder grievances;
- d. A gender plan with specific actions and targets aimed to mainstream gender equality and women's empowerment (Annex 11);

- e. Incorporation of project-specific environmental and social requirements into the procurement process and selection of contractors;
- f. Procedures for consultation with stakeholders regarding site-specific projects;
- g. For site-specific activities UNDP will apply a Permit Compliance Management System that includes provisions for: i) listing permitting requirements; ii) connecting legal requirements to permits; iii) create and track compliance actions related to permits; and iv) provide record-keeping of checklists, notes, documents, etc. related to permits;
- h. Inclusion of an Safeguards Officer, and a Gender Specialist on the project management team.

D. Describe the monitoring and evaluation arrangements and provide a budgeted M&E plan.

198. Project monitoring and evaluation (M&E) will be in accordance with established UNDP procedures and will be carried out by the Project team and verified by UNDP IRH and Country Offices in two beneficiary countries. Dedicated support by the technical adaptation teams in the UNDP Istanbul Regional Hub and UNDP-GEF New York will be provided on a regular basis.
199. A comprehensive Results Framework for the project will define execution indicators for project implementation as well as the respective means of verification. A Monitoring and Evaluation system for the project will be established based on these indicators and means of verification.
200. Targeted M&E activities for the proposed project include the following:
 - A Project Inception Workshop will be conducted within two months of project start up with the full project team, relevant government counterparts and UNDP. The Inception Workshop is crucial to building ownership for the project results and plan the first-year annual work plan. A fundamental objective of the Inception Workshop will be to present the modalities of project implementation and execution, document mutual agreement for the proposed executive arrangements amongst stakeholders and assist the project team to understand and take ownership of the project's goals and objectives.
 - Another key objective of the Inception Workshop is to introduce the project team which will support the project during its implementation. An Inception Report will be prepared and shared with participants to formalize various agreements decided during the meeting.
 - A UNDP risk log will be regularly updated in intervals of no less than every six months in which critical risks to the project have been identified.
 - Quarterly Progress Reports will be prepared by the Project team and verified by the Project Board.
 - Project Performance Reports (PPR) will be prepared to monitor progress made since project start and for the previous reporting period. These annual reports include, but are 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);

- Lessons learned/good practices;
 - Annual expenditure reports;
 - Reporting on project risk management.
 - Government authorities, members of Steering Committee/Project Board and UNDP staff will conduct regular field visits to project sites based on the agreed schedule in the project's Inception Report/Annual Work Plan to assess firsthand project progress.
201. The Audit will be conducted in accordance with UNDP Financial Regulations and Rules and applicable audit policies on UNDP projects.
202. The project will undergo an independent Mid-Term Evaluation (MTE) at the mid-point of project implementation, which will determine progress being made toward the achievement of outcomes and 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.
203. Final External Evaluation will be conducted no later than 3 months before project closure.

The budgeted Monitoring & Evaluation plan is as follows:

Type of M&E activity	Responsible Parties	Budget US\$	Timeframe
Inception workshop	Project Manager UNDP COs	\$7000	Within first two months of project start up
Inception Report	Project team UNDP COs	None	Immediately following IW
Measurement of Means of Verification for Project Purpose Indicators	Project Manager	None	State, mid and end of project
Annual measurement of indicators	Project Manager	None	Annual prior to annual reports and the definition of annual work plans
Monthly/quarterly reports	Project team	None	End of each month
Annual reports	Project team UNDP IRH, COs	\$5000 (total amount for all years)	End of each year
Meetings of project Regional Steering Committee and National Steering Committees	Project team UNDP IRH, COs,	\$25,000 (\$5000/5 years)	After inception workshop and thereafter at least once a year

Technical reports	Project team External consultants	None	To be determined by Project Team and UNDP CO
Mid-term external evaluation	Project team UNDP CO External consultants	\$30,000	Mid-point of project implementation
Final external evaluation	Project team UNDP CO External Consultants	\$30,000	End of project implementation
Final report	Project team UNDP CO	None	At least one month before end of project
Publication of lessons learned	Project team	\$15,000 (\$3,000 per year)	Yearly
Monitoring of the implementation of GAP	Project Team, Gender Specialist	\$20,000 (\$4,000 per year)	Yearly
Monitoring of the implementation of ESMF	Project Team, safeguards specialist	\$20,000 (\$4,000 per year)	Yearly
Visits to field sites	UNDP CO CoRI Project team	\$20,000 (\$4,000 per year)	Yearly
Total indicative Cost		\$172,000	

NB: Above costs do not cover UNDP staff time. All UNDP staff costs associated with M&E are covered by the MIE Fee.

The M&E budget will be taken pro-rata from the three project component budgets, reflecting the size of the TA.

E. Include a results framework for the project proposal, including milestones, targets and indicators.

Objective: To assist Armenia and Georgia in the implementation of an integrated transboundary climate-resilient wildfire management approach in order to improve climate resilience of South Caucasus mountain communities, livelihoods and ecosystems.					
	Indicators	Baseline	Goals Project completion	Means of verification	Risks and assumptions
Objective of the Project To assist Armenia and Georgia in the implementation of an integrated transboundary climate-resilient wildfire management approach in order to improve climate resilience of South Caucasus mountain communities, livelihoods and ecosystems	Area (ha) of national forest cover benefiting from improved wildfire forecasting, preparedness and risk reduction capacity	0 ha	At least 500,000 ha of mountain ecosystems benefiting from improved regional, national and subnational wildfire and climate management	Project annual reports; Mid-term evaluation, final report.	Wildfire risk is a growing threat due to increased temperatures, lower precipitation magnifying anthropogenic causes
	Number of people (# and % of the total population) in targeted forest areas benefiting from reduced exposure to wildfire risk and improved sustainable forest management (disaggregated by sex)	0	At least 800,000 people in target areas benefiting from reduced climate and wildfire risk, representing just under 10% of overall population of Armenia and Georgia.	Project annual reports; Mid-term evaluation, final report. Assessment of project areas under improved EWS and forest management approaches	High level engagement from the governments (Forest agencies, Emergency services) of Armenia and Georgia. Active engagement from targeted project sites (local agencies, local authorities, communities).
	Knowledge and capacity for improved wildfire management embedded in relevant public agencies and communities at regional, national and local level (measured through institutional capacity scorecard and KAP survey)	Baseline to be established during Year 1 of the project	75% increase over baseline	Institutional capacity scorecard KAP survey Project annual reports; Mid-term evaluation, final report. Participation in workshops, consultations and training	

Outcome 1 Strengthened regulatory and institutional capacity to identify, plan for and respond to climate-induced wildfire risk at both regional and national level	Indicator 1.1 Number of legal and regulatory frameworks that are strengthened, including on the basis of common regional approaches	Policy and regulatory frameworks remain incomplete with a lack of harmonization, limited consideration of climate change and only partial implementation of previous ENVSEC recommendations. There are ongoing regulatory barriers to community level involvement in fire response and often incomplete community level response plans.	At least 4 regulatory frameworks have been updated/developed and implemented by national governments (including regulations on wildfire volunteer groups)	Project annual reports; Mid-term evaluation, final report. Legal journals	National capacity building activities are not translated to the sub-national level. Governments engage with regulatory reform and adopt regulations. National governments are willing to engage and harmonize on a regional basis in the South Caucasus.
	Indicator 1.2 1.2.1 Strengthened regional wildfire coordination mechanism developed between Armenia and Georgia 1.2.2. Number of institutional wildfire cooperation and coordination frameworks that are improved at national level	Regional cooperation between Armenia and Georgia on wildfire risk is ad-hoc and reactive and lacks a solid analytical and procedural basis to improve outcomes. Challenges exist in institutional cooperation, between emergency services and forest agencies in terms of roles, responsibilities and allocation of resources.	Indicator target 1.2 1.2.1. Regional cooperation framework on wildfire management between Georgia and Armenia is strengthened and fully operationalized by 2025 1.2.2. At least 4 examples of improvement in institutional cooperation between forest management agencies and emergency services in each country by 2025	Project annual reports; Mid-term evaluation, final report.	Potential institutional rivalries over resource allocation do not prevent cooperation between EMS and Forest agencies. National and sub-national agencies are willing to participate in training and multi-stakeholder drills.
	Indicator 1.3 1.3.1 Number of regional training exercises undertaken for preparedness and response 1.3.2 Number of staff from targeted regional and national institutions trained in wildfire management best	Limited capacity in understanding best practices in forest wildfire risk reduction and response, and few opportunities for multi-stakeholder drills at the regional and national level. Local emergency response and forest agency teams lack the necessary equipment and technology for effective wildfire identification and response:	Indicator target 1.3 1.3.1 At least 2 regional training exercises undertaken with cross-government cooperation (either cross border or in country) 1.3.2 At least 200 officials and other key national/regional stakeholders trained on improving the enabling environment and emerging technologies for wildfire management (including at least 30% women)	Project annual reports; Mid-term evaluation, final report. Capacity review Training test results	

	<p>practice and climate risks</p> <p>1.3.3 Number of local level multi-stakeholder training exercises undertaken</p>		1.3.3 At least 4 multi-stakeholder training exercises undertaken at the local level in target regions (including at least 30% women)		
	<p>Indicator 1.4</p> <p>1.4.1 Number of professionals equipped with equipment improving wildfire preparedness and response provided</p>		<p>Indicator target 1.4</p> <p>1.4.1 At least 1000 professionals equipped with improved wildfire identification and response equipment across the 2 countries</p>	<p>Review of procurement and distribution plan</p> <p>Review of targeted local EMS and forest agency capacity</p>	
<p>Outcome 2</p> <p>More effective data management and decision making around forest wildfire risk reduction and response, and enhanced use of climate information.</p>	<p>Indicator 2.1</p> <p>2.1.1 Number of wildfire risk forecasting and modelling approaches developed and piloted</p>	<p>Systems for fire risk monitoring, forecasting and analysis in both Armenia and Georgia, remain only partially developed and implemented.</p> <p>Poor use of forest wildfire emergency response data to understand how anthropogenic forest wildfires clustered, and how preventative measures and</p>	<p>Indicator target 2.1</p> <p>2.1.1 At least 4 examples of risk forecasting approaches developed or strengthened across the 2 countries</p>	<p>Project annual reports; Mid-term evaluation, final report;</p> <p>Assessment of capacities of extension services before and after AF project intervention</p> <p>Partner reporting and audit.</p>	<p>National agencies are willing to adopt and implement more advanced fire risk monitoring and forecasting platforms.</p> <p>Data is available to understand clustering of anthropogenic wildfires and EMS.</p>

	<p>Indicator 2.2.</p> <p>2.2.1 Number of early warning system (EWS) products developed and piloted</p> <p>2.2.2. Number of beneficiaries able to access EWS</p>	<p>resources could be organised.</p> <p>Limited use of GIS or other remote or ground based remote sensing systems to undertake wildfire vulnerability and impact analysis</p> <p>Policy makers have limited access to comprehensive and well-structured data for evidence-based decision making</p> <p>Poorly developed and targeted wildfire early warning preventative systems with limited consideration of end user perspectives, channels and messaging</p>	<p>Indicator target 2.2.</p> <p>2.2.1 At least 2 EWS products developed and piloted with individual user groups (public/institutional)</p> <p>2.2.2. At least 800,000 users are able to receive targeted and customized EWS information in local language</p>	<p>Project annual reports; Mid-term evaluation, final report;</p> <p>Community surveys</p> <p>EWS network distribution data</p>	<p>are willing to engage in data analysis.</p> <p>National government agencies are able to evolve EWS services to more user-focused demand driven products.</p> <p>Governments are willing to adopt regional approaches to wildfire risk classification and impact assessment.</p>
	<p>Indicator 2.3</p> <p>2.3.1 Regional data protocol for wildfire risk classification and assessment in place</p> <p>2.3.2 Number of data sets or databases aligned and integrated under a common data policy for improved analysis</p>	<p>Fragmented and poorly managed datasets detailing forest inventories, wildfire risks, damages and impacts and climate risk information with a lack of common standards, interoperability reducing usefulness and availability of trend data</p> <p>A lack of innovation and adoption around wildfire monitoring, data analysis and forecasting technologies with limited liaison with external providers and developers (e.g. academia, private sector).</p>	<p>Indicator target 2.3</p> <p>2.3.1 A single common set of advisory data classification protocols developed at the regional level by 2023</p> <p>2.3.2 At least 4 examples of databases and/or data sets being better aligned and integrated under a common data management approach by 2025</p>	<p>Project annual reports; Mid-term evaluation, final report;</p> <p>Technical review of data systems</p>	<p>Ongoing institutional reorganization does not disrupt plans for better wildfire and forest data management and integration.</p> <p>Capacity and interest exist in the academic and private sector to engage on wildfire risk monitoring and forecasting.</p>
	<p>Indicator 2.4</p> <p>2.4.1 Number of academic or private sector teams supported to develop, pilot and/or scale innovative wildfire monitoring and forecasting products</p>		<p>Indicator target 2.4</p> <p>2.4.1 At least 4 academic or private sector innovation teams develop, pilot and/or scale new approaches to wildfire identification, monitoring or forecasting</p>	<p>Project annual reports; Mid-term evaluation, final report;</p> <p>CCTA reports</p>	

Outcome 3 Increased community and ecosystem resilience to wildfire risk and broader climate change impacts.	Indicator 3.1: 3.1.1 Number of forest regions with completed vulnerability assessment and plans for improved fire risk management, response and improved community sustainable forest management	Capacity and resource challenges associated with effective wildfire risk reduction and response at the local level including poorly elaborated forest fire risk management and response plans and protocols Investment constraints undermining effective forest management practices and shortages of fire and suppression equipment, access routes and water infrastructure.	Indicator target 3.1. 3.3.1 At least 6 forest areas develop investment and capacity building plans for improved wildfire risk reduction, response and improved community management of forest assets	Project annual reports; Mid-term evaluation, final report; Field visits Participatory consultation outputs	The 6 targeted forest enterprise regions have the capacity to engage with vulnerability assessment and resource prioritisation processes. Local communities demonstrate interest and capacity in engaging on sustainable forest management enterprise. Project implementation team has the capacity to oversee investment implementation across the 6 regions. Improved awareness of wildfire potential can change behavior among high risk groups (farmers and recreational forest users) and change cultural norms.
	Indicator 3.2: 3.2.1 Range of interventions to improve fire risk reduction and response	Weak community-level forest conservation practices and economic incentives to undertake activities that reduce fire risk. Low levels of awareness of potential fire risk and behavioral best practice at the local level with ongoing challenges of changing behaviours among certain high risk groups (recreational forest users, farmers).	Indicator target 3.2. 3.2.1 At least 6 different types of intervention are piloted in target regions	Project annual reports. Mid-term evaluation, final report Field visits Demonstration site reports	
	Indicator 3.3 3.3.1 Area of land rehabilitated or reforested with community support 3.3.2 Number of communities benefiting from community level interventions to promote sustainable forestry (briquetting, forest eco-system services, SLM practices)		Indicator target 3.3. 3.3.1 At least 200 ha of forest rehabilitated or reforested 3.3.2 At least 10 separate communities benefiting from sustainable forestry interventions	Project annual reports. Mid-term evaluation, final report Demonstration site reports Community Surveys;	

	Indicator 3.4 3.4.1 Number of stakeholders benefiting from/with access to different awareness raising activities and materials in relevant language		Indicator target 3.4 3.4. At least 10,000 people benefit from project awareness raising activities and/or receive materials focused on changing behaviours to more sustainable forestry practices	Project annual reports. Mid-term evaluation, final report Media reports Participant data in training and awareness raising	
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F. Demonstrate how the project / programme aligns with the Results Framework of the Adaptation Fund

The alignment is set out below.

Project Objective(s) ⁵⁸	Project Objective Indicator(s)	Fund Outcome	Fund Outcome Indicator	Grant Amount (USD)
To assist Armenia and Georgia in the implementation of an integrated transboundary climate-resilient wildfire management approach in order to improve climate resilience of South Caucasus mountain communities, livelihoods and ecosystems	1. Area (ha) of national forest cover benefiting from improved wildfire forecasting, preparedness and risk reduction capacity	1. Reduced exposure to climate-related hazards and threats 5. Increased ecosystem resilience in response to climate change and variability-induced stress	1.1 Relevant threat and hazard information generated and disseminated to stakeholders on a timely basis 5.1 Ecosystem services and natural resource assets maintained or improved under climate change and variability-induced stress	\$ 7,475,650
	2. Number of people (#) in targeted forest areas benefiting from reduced exposure to wildfire risk and more resilient and sustainable forest management	1. Reduced exposure to climate related hazards and threats 3. Strengthened awareness and ownership of climate risk reduction processes at local level 6. Diversified and strengthened livelihoods and sources of income for vulnerable people in targeted areas	1.1 Relevant threat and hazard information generated and disseminated to stakeholders on a timely basis 3.1 Percentage of targeted population aware of predicted adverse impacts of climate change, and of appropriate responses 6.1. Percentage of households and communities have more secure access to livelihood assets	

⁵⁸ The AF utilized OECD/DAC terminology for its results framework. Project proponents may use different terminology but the overall principle should still apply

	3. Knowledge and capacity for improved wildfire management embedded in relevant public agencies and communities at regional, national and local level	2. Strengthened capacity of national and sub-national centres and networks to respond rapidly to extreme weather events 3. Strengthened awareness and ownership of climate risk reduction processes at local level 7. Improved policies and regulations that promote and enforce resilience measures	2.1 Capacity of staff to respond to, and mitigate impacts of, climate-related events from targeted institutions increased 3.1 Percentage of targeted population aware of predicted adverse impacts of climate change, and of appropriate responses 7.1 Climate change priorities are integrated into national development strategy	
Project Outcome(s)	Project Outcome Indicator(s)	Fund Output	Fund Output Indicator	Grant Amount (USD)
Outcome 1: Strengthened regulatory and institutional capacity to identify, plan for and respond to climate-induced wildfire risk at both regional and national level.	Indicator 1.1 1.1 Number of legal and regulatory frameworks that are strengthened, including on the basis of common regional approaches	7. Improved integration of climate-resilience strategies into country development plans	7.1.1 No of policies introduced or adjusted to address climate change risks 7.1.2 No of targeted development strategies with incorporated climate change priorities enforced	\$1,587,800
	Indicator 1.2 1.2.1 Strengthened regional wildfire coordination mechanism developed between Armenia and Georgia 1.2.2. Number of institutional wildfire cooperation and coordination frameworks that are improved at national level	2. Strengthened capacity of national and sub-national centres and networks to respond rapidly to extreme weather events	2.1.2 No of targeted institutions with increased capacity to minimize exposure to climate variability risks (by type, sector and scale)	
	Indicator 1.3 1.3.1 Number of regional training exercises undertaken for preparedness and response 1.3.2 Number of staff from targeted regional and national institutions trained in wildfire management best practice and climate risks	2. Strengthened capacity of national and sub-national centres and networks to respond rapidly to extreme weather events	2.1.1. No of staff trained to respond to, and mitigate impacts of climate related events (by gender) 2.1.2 No of targeted institutions with increased capacity to minimize exposure to climate variability risks (by type, sector and scale)	

	1.3.3 Number of local level multi-stakeholder training exercises undertaken			
	Indicator 1.4 1.4.1 Number of different types of wildfire suppression equipment provided to fire response professionals and forest managers 1.4.2 Number of professionals equipped with equipment improving wildfire preparedness and response provided	2. Strengthened capacity of national and sub-national centres and networks to respond rapidly to extreme weather events	2.1.2 No of targeted institutions with increased capacity to minimize exposure to climate variability risks (by type, sector and scale)	
Outcome 2. More effective data management and decision making around forest wildfire risk reduction and response, and enhanced use of climate information.	Indicator 2.1 2.1.1 Number of wildfire risk forecasting and modelling approaches developed and piloted	2. Strengthened capacity of national and sub-national centres and networks to respond rapidly to extreme weather events	2.1.2 No of targeted institutions with increased capacity to minimize exposure to climate variability risks (by type, sector and scale)	\$910,800
	Indicator 2.2. 2.2.1 Number of early warning system (EWS) products developed and piloted 2.2.2 Types of beneficiaries being able to access wildfire EWS information 2.2.3. Number of potential users able to access EWS	1.1 Risk and vulnerability assessments conducted and updated	1.1.2 No. of early warning systems (by scale) and no of beneficiaries covered	
	Indicator 2.3 2.3.1 Regional data protocol for wildfire risk classification and assessment in place 2.3.2 Number of data sets or databases aligned and integrated under a common data policy for improved analysis	2. Strengthened capacity of national and sub-national centres and networks to respond rapidly to extreme weather events	2.1.2 No of targeted institutions with increased capacity to minimize exposure to climate variability risks (by type, sector and scale)	
	Indicator 2.4 2.4.1 Number of academic or private sector teams supported to develop, pilot and/or scale innovative wildfire monitoring and forecasting products	4. Vulnerable development sector services and infrastructure assets strengthened in response to climate change	4.1.1 No and type of development sector services modified to respond to new conditions resulting from climate variability and change (by sector and scale)	

		impacts, including variability		
Outcome 3: Increased community and ecosystem resilience to wildfire risk and broader climate change impacts.	Indicator 3.1: 3.3.1 Number of forest regions undergoing vulnerability assessment and prioritizing interventions for improved fire risk management, response and improved community sustainable forest management	1. Risk and vulnerability assessments conducted and updated	1.1.1 No of projects/programmes that conduct and update risk and vulnerability assessments (by sector and scale)	\$3,977,850
	Indicator 3.2: 3.2.1 Range of interventions to improve fire risk reduction and response	2. Strengthened capacity of national and sub-national centres and networks to respond rapidly to extreme weather events	2.1.2 No of targeted institutions with increased capacity to minimize exposure to climate variability risks (by type, sector and scale)	
	Indicator 3.3 3.3.1 Area of land rehabilitated or reforested with community support 3.3.2 Range of community level interventions to promote sustainable forestry (briquetting, forest eco-system services, SLM practices)	5. Vulnerable eco-system services and natural resource assets strengthened in response to climate change impacts, including variability 6. Targeted individual and community livelihood strategies strengthened in relation to climate change impacts, including variability	5.1.1 No of natural resource assets created, maintained or improved to withstand conditions resulting from climate variability – induced stress 6.1.1 No and type of adaptation assets (tangible and intangible) created or strengthened in support of individual or community livelihood strategies 6.1.2 Type of income sources for households generated under climate change scenario	
	Indicator 3.4 3.4.1 Number of stakeholders directly benefiting from awareness raising activities 3.4.2 Number of stakeholders downloading or receiving wildfire awareness products in relevant language	3. Targeted population groups participating in adaptation and risk reduction awareness activities	No of news outlets in the local press and media that have covered the topic	

G. Include a detailed budget with budget notes, a budget on the Implementing Entity management fee use, and an explanation and a breakdown of the execution costs.

G.1. Detailed budget with budget notes.

Award ID	TBD			Project ID			TBD					
Project Title	Increased climate resilience of South Caucasus mountain communities and ecosystems through wildfire risk reduction											
PIMS No.	6247											
Implementing Partner	UNDP											
Outcome/ Atlas Activity	Responsible Party/ Implementing Agent	Fund ID	Donor Name	Atlas Budgetary Account Code	ATLAS Budget Description	Amount Year 1 (USD)	Amount Year 2 (USD)	Amount Year 3 (USD)	Amount Year 4 (USD)	Amount Year 5 (USD)	Total (USD)	Budget Notes #
Outcome 1: Strengthened regulatory and institutional capacity to identify, plan for and respond to climate-induced wildfire risk at both regional and national level.	UNDP	62040	AF	71200	International consultant	25,000	25,000	25,000	0	0	75,000	1
				71300	Local consultant	20,000	40,000	20,000	5,000	20,000	105,000	2
				72100	Contractual Services - Companies	50,000	50,000	50,000	0	0	150,000	3
				71400	Contractual services (individual)	22,560	22,560	22,560	22,560	22,560	112,800	4
				71600	Travel	5,000	12,500	12,500	10,000	10,000	50,000	5
				75700	Training, Workshops and Conferences	10,000	25,000	25,000	20,000	20,000	100,000	6
				74200	Audio Visual & Print Prod Costs	4,000	4,000	4,000	4,000	4,000	20,000	7
				72200	Equipment and furniture		150,000	400,000	400,000	0	950,000	8
				74500	Miscellaneous Expenses	5,000	5,000	5,000	5,000	5,000	25,000	9
					Total Outcome 1	141,560	334,060	564,060	466,560	81,560	1,587,800	
Outcome 2: More effective	UNDP	62040	AF	71200	International consultant	25,000	25,000	25,000	15,000	0	90,000	10

data management and decision making around forest wildfire risk reduction and response, and enhanced use of climate information				71300	Local consultant	48,000	70,000	55,000	20,000	0	193,000	11
				72100	Contractual Services - Companies		150,000	150,000	0	0	300,000	12
				71400	Contractual services (individual)	22,560	22,560	22,560	22,560	22,560	112,800	13
				71600	Travel	1,000	1,000	1,000	1,000	0	4,000	14
				73100	Rental and Maintanance Premises	10,000	10,000	10,000	10,000	10,000	50,000	15
				75700	Training, Workshops and Conferences	11,000	4,000	4,000	4,000	0	23,000	16
				74200	Audio Visual&Print Prod Costs	0	5,000	5,000	5,000	3,000	18,000	17
				72200	Equipment and furniture	0	50,000	50,000	0	0	100,000	18
				74500	Miscellaneous Expenses	5,000	5,000	5,000	5,000	0	20,000	19
					Total Outcome 2	122,560	342,560	327,560	82,560	35,560	910,800	
Outcome 3: Increased community and ecosystem resilience to wildfire risk and broader climate change impacts	UNDP	62040	AF	71200	International consultant	5,000	20,000	50,000	20,000	50,000	145,000	20
				71300	Local consultant	20,000	45,000	45,000	45,000	40,000	195,000	21
				72100	Contractual Services - Companies	20050	500,000	500,000	500,000	500,000	2,020,050	22
				71400	Contractual services (individual)	7,680	7,680	7,680	7,680	7,680	38,400	23
				71600	Travel	10,000	20,000	20,000	20,000	20,000	90,000	24
				72300	Materials and Goods	6,000	6,000	6,000	6,000	6,000	30,000	25
				73400	Rental and Maintenance - other equipment	3,000	3,000	3,000	3,000	3,000	15,000	26

				73100	Rental and Maintanance Premises	8,680	8,680	8,680	8,680	8,680	43,400	27
				75700	Training, Workshops and Conferences	5,000	20,000	20,000	20,000	20,000	85,000	28
				74200	Audio Visual&Print Prod Costs	1,000	5,000	5,000	5,000	5,000	21,000	29
				72200	Equipment and furniture	70000	300,000	300,000	300,000	300,000	1,270,000	30
				74500	Miscellaneous Expenses	5,000	5,000	5,000	5,000	5,000	25,000	31
					Total Outcome 3	161,410	940,360	970,360	940,360	965,360	3,977,850	
Project Execution Costs	UNDP	62040	AF	71400	Contractual services (individual)	57,360	57,360	57,360	57,360	57,360	286,800	32
				72800	Information Technology Equipment and Furniture	12,000	1,000	1,000	1,000	1,000	16,000	33
				72500	Supplies	1,480	1,480	1,480	1,480	1,480	7,400	34
				74596	Direct project cost	20,670	20,670	20,670	20,670	20,670	103,350	35
					Total project execution cost	91,510	80,510	80,510	80,510	80,510	413,550	
Total Project Costs						517,040	1,697,490	1,942,490	1,569,990	1,162,990	6,890,000	
					Programme management fee 8.5%						585,650	
					GRAND TOTAL						7,475,650	

Budget Notes:

Budget Notes #	Budget Notes Description
1	ICTA support to Workstream 1
2	Local consultant support to policy and institutional assesment (700 days in total average daily rate USD 150)
3	Needs assessment study, regulatory framework analysis and recommendations
4	40% salary for National Coordinator in Georgia, (2350 USD/month x 60 month), 40% Salary for the Project Manager (2350 USD/month x 60 months)
5	Travel support costs for fire response and policy training events
6	2 * International training exercises for fire suppression (\$25000 per event), 4 * national training exercises on fire response (\$10,000 per event), 4 * national workshops on fire risk management in policy (\$2500 per event)
7	Knowledge management and learning materials production, publication of best institutional models for fire management systems and fire response practices - 1 output per year per country from year 2 onwards on fire management policy, institutional reform and fire response best practice (\$2500 per output)
8	Procurement of firefighting tools and protective equipment for c.1000 EMS, forest agency and community fire responders
9	Miscellaneous Expenses related to the implementation of Outcome 1
10	ICTA support to Workstream 2
11	Local expert support for fire risk warning, data systems analysis, EWS development and CCTA (1286 days in total average daily rate USD 150)
12	Support in the development and piloting of new and innovative tech-based fire risk identification and forecasting technologies (e.g. remote sensing, big data mining, etc.) by the private sector/universities through the start-up acceleration programme (Climate Change Technology Accelerator); (6 X \$50,000 average).
13	40% salary for National Coordinator in Georgia, (2350 USD/month x 60 month, 40%), 40% of Salary for the Project Manager (2350 USD/month x 60 months)
14	Local travel in Armenia, Georgia for project consultations
15	Cost will cover lease and Utility costs for 2 office X 416 per month X 60
16	Workstream 2 stakeholder workshops * 2 per year @ \$2000, as well as Inception Workshop USD 3500 per country
17	Knowledge management and learning materials production - 1 output per year per country from year 2 onwards on early warning and fire risk prediction (\$2500 per output)
18	Computer hardware, licenses for forest fire warning system, EWS development, remote sensing
19	Miscellaneous Expenses related to implementation of Outcome 2
20	ICTA support for Workstream 3. Advisory on VRA, local planning approach, as well as midterm (year 3) and final evaluation of project
21	Local consultant support for site VRA and awareness raising among local communities, community planning and implementation across 6 sites, Gender Specialist, Safeguards Officer

22	Contracts for services to improve fire risk management (forest road rehabilitation and mineralisation (150km)X1255 USD per km, reservoir construction (20) X 15470 USD per unit, forest rehabilitation/restoration (200ha) X 4470 USD per ha - over 8 project sites including 3 years of maintenance, financial support to 8 project sites/forest enterprises (\$66,000 on average per one forest enterprise/project site), ESMF implementation (\$19,000/year)
23	Monitoring visits, field works support and transportation to/from pilot territories of equipment, firefighting tools, training teams, etc. 50% of ARM Driver and 50% GEO Driver (640 USD / month X 60 X 2 drivers X 50%)
24	Travel to sites (car, T&S) to support VRA, local planning, enterprise selection, implementation
25	Cost will cover fuel costs of vehicle for Armenia and Georgia USD 250 X month X per country
26	Vehicle and other office equipment maintenance and Insurance costs USD 250 X per month
27	Cost will cover lease and Utility costs for 2 office X 362 per month X 60
28	Training and awareness raising events in local communities (3 per year @ \$5k per event), as well as Meetings of project Regional Steering Committee and National Steering Committees USD 5000 per year
29	Knowledge management, learning and lessons learned materials production - 1 output per year per country from year 2 onwards on local fire planning (\$2500 per output)
30	6 project sites * \$200k procurement per site (fire fighting vehicles/ quadcycles (12), construction and forest management tractors (12), signs (1000), as well as 2 offroad (4X4 pickups) X USD 35000 will be procured for organization of field works and monitoring during implementation and will be further transferred to beneficiaries/stakeholders upon completion of project
31	Miscellaneous Expenses related to the implementation of Outcome 2
32	Budget line will cover 20% of Project Manager, 20% of National Coordinator in Georgia and 100% of 2 Fin/Admin Assistants X 1600 USD / month X 60, 50% of ARM Driver and Geo Driver (USD 640 per month *2 * 50%)
33	Budget line will cover purchase of 4 computers, all-in one printers, other IT equipment as well as office furniture
34	Lines will cover monthly cost of offices supplies: stationery and cartridges etc with average monthly cost of USD 123
35	Cost of support services for the project

	Year 1	Year 2	Year 3	Year 4	Year 5	Total
Project Funds	425,530	1,616,980	1,861,980	1,489,480	1,082,480	6,476,450
Project Execution Costs	91,510	80,510	80,510	80,510	80,510	413,550
Total project cost	517,040	1,697,490	1,942,490	1,569,990	1,162,990	6,890,000

G.2. DESCRIPTION OF UNDP COUNTRY OFFICE SUPPORT SERVICES TO THE PROJECT

DESCRIPTION OF UNDP SUPPORT SERVICES FOR ARMENIA:

Support services	Schedule for the provision of the support services	Cost to UNDP of providing such support services (where appropriate)	Amount and method of reimbursement of UNDP (where appropriate)
1. Human Resources			
Identification and/or recruitment of project personnel -Project Manager (PM), Fin/Admin Assistant (FAA) and Driver (D)	In the first quarter of the project implementation	US\$ 599.81*3 (PM, FAA, D)	US\$1,799 UNDP will directly charge the project in accordance with the UPL
Local Personnel HR & Benefits Administration & Management	One- time fee, per staff at: the issuance of a contract, and- again at separation	US\$ 205.66*6 (contract issuance and separation for PM & FAA & D)	US\$ 1234 UNDP will directly charge the project in accordance with the UPL
Recurrent personnel management services: Local Payroll & Banking (35%) Performance evaluation (30%) Extension, promotion, entitlements (30%) Leave monitoring (5%)	Annual fee per employee, per calendar year	US\$448.67*3*5 (PM&FAA&D for 5 years duration)	US\$ 6,730 UNDP will directly charge the project in accordance with the UPL
Consultant recruitment Advertising (20%) Shortlisting & selection (40%) Contract issuance (40%)	Per IC process	US\$234.26*50	US\$ 11,713 UNDP will directly charge the project in accordance with the UPL
Total HR:			US\$ 21,476
2. Finance			
Payment Process	Ongoing throughout implementation as applicable	38.49*750	US\$28,868 UNDP will directly charge the project in accordance with the UPL
Total Finance:			US\$28,868
3. Procurement			
Procurement not involving CAP - below US\$ 50,000	As per the work plan	217.35*20	US\$ 4,347 UNDP will directly charge the project in accordance with the UPL
Procurement process involving CAP (and/or ITB, RFP, requirements) - above US\$ 50,000)	As per the work plan	540.84*4	US\$ 2,163 UNDP will directly charge the project in

			accordance with the UPL
Total Procurement:			US\$ 6,510
4. Admin Support			
Travel request or authorization (40%) F10 settlement) (35%)	Ongoing throughout implementation as applicable	US\$ 38.47*60 US\$ 33.66*60	US\$ 4,328 UNDP will directly charge the project in accordance with the UPL
Total Admin Support:			US\$ 4,328
Total DPC			USD 61,182

DESCRIPTION OF UNDP SUPPORT SERVICES FOR GEORGIA

Support services	Schedule for the provision of the support services	Cost to UNDP of providing such support services (where appropriate)	Amount and method of reimbursement of UNDP (where appropriate)
1. Human Resources			
Identification and/or recruitment of project personnel -National Coordinator (NC), Fin/Admin Assistant (FAA) and Driver (D)	In the first quarter of the project implementation	US\$ 599.81*3 (NC,FAA, D)	US\$1,799 UNDP will directly charge the project in accordance with the UPL
Local Personnel HR & Benefits Administration & Management	One- time fee, per staff at: the issuance of a contract, and- again at separation	US\$ 205.66*6 (contract issuance and separation for NC & FAA &D)	US\$ 1234 UNDP will directly charge the project in accordance with the UPL
Recurrent personnel management services: Local Payroll & Banking (35%) Performance evaluation (30%) Extension, promotion, entitlements (30%) Leave monitoring (5%)	Annual fee per employee, per calendar year	US\$448.67*3*5 (NC&FAA&D for 5 years duration)	US\$ 6,730 UNDP will directly charge the project in accordance with the UPL
Consultant recruitment Advertising (20%) Shortlisting &selection (40%) Contract issuance (40%)	Per IC process	US\$234.26*30	US\$ 7,028 UNDP will directly charge the project in accordance with the UPL
Total HR:			US\$ 16,791
2. Finance			
Payment Process	Ongoing throughout implementation as applicable	38.49*500	US\$ 19,245 UNDP will directly charge the project in

			accordance with the UPL
Total Finance:			US\$ 19,245
3. Procurement			
Procurement not involving CAP - below US\$ 50,000	As per the work plan	217.35*10	US\$ 2,174 UNDP will directly charge the project in accordance with the UPL
Procurement process involving CAP (and/or ITB, RFP, requirements) - above US\$ 50,000)	As per the work plan	540.84*2	US\$ 1,082 UNDP will directly charge the project in accordance with the UPL
Total Procurement:			US\$ 3,255
4. Admin Support			
Travel request or authorization (40%) F10 settlement) (35%)	Ongoing throughout implementation as applicable	US\$ 38.47*40 US\$ 33.66*40	US\$ 2,885 UNDP will directly charge the project in accordance with the UPL
Total Admin Support:			US\$ 2,885
Total DPC			USD 42,177

Grand Total for Both Offices			USD 103,359
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G.3. UNDP Fees for Support to the Adaptation Fund Project are described in Annex 2.

H. Include a disbursement schedule with time-bound milestones.

	Upon agreement signature (US\$)	After Year 1 (US\$)	After Year 2 (US\$)	After Year 3 (US\$)	After Year 4 (US\$)	Total
Scheduled Date	January 2020	January 2021	January 2022	January 2023	January 2024	
Project Funds	517,040	1,697,490	1,942,490	1,569,990	1,162,990	6,890,000
Implementing Entity Fee	260,629	86,572	99,067	80,069	59,312	585,650
Total	777,669	1,784,062	2,041,557	1,650,059	1,222,302	7,475,650


H.2. Disbursement Schedule

PART IV: ENDORSEMENT BY GOVERNMENT AND CERTIFICATION BY THE IMPLEMENTING ENTITY

- A. Record of endorsement on behalf of the government⁵⁹** Provide the name and position of the government official and indicate date of endorsement. If this is a regional project/programme, list the endorsing officials all the participating countries. The endorsement letter(s) should be attached as an annex to the project/programme proposal. Please attach the endorsement letter(s) with this template; add as many participating governments if a regional project/programme:

<i>Republic of Armenia</i> <i>Mr. Erik Grigoryan,</i> <i>Minister of Environment of the Republic of Armenia</i>	Date: 30 July 2019
<i>Georgia</i> <i>Ms. Nino Tandilashvili</i> <i>Deputy Minister,</i> <i>Ministry of environment protection and agriculture of Georgia</i>	Date: 30 July 2019

- B. Implementing Entity Certification** Provide the name and signature of the Implementing Entity Coordinator and the date of signature. Provide also the project/programme contact person's name, telephone number and email address

I certify that this proposal has been prepared in accordance with guidelines provided by the Adaptation Fund Board, and prevailing National Development and Adaptation Plans and subject to the approval by the Adaptation Fund Board, <u>commit to implementing the project/programme in compliance with the Environmental and Social Policy of the Adaptation Fund</u> and on the understanding that the Implementing Entity will be fully (legally and financially) responsible for the implementation of this project/programme.	
 Pradeep Kurukulasuriya Executive Coordinator & Director- Global Environmental Finance & Head, Natural Capital and the Environment Bureau for Policy and Programme Support United Nations Development Programme	
Date: 5 August, 2019	Tel. and e-mail: pradeep.kurukulasuriya@undp.org
Project Contact Person: Natalia Olofinskaya	
Tel. And Email: +90 543 532 3046 / nataly.olofinskaya@undp.org	

1. ^{6.} Each Party shall designate and communicate to the secretariat the authority that will endorse on behalf of the national government the projects and programmes proposed by the implementing entities.

Annex 1: Letter of Endorsement

1.1. Republic of Armenia



REPUBLIC OF ARMENIA
MINISTER OF ENVIRONMENT

Nº 1/08.2/11901

«30» «07» 2019

To: The Adaptation Fund Board
c/o Adaptation Fund Board Secretariat
Email: Secretariat@Adaptation-Fund.org
Fax: 202 522 3240/5

Subject: Endorsement for the full project proposal "Increased climate resilience of South Caucasus mountain communities and ecosystems through wildfire risk reduction".

In my capacity as designated authority for the Adaptation Fund in the Republic of Armenia, I confirm that the above regional project proposal is in accordance with the government's national priorities in implementing adaptation activities to reduce adverse impacts of, and risks, posed by climate change in Armenia.

Accordingly, I am pleased to endorse the above project proposal with support from the Adaptation Fund. If approved, the project will be implemented and executed by the United Nations Development Programme in cooperation with the Ministry of Environment and the Ministry of Emergency Situations of the Republic of Armenia.

Sincerely,

Erik Grigoryan
Minister of Environment of the Republic of Armenia

ICD:K.Khachatryan
011818508



REPUBLIC OF ARMENIA
MINISTRY OF
ENVIRONMENT

3 Government bld., Republic Sq., Yerevan, 0010, Armenia
(+374) 11 818-501 | Fax: (+374) 11 818-506

1.2. Georgia



საქართველო
GEORGIA

N 7523/01
30/07/2019

7523-01-2-201907301720



Letter of Endorsement by Government

To: The Adaptation Fund Board
c/o Adaptation Fund Board Secretariat
Email: Secretariat@Adaptation-Fund.org
Fax: 202 522 3240/5

Subject: Endorsement for project "Increased climate resilience of South Caucasus mountain communities and ecosystems through wildfire risk reduction"

In my capacity as designated authority for the Adaptation Fund in Georgia, I confirm that the above regional project proposal "Increased climate resilience of South Caucasus mountain communities and ecosystems through wildfire risk reduction" is in accordance with the government's national priorities in implementing adaptation activities to reduce adverse impacts of, and risks, posed by climate change in the country.

Accordingly, I am pleased to endorse the above project proposal with support from the Adaptation Fund. If approved, the project will be implemented and executed by United Nations Development Programme (UNDP) in cooperation with the Ministry of Environmental Protection and Agriculture of Georgia.

Annexes: 160 (One Hundred and Sixty) pages.

Sincerely,

Nino Tandilashvili,

Deputy Minister

0159, საქართველო, თბილისი, მარშალ გელოვანის გამზ. №6. ტელ./ფაქსი: +(995 32) 2378013
www.moa.gov.ge
6, Marshal Gelovani ave., Tbilisi 0159, Georgia, Phone/Fax: +(995 32) 2378013



Annex 2: UNDP Fees for Support to Adaptation Fund Project

“Increased climate resilience of South Caucasus mountain communities and ecosystems through wildfire risk reduction”

Category	Services Provided by UNDP	UNDP Fee (X%)
Identification, Sourcing and Screening of Ideas	Provide information on substantive issues in adaptation associated with the purpose of the Adaptation Fund (AF). Engage in upstream policy dialogue related to a potential application to the AF. Verify soundness & potential eligibility of identified idea for AF.	\$ 29,282
Feasibility Assessment / Due Diligence Review	Provide up-front guidance on converting general idea into a feasible project/programme. Source technical expertise in line with the scope of the project/programme. Verify technical reports and project conceptualization. Provide detailed screening against technical, financial, social and risk criteria and provide statement of likely eligibility against AF requirements. Determination of execution modality and local capacity assessment of the national executing entity. Assist in identifying technical partners. Validate partner technical abilities. Obtain clearances from AF.	\$ 87,848
Development & Preparation	Provide technical support, backstopping and troubleshooting to convert the idea into a technically feasible and operationally viable project/programme. Source technical expertise in line with the scope of the project/programme needs. Verify technical reports and project conceptualization. Verify technical soundness, quality of preparation, and match with AF expectations. Negotiate and obtain clearances by AF. Respond to information requests, arrange revisions etc.	\$ 117,130
Implementation	Technical support in preparing TORs and verifying expertise for technical positions. Provide technical and operational guidance project teams. Verification of technical validity / match with AF expectations of inception report. Provide technical information as needed to facilitate implementation of the project activities. Provide advisory services as required. Provide technical support, participation as necessary during project activities. Provide troubleshooting support if needed. Provide support and oversight missions as necessary. Provide technical monitoring, progress monitoring, validation and quality assurance throughout. Allocate and monitor Annual Spending Limits based on agreed work plans. Receipt, allocation and reporting to the AFB of financial resources. Oversight and monitoring of AF funds. Return unspent funds to AF.	\$ 263,542
Evaluation and Reporting	Provide technical support in preparing TOR and verify expertise for technical positions involving evaluation and reporting. Participate in briefing / debriefing. Verify technical validity / match with AF expectations of all evaluation and other reports Undertake technical analysis, validate results, and compile lessons. Disseminate technical findings	\$ 87,848
Total		\$ 585,650

Annex 3: Implementation schedule

		Year 1				Year 2				Year 3				Year 4				Year 5			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Outcome 1:	Strengthened policy, regulatory and institutional frameworks																				
Output 1.1	Policy and regulatory frameworks are enhanced and aligned																				
Output 1.2	Institutional cooperation strengthened at regional, national and local levels																				
Output 1.3	Capacity for wildfire response enhanced at national and regional level																				
Output 1.4	Technical capabilities for wildfire response improved																				
Outcome 2	Improved use of climate and wildfire risk information by decision makers																				
Output 2.1	Strengthened wildfire risk monitoring and forecasting system																				
Output 2.2	Effective early warning system communications in place																				
Output 2.3	Harmonized protocols for data collection, storage and reporting																				
Output 2.4	Private and third sector innovation supported through the CCTA																				
Outcome 3	Reducing wildfire risk and promoting forest eco-system adaptation at the local level																				
Output 2.1	Wildfire risk reduction activities prioritised at the local level																				
Output 2.2	Integrated forest fire risk management measures implemented																				
Output 2.3	Community forest eco-system enterprises supported																				
Output 2.4	Public awareness campaigns organised																				

Annex 4: Georgia and Armenia vulnerability to climate change

Table 9: Impacts of climate change in the South Caucasus by sector⁶⁰

Sector	Type of impact
Agriculture	<p>Increased temperatures, changes in precipitation patterns and increased incidence of extreme weather events impact upon crops due.</p> <ul style="list-style-type: none"> In <i>Armenia</i>, Agriculture accounts for 62 percent of total land use, while 80 percent of crops require irrigation, due in part to desertification. Projected declines in summer precipitation and increases in temperature will increase the need for irrigation and contribute to increasing water scarcity. In recent decades, extreme weather events (e.g., drought, hot dry winds, hail and spring frosts) have become more frequent and extended, reducing crop yields and damaging livestock. From 2000 through 2005, Armenia suffered \$107 million in economic losses to the agricultural sector due to drought, frost and floods, threatening rural livelihoods and food security. The Ararat Valley, an important region for agriculture, is also one of the hottest and driest in summer. Wheat, a key cereal crop, is projected to decline in this region by 6 to 8 percent in 2040 to 2050 due to rising temperatures and water stress. These conditions will also promote livestock and crop pests and diseases. Yields of alfalfa, apricot, grape and potato are projected to decline in all agricultural regions in 2040 to 2050. In <i>Georgia</i>, while the contribution of agriculture to GDP declined over the past decade (currently at 9 percent), Georgia is still largely dependent on this climate-sensitive sector for employment and livelihoods. Over 50 percent of the population is employed in agriculture, concentrated in poor and rural communities. Climate dynamics already exacerbate soil erosion and damage crops through heavy precipitation events, flooding and land-and mudslides. Additionally, periodic droughts wreak havoc on yields; the severe drought of 2000 caused wheat yields to decline by 56 percent compared to the previous year. Changes in evaporation and runoff are projected to reduce maize and wheat yields by 5 percent by 2050. Temperature increases will have varying impacts: higher altitudes will be able to support a wider range of crops and enjoy a longer growing season (as is the case for potential yield increases in corn, tomato and wheat in the Eastern mountain region); however, higher temperatures may translate into decreased yields in the rest of Georgia. Higher temperatures can also increase the spread of crop diseases, particularly for citrus crops. As climate change shifts agroclimatic zones to higher elevations, production can increase, but this also leads to increased deforestation and land degradation.
Energy	<p>Impacts on hydropower (particularly in Georgia which is highly dependent)</p> <ul style="list-style-type: none"> In <i>Georgia</i>, over 80 percent of Georgia's electricity comes from hydropower, which is highly can vulnerable to climate variability and change. Hydropower generation is partially driven by glacier-fed rivers (Inguri and Rioni) originating in the Greater Caucasus Mountains, runoff from which is projected to decrease 13 percent by 2100. Periodic droughts also negatively impact hydropower generation –the 2000 drought reduced energy generation by 20 percent and caused power shortages throughout the country. Additional stress factors include extreme events, such as the landslide on the Georgia-Russia border that caused major damage to the critical North-South gas pipeline in 2014.

⁶⁰ Adapted from USAID Climate Change Country Briefs

Ecosystems and Forests	<p>Increasing temperatures, changes in precipitation patterns and the increased incidence of extreme weather events can result in ongoing and large-scale degradation of natural ecosystems and biodiversity, particularly in forest systems</p> <ul style="list-style-type: none"> • In <i>Armenia</i>, due to variation in elevations and climatic zones, Armenia's ecosystems support rich biodiversity, with most species endemic or rare. Plant and animal species are likely to shift upwards in elevation due to climatic changes, altering both ecosystem structure, habitat biodiversity and ecosystem services. More than 15 percent of Armenia's higher plant species are in danger of extinction due to projected climate change. Semi-desert and desert areas are projected to expand by 30 percent, which will accelerate desertification. More frequent summer droughts and water stress will reduce the growth rate of trees and increase susceptibility to pests and diseases; this will also create conditions conducive to more frequent and intense wildfires, leading to an estimated 14,000 to 17,000 ha of forest loss by 2030. • In <i>Georgia</i>, unique ecosystems and biodiversity, including many rare and endemic species, are under threat from climate change. Georgia has the highest forest cover in South Caucasus, at almost 40 percent. Rising temperatures have increased the spread of endemic diseases (such as bark beetle) and introduced new diseases, such as box-fungal disease, which is present in up to 60 percent of forests in some protected areas and national parks. Higher temperatures have also increased the risk of wildfires in some areas. Long-term changes could include a decline in current birch forests and a gradual conversion to more open-arid forest ecosystems such as spruce and pine.
Human Health	<p>Increased temperatures, incidence of heatwaves can significantly impact upon human health</p> <ul style="list-style-type: none"> • In <i>Armenia</i>, A malaria epidemic peaked in the Ararat Valley in 1998 with over 1,000 cases. While Armenia has been malaria-free since 2011, research suggests that malaria may increase in the future as climate conditions change, specifically in the country's warm temperate forests and dry semiarid and dry tropical climate zones. Over the last thirty years, the duration of heatwaves has significantly increased, most prominently at lower elevations. In the capital, Yerevan, average heatwave duration increased by about 40 days from 1981-2013. Heat stress can have a greater impact on the elderly and those with cardiovascular diseases and other chronic illnesses. it can also disproportionately harm the poor, who frequently lack air conditioning • In <i>Georgia</i>, the frequency of extreme daily temperatures and heat waves has increased, leading to immediate health concerns such as heat stroke and exacerbating existing health issues among people with cardiovascular or chronic respiratory diseases. Higher temperatures increase the incidence of vector-and waterborne diseases. For example, the number of cases of malaria in Georgia increased 30-fold from 1998–2002, and the incidence of diarrheal diseases in Adjara (vulnerable to flooding) rose 211 percent from 1990–2010.
Infrastructure	<p>In avalanche-prone areas, abrupt terrain, steep slopes and arid land exposed to heavy rainfall events can result in landslides, flash floods and mudslides.</p> <ul style="list-style-type: none"> • In <i>Armenia</i>, a significant number of settlements and roads, bridges, reservoirs and other infrastructure are in landslide-prone zones where heavy rains can oversaturate unstable ground, resulting in major landslides which have destroyed hundreds of buildings and vital infrastructure, including residential areas, roads, highways and railways. In 2004, landslides caused \$43 million in damages. Between 2004 and 2007, mudflows damaged 200 settlements and 600 sites on main transportation routes. In 2009, there were damages of \$11.5 to \$13 million from landslides and \$5.7 to \$7.1 million from mudslides.
Tourism	<p>Tourism, one of the fastest growing economic sectors in in the South Caucasus.</p>

	<ul style="list-style-type: none"> In <i>Georgia</i>, it contributes 23 percent to GDP. Tourism can be highly climate-dependent. In Georgia, shorter winter seasons and declining snow cover already affect popular alpine ski resorts such as Bakuriani and Gudauri. Popular hiking and trekking destinations in the Upper Svaneti frequently experience avalanches due to intense rainfall, while Adjara, a popular beach destination, suffers from mudslides and landslides that disrupt transport and other services.
Water Resources	<p>Increased temperatures, rainfall variability and incidence of extreme events have a range of impacts</p> <ul style="list-style-type: none"> In <i>Armenia</i>, Glacial volume declined by 50 percent since the early 1900s. Higher temperatures will increase evaporation rates and reduce winter snowpack, reducing spring runoff and Armenia's already limited water resources. Aggregate river flow is projected to decrease by 11.9 percent by 2030 and 37.8 percent by 2100 compared to the 1961-1990 baseline period due to the combined effects of higher temperatures and reduced rainfall. Inflow to Lake Sevan, the largest freshwater lake in Armenia, is projected to decrease by more than 50 million m³ in 2030, by more than 110 million m³ in 2070 and by 190 million m³ in 2100 compared to the current baseline. As a result, the lake's surface level is expected to recede by 16 cm annually, threatening irrigated agriculture, municipal water supply and hydropower production. Warmer temperatures could lead to shifts in seasonal fish migration, including spawning and feeding areas for the lake's whitefish. In <i>Georgia</i>, there are relatively rich water resources and the country is unlikely to face overall shortages under a changing climate, although changes in glacial melt and precipitation will affect water availability, while higher temperatures will increase water demand, particularly for irrigation. Flows of glacier-/snow-fed river basins such as Khrami-Debedand Alazaniare projected to decrease about 30and 55 percent respectively by 2100, while higher temperatures will alter the seasonality of river flows. For example, the Acharistskali River will see decreased March–August flows, limiting water for irrigation.

ANNEX 5: OVERVIEW OF PROJECT TERRITORIES - ARMENIA

This annex provides background information to the proposed project sites in Armenia

Site 1: Lori Region

In Lori, Hayantar SNCO (the forest agency) operates 7 forestry branches, managing 101,279 hectares of which approximately 86,000 are forested.

Forest agency branch	Total area, ha	Of which forest, ha
Gougark	16213	10496
Dsegh	15330	14505
Yeghegnut	14082	11826
Lalvar	26837	24339
Jiliza	15292	13851
Stepanavan	6665	5674
Tashir	6860	5105
Total	101279	85799

There are in addition 3 reserves representing approximately 7000 ha (in Gougark and Stepanavan).

Lori is located in the North of Armenia and borders on Georgia. The climate is relatively humid, with summers lasting from June – September and an average annual temperature of 7.4C. Snow cover lasts from November to March with up to 30cm of cover. Temperatures in winter can reach as low as -30C. Average precipitation is 586mm. The growing season lasts from April to October (approximately 180 days).

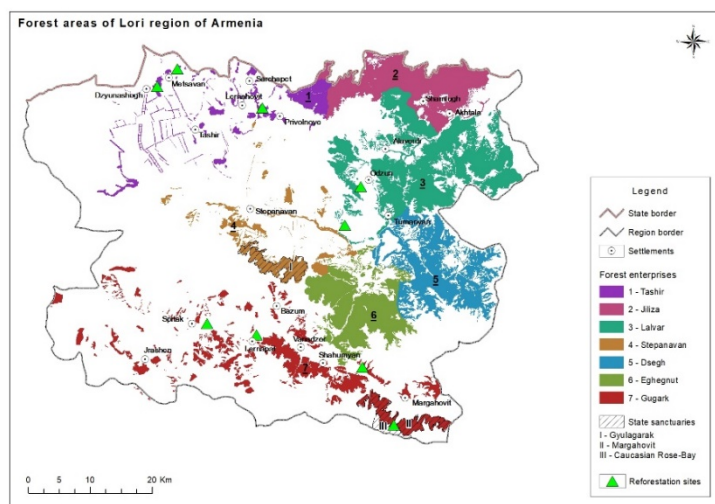
The landscapes are a mixture of forest and mountain meadow. Tree species are a mixture of beech, cypress, Georgian oak, and hornbeam, with some fir.

Initial discussions with the forest management agencies indicate significant opportunities for forest and landscape rehabilitation, in part to replace burnt forests (see figure below).

There are also significant procurement and capacity building opportunities, including

- Purchase of equipment and tools
- Development of signs for community awareness
- Training courses to prevent residue burning and for fire response
- Rehabilitation of fire access roads
- Purchase of tractor equipment for slopes and to support mineralization
- Natural barriers on small rivers to create ponds for water supply

Figure 30: Forest areas of Lori Region and wildfire rehabilitation sites



Site 2: Kotayk region

The management of forests and forest lands in Kotayk province is implemented by "Hayantar" SNCO through the Hrazdan Forestry Branch. It manages a total area of 23,212 ha of which 15068 ha is forested. The pine forests of Bans (4 hectares) and Arzakan and Meghradzor (13,532 hectares) are located in the area.

The climate is varied but occupies the 7th and 8th climatic zones of Armenia. In the 7th zone (between 1400-2000m), the climate is moderately humid. Winters are long (November – April) with stable snow cover. Monthly precipitation is 60-100mm. Summers are relatively hot and humid, with mild autumns. In the 8th zone (1500-2000m) temperatures are colder, with a shorter vegetation period.

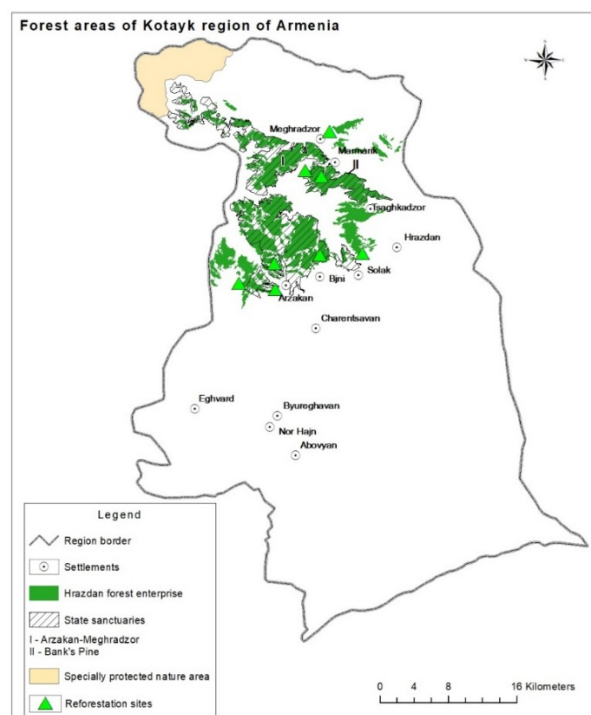
Overall, snow cover is maintained for 3-4 months, with an average air temperature of 9C, with maximum of 32C and minimum of 24C. Annual precipitation is c. 600mm with a vegetation period of 210 days.

The landscapes are mostly meadow and steppe vegetation. Lower oak trees dominate in natural forests, but there are also significant pine plantations.

There are a number of areas for potential forest regeneration and rehabilitation as indicated on the map. In addition, the local forest agency has identified the following priorities:

- Purchase of equipment and tools Hrazdan, Byureghavan, Arzakan, Bjni, Solak, Marmarik, Meghradzor
- Development of signs for community awareness raising
- Training courses to prevent residue burning and for fire response
- Rehabilitation of fire access roads
- Purchase of tractor equipment for slopes and to support mineralization
- Natural barriers on small rivers to create ponds for water supply

Figure 31: Forest areas of Kotayk Region and rehabilitation sites



Site 3a. Vayots Dzor Region

Forests are managed by Vayots Dzor Hayantar SNCO. There is a single forestry branch responsible for a total area of 15,046 ha, of which 7,656 ha is forested. In the forested areas, there are Reserves at Yeghegnadzor (4,200 ha), Her-Heri (6,139 ha) and Jermuk (3865 ha).

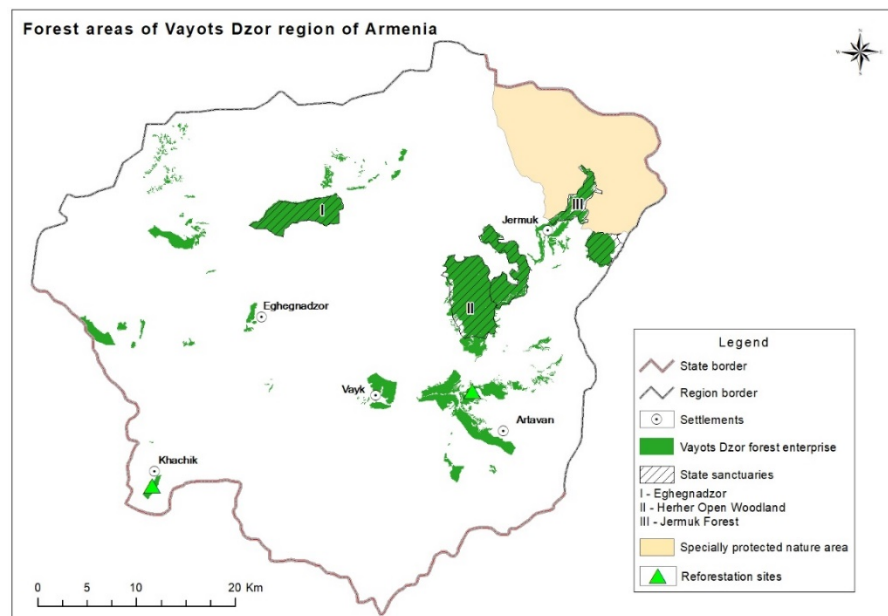
The climate in Vayots Dzor is warm and dry. The average annual temperature ranges from 4.1°C -11.8°C depending on altitude. Summer average temperatures are in the region of 15-25°C, while January temperatures range from -3°C to -8°C. Maximum temperatures (both hot and cold) can be extreme ranging from -35°C in winter to 41°C in summer. Precipitation in the lower slopes is about 400 mm per annum, increasing to 800mm in the higher mountain areas. Precipitation is highest in the spring, and lowest in late summer. Snow cover days range from 40-150 depending on altitude, with snow in lower regions from December to March, and in higher zones from September to April. Summers are long and warm in the lower ranges (approximately 5 months). Continental climates are the norm up to an altitude of 1500-1700m and temperate up to 2400m.

The region is known for a high level of biodiversity. Forests are mainly eastern oak (at altitudes of 1500-2300m, with other tree types (maple, juniper, fruit trees) and some spruce.

The area has been exposed to forest fires including a major fire in 2017 (648.5 ha), which requires significant planting and rehabilitation work. A project has already been prepared. Other potential areas of intervention identified by Hyantar include

- Procurement of fire tools by the Khachik and Artavan communities
- Preparation of recreation fire areas and signage for community awareness
- Controlled burning of residues
- Training for fire response and management
- Construction of access roads
- Ploughs and forest management equipment to support mineralization and reforestation

Figure 32: Forest areas of Vayots Dzor and wildfire rehabilitation sites



Site 3b: Syunik Region

Forests in Syunik region are managed by Hayantar SNCO through 3 forest agencies (Kapan, Sisian, Syunik) with a total land area of 60,202 hectares, of which forest covers 49,990 ha. There are forest areas within the Goris Reserve (1850 ha). Zangezur Biosphere Reserve and Shikahogh Reserve are also located in Syunik region.

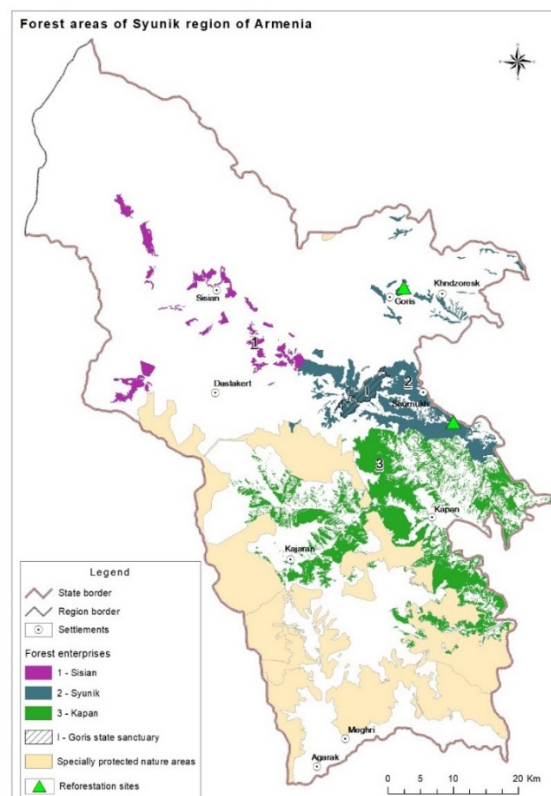
The climate is moderate with cold winters, warm springs and mild autumns. The first frosts begin in early October, and the last frosts are expected in the middle of March. Average annual precipitation is 600-700 mm. The average thickness of the snow cover is 5 cm, with a growing period of 208 days.

The forest belt starts at 550m and rises to 2600m above sea level. Up to 1400m the predominant species are various types of oak. Other species include hornbeam, chestnut, hawthorn.

There have been a number of fires that have degraded the forest resources. For example, Hayantar have identified an area from 2006 where rehabilitation works are required, and a project has been prepared. Additional support was identified in the following areas:

- Procurement of fire tools by the Goris, Khndzoresk and Shurnuk communities
- Preparation of recreation fire areas and signage for community awareness
- Controlled burning of residues
- Training for fire response and management
- Construction of access roads
- Ploughs and forest management equipment to support mineralization and reforestation
- Ponds with natural dams for firefighting

Figure 33: Forest areas of Syunik region and wildfire rehabilitation sites



ANNEX 6: PROJECT TERRITORY INFORMATION - GEORGIA

Site 1. Kakheti Region

Kakheti is an eastern border region of Georgia bounded by the Russian Federation to the north and Azerbaijan to the south. The total area of the region is 11,310 km², or 17.5% of the entire territory of Georgia. According to the Geostat data of 1 January 2019, Kakheti has a population of 312.5 thousand people.⁶¹ The region has 9 cities and 276 villages, and the administrative centre is Telavi. Kakheti has a total of 8 administrative entities.⁶²

The climate in Kakheti is mainly continental. The lowlands of Kakheti are characterized by low precipitation (400 mm), which gradually increases from the south and south-east towards the Caucasus Mountains, reaching 2000 mm per year. The landscape in Kakheti is diverse, from semi-desert to ice-covered mountains.

Approximately 11-12% of Georgia's forests are located in Kakheti region. More than 30% of Kakheti is covered by forest with 98% of these being mountainous forests. Total forest fund of in Kakheti region is 288 377 ha, out of which forests cover 269 409 ha. 28 410 ha are under long-term lease.⁶³

The Kakheti Regional Forest Service consists of 51 employees, including a head of Service, 1 chief forester, 1 forest production engineer, 1 admin person, 15 foresters, 2 chief specialist, 2 analysts, 1 operator, 5 chiefs of units and 22 specialists.

The protected areas are generally managed by the Protected Areas Agency of Georgia, through its territorial PA administration. The Tusheti Protected Landscape (IUCN Category V protected area) managed by Akhmeta municipality self-government through Tusheti PL administration is the only locally managed forest in Georgia.

The target forest units⁶⁴:

Region	Total Forest Fund area (ha)	Information on target forestry unit		
		Unit	Forest fund area (ha)	Area covered by forests (ha)
Kakheti region	288 435	Kakheti regional Forestry Service:		
		Akhmeta forestry unit	64,945	61,698
		Kvareli forestry unit	54,496	51,771
		Sagarejo forestry unit	42,598	39,616
		Telavi forestry unit		
		Gurjaani forestry unit		
		Lagodekhi-Dedoplistskaro-Signaghi forestry unit		
		Agency of Protected Areas:		
		Vashlovani protected areas administration	6,375.5	6,375.5
		Tusheti protected areas administration	18,154	18,154
		Akhmeta municipality:		
		Tusheti protected landscape administration	5,029	5,029
Total			162,039	153,085

⁶¹ Source: The National Statistics Office of Georgia, July 2019

⁶² Kakheti Regional Development Strategy 2014-2021, Tbilisi 2013

⁶³ Source: NFA, July 2019

⁶⁴ Source: NFA, APA, July 2019

The Kakheti region is subject to significant wildfires. The emergency services report about the fires on the crop fields and grasslands states that there were 642 fires covering 3298.6 ha in 2017, 512 fires covering 10 485.3 ha in 2018, and 347 fires covering 645.5 ha in 2019 (including April). As for the forest fires, there were 97 cases of fires in 2017, covering 406.46 ha, 22 cases in 2018 (915.17 ha) and 37 cases in 2019 (140.22 ha).

38 % of Georgia's agricultural land is in the Kakheti region, where arable lands and pastures occupy the largest area. Kakheti ranks first in Georgia in this category of lands and is therefore a leading region in the production of cereals and livestock. Kakheti is a unique ancient vine-growing and wine-producing region. Kakheti ranks first in the area of vineyards (33,582 ha, around 65–70 % of all vineyards in Georgia), followed by Imereti and Shida Kartli. Kakheti has a long history of cereal production thanks to the fertility of land and diversity of cereal crops. The region is a leading wheat-producing region - in 2007, Kakheti had the largest crop of wheat - 62 thousand tons. Since 2006 Kakheti has become the third region in Georgia in terms of area under corn.⁶⁵

Site 2. Samtskhe-Javakheti region

Samtskhe-Javakheti is a region in the South-East of Georgia. It includes three historical provinces – Samtskhe, Javakheti and Tori. The region borders with Adjara, Guria, Imereti, Shida Kartli, Kvemo Kartli, Armenia and Turkey. Its area is 6,421 m2. The regional centre is the city of Akhaltsikhe. The region comprises of five towns: Akhalkalaki, Akhaltsikhe, Borjomi, Vale, Ninotsminda, seven townlets - Bakuriani, Bakurianis Andeziti, Tsagveri, Akhaldaba, Adigeni, Abastumani, Aspindza, and 254 villages.⁶⁶

According to the Georgian National Statistics Service, the total population of Samtskhe-Javakheti region was 154.1 thousand in January 2019.⁶⁷

Climate in the region consists of the two climatic zones: Samtskhe – moderate dry subtropical mountain climate with the short winter with less snow and warm long summers. The Javakheti zone is characterized with the moderate dry climate, cold winter and long, cool summer. Precipitation is unevenly distributed in the region with minimum annual precipitation of 498 mm (at Khertvisi), and maximum – 1822 mm (at Arsiani gorge).⁶⁸

The Samtskhe-Javakheti region is rich with forests. These forests play a role in supporting mineral water resources and resorts. The Samtskhe-Javakheti forest fund covers 130,164 ha, out of which 123,656 ha are covered by forests. There are 5 license holders (12 054 ha).

The Samtskhe-Javakheti Regional Forest Service consists of 44 employees: 1 head of the Service, 1 chief forester, 1 forest production engineer, 1 administrator, 13 foresters, 1 chief specialist, 2 analysts, 1 operator, 5 chiefs of units and 18 specialists.⁶⁹

The protected areas are generally managed by the Protected Areas Agency of Georgia, through its territorial PA administration.

⁶⁵ Kakheti Regional Development Strategy 2014-2021, Tbilisi 2013

⁶⁶ Samtskhe-Javakheti Regional Development Strategy 2014-2021, Tbilisi 2013

⁶⁷ Source: The National Statistics Office of Georgia, July 2019

⁶⁸ <http://samtskhe-javakheti.gov.ge/main.php?act=static&lang=geo&pid=1>

⁶⁹ Source: NFA, July 2019

Target forest units⁷⁰:

Region	Total Forest Fund area (ha)	Information on target forestry unit		
		Unit	Forest fund area (ha)	Area covered by forests (ha)
Samtskhe-Javakheti	133,509	Samtskhe-Javakheti Forestry Service:		
		Akhalsikhe forestry unit	32,997	29,037
		Borjomi forestry unit	19,697	15,695
		Bakuriani forestry unit	26,291	24,714
		Adigeni forestry unit		
		Aspindza-Akhalkalaki forestry unit		
		Agency of Protected Areas:		
		Borjomi Kharagauli protected areas administration	76,365.46	76,365.46
		Javakheti protected areas administration	200.02	200.02
Total			155,550.48	146,011.48

The Samtskhe-Javakheti region is considered at high risk of wildfire due to both climatic and anthropogenic reasons. The region has seen significant reduction in the use of forest wind breaks since 1990 and there has been limited inventory work undertaken. The emergency services report about the fires on the crop fields and grasslands states that there were 231 fires covering 2211 ha in 2017, 81 fires covering 52.4 ha in 2018, and 71 fires covering 189.5 ha in 2019 (including April). As for the forest fires, there were 116 cases of fires in 2017, covering 1088.05 ha, 20 cases in 2018 (1.97 ha) and 3 cases in 2019 (0.02 ha).

Samtskhe-Javakheti is a strictly agrarian region where the share of agriculture in total value added is largest (32%). Most of the human resources are employed in agriculture. The region's agriculture is made up of family farms and commercial farms. Over 90% of production is accounted for by family farms. 73% of family farms produce agricultural products for own use, and for the remaining 27%, agriculture is a source of income. More than half of agricultural land is pasture. Second largest type of agricultural land is arable land. The remaining area consists of mowing lands, uncultivated land and perennial plants. The main economic activity at the household level is related to agriculture and livestock (potato, cabbage, cereals, animal husbandry, cheese production, fish farming). The area is particularly well suited to resorts and tourism due to moderate humidity, good sunlight and a mixture of mountain and lowland clean air.⁷¹

Site 3. Shida Kartli region

The region of Shida Kartli lies in a middle section of lowland between the Greater and Lesser Caucasian mountain range in East Georgia. It occupies 9.2% of the country's territory. The region of Shida Kartli borders Mtskheta-Mtianeti to the east, Kvemo Kartli to the south-east, Samtskhe-Javakheti to the south-west and Racha-Lechkhumi/Kvemo-Svaneti to the north-west. The region shares its northern border with the Russian Federation. The Shida Kartli region includes nine administrative-territorial entities: 1 city - Tskhinvali and 8 municipalities – Gori, Kaspi, Kareli, Khashuri, Tigvi, Eredvi, Kurta and Javi.⁷² According to the Geostat data of 1 January 2019, Shida Kartli region has a population of 257.3 thousand.⁷³

The climate is moderately continental with moderately warm air temperature and moderate humidity providing suitable conditions for life and economic activity.

⁷⁰ Source: NFA, APA, July 2019

⁷¹ Samtskhe-Javakheti Regional Development Strategy 2014-2021, Tbilisi 2013

⁷² Shida Kartli Regional Development Strategy 2014-2021, Tbilisi 2013

⁷³ Source: The National Statistics Office of Georgia, July 2019

Forests occupy 46% of Shida Kartli region. Total forest fund of in Shida Kartli region is 124,832 ha, out of which forests cover 117,342 ha. 4,755 ha are under long-term lease (8 license holders).⁷⁴

The Shida Kartli Regional Forest Service consists of 37 employees, including a head of Service, 1 chief forester, 1 forest production engineer, 1 admin person, 10 foresters, 1 chief specialist, 2 analysts, 1 operator, 4 chiefs of units and 15 specialists.

The target forestry units⁷⁵:

Region	Total Forest Fund area (ha)	Information on target forestry unit		
Shida Kartli	115,325	Unit	Forest fund area (ha)	Area covered by forests (ha)
		Shida Kartli Regional Forestry Service:		
		Kareli forestry unit		
		Khashuri forestry unit	23,697	21,801
		Gori forestry unit	26,473	24,620
Kaspi forestry unit				
Total			50,170	46,421

The Shida Kartli region is subject to significant wildfires. The emergency services report about the fires on the crop fields and grasslands states that there were 129 fires covering 482,4 ha in 2017, 222 fires covering 326.4 ha in 2018, and 136 fires covering 250.2 ha in 2019 (including April). As for the forest fires, there were 30 cases of fires in 2017, covering 70.43 ha, 10 cases in 2018 (21.45 ha) and 7 cases in 2019 (19.05 ha).

In Shida Kartli 66,237 ha are used for agricultural purposes (95.4% of total lands), of which 74% are arable lands, 21% are perennial plantations and 5% - grasslands/pastures. Shida Kartli is a fruit-growing region of Georgia ranking first in a variety of fruit produced (apple, pear, plum, cherry, peach). Another priority area is the production of cereals - wheat and barley. The region ranks second in walnut production and fourth in grape production. Shida Kartli ranks second in terms of areas under vegetables (potatoes, beetroot, cabbage, carrots, onions, garlic, asparagus, pepper, aubergine, etc.). Livestock sector as the region does not play a leading role.⁷⁶

⁷⁴ Source: NFA, July 2019

⁷⁵ Source: NFA, July 2019

⁷⁶ Shida Kartli Regional Development Strategy 2014-2021, Tbilisi 2013

ANNEX 7. EQUIPMENT NEEDS FOR FIREFIGHTING RESPONSE

Initial discussions have been undertaken with the relevant authorities in both Armenia and Georgia to establish the scope and scale of potential equipment needs to improve fire-fighting capacity response. In both countries, there are significant shortfalls in the availability of personal protective equipment, tools, vehicles and communications equipment to make the EMS and Forest agencies suitably equipped to deal with fire risk. There are different institutional roles and responsibilities (response in Georgia is the sole mandate of the EMS), whereas in Armenia, Hayantar forest agency plays a more active role. The following provides an initial needs assessment of investment requirements, towards which the project will make a partial contribution in priority project regions

Georgia

The EMS of Georgia provided the following initial needs assessment for wildfire response by region:

Table 10: Estimate of national wildfire response equipment needs in Georgia by region⁷⁷

No	List of equipment	Region											
		Tbilisi	Imereti	Shida Kartli	Guria	Racha-Lechkhumi	Mtskheta-Mtianeti	Samgrelo-Upper Svaneti	Adjara AR	Kvemo Kartli	Kakheti	Samtskhe-Javakheti	Same
		2 level											
1	Fire-resistant uniform	210	120	40	30	40	30	100	90	60	80	40	50
2	Helmet	210	120	40	30	40	30	100	90	60	80	40	50
3	Protective glasses	210	120	40	30	40	30	100	90	60	80	40	50
4	Respirator	210	120	40	30	40	30	100	90	60	80	40	50
5	Gloves	210	120	40	30	40	30	100	90	60	80	40	50
6	Backpack	210	120	40	30	40	30	100	90	60	80	40	50
7	Individual flashlights	210	120	40	30	40	30	100	90	60	80	40	50
8	Rus shoes	210	120	40	30	40	30	100	90	60	80	40	50
9	Sleeping bag	210	120	40	30	40	30	100	90	60	80	40	50
10	Paralane	210	120	40	30	40	30	100	90	60	80	40	50
11	Fire-resistant cover	210	120	40	30	40	30	100	90	60	80	40	50
12	Hoe, rake	210	120	40	30	40	30	100	90	60	80	40	50
13	Petrol chainsaw (spare chain, guide bar, grinder, toolkit)	20	11	4	3	4	3	10	9	6	8	3	5
14	Petrol scythe with saw	20	11	4	3	4	3	10	9	6	8	3	5
15	Spade	210	120	40	30	40	30	100	90	60	80	40	50
16	Grass fire extinguisher fan	210	120	40	30	40	30	100	90	60	80	40	50
17	Grass fire extinguisher backpack	100	60	20	15	20	15	50	45	30	40	20	25
18	Big axe	20	10	4	3	4	3	10	9	6	8	3	5
19	GPS	20	11	4	3	4	3	10	9	6	8	3	5
20	Quadrocycle	1	1	1	1	1	1	1	1	1	1	1	1





SOU: EMS Georgia




Armenia





In Armenia, the focus would be on capacitating the forest agencies and protected area (PA) staff. The following needs assessment was provided (based on a 2017 review). Support would be provided by the project to the specific regions identified for project engagement (particularly



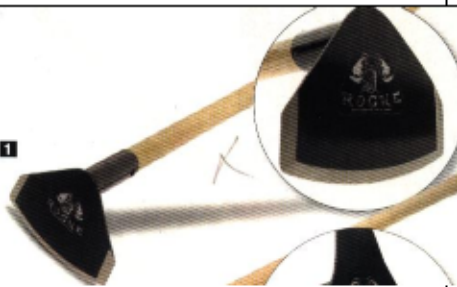

⁷⁷ Initial technical needs assessment at a national-level based on discussions with EMS senior management May 2019





in terms of the provision of large items (fire trucks, vehicles), with smaller items provided at a national level on the basis of discussion with Hyantar for its 700 frontline staff.

Item	Photo	Hayantar	PAs
Fire brigade mask: <ul style="list-style-type: none"> Made of flame retardant Neoprene Holes to allow air to pass through Adjustable nose clip Replaceable filter with exhalation valves 		172	46
Wild land firefighting gloves: <ul style="list-style-type: none"> Black cowhide thermo-leather 4", 2-ply Nomex Spandex Elastic snugger band on back Leather hanger loops 		200	100
Firefighting helmet: <ul style="list-style-type: none"> Google retainer clips Reflective strips Adjustable Nomex chin strap Underbrim shade Velcro hook fastener 		200	100
Headlamp <ul style="list-style-type: none"> Maximum Beam Ranger: Xenon halogen bulb, 100 meters, standard bulb 30 meters. Burn time: Xenon halogen bulb, 4 hours, standard bulb, 9 hours. Power: 4AA batteries 		200	100

<p>Wild fire drip torch:</p> <ul style="list-style-type: none"> • light weight drip torch • aluminum alloy with full-length handle • height: 14" closed 25-1/2" assembled • diameter: 6" • Capacity: 1-1/4' US gallons • Weight (empty): 5 lbs 		20	10
<p>Camelback:</p> <ul style="list-style-type: none"> • Ideal for wildfire firefighters • Low profile Aero Form • Exterior fill port allows easy refill • Capacity: 3 liters • Dimensions: 16" x 9" x 1" • Color: black • Quick release shoulder straps 		200	100
<p>2-way radio (pair):</p> <ul style="list-style-type: none"> • 5 watts for up to 18 miles range • 24/7, 22 channels • 121 privacy codes • Vibrate alert • 3 levels of eVOX for hands-free operation • Channel scan • 5 calls alert • Silent operation • Auto battery save • Keypad lock • Roger beep indicating all completion • Backlit display • Channel activity monitor • FCC license required for operation 		86	23

<p>BFG firefighting shovel:</p> <ul style="list-style-type: none"> • Carbon steel blade is 10-7/8" long, 87/8" wide. • Sharpened on all edges. • 41 handle with solid shank. 		86	23
<p>Razor-back:</p> <ul style="list-style-type: none"> • Pick Mattock Head • 19-1/4" overall head length, 3-1/2" wide blade width. • Handle 36" long. 		86	23
<p>Triangle hoe:</p> <ul style="list-style-type: none"> • 5-1/2" head, • 1" rear pick • 6" metal ferrule to guard against over-strikes. • The tough tempered steel blade stands up to the toughest use. • 42" wood handle. 		86	23
<p>Rake:</p> <ul style="list-style-type: none"> • Heavy duty rake and hoe for cleaning • Hoe edge is 9-3/4" wide • Six rake teeth are 3-1/2" long each • 4" handle 		86	23

<p>Collapsible backpack firefighting pump:</p> <ul style="list-style-type: none"> • 5 Gallon water or 18.5 liters • Constructed with vinyl backing to repel water • Dimensions: 20"* 17" • Shoulder saver harness to distribute the weight • Hand-operated pump, 1/4" 		86	23
<p>Fire swatter flap:</p> <ul style="list-style-type: none"> • For smothering fire in grass, straw and low weed • 12' wide * 15" long, fabric reinforced rubber flap • Handle with shank and cleat 		200	100
<p>Fire rake:</p> <ul style="list-style-type: none"> • For raking fire lines to mineral soil, digging, rolling burning logs and cutting grass • Small brush or saplings. • 12' Angle iron frame holds four tempered steel cutting teeth • Tapered eye holds 5' wood handle. 		86	23
<p>Pulaski Axe:</p> <ul style="list-style-type: none"> • Combination Group hoe/axe • Drop forged, carbon steel, 4lb. • Head prevent shipping and holds a sharp edge. • 3'L Hickory handle. 		86	23

<p>Collapsible water tank:</p> <ul style="list-style-type: none"> • 5 Gallon water or 18.5 liters • Constructed with vinyl backing to repel water • Dimensions: 20"* 17" • Shoulder saver harness to distribute the weight • Hand-operated pump, 1/4" 		19	19
<p>Pick Up double Cabin which can hold a tank of 500 Liters at least</p>		19	9
<p>Forest Fire Truck – small size that can go into the forest and holds 700 – 1000 Liters of Water</p>		5	3
<p>Uniform includes pants and Jacket</p>		200	100

Typical unit costs for forest sector interventions (Hayantar – Armenia)

Type of activity/intervention	Unit	Total		
		volume	amount USD (based on Central Bank exchange rate as of 22.07.2019, 1USD = 476.48 AMD)	USD Per unit
Rehabilitation of burnt areas (including full work, materials and 3 year maintainance)	ha	214.3	957,982	4470
Forest transformation (planting) including 3 year maintainance	ha	169	550,000	3254
Forest rehabilitation through support to natural regeneration	ha	2000	240,000	120
Equipped off-road vehicles	unit	3	85,000	28333
Fire-fighting tools for forest enterprises	set (for 10 people)	6	27,112	4519
Fire-fighting (fire proof) out-wear for forest enterprises	set (for 10 people)	6	35,259	5877
Fire-fighting tools/equipmnet for local communities	set (for 7 people)	24	108,446	4519
Fire-fighting (fire proof) out-wear for local communities	set (for 7 people)	24	99,077	4128
Sign-boards (Fire-extinguisher)	piece	180	9,445	52
Signs forbidding the grass burning	piece	135	7,084	52
Renovation of fire-fighting roads	km	90	113,331	1259
Purchase of wheel tractor and associated equipment	unit	4	265,279	66320
Acquisition of caterpillar Tractor and associated equipment	unit	2	85,225	42613
Construction of small scale water reservouirs (evarage up to 2,000 m3)	unit	18	283,328	15740
Acquisition of Greyder machine (for hayantar)	unit	1	110,813	110813

ANNEX 8: SOCIAL AND ENVIRONMENTAL SCREENING REPORT

Project Information	
Project Title	Increased climate resilience of South Caucasus mountain communities and ecosystems through wildfire risk reduction
Project Number	6247
Location (Global/Region/Country)	Armenia, Georgia

Part A. Integrating Overarching Principles to Strengthen Social and Environmental Sustainability

QUESTION 1: How Does the Project Integrate the Overarching Principles in order to Strengthen Social and Environmental Sustainability?

Briefly describe in the space below how the Project mainstreams the human-rights based approach

The project mainstreams the human-rights based approach through:

- Contributions to improved livelihoods of poor and vulnerable people;
- A commitment to disclose information and provide for meaningful participation of stakeholders during the planning and implementation of site-specific activities. This will facilitate equitable access to project benefits and avoidance of elite capture and potential perpetuation of historical inequality;
- A commitment to including consideration for human rights issues during interactions with government partners and beneficiary communities;
- Implementation of a robust grievance mechanism to provide access to remedies for individuals aggrieved as a result of project activities.

Briefly describe in the space below how the Project is likely to improve gender equality and women's empowerment

Existing gender inequality factors in Armenia and Georgia include limited engagement of women in planning and decision making, and traditional distribution of gender roles in families and communities. While the project does not target individuals or individual households, nonetheless project design and implementation take into consideration the following gender implications:

- Specific strategies to include / target female-headed households;
- Differing conservation incentives faced by women (compared to men);
- Identification of gaps in gender equality through the use of sex-disaggregated data enabling development of a gender action plan to close those gaps, devoting resources and expertise for implementing such strategies, monitoring the results of implementation, and holding individuals and institutions accountable for outcomes that promote gender equality.
- Advocacy and awareness is adjusted to most effectively reflect gender-specific differences/ issues. Strategies used in the project are then tailored, taking into account such differences;

Specific “gender mainstreaming actions” have been identified in the gender action plan (Annex 11) for each of the main project activities. A gender specialist position has been provided for in the project's management team and budget to advocate for and lead gender mainstreaming actions.

Briefly describe in the space below how the Project mainstreams environmental sustainability

The project will increase the resilience of mountain communities and forest ecosystems on which they depend to climate induced hazards through sustainable fire management practices and capacity building. As a result, the project will enhance protection of South Caucasus rich forest biodiversity, enhance carbon sinks, and improve population safety and livelihoods. The objective of the project is to assist Armenia and Georgia in the implementation of an integrated transboundary climate-resilient wildfire management approach in order to improve climate resilience of South

Caucasus mountain communities, livelihoods and ecosystems. The project will achieve this by enhancing the existing capacities to manage fire risk at local, national and regional levels based on enhanced regulations, climate risk knowledge and information, and strengthened institutional collaboration and transboundary cooperation frameworks. As a result, the Adaptation Fund project will improve the resilience of 500,000 ha of mountain ecosystems and of 800,000 people in two countries.

Part B. Identifying and Managing Social and Environmental Risks

<p>QUESTION 2: What are the Potential Social and Environmental Risks?</p> <p>Note: Describe briefly potential social and environmental risks identified in Attachment 1 – Risk Screening Checklist (based on any “Yes” responses). If no risks have been identified in Attachment 1 then note “No Risks Identified” and skip to Question 4 and Select “Low Risk”. Questions 5 and 6 not required for Low Risk Projects.</p>	<p>QUESTION 3: What is the level of significance of the potential social and environmental risks?</p> <p>Note: Respond to Questions 4 and 5 below before proceeding to Question 6</p>			<p>QUESTION 6: What social and environmental assessment and management measures have been conducted and/or are required to address potential risks (for Risks with Moderate and High Significance)?</p>
<i>Risk Description</i>	<i>Impact and Probability (1-5)</i>	<i>Significance (Low, Moderate, High)</i>	<i>Comments</i>	<i>Description of assessment and management measures as reflected in the Project design. If ESIA or SESA is required note that the assessment should consider all potential impacts and risks.</i>
<p>Risk 1: There is a risk that vulnerable and marginalized groups will be excluded and existing inequality and discrimination against women and vulnerable people in target communities during the implementation of the project including investments in local adaptation measures for wildfire risk reduction and implementation of local-level economic activities that raise community involvement in sustainable forest management.</p> <p>(Attachment 1 - SES Principle 1 Human Rights: q4, q6; Gender: q1, q2, q3, q4</p>	<p>I=3 P=2</p>	<p>Moderate</p>	<p>As the project may perpetuate but not exacerbate or expand inequalities or discriminatory activity the potential adverse impacts to disadvantaged persons, including women, is considered moderate (I=3). Given the poverty and prevalence of inequality in Armenia and in Georgia it is moderately likely (P= 3) that it could be perpetuated.</p>	<p>1. With respect to conflict and violence, UNDP benefits from participation in the UN system including awareness of conflict situations. The project will consult with UN system on potential conflict risks of each site-specific pilot area.</p> <p>2. The project will mainstream a human rights-based approach through:</p> <ul style="list-style-type: none"> • Contributions to improved livelihoods of poor and vulnerable people; • Disclosure of information and providing for meaningful participation of stakeholders during the planning and implementation of site-specific activities including as part of site-specific E&S screenings and assessments. This will facilitate equitable access to project benefits and avoidance of elite capture and potential perpetuation of historical inequality; • Public awareness activities in beneficiary communities on human rights; and • Use of UNDPs grievance mechanism to provide access to remedies for individuals aggrieved as a result of project activities

				<p>UNDP will report on successes and challenges with implementation on a yearly basis. Gender: During the development of the project a Gender Analysis was undertaken, and a Gender Action Plan was prepared based on that analysis. That Plan, which is annexed to the Project Proposal, outlines the management measures that will be undertaken to address this risk and leverage it for multiple benefits. Opportunities for improving the lives of women and girls were identified in the Gender Analysis and built into the design of the project. For full details of those measures, please see Annex 11 of the Project Proposal.</p>
<p>Risk 2: Pilot activities may be planned and executed in forest areas located within areas designated as protected, posing risk of impacts to natural features subject to protection.</p> <p>There is a risk that activities undertaken in forest and other natural areas could displace wildlife and disrupt breeding activities.</p> <p>(SES Standard 1 Biodiversity: q2)</p>	<p>I=3 P=2</p>	Moderate	<p>Activities within protected areas have potential for localized impacts (I-3), but adherence to host country rules and regulations, and project screening including avoidance of critical habitats means significant effects are unlikely (P-2)</p>	<p>There are many forest areas that are degraded and in need of improved practices for wildfire management but there are also within designated protected areas. Locations for pilot projects will be selected in cooperation with regulatory agencies, and in subject to consultation with communities. UNDP will screen each candidate pilot UNDP's SESP and AF's SES and not proceed with any site located in an area considered to be critical habitat. All potential pilot activities to be carried out will be carried out in accordance with applicable regulations, and with all conditions of approval for the activity imposed by the applicable regulatory authorities.</p> <p>Activities will be planned to address potential impacts to wildlife, including breeding activity. A site-specific plan will be prepared to address potential direct impacts to wildlife including birds, mammals, and herpetofauna including specification of construction windows to avoid disruption of breeding or denning activities.</p>
<p>Risk 3: Afforestation and reforestation may inadvertently introduce an invasive alien species through inadvertent transfer on contaminated equipment or use of contaminated plant material or seeds.</p> <p>(SES Standard 1 Biodiversity: q5)</p>	<p>I=4 P=1</p>	Moderate	<p>The introduction of an invasive species can have severe (I=4) adverse effects on ecological systems. However, given plant materials and seeds are sourced locally the probability of a new species being introduced is considered slight (P=1).</p>	<p>The project will prohibit use of alien invasive species (AIS) for reforestation and afforestation. Species lists will be cleared with the Forestry authorities in each country and against international AIS databases and checklist (such as Global Invasive Species Database http://www.iucngisd.org/gisd/howto.php). Purchased seed material, if used, will either be certified AIS free and be subject to germination tests to verify AIS free.</p>

Risk 4: There is risk that mineralization of roads or other development of firebreaks may improve access to areas currently difficult to access and facilitate further unsustainable use of forest resources (SES Standard 1 Biodiversity: q11)	I=4 P=1	Moderate	While improved access can have severe localized impacts (I=4), the project will only implement pilots in areas already accessible (P=1)	Sites selected for pilot projects will be selected in cooperation with regulatory agencies, and in subject to consultation with communities. No pilots will take place in areas considered critical habitat. All potential pilot activities to be carried out will be carried out in accordance with applicable forest management plan, and with conditions of approval for the activity as set out by the regulatory authorities in each country. In additional, all site-specific pilot activities will be screened against UNDP's ESSP and AF's SES.
Risk 5: Outreach activities in target communities may expose workers, and in some cases communities, to health and safety risks including but not limited to motor vehicle accidents, personal security incidents, and exposure to elements. (SES Standard 3 Community Health, Safety and Working Conditions: q1, q7)	I = 4 P = 2	Moderate	As with most outreach projects minor health, safety and security incidents can be expected to occur but severe risks (e.g. I = 4), such as a traffic accident resulting in death, are not likely (p=1), indicating an overall significance rating of moderate.	These risks, including traffic safety and worker health and safety, are well known and effective management measures are available to reduce risks to acceptable levels. UNDP Armenia and UNDP Georgia Country Offices have put in place safe work and personal security practices for their operations in Armenia and Georgi based on the minimum requirements for UN operations globally. UNDP activities, and those of any organizations contracted by UNDP, will implement and adhere to all UNDP country office security and safe work practices. Project activities controlled by government entities will adhere to government safety standards and protocols.
Risk 6: Small scale water reservoirs may have potential to provide breeding areas for mosquitos which represent a nuisance and can act as a disease vector.	I=4 P=1	Low	At present there is no local transmission malaria or other important mosquito borne diseases (P=1), although WHO warns there is a risk of resurgence (I=4)	UNDP will mandate all water reservoirs take measures to eliminate mosquito breeding.
Risk 7: Participation of national fire-fighters in controlled burn training exercises in a foreign country poses health and safety risks to participants. (SES Standard 3 Community Health, Safety and Working Conditions: q7)	I=4 P=2	Moderate	While training will take place under controlled conditions (P=2) there is still potential for severe impacts when dealing with fire (I=4)	The project will seek out a jurisdiction for training that has a strong history and recognized leadership in planning, permitting, executing, and monitoring prescribed and controlled burns. Nationals participating will receive training in good international proactive that will benefit adoption of such practices in Armenia and Georgia.

<p>Risk 8: implementation of site-specific pilot activities may affect community-based property rights and customary use of lands</p> <p>(SES Standard 5 Displacement and Resettlement: q4)</p>	<p>I=3 P=4</p>	<p>Moderate</p>	<p>It is likely (P=4) that site-specific pilot activities such as reforestation could affect customary use of lands although significant effects on household livelihoods is not expected (I=3)</p>	<p>UNDP will screen candidate pilot activities and not proceed with any pilot that require physical displacement. Existing land uses and livelihood activities will be determined for each pilot activity, and where loss of livelihood is anticipated a site specific livelihood restoration plan will be prepared and implemented.</p> <p>UNDP will promote awareness of the grievance mechanism which provides a means for redress of aggrieved stakeholders.</p>
<p>Risk 9: Activities that use mechanical equipment, including construction of roads, pose risks typical of construction sites and activities including worker and public health and safety, generation of hazardous wastes (such as waste lube oil, batteries), brush and wood waste, nuisance noise and dust, compaction and erosion of soils.</p> <p>(SES Standard 7: q1, q2)</p>	<p>I = 2 P = 4</p>	<p>Moderate</p>	<p>Small scale issues that are easily managed and rectified issues (I-2) are highly likely to occur in not managed (P=4)</p>	<p>All physical-type works will be screened and where potential risks are identified a site-specific management plan prepared. Where required by host country law an EIA approval will be secured, as well as any other permits governing pollution prevention such as permits to discharge or dispose of wastes.</p> <p>Effective management measures are available to reduce risks to acceptable levels. UNDP Armenia and UNDP Georgia Country Offices have in place procurement process that require contractors to implement environmental, health, and safety management procedures to address site-specific conditions of approval, country law, and UNDP standards. UNDP activities, and those of any organizations contracted by UNDP, will implement and adhere to all UNDP country office security and safe work practices. Project activities controlled by government entities will adhere to government safety standards and protocols.</p>
<p>QUESTION 4: What is the overall Project risk categorization?</p>				
<p>Select one (see SESP for guidance)</p>			<p>Comments</p>	
<p><i>Low Risk</i></p>			<input type="checkbox"/>	
<p><i>Moderate Risk</i></p>			<input checked="" type="checkbox"/>	<p>The overall risk of the project is moderate. Most of the anticipated social and environmental risks will be localised and activities undertaken at a small scale. The identified risks can be addressed through application of best practices, mitigation measures and stakeholder engagement during implementation. .</p>
<p><i>High Risk</i></p>			<input type="checkbox"/>	
<p>QUESTION 5: Based on the identified risks and risk categorization, what requirements of the SES are relevant?</p>				
<p>Check all that apply</p>			<p>Comments</p>	
<p>Principle 1: Human Rights</p>			<input checked="" type="checkbox"/>	<p>The project has potential to perpetuate existing discrimination against disadvantaged or minority groups</p>

	Principle 2: Gender Equality and Women's Empowerment	X	The project has potential to perpetuate existing discrimination against women. A gender analysis and action plan has been developed to address gender inclusion and empowerment
	Principle 3: Environment sustainability		
	1. Biodiversity Conservation and Natural Resource Management	X	Whilst the project is intended to benefit biodiversity individual projects have potential for localized deleterious effects on ecological features
	2. Climate Change Mitigation and Adaptation		The project interventions are not expected to be susceptible to future climate change effects
	3. Community Health, Safety and Working Conditions	X	Site-specific pilot activities pose safety risks for participants and nearby communities. Field activities exposes extension workers to traffic safety, personal wellbeing, and security risks.
	4. Cultural Heritage	X	Whilst site specific activities will be planned to avoid any locations with significant cultural heritage features, chance finds are a possibility and therefore a chance finds procedure will be included for any activities involving excavation works.
	5. Displacement and Resettlement	X	Implementation of site-specific pilot activities may affect or affect customary use of community land. No significant effects on household livelihoods, physical displacement or economic displacement of people is expected.
	6. Indigenous Peoples		No Indigenous people have been identified in the project area of influence
	7. <i>Pollution Prevention and Resource Efficiency</i>	X	The project activities do not entail significant use of renewable or non-renewable resources. Project activities involving construction activities have potential of result in minor construction related issues such as spills of contaminating material, nuisance noise, and soil erosion that can be easily managed using well known practices.

Final Sign Off

Signature	Date	Description
QA Assessor		UNDP staff member responsible for the Project, typically a UNDP Programme Officer. Final signature confirms they have "checked" to ensure that the SESP is adequately conducted.
QA Approver		UNDP senior manager, typically the UNDP Assistant Resident Representative (ARR), Deputy Resident Representative (DRR), or Resident Representative (RR). The QA Approver cannot also be the QA Assessor. Final signature confirms they have "cleared" the SESP prior to submittal to the PAC.
PAC Chair		UNDP chair of the PAC. In some cases, PAC Chair may also be the QA Approver. Final signature confirms that the SESP was considered as part of the project appraisal and considered in recommendations of the PAC.

SESP Attachment 1. Social and Environmental Risk Screening Checklist

Checklist Potential Social and Environmental Risks		
Principles 1: Human Rights		Answer (Yes/No)
1.	Could the Project lead to adverse impacts on enjoyment of the human rights (civil, political, economic, social or cultural) of the affected population and particularly of marginalized groups?	No
2.	Is there a likelihood that the Project would have inequitable or discriminatory adverse impacts on affected populations, particularly people living in poverty or marginalized or excluded individuals or groups? ⁷⁸	No
3.	Could the Project potentially restrict availability, quality of and access to resources or basic services, in particular to marginalized individuals or groups?	No
4.	Is there a likelihood that the Project would exclude any potentially affected stakeholders, in particular marginalized groups, from fully participating in decisions that may affect them?	Yes
5.	Is there a risk that duty-bearers do not have the capacity to meet their obligations in the Project?	No
6.	Is there a risk that rights-holders do not have the capacity to claim their rights?	Yes
7.	Have local communities or individuals, given the opportunity, raised human rights concerns regarding the Project during the stakeholder engagement process?	No
8.	Is there a risk that the Project would exacerbate conflicts among and/or the risk of violence to project-affected communities and individuals?	No
Principle 2: Gender Equality and Women's Empowerment		
1.	Is there a likelihood that the proposed Project would have adverse impacts on gender equality and/or the situation of women and girls?	Yes
2.	Would the Project potentially reproduce discriminations against women based on gender, especially regarding participation in design and implementation or access to opportunities and benefits?	Yes
3.	Have women's groups/leaders raised gender equality concerns regarding the Project during the stakeholder engagement process and has this been included in the overall Project proposal and in the risk assessment?	No
4.	Would the Project potentially limit women's ability to use, develop and protect natural resources, taking into account different roles and positions of women and men in accessing environmental goods and services? <i>For example, activities that could lead to natural resources degradation or depletion in communities who depend on these resources for their livelihoods and well being</i>	Yes
Principle 3: Environmental Sustainability: Screening questions regarding environmental risks are encompassed by the specific Standard-related questions below		
Standard 1: Biodiversity Conservation and Sustainable Natural Resource Management		
1.1	Would the Project potentially cause adverse impacts to habitats (e.g. modified, natural, and critical habitats) and/or ecosystems and ecosystem services? <i>For example, through habitat loss, conversion or degradation, fragmentation, hydrological changes</i>	No
1.2	Are any Project activities proposed within or adjacent to critical habitats and/or environmentally sensitive areas, including legally protected areas (e.g. nature reserve, national park), areas proposed for protection, or recognized as such by authoritative sources and/or indigenous peoples or local communities?	Yes

⁷⁸ Prohibited grounds of discrimination include race, ethnicity, gender, age, language, disability, sexual orientation, religion, political or other opinion, national or social or geographical origin, property, birth or other status including as an indigenous person or as a member of a minority. References to "women and men" or similar is understood to include women and men, boys and girls, and other groups discriminated against based on their gender identities, such as transgender people and transsexuals.

1.3	Does the Project involve changes to the use of lands and resources that may have adverse impacts on habitats, ecosystems, and/or livelihoods? (Note: if restrictions and/or limitations of access to lands would apply, refer to Standard 5)	No
1.4	Would Project activities pose risks to endangered species?	No
1.5	Would the Project pose a risk of introducing invasive alien species?	Yes
1.6	Does the Project involve harvesting of natural forests, plantation development, or reforestation?	Yes
1.7	Does the Project involve the production and/or harvesting of fish populations or other aquatic species?	No
1.8	Does the Project involve significant extraction, diversion or containment of surface or ground water? <i>For example, construction of dams, reservoirs, river basin developments, groundwater extraction</i>	No
1.9	Does the Project involve utilization of genetic resources? (e.g. collection and/or harvesting, commercial development)	No
1.10	Would the Project generate potential adverse transboundary or global environmental concerns?	No
1.11	Would the Project result in secondary or consequential development activities which could lead to adverse social and environmental effects, or would it generate cumulative impacts with other known existing or planned activities in the area? <i>For example, a new road through forested lands will generate direct environmental and social impacts (e.g. felling of trees, earthworks, potential relocation of inhabitants). The new road may also facilitate encroachment on lands by illegal settlers or generate unplanned commercial development along the route, potentially in sensitive areas. These are indirect, secondary, or induced impacts that need to be considered. Also, if similar developments in the same forested area are planned, then cumulative impacts of multiple activities (even if not part of the same Project) need to be considered.</i>	Yes
Standard 2: Climate Change Mitigation and Adaptation		
2.1	Will the proposed Project result in significant ⁷⁹ greenhouse gas emissions or may exacerbate climate change?	No
2.2	Would the potential outcomes of the Project be sensitive or vulnerable to potential impacts of climate change?	No
2.3	Is the proposed Project likely to directly or indirectly increase social and environmental vulnerability to climate change now or in the future (also known as maladaptive practices)? <i>For example, changes to land use planning may encourage further development of floodplains, potentially increasing the population's vulnerability to climate change, specifically flooding</i>	No
Standard 3: Community Health, Safety and Working Conditions		
3.1	Would elements of Project construction, operation, or decommissioning pose potential safety risks to local communities?	Yes
3.2	Would the Project pose potential risks to community health and safety due to the transport, storage, and use and/or disposal of hazardous or dangerous materials (e.g. explosives, fuel and other chemicals during construction and operation)?	No
3.3	Does the Project involve large-scale infrastructure development (e.g. dams, roads, buildings)?	No
3.4	Would failure of structural elements of the Project pose risks to communities? (e.g. collapse of buildings or infrastructure)	No
3.5	Would the proposed Project be susceptible to or lead to increased vulnerability to earthquakes, subsidence, landslides, erosion, flooding or extreme climatic conditions?	No
3.6	Would the Project result in potential increased health risks (e.g. from water-borne or other vector-borne diseases or communicable infections such as HIV/AIDS)?	Yes

⁷⁹ In regards to CO₂, 'significant emissions' corresponds generally to more than 25,000 tons per year (from both direct and indirect sources). [The Guidance Note on Climate Change Mitigation and Adaptation provides additional information on GHG emissions.]

3.7	Does the Project pose potential risks and vulnerabilities related to occupational health and safety due to physical, chemical, biological, and radiological hazards during Project construction, operation, or decommissioning?	Yes
3.8	Does the Project involve support for employment or livelihoods that may fail to comply with national and international labor standards (i.e. principles and standards of ILO fundamental conventions)?	No
3.9	Does the Project engage security personnel that may pose a potential risk to health and safety of communities and/or individuals (e.g. due to a lack of adequate training or accountability)?	No
Standard 4: Cultural Heritage		
4.1	Will the proposed Project result in interventions that would potentially adversely impact sites, structures, or objects with historical, cultural, artistic, traditional or religious values or intangible forms of culture (e.g. knowledge, innovations, practices)? (Note: Projects intended to protect, and conserve Cultural Heritage may also have inadvertent adverse impacts)	No
4.2	Does the Project propose utilizing tangible and/or intangible forms of cultural heritage for commercial or other purposes?	No
Standard 5: Displacement and Resettlement		
5.1	Would the Project potentially involve temporary or permanent and full or partial physical displacement?	No
5.2	Would the Project possibly result in economic displacement (e.g. loss of assets or access to resources due to land acquisition or access restrictions – even in the absence of physical relocation)?	No
5.3	Is there a risk that the Project would lead to forced evictions? ⁸⁰	No
5.4	Would the proposed Project possibly affect land tenure arrangements and/or community-based property rights/customary rights to land, territories and/or resources?	Yes
Standard 6: Indigenous Peoples		
6.1	Are indigenous peoples present in the Project area (including Project area of influence)?	No
6.2	Is it likely that the Project or portions of the Project will be located on lands and territories claimed by indigenous peoples?	No ⁸¹
6.3	Would the proposed Project potentially affect the human rights, lands, natural resources, territories, and traditional livelihoods of indigenous peoples (regardless of whether indigenous peoples possess the legal titles to such areas, whether the Project is located within or outside of the lands and territories inhabited by the affected peoples, or whether the indigenous peoples are recognized as indigenous peoples by the country in question)? <i>If the answer to the screening question 6.3 is “yes” the potential risk impacts are considered potentially severe and/or critical and the Project would be categorized as either Moderate or High Risk.</i>	No
6.4	Has there been an absence of culturally appropriate consultations carried out with the objective of achieving FPIC on matters that may affect the rights and interests, lands, resources, territories and traditional livelihoods of the indigenous peoples concerned?	No
6.5	Does the proposed Project involve the utilization and/or commercial development of natural resources on lands and territories claimed by indigenous peoples?	No
6.6	Is there a potential for forced eviction or the whole or partial physical or economic displacement of indigenous peoples, including through access restrictions to lands, territories, and resources?	No
6.7	Would the Project adversely affect the development priorities of indigenous peoples as defined by them?	No

⁸⁰ Forced evictions include acts and/or omissions involving the coerced or involuntary displacement of individuals, groups, or communities from homes and/or lands and common property resources that were occupied or depended upon, thus eliminating the ability of an individual, group, or community to reside or work in a particular dwelling, residence, or location without the provision of, and access to, appropriate forms of legal or other protections.

⁸¹ Any site will not be selected in this project which will be claimed by indigenous people

6.8	Would the Project potentially affect the physical and cultural survival of indigenous peoples?	No
6.9	Would the Project potentially affect the Cultural Heritage of indigenous peoples, including through the commercialization or use of their traditional knowledge and practices?	No
Standard 7: Pollution Prevention and Resource Efficiency		
7.1	Would the Project potentially result in the release of pollutants to the environment due to routine or non-routine circumstances with the potential for adverse local, regional, and/or transboundary impacts?	Yes
7.2	Would the proposed Project potentially result in the generation of waste (both hazardous and non-hazardous)?	Yes
7.3	Will the proposed Project potentially involve the manufacture, trade, release, and/or use of hazardous chemicals and/or materials? Does the Project propose use of chemicals or materials subject to international bans or phase-outs? <i>For example, DDT, PCBs and other chemicals listed in international conventions such as the Stockholm Conventions on Persistent Organic Pollutants or the Montreal Protocol</i>	No
7.4	Will the proposed Project involve the application of pesticides that may have a negative effect on the environment or human health?	No
7.5	Does the Project include activities that require significant consumption of raw materials, energy, and/or water?	No

Annex 9. Environmental and Social Management Framework:

**INCREASED CLIMATE RESILIENCE OF SOUTH CAUCASUS MOUNTAIN
COMMUNITIES AND ECOSYSTEMS THROUGH WILDFIRE RISK REDUCTION**

Submitted in a separate file

Annex 10. Record of Stakeholder Consultations for Development of Project Proposal to Adaptation Fund

The preparation of the AF proposal “**Increased climate resilience of South Caucasus mountain communities and ecosystems through wildfire risk reduction**” was carried out in consultation with stakeholders, drawing on the expertise of International and National experts, National government stakeholders, as well as a variety of other actors including state-level unions, private sector representative and community members in targeted project areas.

Two missions of the international consultant on climate change project development, Matthew Savage, took place to both Armenia and Georgia with the participation of UNDP Regional Technical Advisor, and UNDP Environment Portfolio staff, to meet with key stakeholders. A record of the stakeholder consultations, with dates and participants is provided below. During these missions there were intensive consultations with variety of stakeholders to get insights for project activities and outputs. During the second mission visits were made to two regions in each country to meet with local stakeholders in four separate areas. Stakeholders included Forest Enterprises, Protected Area Agencies, local EMS services, local government officials and community representatives.

Finally, in order to validate the technical aspects of the project design, further local regional experts undertook consultations with national and local level stakeholders in both Armenia and Georgia to:

- Carry out field investigations to generate new data in support of the project;
- Identify and meet with project stakeholders to acquire site specific data;
- Acquire existing current and historical data from institutions;
- Identify gaps from local stakeholders in the information required to deliver the project.

Table 11: Institutions and groups consulted during project preparation

Armenia	Georgia
<ul style="list-style-type: none"> • Aparan community • Aparan Forest Enterprise • Aragatsothn rescue service • Armenia Hydromet • Armenian Rescue Service • Armenia Climate Change Center • Dilijan National Park Administration • FAO Armenia Representative Office • GIZ Armenia Representative Office • Gugark Forest Enterprise • Kotayk Emergency Services • Lori rescue service • Ministry of Emergency Situation s • Ministry of Nature Protection • Razdan Forest Enterprise • State Forest Committee • State Forest Monitoring Center • Tavush rescue Service • UNDP programme teams • Municipality of Vayq (Vayots Dzor Region) • Vayots Dzor Forest Enterprise • WWF Armenia • Vanadzor Municipality • Agrarian State University (Vanadzor branch) 	<ul style="list-style-type: none"> • Agency of Protected Areas (APA) • Akhmeta municipality and local forestry service • Caucasus Nature Fund (CNF) • CENN (NGO) • Centre for Biodiversity Research & Conservation – NACRES (NGO) • Emergency Management Service of Georgia • Environmental Information and Education Center (EIEC) • Geo Outlook (NGO) • GIZ Georgia representative office • Global Forest Watch • Green Alternative (NGO) • Ministry of Internal Affairs, 112 emergency service • Ministry of Environment Protection and Agriculture (MEPA) • National Forestry Agency • PPRD East project team • Regional Environmental Center (REC) • Tianeti municipality and local forestry service • IUCN • UNDP programme teams • World Bank • WWF

In addition, two multi-stakeholder workshops were held in Tbilisi and Yerevan for policy makers, NGOs and academics with more than 30 attendees in total. Two large scale community level consultation events were also held at potential project sites as set out below:

Table 12: Examples of community consultations conducted during the project development and validation:

<u>Date</u>	<u>Community</u>	<u>Number of people attended</u>
15th April 2019	Aparan (Armenia) – EMS, local administration, forest agency, community members	20
17 th April 2019	Vanadzor (Armenia) - Farmers, foresters, community heads, EMS, local administration	40
17 th July 2019	Yeghegnadzor (Vayots Dzor region, Armenia) – local administration, forest agency, NGO, community members	18

Key messages from community level consultation:

The following were the key messages from the consultation in local communities, which were well aligned across the two countries:

Climate risk

- All communities confirmed changes in the climate, with hotter summers and lower and shorter levels of snow cover, resulting in fires earlier in the spring, and greater risk in the autumn. There was anecdotal evidence of increasing size and frequency of wildfires as a result;

Causes of fire

- Most forest wildfires were assumed to be caused by human intervention, normally a combination of burning of fields and agricultural residue, with irresponsible forest users (tourists, hunters) a lesser risk. Natural causes were relatively rare;

Fire risk reduction

- There was strong recognition of challenges in changing behavior among farmers and forest users in terms of fire risk due to entrenched cultural beliefs and practices;
- There is little enforcement of existing legislation and limited ranger resources to police the forested areas in a comprehensive way;
- Resources to maintain forests from a fire risk perspective were limited, and budgets were insufficient to mineralize roads and fire breaks, and maintain water infrastructure in the forest areas;
- There is a lack of zoning and authorized areas for fire use (e.g. barbeque) in forested areas, and signage is old and incomplete;
- Firewood removal processes exist (including distribution for socially deprived households), however these are often poorly managed, and combustible material accumulates in forests
- Many forest areas are suffering from pests and diseases, causing some trees to die and the wood to dry and become more combustible;
- Communities have little commercial incentive to manage the forest sustainably, although there is increasing tourism, and increasing interest in commercialization of forest products;

Fire identification

- There are no technological or systematic structures for identifying fires as they break out, and emergency services are reliant on forest ranges and public;
- Communities considered that they were well placed to identify fires when they started, and the processes for informing emergency services and forest department were well established;

Fire response

- Communities recognized the challenges to reaching fires in steep mountain areas, particularly where access roads were not available, and where extreme off-road vehicles were not in use;
- Natural fires tend to be in more remote areas, while man made fires are usually easier to access and closer to roads;
- Water access in mountain areas is an issue, and networks of water stations and reservoirs are underdeveloped and poorly maintained;
- Communities were ready to provide support to emergency services and forest department to suppress larger scale fires, and often provided informal support where this was required;
- Informal community groups do operate, but without formal agreement or training, and EMS take the lead, supported by forest agencies;
- Better fire access roads are important, but these create risks of illegal logging and require good barriers, control and oversight;
- Forest agencies and emergency services suffer from low wages and morale, which in turn can create retention problems and high turnover;
- Centralised plans exist for institutional cooperation between EMS and forest agencies, but these aren't always effective at the local level, where response is often more ad-hoc;
- There are only limited opportunities for proper fire drills and training at a multi-agency level with most preparation being limited to small scale practice

Photos of consultations



Meeting in Vanadzor Agrarian University (Lori region) – 17th of April, 2019



Stakeholder Consultation Workshop in Yerevan -16th of April



Meeting in Aparan (Aragatsotn region) -15th of April



Meeting in Razdan (Kotayk) – 15th of April



Meeting in Yeghegnadzor (Vayots Dzor region)



Meeting in Akhmeta municipality, Georgia, 20th April, 2019

Stakeholders in local community meetings in Armenia and Georgia

#	Name / Family Name	Organization/Position
List of stakeholders in Kotayk region, Armenia (Meeting in Razdan City)		
1.	Stepan Margaryan	Director, "Razdan Forest Enterprise" SNCO ⁸²
2.	Khachik Melkonyan	Forest Engineer, "Razdan Forest Enterprise" SNCO
3.	Khachatur Khachatryan	Forester, "Razdan Forest Enterprise" SNCO
4.	Aram Muradyan	Forester, "Razdan Forest Enterprise" SNCO
3.	Rafael Grioryan	Head, Qaxsi Community Administration
4.	Armen Amirjanyan	Head of Kotayk Regional Rescue Department, Ministry of Emergency Situation
5.	Narek Harutyunyan	Deputy Head, Meghradzor Community Administration
6.	Ruben Petrosyan	Adviser to the State Forest Committee, Ministry of Environment
7.	Vardan Melikyan	Task Leader, UNDP Wildfire Management Project
8.	Ashot Sargsyan	DRM National Expert
List of stakeholders in Aragatsotn region, Armenia (Meeting in Aparan City)		
1.	Vram Abrahamyan	Director, "Aragatsotn Forest Enterprise" SNCO
2.	Hrachik Aragelyan	Forester, "Aragatsotn Forest Enterprise" SNCO
3.	Vardges Sargsyan	Forester, "Aragatsotn Forest Enterprise" SNCO
4.	Hrayr Ghukasyan	Forester, "Aragatsotn Forest Enterprise" SNCO
5.	Gnel Adamyan	Ranger, Aragats Branch of "Aragatsotn Forest Enterprise" SNCO
6.	Andranik Ghazaryan	Chief Forester, "Aragatsotn Forest Enterprise" SNCO
7.	Hrayr Darbinyan	Head of Aragatsotn Regional Rescue Department, Ministry of Emergency Situation
8.	Gagik Simonyan	Chief Specialist, Aparan Municipality
9.	Hayk Arshakyan	Commander, Aparan Fire-fighting Rescue Group
10.	Robert Galstyan	Aparan Municipality
11.	Karen Harutyunyan	Head, Kayq Administrative District
12.	Vigen Harutyunyan	Chief Inspector, Emergency Management Center, Aragatsotn Regional Rescue Department
13.	Vardan Melikyan	Task Leader, UNDP Wildfire Management Project
14.	Ashot Sargsyan	DRM National Expert
List of Stakeholders in Lori region, Armenia (Meeting in Vanadzor City)		
1.	Samvel Mkhitarian	Forester, Eghegnut Branch of "Gugark Forest Enterprise" SNCO
2.	Levon Mkhitarian	Forester, "Gugark Forest Enterprise" SNCO
3.	Rafik Aghababyan	Gugark Forest Enterprise" SNCO
4.	Tigran Antonyan	Gugark Forest Enterprise" SNCO
5.	Kare Sargsyan	Leading Specialist, Shahumyan Community Administration
6.	Arayik Gevorgyan	Head, Antaramut Community Administration
7.	Taron Serobyen	Lernapat Community Representative
8.	Serj Ghambaryan	Ranger, Eghegnut Branch of "Gugark Forest Enterprise" SNCO
9.	Gagik Ghazakheyan	Ranger, Eghegnut Branch of "Gugark Forest Enterprise" SNCO
10.	Gagik Andreasyan	Forester, Vanadzor Branch of "Gugark Forest Enterprise" SNCO
11.	Gagik Mkhitarian	Forester, Spitak Branch of "Gugark Forest Enterprise" SNCO
12.	Vahe Dokhoyan	Ranger, Eghegnut Branch of "Gugark Forest Enterprise" SNCO
13.	Apres Voskanyan	Lernarot Community Administration
14.	Suren Kostanyan	Vahagni Community Administration
15.	Ashot Ghazaryan	Debed Community Administration
16.	Sayad Mnatsakanyan	Arjut Community Administration
17.	Artak Simonyan	Gugark Fire -fighting Group
18.	Suren Gharabekyan	Ranger, "Gugark Forest Enterprise" SNCO
19.	Artashes Mkhitarian	Ranger, "Gugark Forest Enterprise" SNCO
20.	Armen Danamashyan	Deputy Head, Lori Regional Rescue Department, Ministry of Emergency Situation
21.	Ruben Petrosyan	Adviser to the State Forest Committee, Ministry of Environment
22.	Ruben Vardanyan	Independent Consultant on Environmental and Social Safeguards
List of Stakeholders in Kakheti region, Georgia (Meeting in Akhmeta)		
1.	Gela Jugashvili	Head of town Akhmeta territorial unit
2.	Shorena Kipshidze	Akhmeta municipality supervision unit
3.	Temur Ivanishvili	Emergency Service, Akhmeta municipality
4.	Ilia Datunashvili	Akhmeta forestry unit
5.	Giorgi Bakuridze	Tusheti Protected Areas Administration
6.	Irakli Aptarauli	Tusheti Protected Landscape Administration
7.	Koba Shabalaidze	Tusheti Protected Landscape Administration

⁸² SNCO – State Non-commercial Organization

The Second Stakeholder Consultation Meeting

AF project proposal “Increased climate resilience of South Caucasus mountain communities and ecosystems through wildfire risk reduction (Armenia, Georgia)”

Yerevan, UN Conference Hall, 24-July 2019, 14:00-17:30

AGENDA

14:00 - 14:10	Opening Remarks: Project objective and preparatory process	Armen Martirosyan, UNDP Sustainable Growth and Resilience (SGR) Portfolio Coordinator
14:10 – 14:25	Project background	Georgi Arzumanyan, Programme Policy Adviser, UNDP SGR portfolio
14:25 – 15:00	Project scope, main outcomes and overview of activities	Georgi Arzumanyan, Programme Policy Adviser, UNDP SGR portfolio
15:00 – 15:20	Coffee Break	
15:20 - 15:50	Questions and Answers Session	Moderator Armen Martirosyan
15:50 – 17:15	Discussion of the proposal: main comments, recommendations/suggestions	Moderator Armen Martirosyan
17:15 - 17:30	Wrap-up discussion: summary of the meeting and future steps	Georgi Arzumanyan, Programme Policy Adviser, UNDP SGR portfolio

Meeting notes:

20 representatives from relevant Governmental and development organizations (including Deputy Minister of Environment, Chair of the State Forest Committee, Deputy Head of Armenian Rescue Service, Director of Hayantar, GIZ, etc.) attended the second Stakeholder Consultation Meeting to review final draft document and provide final recommendations.

Participants welcomed designed project scope and strategy, stressed the importance of systemic approach applied in the project (from policy and regulatory measures to local level adaptation and CB), while emphasized one more time the priority of prevention measures in forest enterprises and community level interventions to reduce risk of hazards.

The importance of the third component in terms of establishing/promoting alternatives and incentive mechanisms for local communities was stressed. The necessity of setup enabling legal and operational environment for introduction in Armenia of “community-based volunteer groups” was mentioned almost by all stakeholders.

There is one conceptual recommendation to be considered, namely piloting/testing a kind of “cluster approach/model” for firefighting. It means establishment of specific fully equipped and trained units (people from community, forest agencies, rescue service, etc.) for early response. It is envisaged to consider area’s accessibility and mobility factors in setting up units (with geographical peculiarities in mind). All the machinery, equipment, other tools, etc. will be concentrated in Cluster area and will react/response to the fire upon first call in the most efficient and quick mode.

Annex 11. Gender Assessment and Action Plan

Increased climate resilience of South Caucasus mountain communities and ecosystems through wildfire risk reduction

I. Introduction

This gender assessment aims to provide an overview of the gender situation in Armenia and Georgia, with a specific focus on the resilience of mountain communities and forest ecosystems to climate-induced hazards, and in particular to the increasing risk of forest wildfire in mountainous regions of the Southern Caucasus; to identify gender issues that are relevant to the project, and to examine potential gender mainstreaming opportunities. The assessment was based upon available data from studies conducted by the Governments of Armenia and Georgia, Statistical Committee of the Republic of Armenia, National Statistics Office of Georgia, donor agencies, NGOs, development banks⁸³.

The principle of equality between women and men is widely reflected throughout the legislation of both countries Republic of Armenia and Georgia. While the legal framework for gender equality and women's rights is relatively strong, its practical implementation — given the prevalence/maintenance of traditional patriarchal stereotypes — needs strengthening.

Thus, the situation in the field of gender equality and protection of women's rights in Armenia and Georgia is controversial. On the one hand, women and men have equal rights, women are recognized as important actors of socio-economic development. On the other hand, women face many obstacles in terms of economic opportunities and active participation in political and public life, especially at the decision-making level.

According to the discourse prevailing in Georgia, doing housework is considered a woman's duty. Being chained to a domestic field makes women more vulnerable to negative impacts caused by climate change and natural disasters⁸⁴.

In Armenia women remain significantly underrepresented in public decision-making, while discriminatory gender stereotypes in the family and in society continue to hinder equality (D.Mijatović, 2018) and undermining women's social status and their educational and professional careers (CEDAW/C/ARM/CO/5-6).

In both countries the adoption of important strategic documents on Gender Equality and Climate Change/Disaster risk reduction can be mentioned. At the same time, despite the existing progress in the mentioned fields, a weak link between domains was identified, these being parallel. The lack of information, experience, and resources is considered as a significant barrier for the key actors working on climate change issues to mainstream gender aspect in their ongoing activities. The lack of gender disaggregated data in the field of forest eco-system, biodiversity in relation with climate change represent a significant challenge for countries' development.

II. Gender inequality and social inclusion in Armenia and Georgia

During the last years, Gender equality and women's human rights promotion in Armenia and Georgia has seen progress and challenges. In line with its international commitments, Georgia and Armenia have made significant strides in adopting legislative and policy reforms to foster gender equality and to combat violence against women.

⁸³ Armenia: World Bank, Armenia Country Gender Assessment, 2016; Women and Men in Armenia, 2017; Report of the Commissioner for human rights of the Council of Europe Dunja Mijatović following her visit to Armenia in September 2018; Committee on the Elimination of Discrimination against Women Concluding observations on the combined fifth and sixth periodic reports of Armenia, 2016. CEDAW/C/ARM/CO/5-6; UNFPA, Men and Gender equality in Armenia (2016).; Republic of Armenia. Review of the Implementation of the Beijing Declaration and Platform for Action Beijing+25 (2019) etc.

Georgia: GEORGIA. National-level Review of the Implementation of the Beijing Declaration and Platform for Action Beijing +25 (2019); GENDER EQUALITY IN GEORGIA: BARRIERS AND RECOMMENDATIONS. Vol.1. USAID, UNDP, 2018; Women and Men in Georgia 2018; UNWomen, Gender assessment of agricultural and local development systems in Georgia (2018); UNWomen, Women's economic inactivity and engagement in the informal sector (2018) etc.

⁸⁴ Women's Fund, Situational analysis and recommendations on environmental justice and women's rights in Georgia, 2019

According to Human Development Indices and Indicators⁸⁵, Armenia's HDI value for 2017 is 0.755—which put the country in the high human development category—positioning it at 83 out of 189 countries and territories. Between 1990 and 2017, Armenia's HDI value increased from 0.631 to 0.755, an increase of 19.7 percent. Georgia's Human Development Index for 2017 was 0.780, which put the country in the high human development category—positioning it at 70 out of 189 countries and territories⁸⁶. Through the years, several indices have developed to quantify the concept of gender inequality. UNDP uses the Gender Inequality Index (GII) and Gender Development Index (GDI).⁸⁷

The 2017 female HDI value for Armenia is 0.740 in contrast with 0.764 for males, resulting in a GDI value of 0.969, placing it into Group 2. In comparison, GDI values for Georgia is 0.975 respectively. Out of 164 countries, Armenia and Georgia rank based on GDI in 2017 is given below⁸⁸:

	Life expectancy at birth		Expected years of schooling		Mean years of schooling		GNI per capita		HDI values		F-M ratio
	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	GDI value
Armenia	77.8	71.4	13.4	12.6	11.7	11.7	6,358	12,281	0.740	0.764	0.969
Georgia	77.6	69.2	15.3	14.8	12.8	12.8	6,177	12,481	0.766	0.786	0.975
Europe& Central Asia	77.0	69.7	13.9	14.2	9.9	10.6	10,413	20,529	0.751	0.785	0.956
High HDI	78.2	74.0	14.3	13.9	8.0	8.6	10,945	18,948	0.740	0.773	0.957

At the same time, Armenia has a GII value of 0.262, ranking it 55 out of 160 countries in the 2017 index. In comparison, Georgia is ranked at 78 respectively on this index.

The Global Gender Gap Index (GGGI) of the World Economic Forum examines the gap between men and women in four categories: economic participation and opportunity, educational attainment, health and survival; and political empowerment.⁸⁹ Out of 149 countries, Armenia and Georgia's ranks based on GGGI in 2018 are given below:

Description	Armenia		Georgia	
	Score	Rank	Score	Rank
Economic participation and opportunity	0.675	73	0.654	85
Educational attainment	1.000	35	0.996	60
Health and survival	0.939	148	0.967	123
Political empowerment	0.099	115	0.093	119
Global Index	0.678	98	0.677	99

* *Imparity = 0.00; Parity = 1.00. Source: The Global Gender Gap Report 2018*

Thus, both countries Armenia and Georgia have better positions at educational attainment. At the same time, the lowest positions are at women's political empowerment and health and survival.

Poverty: In 2016 the rate of economic growth in Armenia increased by only 0.2 percentage points. Such a modest growth is not enough to reduce poverty in the country⁹⁰. With an estimated per-capita GDP of USD 3 830, Armenia is classified as a lower middle income country (World Bank, 2016). Agriculture in Armenia is still the primary driver of growth, along with a modest contribution from industry and services⁹¹.

⁸⁵ Human Development Indices and Indicators: 2018 Statistical Update. Briefing note for countries on the 2018 Statistical Update. Armenia http://hdr.undp.org/sites/all/themes/hdr_theme/country-notes/ARM.pdf

⁸⁶ <https://countryeconomy.com/hdi/georgia>

⁸⁷ United Nations Development Programme. Human Development Report. <http://hdr.undp.org/en/content/table-4-gender-inequality-index>.

⁸⁸ http://hdr.undp.org/sites/all/themes/hdr_theme/country-notes/ARM.pdf

⁸⁹ World Economic Forum. The Global Gender Gap Report 2018. http://www3.weforum.org/docs/WEF_GGGR

⁹⁰ https://www.armstat.am/file/article/poverty_2017_english_2.pdf p.36

⁹¹ <http://www.fao.org/3/a-i6737e.pdf>

In 2016 the poverty rate of female-headed households was higher than poverty rate of male-headed households (33.4% versus 28.0%). Female-headed households in 2016 comprised 30% and 27% of the poor population and the total population, respectively. Female-headed households with children up to 6 years have higher risk of poverty (1.4 times higher) compared to the national average. The risk of poverty for such families in urban communities was lower than in rural communities (39.8% and 48.4%, respectively). Over the considered period, female-headed households, similar in all other characteristics, had lower welfare than male-headed ones (6.0% and 3.7%, respectively)⁹².

Georgia has been recently upgraded by the WB to an upper middle-income status, ranking 70 on the Human Development Index (UNDP, 2018). However, despite of observed economic growth, a substantial part of the population is still living in poverty. According to the World Bank study (WB, 2016) 32 percent of population is estimated to be below the poverty line, i.e. spending 2.5 or less USD a day and only 7 percent of population is considered as being middle class, consuming 10USD or more a day. Households headed by women, big size families and families with children under 15 are particularly vulnerable to poverty. There are also regional disparities in poverty rates. Besides an individual poverty the poverty of community exacerbates the situation.

Poor may not lose more material property in amount, but the loss is significantly more proportionally to their assets. Poorer live in sub-standard houses, that are more prone to the effects of disaster. Poverty, exacerbated by effects of disaster pushes population abroad. Migration affects both countries.

Health: In Armenia, for every 100,000 live births, 25 women die from pregnancy related causes; and the adolescent birth rate is 23.2 births per 1,000 women of ages 15-19. In Georgia, for every 100,000 live births, 36 women die from pregnancy related causes; and the adolescent birth rate is 45.9 births per 1,000 women of ages 15-19 (highest than in Europe- 25.5). Thus, the maternal mortality ratio and the adolescent birth rate in Georgia is higher than in Armenia and Europe&Central Asia.

In 2018, fertility rate for Armenia was 1.6 children per woman. Over the last 4 years, fertility rate of Armenia was declining at a moderating rate to shrink from 1.62 children per woman in 2015 to 1.6 children per woman in 2018.⁹³ In 2018, fertility rate for Georgia was 1.98 children per woman. Fertility rate of Georgia fell gradually from 2 children per woman in 2015 to 1.98 children per woman in 2018.⁹⁴

In Armenia and in Georgia, the risk of premature death between 30-70 years is twice as high among men as compared to women (2016)⁹⁵. At the same time, women are more affected by obesity, diabetes. Harmful use of alcohol, tobacco use are higher risk factors for men.

Education: According to GII, In Armenia, 96.9 percent of adult women have reached at least a secondary level of education compared to 97.6 percent of their male counterparts. In Georgia, 95.1 percent of adult women have reached at least a secondary level of education compared to 96.0 percent of their male counterparts.

Despite of the progress in education, different studies stress attention on following problems in both countries: persistence of patriarchal stereotypes in the books, didactical materials, segregation by sex of the segregation of specialties and objects, the girls being more oriented towards socio-human sciences, and the boys - the real ones etc.

Political participation: Women empowerment remains a critical development issue in Armenia. Women comprise 52.2% of population in Armenia and 56% of those with higher education. However, their representation in decision-making at all levels remains low: 24.2% in the Parliament, less than 10% in the local governance. There only 1 mayor in 48 urban communities, and only 6 female mayors in rural communities.⁹⁶ Despite of existing gender-sensitive quotas, the progress is slow.

⁹² https://www.armstat.am/file/article/poverty_2017_english_2.pdf

⁹³ <https://knoema.com/atlas/Armenia/topics/Demographics/Fertility/Fertility-rate>

⁹⁴ <https://knoema.com/atlas/Georgia/topics/Demographics/Fertility/Fertility-rate>

⁹⁵ https://www.who.int/nmh/countries/arm_en.pdf?ua=1

⁹⁶ UNDP Office data, 2018

In Georgia, comprising 52.3 percent of population, 16.0 percent of parliamentary seats are held by women⁹⁷ and 13.4% of local councils (Sakrebulo)⁹⁸. Several attempts of initiative groups outside and inside the Parliament to introduce gender quota in Parliament did not succeed.

While political underrepresentation of women and lack of their economic empowerment compounded by persisting vertical and horizontal segregation in the labor market as well as existing gender imbalance in a number of other spheres are serious problems, which reflect at the same time gender-based discrimination the root causes of which have yet to be eliminated.⁹⁹

Labour force: According to GII (2017), In Armenia female participation in the labour market is 51.4 percent compared to 70.6 for men¹⁰⁰. In Georgia, female participation in the labour market is 57.9 percent compared to 78.8 for men. In both countries women have a limited access to labour market.

In Georgia, women are not only busier in doing household tasks than men, but on average, women engage in agricultural work with 80 days per year more than men (UN Women, 2016). Context-specific social and cultural barriers and unpaid work prevent women from going beyond subsistence farming to active, income generating involvement in an agricultural business. Many women also work in the informal sector. Farm work undertaken by women includes managing crops and livestock, dairy production, and processing. On top of that, women do multiple household tasks that increase the gap even more. However, this work often goes unrecognized and is undervalued because it is not remunerated.¹⁰¹ The data clearly suggests that the primary cause of women's economic inactivity is the gendered division of labor within society and that women carry out the majority of unpaid care work¹⁰²

According to the official statistics, in Armenia the unemployment rate for economically active women is 1.6 times higher than for men. Employed women frequently occupy low-paid or low-level positions within the labour market; women usually occupy informal market. Underlying gender causes and implications of the mentioned issues need to be studied in-depth to ensure most gender targeted and evidence-based interventions to maximize its benefit equitably for women and men and avoid gender-negative effects of otherwise gender-blind interventions¹⁰³. In 2016, 47% of women aged between 15-75 had no job and did not look for a job, mainly being engaged in household's unpaid activity.¹⁰⁴

We can conclude that Armenia and Georgia still have significant differences between employment earnings among women and men, compared to the average across countries in Europe. Occupations are strongly segregated by gender, with a much higher share of men in stereotypically male professions, such as engineering, construction, energy, transport and communications, gas, and water supply. Female workers in Armenia and Georgia tend to dominate professions such as agricultural work, sales, and customer service, which usually pay the lowest salaries. Even in better-paid professions, most employed women do not work full-time because of the demand on their time for home-care and other unpaid household responsibilities. And, even if an Armenian and Georgian woman is more educated than a man, she will more earn less than he does. Many women also work in the informal sector and in unpaid subsistence farm work.

⁹⁷ http://hdr.undp.org/sites/all/themes/hdr_theme/country-notes/ARM.pdf

⁹⁸ ⁹⁸ http://hdr.undp.org/sites/all/themes/hdr_theme/country-notes/ARM.pdf;

https://www.undp.org/content/dam/georgia/docs/publications/DG/UNDP_GE_DG_Gender_Equality_in_Georgia_VOL1_ENG.pdf

⁹⁹ UNFPA, Men and Gender equality in Armenia. Report on sociological survey findings. Yerevan, 2016, p.15-16

¹⁰⁰ Total of 79.6% of employers and 54.4% of self-employed are men, while the women are the majority among those working with no remuneration as their engagement is twice higher than men's; 47.0% of economically not active women are housewives or 98.5% of those engaged in housekeeping are women, meanwhile; 15.7% of the labour resource of the Republic of Armenia or 31.3% of those employed are engaged in agriculture, among which women constitute 52.9%, which makes them even more significant players in agriculture development, while in the conditions of non-formal employment they are deprived of social guarantees. https://www.unecce.org/fileadmin/DAM/Gender/Beijing_20/Armenia.pdf

¹⁰¹ Georgia. National-level Review of the Implementation of the Beijing Declaration and Platform for Action Beijing +25 (2019)

¹⁰² UNWomen, WOMEN'S ECONOMIC INACTIVITY AND ENGAGEMENT IN THE INFORMAL SECTOR IN GEORGIA, 2018 <http://georgia.unwomen.org/en/digital-library/publications/2018/12/womens-economic-inactivity-and-engagement-in-the-informal-sector-in-georgia>

¹⁰³ Gender Equality Strategy UNDP Armenia Country Office 2016-2020

¹⁰⁴ <https://www.armstat.am/ru/?nid=82&id=1976>

Access to resources: In Armenia, women and men have the same rights to own and access land and manage non-land assets, under the Constitution (art.31) and the Civil Code (art.167). Customary and religious laws are not considered valid sources of law under the constitution, in regard to land rights or any other matter¹⁰⁵. Women's property rights are not affected by marriage. Spouses have equal property rights, and any property purchased during the marriage is owned jointly. Any property that the wife owns before marriage remains hers alone, as does any property that she is given or inherited once she is married (Civil Code, art.201).

According to official statistics, in 2016 in Armenia the composition of agricultural holdings by gender of the household head was the following: women – 25% and men – 75%¹⁰⁶. In Georgia very few respondents are involved in cooperatives, and women constitute only 25% of the membership base¹⁰⁷.

There are no legal barriers preventing women from obtaining access to credit, loans are de facto less accessible to women as many do not possess land or property to serve as collateral. In Georgia, women are more often co-owners of property than outright owners, and property is generally registered under men's names. Women more frequently obtain microfinance loans, which do not require substantial collateral. Significantly, microfinance institutions offer comparatively expensive credit.¹⁰⁸

Gender-based Violence: Both countries adopted Domestic Violence Law. In the 2006 Law on the Elimination of Domestic Violence, Protection and Assistance of the Victims of Domestic Violence was adopted in Georgia. This law was later substantially amended in 2009.

In December 2017, the Law on prevention of violence within the family, protection of victims of violence within the family and restoration of peace in the family was adopted in Armenia¹⁰⁹. At the same time, domestic violence remains a prevalent problem for Armenian society. Between 2010-2017, at least 50 women were killed by their partners or ex-partners, often on the grounds of “male jealousy”.¹¹⁰ These crimes were not properly punished, and were justified even on the level of court judgements. The number of known cases of DV is increasing, breaking the silence around these normalized crimes.

The UNWomen Study (2018) findings indicate that women and men in Georgia show a high degree of tolerance and acceptance towards the use of physical violence against women in relationships, and they also share inequitable views on sex and sexual violence. Of those surveyed, almost one quarter of women (22 per cent) and one third of men (31 per cent) believe that wife-beating is justified under certain circumstances. Moreover, almost one quarter of all women (23 per cent) and nearly half of all men (42 per cent) believe that a wife should obey her husband even if she disagrees.¹¹¹

At the same time, despite of existing Domestic Violence Law in both countries, implementation of different programs to prevent and combat DV, states should ensure continuous activities related to prevention, awareness raising, the establishment of a national referral mechanism, development of services addressed to DV victims, the establishment of a system for data collection, making legislation and state policy documents in compliance with the international standards etc.

¹⁰⁵International Bank for Reconstruction and Development / World Bank (2011), p.56

¹⁰⁶ AGRICULTURAL CENSUS, 2014

¹⁰⁷ The Gender Assessment of Agriculture and Local Development Systems in Georgia (2018).

<http://www2.unwomen.org/-/media/field%20office%20georgia/attachments/publications/2018/agri%20and%20local%20dev%20georgia.pdf?la=ka&vs=0>

¹⁰⁸ https://www.unece.org/fileadmin/DAM/Gender/Beijing_20/Georgia.pdf

¹⁰⁹At the same time, according to NGOs representatives, the cases of violence in Armenia are growing yearly and the adoption of the law did not serve as a restraining mechanism, contributing to Enduring Stereotypes <https://www.evnreport.com/raw-unfiltered/domestic-violence-an-imperfect-law-and-enduring-stereotypes>

¹¹⁰ <https://www.opendemocracy.net/en/odr/paradox-of-armenia-s-domestic-violence-law/>

¹¹¹ At the same time, there has been a significant increase in the percentage of women who have reported to the police an act of violence committed by an intimate partner: 18 % in 2017, compared to 1.5 % in 2009. Also, the percentage of women who believe that DV is a private matter and that no one should interfere has decreased from 78 % in 2009 to 33 % in 2017.

<http://georgia.unwomen.org/en/news/stories/2018/03/one-in-seven-women-in-georgia-experiences-domestic-violence-new-national-study-finds>

III. Mechanisms to address gender inequality in Armenia and Georgia - legal and administrative framework

The principle of equality between sexes is enshrined in the Armenian Constitution and is reflected in the national legislation. The Armenian Government has been taking certain steps to harmonize national policies with the gender equality principle and with international requirements in that field. Of great significance for gender policy implementation was adoption of the Law of the Republic of Armenia on ensuring women and men equal rights and equal opportunities (2013)¹¹². Currently, Armenia does not have a national gender strategy or action plan. At present, the Armenian Government is in the process of preparation of the Gender Action Plan for subsequent years.

Since 2018-2019 the Government of Armenia has commenced a reinforcement/establishment of a series of mechanisms aimed at ensuring gender equality, such as reorganization of the Council on Equal Rights and Opportunities for Women and Men, reestablishment of the Gender Thematic Group, establishment of the Council on Preventing and Combating Violence against Women and Domestic Violence (2018). All these efforts notwithstanding, findings of a number of studies as well as values of relevant indices regarding the gender situation in Armenia have time and again demonstrated that the advancement and progress of women and the attainment of gender equality are impeded by widespread negative gender stereotypes and that some traditional practices harmful to women (primarily gender-based violence (GBV), son preference and sex selective abortions) are still prevalent in the society¹¹³.

The Constitution of Georgia upholds the principle of equal rights for men and women (art. 14). A Gender Equality Law was passed in 2010. In 2014 Parliament of Georgia adopted Law on Elimination of All Forms of Discrimination, which includes the prohibition of discrimination based on sex, on sexual orientation and gender identity. The 2018-2020 National Action Plan of Georgia for Implementation of the UN Security Council Resolutions on Women, Peace and Security was approved by N173 Decree of the Government of Georgia on April 10, 2018 and represents third action plan since 2011.

In an effort to meet its international commitments, Georgia has strengthened its national institutional framework to monitor and advance women's equality. Georgia's national machinery for gender equality consists of three key bodies: Gender Equality Council of the Parliament; Inter-Agency Commission on Gender Equality, Violence against Women and Domestic Violence Issues¹¹⁴; and Gender Department of the Public Defender's Office.

In the context of current project, the development and exchange of good practices between both countries can contribute to gender mainstreaming in policy but also in strategic actions. Involvement of women in the project activities will contribute to their socio-economic empowerment. Strengthening stakeholders' capacities in mainstreaming gender in documents and actions will lead to efficient policy.

In January 2018 Armenia signed the Council of Europe Convention on Preventing and Combating Violence against Women and Domestic Violence (Istanbul Convention). In May 2017 Georgia ratified the Council of Europe Convention on Preventing and Combating Violence against Women and Domestic Violence. Based on international commitments under the Istanbul Convention the states have planned measures to prevent and combat violence against women and girls. Georgian experience in the field may be useful for Armenia.

IV. Gender and social inclusion in the context of climate resilience of communities and ecosystems through wildfire risk reduction

¹¹² In the last five years, along with the legislative reforms, Programs aimed at strengthening the gender policy were carried out. Specifically, the 2011-2015 Strategic Program on Gender Policy and the 2011-2015 National Program on Fighting against Gender-Based Violence were of utmost significance for the RA Government. The Decree N197-L of the Government (February 28, 2019) adopted the 2019-2021 National Action Plan for the implementation of UN SC Resolution 1325 on Women, Peace and Security.

¹¹³ Men and Gender equality in Armenia. Report on sociological survey findings. UNFPA, Yerevan, 2016, p.14

¹¹⁴ In light of the creation of the Inter-Agency Commission on Gender Equality, Violence against Women and Domestic Violence in Georgia, the articles detailing the national machinery on gender equality should be revised to reflect any de facto changes in mandate, as well as to amplify the competence of the Gender Equality Council, which should be mandated to review and evaluate gender impact assessments on all proposed legislation

https://www.undp.org/content/dam/georgia/docs/publications/DG/UNDP_GE_DG_Gender_Equality_in_Georgia_VOL1_ENG.pdf

According to evidence based data¹¹⁵, women are more vulnerable to natural hazards than men. Their vulnerability is especially high in women-headed and one-member households. In Georgia and Armenia, women's vulnerability is conditioned by several factors: occupational segregation of women; poverty is more widely spread among women; although women's life expectancy exceeds men's, women have in general more health related problems than men; women are poorly represented at all levels and fields of consultations and decision-making. Social norms and patriarchy continue to place barriers to economic participation by women, causing both a misallocation and underutilization of women's human capital. Human capital comprises of labour power, health and nutrition status, skills and knowledge of an individual. On all these constituent parts, women fare poorer than men.

Environmental issues, climate change and DRR are often considered as a men's field, which in turn challenges engagement of women and limits them to access the field¹¹⁶. Thus, women are still at a considerable disadvantage in most spheres of public, political, and economic life, their potential is underappreciated and limited to family responsibility and at times they are not a part of the decision-making processes in Armenia and Georgia. Due to the women underrepresentation between landowners and entrepreneurs, women remain economically dependent on men, which limits their potential and presents a significant risk in the context of Climate Change.

Men are more risk tolerant than women, hence less prone to take self-protective actions. Men often label evacuation calls as panic and do not react. Besides, acting according to stereotypical gender roles men may decide not to evacuate to safeguard property. On the other hand, women are more ready to respond to risk, but lack of social power deters them to mobilize family to respond, they also may be slow to react according to instructions until securing family members.

Response to disasters: Effectiveness of response in a great deal depends on a well-planned emergency behaviour, preparedness and social cohesion of community. Therefore, outlined below features should be reflected in emergency planning. Timely evacuation is a challenging issue for small children, seniors and persons with disabilities, especially with problems of moving and of persons with poor health. People dependent on health services for survival (dialyses, cancer treatment) are faced with life threatening circumstances in disaster.¹¹⁷

Finally, based on countries' challenges analysis and international standards¹¹⁸, the following priorities in the context of project proposal can be mentioned: promotion of a clear understanding and tools to ensure gender equality and promote women's empowerment at local level; mainstream gender into policies related to forest eco-system management and wildfire risk/climate change; importance of women's economic empowerment (with new opportunities in the fields traditionally addressed to men – forest, new technology in agriculture etc.); capacity building on gender issues of national and local governance; contribution to gender disaggregated statistical data; using gender transformative approach to contribute of patriarchal stereotypes' elimination and others.¹¹⁹

V. Gender analysis and recommendations

Gender analysis. The analysis above shows that in order to set up effective national and community based early warning systems, climate-informed planning and improved resilience, gender consideration need to be integrated into the project implementation. The existing gender inequality factors (e.g. limited engagement of women in planning and decision making) and traditional distribution of gender roles in

¹¹⁵ General Recommendation No. 37 on Gender-related dimensions of disaster risk reduction in the context of climate change. CEDAW/C/GC/37

¹¹⁶ Women's Fund in Georgia, SITUATIONAL ANALYSIS AND RECOMMENDATIONS ON ENVIRONMENTAL JUSTICE AND WOMEN'S RIGHTS IN GEORGIA (2019) https://www.womenfundgeorgia.org/Files/WF-Final-Report_ENG.pdf?fbclid=IwAR1987oShEvUMehpOVKp4NhoNd75_0lliNvupq0ydiFESM3nFcWen7VGwxE

¹¹⁷ As important precondition should be mentioned Georgia and Armenia active involvement in "Women, Peace and Security" Agenda, which provides for the promotion of women in decision-making positions, but also in population security activities. Respectively, states can contribute to the resilience of the population through the active involvement of women in activities related to disaster risk reduction, post-disaster management and climate change mitigation and adaptation strategies, so they can be agents of change. For example, women's involvement at decision-making level, rescue teams, self-help groups, etc.

¹¹⁸ General Recommendation No. 37 on Gender-related dimensions of disaster risk reduction in the context of climate change. CEDAW/C/GC/37

¹¹⁹ The impact of the all above mentioned vulnerabilities is revealed at all phases of disaster management cycle, i.e. at prevention and protection, response, impact and coping. The purpose of the gender mainstreaming throughout various phases of disaster management is to empower women and see them as capable agents of change, who can manage crisis, deal with its aftermath, and take on leadership roles in the family and community. Women play important economic and community roles that help in reconstruction and resilience building.

families and communities call for tailoring and targeting of the project solutions to outreach beneficiaries of both genders equally. Based on the analysis of the gender aspects of vulnerability to climate-induced natural disasters a number of recommendations for the proposed project have been elaborated. These recommendations and the following Gender Action Plan are aimed at ensuring that the project:

- *narrows gender inequality; avoid any risks of adverse gender impacts;*
- *addresses the needs and constraints of women, girls, men, and boys;*
- *ensure equal opportunity to access resources;*
- *ensure women's participation, promotes their leadership capacities; and*
- *ensure women are included as planners, co-implementers and agents of change.*

The gender analysis undertaken at the onset and design of this project acts as an entry point for gender mainstreaming throughout implementation. In addition, two multi-stakeholder workshops were held in Tbilisi and Yerevan for policy makers, NGOs and academics with more than 30 attendees in total. Two large scale community level consultation events were also held at potential project sites (16-17 April, 2019, Armenia). Results from the consultations are detailed in the Stakeholder engagement section and in Gender Action Plan.

The gender analysis, through stakeholder engagement and consultation enabled:

- Engagement, development and input into the design of the “Increased climate resilience of South Caucasus mountain communities and ecosystems through wildfire risk reduction” Project and the approach moving forward;
- Demonstration of the need for gender-disaggregated data and indicators to establish a baseline in which to measure improvements and identify areas of focus; and
- Establishment of recommendations to incorporate into the Gender Action Plan.

Project design and implementation. Addressing gender dimensions within the project design and implementation, this proposal works to identify and integrate interventions to provide gender responsive and transformative results.

The project design and implementation will take into consideration the following gender implications:

- Specific strategies to include / target female-headed households;
- Differing conservation incentives faced by women;
- Identification of gaps in gender equality through the use of sex-disaggregated data enabling development of a gender action plan to close those gaps, devoting resources and expertise for implementing such strategies, monitoring the results of implementation, and holding individuals and institutions accountable for outcomes that promote gender equality.
- Advocacy and awareness is adjusted to most effectively reflect gender-specific differences/ issues. Strategies used in the project are then tailored, taking into account such differences;
- Inclusion of a Gender Specialist position / provision of advice within the project to implement gender related activities.

During project implementation, qualitative assessments will be conducted on the gender-specific benefits that can be directly associated to the project. This will be incorporated in the annual Project Implementation Report, Mid-Term Report, and Terminal Evaluation. Indicators to quantify the achievement of project objectives in relation to gender equality will include number of men and women who had access to affordable solutions, involved in decision making, employed from the jobs created by the project, training opportunities, knowledge management and information dissemination; gender-sensitive documents. At least 30% of participants in consultation or training activities will be women.

Stakeholder engagement. Consultations with policy makers, NGOs and academics took place on the in Erevan and Tbilisi. Two large scale community level consultation events were also held at potential project sites (16-17 April, 2019, Armenia). An additional annex to this proposal shows the full results from the stakeholder engagement, which details the specific issues and difficulties that women face in responding to the Climate Change/DRR and wildfire risk and how this is related to women's security. The involvement of women's organizations in the project design, aided in identifying relevant gender issues within the country's social context, and implementing and monitoring the gender aspects of the project.

Specific issues raised include:

- Support for training and educational activities which may include activities related to climate resilience and wildfire risk reduction, forest management, agriculture, leadership, business, finance, entrepreneurship and decision-making, thereby enabling empowerment and involvement (or increased involvement) of women to participate with confidence in community meetings
- Inclusion of a Gender Specialist position / provision of advice within the project to implement gender related activities

Monitoring and evaluation. Through onset analysis, data has been collated to establish a baseline. This data shall be monitored against throughout implementation and evaluation.

The analysis identified the differences between men and women within at-risk populations. In order to monitor and evaluate progress of the project, the following indicators can be measured:

Quantitative outcomes:

- Female-headed households as beneficiaries;
- Increased women's participation at decision making at local level;
- Improvements in health and well-being;
- Improved livelihoods;
- Business development services component targeting rural women entrepreneur groups.

Qualitative outcomes:

- Opportunities to generate additional income. Women are more likely to respond to incentives that address their family's basic needs, such as better health and nutrition, linking to climate resilience and wildfire risk reduction;
- Contribution to improved self-esteem and empowerment of women in the community;
- Expanded involvement in public and project decision-making as a result of initiation of women into active participation in income generating activities;
- Support for training and educational activities which may include activities related to climate resilience and wildfire risk reduction, forest management, agriculture, leadership, business, finance, entrepreneurship and decision-making, thereby enabling empowerment and involvement (or increased involvement) of women to participate with confidence in community meetings;
- Effectiveness of awareness raising.

VI. Proposed Gender Action Plan

This Gender Action plan provides suggested entry points for gender-responsive actions to be taken under each of the Activity areas of the project. In addition, specific indicators are also proposed to measure and track progress on these actions at the activity level. This can be incorporated into the detailed M&E plan which will be developed at the start of implementation, and provides concrete recommendations on how to ensure gender (including disaggregated data) continues to be collected and measured throughout implementation.

Project Outputs and activities	Gender mainstreaming actions	Indicator and Targets	Responsible Institutions	Timeline	Budget (\$US)
Component 1. Strengthening regulation, institutional frameworks and capacity					
Output 1.1. Policy and regulatory frameworks are strengthened and aligned					
Activity 1.1.1: Regional guidance on wildfire risk reduction and CC adaptation will be developed	<ul style="list-style-type: none"> - Gender analysis of guidance - Mainstreaming gender into guidance - Pre-test and adopt the guidance 	Guidance that includes gender considerations adopted and used (review by gender advisor) <i>Nr. of users (visited web-site and used guidance)</i>	Project Management Unit (PMU)	1 st Year	\$3,000
Activity 1.1.2: National Forest Management Plans, DRR documents and forest community development plans will be revised to incorporate resilience measures	<ul style="list-style-type: none"> - Gender analysis of Forest Management Plans, DRR documents and forest community development plans - Mainstreaming gender into documents - Pre-test and adopt the documents 	National Forest Management Plans, DRR documents and forest community development plans, that includes gender considerations, adopted and used (review by gender advisor) <i>Nr. of engendered documents, adopted</i> <i>Ratio of women in stakeholder consultations.</i> <i>At least 30% participants of consultations are women</i>	Project Management Unit (PMU)	1 st Year	\$7,000
Activity 1.1.3: Regulations to facilitate the functioning of voluntary community level response and rescue teams will be enabled	<ul style="list-style-type: none"> - Gender analysis of Regulations - Mainstreaming gender into Regulations - Pre-test and adopt the regulations 	Regulations to facilitate the functioning of voluntary community level response and rescue teams, that includes gender considerations, adopted and used (review by gender advisor) <i>Nr. of engendered documents, adopted</i>	Project Management Unit (PMU)	1 st Year	\$7,000
	A series of training workshops on gender mainstreaming for DRR practitioners and policy makers (based on the UNDP training manual on gender mainstreaming in disaster preparedness and response)	Gender considerations are reflected in policy documents and technical guidance (review by gender advisor) Decision makers and practitioners are trained on gender mainstreaming in DRR based on UNDP	Project Management Unit (PMU)	2, 3, 4 Years	

Project Outputs and activities	Gender mainstreaming actions	Indicator and Targets	Responsible Institutions	Timeline	Budget (\$US)
	Review of the new policies and guidance documents by the gender advisor to identify gender gaps and mainstreaming opportunities	training manual (number of women and men disaggregated) Number of women in planning teams and consultation groups (at least 30%)			
Output 1.2. Institutional cooperation improved at regional, national and local levels					
Activity 1.2.1: Support to existing national interagency bodies, such as the Inter-Governmental Task Force on DRR	<ul style="list-style-type: none"> - Encourage the national interagency bodies to delegate women as representatives to Inter-Governmental Task Force on DRR and other structures - Support women's NGOs participation - Support the interlinkage between Inter-Governmental Task Force on DRR and other structures and National Machinery on GE 	<p>The Inter-Governmental Task Force on DRR, included men and women (at least 30% women) and adopted gender sensitive decisions/ measures</p> <p>The representative of National Machinery on GE involved in</p> <p>Inter-Governmental Task Force on DRR and other structures sessions</p> <p><i>Nr. of women and men involved in the structures</i></p> <p><i>Nr. of gender sensitive decisions adopted</i></p>	Project Management Unit (PMU)	During project implementation	0
Activity 1.2.2: The project will work with responsible agencies and DRR Platforms to provide recommendations for improvement, together with an assessment of resource allocation implications	<ul style="list-style-type: none"> - Support the agencies to use the gender responsive budgeting methodology (<u>6 workshops on GRB with relevant persons</u>) 	<p>The responsible agencies and DRR Platforms trained on GRB and</p> <p>assessed of resource allocation implications using gender responsive budgeting methodology</p> <p><i>Nr. of trained persons (women and men)</i></p> <p><i>Nr. of gender sensitive decisions adopted</i></p>	Project Management Unit (PMU)	1 st Year	\$9,000
Output 1.3. Capacity for wildfire response increased at national and regional level					
Activity 1.3.1: Undertake a review of capacity development needs for key institutions involved in wildfire management and response at regional, national and local levels.	<ul style="list-style-type: none"> - Include the gender indicators in the review of capacity development 	<p>A review of capacity development needs for key institutions involved in wildfire management and response at regional, national and local levels includes gender considerations.</p>	Project Management Unit (PMU)	1 st Year	\$6,000

Project Outputs and activities	Gender mainstreaming actions	Indicator and Targets	Responsible Institutions	Timeline	Budget (\$US)
Activity 1.3.2: Training for policy officials in key institutions (emergency services, forest management, local government) on emergency issues	<ul style="list-style-type: none"> - Include sessions on GE in training curriculum/agenda - Elaborate of training materials 	Policy officials in key institutions (emergency services, forest management, local government) trained on gender issues and use the knowledge <i>Nr. of trained persons (women and men)</i> <i>Nr. of gender sensitive decisions adopted</i>	Project Management Unit (PMU)	1 st and 2 nd Years	\$8,000
Component 2. Improving climate and wildfire risk assessment and decision making at the regional level					
Output 2.1. Strengthen wildfire risk monitoring and forecasting					
Activity 2.1.1: Support harmonization and improvement the management of climate and wildfire risk data	<ul style="list-style-type: none"> - Include <u>6 sessions on sex/gender disaggregated data</u> in general training agenda on monitoring - Elaborate of training materials 	Specialists in key institutions (emergency services, forest management, local government) trained on monitoring with sex/gender disaggregated data and use the knowledge <i>Nr. of trained persons (women and men) / Ratio of women's participation</i> <i>Nr. of sex/gender disaggregated data used in monitoring system</i>	Project Management Unit (PMU)	1 st and 2 nd Years	\$11,000
Activity 2.1.2: Support understanding interlinkages between wildfire risk, socio-economic development and gender issues	<ul style="list-style-type: none"> - Include <u>6 sessions on sex/gender disaggregated data</u> in general training agenda on monitoring - Elaborate of training materials 	Decision makers trained to communicate risk information based on gender evidence data to relevant stakeholders and allocate resources appropriately <i>Nr. of trained persons (women and men)</i> <i>Nr. of sex/gender disaggregated data used in monitoring system</i>	Project Management Unit (PMU)	2 nd Year	\$11,000
Output 2.2. Improve effectiveness of early warning system communications					
Activity 2.2.1: Support to incorporate gender issues into EWS communications	<ul style="list-style-type: none"> - Include 6 sessions on gender sensitive communication in EWS training agenda - Elaborate of training materials 	Key institutional stakeholders (local emergency response teams, forest managers) trained on gender sensitive communication and used the knowledge and materials <i>Nr. of trained persons (women and men) / Ratio of women</i>	Project Management Unit (PMU)	2 nd and 3 Years	\$8,000

Project Outputs and activities	Gender mainstreaming actions	Indicator and Targets	Responsible Institutions	Timeline	Budget (\$US)
		<i>Nr. of gender sensitive materials published and disseminated</i>			
Activity 2.2.2: Support elaboration and implementation of Communication Strategy	- Incorporate gender perspective into all materials and activities under Communication Strategy	<i>Nr of participants in the activities (gender disaggregated)</i> <i>Ratio of gender sensitive materials published and disseminated</i> Best practices in the field gender sensitive	Project Management Unit (PMU)	1 st Year	\$361,000
Output 2.3. Create harmonised protocols for data collection, storage and reporting					
Activity 2.3.1: Support the standardization and integration of key data sets with a view to improving the quality of wildfire risk assessment, forecasting and reporting	- Mapping of relevant data sources in key ministries and other agencies through gender lenses - Harmonize classification and reporting frameworks for wildfires and other climate induced hazards (e.g. threat level, impacts, economic costs), taking into consideration gender issues - Identify key relevant gender sensitive data	Report of mapping of relevant data sources in key ministries and other agencies through gender lenses (reviewed by gender advisor) Key relevant gender sensitive data elaborated and used	Project Management Unit (PMU)	2 nd and 3 Years	\$4,000
Output 2.4. Encourage private and third sector innovation through the CCTA					
Activity 2.4.1: Support the development and scaling of innovative approaches to wildfire risk reduction and response through the Climate Change Technology Accelerator (CCTA).	- Encourage private companies, universities and research institutions to involve women in the innovation through the CCTA - Include 6 sessions on GE in relation with DRR/ wildfire risk reduction and CC adaptation training agenda - Elaborate of informative materials with best practices of women participation	Private companies, universities and research institutions involved women in the innovation through the CCTA <i>Nr. of trained persons (women and men)</i> <i>Ratio of women and men involved in the actions</i>	Project Management Unit (PMU)	2 nd and 3 Years	\$9,000
Component 3. Reducing wildfire risk and promoting forest eco-system adaptation at the local level					

Project Outputs and activities	Gender mainstreaming actions	Indicator and Targets	Responsible Institutions	Timeline	Budget (\$US)
Output 3.1. Prioritise wildfire risk reduction activities at the local level					
Activity 3.1.1: Support in-depth participatory consultation to develop a detailed profile of wildfire risk and wider climate vulnerability	<ul style="list-style-type: none"> - Encourage women's involvement in consultation process - Contribute to incorporate the gender issues into profile of wildfire risk and wider climate vulnerability (based on gender transformative approach) 	Ratio of women and men involved in consultation process (At least 30% participants of consultations are women) Profile of wildfire risk and wider climate vulnerability incorporated gender aspects	Project Management Unit (PMU)	2 nd Year	\$3,000
Output 3.2. Improving wildfire preparedness and response capacity					
Activity 3.2.1: Support and co-finance the implementation of a number of best practice measures to enhance fire risk reduction and preparedness	<ul style="list-style-type: none"> - Identify and encourage women participation in rescue teams, self-support groups - Organise 10 informative sessions 	<i>Nr. of best practices with women's participation supported by the project</i> <i>(At least 30% participants are women)</i>	Project Management Unit (PMU)	2 nd and 3 Years	\$509,000
Output 3.3. Promoting resilience in forest eco-systems and communities					
Activity 3.3.1: Support selected communities to identify and prioritise economic resilience activities	<ul style="list-style-type: none"> - Encourage women's participation as farmers in forest eco-systems initiatives. 	<i>Ratio of women participants as farmers in forest eco-systems initiatives.</i> <i>At least 30% of participants are women</i>	Project Management Unit (PMU)	Year 2,3 and 4	\$9,000
	To train women how to address the project proposal, project management (6 sessions). To encourage participation of women NGOs in social projects (as leaders) at local level.	<i>Nr. of women NGOs involved in social projects (as leaders)</i> <i>Projects implemented by women at local level.</i> (at least 30% of beneficiaries are women)			Financial support of economic resilience activities - \$500,000
	To encourage women's participation in community-based trainings on Income generation opportunities/ new businesses; how to	Ratio of women and men participation in community-based	Project Management Unit (PMU)	Year 2,3 and 4	

Project Outputs and activities	Gender mainstreaming actions	Indicator and Targets	Responsible Institutions	Timeline	Budget (\$US)
	access the funds	trainings on Income generation opportunities in forest ecosystem etc. (at least 30% of beneficiaries are women) Ratio of women and men accessed the funds (at least 30% of beneficiaries are women)			
	Ensure that women and vulnerable group members (elderly, bread-maker women, people living under poverty line, ethnic minorities, IDPs, etc.) can equally benefit from livelihoods and employment opportunities facilitated by the project. e.g. engage women in local employment guarantee schemes, including women representing disadvantaged groups (elderly, bread-makers, ethnic minorities, IDPs, etc.)	Ratio of women and men beneficiaries (at least 30% of beneficiaries are women)	Project Management Unit (PMU)	Year 2,3 and 4	
Output 3.4. Enhanced knowledge and learning on managing wildfire risk					
Activity 3.4.1: Support local stakeholders to build capacity and awareness around key forest fire management issues, as well as on broader climate resilient livelihoods and forest adaptation	- 6 Seminars for key stakeholders (agriculturalists, forest managers, emergency services, local authorities) to promote awareness of best practices taking into consideration gender issues	Gender considerations are reflected in policy documents and local initiatives <i>Nr. of engendered documents</i> <i>Ratio of women and men involved in the seminars (at least 30% of beneficiaries are women)</i>	Project Management Unit (PMU)	Year 2,3 and 4	\$9,000
Total					1,474,000
Effective project management					
Staffing	Ensure that staff of the project composed of at least 30% of women	30% percent of women in the staff	Project Management Unit (PMU)	Year 1-7	

Project Outputs and activities	Gender mainstreaming actions	Indicator and Targets	Responsible Institutions	Timeline	Budget (\$US)
Capacity building and training	Training of staff members of the project on gender mainstreaming and social vulnerability approach	Staff members completed training in gender mainstreaming and social vulnerability approach	Project Management Unit (PMU)	Year 1	
Stakeholder consultations and participatory decision making	Make sure that women are adequately represented in the project TAWGs. Secure participation of the project Gender Advisor in all TAWGs.	Gender Advisor is a member of all TAWGs. Gender mainstreamed in the TAWGs discussions. Balanced representation of women and men in TAWGs.	Project Management Unit (PMU)	Years 1-7	
Monitoring and Evaluation	Make sure that gender statistics are included in all reports	At least 30% of beneficiaries – women	Project Management Unit (PMU)	Years 1-7	

Annex 12. Acronyms

AF	Adaptation Fund
BCR	Benefit Cost Ratio
CO	Country Office
DRR	Disaster risk reduction
ESP	Environmental and Social Principles
EU	European Union
FAO	Food and Agriculture Organisation
GCF	Green Climate Fund
GDP	Gross Domestic Product
GEF	Global Environment Facility
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH
Ha	Hectare
IRR	Internal Rate of Return
M&E	Monitoring and Evaluation
MTE	Mid-term evaluation
NAP	National Adaptation Plan
NDC	Nationally Determined Contribution
NPD	National Project Director
PA	Project Assistant
PAC	Project Appraisal Committee
PB	Project Board
PM	Project Manager
POPP	Programme and Operational Policies and Procedures
PPR	Project Performance Reports
PSC	Project Steering Committee
SES	Social and Environmental Standards
SNCO	State Non-commercial Organisation
UNDP	United Nations Development Programme
UNFCCC	United Nations Framework Convention on Climate Change
VCA	Vulnerability and Capacity Assessment



*Empowered lives.
Resilient nations.*

5 August 2019

To: Mr. Mikko Ollikainen,
Manager, Adaptation Fund Board Secretariat

Subject: Implementation modality for regional project “Increased climate resilience of South Caucasus mountain communities and ecosystems through wildfire risk reduction”, Republic of Armenia, Georgia (UNDP 6247)

Reference is made to the regional project proposal submitted by UNDP for the consideration of the Adaptation Fund Board **“Increased climate resilience of South Caucasus mountain communities and ecosystems through wildfire risk reduction”**.

We would like to reconfirm that this regional project will be implemented by UNDP through the Direct Implementation Modality. The UNDP Direct Implementation Modality is a regular practice applied for UNDP regional projects and programmes where more than one beneficiary country is engaged and where a strong regional coordination effort and leadership is required. A regional project coordination mechanism will be engaged (Regional Project Board) in addition to the national coordination bodies (Steering Committees) in two beneficiary countries. There is a full understanding among the beneficiary governments of Armenia and Georgia regarding the proposed UNDP implementation modality. The corresponding letters of support from the countries are provided.

The project execution and oversight will involve UNDP Country Offices in two beneficiary countries and the UNDP Istanbul Regional Hub. The regional project proposal provides a detailed estimation and description of the project execution and management costs at the level of 6% of the total project budget. We would like to reconfirm that the estimated Project Management Costs cover the costs attributed solely to this project management. The proposed project management resources are important to secure effective execution of this regional project, knowledge management, and delivery of regional and national adaptation benefits sought from the Adaptation Fund project.

In view of the regional context of the project proposal and the need to ensure effective and efficient coordination and delivery of regional and country-based activities, we believe that the proposed execution arrangements and costs are fully justified. With the support expressed by

the beneficiary countries to these arrangements, we seek for the endorsement of the Adaptation Fund of the proposed project.

Sincerely,

A handwritten signature in black ink, appearing to be 'Pradeep Kurukulasuriya', written in a cursive style.

Pradeep Kurukulasuriya
Executive Coordinator & Director- Global Environmental Finance
& Head, Natural Capital and the Environment
Bureau for Policy and Programme Support (BPPS)/
Global Policy Network
United Nations Development Programme



REPUBLIC OF ARMENIA
MINISTER OF ENVIRONMENT

Nº 1/08.2/11900

« 30 » « 07 » 2019

To: The Adaptation Fund Board
c/o Adaptation Fund Board Secretariat
Email: Secretariat@Adaptation-Fund.org
Fax: 202 522 3240/5

Subject: Implementation modality for the regional project “Increased climate resilience of South Caucasus mountain communities and ecosystems through wildfire risk reduction”

In my capacity as Designated Authority for the Adaptation Fund, I support proposed UNDP Direct Implementation Modality (DIM) for titled regional project and agree with the proposed assessment and distribution of the execution costs.

Given the regional context of the project and the need to coordinate regional and country-based activities, I consider the proposed execution costs fully justified and seek for the support of the Adaptation Fund on this matter.

Sincerely,

Erik Grigoryan
Minister of Environment of the Republic of Armenia

ICD: K.Khachatryan
011818508



REPUBLIC OF ARMENIA
MINISTRY OF
ENVIRONMENT

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Increased Climate Resilience of South Caucasus Mountain Communities and Ecosystems Through Wildfire Risk Reduction

Environmental and Social Impact Assessment and Management Framework

23 07 2019

CONTENTS

Contents	2
Contents	Error! Bookmark not defined.
1 Introduction	5
2 Project description	6
2.1 Background	6
2.2 Description of the Project	6
3 Regulatory Framework for Environmental and Social Screening, Assessment and Management ..	10
3.1 Host Country ESIA Regulations and Permitting Requirements	10
3.1.1 Republic of Armenia	10
3.1.2 Georgia	10
3.1.3 Multilateral Agreements and Biodiversity Protocols	11
3.2 Adaptation Fund	12
3.3 UNDP Social and Environmental Standards and Screening Procedure	13
3.3.1 UNDP Social and Environmental Standards	13
3.3.2 UNDP Social and Environmental Screening Procedure, Assessment and Management ..	14
4 Description of Existing Environment	15
4.1 Regional Setting	15
4.2 Forest Zones	16
4.3 Nature Reserves and Protected Areas	18
4.4 Population	18
4.5 Ethnic Minorities and Internally Displaced Peoples	19
5 Environmental and Social Screening and Risk Assessment	21
5.1 Assumptions Underpinning the Development of the Environmental and Social Assessment ...	21
5.2 Environmental and Social Screening and Assessment	21
6 Screening, Assessment and Management	30
6.1 Objectives and Requirement of the ESMF	30
6.2 Exclusions List	31
6.3 Screening	31
6.4 Assessment and Management of Environmental and Social Risks and Impacts	31
6.5 Management of General Project Activities	31
6.6 Site Specific ESMPs	32
7 IMPLEMENTATION AND OPERATION	34
7.1 General Project Management Structure and Responsibilities	34
7.2 Project Boards	34

7.3	Project Management Unit and Project Manager	35
7.3.1	Project Manager and Administrative Assistance.....	35
7.3.2	Safeguard Officer	36
7.4	Project Assurance	36
7.5	Administration of Environmental and Social Management Framework	37
7.5.1	Oversight	37
7.5.2	Environmental incident reporting.....	37
7.5.3	Daily and weekly environmental inspection checklists.....	37
7.5.4	Corrective Actions	37
7.5.5	Review and auditing	38
7.5.6	Training	38
8	STAKEHOLDER ENGAGEMENT	39
8.1	Stakeholder Engagement During Proposal Preparation.....	39
8.2	Stakeholder Engagement Programme.....	41
8.2.1	Public Awareness and Sensitization	41
8.2.2	Disclosure and Decisions Making	42
9	GRIEVANCE REDRESS MECHANISM	43
9.1	Complaints Register.....	44
9.2	UNDP Grievance Redress Mechanism.....	44
	ANNEX 1. UNDP Social and Environmental Screening Report	Error! Bookmark not defined.
	ANNEX 2. Guidance for Submitting a Request to the Social and Environmental Compliance Unit and/or the Stakeholder Response Mechanism	47
	ANNEX 3: Standard General Environmental Contract Clauses	50

Tables

Table 1	Project Component, Expected Outcomes, and Activities & Expected Outputs	6
Table 2:	List of international and regional agreements and conventions	11
Table 2:	UNDP Environmental and Social Safeguards Principles and Standards, and Indicative Issues .	13
Table 4:	Potential Environmental and Social Impacts and Risks organized according to the Adaptation Fund's Environmental and Social Principles, along with corresponding Mitigation and Management Measures.....	23
Table 5:	Institutions and groups consulted during project preparation	39
Table 6:	List of community consultations conducted during the project development and validation	40
Table 7:	Stakeholders in Local Community Meetings in Armenia	40

Figures

Figure 1: Proposed Project Areas in Armenia and Georgia.....	Error! Bookmark not defined.
Figure 2: Caucasus Ecoregion Topography (source: http://www.grida.no/resources/7902)	16
Figure 3: Forest Cover in Caucasus Ecoregion (source: http://www.grida.no/resources/7908).....	17
Figure 4 Protected Areas in Caucasus Ecoregion	18
Figure 5 Autonomous and Disputed Areas of Georgia	20
Figure 6: ESMF Procedure Flowchart and Key Responsibilities	30
Figure 7 Project Organisation Chart	34

1 INTRODUCTION

This Environmental and Social Management Framework (“ESMF”) has been prepared in support of a funding proposal to the Adaptation Fund (“AF”) for the Increased Climate Resilience of South Caucasus Mountain Communities and Ecosystems Through Wildfire Risk Reduction Project (the “project”). The project implementation entity will be the United Nations Development Program (“UNDP”) which is an AF accredited multilateral implementing entity.

The project has been screened for environmental and social (“E&S”) risks using the UNDP’s Social and Environmental Standards Procedure¹ (“SESP”) and with consideration for the AF’s Environmental and Social Principles² (“ESP”). The screening, also presented herein, deemed the project to be moderate risk, which is equivalent to a World Bank/International Finance Corporation Category B project).

The project will consist of activities and downstream implementation of programmes for which site-specific details will not be fully known until later in the project cycle. For this reason, this ESMF has been prepared to provide a mechanism for the social and environmental screening, impact assessment and impact management of downstream activities.

For the project components that have been defined with a reasonable degree of certainty, this ESMF includes as annexes initial management plans (or outlines thereof) for addressing likely social and environmental impacts and to address the requirements of applicable policies and standards, including the UNDP SES.

¹ “Social and Environmental Screening Procedure” March 2016. United Nations Development Programme.

² “Environmental and Social Policy (Approved in November 2031, Revised in March 2016)” 18 March 2016. Adaptation Fund Board.

2 PROJECT DESCRIPTION

2.1 BACKGROUND

The proposed project activities will be undertaken in two countries of the Caucasus region – specifically Armenia and Georgia. The project seeks to increase the resilience of mountain communities and forest ecosystems in the Caucasus to climate-induced hazards with a specific focus on the increasing risk of forest wildfires. By doing so, the project aims to reduce bio-diversity losses and other environmental impacts, improve the safety and livelihoods of forest-dependent communities, reduce the costs associated with large scale wildfire response including loss-of-life and other damages, and maximise ancillary benefits associated with sustainable forest management including the role of forests as carbon sinks.

2.2 DESCRIPTION OF THE PROJECT

The project will focus on addressing the increasing wildfire risk in mountain eco-systems associated with rising temperatures and declining precipitation and humidity. It will do so by focusing on forest areas in the Central and Eastern parts of the South Caucasus where these climate signals and associated risk are already strong, and where the greatest changes are predicted to occur in the future. By addressing this risk, the project will improve the resilience of mountain forest communities and address the wider challenges of climate change impacts on their livelihoods.

The specific results the project is designed to achieve are:

- a) Strengthened regulatory and institutional capacity to identify, plan for and respond to climate-induced wildfire risk at both regional and national level.
- b) More effective data management and decision making around forest wildfire risk reduction and response, and enhanced use of climate information.
- c) Increased community and ecosystem resilience to wildfire risk and broader climate change impacts at the local level in mountain forest areas.

The project is comprised of three components, each with several target outcomes, activities and outputs. The components outcomes and general and activities are listed in Table 1. The relative budget allocation and level of effort by component is: Component 1 - 24%, Component 2 – 15%; and, Component 3 – 60%.

Table 1 Project Component, Expected Outcomes, and Activities & Expected Outputs		
Project Component	Expected Outcome	Activities and Expected Outputs
1. Strengthening policy, regulatory and institutional frameworks	1.1 Strengthened regulatory and institutional capacity to identify, plan for and respond to climate-induced wildfire risk at both regional and national level.	<p>1.1.1 <i>Policy and regulatory frameworks are enhanced and aligned:</i> Regional assessment and enhancement of wildfire-related regulatory and policy frameworks and their enforcement in place, with targeted interventions to mainstream understanding of climate change in wildfire risk management systems, create harmonised regional wildfire standards and protocols, and facilitate improved response at the local level (e.g. through volunteering regulations).</p> <p>1.1.2. <i>Institutional cooperation strengthened at regional, national and local levels:</i> Assessment and enhancement of institutional roles, responsibilities undertaken at regional, national and local level, with recommendations made for clarifying operational roles and resources, and support provided for improved coordination at all levels.</p> <p>1.1.3. <i>Capacity for wildfire response enhanced at national and regional level:</i> A system for regular training on wildfire risk reduction and response in place involving all relevant agencies at regional and national level, including undertaking regular multi-stakeholder extended drills.</p>

		1.1.4. <i>Technical capabilities for wildfire response improved:</i> Firefighting response capacities of forest and protected area staff, regional emergency units and relevant community voluntary firefighting groups are strengthened at the local level through provision of equipment.
2. Improving the use of climate and wildfire risk information by decision makers	2.1. More effective data management and decision making around forest wildfire risk reduction and response, and enhanced use of climate information	<p>2.1.1. <i>Strengthened wildfire risk monitoring and forecasting system:</i> Common modelling tools and data analysis approaches for vulnerability assessment, wildfire risk monitoring and forecasting developed and implemented at regional level to improve decision making and resource allocation.</p> <p>2.1.2. <i>Effective early warning system communications in place:</i> Existing climate information and wildfire-related Early Warning System (EWS) products improved and further tailored to sectoral and end user needs.</p> <p>2.1.3. <i>Harmonized protocols for data collection, storage and reporting:</i> Set of common SOPs on information collection, storage and dissemination, as well as internal reporting standards on climate induced hazards developed for at regional scale and implemented in both countries.</p> <p>2.1.4. <i>Private and third sector innovation supported through the CCTA:</i> Climate Change Technology Accelerator funds universities and private developers to innovate and operationalise new wildfire monitoring and forecasting technologies, and trial data analysis techniques.</p>
3. Reducing wildfire risk and promoting forest eco-system adaptation at the local level	3.1 Increased community and ecosystem resilience to wildfire risk and broader climate change impacts	<p>3.1.1. <i>Wildfire risk reduction activities prioritised at the local level:</i> In-depth community vulnerability profiling and participatory scoping undertaken to prioritise investments in local adaptation measures for wildfire risk reduction and response and community level activities promoting resilient sustainable forestry.</p> <p>3.1.2. <i>Integrated forest fire risk management measures implemented:</i> Integrated eco-system and forest fire management measures implemented, reducing wildfire risk and improving response at the local level (measures identified in 3.1.1).</p> <p>3.1.3. <i>Community forest eco-system enterprises supported:</i> Increased community involvement in eco-system-based adaptation (EbA), sustainable forest management, increases resilience and reduces wildfire risk (measures identified in 3.1.1).</p> <p>3.1.4. <i>Public awareness campaigns organised:</i> Public awareness campaigns implemented to change behaviours among forest users and farmers most likely to be the cause of wildfires in climate vulnerable areas.</p>

The project, specifically component 3, includes activities and downstream implementation of programmes for which site-specific details will not be fully known until later in the project cycle. On the basis of risk and vulnerability assessment completed as part of implementation, the project will support and co-finance the implementation of a number of best practice measures (“pilot projects”) to enhance fire risk reduction and preparedness in the priority regions. These measures may include:

- a. *Fire breaks and access routes:* The project will provide funds to creating mineralized roads and firebreaks to minimize wildfire spread and promote access for both forest management teams and emergency response;
- b. *Water storage facilities:* The project will rehabilitate existing ponds and tanks and establishing water storage facilities for fire suppression and control purposes (e.g. through creating natural dams in streams);

- c. *Improved monitoring approaches*: The project will deploy innovative fire monitoring technologies to identify fire and issue alarms to relevant response services, including those piloted through CCTA (Component 2.4);
- d. *Forest thinning*: The project will support the introduction of improved forest management techniques to reduce the intensity and reduce the fire carrying capacity of selected forest areas;
- e. *Fuel removal*: The project will review local regulations for firewood removal and pilot community level incentives to promote the sustainable collection and removal of wood fuel to ensure that fire risk is reduced;
- f. *Pest control*: The project will support research and analysis of (climate related) forest pests and diseases that are creating a surplus of dead wood and combustible material in forests in order to reduce fire risk and promote better forest health and support treatment or mitigation activities;
- g. *Forest rehabilitation/reforestation*: The project will reviewing the impact of climate change on the type of species and growth patterns and engage in *reforestation* where existing degradation has occurred (including wildfire impacts), using native species suitable to emerging climatic conditions.

The project has identified a number of locations for possible pilot projects based on 1. high level risk analysis and 2. discussions with national and local stakeholders. The selection of forest areas is based on the following criteria:

- h. *Climate risk*: (i.e. prioritizing those forest regions where current and projected climate signals are strongest (heat, precipitation, number of drought days);
- i. *Fire risk*: Higher prevalence of existing fire risk (whether due to natural or anthropogenic factors);
- j. *Forest type*: Targeting drier rather than temperate or humid (sub-tropical) forests;
- k. *Cooperation opportunities*: Aligning with other existing or historic forest investments and donor programmes (e.g. inventories, capacity building)
- l. *Economic value*: Having potential to support socio-economic resilience by addressing areas with active forest and agricultural communities;
- m. *Transboundary cooperation*: Maximising opportunities to promote transboundary cooperation (i.e. forest areas close to the border between Armenia and Georgia.

This multi-criteria analysis has informed the selection of a shortlist of six forest areas across the two countries where the project activities will be targeted. The regions have been discussed and agreed with the respective government agencies involved as fulfilling the above criteria. The selected regions, shown on Figure 1, are as follows:

Armenia

- i. North Western Armenia (Lori forest enterprises)
- ii. Central/West Armenia (Kotayk/Aragatsotn forest enterprises)
- iii. Southern Armenia (Vayots Dzor/Syunik forest enterprises)

Georgia

- iv. Samtskhe Janakheti region
- v. Kakheti region

vi. Kakheti region

These project territories are located to the Central and Eastern areas of the South Caucasus, where the climate signals (temperature increase, drying and aridification) are greatest, and are areas where there is already significant history of wildfire risk.

Figure 1: Proposed project territories in Armenia and Georgia



3 REGULATORY FRAMEWORK FOR ENVIRONMENTAL AND SOCIAL SCREENING, ASSESSMENT AND MANAGEMENT

The project will need to address host country laws and regulations, the Environmental and Social Policy of the Adaptation Fund, and the social and environmental policies of the UNDP. The following subsections provide a high-level overview of the environmental and social impact assessment regulations of the two host countries and the environmental and social requirements of the AF and UNDP.

3.1 HOST COUNTRY ESIA REGULATIONS AND PERMITTING REQUIREMENTS

The modern Republic of Armenia (or, “Armenia”) and Georgia became independent in 1991 during the dissolution of the Soviet Union. Both countries are parliamentary republics with the government elected through a representative democracy. In the past, environmental permitting in Armenia and Georgia was predominately based on the requirements of the Soviet Union legislation. Currently both countries are working towards the adoption of EU-based legislation and have adopted laws and regulations governing environmental protection, biodiversity, labour, health and safety, and cultural property, among other things.

A summary of the environmental impact assessment rules and regulations for each country are provided in the following subsections.

3.1.1 Republic of Armenia

In Armenia the 2014 Law on Environmental Impact Assessment (EIA) and Expert Examination (“Armenia EIA Law”) defines the implementation procedures for environmental impact assessments. The procedures are administered by the Ministry of Nature Protection, which is the lead agency for EIA in Armenia. The types of activities to be assessed and subject to environmental impact assessment are classified into three categories, namely A (high risk), B (moderate risk), and C (low risk).

Article 14, paragraph 8, Chapter 3 of the Armenia EIA Law specifies that the pilot activities being considered for implementation in forest areas, including in protected area are classified as “B” or “C” category activities. For example, according to Article 14, paragraph 6, subparagraph 4 (a) of Chapter 3, reforestation and afforestation activities are subject to the “C” category procedure (simplified procedure).

In addition to EIA approval other permits may also be required depending on the mechanisms of implementation of planned activities. For example, air emission permit may be required for the construction of fire-prevention barricades and access roads, depending on the volume of earthworks and the type of equipment used. The process is regulated by RA Government’s Resolution N-1673 N setting emission limit values of air pollutants in RA. According to the Resolution, air emission estimate should be submitted to the competent body, to be approved or denied within a 30 days’ period. The planned activities should also comply with the requirements of the RA Land Code (HO-185, 02.05.2001).

Regarding small-scale firefighting water reservoirs: Article 22, paragraphs 1 and 5 of Chapter 4 of the Water Code (HO-373, 04.06.2002) indicates that this type of water use is considered to be “free water use”, requiring no permit. This type of water use (water use for fire and irrigation purposes) is regulated by a contract to be signed with a local Water Users Association.

Should reforestation and afforestation be undertaken on community-owned agricultural land the designated land-use may need to be changes. The procedures of changing land categories and designated uses are regulated by the Land Code (HO-185, 02.05.2001).

During implementation UNDP will consult with regulatory authorities at the local and national levels to determine the specific permits that will be needed for each site-specific pilot and the steps to be followed to apply for and secure each permit.

3.1.2 Georgia

The Environmental Assessment Code of Georgia (EAC) of 2017 stipulates that an EIA is required for public or private projects that are likely to have significant effects on the environment. An EIA is mandatory for projects listed in Annex I of the EAC which are considered as large-scale projects having potential for significant effects on the environment. Example projects listed in Annex I include long-distance railway lines, international and interstate roads, large hydropower stations, and large thermal power plants.

Annex II of the EAC lists projects that are required to undergo screening to determine if an EIA is needed. The determination of need for an EIA may be determined according to the thresholds or criteria (e.g., size, scale), site-specific information (e.g., presence of sensitive ecological areas), and potential impacts. Annex II projects are similar to Annex I but smaller in size.

None of the proposed project activities, including the candidate site-specific pilot activities, are listed in Annex I or II and hence it is unclear if the EIA regulation will apply to the project activities. During implementation UNDP will consult with regulatory authorities at the local and national levels to determine the specific permits that will be needed for each site-specific pilot and the steps to be followed to apply for and secure each permit.

3.1.3 Multilateral Agreements and Biodiversity Protocols

The Governments of Georgia and the Republic of Armenia are signatories to international and regional agreements and conventions which have commitments on biodiversity, climate, cultural heritage, public involvement, human rights, and labour (Table 2).

Table 2: List of international and regional agreements and conventions	
Natural environment	
1994	Rio Convention on Biological Diversity, 1992
1994	Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), 1973
1997	Ramsar Convention on Wetlands of International Importance Especially as Wildfowl Habitat, 1971
2000	Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention) (CMS), 1983
2008	Convention on the Conservation of European Wildlife and Natural Habitats (Bern)
2010	European Landscape Convention
Climate	
1994	UN Framework Convention on Climate Change (UNFCCC), 1994
1996	Montreal Protocol on Substances that Deplete the Ozone Layer, 1987 (and its London, Copenhagen, Montreal and Beijing Amendments) 2000. 2011
1996	Vienna Convention for the Protection of the Ozone Layer, 1985
1999	Kyoto Protocol to UNFCCC, 1997
1999	International Convention to Combat Desertification, 1994
1999	Geneva Convention on Long-Range Transboundary Air Pollution
Cultural heritage	
Notification for succession	Paris Convention Concerning the Protection of the World Cultural and Natural Heritage, 1992
2011	Council of Europe Framework Convention on the Value of Cultural Heritage for Society, 2005
1997	European Cultural Convention, 1954
2000	Convention for the Protection of the Architectural Heritage of Europe, 1985
2000	European Convention on the Protection of the Archaeological Heritage, 1982
Public participation and information accessibility	
2000	Aarhus Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters, 1998
Human Rights	
1991	Universal Declaration of Human Rights
1994	International Covenant on Civil and Political Rights
1994	International Covenant on Economic, Social and Cultural Rights
1997	European Cultural Convention
1999	European Convention for the Protection of Human Rights and Fundamental Freedoms
1999	International Convention on the Elimination of All Forms of Racial Discrimination
1999	Convention for The Protection of Human Rights and Fundamental Freedoms
2004	European Charter of Local Self-Government
2005	Framework Convention for the Protection of National Minorities
2006	European Outline Convention on Trans-frontier Co-operation between Territorial Communities or Authorities
Labour issues	
1993	International Convention Concerning discrimination in respect of Employment and Occupation
1993	Employment Policy Convention
1996	Geneva Convention concerning Minimum Age for Admission to Employment
1996	Equal Remuneration Convention
1996	Abolition of Forced Labour Convention
1997	ILO Social Policy (Basic Aims and Standards) Convention

1997	Forced Labour Convention
1997	Freedom of Association and Protection of the Right to Organise Convention
1997	Social Policy (Basic Aims and Standards) Convention
1999	Employment Service Convention
2003	Labour Relations (Public Service) Convention

In addition to conventions listed above, the following EU directives are relevant:

1. Habitats Directive [Directive 92/43/EEC (ref. Art. 6 of the Directive)];
2. Bird Directive [Directive 2009/147/EC on the conservation of wild birds];
3. EU Water Framework Directive [Directive 2000/60/EC of the European Parliament and of the Council establishing a framework for the Community action in the field of water policy];
4. EU Waste Framework Directive [Directive 2008/98/EC on waste].

3.2 ADAPTATION FUND

The AFs Environmental and Social Policy (ESP), the most recent version of which was published in 2016, is intended to bring the Fund's practices generally into line with the practice of other leading international financing institutions ("IFIs") active in environment and development financing, including those of the UNDP³.

Like UNDP and other IFIs the ESP requires that all AF projects/programmes be screened for their environmental and social impacts, that those impacts be identified, and that the proposed project/programme be categorized according to its potential environmental and social impacts.

There are 15 principles that are part of the ESP and which form the basis for identifying and managing environmental and social risks. The 15 principles are:

- Principle 1: Compliance with the Law;
- Principle 2: Access and Equity;
- Principle 3: Marginalized and Vulnerable Groups;
- Principle 4: Human Rights;
- Principle 5: Gender Equality and Women's Empowerment;
- Principle 6: Core Labour Rights;
- Principle 7: Indigenous Peoples;
- Principle 8: Involuntary Resettlement;
- Principle 9: Protection of Natural Habitats;
- Principle 10: Conservation of Biological Diversity;
- Principle 11: Climate Change;
- Principle 12: Pollution Prevention and Resource Efficiency;
- Principle 13: Public Health;
- Principle 14: Physical and Cultural Heritage; and,
- Principle 15: Lands and Soil Conservation.

Additional details can be found in the AF's publication "Guidance document for Implementing Entities on compliance with the Adaptation Fund Environmental and Social Policy".

³ "Environmental and Social Policy (Approved in November 2013; Revised in March 2016)". Adaptation Fund. 18 March 2016

3.3 UNDP SOCIAL AND ENVIRONMENTAL STANDARDS AND SCREENING PROCEDURE

3.3.1 UNDP Social and Environmental Standards

As part of UNDP's quality assurance role, UNDP requires adherence to the UNDP Social and Environmental Standards (SES)⁴ for project activities implemented using funds channelled through UNDP's accounts. The SES objectives are to: (i) strengthen the social and environmental outcomes of programmes and Projects; (ii) avoid adverse impacts to people and the environment; (iii) minimize, mitigate, and manage adverse impacts where avoidance is not possible; (iv) strengthen UNDP and partner capacities for managing social and environmental risks; and (v) ensure full and effective stakeholder engagement, including through a mechanism to respond to complaints from project-affected people.

UNDP will not support activities that do not comply with national law and obligations under international law, whichever is the higher standard (hereinafter "Applicable Law"). UNDP seeks to support governments to adhere to their human rights obligations and empower individuals and groups, particularly the most marginalized, to realize their rights and to ensure that they fully participate throughout UNDP's programming cycle.

The SES are comprised of the three overarching principles and 7 project-level standards. Table 2 lists the principles and standards, along with an indicative list of issues applicable for each⁵.

Table 3: UNDP Environmental and Social Safeguards Principles and Standards, and Indicative Issues	
Principle/Standard	Indicative Issues
Principle 1. Human Rights	Assess potential adverse impacts regarding <i>inter alia</i> : <ul style="list-style-type: none"> • enjoyment of human rights (civil, political, economic, social or cultural) • inequitable or discriminatory adverse impacts on affected populations • restrictions of access and availability to resources and basic services • exclusion of stakeholders, particularly marginalized groups • exacerbation of conflicts or risk of violence
Principle 2. Gender Equality and Women's Empowerment	Assess potential adverse impacts on gender equality and/or situation of women and girls, including <i>inter alia</i> : <ul style="list-style-type: none"> • gender disaggregated analysis of men's and women's status, roles, needs, division of labour in relation to the project • potential restrictions on women's access to or control over resources (e.g. benefits/services, land, market access) • meaningful participation of women in project decision making
Principle 3. Environmental Sustainability	Encompassed by issues to be assessed under 7 project-level standards (see below)
Standard 1. Biodiversity Conservation and Sustainable Natural Resource Management	Assess direct, indirect, and cumulative impacts on natural resources, biodiversity and ecosystem services in project's area of influence, considering <i>inter alia</i> : <ul style="list-style-type: none"> • risks of habitat and species loss, degradation and fragmentation, invasive alien species, overexploitation, water resources and hydrological changes, nutrient loading, biosafety, pollution, and differing values (e.g. social, cultural, economic) attached to biodiversity/ ecosystem services by affected communities • impacts across potentially affected landscapes or seascapes
Standard 2. Climate Change Mitigation and Adaptation	Climate change risk assessment will examine <i>inter alia</i> : <ul style="list-style-type: none"> • viability or sustainability of project outcomes due to potential climate change • increased exposure to climate change, including analysis of potential unintended or unforeseen increases in vulnerability to climate change • potential project-related increases in emissions that may exacerbate climate change, such as GHG emissions and black carbon emissions • differentiated impacts of climate change (e.g. social, gender, age)

⁴ "Environmental and Social Standards" as approved by UNDP's Organizational Performance Group in June 2014 and effective starting January 1, 2015.

⁵ Box 5 from "Guidance Note: UNDP Social and Environmental Standards". United Nations Development Programme. December 2016.

Standard 3. Community Health, Safety and Working Conditions	Evaluate the risks and potential impacts related to, <i>inter alia</i> : <ul style="list-style-type: none"> • safety of affected communities during project design, construction, operation, and decommissioning • infrastructure safety • community exposure to disease • occupational health and safety and labour standards • security-related issues
Standard 4. Cultural Heritage	Evaluate the risks to, and potential impacts on, <i>inter alia</i> : <ul style="list-style-type: none"> • tangible and intangible forms of cultural heritage
Standard 5. Displacement and Resettlement	Evaluate the risks to, and potential impacts on, <i>inter alia</i> : <ul style="list-style-type: none"> • people and communities subject to physical displacement and resettlement • people and communities potentially subject to economic displacement
Standard 6. Indigenous Peoples	Evaluate the risks to, and potential impacts on, <i>inter alia</i> : <ul style="list-style-type: none"> • human rights, lands, territories, natural resources, and traditional livelihoods of indigenous peoples
Standard 7. Pollution Prevention and Resource Efficiency	Evaluate the risks and potential impacts related to <i>inter alia</i> : <ul style="list-style-type: none"> • routine or accidental release of pollutants • wastes and hazardous materials • pesticide use and management • resource use (e.g. land, energy, water, other inputs)

The Standards are underpinned by an Accountability Mechanism with two key functions:

- A Stakeholder Response Mechanism (SRM) that ensures individuals, peoples, and communities affected by UNDP projects have access to appropriate procedures for hearing and addressing project-related grievances; and,
- A Compliance Review process to respond to claims that UNDP is not in compliance with UNDP's social and environmental policies.

3.3.2 UNDP Social and Environmental Screening Procedure, Assessment and Management

UNDP has put in place a Social and Environmental Screening Procedure (SESP)⁶. The proposed project does not meet any of the exception criteria⁷ and therefore is subject to the SESP.

The objectives of the SESP are to: (a) Integrate the SES Overarching Principles (human rights, gender equality and environmental sustainability); (b) Identify potential social and environmental risks and their significance; (c) Determine the project's risk category (Low, Moderate, High); and (d) Determine the level of social and environmental assessment and management required to address potential risks and impacts.

The key requirement of the SESP is completion of the SESP template. The SESP template guides users through the process to ensure the objectives of the screening process are met and that the final determinations and decisions are adequately documented. Completion of the template comprises the Social and Environmental Screening Report that is to be attached as an annex to the Project Document. The Screening results also provide a direct input to the Project Risk Log. The completed screening report for the proposed project is provided as Annex 1.

For projects categorized by the screening process as posing moderate or high risks then environmental and social assessment and management measures are required. The assessment and management can range from targeted assessment for moderate risk projects to comprehensive, standalone environmental and social impact assessments for high risk projects.

⁶ "Environmental and Social Screening Procedure". United Nations Development Programme. March 2019

⁷ Paragraph 7, page

4 DESCRIPTION OF EXISTING ENVIRONMENT

At the time of preparation this report site specific locations for interventions had not been located. These locations will be identified during project implementation in further consultation with project stakeholders. Site-specific descriptions of the environmental and social setting for site-specific activities will be developed as part of the permitting documentation that will be required for each site-specific activity.

In the meantime, this section provides a general description of the regional environmental and social setting for the project.

4.1 REGIONAL SETTING

The Caucasus Ecoregion occupies the isthmus between the Black Sea and the Caspian Sea (Figure 2) The Greater Caucasus Mountain Range divides the Ecoregion into two parts. The northern part includes the Russian republics of Adigeya, Karachayevo-Cherkessiya, Kabardino-Balkaria, Northern Ossetia, Ingushetia, Chechnya, and Dagestan, Krasnodar and Stavropol provinces and part of Rostov province. The southern part includes all of Armenia, Azerbaijan, Georgia, as well as north-eastern Turkey and part of north-western Iran. The Ecoregion is one of the World Wildlife Fund's (WWF's) 35 "priority places"⁸ and of 34 "biodiversity hotspots" identified by Conservation International as being the richest and at the same time most threatened reservoirs of plant and animal life on Earth⁹.

Armenia is mountainous and landlocked. The majority of Armenia's territory (76.5%) is situated on the altitudes of 1000-2500 m above sea level with the lowest point at 800m in the Ararat Valley and the highest point being Mount Aragats with an elevation of 4090m. Administratively, the country is divided into ten units (Marz), plus the capital Yerevan. In 2018, the population stood at approximately 3 million, with unemployment rates of 15%. The poverty rate stood at 12.3 percent in 2018 and is expected to fall below 10% in 2019 reflecting on going economic growth and expansion.

Georgia is situated between Russian to the North, Azerbaijan in the East and Armenia and Turkey to the South. The west is bounded by the Black Sea. The total area of Georgia is 69,700 square kilometres. Administratively, the country is divided into nine regions and one city. There are also two autonomous republics. The population of Georgia was approximately 3.7 million (2018). The unemployment rate declined from 13.9 percent in 2017 to 12.7 percent in 2018. The poverty rate was 16 percent in 2017 (16.4% in 2016) and is expected to fall to 13.4 per cent in 2019.¹⁰

Wildfires in forest mountain eco-systems have shown an increasing trend over recent years, having historically been of less importance. While the evidence indicates that the most significant cause of these wildfires is anthropogenic (e.g. agricultural residue burning, recreational tourism), their increasing frequency and severity clearly reflects changes in the climate. Higher temperatures and changes in precipitation are making the forests drier and more susceptible to combustion and rapid wildfire spread. Climate change is a significant threat multiplier.

⁸ World Wildlife Fund. https://wwf.panda.org/knowledge_hub/where_we_work/ Accessed 04 July 2019

⁹ Critical Ecosystem Partnership Fund <https://www.cepf.net/our-work/biodiversity-hotspots/caucasus> Accessed 04 July 2019

¹⁰ ECA Macro Poverty Outlook, Spring 2019 (World Bank) - <http://pubdocs.worldbank.org/en/896101492021924164/data-geo.pdf>



Figure 2: Caucasus Ecoregion Topography (source: <http://www.grida.no/resources/7902>)

4.2 FOREST ZONES

About 17% of the Ecoregion's land area is covered by forests, with the majority of forested areas located at altitudes of 500-2000m on steep slopes (Figure 3).

An estimated 11.2% of Armenia is covered with forests. Due to intensive use, the level of anthropogenic impacts on natural landscapes in Armenia is high. Overexploitation has resulted in pollution and reduction of wild biodiversity, loss of habitats of certain species and changes in the services provided by ecosystems. Nonetheless, Armenia is considered by the International Union for Conservation of Nature (IUCN) as one of the 25 worldwide biodiversity hotspots.¹¹ With most of the biodiversity values are linked to forests or forestlands.

Georgia's landscape is varied than Armenia, with humid subtropical coastline, lowlands and wetlands, plains, semideserts, highlands, and mountains covered by forests and glaciers. Much of the landscape is mountainous, with 54 percent of land at an altitude over 1,000 m above sea level. Nearly 40 percent of land is covered by forests, mainly located in the mountainous areas. Like Armenia, Georgia has a high diversity of biodiversity values.

¹¹ As a part of the Caucasus-Anatolian-Hyrcanian Temperate Forests Ecoregion, which is listed by WWF as a Global 200 Ecoregion, the forests of Armenia have been identified as a global conservation priority. Additionally, significant shares of Armenia's territory belong to the Caucasus and the Irano-Anatolian biodiversity hotspots identified by Conservation International.



Figure 3: Forest Cover in Caucasus Ecoregion (source: <http://www.grida.no/resources/7908>)

In the mountain ranges, in the foothills up to 500-600 m, Colchic forest is found in the western part of the South Caucasus and oak-hornbeam forests (*Quercus iberica*-*Carpinus orientalis*) in the eastern part. In the sub-montane belt (500-1,000 m) chestnut-beech forests (*Castanea sativa*-*Fagus orientalis*) are found in the western part of the South Caucasus and oak-hornbeam forests (*Quercus iberica*-*Carpinus caucasica*) in the eastern part; *Quercus petraea* occupies the sub-montane belt in the North Caucasus. The montane belt (1,400-1,800 m) is dominated by dark coniferous forests of *Abies nordmanniana* and *Picea orientalis*, which extend up to above 2,000 m in some places, and forests composed of beech (*Fagus orientalis*), oak (*Quercus macranthera*) or pine (*Pinus kochiana*). The vegetation of the sub-alpine belt (1,800-2,500 m) is characterised by birch forest (*Betula* spp.), shrub communities, tall herbaceous vegetation and grasslands. The alpine belt (2,500-3,000 m) is occupied by grasslands and by thickets of the relict endemic *Rhododendron caucasicum*. On the volcanic plateau of the Southern Highlands the main vegetation formations are woodlands of oak (*Quercus macranthera*), steppe and wetlands.

In both Armenia and Georgia forested areas are under threat from logging and other human uses. In Georgia, canopy cover has reached critically low thresholds (less than 50%) in more than 55% of forest area. Such forests have significantly decreased the protective functions and lost the ability of regeneration which negatively affects the biodiversity¹².

Both Georgia and Armenia suffer from a lack of an up-to-date forest inventory and poor monitoring systems, both of which reflect the economic and structural challenges since the collapse of the Soviet Union. Efforts are ongoing in both countries to undertake new forest inventories and set up monitoring systems that will allow for better data and support improved decision making and resource allocation for forest conservation and regeneration.

¹² See EPNI-FLEG <http://enpi-fleg.ge/index.php/ka/2-uncategorised/9-georgian-forests>

4.3 NATURE RESERVES AND PROTECTED AREAS

Nature reserves and protected areas cover about 10% of the Caucasus Ecoregion (Figure 4). They range in size from natural monuments of a few hectares to national parks of hundreds of square kilometres. Protected areas in the region also include strict nature reserves, sanctuaries (also referred to as reserve, wildlife reserve and management nature reserve), protected landscapes and multiple use areas.

The system of protected natural areas of Armenia was formed in 1958 and as of 2019 is composed of 33 areas: 3 state reserves, 26 state preserves, 4 national parks and 230 natural monuments. Notable protected areas include Lake Arpi National Park in the northern part of the country and Arevik National Park and Zangezur Sanctuary in the southern part of the country, of which the last two are critical for the endangered Persian leopard.

Georgia system for protected area encompasses areas with environmental, cultural as well as other values. The oldest of these – now known as the Lagodekhi Protected Areas – dates back to 1912, when Georgia was part of the Russian Empire. The total area of Georgia's protected territories is 511,123 hectares, which amounts to approximately 8.33 % of the country's territory. Total number of protected areas is 90 which includes: 14 Strict Nature Reserves, 10 National Parks, 18 Managed Nature Reserves, 40 Natural Monuments and 2 Protected Landscapes.

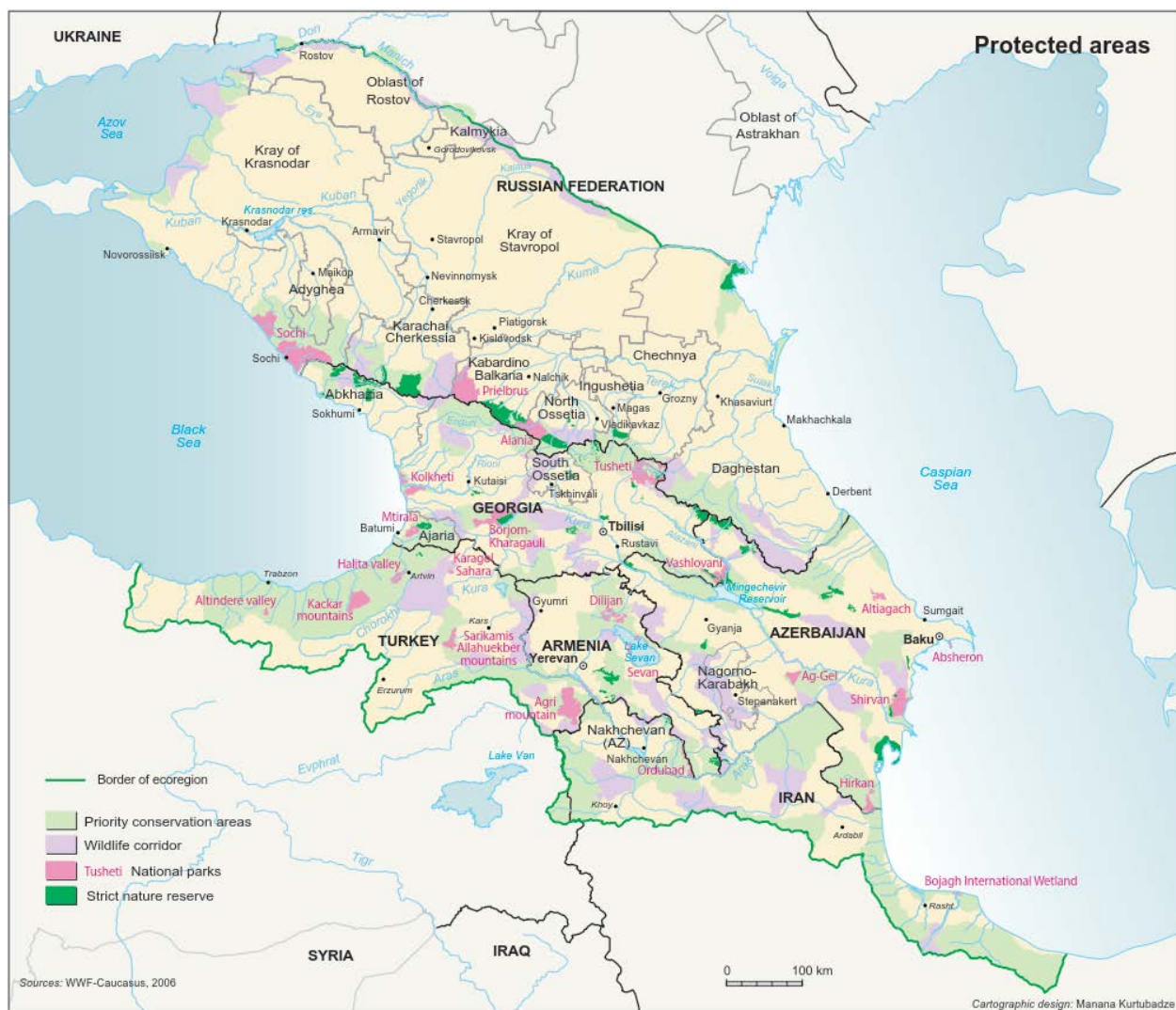


Figure 4 Protected Areas in Caucasus Ecoregion

4.4 POPULATION

A census of Georgia was conducted in November 2014. Data from the census indicated that the population of Georgia totalled 3,713,804 persons, or 15% (657,731 persons) less compared to the previous census data

(4,371,535 persons). According to the results of the 2014 Census, the urban population was 2,122,623 persons, and the rural population was 1,591,181 persons. The decrease was much more pronounced in the rural population standing at 23.7%, whereas the urban population shrank by 7.1%. The urban/rural pattern of the population changed significantly compared to the previous censuses: the share of urban population in the total population increased by 4.9 percentage points and equalled 57.2 %.

The population of Armenia as of 2018 was estimated at 3,038,217 persons. Yerevan, the capital City has a population of about 1.08 million and overall 63% of the population live in urban centres.

4.5 ETHNIC MINORITIES AND INTERNALLY DISPLACED PEOPLES

There are five (5) regions of overall thirteen (13) with minority compact settlements in Georgia: Abkhazia, South Ossetia, Kvemo Kartli, Samtskhe-Javakheti and Kakheti. All of these five regions are trans-frontier regions of Georgia bordering the regions or administrative divisions populated by the identical compact settlements of ethnic minorities. Some of minority groups are having compact settlements or are dispersed on the inner territories of the country. These groups are: ethnic Russians, Greeks, Kurds and/or Yezidi, Assyrians, Jews, Ukrainians, Armenians and Azerbaijanis.

According to the November 2014 census in Georgia, ethnic minorities make up 13.2% of the Georgian population. Azeris and Armenians are the two largest minority groups. Azeris account for 6.3% of the total population and constitute a significant group in the region of Kvemo Kartli which borders Armenia and Azerbaijan to the south. The Armenian minority accounts for 6% of the total population and is a significant group in the region Samtskhe Javakheti bordering Turkey and Armenia in the south. Other smaller ethnic groups include Russians, Ossetians, Yezidis, Ukrainians, Chechens, Greeks and Assyrians. Both Azeri and Armenians tend to live in specific parts of the country, which historically have been less developed than the cities occupied by Georgians. Further, Georgia has small populations of ethnic Roma.

There are significant numbers of internally displaced peoples in Georgia as a result of past conflicts. The Government of Georgia reported in December 2014 that it had registered 262,704 people as internally displaced peoples. Most internally displaced peoples were displaced in the early 1990s as a result of conflict in Abkhazia and South Ossetia, while a smaller number were displaced during conflict with the Russian Federation over South Ossetia in August 2008.

The number of internally displaced peoples registered by the Government includes people who have returned home to Abkhazia but does not include people displaced within Abkhazia and South Ossetia. No official survey has been conducted there by the Georgian authorities as these regions are not under its control.

The Internal Displaced Monitoring Centre current suggested that there are an estimated 232,700 internally displaced peoples in Georgia in December 2014.

The population of Armenia is over 98% ethnic Armenia. Minority groups in the republic include Yezidis (35,308 or 1.2 per cent of the total population), Russians (11,911, 0.4 per cent), Assyrians (2,769, 0.1 per cent), Kurds (2,162, 0.1 per cent), Ukrainians (1,176), and Greeks (900). Armenia's minorities are scattered across the country, and do not form local majorities in any region or administrative unit¹³.

Prior to the conflict with Azerbaijan, Armenia's largest minority had been Azeris, accounting for some 186,000 people. This population was displaced to Azerbaijan virtually in its entirety as a result of the conflict. Similarly, Armenia received an influx of ethnic Armenian refugees from Azerbaijan. The migration of Russians from Armenia is attributable to the severe economic hardship experienced in the republic following independence and war with Azerbaijan, a factor also encouraging ethnic Armenian migration from the republic.

¹³ World Directory of Minorities and Indigenous Peoples: Armenia. Minority Rights Group International. Available at: <https://minorityrights.org/country/armenia/>. [Accessed 23 July 2019]



Figure 5 Autonomous and Disputed Areas of Georgia

5 ENVIRONMENTAL AND SOCIAL SCREENING AND RISK ASSESSMENT

5.1 ASSUMPTIONS UNDERPINNING THE DEVELOPMENT OF THE ENVIRONMENTAL AND SOCIAL ASSESSMENT

The following assumptions have been made in the preparation of this assessment:

- All site-specific pilot project activities will be located on unoccupied, government-owned land. There will be no physical resettlement or significant negative effects on livelihoods;
- Site-specific pilot activities will not affect any known archaeological sites or other cultural property resources; and,
- Site specific pilot activities will not take place in areas of critical habitat unless such activities are identified for the purpose of enhancing, restoring, or otherwise protecting the critical habitat and such activities have been identified through consultation with, and under the advisement of, the government agencies responsible for management of protected areas.

5.2 ENVIRONMENTAL AND SOCIAL SCREENING AND ASSESSMENT

The proposed project has been screened using UNDP's SESP and with consideration screening provided in the AF's "Guidance document for Implementing Entities on compliance with the Adaptation Fund Environmental and Social Policy". Specifically, an SES Report has been prepared following the UNDP SES Report template and the project was screened against the AF's 15 environmental and social principles. The project consists of a series of downstream activities, the details of which will be determined during implementation. Therefore, the screening was completed based on the anticipated general locations for activities and anticipated scale and scope of the proposed activities.

The results of the UNDP screening indicate the proposed project to be a moderate risk project. "Moderate risk" is considered equivalent to the Adaptation Fund's "Category B". The risks identified, and the rationale for the moderate risk ranking, are provided in the SES Report provided as Annex 1.

The proposed project activities were evaluated against the AF ESPs to identify potential risks. Actions have been identified to mitigate and manage risks, including procedures to screen for and manage risks of downstream activities. Table 4 provides an overview of the environmental and social risks organized according to the AF ESPs, along with corresponding mitigation and management actions. The screening and assessment considered the following:

- a) Readily available published information on environmental and socio-economic conditions in the beneficiary countries including mapping and databases, reports generated by development aid and other organizations, and government generated information including census data;
- b) Information received during consultations with government agencies and stakeholders;
- c) National regulations; and,
- d) Professional experience with projects of a similar nature.

Based on the screening and assessment results, as presented in Table 4, from an environmental and socioeconomic risks perspective, the project is considered as a Category B. Risks identified at this stage have potential adverse impacts that are relatively few in number, small in scale, localized, and reversible or readily mitigated. Actions that contribute to reduce and manage risks are:

- a) Stakeholder participation and utilization of participatory community planning, detailing the specific objectives, adaptation activities, implementation arrangements and commitments, partner institutions and beneficiaries.
- b) Adherence to UNDP's established work practices including travel safety and security, procurement including vetting and monitoring of contractors, and monitoring and evaluation
- c) Mainstreaming of the human rights approach to development and gender equality and women's empowerment.

- d) Use of the environmental and social management framework to screen, assess and manage potential environmental and social effects of downstream activities.
- e) Development of a permit plan for each downstream activity that identifies all regulatory permits that are required prior to implementation.
- f) Use of grievance redress mechanism to capture and address stakeholder grievances.

Table 4: Potential Environmental and Social Impacts and Risks organized according to the Adaptation Fund's Environmental and Social Principles, along with corresponding Mitigation and Management Measures		
Principle	Potential impacts and risks	Mitigation and Management Measures
Compliance with the Law	<p>UNDP is established in both Armenia and Georgia and have long standing operations in line with all applicable laws.</p> <p>It is anticipated that the proposed project and site-specific pilot activities will comply with the applicable laws and regulations of each country, including laws and regulations addressing environmental and social safeguards.</p> <p>None-the-less, it is possible that demonstration activities could take place without proper permits in place. A permitting plan will be prepared for each site-specific action that identify all permits needed and provides an action plan to secure and maintain the applicable permits.</p>	<p>UNDP Armenia and UNDP Georgia Country Offices have in place procurement process that require contractors to implement environmental, health, and safety management procedures to address site-specific conditions of approval, country law, and UNDP standards.</p> <p>For site-specific activities UNDP will apply a Permit Compliance Management System that includes provisions for: i) listing permitting requirements; ii) connecting legal requirements to permits; iii) create and track compliance actions related to permits; and iv) provide record-keeping of checklists, notes, documents, etc. related to permits. UNDP will provide an annual report detailing the permit compliance of site-specific pilots</p>
Access and Equity	<p>The project activities are not anticipated to affect individuals or communities' access to basic health services, clean water and sanitation, energy, education, housing, safe and decent working conditions, and land rights.</p> <p>The majority of project activities will be undertaken at the institution level and at the community level. For the majority of project activities benefits are anticipated to accrue to host communities as a whole, including communities that may be marginalized or vulnerable.</p> <p>In the case that there are activities directed to individuals or individual households then there is potential for "elite capture" with benefits flowing to those in position of power.</p>	<p>To mitigate potential conflicts between beneficiaries and non-beneficiaries, avoid elite capture, as well to ensure transparency and non-discriminatory selection, the selection criteria and the planning process will be clearly documented, explained, and vetted in stakeholder consultations with beneficiary communities during the initial phase of implementation. If appropriate a primary beneficiary list will also be publicized, and a timeframe will be announced to allow for complaints about the selection process and specific selection. In addition, the project will establish a robust Grievance Redress Mechanism (GRM), which is gender and vulnerable group sensitive. The GRM will provide an avenue for any complaints in case of any conflict or discrimination as well as a mechanism for resolution of such conflicts.</p>
Marginalized and Vulnerable Groups	<p>In Georgia and Armenia marginalized and vulnerable groups may include ethnic and religious minorities, displaced persons, the elderly. There is a risk that such groups may be excluded from project activities and that existing inequality and discrimination will be perpetuated. According to the November 2014 census in Georgia, ethnic minorities make up 13.2% of the Georgian population. Azeris and Armenians are the two largest minority groups. Azeris account for 6.3% of the total population and constitute a significant group in the region of Kvemo Kartli which borders Armenia and Azerbaijan to the south. The Armenian minority accounts for 6% of the total population and is a significant group in the region Samtskhe Javakheti bordering Turkey and Armenia in the south. Other smaller ethnic groups communities include Russians, Ossetians, Yezidis, Ukrainians, Chechens, Greeks and Assyrians. Both Azeri and Armenians tend to live in specific parts of the country, which historically have been less</p>	<p>Each pilot activity will be further screened at the site-specific level to determine if there is a risk associated with marginalized and vulnerable groups and if so, a site-specific plan will be prepared and implemented.</p> <p>To mitigate potential conflicts between beneficiaries and non-beneficiaries, as well to ensure transparency and non-discriminatory selection, the selection criteria and the planning process will be clearly documented, explained, and vetted in stakeholder consultations with beneficiary communities during the initial phase of implementation.</p> <p>If appropriate a primary beneficiary list will also be publicized, and a timeframe will be announced to allow for complaints about the selection process and specific selection. In addition, the project will establish a robust Grievance Redress Mechanism (GRM), which is gender and vulnerable group sensitive. The GRM will provide an avenue for any complaints in case of any conflict or discrimination as well as a mechanism for resolution of such conflicts.</p>

Table 4: Potential Environmental and Social Impacts and Risks organized according to the Adaptation Fund's Environmental and Social Principles, along with corresponding Mitigation and Management Measures		
Principle	Potential impacts and risks	Mitigation and Management Measures
	<p>developed than the cities occupied by Georgians. Further, Georgia has small populations of ethnic Roma and Meskhetians. As of 2018 it was estimated that were 293,000 refugees present, some displaced in the 1990s as a result of conflicts in Abkhazia and South Ossetia, and some displaced in 2008 by fighting between Georgia and Russia over South Ossetia¹⁴. Rural-urban disparities have reinforced existing inequalities experienced by some minority populations¹⁵.</p> <p>According to the 2011 census over 98% of the population of Armenia identify as ethnic Armenian. About 1.2% of the population are Yazidis. The balance of the population is composed of very small numbers (~.1%) of Russians, Georgians, and others. There are 22 rural settlements in Armenia with Yazidi majority. The biggest Yazidi village in Armenia is Verin Artashat in Ararat Province with 4,270 residents. As of 2018 it was estimated that there are approximately 14,700 refugees present in the country who are ethnic Kurds displaced from Syria¹⁶.</p>	
Human Rights	<p>No specific concerns for human rights were raised during the stakeholder engagement activities completed during proposal planning.</p> <p>Human rights issues that have been flagged in Armenia include: gender equality and violence against women, and rights issues associated with persons with disabilities, elderly, child poverty, and LGBTI¹⁷ individuals¹⁸.</p> <p>Human rights issues flagged in Georgia include security forces abuses including treatment of citizens along the administrative boundary lines (ABLs) with the Russian-occupied regions of Abkhazia and South Ossetia; corruption of government officials;</p>	<p>1. With respect to conflict and violence, UNDP benefits from participation in the UN system including awareness of conflict situations. The project will consult with UN system on potential conflict risks of each site-specific pilot area.</p> <p>2. The project will mainstream a human rights-based approach through:</p> <ul style="list-style-type: none"> • Contributions to improved livelihoods of poor and vulnerable people; • Disclosure of information and providing for meaningful participation of stakeholders during the planning and implementation of site-specific activities including as part of site-specific E&S screenings and assessments. This will facilitate equitable access to project benefits and avoidance of elite capture and potential perpetuation of historical inequality;

¹⁴ "The World Factbook" United States Central Intelligence Agency. Available at: <https://www.cia.gov/library/publications/the-world-factbook/geos/gg.html> [accessed 21 July 2019]

¹⁵ Minority Rights Group International, "World Directory of Minorities and Indigenous Peoples – Georgia" January 2016, available at: <https://www.refworld.org/docid/4954ce09c.html> [accessed 20 July 2019]

¹⁶ "The World Factbook" United States Central Intelligence Agency. Available at: <https://www.cia.gov/library/publications/the-world-factbook/geos/am.html> [accessed 21 July 2019]

¹⁷ Lesbian, gay, bisexual, transsexual and intersex

¹⁸ "Report of The Commissioner For Human Rights of The Council of Europe, Dunja Mijatović, Following Her Visit To Armenia From 16 To 20 September 2018" 29 January 2019. Available at: <https://rm.coe.int/report-on-the-visit-to-armenia-from-16-to-20-september-2018-by-dunja-m/168091f9d5>

Table 4: Potential Environmental and Social Impacts and Risks organized according to the Adaptation Fund's Environmental and Social Principles, along with corresponding Mitigation and Management Measures		
Principle	Potential impacts and risks	Mitigation and Management Measures
	and crimes involving violence or threats targeting LGBTI persons ¹⁹ .	<ul style="list-style-type: none"> Public awareness activities in beneficiary communities on human rights; and Use of UNDP's grievance mechanism to provide access to remedies for individuals aggrieved as a result of project activities <p>UNDP will report on successes and challenges with implementation on a yearly basis.</p>
Gender equity and women's empowerment	Existing gender inequality factors in Armenia and Georgia include limited engagement of women in planning and decision making, and traditional distribution of gender roles in families and communities. Therefore, women may not be adequately represented with regards to decision-making or participation in the design/implementation of the project's activities. As a result, they may have limited access to resources, opportunities and benefits. Also, women may not have enough time to assist to meetings or activities for take decisions and/or men which are head of family could decide in behalf of them.	<p>Specific "gender mainstreaming actions" have been identified in the gender action plan. A gender specialist position has been provided for in the project's management team and budget to advocate for and lead gender mainstreaming actions.</p> <p>The gender plan takes into consideration the following:</p> <ul style="list-style-type: none"> Specific strategies to achieve a minimum of 30 % participation by women in community level planning, Consideration of female perspective in communication and training material Engaging local NGOs and other organizations to make capacity-building and other implementation activities gender-sensitive Pro-actively seek potential female entrepreneurs in Component 3.3 for development of sustainable forest enterprises. Gathering gender-disaggregated data for evaluation purposes and use gender sensitive indicators (particularly around beneficiaries) to facilitate planning, implementation and monitoring.
Core labour rights	<p>A UN Mission to Georgia identified occupational safety and health in the construction and infrastructure sectors as a challenging issue across the country and that a large number of injuries and fatal accidents occur in these sectors. ²⁰</p> <p>The mission determined that there is a shortage of inspectors available, that in cases of accidents on construction sites companies generally blamed employees for being negligent, and that many workers did not have insurance, which is likely to contribute to an underreporting of accidents and injuries.</p>	<p>The project will be completed as Direct Implementation Modality – meaning UNDP will directly engage contractors for construction and other activities. UNDP has procurement procedures to addressing labour-related issues including worker health and safety and guarding against use of child and forced labour.</p> <p>The project will make visual inspections of work sites to check the occupational health and safety management of contractors. These visits will take place no less than once per week during periods of active construction. Contractors shall also provide a weekly health and safety</p>

¹⁹ "Georgia 2018 Human Rights Report". United States Department of State. Available here: <https://www.state.gov/wp-content/uploads/2019/03/GEORGIA-2018-HUMAN-RIGHTS-REPORT.pdf>

²⁰ "Statement at the end of visit to Georgia by the United Nations Working Group on Business and Human Rights. 12 April 2019". Available at: <https://www.ohchr.org/EN/NewsEvents/Pages/DisplayNews.aspx?NewsID=24474&LangID=E> [accessed 20 July 2019]

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Principle	Potential impacts and risks	Mitigation and Management Measures
	There does not appear to be a significant risk of child labour. First, both Armenia and Georgia have regulations banning use of child labour for hazardous work such as construction or forestry. Second, In Armenia. and Georgia most child labour (~94 to 95%) is associated with the agriculture sector ²¹ . The project does not contemplate agriculture sector projects, thereby avoiding the sector at highest risk for child labour.	report identify any incidents or near misses and corrective actions implemented.
Indigenous populations	Not applicable - There are no indigenous people as defined by the United Nations ²² present in Armenia or Georgia ²³ .	
Involuntary Resettlement	There is a risk that a site selected for a pilot activity could result in physical displacement of people or livelihood activities (by, for example, acquisition of land currently in use for agricultural production for a reforestation pilot).	<p>UNDP will screen candidate pilot activities and not proceed with any pilot that require physical displacement. Existing land uses and livelihood activities will be determined for each pilot activity, and where loss of livelihood is anticipated a site-specific livelihood restoration plan will be prepared and implemented.</p> <p>UNDP will promote awareness of the grievance mechanism which provides a means for redress of aggrieved stakeholders.</p>
Protection of natural habitats	<p>Pilot activities may be planned and executed in forest areas located within areas designated as protected, posing risk of impacts to natural features subject to protection.</p> <p>There is a risk that activities undertaken in forest and other natural areas could displace wildlife and disrupt breeding activities.</p>	<p>There are many forest areas that are degraded and in need of improved practices for wildfire management but there are also within designated protected areas. locations for pilot projects will be selected in cooperation with regulatory agencies, and in subject to consultation with communities. UNDP will screen each candidate pilot UNDP's SESP and AF's SES and not proceed with any site located in an area considered to be critical habitat. All potential pilot activities to be carried out will be carried out in accordance with applicable regulations, and with all conditions of approval for the activity imposed by the applicable regulatory authorities.</p> <p>Activities will be planned to address potential impacts to wildlife, including breeding activity. A site-specific plan will be prepared to address potential direct impacts to wildlife including birds, mammals, and herpetofauna including specification of construction windows to avoid disruption of breeding or denning activities.</p>

²¹ "Child Labour and Forced Labour Reports: Armenia" U.S. Department of Labour. available at: <https://www.dol.gov/agencies/ilab/resources/reports/child-labour/armenia> [Accessed 07 July 2019] and "Child Labour and Forced Labour Reports: Georgia" U.S. Department of Labour. available at: <https://www.dol.gov/agencies/ilab/resources/reports/child-labour/georgia> [Accessed 07 July 2019]

²² United Nations Forum on Indigenous People Fact Sheet: "Who are indigenous peoples?". available at: https://www.un.org/esa/socdev/unpfii/documents/5session_factsheet1.pdf [Accessed 07 July 2019]

²³ Minority Rights Group International, "World Directory of Minorities and Indigenous Peoples – Georgia" January 2016, available at: <https://www.refworld.org/docid/4954ce09c.html> [accessed 20 July 2019] and "Minority Rights Group International, World Directory of Minorities and Indigenous Peoples - Armenia: Yezidis & Kurds" 2008, available at: <https://www.refworld.org/docid/49749d60c.html> [accessed 20 July 2019]

Table 4: Potential Environmental and Social Impacts and Risks organized according to the Adaptation Fund's Environmental and Social Principles, along with corresponding Mitigation and Management Measures		
Principle	Potential impacts and risks	Mitigation and Management Measures
Conservation of biological diversity	Afforestation and reforestation, if undertaken as pilot activities pose a risk of introduction of alien invasive species (AIS).	UNDP will prohibit use of alien invasive species for any reforestation and afforestation. Species lists will be cleared with the forestry authorities in each country and against international AIS databases and checklist (such as Global Invasive Species Database http://www.iucngisd.org/gisd/howto.php). Purchased seed material, if used, will either be certified AIS free or subject to germination tests to verify AIS free.
Climate change	<p>The project does not involve any activities with significant emissions of greenhouse gases (GHGs).</p> <p>Minor GHGs emissions will occur due to use of fossil fuels for transportation (air travel, road vehicles), office operations, and other project related activities.</p> <p>Overall, the project seeks to protect and enhance forests, and thereby should contribute to enhanced carbon sequestration and storage. Small scale briquetting plants, if supported, are small scale sources of emissions. However, life-cycle analysis indicates briquetting can contribute to an overall net reduction of GHG emissions.</p>	<p>To minimize the project's carbon footprint UNDP will:</p> <ul style="list-style-type: none"> • promote use of energy efficient tools, technologies and designs for project activities; • use and promote use of energy efficient equipment and waste minimization in project offices and activities; • promote use of on-line meetings rather than in-person meetings – especially meetings that would otherwise require air travel; • mandate that project related air travel is in economy class.
Prevention of pollution and efficiency of resources	<p>Proposed project activities associated with capacity building and planning do not pose risk of pollution.</p> <p>Project activities that use mechanical equipment, including construction of roads, pose risks typical of construction sites and activities including worker and public health and safety, generation of hazardous wastes (such as waste lube oil, batteries), brush and wood waste, nuisance noise and dust, compaction and erosion of soils.</p> <p>Briquetting facilities, if supported, have emissions to air as well as other waste streams with potential for negative effects on the receiving environment.</p>	<p>All physical-type works will be screened and where potential risks are identified a site-specific management plan prepared. Where required by host country law an EIA approval will be secured, as well as any other permits governing pollution prevention such as permits to discharge or dispose of wastes.</p> <p>Effective management measures are available to reduce risks to acceptable levels. UNDP Armenia and UNDP Georgia Country Offices have in place procurement process that require contractors to implement environmental, health, and safety management procedures to address site-specific conditions of approval, country law, and UNDP standards. UNDP activities, and those of any organizations contracted by UNDP, will implement and adhere to all UNDP country office security and safe work practices. Project activities controlled by government entities will adhere to government safety standards and protocols.</p>

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Principle	Potential impacts and risks	Mitigation and Management Measures
Public health	<p>One of the overall aims of the project is to reduce the impact of forest wildfires on communities and individuals, including loss of life. To the extent the project is successful in limiting loss of life then then it will have a clear positive effect on Public Health.</p> <p>Small scale water reservoirs may have potential to provide breeding areas for mosquitos which represent a nuisance and can act as a disease vector. At present there is no local transmission malaria or other important mosquito borne diseases, although WHO warns there is a risk of resurgence²⁴.</p> <p>Pilot activities may expose individuals in target communities, as well as workers, to typical health and safety risks associated with construction and field activities including but not limited to motor vehicle accidents, personal security incidents, vehicle raised dust, and construction site hazards (e.g., trips and falls, hazardous materials).</p>	<p>With respect to water storage, UNDP will mandate such reservoirs take measures to eliminate mosquito breeding.</p> <p>All site-specific pilots will be screened for potential risks to the public health. The typical health and safety risks associated with construction, including traffic safety and worker health and safety, are well known and effective management measures are available to reduce risks to acceptable levels. 1. UNDP Armenia and UNDP Georgia Country Offices have put in place safe work and personal security practices for their operations in Armenia and Georgi based on the minimum requirements for UN operations globally. UNDP activities, and those of any organizations contracted by UNDP, will implement and adhere to all UNDP country office security and safe work practices. Project activities controlled by government entities will adhere to government safety standards and protocols. 2. Contractors will be required to prepare and implement procedures that address public safety issues including traffic management, dust control, and site access control. UNDP will undertake periodic site inspections to verify contractor compliance.</p> <p>UNDP will promote awareness of the grievance mechanism which provides a means for redress of aggrieved stakeholders.</p>
Physical and cultural heritage	<p>All site-specific pilot activities will be designed through a participative approach and with support of key government institutions. For these reasons there is low risk of negative effects to know physical and cultural heritage features. However, there may be features present that are at risk from wildfire, and there may be unknown features during implementation (also known as "chance finds").</p>	<p>Site-specific pilot activities will not be permitted within or nearby known heritage features, unless such pilot activities, to be identified by the Government, are needed to protect such features (from wildfires). In such cases a detailed plan will be developed with the applicable authorities in consultation with stakeholders to ensure protection of the protected features from project activities.</p> <p>Contractors shall be required to have a chance finds procedure in place to guard against loss or damage to archaeological or history artifacts exposed during any earthworks.</p>

²⁴ World Health Organization Vector Born Diseases by Country. Available here: <http://www.euro.who.int/en/health-topics/communicable-diseases/vector-borne-and-parasitic-diseases/malaria/country-work/georgia>. [Accessed 21 July 2019]

Table 4: Potential Environmental and Social Impacts and Risks organized according to the Adaptation Fund's Environmental and Social Principles, along with corresponding Mitigation and Management Measures		
Principle	Potential impacts and risks	Mitigation and Management Measures
Soil and soil conservation	<p>The project does not involve any pilot activities that may have significant negative effects on soils or soil conservation. There is potential for minor, localized effects of soils, including noise mixing and loss of soil due to erosion at construction sites for activities such as water storage facilities and mineralized roads.</p> <p>Construction process for pilot activities such as water storage reservoirs and mineralized roads has a risk of exposing land to erosion and physical disturbance of soils. However, this will be small in scale and mitigation measures from EIAs that will be required for such activities can guard against and monitor for significant effects.</p>	<p>All physical-type works will be screened for potential soils related impacts and where potential risks are identified a site-specific management plan prepared. It is anticipated that site specific plans will utilize measures that are well known and proven to be effective in managing soils issues such as stripping and stockpiling of topsoil, water control, silt fencing, and procedures to stop work in wet conditions. effective are available to protect soils. Standard general environmental contract clauses to be attached to all contracts will be developed based on the general clauses provided as Annex 3.</p>

6 SCREENING, ASSESSMENT AND MANAGEMENT

6.1 OBJECTIVES AND REQUIREMENT OF THE ESMF

The purpose of this section is to provide the mechanism by which downstream project activities, once fully defined, are screened for E&S risks and that appropriate assessment and management measures are adopted. In addition, it serves as a “commitment plan” listing the key assessments and management plans that will need to be undertaken and budgeted for. This includes plans mandated by the UNDP SES, where relevant.

The ESMF identifies potential social and environmental risks and impacts from project activities and outlines strategies and procedures for identifying risks and impacts from as-yet fully defined project components and for managing those risks and minimising undesirable environmental and social impacts. Further, the ESMF identifies stakeholder engagement processes and a Grievance Redress Mechanism for stakeholders with concerns and/or complaints regarding the project.

An ESMF is a management tool used to assist in addressing potential adverse social and environmental impacts associated with project activities. To facilitate that the environmental and social objectives of the projects are met and that adverse impacts are avoided and/or mitigated, the present ESMF will be used by the project implementers. The ESMF identifies steps for screening potential social and environmental issues and impacts of particular project activities as their specific locations are further defined and for preparing and approving appropriate action plans for avoiding, and where avoidance is not possible, reducing, mitigating, and managing adverse impacts.

Figure 6 provides a flowchart showing the key steps in the ESMF Procedure along with the main party responsible for or involved in each step. The balance of this section provides details on each of the steps.

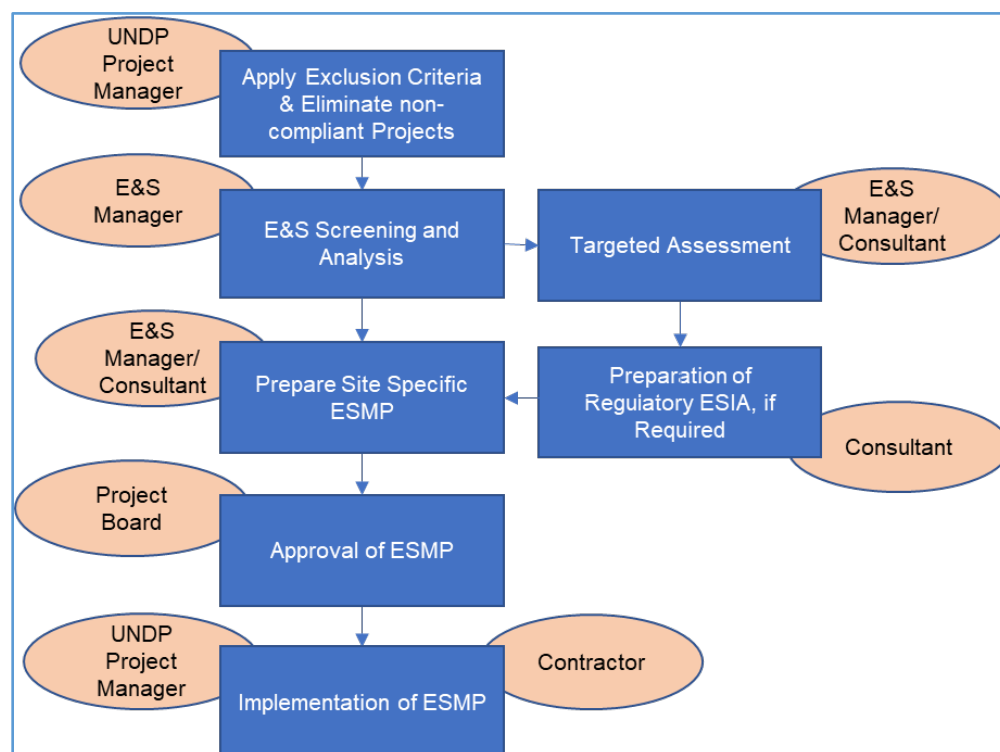


Figure 6: ESMF Procedure Flowchart and Key Responsibilities

6.2 EXCLUSIONS LIST

The UNDP staff member responsible for origination of candidate projects will apply exclusion criteria to all new candidate projects. A candidate pilot project will be deemed ineligible if it:

- Involves physical or economic displacement of people;
- Is located within or nearby known cultural heritage features, unless such pilot projects are identified by the Government and are needed to protect such features from wildfires;
- Makes use of pesticides that fall under the World Health Organization Recommended Classification of Pesticides by Hazard Classes 1a and 1bf and pesticides listed in annexes A and B of the Stockholm Convention²⁵, except under the conditions noted in the convention;
- Involves use of alien invasive species for reforestation;
- Is not in compliance with Law.

6.3 SCREENING

Once a pilot project is fully specified in terms of design, site, scope and scale it will be screened against the AFs ESP and the UNDP SESP. A screening report will be prepared provided the results of the screening and providing a conclusion as to the level of risk and next steps: 1. Proceed to Prepare ESMP; 2. Undertake additional target assessments, and if needed a regulatory ESIA; or 3. For any project with activities deemed high-risk require a redesigned to reduce risks to moderate.

6.4 ASSESSMENT AND MANAGEMENT OF ENVIRONMENTAL AND SOCIAL RISKS AND IMPACTS

Targeted assessment may take the form of a comprehensive ESIA or a targeted assessment of a specific issue (such as traffic management). If a regulatory ESIA is required, then the targeted assessment will take the form of the regulatory ESIA. The targeted assessment/ESIA may also incorporate additional consideration of issues related to gender and vulnerable people.

In all cases the UNDP SES and SESP require that social and environmental assessments and adoption of appropriate mitigation and management measures must be completed, disclosed, and discussed with stakeholders prior to implementation of any activities that may cause adverse social and environmental impacts.

Environmental and Social Impact Assessment (ESIA) is carried out to identify and predict impacts of proposed sub-project activities. The process includes: (a) impact screening, (b) scoping, (c) prediction and mitigation; (d) management, monitoring and evaluation. The ESIA defines the degree to which the benefits of the potential future project activities will be distributed in an equitable manner across the affected population and examine opportunities to enhance social inclusion, social accountability, strengthen social cohesion, increase social capital, and build ownership as per AF principles.

6.5 MANAGEMENT OF GENERAL PROJECT ACTIVITIES

General project activities are low-risk activities to be undertaken as part the institutional strengthening and capacity building. These activities primarily involve activities such as meetings, workshops, report preparation, travel, and the like. No construction or other physical type works are included as part of general project activities. During the initial 2 months of implementation the PMU will compile all of the applicable UNDP procedures that may be applicable to the general activities, as well as review the SESP Report and AF Screening Checklist, both of which are attached to this report, and prepare a compliance manual to be followed by project staff. This will include procedures for road travel, personal security, stakeholder engagement and grievance redress mechanism, and gender mainstreaming.

²⁵ The Stockholm Convention on Persistent Organic Pollutants. 2001.

6.6 SITE SPECIFIC ESMPs

Following completion of screening and assessment, and if needed a regulatory ESIA, a site-specific ESMP will be prepared. The ESMP will consist of a set of avoidance, mitigation, monitoring and institutional measures – as well as actions needed to implement these measures – to achieve the desired social and environmental sustainability outcomes. The ESMP will be site-specific. This may be particularly relevant whereas contractors are being engaged to carry out the project, or parts of the site specific activities, and the ESMPs sets out the requirements to be followed by contractors. The ESMPs should be incorporated as part of the contract with the contractor, together with appropriate monitoring and enforcement provisions.

During the initial period of implementation, the Project will develop an ESMP Template for Georgia and an ESMP Template for Armenia that take into account the local circumstances, laws, and customs. The templates will be used to develop site specific ESMPs as needed. The templates will be updated from time to time as this will facilitate consistency from project to project.

The content of the ESMP should address the following sections:

(1) Mitigation: Identifies measures and actions in accordance with the mitigation hierarchy that avoid, or if avoidance not possible, reduce potentially significant adverse social and environmental impacts to acceptable levels. Specifically, the ESMP: (a) identifies and summarizes all anticipated significant adverse social and environmental impacts; (b) describes – with technical details – each mitigation measure, including the type of impact to which it relates and the conditions under which it is required (e.g., continuously or in the event of contingencies), together with designs, equipment descriptions, and operating procedures, as appropriate; (c) estimates any potential social and environmental impacts of these measures and any residual impacts following mitigation; and (d) takes into account, and is consistent with, other required mitigation plans (e.g. for displacement, indigenous peoples).

(2) Monitoring: Identifies monitoring objectives and specifies the type of monitoring, with linkages to the impacts assessed in the environmental and social assessment and the mitigation measures described in the ESMP. Specifically, the monitoring section of the ESMP provides (a) a specific description, and technical details, of monitoring measures, including the parameters to be measured, methods to be used, sampling locations, frequency of measurements, detection limits (where appropriate), and definition of thresholds that will signal the need for corrective actions; and (b) monitoring and reporting procedures to (i) ensure early detection of conditions that necessitate particular mitigation measures, and (ii) furnish information on the progress and results of mitigation.

(3) Capacity development and training: To support timely and effective implementation of social and environmental project components and mitigation measures, the ESMP draws on the environmental and social assessment of the existence, role, and capability of responsible parties on site or at the agency and ministry level. Specifically, the ESMP provides a description of institutional arrangements, identifying which party is responsible for carrying out the mitigation and monitoring measures (e.g. for operation, supervision, enforcement, monitoring of implementation, remedial action, financing, reporting, and staff training). Where support for strengthening social and environmental management capability is identified, ESMP recommends the establishment or expansion of the parties responsible, the training of staff and any additional measures that may be necessary to support implementation of mitigation measures and any other recommendations of the environmental and social assessment.

(4) Stakeholder Engagement: Outlines plan to engage in meaningful, effective and informed consultations with affected stakeholders. Includes information on (a) means used to inform and involve affected people in the assessment process; (b) summary of stakeholder engagement plan for meaningful, effective consultations during project implementation, including identification of milestones for consultations, information disclosure, and periodic reporting on progress on project implementation; and (c) description of effective processes for receiving and addressing stakeholder concerns and grievances regarding the project's social and environmental performance.

(5) Implementation action plan (schedule and cost estimates): For all four above aspects (mitigation, monitoring, capacity development, and stakeholder engagement), ESMP provides (a) an implementation schedule for measures that must be carried out as part of the project, showing phasing and coordination

with overall project implementation plans; and (b) the capital and recurrent cost estimates and sources of funds for implementing the ESMP. These figures are also integrated into the total project cost tables. Each of the measures and actions to be implemented will be clearly specified and the costs of so doing will be integrated into the project's overall planning, design, budget, and implementation.

7 IMPLEMENTATION AND OPERATION

7.1 GENERAL PROJECT MANAGEMENT STRUCTURE AND RESPONSIBILITIES

The project will be executed by UNDP Country Office in Armenia in close cooperation with UNDP in Georgia under the UNDP Direct Implementation Modality (DIM) in line with UNDP's Programme and Operations Policies and Procedures and Standard Operating Procedures for Regional Programme Management. UNDP Armenia will be the Lead Country Office for the regional project management and will be responsible for delivery of the project outputs. UNDP Armenia will be responsible for overall management, quality assurance, coordination, ensuring project coherence, the preparation and implementation of work plans and annual audit plans; preparation and operation of budgets and budget revisions; disbursement and administration of funds; recruitment of national and international consultants and personnel; financial and progress reporting; and monitoring and evaluation. UNDP GEF Regional Technical Advisor based in the Istanbul Regional Hub will provide technical advice and expertise to the project's activities. The UNDP Country Offices (COs) will implement in-country activities as per agreed workplans. The assigned CO staff will support the project implementation, monitoring, and contribute to the financial and operational closure and final reporting.

A high-level Project Management structure is shown in Figure 7. The key roles are discussed below.

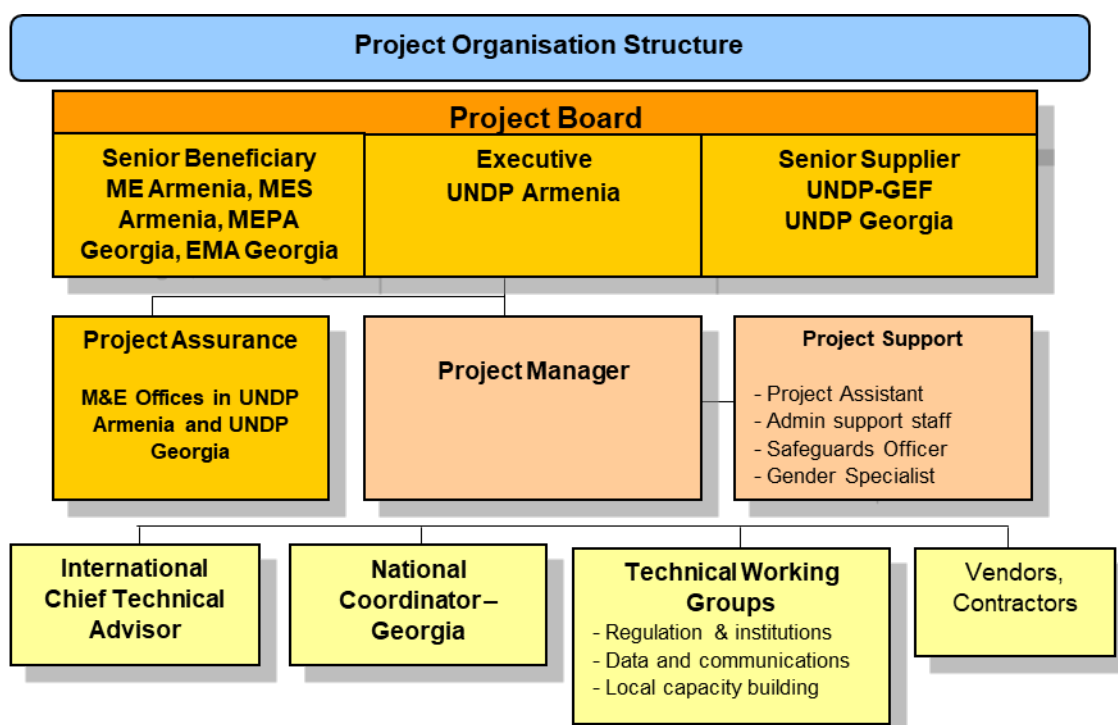


Figure 7 Project Organisation Chart

7.2 PROJECT BOARDS

A Regional Project Board (RPB) will serve as the project's coordination and decision-making body. The RPB's role will include: (i) providing overall leadership, guidance and direction in successful delivery of outputs and their contribution to outcomes under the regional programme, ensuring the project remains within any specified constraints; (ii) overseeing project implementation; (iii) approving all work plans and budgets, at the proposal of the Project Manager (PM), for submission to UNDP-GEF; (iv) approving any major changes in plans or programmes; (v) reviewing annual progress reports and end project report; (vi)

ensuring commitment of resources to support implementation; (vii) arbitrating any conflicts within the project and/or negotiating solutions between the project and any other stakeholders. The RSC will also be the focal point for data sharing and dissemination through its existing transboundary coordination functions and links with the national structures. UNDP-GEF Unit will represent UNDP in the RPB along with representatives from UNDP country offices. Senior level officials from the Ministry of Environment and the Ministry of Emergency Situations from Armenia, as well as Ministry of Environment Protection and Agriculture and Ministry of Internal Affairs from Georgia will represent governments in the RPB. RPB will meet according to necessity, but not less than once in 12 months, to review progress, approve work plans and approve major deliverables.

The National Project Boards or Steering Committees in the two beneficiary countries will be established to oversee and guide project implementation at the country level, including implementation of forest fire management and community engagement activities at the national and local levels. The national Steering Committees will be composed of the national project stakeholders and will be co-chaired by UNDP Country Offices. Nominees from the Ministry of Environment with its subordinated agencies, such as “Hayantar” SNCO, State Hydrometeorological Service, “Forest Monitoring Center” SNCO, Armenian Rescue Service, National Statistical Committee, as well as the Ministry of Economy will represent national project board in Armenia. In Georgia, the NPB membership will include (but not limited to) the representatives from MEPA, EMS, APA and NSC. Representatives from regional administration, selected local communities, enforcement agencies, such as Police, Ministry of Health, academia and other relevant entities may be invited to the PB meetings. Final composition of the National Project Boards will be decided at the PAC meeting.

The steering committees will be responsible for ensuring that the project remains on course to deliver products of the required quality to meet the outcomes defined. The PSC’s role will include: (i) overseeing project implementation; (ii) approving all work plans and budgets, at the proposal of the Project Manager (PM), for submission to Istanbul Regional Hub; (iii) approving any major changes in plans or programmes; (iv) providing technical input and advice; (v) arbitrating any conflicts within the project and/or negotiating solutions between the project and any other stakeholders and (vi) overall evaluation.

With respect to environmental and social management the steering committee will be responsible for overseeing implementation of the ESMF, including sign-off on site specific screening reports and site specific ESMFs.

The project will also use the existing locally established mechanisms for local consultation and participation. In addition to such mechanisms, consultative committees will be formed, consisting of representatives from local government in the project areas, community representatives, and individuals with technical expertise. The consultative committees will provide technical guidance and feedback to the PSC.

7.3 PROJECT MANAGEMENT UNIT AND PROJECT MANAGER

7.3.1 Project Manager and Administrative Assistance

The day-to-day administration will be carried out by a Project Manager (PM) and Project Assistant (PA), who will be located within the UNDP Armenia and by the National Coordinator (NC) for Georgia based at UNDP Tbilisi. The PM will, with the support of the PA and NC, manage the implementation of all activities, including: preparation/updates of work and budget plans, record keeping, accounting and reporting; drafting of terms of reference, technical specifications and other documents as necessary; identification, proposal of consultants to be approved by the PB, coordination and supervision of consultants and suppliers; organization of duty travel, seminars, public outreach activities and other events; and maintaining working contacts with partners at the central and local levels. The Project Manager and NC will liaise and work closely with all partner institutions to link the project with complementary national programmes and initiatives. The PM is accountable to UNDP and the RPB for the quality, timeliness and effectiveness of the activities carried out, as well as for the use of funds. The PM will produce Annual Work and Budget Plans (AWP&ABP). The PM will further produce quarterly operational reports and Project Performance Reports (PPR). These reports will summarize the progress made versus the expected results, explain any significant variances, detail the necessary adjustments and be the main

reporting mechanism for monitoring activities. The PM will be technically supported by contracted national and international service providers, based on need as determined by the PM and approved by the PB. Recruitment of specialist services will be done by the PM, in consultation with the UNDP and in accordance with UNDP's rules and regulations.

7.3.2 Safeguard Officer

A Safeguards Officer will be added to the PMU to provide technical support to UNDP to comply with Environment and Social Safeguards. The Safeguard Officer will report to the Project Manager and will be responsible for the following:

- Prepare and maintain a “compliance manual” for project operations the sets out the applicable procedures and standards that apply to the project, including UNDP procedures related to personal safety & security and road travel, and any applicable requirements of the Governments of Armenia and Georgia;
- Prepare and maintain Permit Compliance Management System that includes provisions for: i) listing permitting requirements; ii) connecting legal requirements to permits; iii) create and track compliance actions related to permits; and iv) provide record-keeping of checklists, notes, documents, etc. related to permit;
- Serve as primary liaison and contact point for communications with regulatory agencies;
- Oversee and/or lead the preparation of social and environmental screenings, ESIAs, and ESMPs for of downstream site-specific project;
- Monitoring compliance with site-specific ESMPs and permits issues by regulators;
- Prepare and maintain “standard environmental clauses” to be attached to all contracts issued for construction works based on the template provided as Annex 3;
- Prepare monthly E&S Compliance Reports for submission to Project Board, and yearly report for submission to AF.
- Organize environmental orientation & awareness, and training
- Review sub-project and activity plan, design, cost, and bid documents to ensure environmental factors and mitigations are incorporated, and sub-project documents and environmental documents are in harmony;
- Communicate with vendors, contractors, and subcontractors for necessary environmental compliance;
- Serve as Lead Officer for set up and operations of the Grievance Redress Mechanism;
- Organize local-level interaction programs on environmental screening and environmental awareness as well as Organize national level consultations with major stakeholders and academia, if necessary.

7.4 PROJECT ASSURANCE

The ‘project assurance’ function of UNDP is to support the Project Board by carrying out objective and independent project oversight and monitoring functions. This role ensures appropriate project management milestones are managed and completed. Project assurance has to be independent of the Project Manager; therefore, the Project Management Unit and/or Project Steering Committee cannot delegate any of its assurance responsibilities to the Project Manager. As the Senior Supplier, UNDP provides quality assurance for the project; ensures compliance with UNDP policies and procedures, including its Social and Environmental Standards and implementation of the requirements of this ESMF.

A UNDP Programme Officer, or M&E Officer, typically holds the Project Assurance role on behalf of UNDP. UNDP Armenia will support project implementation by assisting in monitoring project budgets and expenditures, recruiting and contracting project personnel and consultant services, subcontracting and procuring equipment. UNDP Armenia will also monitor the project implementation and achievement of the project outcomes/outputs and ensure the efficient use of donor funds through an assigned UNDP Team Leader. UNDP IRH will support Project Assurance.

7.5 ADMINISTRATION OF ENVIRONMENTAL AND SOCIAL MANAGEMENT FRAMEWORK

7.5.1 Oversight

The PMU will be responsible for overseeing the implementation and compliance with the ESMF via the collaborating delivery organisations (e.g. contractors, NGOs). A site-specific management plan consistent with this ESMF will be part of any tender documentation.

The PMU will be responsible for the revision or updates of this document and relevant management plans during the course of work. Material changes to the ESMF will be made in consultation with partner organizations.

The UNDP is accountable for the provision of specialist advice on environmental and social issues to the delivery organisations (e.g. contractors, NGOs) and for environmental and social monitoring and reporting. The PMU will assess the environmental and social performance of the delivery organisations (e.g. contractors, NGOs) in charge of delivering each component throughout the project and ensure compliance with the ESMF and site specific ESMPs. During operations the delivery organisations will be accountable for implementation of the ESMF and site-specific ESMPs. Personnel working on the project have accountability for preventing or minimising environmental and social impacts.

For construction activities, the delivery organisation/site supervisor will be responsible for daily inspections (e.g. environmental inspections, Occupational Health & Safety) of the construction site. The Safeguards Officer will cross check these inspections by undertaking monthly audits. The Project Manager will supervise the contractor, while the Safeguards Officer will be responsible for environment and social issues.

The delivery organisations (e.g. contractor, NGO) will be responsible for the day-to-day compliance of the ESMF and site specific ESMP at the specific project site. The delivery organisations (e.g. contractor, NGO) will maintain and keep all administrative and social and environmental records which would include a log of complaints and incidents together with records of any measures taken to mitigate the cause of the complaints or incidents (see below sections on incident reporting and on complaints).

7.5.2 Environmental incident reporting

Any incidents, including non-conformances to the procedures of the ESMP are to be recorded using an Incident Record and the details entered into a register. For any incident that causes or has the potential to cause material or serious environmental harm, the camp officer shall notify the Project Manager as soon as possible. The delivery organisation/contractor must cease work until remediation has been completed as per the approval of the PMU.

7.5.3 Daily and weekly environmental inspection checklists

A daily environmental checklist is to be completed at each work site by the relevant officer and maintained within a register. A weekly environmental checklist is to be completed and will include reference to any issues identified in the daily checklists completed by the field officers. The completed checklist is to be forwarded to PMU for review and follow-up if any issues are identified.

7.5.4 Corrective Actions

Any non-conformances to an ESMP are to be noted in weekly environmental inspections and logged into the register. Depending on the severity of the non-conformance, the relevant officer may specify a corrective action on the weekly site inspection report. The progress of all corrective actions will be tracked

using the register. Any non-conformances and the issue of corrective actions are to be advised to the PMU.

7.5.5 Review and auditing

The ESMF and its procedures are to be reviewed at least every six months by UNDP staff and partner agencies. The objective of the review is to update the document to reflect knowledge gained during the course of project delivery/construction and to reflect new knowledge and changed community standards (values).

The ESMF will be reviewed and amendments made if:

- a. There are relevant changes to environmental conditions or generally accepted environmental practices; or
- b. New or previously unidentified environmental risks are identified; or
- c. Information from the project monitoring and surveillance methods indicate that current control measures require amendment to be effective; or
- d. There are changes to environmental legislation that are relevant to the project; or
- e. There is a request made by a relevant regulatory authority; or
- f. Any changes are to be developed and implemented in consultation with UNDP Staff and partner agencies. When an update is made, all site personnel are to be made aware of the revision as soon as possible e.g. through a tool-box meeting or written notification.

7.5.6 Training

Delivery organisations have the responsibility for ensuring systems are in place so that relevant employees, contractors and other workers are aware of the environmental and social requirements for construction, including the ESMP.

All project personnel will attend an induction that covers health, safety, environment and cultural requirements.

All workers engaged in any activity with the potential to cause serious environmental harm (e.g. handling of hazardous materials) will receive task specific environmental training.

8 STAKEHOLDER ENGAGEMENT

8.1 STAKEHOLDER ENGAGEMENT DURING PROPOSAL PREPARATION

The preparation of the AF proposal “**Increased climate resilience of South Caucasus mountain communities and ecosystems through wildfire risk reduction**” was carried out in consultation with stakeholders, drawing on the expertise of International and National experts, National government stakeholders, as well as a variety of other actors including state-level unions, private sector representative and community members in targeted project areas.

Two missions of the international consultant on climate change project development, Matthew Savage, took place to both Armenia and Georgia with the participation of UNDP Regional Technical Advisor, and UNDP Environment Portfolio staff, to meet with key stakeholders. A list of Institutions and groups consulted during project preparation is provided as Table 5. During these missions there were intensive consultations with variety of stakeholders to get insights for project activities and outputs. During the second mission visits were made to two regions in each country to meet with local stakeholders in four separate areas. Stakeholders included Forest Enterprises, Protected Area Agencies, local EMS services, local government officials and community representatives.

Finally, in order to validate the technical aspects of the project design, further local regional experts undertook consultations with national and local level stakeholders in both Armenia and Georgia to:

- Carry out field investigations to generate new data in support of the project;
- Identify and meet with project stakeholders to acquire site specific data;
- Acquire existing current and historical data from institutions;
- Identify gaps from local stakeholders in the information required to deliver the project.

Table 5: Institutions and groups consulted during project preparation	
Armenia	Georgia
<ul style="list-style-type: none"> • Aparan community • Aparan Forest Enterprise • Aragatsothn rescue service • Armenia Hydromet • Armenian Rescue Service • Armenia Climate Change Center • Dilijan National Park Administration • FAO Armenia Representative Office • GIZ Armenia Representative Office • Gugark Forest Enterprise • Kotayk Emergency Services • Lori rescue service • Ministry of Emergency Situation s • Ministry of Nature Protection • Razdan Forest Enterprise • State Forest Committee • State Forest Monitoring Center • Tavush rescue Service • UNDP programme teams • Municipality of Vayq (Vayots Dzor Region) • Vayots Dzor Forest Enterprise • WWF Armenia • Vanadzor Municipality • Agrarian State University (Vanadzor branch) 	<ul style="list-style-type: none"> • Agency of Protected Areas (APA) • Akhmeta municipality and local forestry service • Caucasus Nature Fund (CNF) • CENN (NGO) • Centre for Biodiversity Research & Conservation – NACRES (NGO) • Emergency Management Service of Georgia • Environmental Information and Education Center (EIEC) • Geo Outlook (NGO) • GIZ Georgia representative office • Global Forest Watch • Green Alternative (NGO) • Ministry of Internal Affairs, 112 emergency service • Ministry of Environment Protection and Agriculture (MEPA) • National Forestry Agency • PPRD East project team • Regional Environmental Center (REC) • Tianeti municipality and local forestry service • IUCN • UNDP programme teams • World Bank • WWF

In addition, two multi-stakeholder workshops were held in Tbilisi and Yerevan for policy makers, NGOs and academics with more than 30 attendees in total (Table 6). Two large scale community level consultation events were also held at potential project sites, with participants listed in Table 7.

Table 6: List of community consultations conducted during the project development and validation		
Date	Community	Number of people attended
15th April 2019	Aparan (Armenia) – EMS, local administration, forest agency, community members	20 (3)
17 th April 2019	Vanadzor (Armenia) - Farmers, foresters, community heads, EMS, local administration	40 (5)

Table 7: Stakeholders in Local Community Meetings in Armenia		
#	Name / Family Name	Organization/Position
List of stakeholders in Kotayk region (Meeting in Razdan City)		
1.	Stepan Margaryan	Director, “Razdan Forest Enterprise” SNCO ²⁶
2.	Khachik Melkonyan	Forest Engineer, “Razdan Forest Enterprise” SNCO
3.	Khachatur Khachatryan	Forester, “Razdan Forest Enterprise” SNCO
4.	Aram Muradyan	Forester, “Razdan Forest Enterprise” SNCO
3.	Rafael Grioryan	Head, Qaxsi Community Administration
4.	Armen Amirjanyan	Head of Kotayk Regional Rescue Department, Ministry of Emergency Situation
5.	Narek Harutyunyan	Deputy Head, Meghradzor Community Administration
6.	Ruben Petrosyan	Adviser to the State Forest Committee, Ministry of Environment
7.	Vardan Melikyan	Task Leader, UNDP Wildfire Management Project
8.	Ashot Sargsyan	DRM National Expert
List of stakeholders in Aragatsotn region (Meeting in Aparan City)		
1.	Vram Abrahamyan	Director, “Aragatsotn Forest Enterprise” SNCO
2.	Hrachik Aragelyan	Forester, “Aragatsotn Forest Enterprise” SNCO
3.	Vardges Sargsyan	Forester, “Aragatsotn Forest Enterprise” SNCO
4.	Hrayr Ghukasyan	Forester, “Aragatsotn Forest Enterprise” SNCO
5.	Gnel Adamyan	Ranger, Aragats Branch of “Aragatsotn Forest Enterprise” SNCO
6.	Andranik Ghazaryan	Chief Forester, “Aragatsotn Forest Enterprise” SNCO
7.	Hrayr Darbinyan	Head of Aragatsotn Regional Rescue Department, Ministry of Emergency Situation
8.	Gagik Simonyan	Chief Specialist, Aparan Municipality
9.	Hayk Arshakyan	Commander, Aparan Fire-fighting Rescue Group
10.	Robert Galstyan	Aparan Municipality
11.	Karen Harutyunyan	Head, Kayq Administrative District
12.	Vigen Harutyunyan	Chief Inspector, Emergency Management Center, Aragatsotn Regional Rescue Department
13.	Vardan Melikyan	Task Leader, UNDP Wildfire Management Project
14.	Ashot Sargsyan	DRM National Expert
List of Stakeholders in Lori region (Meeting in Vanadzor City)		
1.	Samvel Mkhitarian	Forester, Eghegnut Branch of “Gugark Forest Enterprise” SNCO
2.	Levon Mkhitarian	Forester, “Gugark Forest Enterprise” SNCO
3.	Rafik Aghababyan	Gugark Forest Enterprise” SNCO
4.	Tigran Antonyan	Gugark Forest Enterprise” SNCO
5.	Kare Sargsyan	Leading Specialist, Shahumyan Community Administration
6.	Arayik Gevorgyan	Head, Antaramut Community Administration
7.	Taron Serobyan	Lernapat Community Representative
8.	Serj Ghambaryan	Ranger, Eghegnut Branch of “Gugark Forest Enterprise” SNCO
9.	Gagik Ghazakhecyan	Ranger, Eghegnut Branch of “Gugark Forest Enterprise” SNCO
10.	Gagik Andreasyan	Forester, Vanadzor Branch of “Gugark Forest Enterprise” SNCO
11.	Gagik Mkhitarian	Forester, Spitak Branch of “Gugark Forest Enterprise” SNCO
12.	Vahe Dokhoyan	Ranger, Eghegnut Branch of “Gugark Forest Enterprise” SNCO

²⁶ SNCO – State Non-commercial Organization

13.	Apres Voskanyan	Lernarot Community Administration
14.	Suren Kostanyan	Vahagni Community Administration
15.	Ashot Ghazaryan	Debed Community Administration
16.	Sayad Mnatsakanyan	Arjut Community Administration
17.	Artak Simonyan	Gugark Fire -fighting Group
18.	Suren Gharabekyan	Ranger, "Gugark Forest Enterprise" SNCO
19.	Artashes Mkhitarian	Ranger, "Gugark Forest Enterprise" SNCO
20.	Armen Danamashyan	Deputy Head, Lori Regional Rescue Department, Ministry of Emergency Situation
21.	Ruben Petrosyan	Adviser to the State Forest Committee, Ministry of Environment
22.	Ruben Vardanyan	Independent Consultant on Environmental and Social Safeguards

8.2 STAKEHOLDER ENGAGEMENT PROGRAMME

The Stakeholder Engagement Programme seeks to set the procedures for ensuring consultation and stakeholder engagement during assessment, development of action plans, and monitoring of social and environmental impacts associated with specific project activities, including information disclosure requirements.

The UNDP jointly with partner agencies will develop and release project-related information to communities, organizations and municipalities where the project is implementing its activities. In order to do so, the project will make use of:

- Print media (newspapers);
- local radio broadcasters;
- local television broadcasters;
- local project and government offices; and
- Social media

Meaningful, effective and informed stakeholder engagement and participation will continue to be undertaken that will seek to build and maintain over time a constructive relationship with stakeholders, with the purpose of avoiding or mitigating any potential risks in a timely manner. The scale and frequency of the engagement will reflect the nature of the activity, the magnitude of potential risks and adverse impacts, and concerns raised by affected communities.

The Stakeholder Engagement Programme will build on various activities and methods, including the promotion of participatory processes, joint decision-making, and partnerships undertaken with local communities, NGOs, and local governments. Participatory processes will include specially designed methodologies that facilitate participation of women and other vulnerable and disadvantaged groups such as the elderly, and youth these other groups.

The Project Manager is responsible for carrying out the specific stakeholder engagement activities. These activities will be supported by the Project Management Unit (PMU); in case the PMU is not capable of undertaking the activities, technical assistance will be provided. Stakeholder engagement activities and required technical assistances will be funded by the project's budget as part of specific outputs.

8.2.1 Public Awareness and Sensitization

The project will work with local stakeholders in identified communities to build capacity and awareness around key forest fire management issues, as well as on broader climate resilient livelihoods and forest adaptation. In each region, the project will convene seminars for key stakeholders (agriculturalists, forest managers, emergency services, local authorities) to promote awareness of best practices. The project will work through a range of channels to change attitudes and behaviour to wildfire risk, including:

- a. Targeted field seminars with farmers engaged in residue burning;
- b. Promoting wildfire risk through public schools and other educational facilities;
- c. Engaging with volunteer groups supporting wildfire and forest management;

- d. Using local NGOs and environmental activist networks to raise awareness;
- e. Partnering with emergency services and forest managers on signs; and,
- f. Engaging with local media (press, tv, social media) to promote best practice.

These best practices and experiences will be compiled and disseminated at the regional level through internet, publications, case studies and round tables. These will be disseminated through national channels and stakeholders, as well as through UNDP regional and global learning platforms (ALM).

8.2.2 Disclosure and Decisions Making

The project team will develop and release updates on the project on a regular basis to provide interested stakeholders with information on project status. Stakeholders will have access to relevant project information in order to understand potential project-related opportunities and risks and to engage in project design and implementation. Specifically, the following information will be made available:

- Stakeholder engagement plans and summary reports of stakeholder consultations;
- Social and environmental screening reports (SESP) with project documentation (30 days prior to approval);
- Draft social and environmental assessments, including any draft management plans (30 days prior to finalization);
- Final social and environmental assessments and associated management plans; and,
- Any stakeholder engagement activities or information to be disclosed as required by Law, including host country procedures for ESIA's.

Such information is to be disclosed in a timely manner, in an accessible place, and in a form and language understandable to affected persons and other stakeholders. These elements of effective disclosure are briefly elaborated below:

- Timely disclosure: information on potential project-related social and environmental impacts and mitigation/management measures will be provided in advance of decision-making. In all cases, draft and final screenings, assessments and management plans must be disclosed and consulted on prior to implementation of activities that may give rise to potential adverse social and environmental impacts.
- Accessible information: Appropriate means of dissemination will need to be considered in consultation with stakeholders. This could include posting on web-media, public meetings, local councils or organizations, newsprint, television and radio reporting, flyers, local displays, direct mail.
- Appropriate form and language: Information needs to be in a form and language that is readily understandable and tailored to the target stakeholder group.

9 GRIEVANCE REDRESS MECHANISM

During the design, construction and implementation of any project, a person or group of people may perceive or experience potential harm, directly or indirectly due to the project activities. The grievances that may arise can be related to: 1. general project activity, such as beneficiary eligibility criteria or project design decisions; 2. Direct impacts, such as loss of livelihood, property damage, or noise; and, 3. Project performance issues such as environmental contamination (spills) or unsafe driving.

Should such a situation arise, there must be a mechanism through which affected parties can resolve such issues in a cordial manner with the project personnel in an efficient, unbiased, transparent, timely and cost-effective manner. To achieve this objective, a Grievance Redress Mechanism ("GRM") has been included in the ESMF for this project.

The project allows those that have a complaint or that feel aggrieved by the project to be able to communicate their concern, complaints and/or grievances through an appropriate process. The Complaints Register and GRM set out in this ESMF are to be used as part of the project and will provide an accessible, rapid, fair and effective response to concerned stakeholders, especially any vulnerable group who often lack access to formal legal regimes.

While recognising that many complaints may be resolved immediately, the Complaints Register and GRM set out in this ESMF encourages mutually acceptable resolution of issues as they arise. The Complaints Register and GRM set out in this ESMF has been designed to:

- a. be a legitimate process that allows for trust to be built between stakeholder groups and assures stakeholders that their concerns will be assessed in a fair and transparent manner;
- b. allow simple and streamlined access to the GRM for all stakeholders and provide adequate assistance for those that may have faced barriers in the past to be able to raise their concerns;
- c. provide clear and known procedures for each stage of the GRM process, and provides clarity on the types of outcomes available to individuals and groups;
- d. ensure equitable treatment to all concerned and aggrieved individuals and groups through a consistent, formal approach that, is fair, informed and respectful to a concern, complaints and/or grievances;
- e. to provide a transparent approach, by keeping any aggrieved individual/group informed of the progress of their complaint, the information that was used when assessing their complaint and information about the mechanisms that will be used to address it; and
- f. enable continuous learning and improvements to the GRM. Through continued assessment, the learnings may reduce potential complaints and grievances.

Annex 2 provides a template and guidance for submitting a request to the social and environmental compliance unit and/or the stakeholder response mechanism.

Eligibility criteria for the GRM include:

- a. Perceived negative economic, social or environmental impact on an individual and/or group, or concern about the potential to cause an impact;
- b. clearly specified kind of impact that has occurred or has the potential to occur; and explanation of how the project caused or may cause such impact; and
- c. individual and/or group filing of a complaint and/or grievance is impacted, or at risk of being impacted; or the individual and/or group filing a complaint and/or grievance demonstrates that it has authority from an individual and or group that have been or may potentially be impacted on to represent their interest.

The GRM will be gender- and age-inclusive and responsive and address potential access barriers to women, the elderly, the disabled, youth and other potentially marginalized groups as appropriate to the Project. The GRM will not impede access to judicial or administrative remedies as may be relevant or applicable and will be readily accessible to all stakeholders at no cost and without retribution.

Information about the Grievance Redress Mechanism and how to make a complaint and/or grievance must be communicated during the stakeholder engagement process and placed at prominent places for the information of the key stakeholders.

9.1 COMPLAINTS REGISTER

A complaints register will be established as part of the project to record any concerns raised by stakeholders during and following implementation of the project. Any complaint will be advised to the UNDP within 24 hours of receiving the complaint.

All complaints and/or grievances regarding social and environmental issues can be received either orally (to the field staff), by phone, in complaints box or in writing to the UNDP, partner agencies, or UNDP contractors. A key part of the grievance redress mechanism is the requirement for the UNDP to maintain a register of complaints and/or grievances regardless of where and how received. The following information will be recorded:

- a. time, date and nature of enquiry, concern, complaints and/or grievances;
- b. type of communication (e.g. telephone, letter, personal contact);
- c. name, contact address and contact number;
- d. response and review undertaken as a result of the enquiry, concern, complaints and/or grievances; and
- e. actions taken and name of the person taking action.

The project team will seek to resolve complaints in an expeditious manner. All complaints regarding construction or otherwise of an immediate nature will be responded to within 24 or less. Complaints that cannot be addressed at the local level will be escalated to the grievance redress mechanism.

Project staff will submit a summary list of complaints received and their disposition to the project steering committee on a monthly basis.

9.2 UNDP GRIEVANCE REDRESS MECHANISM

Grievances that cannot be amicably resolved at the local level will be referred to the Grievance Redress Committee.

The Grievance Redress Mechanism has been designed to ensure that an individual and/or group are not financially impacted by the process of making a complaint and/or grievance. The Grievance Redress Mechanism will cover any reasonable costs in engaging a suitably qualified person to assist in the preparation of a legitimate complaint and/or grievance. Where a complaint and/or grievance is seen to be ineligible, the Grievance Redress Mechanism will not cover these costs.

Information about the Grievance Redress Mechanism and how to make a complaint and/or grievance must be placed at prominent places for the information of the key stakeholders.

The Safeguards officer in the PMU will be designated as the key officer in charge of the Grievance Redress Mechanism. The Terms of Reference for these positions (as amended from time to time) will include the following key responsibilities:

- a. coordinate formation of Grievance Redress Committees before the commencement of constructions to resolve issues;
- b. act as the focal point at the PMU on Grievance Redress issues and facilitate the resolution of issues within the PMU;
- c. create awareness of the Grievance Redress Mechanism amongst all the stakeholders through public awareness campaigns;
- d. assist in redress of all grievances by coordinating with the concerned parties;
- e. maintain information on grievances and redress;
- f. monitor the activities of contractors on grievances issues; and
- g. prepare the progress for monthly/quarterly reports.

A two tier Grievance Redress Mechanism structure has been developed to address all complaints and/or grievances in the project. The first tier redress mechanism involves the receipt of a complaint and/or grievance at the local level. The stakeholders are informed of various points of making a complaint and/or grievance (if any) and the PMU collect the complaints and/or grievances from these points on a regular basis and record them. This is followed by coordinating with the concerned people to redress the grievances. The Safeguards Officer of the PMU will coordinate the activities at the respective District level to address the grievances and would act as the focal point in this regard. The Community Development Officer of the Local Authority or in the absence of the Community Development Officer, any officer given the responsibility of this would coordinate with the Safeguards and Gender Manager of the PMU in redressing the grievances. The designated officer of the Local Authorities is provided with sufficient training in the procedure of redress to continue such systems in future.

The grievance can be made orally (to the field staff, contractors), by phone, in complaints box or in writing. Complainants may specifically contact the Safeguards Officer and request confidentiality if they have concerns about retaliation. In these cases, the Safeguards Officer will review the complaint and/or grievance, discuss it with the complainant, and determine how best to engage project executing entities while preserving confidentiality for the complainant.

As soon as a complaint and/or grievance is received, the Safeguards Officer would issue an acknowledgement. The Community Development Officer receiving the complaint and/or grievance should try to obtain relevant basic information regarding the grievance and the complainant and will immediately inform the Safeguards Officer in the PMU.

The PMU will maintain a Complaint / Grievance Redress register. Keeping records collected from relevant bodies is the responsibility of PMU.

After registering the complaint and/or grievance, the Safeguards Officer will study the complaint and/or grievance made in detail and forward the complaint and/or grievance to the concerned officer with specific dates for replying and redressing the same. The Safeguards Officer will hold meetings with the affected persons / complainant and then attempt to find a solution to the complaint and/or grievance received. If necessary, meetings will be held with the concerned affected persons / complainant and the concerned officer to find a solution to the problem and develop plans to redress the grievance. The deliberations of the meetings and decisions taken are recorded. All meetings in connection with the Grievance Redress Mechanism, including the meetings of the Grievance Redress Committee, must be recorded. The Safeguards Officer for the Grievances Redress Mechanism will be actively involved in all activities.

The resolution at the first tier will be normally be completed within 15 working days and the complaint and/or grievance will be notified of the proposed response through a disclosure form. The resolution process should comply with the requirements of the GRM in that it should, as far as practicable, be informal with all parties acting in good faith. Further, the GRM should, as far as practicable, achieve mutually acceptable outcomes for all parties.

Should the grievance be not resolved within this period to the satisfaction of the complainant, the grievance will be referred to the second-tier level of GRM. If the social safeguard and gender officer feels that adequate solutions can be established within the next five working days, the officer can decide on retaining the issue at the first level by informing the complainant accordingly. However, if the complainant requests for an immediate transfer to the next level, the matter must be referred to the next tier. In any case, where the issue is not addressed within 20 working days, the matter is referred to the next level.

Note that any grievance related to corruption or any unethical practice is to be immediately referred by the PMU to the authorities in Armenia or Georgia and to the Office of Audit and Investigation within the UNDP in New York.

A Grievance Redress Committee will be formed at the regional level and will address the grievance in the second tier. The Safeguard Officer from the PMU will coordinate with the respective Commissioner of Local Government in getting these Committees constituted for each Region and get the necessary circulars issued in this regard so that they can be convened whenever required.

The Terms of Reference for the Grievance Redress Committee are:

- a. providing support to the affected persons in solving their problems;
- b. prioritise grievances and resolve them at the earliest;

- c. provide information to the PMU and partner agencies on serious cases at the earliest opportunity;
- d. Coordinate with the aggrieved person/group and obtain proper and timely information on the solution worked out for his/her grievance; and
- e. study the normally occurring grievances and advise PMU, National and District Steering Committee on remedial actions to avoid further occurrences.

The Grievance Redress Committee will hold the necessary meetings with the aggrieved party/complainant and the concerned officer and attempt to find a solution acceptable at all levels. The Grievance Redress Committee would record the minutes of the meeting.

Grievance Redress Committee will communicate proposed responses to the complainant formally. If the proposed response satisfies the complainant, the response will be implemented and the complaint and/or grievance closed. In cases where a proposed response is unsatisfactory to the complainant, the Grievance Redress Committee may choose to revise the proposed response to meet the complainant's remaining concerns, or to indicate to the complainant that no other response appears feasible to the Grievance Redress Committee. The complainant may decide to take a legal or any other recourse if s/he is not satisfied with the resolutions due to the deliberations of the three tiers of the grievance redress mechanism.

In addition to the project-level and national grievance redress mechanisms, complainants have the option to access UNDP's Accountability Mechanism, with both compliance and grievance functions. The Social and Environmental Compliance Unit investigates allegations that UNDP's Standards, screening procedure or other UNDP social and environmental commitments are not being implemented adequately, and that harm may result to people or the environment. The Social and Environmental Compliance Unit is housed in the Office of Audit and Investigations and managed by a Lead Compliance Officer. A compliance review is available to any community or individual with concerns about the impacts of a UNDP programme or project. The Social and Environmental Compliance Unit is mandated to independently and impartially investigate valid requests from locally impacted people, and to report its findings and recommendations publicly.

The Stakeholder Response Mechanism offers locally affected people an opportunity to work with other stakeholders to resolve concerns, complaints and/or grievances about the social and environmental impacts of a UNDP project. Stakeholder Response Mechanism is intended to supplement the proactive stakeholder engagement that is required of UNDP and its Implementing Partners throughout the project cycle. Communities and individuals may request a Stakeholder Response Mechanism process when they have used standard channels for project management and quality assurance, and are not satisfied with the response (in this case the project level grievance redress mechanism). When a valid Stakeholder Response Mechanism request is submitted, UNDP focal points at country, regional and headquarters levels will work with concerned stakeholders and Implementing Partners to address and resolve the concerns. Visit www.undp.org/secu-srm for more details. The relevant form is provided as Annex 2.

ANNEX 1. Guidance for Submitting a Request to the Social and Environmental Compliance Unit and/or the Stakeholder Response Mechanism



*Empowered lives.
Resilient nations.*

Purpose of this form

- **If you use this form, please put your answers in bold writing to distinguish text**
- **The use of this form is recommended, but not required. It can also serve as a guide when drafting a request.**

This form is intended to assist in:

- 1 Submitting a request when you believe UNDP is not complying with its social or environmental policies or commitments and you believe you are being harmed as a result. This request could initiate a 'compliance review', which is an independent investigation conducted by the Social and Environmental Compliance Unit (SECU), within UNDP's Office of Audit and Investigations, to determine if UNDP policies or commitments have been violated and to identify measures to address these violations. SECU would interact with you during the compliance review to determine the facts of the situation. You would be kept informed about the results of the compliance review.

and/or

- 2 Submitting a request for UNDP "Stakeholder Response" when you believe a UNDP project is having or may have an adverse social or environmental impact on you and you would like to initiate a process that brings together affected communities and other stakeholders (e.g., government representatives, UNDP, etc.) to jointly address your concerns. This Stakeholder Response process would be led by the UNDP Country Office or facilitated through UNDP headquarters. UNDP staff would communicate and interact with you as part of the response, both for fact-finding and for developing solutions. Other project stakeholders may also be involved if needed.

Please note that if you have not already made an effort to resolve your concern by communicating directly with the government representatives and UNDP staff responsible for this project, you should do so before making a request to UNDP's Stakeholder Response Mechanism.

Confidentiality If you choose the Compliance Review process, you may keep your identity confidential (known only to the Compliance Review team). If you choose the Stakeholder Response Mechanism, you can choose to keep your identity confidential during the initial eligibility screening and assessment of your case. If your request is eligible and the assessment indicates that a response is appropriate, UNDP staff will discuss the proposed response with you, and will also discuss whether and how to maintain confidentiality of your identity.

Guidance. When submitting a request please provide as much information as possible. If you accidentally email an incomplete form, or have additional information you would like to provide, simply send a follow-up email explaining any changes.

Information about You

Are you...

1. A person affected by a UNDP-supported project?

Mark "X" next to the answer that applies to you:

Yes:

No:

2. An authorised representative of an affected person or group?

Mark "X" next to the answer that applies to you:

Yes:

No:

If you are an authorised representative, please provide the names of all the people whom you are representing; and documentation of their authorization for you to act on their behalf, by attaching one or more files to this form.

3. First name:

4. Last name:

5. Any other identifying information:

6. Mailing address:

7. Email address:

8. Telephone Number (with country code):

9. Your address/location:

10. Nearest city or town:

11. Any additional instructions on how to contact you:

12. Country:

What you are seeking from UNDP: Compliance Review and/or Stakeholder Response

You have four options:

- a. Submit a request for a Compliance Review;
- b. Submit a request for a Stakeholder Response;
- c. Submit a request for both a Compliance Review and a Stakeholder Response;
- d. State that you are unsure whether you would like Compliance Review or Stakeholder Response and that you desire both entities to review your case.

13. Are you concerned that UNDP's failure to meet a UNDP social and/or environmental policy or commitment is harming, or could harm, you or your community? Mark "X" next to the answer that applies to you: Yes: No:

14. Would you like your name(s) to remain confidential throughout the Compliance Review process?

Mark "X" next to the answer that applies to you:

Yes:

No:

If confidentiality is requested, please state why:

15. Would you like to work with other stakeholders, e.g., the government, UNDP, etc. to jointly resolve a concern about social or environmental impacts or risks you believe you are experiencing because of a UNDP project?

Mark "X" next to the answer that applies to you:

Yes:

No:

16. Would you like your name(s) to remain confidential during the initial assessment of your request for a response?

Mark "X" next to the answer that applies to you:

Yes:

No:

If confidentiality is requested, please state why:

17. Requests for Stakeholder Response will be handled through UNDP Country Offices unless you indicate that you would like your request to be handled through UNDP Headquarters. Would you like UNDP Headquarters to handle your request?

Mark "X" next to the answer that applies to you: Yes: No:

If you have indicated yes, please indicate why your request should be handled through UNDP Headquarters:

18. Are you seeking both Compliance Review and Stakeholder Response?

Mark "X" next to the answer that applies to you: Yes: No:

19. Are you unsure whether you would like to request a Compliance Review or a Stakeholder Response? Mark "X" next to the answer that applies to you: Yes: No:

Information about the UNDP Project you are concerned about, and the nature of your concern:

20. Which UNDP-supported project are you concerned about? (if known):

21. Project name (if known):

22. Please provide a short description of your concerns about the project. If you have concerns about UNDP's failure to comply with its social or environmental policies and commitments, and can identify these policies and commitments, please do (not required). Please describe, as well, the types of environmental and social impacts that may occur, or have occurred, as a result. If more space is required, please attach any documents. You may write in any language you choose

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23. Have you discussed your concerns with the government representatives and UNDP staff responsible for this project? Non-governmental organisations?

Mark "X" next to the answer that applies to you: Yes: No:

If you answered yes, please provide the name(s) of those you have discussed your concerns with

Name of Officials You have Already Contacted Regarding this Issue:

First Name	Last Name	Title/Affiliation	Estimated Date of Contact	Response from the Individual
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24. Are there other individuals or groups that are adversely affected by the project?

Mark "X" next to the answer that applies to you: Yes: No:

25. Please provide the names and/or description of other individuals or groups that support the request:

First Name	Last Name	Title/Affiliation	Contact Information
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Please attach to your email any documents you wish to send to SECU and/or the SRM. If all of your attachments do not fit in one email, please feel free to send multiple emails.

Submission and Support

To submit your request, or if you need assistance please email: project.concerns@undp.org

ANNEX 2: Standard General Environmental Contract Clauses

Generic contract clauses are provided in this annex to assist with environmental and social management works expected to have minor impacts. These mitigation measures are the core of a generic, standardised EMP (Environmental Management Plan) and the associated minor impacts typical of small works which can be routinely addressed with best industry practice. These clauses are general and may be modified to conform to applicable national laws, contract procedures and actual scope and nature of the works anticipated. These clauses are intended to be included as requirements in the works contract and shall remain in force throughout the contract period. These clauses represent the minimum standard of execution for environmental protection and include:

- 1 Permits and Approvals
- 2 Site Security
- 3 Discovery of Antiquities
- 4 Worker Occupational Health and Safety
- 5 Noise Control
- 6 Use and Management of Hazardous Materials, fuels, solvents and petroleum products
- 7 Use and Management of Pesticides
- 8 Use of Preservatives and Paint Substances
- 9 Use of Explosives
- 10 Site Stabilization and Erosion Control
- 11 Traffic Management
- 12 Management of Standing Water
- 13 Management of Solid Wastes -trash and construction debris
- 14 Management of Liquid Wastes

Standard Clauses

1. Permits and Approvals

The contractor shall be responsible for ensuring that he or she has all relevant legal approvals and permits required to commence works.

2. Site Security

The contractor shall be responsible for maintaining security over the construction site including the protection of stored materials and equipment. In the event of severe weather, the contractor shall secure the construction site and associated equipment in such a manner as to protect the site and adjacent areas from consequential damages. This includes the management of onsite, construction materials, construction and sanitary wastes, additional strengthening of erosion control and soil stabilization systems and other conditions resulting from contractor activities which may increase the potential for damages.

3. Discovery of Antiquities

If, during the execution of the activities contained in this contract, any material is discovered onsite which may be considered of historical or cultural interest, such as evidence of prior settlements, native or historical activities, evidence of any existence on a site which may be of cultural significance, all work shall stop and the supervising contracting officer shall be notified immediately. The area in which the material was discovered shall be secured, cordoned off, marked, and the evidence preserved for examination by the local archaeological or cultural authority. No item believed to be an artefact must be removed or disturbed by any of the workers. Work may resume, without penalty of prejudice to the contractor upon permission from the contracting officer with any restrictions offered to protect the site.

4. Worker Occupational Health and Safety

The contractor shall ensure that all workers operate within a safe environment. Sanitation facilities shall be provided for all site workers. All sanitary wastes generated as a result of project activities shall be managed in a manner approved by the contracting officer and the local authority responsible for public health. The contractor shall ensure that there are basic medical facilities on site and that there are staff trained in basic first aid. Workers must be provided with the necessary protective gear as per their specific tasks such as hard hats, overalls, gloves, goggles, boots, etc. The contractor shall provide the contracting officer with an occupational health and safety plan for approval prior to the commencement of site activities.

The contractor must ensure that all workers operate within a safe environment. All relevant Labour and Occupational Health and Safety regulations must be adhered to ensure worker safety. Sanitary facilities must be provided for all workers on site. Appropriate posting of information within the site must be done to inform workers of key rules and regulations to follow.

5. Noise Control

The contractor shall control noise emissions generated as a result of contracting activities to the extent possible. In the case of site locations where noise disturbance will be a concern, the contractor shall ensure that the equipment is in good working order with manufacturer supplied noise suppression (mufflers etc.) systems functioning and in good repair.

Where noise management is a concern, the contractor shall make reasonable efforts to schedule activities during normal working hours (between 8 am and 5 pm). Where noise is likely to pose a risk to the surrounding community either by normal works or working outside of normal working hours or on weekends, the contractor shall inform the contracting officer and shall develop a public notification and noise management plan for approval by the contracting officer.

6. Use and Management of Hazardous Materials, fuels, solvents and petroleum products

The use of any hazardous materials including pesticides, oils, fuels and petroleum products shall conform to the proper use recommendations of the product. Waste hazardous materials and their containers shall be disposed of in a manner approved by the contracting officer in accordance with national laws. A site management plan will be developed by the contractor if the operation involves the use of these materials to include estimated quantities to be consumed in the process, storage plans, spill control plans, and waste disposal practices to be followed. Any plans required shall be approved by the contracting officer.

Elements of the hazardous materials management shall include:

- a. Contractor must provide temporary storage on site of all hazardous or toxic substances in safe containers labelled with details of composition, properties and handling information;
- b. Hazardous substances shall be placed in an leak-proof container to prevent spillage and leaching
- c. Wastes shall be transported and disposed of in a manner approved by the contracting officer compliant with national laws and policies

7. Use and Management of Pesticides

Any use of pesticides shall be approved by the contracting officer and shall conform to the manufacturers' recommendations for use and application. Any person using pesticides shall demonstrate that they have read and understood these requirements and are capable of complying with the usage recommendations to the satisfaction of the contracting officer. All pesticides to be used shall conform to the list of acceptable pesticides that are not banned by the relevant local authority.

If termite treatment is to be utilised, ensure appropriate chemical management measures are implemented to prevent contamination of surrounding areas, and use only licensed and registered pest control professionals with training and knowledge of proper application methods and techniques.

8. Use of Preservatives and Paint Substances

All paints and preservatives shall only be used with the approval of the contracting officer. Information shall be provided to the contracting officer who describes the essential components of the materials to be used so that an informed determination can be made as to the potential for environmental effects and suitability can be made.

Storage, use, and disposal of excess paints and preservatives shall be managed in conformance with the manufacturers' recommendations and as approved by the contracting officer. The contractor shall provide the contracting officer with a list of materials and estimated quantities to be used, storage, spill control and waste disposal plans to be observed during the execution of the contract. This plan is subject to the approval of the contracting officer.

9. Use of Explosives

Use of explosives shall be at the approval of the relevant local authority and shall be supervised and undertaken by a qualified explosives technician. Blasting will be limited to between the hours of 9:00 am and 4:00 pm unless specifically approved by the local authority and the contracting officer. Any use of explosives shall be permitted only after an explosives management and blasting plan has been approved by the relevant local authority and the contracting officer.

This plan shall include:

1. Description of the explosive agent, charge description, intended use.
2. Site safety plan including:
 - a. Storage of initiators, booster charges and principal blasting agents
 - b. Handling precautions to be observed
 - c. Transport to and from site
 - d. Security of stored materials
 - e. Disposal of excess or damaged explosive materials.
3. Analysis of risk to surrounding area and mitigation measures to be employed including:
 - a. Over-pressure event
 - b. Noise
 - c. Flying debris
 - d. Seismic transmission
 - e. Accidental detonation
4. Name and qualifications for all persons responsible for handling explosive agents

10. Site Stabilization and Erosion Control

The Contractor shall implement measures at the site of operations to manage soil erosion through minimisation of excavated area and time of exposure of excavated areas, preservation of existing ground cover to the extent possible, provision of approved ground cover and the use of traps and filtration systems. Where excavations are made, contractor shall implement appropriate stabilizing techniques to prevent cave-in or landslide. Measures shall be approved by the contracting officer.

The contractor must ensure that appropriate erosion control measures such as silt fences are installed. Proper site drainage must be implemented. Any drain clogged by construction material or sediment must be unclogged as soon as possible to prevent overflow and flooding. The use of retaining structures and planting with deep rooted grasses to retain soil during and after works must be considered. The use of bio-engineering methods must be considered as a measure to reduce erosion and land slippage. All slopes and excavated areas must be monitored for movement.

The contractor will establish appropriate erosion and sediment control measures such as hay bales, sedimentation basins, and / or silt fences and traps to prevent sediment from moving off site and causing excessive turbidity in nearby streams, rivers, wetlands, and coastal waters.

An erosion management plan will be required where the potential exists for significant sediment accumulation in wetlands, lakes, rivers and marine systems. This plan shall include a description of the potential threat, mitigation measures to be applied, and consideration for the effects of severe weather and an emergency response plan.

If works are along coastal marine areas or near major streams and river, water quality monitoring must be done before construction, and at regular intervals to determine turbidity levels and other quality parameters.

Construction vehicles and machinery will be washed only in designated areas where runoff will not pollute natural surface water bodies.

11. Air Quality

When appropriate, the contractor shall provide an air quality management plan for contracting officer approval. This plan will include provisions for the management and control of dust and unnecessary emissions resulting from construction activities. The plan shall include control measures to be implemented including the management of dust generated from transportation and site construction activities as well as excess emissions from vehicles and equipment. Under no circumstances shall site or roadway dusts be managed using oil spray techniques.

12. Traffic Management

In the event that construction activities should result in the disruption of area transportation services, including temporary loss of roadways, blockages due to deliveries and site related activities, the contractor shall provide the contracting officer with a traffic management plan including a description of the anticipated service disruptions, community information plan, and traffic control strategy to be implemented so as to minimise the impact to the surrounding community. This plan shall consider time of day for planned disruptions, and shall include consideration for alternative access routes, access to essential services such as medical, disaster evacuation, and other critical services. The plan shall be approved by the contracting officer.

Elements of the traffic management plan to be developed and implemented by contractor shall include:

- a. Alternative routes will be identified in the instance of extended road works or road blockages;
- b. Public notification of all disturbance to their normal routes;
- c. Signage, barriers and traffic diversions must be clearly visible and the public warned of all potential hazards;
- d. provision for safe passages and crossings for all pedestrians where construction traffic interferes with their normal route;
- e. Active traffic management by trained and visible staff at the site or along roadways as required to ensure safe and convenient passage for the vehicular and pedestrian public;
- f. Adjustment of working hours to local traffic patterns, e.g. avoiding major transport activities during rush hours or times of livestock movement.

13. Management of Standing Water

Under no circumstances shall the contractor permit the collection of standing water as a consequence of contractor activities without the approval of the contracting officer and consultation with the relevant local environmental health authority. Recommendations from that local authority on how to manage and treat the standing water must be implemented. The condition of the standing water must be monitored by the contractor to ensure that it does not present itself as a breeding ground for any pests such as mosquitoes.

14. Management of Solid Wastes and Construction Debris

The contractor shall provide a solid waste management plan that conforms to the national solid waste management policies and regulations for approval by the contracting officer. The site waste management plan shall include a description of waste handling procedures including collection, storage and disposal through the national waste management system. There will be no open burning of waste material and the contractor shall endeavour to recycle wastes as appropriate through the national waste management system.

Under no circumstances shall the contractor allow construction wastes to accumulate so as to cause a nuisance or health risk due to the propagation of pests and disease vectors.

15. Management of Liquid Wastes

The contractor shall provide the contracting officer with a liquid waste management plan as part of a site waste management plan that conforms to the waste management policies and regulations of the relevant Saint Vincent and the Grenadines authority. Under no circumstances shall the contractor allow construction related liquid wastes to accumulate on or off the site, or to flow over or from the site in an uncontrolled manner or to cause a nuisance or health risk due to its content. The site waste management plan shall include a description of how these wastes will be stored, collected and disposed of in accordance with current law. Additionally the contractor shall provide for the regular removal and disposal of all site wastes and provide the contracting officer with a schedule for such removal.

Specific elements of the contractor's liquid waste management plan shall include: contractor to abide by all pertinent waste management and public health laws; waste collection and disposal pathways and sites will be identified for all major waste types expected from demolition and construction activities; construction and demolition wastes will be stored in appropriate bins; liquid and chemical wastes will be stored in appropriate containers separated from the general refuse; all waste will be collected and disposed of properly in approved landfills by licensed collectors; the records of waste disposal will be maintained as proof for proper management as designed; whenever feasible the contractor will reuse and recycle appropriate and viable materials (except asbestos); construction related liquid wastes must not be allowed to accumulate on or off the site, or to flow over or from the site in an uncontrolled manner or to cause a nuisance or health risk due to its contents.