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Forest Dependency in Rural Armenia

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1. Introduction

1.1 Forests and forest use in Armenia

There is no consensus as to what constitutes the level of forest cover in Armenia. A 2010 FAO's Global Forest Resources Assessment (FAO, 2010) estimated forest cover at 262,000 hectares (ha) and earlier estimates suggest the figure may be considerably lower. According to "Hayantar" State Non Commercial Organization, the state forest agency in Armenia, forest cover in 2010 is 345,820 ha, which is about 11.2% of the total land area, which is the same as it was in 1993 (Hergnyan et al., 2007). In recent years, satellite imaging (Landsat images from Hergnyan et al., 2007) has suggested that the forest cover decreased from 334,100 ha in 1993 to 232,000 ha in 2006, i.e. it declined from 11.2% in 1993 to 7.7% in 2006 (Hergnyan et al., 2007). Whatever the figures are the fact remains that Armenia has extremely limited forest resources, making it particularly vulnerable to over-harvesting. Virtually all forest resources are located in Tavush and Lori regions (northeast) and Syunik region (south), with just 2% located in central Armenia.

Due to Armenia's topographical features, one third of its forest is located on steep terrain (approximately 80% of the country's terrain is mountainous) (Ter-Gazarian 1997, Junge & Fripp 2011). The variety of microclimates and soil types and sharp differences in elevation have determined Armenia's unique biodiversity and high floral endemism – 120 species (1.5% of Caucasus flora) are endemic to the country. Of the total forest area, about 70% is "high forest", 86% of which is oak - 120 thousand ha or 35.9% of the stock, beech makes up approximately 96.6 thousand ha or 28.9%, hornbeam makes up 55.1 thousand ha or 16.5% and pine 17.7 thousand ha or 5.3%. The remainder is coppice forests and shrub forests, which are poorly stocked and degraded (Ter-Gazarian 1997).

Armenia's mountain forests play a vital role in providing habitats for rare and endangered animal species. Armenia lies in the middle of the Caucasus Hotspot classified by Conservation International as one of the world's 35 'Biodiversity Hotspots' of the globe and forms the backbone of the East Lesser Caucasus Mountain chain, which serves as a critical wildlife corridor in the eco-region.

Distribution of forests in Armenia is uneven. The primary forested areas are in the north, northeast and south, while the central part of the country is almost treeless. Today, 62% of the forest cover is found in the north & northeast (Lori and Tavush), 36% in the southeast (Syunik), and only 2% in the central region of the country. (Ter-Gazarian 1997). The survey was conducted in Tavush, Lori and Syunik regions, where the concentration of forest is the highest and covers most of the territory.

Despite extremely limited stock, forests of Armenia provide important services for the local population and for the national economy. They procure timber and fuelwood for rural communities and for industrial purposes. However, communities rely on forest not only for fuelwood but also for Non-Timber Forest Products (berries, nuts, wild fruits, etc.) and benefit from environmental services the forest provides, such as the prevention of erosion and flooding. Forests protect the land from floods, erosion and keep the soil fertile, which is vital for agriculture, while forest catchments provide both fresh drinking and irrigation water for agricultural lands. Armenia's diminishing forest cover provides a wealth of economic, environmental, social and cultural benefits, many of which are vital to the fundamental wellbeing of the nation.

All forests in Armenia are state owned. Forest lands that are outside of the protected areas are managed by the Ministry of Agriculture of Armenia through "Hayantar" SNCO. "Hayantar" is the only state forest agency responsible for forest protection, reproduction, registration, inventory and use. The total area managed by

“Hayantar” is 345,7 thousand ha, of which 277,1 thousand ha is forest cover. In 2005 the State Forest Monitoring Center operating under the Ministry of Nature Protection of Armenia was established to monitor overall activities of the forest sector, including illegal logging and other illegal activities. Responsibilities for these activities are split between the Ministry of Agriculture, to which “Hayantar” belongs, and the Ministry of Nature Protection, to which the State Forest Monitoring Center belongs. Some dual responsibilities of both agencies and unclear mandates cause an overlapping of their functions as a result.

All forest lands falling within the network of protected areas in Armenia are managed exclusively by the Ministry of Nature Protection through the “Bioresources Management Agency” which was established for the provision of research, conservation, reproduction and sustainable use of landscape and biological diversity of natural ecosystems.

1.2 Rationale

Forests are vital sources of foods (plants and animals), medicines, and a range of other products and are important as a means of generating cash income. Many rural communities in Armenia depend on the forest resources, wholly or partially, and in many cases this dependence is subsistence-level. Although declines in forest resources are partly a result of overuse by forest dependent people, it is more often due to industrial use or other factors, yet forest dependent communities often find themselves under attack. In this report we aim to explore the nature of relationships between people and forests in Armenia.

Understandably, Armenia's limited forest stock offers more limited economic and environmental benefits. In combination with high levels of unemployment, unused lands and corruption in all sectors limits their subsistence base and often causes emigration of the local economically active population. Working age members of rural communities are forced to leave their communities in pursuit of other income opportunities in urban areas or in former soviet states which in turn, leaves an aging population to remain in the communities. This is particularly true of marginal communities living on the state borderland. A study on dependence of rural communities on forest, which was implemented by IUCN in Armenia in 2012 showed that for many rural communities, fuelwood is the primary source of energy for heating and cooking. This was also confirmed by another socio-economic study (ICARE 2011) and suggested this dependence on fuelwood will continue as long as the prices for gas continue to increase. Non-timber forest products are also important because people are allowed to collect them freely.

In Armenia, there is a lack of information related to the percentage of income that communities derive from forests. This study helps to reveal the economic benefit received from forests, understand factors that determine the welfare of the forest communities or limit their sustainability. It will help document all types of income and measure the percentage of forest income in it, understand the access to forest for different social strata, but more importantly it will provide knowledge for different institutions and decision-makers in order to improve forest resource governance in the country.

This research is important not only at the community level, but for the country as a whole and could be a good basis to inform community development strategies to:

- Mitigate the negative effects of climatic change
- Promote training of community members on sustainable harvesting practices and efficient market-use
- Support poor households in the sale of forest products
- Offer better prices for forest products, improved access to product markets, credit/capital, and

equipment/technology to harvest and process the product

Moreover, because this study is regional in its scale, it will facilitate a comparison of the results of the study in Armenia to outcomes in other countries in the region which will help to identify important differences and similarities.

2. Methodology

2.1 Study area

The European Neighborhood and Partnership Instrument East Countries Forest Law Enforcement and Governance II Program (the “Program”) is aimed at putting improved forest governance mechanisms in place through the effective implementation of the main priorities set out in the St. Petersburg Ministerial Declaration and Indicative Plan of Actions for the Europe and North Asia Forest Law Enforcement and Governance (ENAFLEG) process. This Program specifically covers seven countries of the ENA Region, including six members of the European Neighborhood Policy Instrument (ENPI) – Armenia, Azerbaijan, Belarus, Georgia, Moldova, Ukraine, and the Russian Federation. The Program supports selected pilot activities to be implemented with the active involvement of governments, civil society and the private sector.

The goals of the study were to:

- Document factors and reasons that may determine sustainability between communities and their forest base;
- Measure the values and benefits rural communities receive from the forest resources;
- Provide more quantifiable information to use for decision makers in order to improve governance;
- At the national level: expand the survey piloted in FLEG I and include most of the FLEG geographic region in Armenia in order to estimate and quantify the economic benefit received from the forest resource by forest-dependent communities.

In view of the fact that the main forested areas in Armenia are concentrated in the north, northeast and south, the study area covered most of the forested regions of Armenia: Lori Region (North), Tavush Region (North East) and Syunik Region (South). Within these regions, the following six villages have been selected for the research: Yeghegnut and Gyargar in the Lori Region, Haghartsin and Aknaghbyur in the Tavush Region, Halidzor and Tatev in the Syunik Region.

Areas targeted by the survey are shown on the map below:

Figure 1. Map showing regions and targeted communities in Armenia



2.1 Method of sampling

A total of six communities with different types of dependence on forest product were chosen in the North, North East and South regions of the country. The communities were selected as follows: Yeghegnut and Gargyar in the Lori region, Aknaghbyur and Haghartsin in the Tavush region, and Halidzor, and Tatev in the Syunik region.

For the purpose of research, villages were selected based on the following criteria:

- Levels of poverty (micro) and economic development (macro)
- Infrastructure (North communities with gas supply, South communities with no gas supply)
- Market distance
- Population density
- Migration patterns

Table 1. The selection criteria for each village

Marz (region)	Village name	Sampling criteria
LORI	Yeghegnut	<ul style="list-style-type: none"> ❖ Low population density - 875 ❖ High level of migration ❖ High level of poverty (number of very poor families- 43 with accident-prone private houses, ❖ Satisfactory infrastructure: gas, electricity and drinking water ❖ Long distance from the market - 23 km
	Gargyar	<ul style="list-style-type: none"> ❖ High population density - 1191 ❖ Medium level of migration ❖ Medium level of poverty (number of very poor families (108) who receive governmental support) ❖ Satisfactory infrastructure: gas, electricity; poor supply of drinking water ❖ Short distance to the market - 10 km
TAVUSH	Aknaghbyur	<ul style="list-style-type: none"> ❖ Low population density - 445 ❖ Low level of migration ❖ Families above the poverty line (only 20 families) ❖ Perfect infrastructures: gas, electricity and drinking water ❖ Distance to the market - 13 km
	Haghartsin	<ul style="list-style-type: none"> ❖ High population density - 3784, ❖ High level of migration - 300 ❖ High level of poverty (200 families are considered very poor) ❖ Satisfactory infrastructure: gas, electricity and drinking water ❖ Medium distance to market - 20 km
SYUNIK	Halidzor	<ul style="list-style-type: none"> ❖ Low population density - 591 ❖ Medium level of migration ❖ Low level of poverty (only 12 families are considered very poor) ❖ Availability of electricity and drinking water infrastructure ❖ No gas supply ❖ Long distance to market- 23 km
	Tatev	<ul style="list-style-type: none"> ❖ Medium population density - 925 ❖ Connection to electricity & water supply, no gas supply ❖ Medium level of poverty (40 families are considered very

poor)
❖ Long distance from the market - 32 km

2.2 Number of households

For the purpose of this survey, three sociological methods of research have been used: interviews with key informants (KI), household interviews (HH) and focus group interviews (FG).

Key informant interviews were conducted with people who are familiar with the community. The purpose was to collect information from a range of people—community leaders, principals of schools, other residents holding local authority, etc.—who have firsthand official information about the community. The information gained from these community members provided insight into the nature of problems. In addition, these key informants helped the team make contacts with people in each community. One key informant was chosen to talk to in each community, making a total of 6 informants.

Sampling of households

After certain baseline information was collected during the key informant interviews, a total of 196 households in selected communities were interviewed according to the specific criteria. 65 households were sampled in the Lori region, 65 households in the Tavush region and 66 households were selected in the Syunik region.

The method of sampled the households involved walking north and south on the main street from the starting point of the village square (which is considered the central point of the community). Every third household in the northern and southern direction of street was selected for the interview.

Table 2. The number of sampled households

Village name	No. of HHs	Code of village in database
Yeghegnut, Gargyar	65	1-2
Aknaghbyur, Haghartsin	65	3-4
Halidzor, Tatev	65	5-6

Focus group discussions

Different factors were taken into account for the focus group selection. An average of 10 people were selected for each focus group. As for the composition of the focus groups, several variables were considered. Focus groups were selected on the basis of age, gender and occupation for maximum variation (farmers, employees of kindergarten and schools, doctors, shepherds, accountants, drivers, shop-owners, housekeepers, etc.). In all villages, youth involvement was about 30%.

Table 3. The size of each focus group by gender distribution

	Gargyar	Yeghegnut	Halidzor	Tatev	Aknaghbyur	Haghartsin
Group size	10	8	11	9	10	10

Sex composition	Male	3	0	5	3	6	6
	Female	7	8	6	6	4	4

2.3 Timeline

Field surveys have been implemented during the period between 5 May 2014 and 10 July 2014.

Table 4. The number of conducted household interviews per villages by dates

Village	Date	Number of HH interviews
Yeghegnut	21/05/2014 -27/05/2014	22
Gargyar	27/05/2014 - 04/06/2014	43
Aknaghbyur	05/06/2014 - 07/06/2014	18
Haghartsin	06/06/2014 – 11/06/2014	47
Halidzor	09/06/2014 -18/06/2014	29
Tatev	18/06/2014 – 07/07/2014	37
Total		196

Table 5. The number of conducted focus group interviews per villages by dates

Village	Date	Number of FG interviews
Yeghegnut	29/05/2014	10
Gargyar	05/06/2014	8
Aknaghbyur	08/06/2014	11
Haghartsin	12/06/2014	9
Halidzor	19/06/2014	10
Tatev	08/07/2014	10

Table 6. The number of conducted interviews with key informant per village by dates

Date	Interview with Key Informants	Number of KI interviews
Yeghegnut	05/05/2014	1
Gargyar	06/05/2014	1
Aknaghbyur	01/06/2014	1
Haghartsin	02/06/2014	1
Halidzor	04/06/2014	1
Tatev	05/06/2014	37

2.4 Field implementation and problems encountered

During the implementation of the survey, the following technical challenges were faced:

- It was very difficult to involve men in focus group discussions because it was high season for ‘Fodder grass’ harvest and male participants were not available for an interview in the village. Also, a certain percentage of young men were gone for seasonal work in Russia (it is seen in ‘Other’ incomes).
- In the case of Armenia, the questionnaire did not identify the fixed content of the Law on “Free Provision of 8 m³ deadwood to forest dependent communities” per household per year. In the annual fuelwood consumption records, there is no distinction as to how much fuelwood was purchased vs. how much fuelwood was obtained for free by each household. This created some discrepancies in the cash and subsistence estimations.
- The irrigation water supply as an agricultural input is not reflected in respondents’ answers. While a portion of the irrigation water is purchased by villagers, a portion of it is diverted and used without paying the required fee, and others use their drinking water supply to irrigate their land because the irrigated water supply is not measured by domestic water meter readings.
- The list of professions in the coding document was very short and many specific occupations of villagers were not included.
- Middle- and older-aged respondents felt uncomfortable answers questions during surveys and attempted to hide actual amounts of their sales profit and the amount of cash income, because such behavior was punishable during the Soviet period.

2.5 Local unit conversion

Armenian Dram (AMD), 1 USD equal to 410 AMD, Armenia -192.53

Table 7. Unit conversion table.

	Local name	Metric unit	Metric equivalent	Mean price per kg across the regions	Product
1.	Bag/sack	Kg	40	220	Potato
2.	Bucket	Kg	5	1000	Mushroom
3.	Bucket	Kg	2.5	850	Wild strawberry
4.	Bucket	Kg	7	200	Tomato
5.	Bag/sack	Kg	40	150	Cabbage
6.	Bucket	Kg	7	200	Cucumber
7.	Bucket	Kg	2,5	220	Wild rose berry
8.	Bucket	kg	2.5	350	Blackberry

3. Study area characteristics

Given that Armenia is mainly forested in the north & northeast (Lori and Tavush = making up 62% of forest cover) and in the southeast (Syunik = making up 36% of the forest cover), Lori, Tavush and Syunik are the three administrative regions in Armenia that were studied for the purpose of this research.

All rural communities visited for the purposes of our study have been assessed and rated based on their stability on a 1-10 scale. Ranking was done based on the following factors indicating their overall level of social capital:

- ❖ human resources, demographic situation
- ❖ non-used lands
- ❖ local and regional government functioning
- ❖ market opportunities, usage of market opportunities

3.1 Lori Region

Lori is a mountainous area located in the North of the country with an administrative center in Vanadzor. Lori municipality spans 3,799 km² making up 12.7% of the country's territory. It is the third largest region by its territory and the second largest region by its population number after Yerevan city. Lori region borders Georgia in the North, Kotayk and Aragatsotn regions in the South and Shirak region in the West. Armenia's general railway connecting Yerevan and Tbilisi runs through the heart of the region. The municipality of Lori consists of 113 communities, of which 8 are considered urban and 105 are considered rural. The total population of the administrative region is 235,537. Of these 137.2 thousand live in towns and 97.5 thousand live in villages. The density of the population in the region is 62 persons per square km. Armenians are the absolute ethnic majority in the region with 1.5% of the population being Russian, 1% Greek and the rest of the population is composed of other ethnic minorities (official website of Lori region: <http://lori.gov.am>) The State Forest Fund of Lori region is 101,205 hectares, of which 85,799 hectares are forests: the state forest fund makes up 27% of the region. Forests in Lori are mountainous and have protection, water- and climate-control importance.

Lori's economy (like that of the other regions) is mostly based on remittances from family members working abroad. Remittances are often used to create small shops and businesses. Corruption in the local government is especially prevalent for those wanting to own a business. The leading branches of the economy of the region are agriculture and industry, with the metallurgy industry and food production being the dominant sectors. In 2007 the share of GDP in the Lori region was 41.0%.

Agriculture is one of the main economic sectors in the region. Based on official statistics, total agricultural land in the Lori Region is 251,154 hectares, including 42,075 hectares of arable land, 2,654 hectares of perennial plants, 35,155.8 hectares of hayfields and 145,714.1 hectares of grazing areas and other lands totaling 27,791.7 hectares. However, agriculture production is fairly low, compared to other regions. Because of a lack of machinery, farming techniques and difficulties with profitable sales of products generated, villagers own on average 0.6 ha of cultivated land, which neighbors 1 ha of hayfields. Some of the main products grown in the region are grains, potatoes, vegetables and animal husbandry products.

Lori is considered Armenia’s greenest area, with more native forested land than any other region of the country. It is home to some of Armenia’s most beautiful locations, set in the country’s remaining old-growth forests and wilderness areas. The region is a host to two World Heritage Sites and ancient historical monuments and monumental monasteries, offering a great tourism base, however requiring infrastructure development.

3.1.1 Yegeghnut community

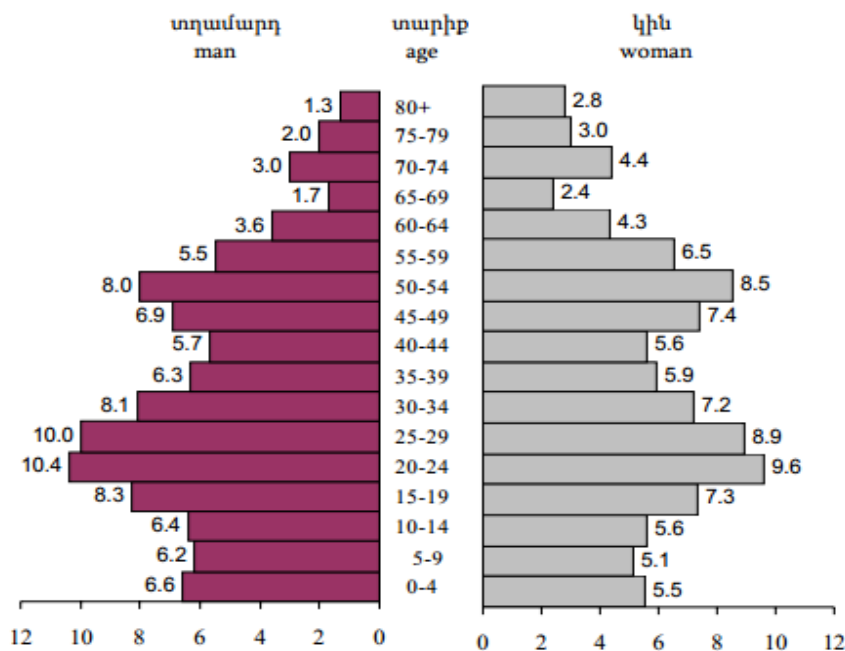
a. Brief history of village

The village is located in the Northeast part of the region near the Vanadzor-Alaverdy highway and is situated on the right banks of Pambak river at 1000-1600 m above sea level. The village territory is 12.26 square km with a population of 875 (according to information received from community head 869) and is 21-23 km away from the administrative center Vanadzor. Neighboring communities are Vahagn and Debed villages.

b. Demographics

The village is characterised by high migration to Russia for seasonal work. Age composition and gender information was made available by Marzpetaran (Regional Governor Office) and calculated per 10 000 inhabitants.

Figure 2. Resident population by age-specific groups in Yegeghnut community



c. Infrastructure availability

All households in the village have an electricity connection while a gas supply is provided only to part of the households, which increases local community dependence on the forest. Water is supplied from two sources. One is provided by water supply company at the price of 150 Armenian drams per m3 and the other

source is uncontrollable (coming from the mountains or pumped from a reservoir) and is not charged.

d. Economic data

Information about the unemployment rate in the community is not available. According to Armenian legislation, people who own land cannot be considered unemployed even if they do not use the land. After the Soviet system broke down the state lands 'collective farms' were distributed among community members. Each member of rural community received 3,500 - 4,000m³ land¹. In accordance with the state welfare program, 43 families in Yeghegnut village receive government welfare support.

e. Major economic activities

The population of the community is involved in the timber trade and cattle breeding. Daily salary for an unskilled agricultural job ranges from 2,000 to 4,000 Armenian drams per day. Overall, the community is strictly dependent on timber and non-timber production from forests.

f. Seasonal calendar

Table 8. Major activities throughout the year by month. H stands for harvest, S stands for sale and P for planting.

Product name	Jan.	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Fuelwood	H/S	H/S	H/S	H/S						H/S	H/S	H/S
Blackberry								H/S	H/S			
Foddergrass							H/S	H/S	H/S			
Trellises for beans				H/S								
Potato			P	P				H/S	H/S			
Cucumber					P			H/S				
Bean					P		H/S	H/S	H/S	H/S		
Garlic							H/S			P	P	
Onion				P	P		H/S					

g. Major markets and market access

¹ In Lori region average income per person is urban settlements 22.950, rural 23179; in Tavush, average income per person is urban settlement (region - 19.919 Armenian Dram, rural – 17. 246 Armenian dram); in Syunik region average income per person is urban settlements - 28908 AMD and in rural - 26947 AMD. In 2012 the poverty line for one adult for month poor under 37 044 AMD. In 2012 each third of population was poor 32.4%, from which 13.5% is very poor and 2.8% - extreme poor: See http://unfpa.am/sites/default/files/Fertility%20SurveyReport_ARM_FINAL.pdf

There is no official information on incomes or on the number of citizens from middle strata, but it may range ca 10-12%, rich are 48 families of Armenia.

All major markets are located in the administrative center Vanadzor which is 23 km away from the Yeghegnut village. As is the case for all target regions in Lori, those markets are not affordable for households that have no means of transportation. Some residents stand on the sides of main roads or near the cultural monuments to sell products to travellers and tourists. However, there are middlemen who buy agricultural produce and forest products from villagers' home at very low prices and sell these products in the markets or to canneries for juice production. Other households sell their own products at markets. There is no barter system between villages.

h. Major land cover and land uses

The community has 36.62 hectares of industrial land, 118 hectares of arable lands, 1,335 hectares of forest, 1,007 hectares of pastures and 160 hectares of meadows.

i. Description of conservation areas

There are no conservation areas in the vicinity.

j. Tenure and governance

All forest resources of the community belong to the state and are managed by the Ministry of Agriculture of Armenia through its state forest agency "Hayantar" SNCO. Use of water resources is authorized by the Water Resource Management Agency under the Ministry of Nature Protection of Armenia, and all other natural resources are managed by the RA Ministry of Energy and Natural Resources.

k. Government and other development/conservation projects

Major government programs in the area are directed towards poverty reduction and forest protection. Recently, the government passed a Decree on «Free Provision of Deadwood to Forest-dependent Communities» which allows forest communities to collect up to 8 m³ firewood per household from the forest per year.

l. Calamities

Yeghegnut village is located in the mountainous region of Lori which is prone to almost every dangerous geodynamic processes including floods, mudslides and earthquake. After the 7.0 (on the Richter-scale) earthquake in Spitak (Lori region) in 1988 which took at least 25,000 lives in the region, thousands were left homeless. Yeghegnut was about 45 km away from the epicenter and was affected by the earthquake as well. Today many private houses are accident-prone, some families are still living in makeshift shelters, waiting for help and are classified in the social group of poor.

m. Other relevant issues

During the interviews with the key informants and during the focus group discussions, villagers mentioned that half of the villagers of the community are involved in the collection and sale of 20 m³ firewood, on average.

Based on information gathered from our visits, Yeghegnut village was ranked a 3 on a stability scale of 1-10.

3.1.2 Gargar community

a. Brief history of village

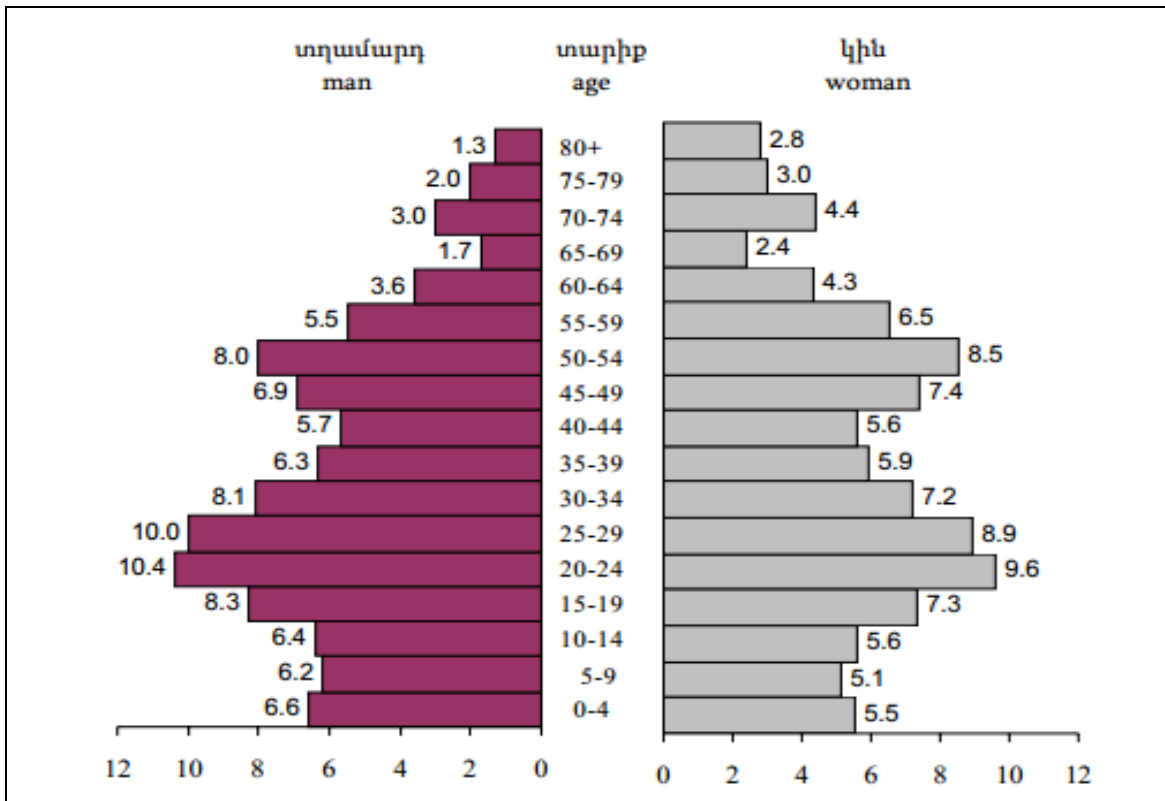
Gargar village is located at 1400–1500 m above sea level. The geographic location of the village of Gargar is advantageous because it is located on the national Yerevan-Tbilisi highway. The village territory is 13.49 square km, with a population of 1,349 (according to information received from community head 1191). The village is 10 km away from the nearest town of Stepanavan and is 26 km from the administrative center of Vanadzor.

Gargar village is surrounded by high mountains and forests which provide 50% of the village with drinking water. Because of the lack of proper water infrastructure, the village is not entirely secured with a stable drinking water supply. It is typically very cold in the winters, with mild temperatures in the summers.

b. Demographics

Age composition and gender information was made available by Marzpetaran (Regional Governor Office) and calculated per 10 000 inhabitants.

Figure 3. Resident population by age-specific groups in Gargar community



c. Infrastructure

All households in the village have an electricity connection and a gas supply. However because of the lack of proper water pipes the village is not entirely secured with a drinking water supply.

d. Economic data

Information about the unemployment rate in the community is not available. 108 families live below the

poverty line and receive government funded support (based on the state welfare program). Being very close to the Stepanavan Dendropark – a 35 hectare arboretum, 17.5 hectares of which is natural forest and 15 hectares is ornamental trees, Gargar is an attractive tourist destination for local and foreign visitors. Currently, there are 7 homes that serve as bed and breakfasts in the village.

e. Major economic activities

The primary economic activities for the population of Gargar village is crop production and cattle breeding. The daily salary for an unskilled agricultural job ranges from 2,000 to 5,000 Armenian drams per day.

f. Seasonal calendar

Table 9. Major activities throughout the year by month. H stands for harvest, S stands for sale and P for planting.

Product name	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Firewood										H/S	H/S	
Wild strawberry							H/S	H/S				
Seeds										H/S	H/S	
Wild vegetables				H/S	H/S							
Pear	S	S							H/S	H/S	H/S	S
Pumpkin				P	P					H/S	H/S	
Garlic	S	S	S	S	S	S	H/S	S	S	P	P	
Bean					P		P Green bean			S Dry bean	S	S
Broccoli				P		H/S	H/S	H/S	H/S			

g. Major markets and market access

All major markets for Gargar community are located in the administrative center of Vanadzor which is located 26 km away from Gargar. However, these markets are not accessible for all target regions in Lori because many rural households do not have means of transportation. Instead, some rural residents choose to stand on the roadsides of main highways or next to the cultural monuments where they sell their products to travellers and tourists. In other cases, there are middlemen who buy agricultural produce and forest products from villagers' home at very low prices and sell these products in the markets or to canneries for juice production. Other households sell their own products in the market. There is no barter system between villages.

h. Major land cover and land uses

The community has 796.8 hectares of industrial land, 645.6 hectares of arable lands, 1,335 hectares of forest, 127.9 hectares of pastures and 219.7 hectares of hayfields.

i. Description of conservation areas:

Gargar village is located at 5 km from the Gyulagarak State Sanctuary, which was established in 1958 with a territory of 2576 hectares. It was created to protect the relict pine (*Pinus kochiana*) forests. The Sanctuary is managed by «Hayantar» SNCO and meets the requirements of the IUCN IV category (protection through active management of species and their habitats). The main activities (by mandate) of the Sanctuary development are use for recreational and ecotourism potential.

j. Tenure and governance

All forest resources of the community are property of the state and are managed by “Hayantar” SNCO under the RA Ministry of Agriculture. Use of water resources is authorized by the Water Resource Management Agency under the RA Ministry of Nature Protection, and all other natural resources are managed by the RA Ministry of Energy and Natural Resources.

k. Government and other development/conservation projects

Major government programs in the area are directed towards poverty reduction and forest protection. Recently, the government passed a Decree on the «Free Provision of Deadwood to Forest-dependent Communities» which allows forest communities to collect up to 8 m³ firewood per household from the forest per year. There are other community development projects in the village that are implemented by organizations such as the UNDP, World Vision, and Heifer International. The community has its own website and marketing brand (gargar.luys.am/en).

l. Calamities

During drought years, a villager may lose up to 70-80% of crop.

m. Other relevant issues

Based on our visits, we ranked Gargar community an 8 on a stability scale of 1-10.

Information collected during our household surveys allowed us to identify the proportion of incomes shown below in Figure 9. Situated in the forested region, the forest income of the sampled community is the smallest compared to other regions. The population in this region is mostly engaged in livestock production. The other income category in this region makes up the largest proportions compared to all regions because of the number of elderly pensioners in the area (most of Armenian villages are aging), and the level of social welfare support received from the state and through remittances from relatives working as labor migrants in Russia, the USA and Europe.

Since the ‘safety net’ (cash transfers from relatives abroad) is well developed among Armenians, financial and other forms of support can be not only from family members living abroad, but also from distant relatives and relations.

It is very difficult to tell what proportion of income comes from the business sector for the following reasons:

a) Firstly, business enterprises in Lori region are very short-term; there is little opportunity for small and medium business enterprises to survive. Armenia's economic system is anticompetitive due to the structure of the economy being a type of "monopoly or oligopoly". Most of the de-facto businesses belong to government officials who control the import and export of all products. This system distorts markets, violates the rules of competition, and prevents small and medium-sized businesses from entering the market. b) Secondly, there are a number of unregistered business transactions.

3.2 Tavush region

Tavush Region is situated in the northeastern part of Armenia and includes the towns of Ijevan, Noyemberyan, Berd, Dilijan and Ayrum and 57 rural communities. The region borders with Gegharkunik and Kotayk regions in the southeast and south, with the Lori region and Georgia in the west, and with Azerbaijan in the north and east. Tavush shares 400 km of international frontier, of which 352 km is the border with Azerbaijan. The area of Tavush municipality is 2,704 square km or 9.1% of the country territory. The official center of municipalities is Ijevan, which is located 130 km from Yerevan city. Tavush is part of Armenia's green belt with the second largest forest expanses in the country. 51% of the region's overall area is covered with mixed forests, with a remarkable amount of diversity in flora and fauna.

Total population of the region is 132,000 people with 52,600 living in towns. The average density of the population is 50 persons per square km. According to the latest gender statistics, men are 48.9% and women are 51.1%. 53,500 people make up the economically active population of the municipality. 49,400 are considered employed and 4,100 people are unemployed. The population of the municipality is aging and 21% are classified as pensioners. The migration of young families combined with declining death and birth rates have increased the proportion of elderly people in the region.

Tavush's economy is based on agriculture, seasonal tourism and remittances from family members working abroad. These activities also support funding for small enterprises. Tavush is recovering from the catastrophic national economic crisis of the 1990's and the number of tourists in the summer seems to be increasing. However, the most pronounced sectors of the economy in the municipality remain agriculture and the processing industry. The latter is particularly prominent in stone and timber processing, as well as wine and mineral water production.

Total agricultural land in Tavush is estimated to be 270,393 hectares, of which 105,932 (39.2%) hectares are arable lands. However, because of continued political conflict with neighboring Azerbaijan over Nagorno-Karabakh, the municipality's agriculture has suffered significantly. More than 9,000 hectares of orchards and fields remain uncultivated. 43 out of 62 communities are caught in indiscriminate gunfire or shelling. In terms of value, 57% of the region's production results from crop and horticulture output, and 43% from livestock. The region produces milk, meat, potatoes and grain. Tavush is also well known for its grape production with climatic conditions of the region (Official website of Tavush municipality: <http://tavush.gov.am>). However, there are low levels of agricultural productivity due to poorly developed markets, the poor state of rural infrastructure (irrigation and rural roads) and small farming plots. The average villager owns a 1.46-hectare plot, and 96% of farms have less than 3 hectares.

Tavush is a great recreation area with picturesque river valleys, deep gorges, and crystal curative springs and lakes. Dilijan National Park, one of the unique corners of Armenian nature was established in order to protect beech and Caucasian mesophilic oak forests, unique yew groves and a number of historical-architectural monuments are situated in Tavush. Forests cover 94% of the park territory. This ownership technically prevents from logging the trees, but the lack of jobs in the region and the presence of shadow industries has meant this restriction is largely ignored.

3.2.1 Haghartsin community

a. Brief history of village

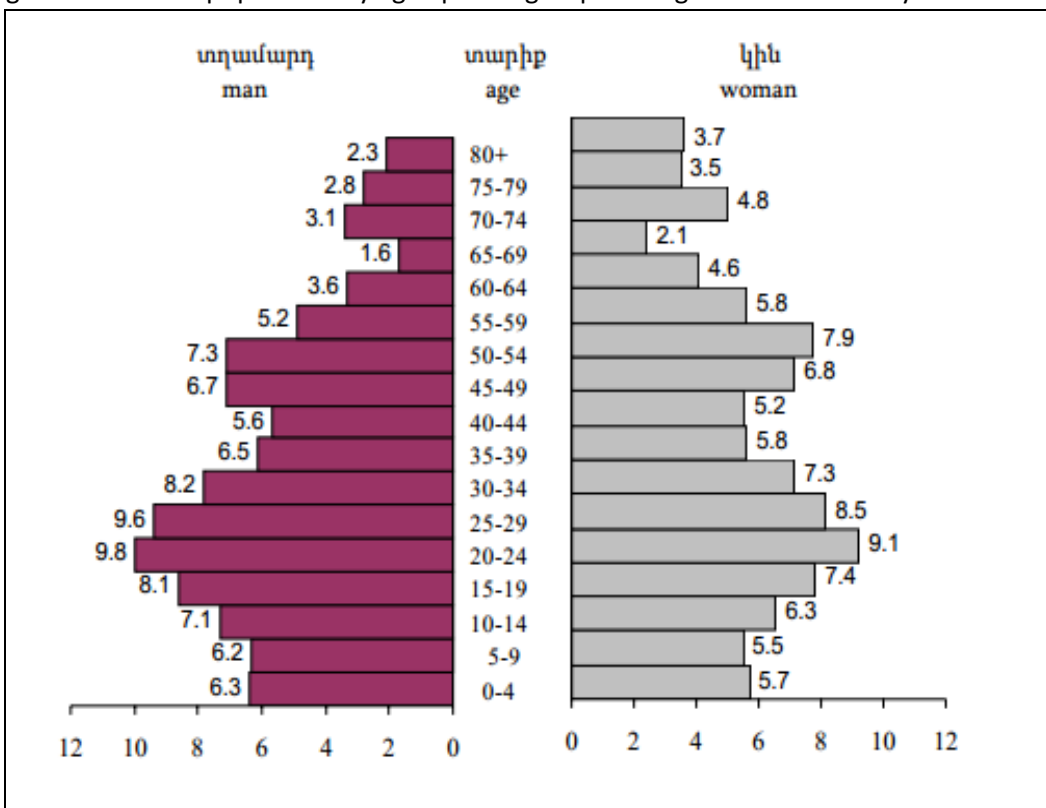
The village of Haghartsin is situated in Tavush region on the left bank of the Aghstev River in Dilijan National

Park. The village spans a territory of 36.7 square km, and has a population of 3,784 (according to information received from community major 4006). Of the total population, 300 have migrated to Russia to work as labor migrants. The village is 23 km away from the administrative center Ijevan and 11 km away from Dilijan town. The distance from Yerevan is 110 km and the neighboring communities are Teghut and Hovq. A national highway connecting Ijevan and Yerevan intersects the community area.

b. Demographics

Age composition and gender information was made available by Marzpetaran (Regional Governor Office) and calculated per 10 000 inhabitants.

Figure 4. Resident population by age-specific groups in Haghartsin community



c. Infrastructure

All households in the village have a stable connection to electricity and are secured with gas and drinking water supplies.

d. Economic data

Information about the unemployment rate in the community is not available. 200 households receive government funded welfare support.

e. Major economic activities

The majority of the population in Haghartsin village is involved in crop production and cattle breeding. We were unable to find out what constitutes the daily salary for an unskilled agricultural job. The population often resorts to barter schemes.

f. Seasonal calendar

Table 10. Major activities throughout the year by month. H stands for harvest, S stands for sale and P for planting.

Product name	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Firewood										S	S	S
Mushroom				H	H	H	H	H				
Fodder grass							H/S	H/S				
Wild vegetable				H/S	H/S							
Potato				P				H/S	H/S	H/S		
Bean					P		H/S	H/S	H/S			
Cucumber					P		H/S	H/S				
Tomato					P		H/S	H/S	H/S			

g. Major markets and market access

All major markets for Haghartsin village are located in the administrative center Ijevan, which is 20 km away from Haghartsin. The distance to the country border is 41 km. However, these markets are not accessible for all target regions in Tavush because many rural households do not have means of transportation. Some residents choose to stand on the side of the main roads or near the cultural monuments to sell products to travellers and tourists. In order cases, middlemen buy agricultural produce and forest products from villagers' home at very low prices and sell these products in the markets or to canneries for juice production. Other households sell their own products in the market. There is no barter system between villages.

h. Major land cover and land uses

Out of total area of 2775.88 hectares, the community has 1055.29 hectares of pastures and 157.65 hectares of arable lands.

i. Description of conservation areas

Haghartsin village is located within 5 km from Dilijan National Park, which makes up 24,000 hectares of the region. The protection status of the Park meets the requirements of IUCN Category II (National Park) and has limited use permission, but also includes areas for recreation and economic activities. The area was originally designated as a Strict Nature Reserve in 1958 with the goal of protecting the original woodlands of Northern Armenia. However, although it is one of Armenia's leading recreational areas due to its landscape, medicinal plant abundance, unique historical and cultural monuments, and numerous health resorts it has been difficult to apply strict protection requirements on the site. To address this challenge and deter threats posed by high levels of human inputs and severe violations (from cattle-grazing, hay-making, to holiday-making, etc.), the Government decided to downgrade the status of Dilijan by designating it as a National Park

in 2002.

j. Tenure and governance

All forest resources of the community are under state property and are managed by “Hayantar” SNCO under the RA Ministry of Agriculture. The use of water resources is authorized by the Water Resource Management Agency under the RA Ministry of Nature Protection, and all other natural resources are managed by the RA Ministry of Energy and Natural Resources.

k. Government and other development/conservation projects

The government passed a Decree on “Free Provision of Deadwood to Forest-dependent Communities” which allows forest communities to collect up to 8 m³ firewood per household from the forest per year.

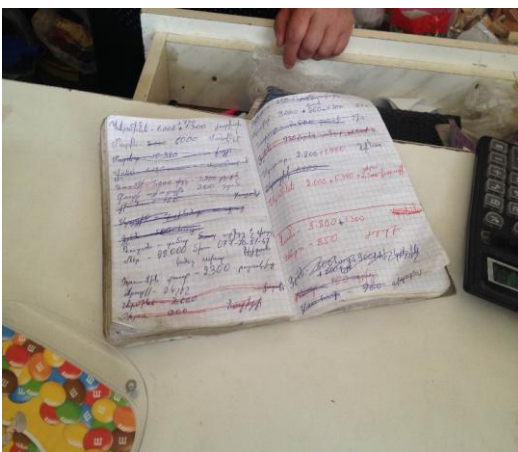
l. Calamities

The high mountainous location and the rugged geomorphological relief of the Tavush region leads to flooding which typically occurs from March-May through September October. Haghartsin is highly subject to floods and landslides. 24 homes in the village are in the landslide zone. Landslides may damage the water supply and sanitation systems in the region for a certain period of time.

m. Other relevant issues

During the Soviet era the overwhelming majority of the village worked for different communities (Dilijan and Ijevan) and agricultural activities were not well developed. 22 years later, the region has not yet adapted to this new rural environment and has not acquired any skills to develop livestock and agricultural activities. Moreover, Dilijan National Park prevents the village from accessing its pastures. Based on our visits, Haghartsin community is ranked a 4 on a stability scale of 1-10.

Figure 5. Shop owner's notebook showing more than half of the village debtors' list.



3.2.2 Aknaghbyur community

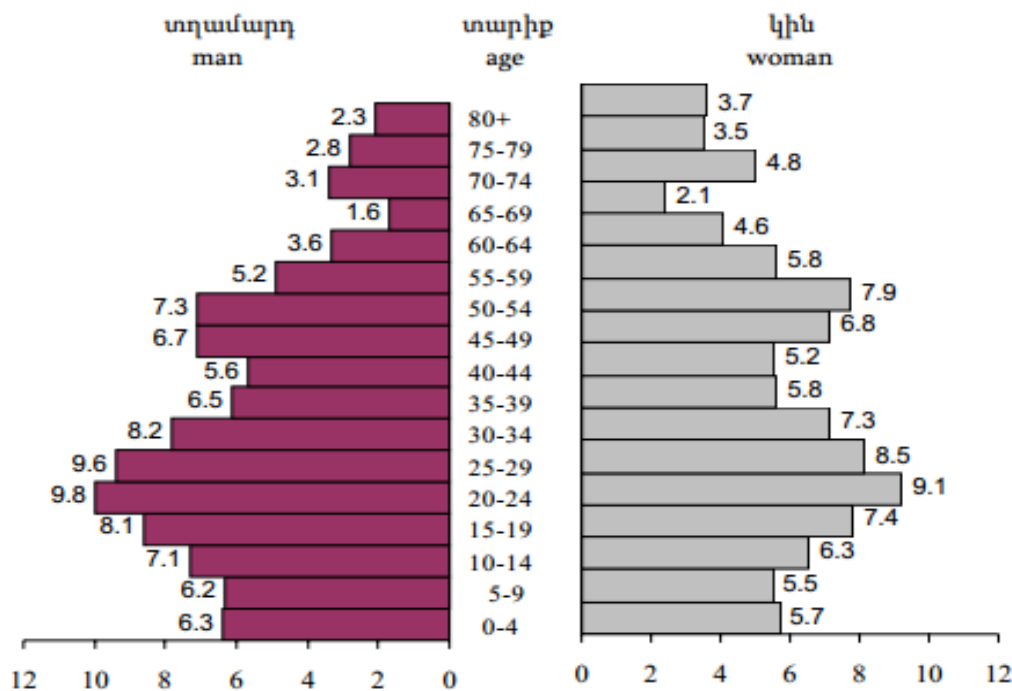
a. Brief history of village

Aknaghbyur is one of Armenia’s oldest rural communities (established in 1815), located at 650 m above sea level. The village territory is 5.8 square km, with a population of 445. Aknaghbyur is located 13 km from the administrative center of Ijevan. In the recent years, Armenia Fund, Inc. (www.armeniasfund.org) has carried out vital infrastructure projects, such as the construction of a gas pipeline and an irrigation system and the renovation of the drinking-water system in the town.

b. Demographics

Age composition and gender information was made available by Marzpetaran (Regional Governor Office) and calculated per 10 000 inhabitants.

Figure 6. Resident population by age-specific groups in Aknaghbyur community



c. Infrastructure

All households in the village have a stable connection to electricity and are secured with gas and drinking water supplies.

d. Economic data

Information about the unemployment rate in the community is not available. 20 families receive government funded welfare support.

e. Major economic activities

The majority of population in Haghartsin village is involved in crop production and cattle breeding. We were unable to find out what constitutes the daily salary for an unskilled agricultural job. The population often resorts to barter schemes.

f. Seasonal calendar

Table 11. Major activities throughout the year by month. H stands for harvest, S stands for sale and P for planting.

Product name	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Firewood										H/S	H/S	H/S
Blackberry								H/S	H/S			
Foddergrass							H					
Wild vegetable					H/S	H/S						
European cornel								H/S	H/S			
Fig									H/S	H/S		
Bean				P	P/H	H/S	H/S	H/S	H/S			
Onion				P	P		H	H	H			

g. Major markets and market access

The nearest market is 13km away from the village.

h. Major land cover and land uses

The community has 88.49 hectares of pastures and 180.51 hectares of arable lands.

i. Description of conservation areas

The nearest conservation area to Aknaghbyur community is Ijevan State Sanctuary, which is located 17.1 km from the village. The territory of the sanctuary is estimated to be 5,908 hectares in size. The sanctuary meets the requirements of IUCN category IV. The objective of the sanctuary is to protect rare and valuable plant and animal species. Ijevan Sanctuary does not have a charter and management plan, nor are there approved boundaries and cadastral maps. Boundaries and the status of its buffer zones are not clear and normative documents regulating economic activities and their enforcement mechanisms are missing.

j. Tenure and governance

All forest resources of the community are under state property and are managed by “Hayantar” SNCO under the RA Ministry of Agriculture. The use of water resources is authorized by the Water Resource Management Agency under the RA Ministry of Nature Protection, and other natural resources managed by the RA Ministry of Energy and Natural Resources.

k. Government and other development/conservation projects

The government passed a Decree on “Free Provision of Deadwood to Forest-dependent Communities” which allows forest communities to collect up to 8 m³ firewood per household from the forest per year.

I. Calamities

No information is available.

m. Other relevant issues

Aknaghbyur village is known for its locally grown fruits which are offered for sale in not only the Tavush region, but also in the capital, in various markets in Yerevan.

Based on our visits, Aknaghbyur community is ranked a 9 on a stability scale of 1-10. The results of the household surveys suggested that the percentage of forest use in Tavush Region is the highest out of all of the regions.

3.3 Syunik Region

Syunik is the southernmost region in Armenia. It borders the Vayots Dzor region in the north, Iran in the south (with a 42 km-long common border), Nakhijevan in the West and Azerbaijan in the East. Kapan is the administrative center of the municipality and is located 300 km away from Yerevan. The municipality includes 109 communities of which 7 are considered urban and 102 are considered rural. Some of the important towns include Goris, Sisian, Meghri, Agarak, and Dastakert.

According to the latest statistics, the total population of the municipality is 141,000, 94,700 (67.2%) of which live in towns and 46,300 (32.8%) live in rural areas. The average density of the population is 34 persons per square km. Syunik region has become politically strategic and economically important for Armenia, sharing a border with Iran from which vital energy resources are exported. Recently, a new 140-kilometer-long Armenia-Iran pipeline has been opened "to supply Armenia with up to 1.1 billion cubic meters of gas per year until 2019."

Syunik is Armenia's richest region in minerals such as copper, molybdenum, zinc, and lead as well as in precious metals (gold, silver) and nonmetal minerals and historically was one of the most industrially developed areas. The region is highly reliant on this industry (especially the mining industry) due to its economic value and it is the region's dominant economic activity. Nearly 40 mines are currently operating in the region, 7 of which are metal mines and 32 of which are non-metal. Syunik is home to many of Armenia's largest mining operations and largest tailing dams.

The industrial output of Syunik region is high and produced 45,669.800 million Armenian drams in 2014 (16,6% of country's economy). However, despite the high industrial output in the region, there has not been much poverty reduction in the area because most industrial businesses belong to a handful of individuals who are closely linked to the government and have a monopoly over basic commodities.

While it is one of the largest economic regions of the country, Syunik is also one of the least inhabited (and economically developed) regions in the country. Syunik holds the largest share of agricultural areas in Armenia (335,100 ha, including 43,800 of arable land) (Armstat), but it has no rural population to properly cultivate the land. This is related to three reasons. First, the military conflict with Azerbaijan left a significant negative impact on the economy and general social-economic situation of Syunik. The military attacks targeted on the population led to massive immigration of people from the region. Second, due to the long distance between the districts and the capital, undeveloped rural roads and lack of alternative transport, residents must spend hours to reach the administrative center of Kapan. Third, Syunik is currently experiencing one of the highest levels of unemployment and poverty in the country (14.9 %).

Agriculture in the region is mainly specialized in crop production (in particular, cereals and potatoes) and animal husbandry (in particular, cattle breeding). As of 2014, products grown in the municipality included cereals (5704.5 ha), potato (1236.8 ha), vegetables (226.4 ha) and forage crops (413 ha). (Official website of Syunik municipality: <http://www.syunik.gov.am>).

In addition to being one of the two forested areas in the region (total forest fund: 94,825 hectares), Syunik, where the forest is concentrated, has the following forest protected areas: a) Shikahogh State Reserve, the second largest forest reserve, covering 100 square km of land (the Reserve has largely been unaffected by Armenia’s massive post-Soviet deforestation and is the only place where the forest remains intact) and b) Plane Tree Grove, the largest natural relict plane grove in the world occupying 60 hectares.

3.3.1 Halidzor community

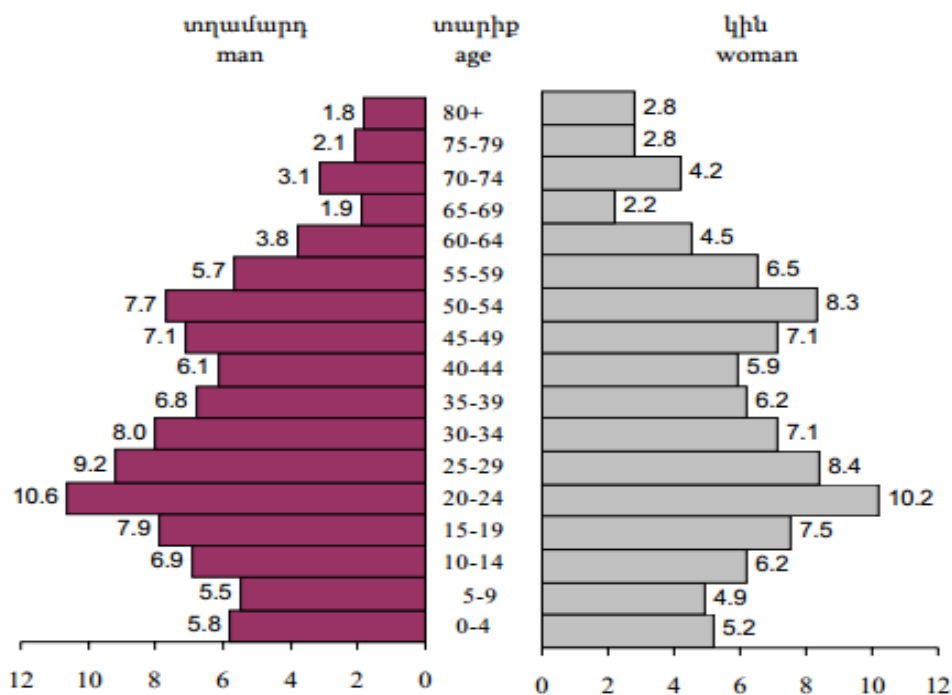
a. Brief history of village

Halidzor is an old rural community in Syunik Region situated on the left banks of Vorotan River at an elevation of 1250 m above sea level. It was established in the 10th century. The population of the village is 602 (according to community major 591). The village is located at 23 km from the nearest town of Goris and is 74 km from administrative center Kapan. The village hosts a station of the Wings of Tatev - the world's longest double track aerial tramway.

b. Demographics

Age composition and gender information was made available by Marzpetaran (Regional Governor Office) and calculated per 10 000 inhabitants.

Figure 7. Resident population by age-specific groups in Halidzor community



c. Infrastructure

All households in the village have a stable connection to an electricity and drinking water supply, however gas pipelines are not installed.

d. Economic data

Information about the unemployment rate in the community is not available. 12 families receive government funded welfare support. According to Armenian legislation, all individuals who live in rural communities and own land cannot be classified as unemployed.

e. Major economic activities

The population in Haghartsin village is engaged in crop production and cattle breeding. The daily salary for an unskilled agricultural job ranges between 3,000-5,000 Armenian drams per day.

f. Seasonal calendar

Table 12. Major activities throughout the year by month. H stands for harvest, S stands for sale and P for planting.

Product name	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Firewood									H/S	H/S	H/S	
European cornel									H/S	H/S		
Walnut									H/S	H/S	S	S
Graps									H/S	H/S	S	
Sweet cherries					H/S	H/S						
Bean				P		H/S	H/S Green	S	H/S Dry	S	S	S
Mulberry						H/S	H/S					

g. Major markets and market access

All major markets for the community are located in the town of Goris which is 23 km away.

h. Major land cover and land uses

Out of 2777 hectares of land, the community has 514 hectares of arable land, 22 hectares of perennial plants, 98 hectares of pastures, 308 hectares of forest and 973 hectares of special protected lands.

i. Description of conservation areas

There are no conservation areas in the vicinity.

j. Tenure and governance

All forest resources of the community are under state property and are managed by “Hayantar” SNCO under the RA Ministry of Agriculture. The use of water resources is authorized by the Water Resource Management Agency under the RA Ministry of Nature Protection, and all other natural resources are managed by the RA Ministry of Energy and Natural Resources.

k. Government and other development/conservation projects

The government passed a Decree on “Free Provision of Deadwood to Forest-dependent Communities” which allows forest communities to collect up to 8 m³ firewood per household from the forest per year.

l. Calamities

No information is available.

m. Other relevant issues

Based on information gathered from our visits, Halidzor community is ranked a 6 on a stability scale of 1-10.

3.3.2 Tatev community

a. Brief history of village

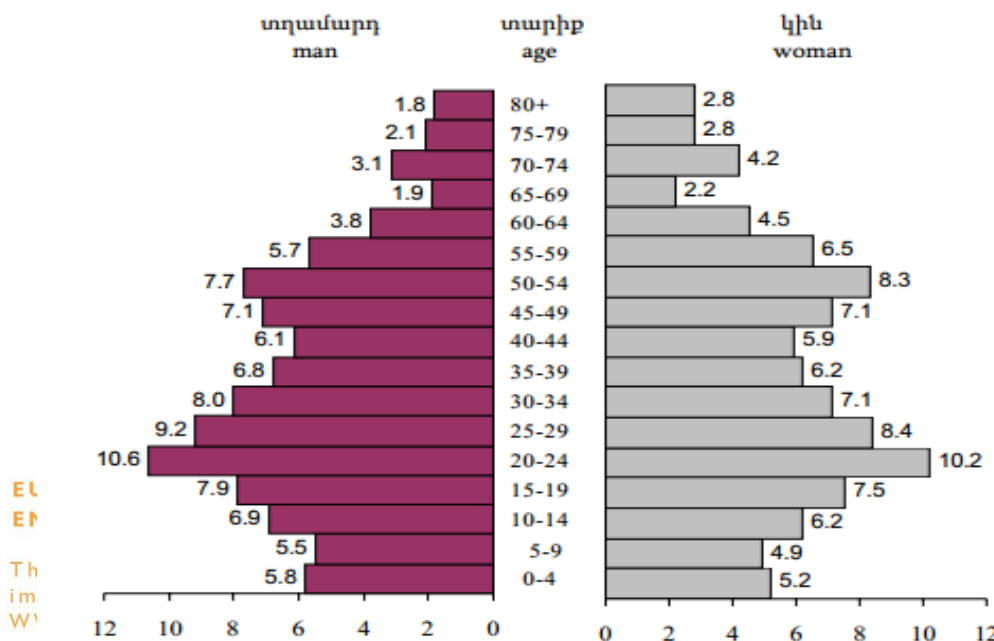
Tatev is one of the ancient communities in Armenia. It was established in the 4th century, on the right banks of Vorotan River. The village today has a territory of 65.73 square km and a population of 1042 (according to community major 925). It is located within 32 km of the nearest town of Goris and is 60 km away from the administrative center of Kapan.

The village is situated at 1610 m above sea level and is home to Tatev Monastery, a 9th-century monastery located on a large basalt plateau in southeastern Armenia and stands on the edge of a deep gorge of the Vorotan River. Tatev is the bishopric seat of Syunik and played a significant role in the history of the region as a center of economic, political, spiritual and cultural activity.

a. Demographics

Age composition and gender information was made available by Marzpetaran (Regional Governor Office) and calculated per 10 000 inhabitants.

Figure 7. Resident population by age-specific groups in Tatev community



b. Infrastructure

All households in the

community are connected to the general power grid and have a stable water supply. No gas infrastructure is available.

c. Economic data

Information about the unemployment rate in the community is not available. 40 families receive government funded welfare support. According to Armenian legislation, all individuals who live in rural communities and own land cannot be classified as unemployed.

d. Major economic activities

The population of Tatev community is engaged in crop production, cattle breeding and tourism. A total of 216 households are engaged in agriculture. The daily salary for an unskilled agricultural job varies between 3,000-5,000 Armenian drams per day.

e. Seasonal calendar

Table 13. Major activities throughout the year by month. H stands for harvest, S stands for sale and P for planting.

Product name	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Firewood									H/S	H/S	H/S	H/S
Wild roseberries									H/S	H/S	S	S
Foddergrass							H/S					
Trellises for beans										H/S	H/S	
Bean	S Dry	S Dry	S Dry	S Dry	P			H Green	H Green			
Potato				P	P				H			
Walnut	S	S	S	S	S	S	S	S	H/S	H/S	S	S
Pear									H/S	H/S	S	S

f. Major markets and market access

All major markets are located in the town of Goris which is 32 km away from Tatev village. The roads to Goris and Kapan markets are in very poor condition and these markets are described to have weak trade potential. Thus, the villagers prefer to take products (dry fruits, jams, nuts, red beans, alcoholic beverages) to Yerevan markets, restaurants, bakeries in late autumn and winter.

g. Major land cover and land uses

Out of 7,627 hectares of land which belong to the community, there are 408 hectares of arable land, 280 hectares of hayland, 2,296 hectares of pastures, 2,232 hectares of other land, 2,183 hectares of forest land of which 1,206 are covered by forest.

h. Description of conservation areas

There are no conservation areas in the vicinity.

i. Tenure and governance

All forest resources of the community are under state property and are managed by “Hayantar” SNCO under the RA Ministry of Agriculture. The use of water resources is authorized by the Water Resource Management Agency under the RA Ministry of Nature Protection, and all other natural resources are managed by the RA Ministry of Energy and Natural Resources.

j. Government and other development/conservation projects

The government passed a Decree on “Free Provision of Deadwood to Forest-dependent Communities” which allows forest communities to collect up to 8 m³ firewood per household from the forest per year.

k. Calamities

Tatev village is prone to a number of risks. According to the seismic zoning map, the village is located in zone II, with 0.3 g acceleration and a magnitude 8-of seismicity. Floods can occur mainly as a result of intensive and heavy rainfalls, which may be a result of a recent sudden rise of the Vorotani River.

l. Other relevant issues

Tatev village is home to the 4th c. Tatev Monastery and also hosts the end stations of the Wings of Tatev - the world's longest double track aerial tramway. Tatev University was established in Tatev in 1435. Tatev community is surrounded by numerous churches and old cemeteries. It hosts one of the wonders of Armenian nature – Devil’s Bridge. According to a government Decree from 26.06.2009, Tatev Monastery and the neighboring Tatev village of Syunik region were recently officially declared tourism centers.

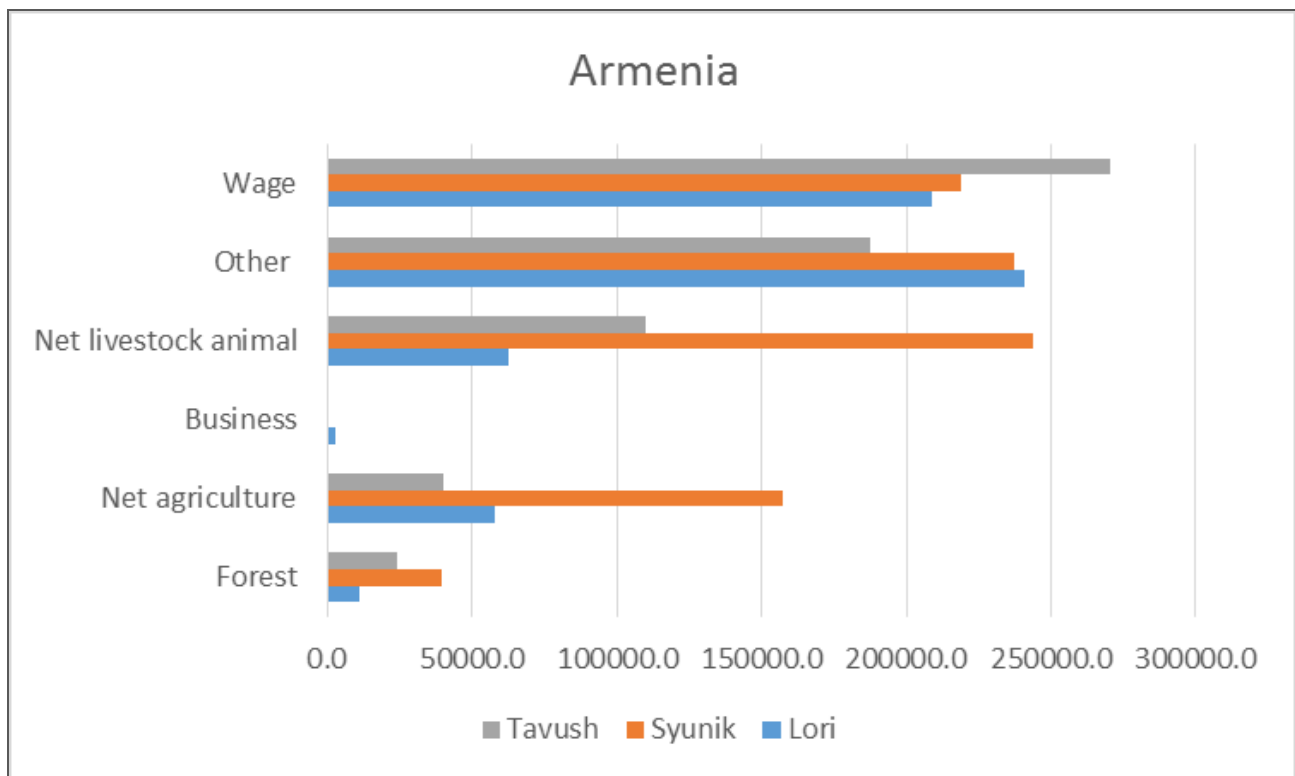
Based on information gathered from our visits, Tatev community is ranked a 7 on a stability scale of 1-10.

4. Results and discussion

4.1 Income share by sources

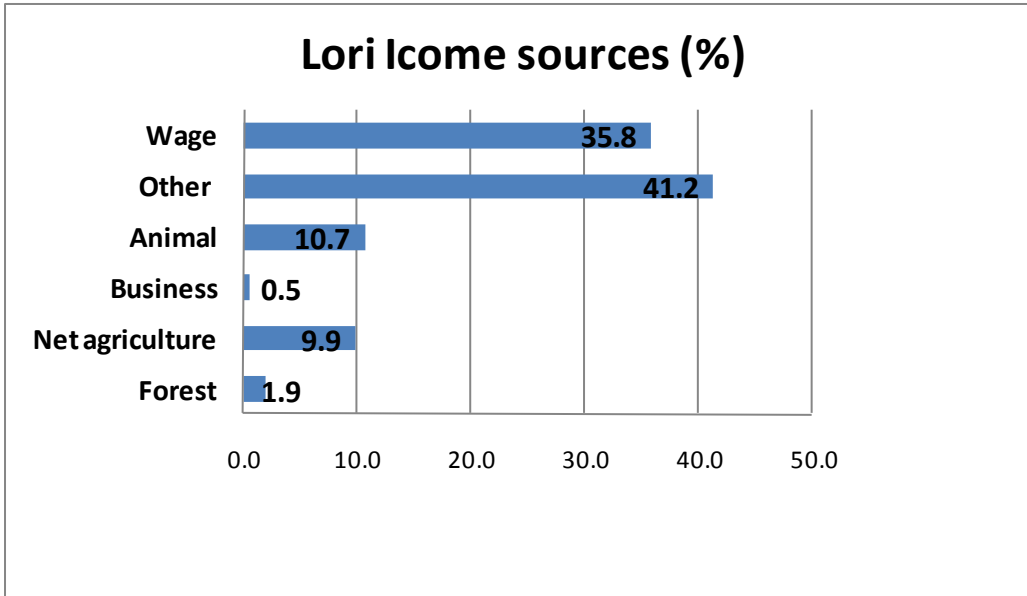
As the surveys conducted in Armenia illustrated, the majority of population in all three regions have two major sources of income: 'wages' income (34.3%) and 'other' income (32.4%). Figure 8 illustrates the income division by source; wage and other incomes, as well as animal income (18.4%), agriculture 11.2%, forest (3.4%) and business (0.3%) are the most important income sources in the surveyed communities in the Lori, Tavush and Syunik regions. The 'Other' income mostly aggregates incomes from pensions, state social welfare support which is given to poor families and private remittances which families receive from family members or relatives working abroad as labor migrants. Looking at the diagram, it is clear that the majority of rural communities are highly dependent on agriculture, whether it is crop production or livestock farming – both activities represent an overall significant income source for the people. Villagers supported by agriculture are generally less dependent on their forest base and mostly use this resource as a source of fuelwood. However, there is a range of social, economic, environmental and political factors, which will be discussed later in this paper, that affect this relationship.

Figure 8. Income share by source in three regions



The livelihoods and income of the targeted regions vary due to differences in social, economic and demographic conditions. The distribution of dominant income sources is illustrated below.

Figure 9. Income shares by sources in Lori.

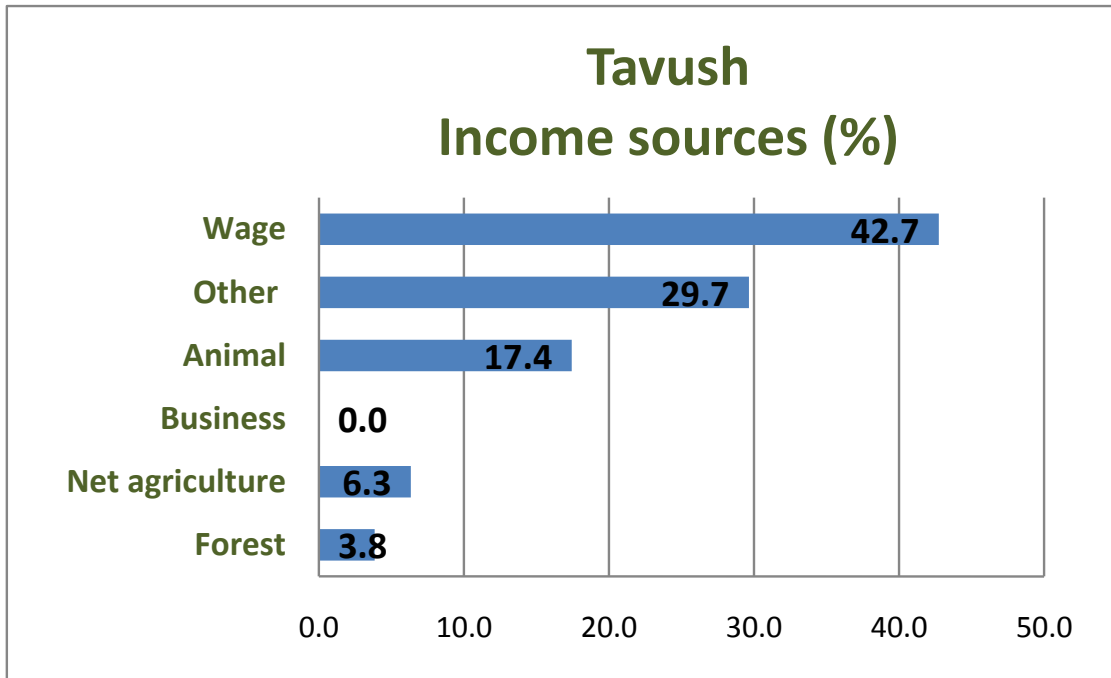


The diagram (Figure 9) illustrates that 'Other' is the most important source of income for this region (41.2%) which is the case in other regions as well. Most Armenian villages especially those located at a far distance from the capital are aging and have a high level of poverty. In the Lori region 70.3% of our respondents receive pensions and state welfare support. 29.7% of the 'Other' income source are made up of remittances which villagers receive from relatives working as labor migrants in Russia or have migrated to live in U.S. and Europe. The second important source of income is 'Wages' (35.8%) and includes schools, local government staff members, agronomists, veterinary practitioners, construction workers, drivers, etc. This category is followed by 'Animal' income (10.7%).

There are several main animal products produced in this region and they are distributed as follows: milk (41.3%), meat (19.3%), cheese 14.4%, butter (4.0%), matsoun (yogurt) (3.0%), honey (1.9%). In these households all family members are involved in work (including children under 15).

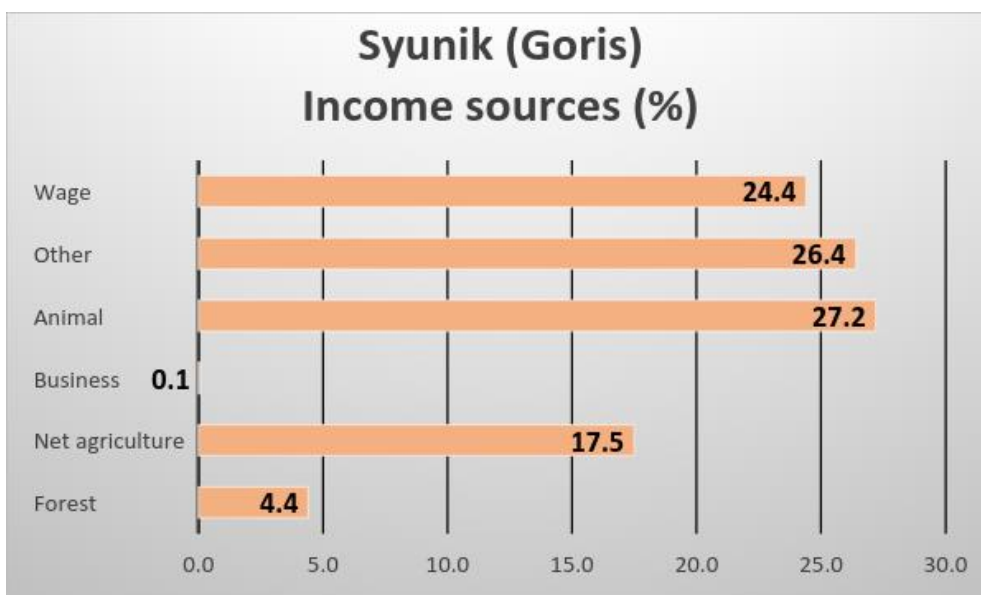
The income communities received from the forest in the Lori region is the smallest out of all of the target regions (1.9%). Business in all regions shows a low potential for development because the monopolized economy provides little chances to villagers to develop small and medium businesses. Furthermore, a large number of businesses are not registered and illegal. During our surveys, many respondents who are also business owners refused to answer questions on incomes and benefits they gain from business. Normally, common business structures are meant to be local community shops, some dairy production, petrol/gas station outlets, B&B business, etc.

Figure 10. Income shares by sources in Tavush Region



As seen from the diagram (Figure 10) above, the household survey results show that the percentage of 'Wages' in Tavush Marz is the highest out of all of the regions, at 42.7%. Tavush is located on the border with Georgia and is adjacent to international roads. Active trade with its neighboring regions plays an essential role in their incomes, which does not come from the forest products. The second important source of income is 'Other' which makes up 29.7%, 69.2% of which represents pensions and state welfare support received by respondents. Animal income is 17.4% within which cheese 40.5%, milk -24% and meat 15.6% are the main products produced and sold. The forest income in Tavush is only 3.8%. Despite that gas infrastructure is available in Tavush Region, the local population continues to collect firewood and branches (deadwood is collected mostly by elderly people while firewood is logged). Both are used for cooking and heating.

Figure 11. Income shares by sources in Syunik region



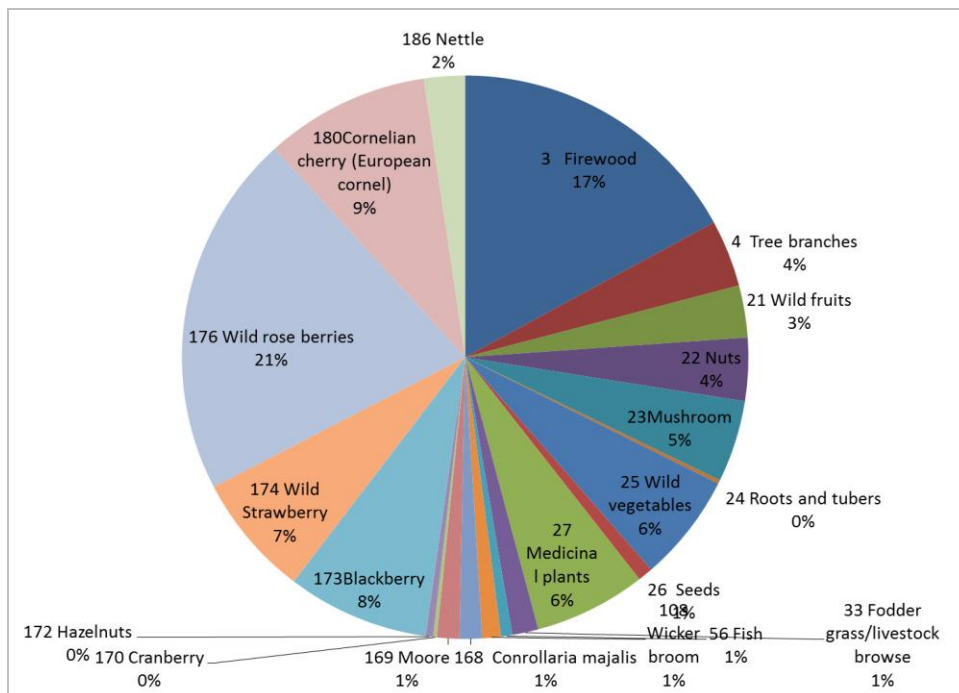
As is seen from Figure 11, Syunik region is the only region among our target regions that does not have gas infrastructure, yet the forest income is approximately the same as that of the Tavush region – 4.4%. In Syunik, livestock breeding and crop production generate considerable income. The population of this region is known for its high standards of practice and culture of conserving, cooking and drying wild vegetables, fruits, and livestock products. Additionally they are culturally very organized and disciplined in their daily life. They are creative in their working conditions as well and hold their household work to high standards.

In Syunik, the income chart is topped by 'Animal' income 27.2%, and includes the following products: meat 36%, cheese 19%, honey 17.4%, milk 6.4%, butter 3.3%, matsoun (yogurt) 2.7%. It is then followed by 'Other' income - 26.4%, of which 81.5% comes from the state pensions and poverty welfare support. Remittances constitute a very small proportion here, because seasonal migration is historically uncommon in the region. 'Wage' comes third and accounts for 24.4%.

4.2 Frequency and value of forest products

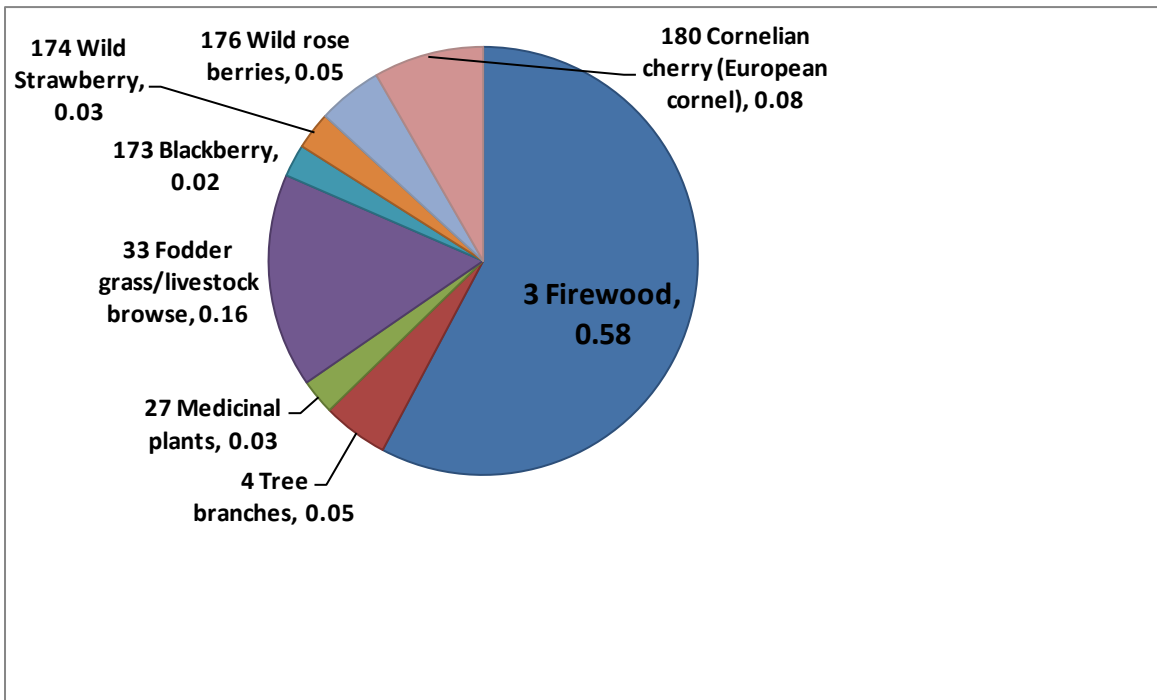
The research shows that forest-dependent communities in Armenia collect about 10-13 different types of forest products to support their livelihoods. Figure 12 illustrates the distribution of the forest products collected by communities by percent. The five most dominant forest products are wild berries (frequency 98 to 196), fuelwood (80 to 196), Cornelian cherry (*Cornouiller mâle*) (44) and Blackberry (*Rubus sp.*) (34). Wild fruits and berries occupy an essential place in the Armenian cultural cuisine. Virtually all households are involved in making of jams, juices, compotes, dry fruits and distilling various types of vodka. With regards to the forest products in each targeted region, firewood and fodder grass are the most common types among all communities, and berries, wild fruits and vegetables vary across communities.

Figure 12. Frequency of forest products collected in Armenia.



However, the products illustrated above show a slightly different distribution in Figure 13 in terms of their economic value. Fuelwood and animal fodder grass are represented as the most significant forest products, making up more than the half of the forest income (74%). Berries, wild fruits, vegetables and mushrooms, vary across communities and represent another quarter. People mostly use the forest to collect timber, food products for animals and plant products and they often sell wild fruits and berries from the forest.

Figure 13. Value of forest products' collection in Armenia



In order to better illustrate the value of the forest products, Table 14 shows the types of the forest products collected in Armenia, the purpose of their collection and who mainly collects these products.

Table 14. Value of forest products and their consumption

	Forest product	Frequency	Collected for	Mainly collecting
1.	Wild rose berries	98	For juice and for tea for household consumption and for selling	Female and male adult of the family
2.	Firewood	80	For heating and cooking during all 12 months and for selling	Male adult of the family with the help of hired workers
3.	Cornelian cherry	44	For compote and for jam for household consumption and for selling (fresh)	Female and male adult of the family
4.	Blackberry	38	For compote and for jam for household consumption and for selling (fresh).	Female and male adult of the family
5.	Wild Strawberry	33	For compote and for jam for household consumption and for selling (fresh)	Female and male adult of the family
6.	Medicinal plants	30	For tea for household consumption, and for selling (fresh and dry)	Female adult of the family

7.	Wild vegetables	29	Cooking in spring and the dry one for winter, spring particularly during Fast period for household consumption, and for selling (fresh and dry)	Female adult of the family
8.	Mushroom	22	Cooking only in spring for household consumption, and for selling (fresh)	Female and male adult of the family
9.	Tree branches	18	For heating and cooking during all 12 months	Male adult of the family

4.3 Fuelwood

As we have seen from Figure 13, fuelwood plays an important role in the lives of rural communities, contributing 58% of the forest income. However, considering the level of reliability of public opinions which was observed during our interviews and focus group discussions, the community dependence on forest, especially firewood, is largely underreported and may be much higher than it is actually presented in the research. The data on forest use represents a bare minimum because the respondents were not open to provide information on income they receive from fuelwood.

Because firewood is the cheapest (oftentimes free) and most accessible resource, households depend primarily on this energy source for heating and cooking. Despite this, natural gas has been and continues to be introduced in most rural communities of Armenia, however, this did not lead to full substitution of fuelwood as an energy resource. Gas is more expensive than fuelwood and thus does not minimize local people's dependence on forest. Rural communities connected to gas pipelines cannot afford gas because prices for gas keep rising and will likely continue to rise in the future. In addition, the majority of the buildings in the region are old and large and do not meet energy saving requirements. Dependence on fuelwood is also amplified by certain geographical characteristics of the mountainous areas such as long and harsh winters.

According to our survey, Lori Region has the lowest dependence on the forest, particularly on firewood. Its usage was estimated to be 4,009,500 Armenian drams. In the other targeted regions of Tavush, which is connected to gas pipelines and Syunik, which is not connected to gas pipelines, firewood usage is high and estimated to be at 6,722,000 and 8,600,750 Armenian drams respectively. Overall in all regions, households (according to information they provided) spent 19,332,250 Armenian drams on firewood over the last 12 months. It can be readily acknowledged that each family spends approximately 99,000 Armenian drams (equivalent to US\$245) on the firewood. However, there is a clear inconsistency of total forest income with the firewood usage included: 2,200,700 AMD in Lori, 5,104,600 AMD in Tavush and 76,953,00 AMD in Goris, making 15,000,600 AMD in total. Respondents indicated that firewood and fallen branches make up 58.1% (8,715,349 AMD) of the total forest income.

Few households obtain their wood (including fallen wood) directly from the forests, because of difficulties in accessing forests or because they are unable to obtain permits from the Forest Enterprise. Another reason is that many community members are elderly and do not have the ability to collect fallen wood themselves. The Armenian government has ratified a decree, whereby each household in forest-dependent communities is provided up to 8 m³ of fuelwood per year and is intended for households and communities that are adjacent to forest. This new regulation on the free provision of fallen wood removes the risk of collecting wood without a permit, but few households obtain their wood directly from the forests for a number of

reasons. This benefit mostly applies to the poorest families who are able to collect wood themselves instead of having to buy fuelwood from middlemen or vendors. However, as stated above, an overwhelming majority of people who depend on fuelwood are elderly pensioners who are unable to access areas where fallen wood is available. Beyond the terms of this new regulation, «Hayantar» SNCO has no obligation to supply any firewood to rural population. If more firewood is needed, there are several options for households to obtain the wood: a) they may collect it illegally from the forest, b) they can buy fuelwood if they pay a nature consumption tax or if there are already allocated logging areas nearby, c) they can buy fuelwood directly from «Hayantar» SNCO at the price of 11,000 Armenian drams per one cubic meter.

Armenia has no timber production forests. Logging is allowed only for sanitation purposes, as well as for the purpose of development or intermediate thinnings and other cuttings; no production harvest is allowed. If people collect for their own (household) use, they do not need to pay or request a permit. If the harvest is performed for sale or other like purposes, they must pay a nature consumption tax in accordance with the government decree No. 864 of December 30, 1998. The decree includes the collection of the following notable points:

- ❖ Widely used medicinal herbs, 100 AMD/kg for above-ground parts, 300 AMD/kg for roots, other herbs accordingly 50 and 200 AMD
- ❖ Widely used food plants, 15 AMD/kg for above-ground parts, 50 AMD/kg for roots, other food plants accordingly 10 and 30 AMD
- ❖ Industrial crops 50 AMD/kg for above-ground parts, 150 AMD/kg for roots
- ❖ Decorative plants 10 AMD/kg
- ❖ Herbal resins 500 AMD/kg
- ❖ Fruit and berries 30 AMD/kg
- ❖ Walnuts 60 AMD/kg

Permits to collect wood are issued by the local government, specifically «Hayantar» SNCO, the state agency that regulates the forest use, forest maintenance and rehabilitation, and also controls the State Forest Fund area. The government decree No. 864 has established a set of nature consumption charges for timber harvest which are shown below.

Table 15. Nature use taxes applied to harvesting of certain forest products.

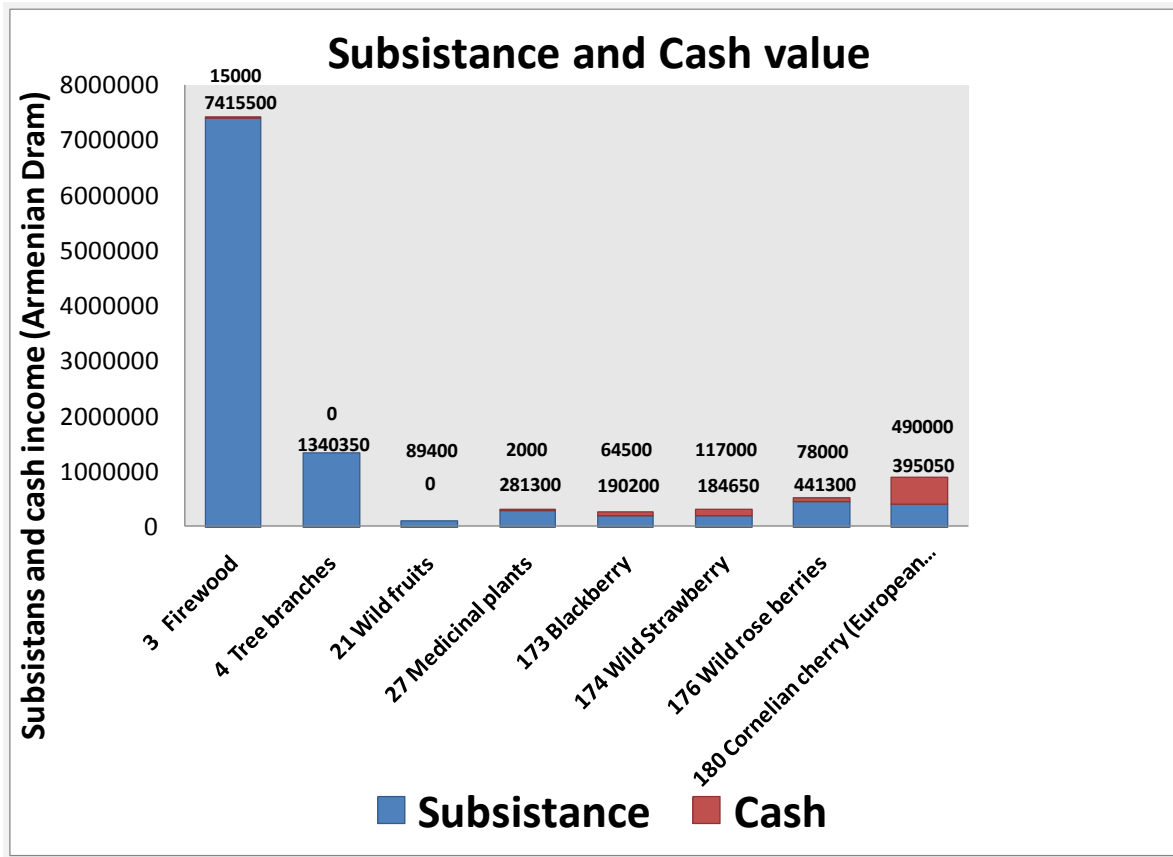
Type of tree	Distance from forest border (km)	Nature use charge rate (AMD)				
		Construction wood without bark in diameter (cm)			Technological wood (1 meter length with bark)	Firewood (1 meter length with bark)
		More than 25	13-25	3-13		
Oak, flowering ash, maple, elm	Till 10	5700	5250	4380	2600	700
	10-25	4390	4040	3370	2040	630
	25-40	3990	3670	3070	1670	560
	More than 40	3420	3150	2630	1300	420

Saugey, Lime	Till 10	3300	3000	2540	1200	700
	10-25	2540	2310	1950	1060	630
	25-40	2310	2100	1780	930	560
	More than 40	1980	1800	1520	800	420
Beech	Till 10	3000	2700	2310	1500	700
	10-25	2310	2080	1780	1155	630
	25-40	2100	1890	1620	1050	560
	More than 40	1800	1620	1390	900	420
Hornbeam and other species	Till 10	1250	1100	960	500	420
	10-25	960	850	740	360	350
	25-40	870	770	680	280	280
	More than 40	750	660	580	250	210

4.4 Cash and subsistence of forest products

As discussed earlier in the paper, firewood is the main forest product used by communities in Armenia. Figure 14 clearly indicates that firewood and tree branches combined bring local people 8,770,850 Armenian drams per year and are used mostly for subsistence purposes. Firewood is the most important source of energy for the majority of the population of forest dependent communities because it is cheap and easy to access. The second most important resource are rose-berries or rosehips (*Rosaceae*), generating a total of 519,300 Armenian drams per year and Cornelian cherries, which are an important product and bring 885,050 Armenian drams to households. Both products are used both for subsistence and sale and Cornelian cherry is collected by the rural population and widely traded on roadsides. Rosehip is a common product in Armenia and is used to make a popular tea, jam, jelly, marmalade and wine. The forests of Armenia are famous for their wild Cornelian cherry which are used abundantly to make jams, juices and vodka. It is also used as a souring agent in sauces and soups and are believed to be beneficial for gastrointestinal tract and overall health. Because they are so popular and have multiple health benefits, cornelian cherries are known as “Noah's Fruit” and are used by communities to generate a substantive cash income. Other important products include wild fruits, blackberries, wild strawberries and medicinal plants. Forest products are an easy income source for the local population and are not charged by the government in Armenia.

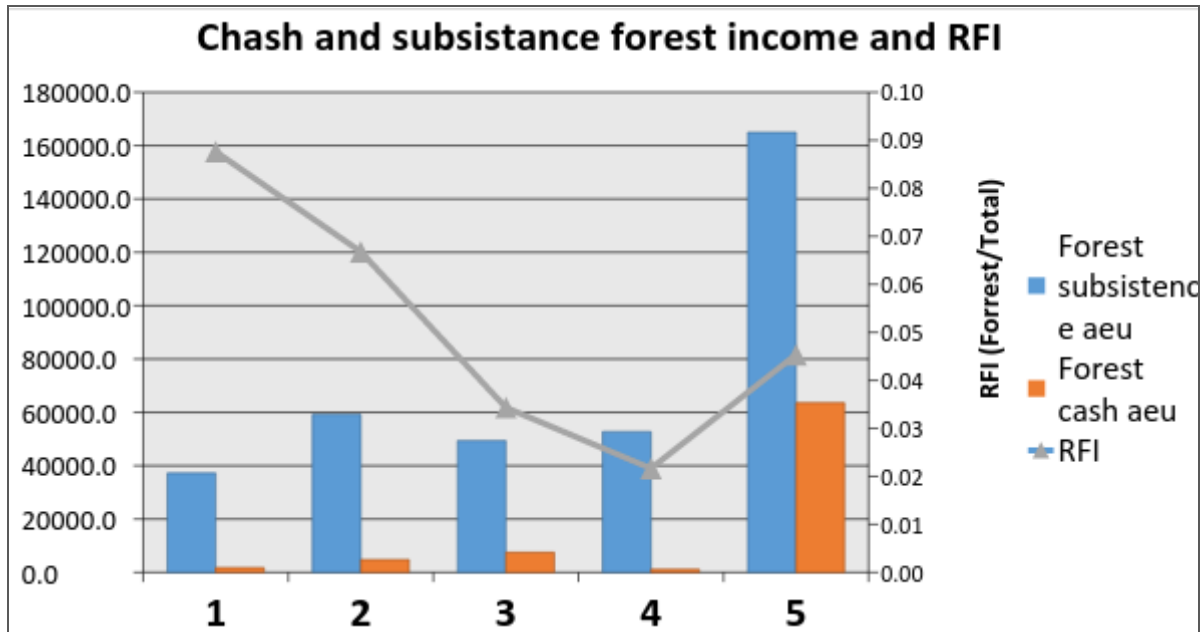
Figure 14. Cash and subsistence of forest products in Armenia



4.5 RFI over income quintiles

The research in Armenia showed that forest resources are used mostly by the poor and the rich. For the poor it is a survival source, while for the rich it is additional income source to increase their capital. The rich have better access to forest because they are influential figures in each community, have good harvesting techniques and machinery, and have strong connections with local authorities such as the forest inspectors and the police. Thus, there is an important observed distinction between *poverty*-driven forest reliance (lack of assets and opportunities) and *opportunity*-driven forest reliance, where valuable cash products and market access drive high forest reliance. This phenomenon is shown on Figure 15.

Figure 15. Cash and subsistence forest income and RFI in Armenia



The diagram above (Figure 15) illustrates the dependence of the population in different groups. The population is divided into three groups, categorized as "poor", "middle class" and "rich". The first quintile is the "poor", quintiles 2-4 are called "middle class", and the fifth quintile is "rich". The diagram presents the calculation for each group by forest cash AUE (Adult Equivalent Unit), forest subsistence AUE and RFI.

The group that has the lowest dependence is mostly comprised of teachers or villagers who work in the nearest towns, have a more or less stable income and have less time to go to the forest.

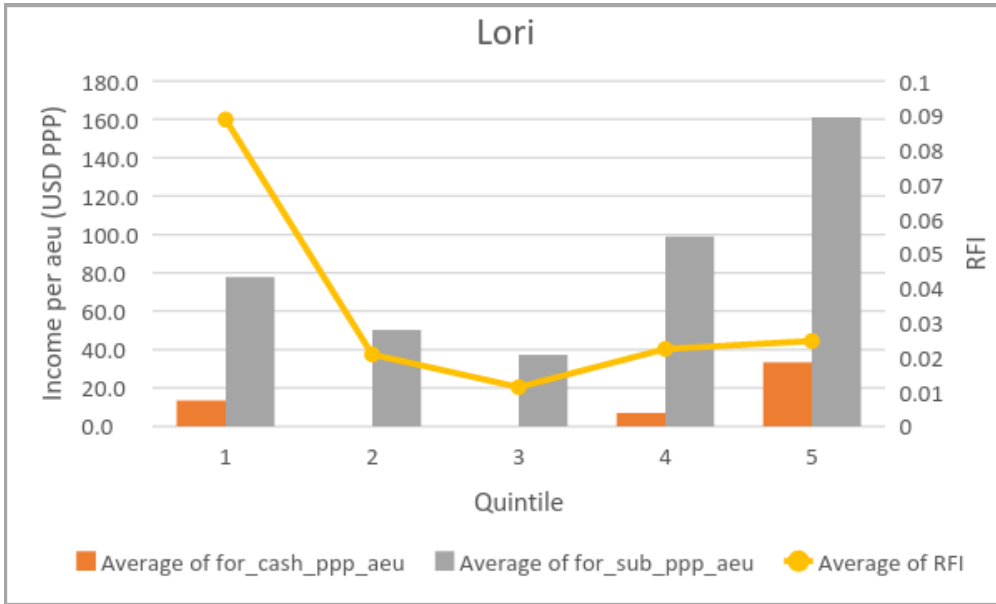
Table 16. Forest Dependence and Quintile

	1	2	3	4	5
Quintile	395239	884540	1456822	2308027	4625943
Forest subsistence aeu	37201.4	59192.1	49395.9	52761.3	164961.5
Forest cash aeu	1797.2	4789.5	7497.4	1112.5	63589.74
RFI	0.09	0.07	0.03	0.02	0.05

Table 17. Average of for cash aeu, for sub aeu , RFI for each group

Asset group	1 poor	2 medium	3 rich
Forest cash	5025 AD	7625 AD	34114 AD
Forest subsistence aeu	58264 AD	76845 AD	81386 AD

Figure 16. Forest dependence and Quintile in Lori Region



The Diagram above (Figure 16) shows that the quintile that includes the poorest part of the population is the most dependent on the forest. For this segment of the population, the forest is a survival source. Their cash is small because these small families include single pensioners or women – household heads, who use forest for their needs and the market is commonly not assessable or affordable for them. Quintiles 4 and 5 show lower dependence on the forest than the poor, because they include households with incomes that come mainly from 'animal', 'other' and 'wage' sources. These are large households with relatively good technical resources. Part of these households also live on stable wages or regular remittances from relatives working abroad. The forest base and the market are more accessible for this quintile, and their dependence on the forest is also the highest.

Figure 17. Forest Dependence and Quintile in Tavush Region

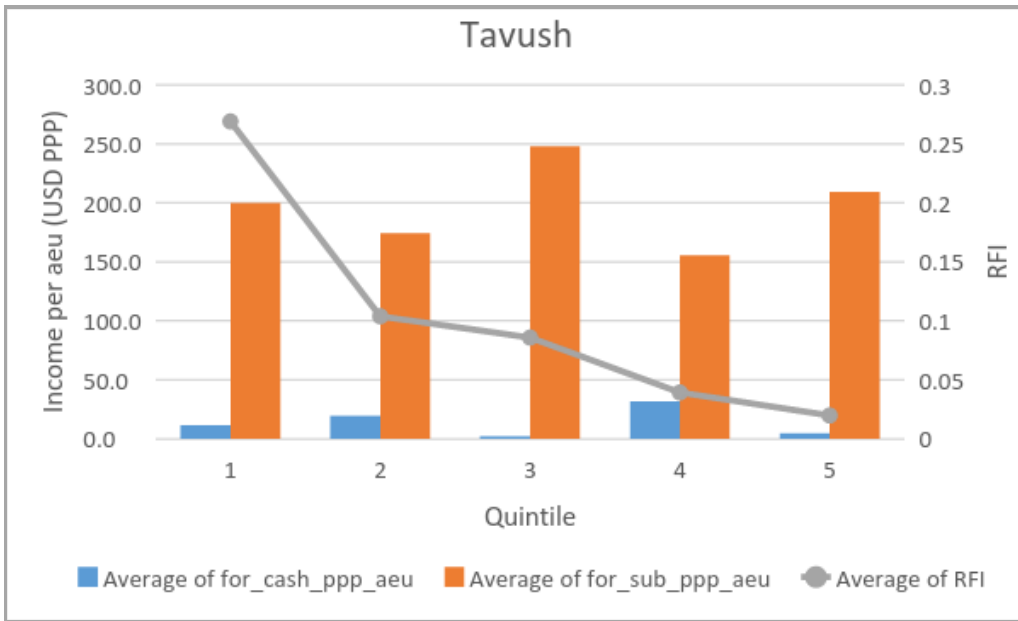
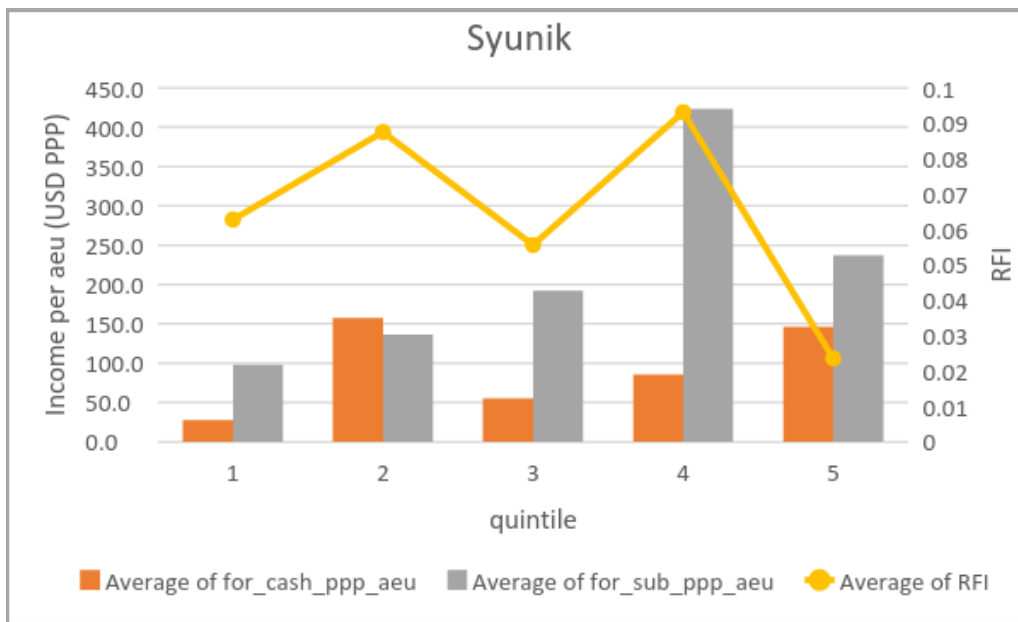


Figure 17 illustrates that forest dependence decreases from the poor to the rich. In Tavush, the highest income sources are 'Other' and 'Wages', with forest in the third place. Tavush is located on the border with Georgia and their trade with neighboring communities in Georgia plays an essential role in their incomes. This is why the percentage of subsistence and cash forest products in all quintiles are approximately same despite the disproportionate use of forest resources across the regions. As for the actual situation with firewood harvest and sale, this information was hidden by most of our respondents and it was not possible to make any judgements. We can use the example of Haghartsin and Aknaghbyur villages where focus group discussions and casual (non-formal) conversations revealed that the majority of households are involved in illegal logging and sale of wood from protected areas. On the other hand however, information provided by households shows that their income is mostly from agriculture products, berries collected in the forest, or products grown in their own gardens.

Figure 18. Forest dependence and Quintile in Syunik Region



By looking at Figure 18 we can see that in Syunik, the quintile that includes the wealthiest group of households, has the lowest dependence on the forest. This could be explained by the fact that this group has the greatest benefit from agriculture and animal incomes. These households gather and sell different grains that are uncommon or not available in such quantity in other regions. Nuts, dry beans, alcohol and milk products are the most profitable income sources. Dry beans in Syunik (called ‘Goris brown beans’) become twice as expensive during the winter months, compared to the beans from the other regions. The 4th quintile is close to the 5th quintile in terms of their incomes, but they demonstrate the highest dependence on the forest. This group of households has good technical and human capacity (family members) to support forest activities. They also have plots in the forest allocated for planting beans and forage grasses. In Syunik, the roads are in very poor condition and public transportation is available only 1-2 times per day. The ‘Wings of Tatev’ cable car is too expensive and not comfortable for the transportation of village products. Therefore, the market is not easily accessible for everyone. It depends on factors such as whether a villager can catch a ride to the nearest market or to the capital, Yerevan City with a relative with access to transportation.

4.6 RFI over asset groups

The households were divided into groups by assets and categorized across ‘poor’, ‘middle-class’ and ‘rich’ strata. Our households were split into groups that were called ‘poor’, ‘middle-class’ and ‘rich’ based on their household assets, lands and livestock. However, this may not reflect their actual revenues. Especially in case with rural population, the division of households by income is more reliable than the division by assets (‘poor’, ‘middle-class’ and ‘rich’) which often does not indicate the household welfare. This is due to the fact that in transition societies a variety of property items such as houses, furniture, tools and machinery, land and livestock are ancestral or inherited, as is the land and livestock, which was distributed among households upon privatization of the state property of the collective farms. Therefore, their actual income may be incorrectly represented. Yet, upon comparison of divided groups by income and by assets, there appears to be nearly the same levels of forest dependency across groups.

Figure 19. Cash and Subsistence and Relative Forest Income (RFI) in Lori.

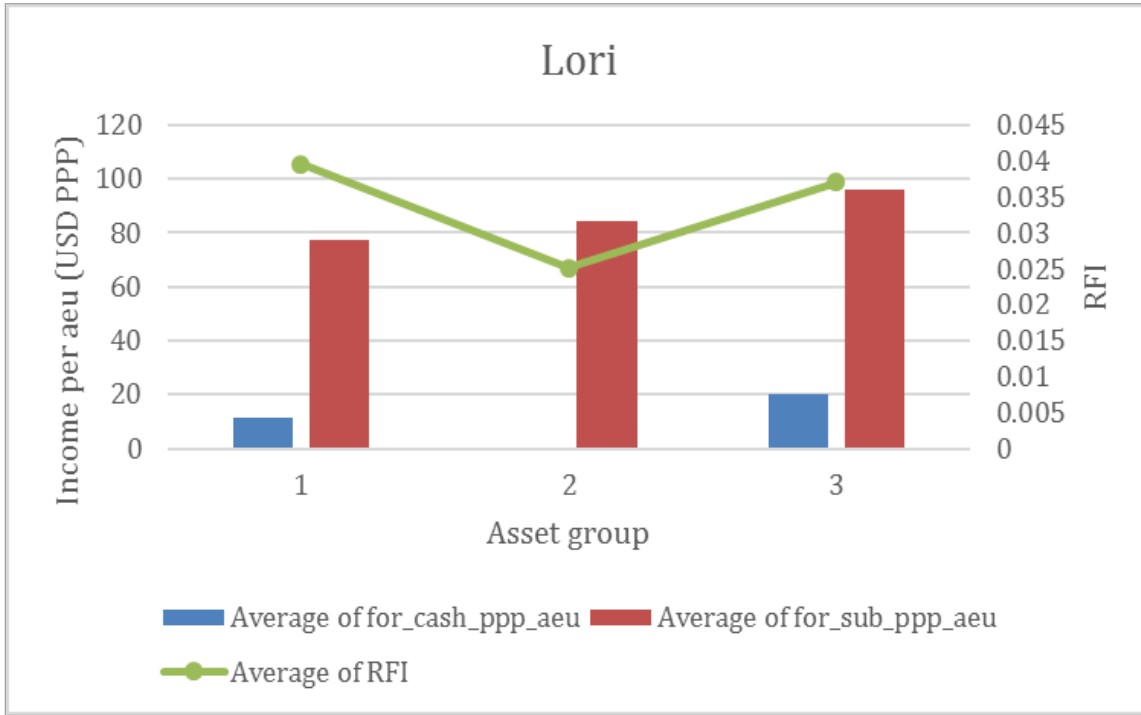


Figure 20. Cash and Subsistence and Relative Forest Income (RFI) in Tavush.

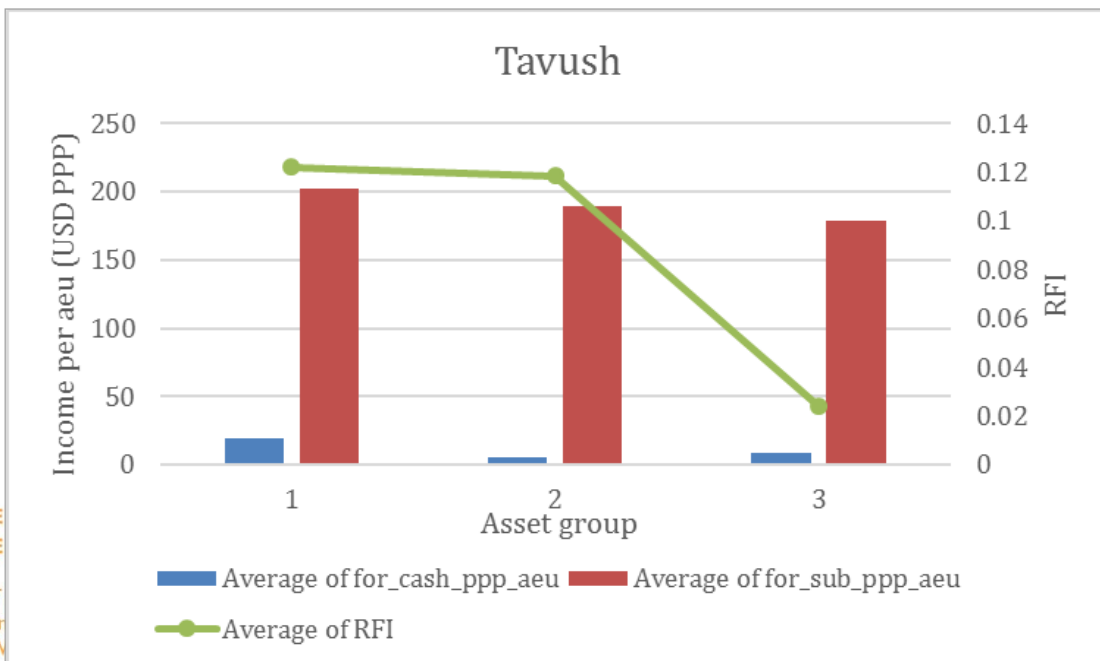
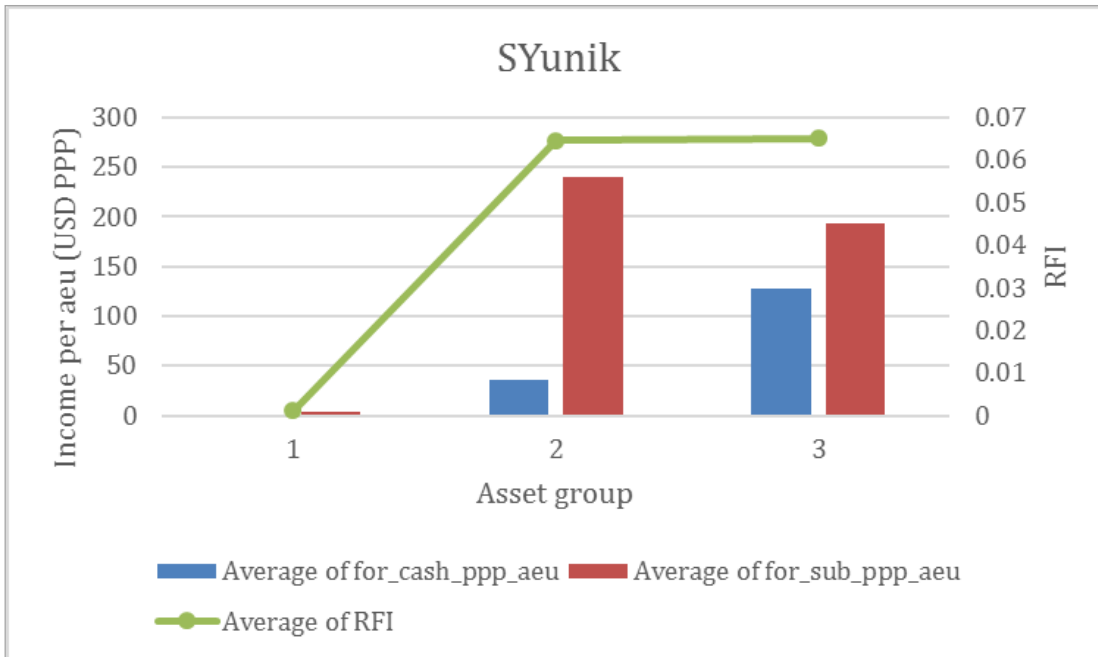


Figure 21. Cash and Subsistence and Relative Forest Income (RFI) in Syunik.



Since all income from assets - net livestock, net household and controlled land costs were combined, it was not possible to identify local land cost during our interviews with key informants and through discussions. We used the State Cadastral value of the land price for all 5 types of lands owned by targeted community members, calculated the average price, and deducted 30% to get an approximate cost of one hectare of land, which could correspond to the sale and purchase opportunities for the villagers. From an economics point of view, this method was not ideal, but it was usable and applicable in our public opinion survey.

Overall, we have the following pattern of average assets:

For 'Poor' group	623,597 Armenian Drams
For 'Middle-class' group	3,328,663 Armenian Dram
For 'Rich'group	11,193,061 Armenian Dram

4.7 Most Important Products

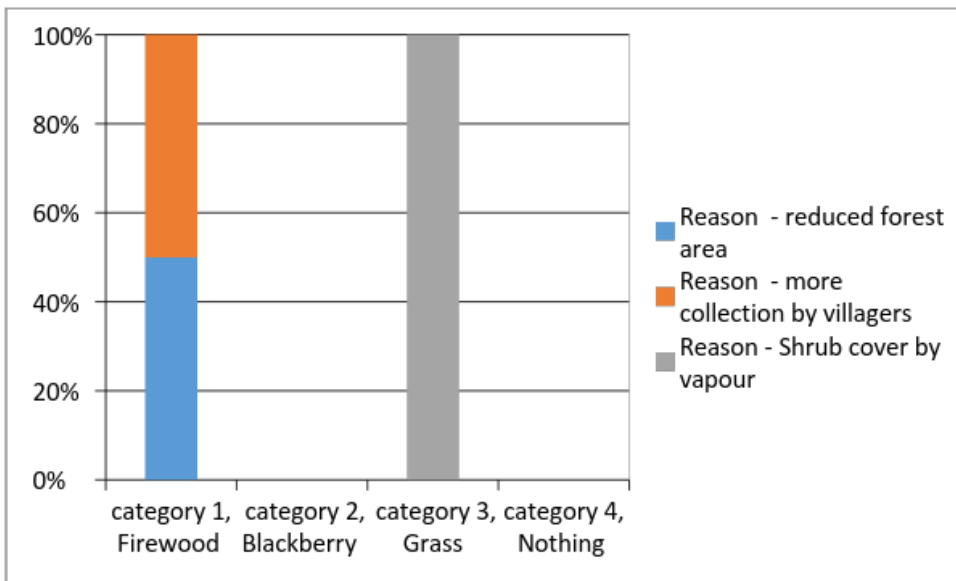
The household survey and focus group discussions revealed that «firewood» and «fodder grass» are common for all communities, but the types of berries, wild fruits and vegetables are different across communities.

Particularly in the Lori Region, firewood, berries and fodder grass are the most important products and are critical for their livelihood. Fodder grass is declining in the region. Because 'animal' income is of essential

importance in this region, people worry about the decline of fodder grass. Many see the main reason for the decline being the related to the logging of trees and clearings of the forest, which has resulted in a higher incidence of shrub thickets with little herbaceous layer. This inhibits the normal growth of the fodder grass and reduces the accessibility to those sites where it can be mowed.

Respondents explained that the reasons driving the decline of firewood and the reduction of the forest area are related to the increase in the amount of firewood collected by villagers and increase in the prevalence of illegal logging.

Figure 22. Reasons of decline MIP in Lori



Contrary to the products discussed above, the reasons for the decline in the forest area are favorable to blackberry production. The villagers explained the reasons for increase in blackberry growth are primarily due to climate change, specifically increased rainfalls in the spring. Villagers make jams, compotes from blackberries and sell these products in the regional markets and thus benefit from the increased production. Migration was another reason for increased blackberry production mentioned by villagers which results in less collection of the blackberries.

Figure 23. Reasons of increase of MIP in Lori

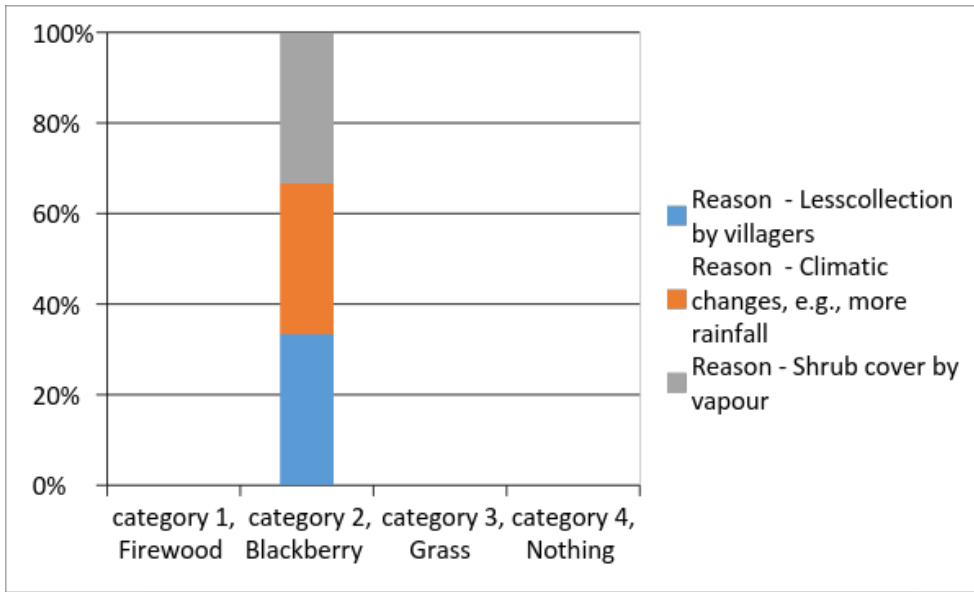


Figure 24 and 25 show that in Tavush, like in the neighbouring Lori Region, the most important products are same, as are the reasons for both their decline and increase.

Figure 24. Reasons of decline MIP in Tavush

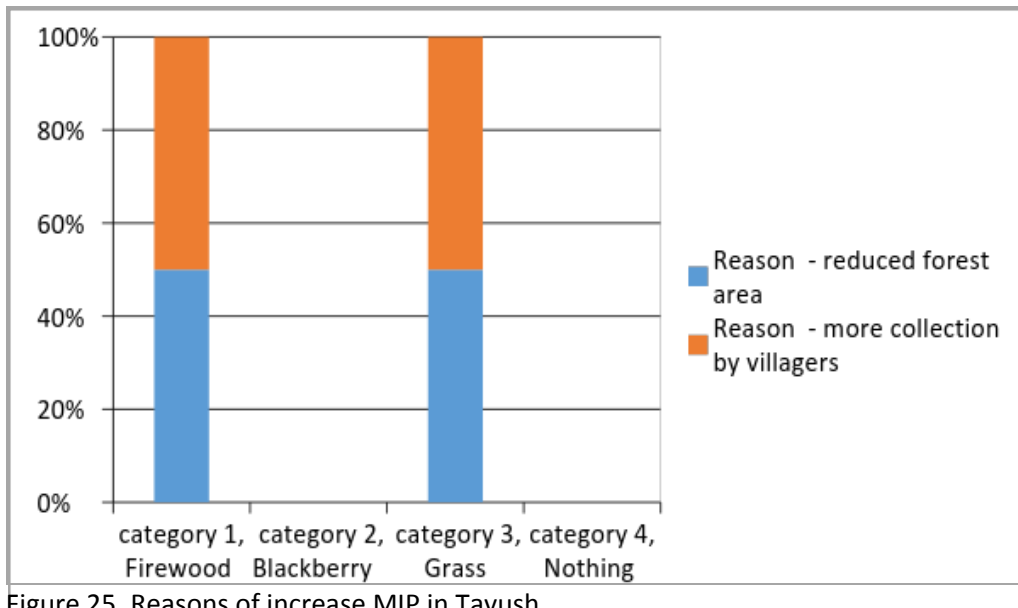
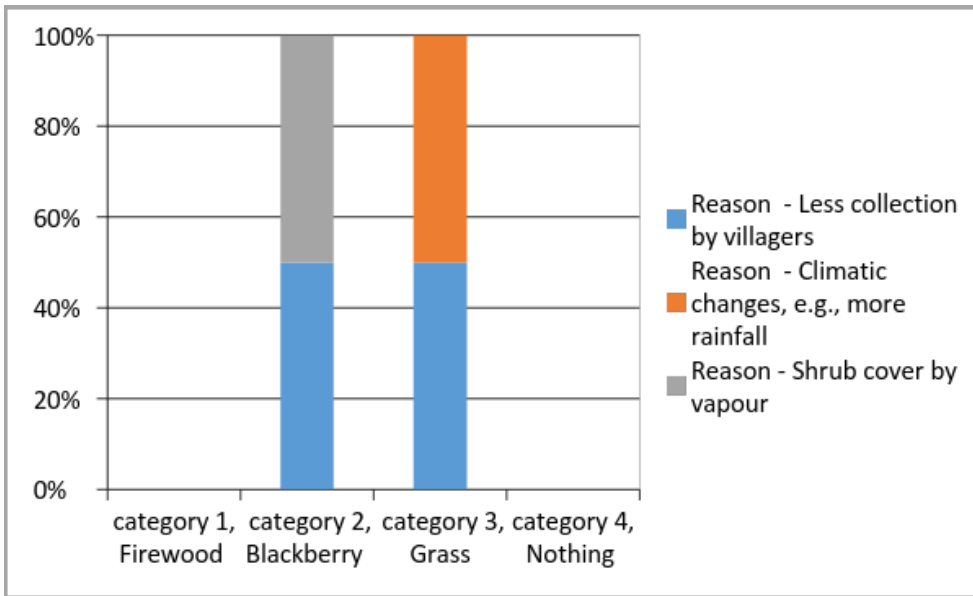
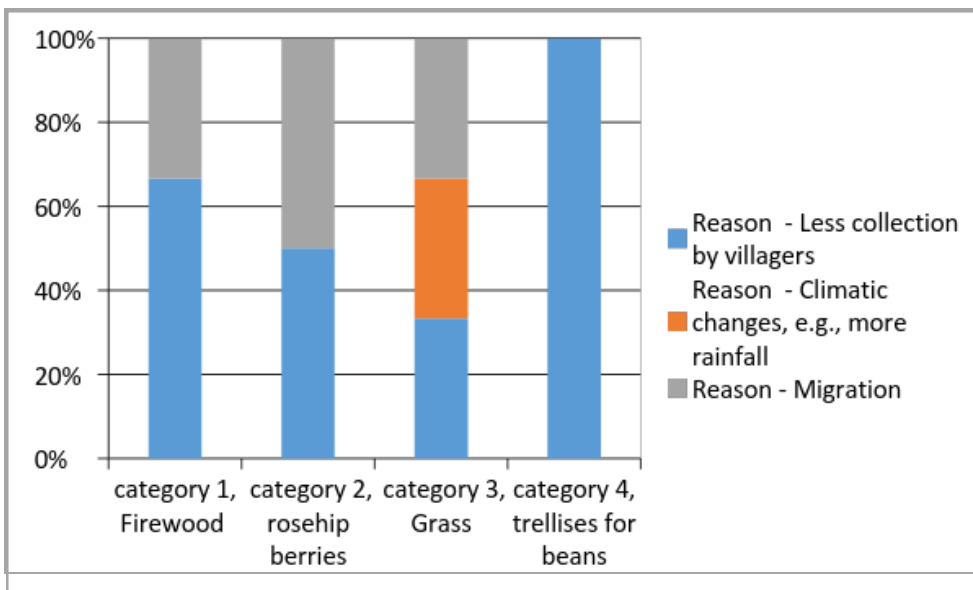


Figure 25. Reasons of increase MIP in Tavush



From Figure 26 we see that the situation in Syunik, which is the southernmost region in Armenia, is different. The firewood, fodder grass, rosehip berries and trellises for beans were mentioned as most important products. None of these products have declined in recent years. Yet all products have increased due to migration trends and climatic changes. Because the Goris dry beans are a brand product in the Region, the need for trellises (1,5-2 m thin and solid branches) is high, which villagers harvest in the forest. In Syunik because there is no gas infrastructure, firewood is the most important product as the only source of energy. Firewood increased as an important product in Syunik, however it is the most expensive in this region and costs 25 – 35 US\$ per cubic meter. These high prices are due to fact that logging areas are difficult to access and the roads are in poor condition, which makes access and transportation difficult. The rosehip is very common and widespread in Syunik. It is used to make jams, juices and tea, in contrast to other regions where it is used only as a tea ingredient. In this region, we did not observe a decline of any important products, but there were opinions with respect to the increase in important products.

Figure 26. Syunik MFP products increase reasons



5. Conclusions

In Armenia the general welfare of the rural population is significantly dependent on the access to forest resources as forests are a relatively cheap (oftentimes free) and accessible resource base for rural communities. It should be noted that the forest resources are used mostly by the poor and the rich. For the poor it is a survival source, while for the rich it is an additional source of income, which allows them to increase their existing capital. Rich households have better access to forest because they have the necessary wood-harvesting equipment and connections with the local regulatory bodies, such as inspectors and the police. Thus, a distinction between *poverty*-driven forest reliance which implies a lack of assets and opportunities and *opportunity*-driven forest reliance, where valuable cash products and market access drive high forest reliance, is fairly characteristic of Armenia.

The two major sources of income which support the livelihood of the targeted communities are wages (34.3%) and other income (32.4 %). The latter includes pensions, government welfare support and remittances which rural households receive from their family members or relatives working abroad as labor migrants. However, this situation differs between regions in North and South. In particular, the wage income is higher in Tavush (42.7%) and lower in Syunik (24.4%). These are followed by incomes from livestock animal (18.4%) and agriculture (11.2%). Income directly derived from the forest by the sampled households is very modest at 3.4%. However, a common observation in all regions was that respondents largely underreported the percent of firewood within the total forest income because they were reluctant to provide any information.

Fuelwood is an important source of energy that is used by all households to heat homes (6-7 months out of the year) and for cooking (12 months out of the year), because it is the cheapest (often free) and most affordable source. Calculations based on information provided by households revealed that each family spends 99,000 Armenian drams (equivalent to US\$245) on average for firewood per year (12 months). The existing regulations and practice of forest use is challenging for the local population. According to a recently ratified law, forest-dependent communities are allowed to collect up to 8 m³ of fuelwood per household per year for free. While this new regulation removes the risk of the poorest families to get caught without a permit, few households obtain their wood directly from the forests because:

- a) a substantial part of rural people are elderly people who are unable to access areas to collect fallen wood
- b) it is profitable for poor households to buy firewood rather than rent the necessary equipment and transportation to harvest on their own

In general, more households buy fuelwood from middlemen or from vendors (primarily those villagers for whom the forest is more accessible and affordable).

Despite the fact that natural gas has been introduced in most rural communities of Armenia, local dependence on the forest is not minimized because gas is a more expensive product and rural communities cannot afford the use of gas.

It would be generally true to state that households supported by agriculture - whether it is through crop production or livestock farming, - are generally less dependent on their forest base and use it mostly as a source of fuelwood. Agriculture represents a substantial source of income for the population in the study area. Rural communities produce meat and dairy products and get income from the sale of these products. Forage grass is one of the most frequently collected products, thus their dependence on pastures is high. This also links rural people directly to forest resources because foraging often occurs in the forest in this region.

The amount and kinds of forest products collected vary between regions due to geographical and climatic conditions. Cornelian cherry is a major forest product in the region and brings more cash than subsistence benefit at 885,050 Armenian drams per a year. Of the amount that is collected, more than 55% is sold. Wild Roseberry (rosehip) generates the next most important income generating forest product, bringing 519,300 Armenian drams or 15% of the total income from important forest products comes from wild Roseberry (rosehip). Other important products are wild strawberry and blackberry. Wild fruits and berries are essential in the Armenian cuisine and are used to produce jams, juices, compotes, dry fruits.

According to this study, 'business' generates the least income for rural households in the regions. This is mainly due to the disadvantageous economic climate in the region. Because the business sector is monopolized by oligarchs, small and medium-sized businesses have very limited opportunities to grow in rural communities which is a serious negative factor affecting rural life. Armenia's economy is anti-competitive. The market is divided among government-connected individuals who operate *de-facto* monopolies. Unequal conditions push out the small and medium-sized businesses and prevent their entry into the national market.

Our multilayer research allowed us to understand which social, economic and environmental factors influence the welfare of rural families and significantly affect sustainable livelihoods. These factors are identified below:

Socio-economic:

- High migration and aging of rural communities reduces the labor potential to survive (women bear the brunt of the workload)
- Lack of adaptive skills to cultivate the land (archaism in land use culture, harvesting, conservation, drying). For instance, households in Haghartsin village in Tavush clearly lack good management skills. They are not accustomed to cultivate the land, because historically they depended on the forest and extracted and sold fuel/timber-wood to survive.
- Market monopoly / corruption. The anticompetitive system of the national economy prevents small- and medium-sized businesses from entering and creates unequal conditions.
- Weak free market
- Distance to markets and poor road conditions

Environmental:

- Illegal Logging reduces availability of forest products to local people
- Climate change and natural phenomena (droughts, landslides, rainfalls). Extended rainfalls lower pollination of plants and affect population of bees
- Geospatial specifics: some mountainous regions have experienced extended harsh winters that last six months of the year and there are few jobs available apart from farming.

Limited capacities of local communities to protect their forest and participate in its management coupled with the dependence of various communities on the forest and the significant gaps in forest governance that exist, clearly demonstrate the need to increase the benefit from the forest to communities in order to increase the welfare of the population and preserve cultural, environmental and aesthetic values.

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About FLEG II (ENPI East) Program

The Forest Law Enforcement and Governance (FLEG) II European Neighbourhood and Partnership Instrument (ENPI) East Countries Program supports participating countries' forest governance. At the regional level, the Program aims to implement the 2005 St. Petersburg FLEG Ministerial Declaration and support countries to commit to a time-bound action plan; at the national level the Program will review or revise forest sector policies and legal and administrative structures; and improve knowledge of and support for sustainable forest management and good forest governance in the participating countries, and at the sub-national (local) level the Program will test and demonstrate best practices for sustainable forest management and the feasibility of improved forest governance practices at the field-level on a pilot basis. Participating countries include Armenia, Azerbaijan, Belarus, Georgia, Moldova, Russia, and Ukraine. The Program is funded by the European Union. <http://www.enpi-fleg.org>

Project Partner



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