



## **INTERIM REPORT ON SOCIAL STUDY IN COMMUNITIES LOCATED IN IMPACT ZONE OF ARMENIAN NUCLEAR POWER PLANT**

**Yerevan, 2019**

## **PREAMBULE**

The purpose of this present study is, in the communities located with a radius of 5-10 km of the impact zone of Armenian Nuclear Power Plant (hereinafter ANPP):

1. To find out:

- The level of preparedness for radiation exposure in the community,
- The availability of shelter facilities for population, including antiradiation shelters in the given community, as well as the functional degree of compliance thereof in the event of natural disasters, military situations, nuclear and/or radiation accidents at the ANPP,
- The availability of the first personal protective equipment in the community,
- Implementation of monitoring processes of atmospheric air, water and soil contamination in the given community and level of population awareness of the monitoring results,
- The level of social protection of the population, as well as the level of the social protection received from the state and the ANPP,
- The extent of the involvement of local population in decision-making process on the ANPP,
- The indicators of support to communities through the ANPP development programs.

2. To familiarize the residents living in the ANPP impact zone with:

- The requirements posed to radiation and ecological safety,
- The main decisions and development prospects of the new policy of the Republic of Armenia in the field of nuclear energy,
- The mechanisms of submitting the opinions and proposals of the population living in the impacted zone.

The study was conducted in 2018-2019. The study was carried out by the team of EcoLur NGO and the volunteers involved within the project "Toward the energy paradigm changes in South Caucasus", donor - Brot für die Welt Protestant Development Service, sub grant - Green Alternative (Georgia).

By filling out a questionnaire (16 questions), 67 local residents and local government heads were interviewed for social surveys, and interviews were conducted with local authorities and community leaders.

## **CHAPTER 1: GENERAL INFORMATION ABOUT “HAYKAKAN ATOMAYIN ELEKTROKAYAN” CJSC (“ARMENIAN NUCLEAR POWER PLANT” CJSC)**

“Armenian Nuclear Power Plant” CJSC (ANPP) is situated in Ararat Valley, 28 km west of the capital of Armenia - Yerevan. ANPP consists of 2 units constructed on the basis of two WWER-440 (V-270) type reactors with the seismic design. ANPP Unit 1 was commissioned on 22 December 1976, while Unit 2 was commissioned on 5 January 1980. The electrical power of each unit was 407.5 MW. After the destructive earthquake which took place on December 7, 1988, in Spitak Town situated 83 km far from the ANPP, the Council of Ministers of the USSR reached a decision to shut down ANPP for the reasons safety. Unit 1 was shut down on 25 February 1989 and Unit 2 was shut down on 18 March 1989. However, following the USSR collapse under conditions of the energy crisis in the republic in 1993, when Armenia turned out to be in a blockade and couldn't meet the energetic demands of carbon products, the Government of Armenia reached a decision to restart ANPP Unit 2. Two years after the decision making upon

completion of a huge scope of activities aimed at safety level enhancement and modernization activities ANPP Unit 2 was restarted on 5 November 1995 and it was connected to the power system. Currently, Unit 2 provides 35-38% of the electricity consumed in the republic. Unit 1 hasn't been connected to the power system since its decommissioning. The fuel for ANPP is supplied by "TVEL" Nuclear Fuel Company, which is a part of RosAtom Russian State Corporation. Management and liability for safe operation of Armenian NPP, as well as safe burial of radioactive wastes, entirely vests in the Armenian Government, which owns 100% of ANPP shares. The enterprise itself also bears responsibility.

The Government of the Republic of Armenia adopted its decision N 461-N on the lifetime extension of the ANPP power unit 2 on April 19, 2012.

The ANPP uses the water of the Sevjur River and Ararat underground artesian wells for cooling of the nuclear reactor, the flow of which has recently declined sharply due to overexploitation of groundwater sources in Ararat Valley.

In 1983, the water flow of Sevjur River and Aknalitch was estimated at 17.8 m<sup>3</sup>/s. Now it is only 3 m<sup>3</sup>/s. The cooling of the nuclear reactor of the operating power unit requires 1 m<sup>3</sup>/s of water, whereas the river can provide only 0.5 m<sup>3</sup>/s. Building a new power unit will require twice as much water. In 2013, 3 wells were drilled to meet the water needs of the ANPP. The drilling of other wells planned is in progress, but to say it will solve the problem is not definite as the groundwater horizons feeding those wells continue decreasing.

In the Soviet era, the nuclear fuel was transported to Russia by rail, with specially designed and equipped carriages. However, the transportation of nuclear fuel to Russia after the blockade of railways in Armenia stopped.

Currently, the area of the ANPP only temporarily stores the spent nuclear fuel and radioactive wastes. The capacity of these objects is limited. The transportation of the ANPP spent nuclear from Armenia to Russia is on the agenda.

A pilot project on the export and further processing of nuclear fuel from the Russian Federation is planned. A joint Armenian-Russian working group has been set up to carry out the feasibility of the rationale and transportations scheme.

The administration of "Armenian Nuclear Power Plant" CJSC has stated the following principles regarding its environmental policy:

- Conducting ecological control of the territories adjacent to the ANPP through the organization of biological, hydro-chemical, hydrogeological status of the environmental objects,
- Providing the population with open, accurate information on the ANPP platform and the surrounding environment.

There used to be a 350-hectare forest next to the nuclear power plant, which was irrigated and maintained. At present, it is destroyed due to the lack of irrigation water.

## 1.2 ON THE PROTECTION OF POPULATION IN THE CASE OF NUCLEAR AND (OR) RADIATION ACCIDENTS

Among the risks of safe operation of the ANPP is the dense population of the ANPP security zone. Ensuring the safety of residents is a top priority. In case of nuclear and/or radiation accidents, the organization of population safety is regulated by RA legislation.

The ANPP area of impact is defined in the case of nuclear or radiation accidents at the ANPP in accordance with the National Plan for Protection of Population. The emergency planning area is in a radius of 5-10 km from the ANPP. According to these criteria, 25 communities are included in the impact zone.

### **1.3 ON COMMUNITIES INCLUDED IN A 5-10 KM AREA ADJACENT TO NUCLEAR PLANT**

According to RA Government Decree N 2328-N, 25 communities with 95771 population are included in the ANPP impact zones, 22 ones are from Armavir Region and 3 ones are from Aragatsotn Region.

The communities and population in as of January 1 2008 are as follows:

In Armavir Region – Armavir Town - 32500, Metsamor Town - 10200, Arshaluys Village -4362, Aknalitch - 3273, Mayisyan -1819, Ferick - 257, Aratashen - 2996, Aghavnatun - 3450, Aragats - 3274, Artashar – 1430, Arevik - 2667, Yeghegnut - 1853, Zartonq - 2253, Khoronq - 2735, Tsaghkalanj - 1396, Tsiatsan - 1232, Haytagh - 2968, Hovtamej - 1351, Mrgashat - 6339, Noravan - 1150, Geghakert - 3143, Taronik - 2086. Aragatsotn Region - Aragatsotn - 1109, New Amanos - 806, New Edesia - 1122.

However, in the aforementioned government resolutions regarding the ANPP, these communities are not designated as “impacted”. This means that their status is not legally defined, so the local population cannot dispute any decision in court. ANPP is also not included in the list of organizations envisaged by the Law on Targeted Use of Environmental Taxes Payable by Companies, so communities cannot benefit from the contributions provided by that law for the implementation of environmental and social programs. The annual amount of this sum for the ANPP makes up 2.22 million AMD.

These communities are mainly located in the Ararat valley and all of them are agriculturally oriented. The mineralization extent of water resources has increased in recent years, reducing the level of soil productivity. Salinization and desertification of agricultural lands has emerged. There has been serious social tension in the region, vulnerable groups and expectations of state and ANPP support.

## **CHAPTER 2: ECOLUR NGO STUDY IN 12 AREAS OF ANPP IMPACT ZONE**

During the period of 2018 – 2019, study was carried out in 12 the rural communities of Armavir and Metsamor, Arshaluys, Aknalitch, Aratashen, Artashar, Yeghegnut, Zartonq, Hovtamej, Mayisyan, Mrgashat and Taronik. During the meetings, “How to Protect Yourself in the Event of Nuclear or Radiation Accidents” leaflets were distributed to the participants. Information leaflets were also posted in public areas of the community during the survey.

### **2.1. Mayisyan Community**

Mayisyan community has 2300 residents, out of whom only 15 are employed at ANPP. The residents mainly deal with agriculture, growing vegetables and cattle breeding. They use gas, wood and pressed dung, sometimes electricity to heat their houses.

In 2008, the ANPP and Construction Company took 800 ha from the territory of Mayisyan community. The ANPP annually pays around 5.5 million AMD to the community as a land tax and property tax, which is negligent money for the community and its households. If the community didn't receive this money, the state would give more subsidies to the community.

Mayisyan community doesn't have shelters with the proper equipment to shelter in emergencies. "Residents are aware that they shall hide in their own basements in case of emergencies", Community Head said.

No trainings or measures are organized for the residents: trainings are held only in school and, in rare cases, for the staff of the emergency groups operating adjunct to the rural municipality. The residents shall have elementary knowledge to be able to be protected in case of a danger. The older generation has this knowledge to some extent, while the youth are not aware at all. The most part of the population is not aware of nuclear and radiation dangers, their consequences and protective actions they should take. In reply to the question, what you should do if the ANPP announces about a radiation danger, almost all said, "We will run out of our houses straightforward".

Speaking about the participation of Mayisyan community in the discussions of the legal acts meant to ensure nuclear safety, the community head informed that the rural municipality is passive in terms of participating in the discussions.

Mayisyan has problems both with drinking and irrigation water: 'We used to use the water of the Sevjur River, now there is no water – the water it has is barely sufficient for Aknalitch and the water doesn't reach us. We have 12 deep wells which help us irrigate 80% of our land areas. I own around 40 ha of area, where there is no water available. Under the governmental resolution, we can drill one new well and repair the another. If these works are carried out, our problem with the water will be solved,' Yesayi Movsisyan noted.

Mayisyan Community doesn't have a centralized system of sewage discharge and a cleaning station.



Fig.1 Shelter in Mayisyan community

## 2.2. Arshaluys Community

Arshaluys Community with a population of 3900 people is one of the nearest communities to the ANPP – it is located at a distance of 4 km only. Nevertheless, it is not equipped with special shelters and protective means in case of emergencies. Only schoolchildren receive knowledge about radiation safety during their classes of “Military Science”.

The sports hall in school is designed as a shelter. Nevertheless, as any sports hall in any school, it can't serve as a shelter, first of all, because of the presence of big windows. As it is known, shelters designed for nuclear accidents shouldn't be glass-covered.

The community has a medical ambulance. EcoLur found out that it is not equipped with the medications of first aid needed in case of radiation dangers. At least, iodine was provided 10 years ago, now nothing is available.

This agricultural community doesn't have water. “The water deficit affects our income,” the residents said. They use gas, electricity, wood, and kizyak for heating purposes...The nuclear power plant is next to us and we would like to have cheaper electricity,” Arshaluys residents outlined. Arshaluys residents are concerned with the birth of children with defects. “We have had over 20 cases when children were born with defects. We are concerned that it may be connected to the nuclear power plant,” the residents said.



Fig. 2 The sports hall in school is designed as a shelter

## 2.3. Metsamor Town

Metsamor Town with a population of 1305 people is located at a distance of 6 km from the ANPP. Metsamor has been established based on the nuclear power plant. In the past, both Metsamor Town residents and adjacent community residents used to have certain privileges: the ANPP 100% yielded electricity fees. Then, the fees were reviewed and reduced up to 70%, then 50%, while all the privileges were abolished after the independence. Till 2014, the ANPP paid the land and property taxes to Metsamor, afterward the Supervision Chamber carried out inspections and decided



that it is not within our administrative area and gave it to Mayisyan Community. Currently, the ANPP is located within the administrative borders of Mayisyan. No discussion has been held with the residents.

The social poor state of the communities located near the ANPP adds to the problems related to the safety. The official data always deny those risks or violations voiced by independent experts. “I haven't seen any measures aimed at safety around the ANPP. I have only seen the shows organized by Ministry of Emergency States. There is also another problem: today all the water reserves of the artesian basin are endangered: new boreholes are drilled to ensure the ANPP with water, while the Sevjur river is getting dry,” one of the residents said, “Personally, I haven't heard about or taken part in any event relating the ANPP safety. I would like to know whether there are shelters in the impacted communities in case of emergencies, and in what condition these shelters are?” the residents asked, “We shall be aware of the place we live in and all the risks must be discussed with us”.

There is a problem with drinking water: there is no water. There isn't sufficient irrigation water – 600 ha of agricultural land areas in the community is arid. There is a centralized sewage drainage system in the community, but there are no cleaning stations. According to the residents, there is stink spreading over the community. Metsamor uses electricity, gas, and wood for heating purposes. If the residents heat their houses with gas and electricity in the winter, then they monthly pay 60,000-80,000 AMD, while it costs 100,000-250,000 AMD to obtain wood.

The main problem is the diseases among children. “I would like to know whether diseases are connected to the nuclear power plant. In international practice, some blood diseases are attributed to radiation. But here no health study related to radiation has been carried out,” a Metsamor resident said.



Fig.3 Metsamor school

## 2.4. Aknalitch Community

Aknalitch is located at a distance of 5 km from the ANPP. Out of 3500 people in Aknalitch only 40 are employed in the nuclear power plant mainly as employees. People earn their money with gardening, cultivation of vegetables and cattle breeding. In the past, near the nuclear power plant was a forest on 350 ha, there used to be a brigade which took care of the trees. There was a special pumping station to irrigate the forest operated by the nuclear power plant. After 2000, the irrigation pipelines were dismantled, taken away, while the forest dried out. The ANPP used to give water to us, but now they don't and we can't grow trees so as to have some form of greens: we can cultivate only 380 ha out of 1700 ha of the administrative area. Aknalitch community residents, who reside very close to the ANPP, are not protected from the potential risks of the ANPP. There are no shelters in the community, no special antiradiation shelter, protective technical means, first aid kits in case of radiation alarm signals. No analyses of agricultural products are carried out. In case of radiation danger, the residents should hide in the basements of the school and culture house, which are technically not equipped and are small and humid areas. There are no guiding posters on radiation safety designed for the population. "We live in a dangerous zone, in the first zone, if something happens, we won't be able to run away. Taking it into consideration our electricity, and gas shall be free of charge. A nuclear power plant is constructed just next to us, but we haven't been granted any privileges. Naturally, the nuclear power plant impacts us: diseases have increased, especially cancer, vegetation has dried out and we don't have any water," Aknalitch community residents complained. The winter is accompanied by a tense social period: heating costs high for the residents. They almost don't use electricity for heating, mainly using gas and wood. Gas price is relatively high as compared with the received income, while wood is getting more and more expensive year by year. In the winter, they monthly pay 20,000, 50,000 and even 80,000 AMD for gas. If they heat with wood, they need 10-12 cum in the season. According to residents, the government shall pay attention to such communities and to support in solving problems with irrigation water, sewage discharge, and other problems, while the nuclear power plant shall take part in these processes.



Fig. 4 Aknalitch village



## 2.5. Artashar Community

Artashar community with a population of 1460 people is located in the ANPP-impacted zone at a distance of 6-7 km; nevertheless, there are designated shelters in the community. Medicines, which can be used as first aid in case of nuclear dangers, are not allotted to the community medical point. There are no guiding posters on nuclear safety either. The community head and the residents noted that they hadn't taken part in the discussions of ANPP-related legal acts. Because of the lack of water in the Sevjur River, the problem with irrigation in Artashar community is also tense as it is in many communities in Armavir Region. People cultivate the soil and do their best but there August comes and there is no water, so it turns out that people spend money on soil but they don't get income but have a loss of money. The residents here also suffer from the stink of the sewage of Armavir and Metsamor Towns and their negative consequences. "Since the 1990s, the cleaning station hasn't been operated and the sewage flows through the canal, fills into the village and then flows into the Sevjur River. Sanitary Inspection Service has detected cholera bacilli in this water. You can't imagine what is going on here: an environmental disaster which destroys a whole village. It's already 30 years we have been asking them to manage these affairs, there is no one to do it," the community head said. 70% of the community uses wood for heating, the rest makes use of gas. The electricity is not used for heating in the community. Wood each year becomes more and more expensive, one cum of wood is obtained at 30,000 AMD, while from 6 to 10 cum is mainly used in the winter.

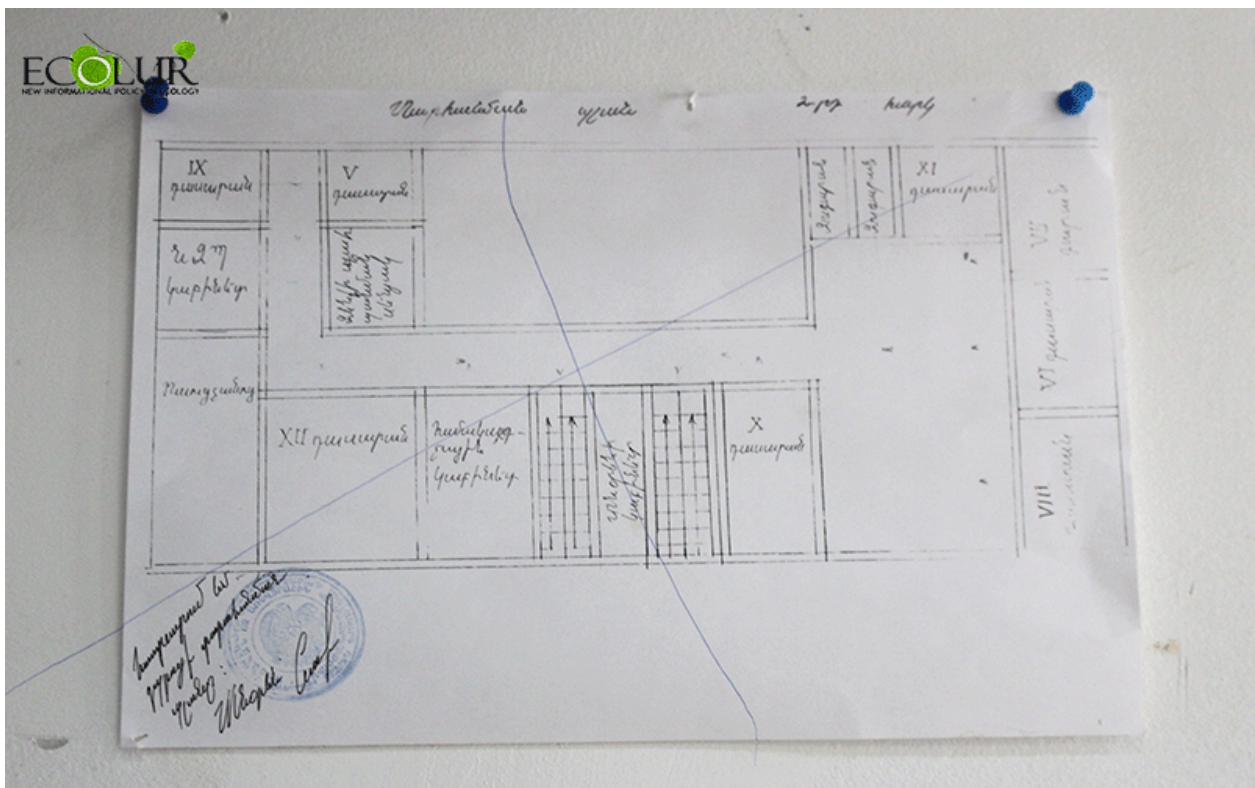


Fig.5 Evacuation plan in Artashar community

## 2.6. Mrgashat Community

Mrgashat community is located at a distance of 6 km from the ANPP. Mrgahsat has 6600 residents, out of which around 25 work at the ANPP. According to Community Head Gevorg Danielyan, there haven't been any studies carried out on the ANPP impact in the community and don't have any information about safety risks. "One month ago two people came from Yerevan and said they wanted to install equipment to see how much the ANPP radiation is, whether or not it increases. They asked me whether we will allocate them any place, I answered they could install wherever it is suitable for them. They left and didn't come back," Gevorg Danielyan said. In case of a radiation danger, there are the basements under the building of the hospital, those of the kindergarten and culture house, but they are not equipped, only in the basement of the culture house there is a table, chairs in the basement. There are no gas masks, medications, food. There are no posters designed for the population guiding on nuclear safety in the community. In case of a nuclear danger, there is no population evacuation plan in the municipality building and window cases in the streets. The residents mainly deal with gardening, growing vegetables and cattle breeding. Nevertheless, the irrigation water is not sufficient for all agricultural needs. many agricultural crops have stopped growing in the village. 'Before the ANPP, different crops used to grow here: as soon as the ANPP was operated, many crops don't grow here anymore – watermelon gets covered with ulcers.'

It's expensive to heat houses near the ANPP. Under the community head, 70% of Mrgashat population impacted by the ANPP and having a gas supply gets heated with wood, which has increased in its price this year and one cum costs 32,000 AMD. Only 25% of the population can afford using gas.



Fig. 6 The sports hall in Mrgashat school is designed as a shelter

## 2.7. Taronik Community

Taronik Community in Armavir Region located at a distance of 6-7 km from the ANPP doesn't have any opportunity to shelter in case of a radiation hazard. The ANPP-impacted community doesn't have any shelters designed for such cases: the basements can serve as shelters in such cases, but not everyone has it. The surface of the available basements is not sufficient to shelter the population over 2200. There are no guiding posters on nuclear safety in the residential area, while the evacuation plan in case of a nuclear hazard is not available for the residents: you can find it only in the community municipality.

Taronik population is not aware of the protection measures in case of a nuclear hazard. Only residents employed at the ANPP are aware of the safety measures, who make up around 3% of Taronik population. The ANPP has two pumping stations in Taronik area through which cooling water is pumped to the ANPP from the Sevjur River. Besides that, the ANPP has a reservoir with 15 ha surface in the community again for cooling water. All the workers employed at the pumping station are from Taronik community. The technical water of the ANPP is filled to the drainage system in the community area. Taronik community is not equipped with first-aid toolkit necessary for a nuclear hazard such as masks and gas masks. There is a medical point in the community, but the necessary medications are missing. The ANPP has never carried out any radiation monitoring in this community and didn't check the radiation level of drinking groundwater either.

“Sev Jur” and “Prud” pumping stations are located in the administrative area of Taronik Community, the 14-kilometer-long pipeline supplying water to the ANPP runs through the community area together with Prud reservoir, which occupy around 36 ha of the area.

Taronik Community Head said that the ANPP had a commitment to supply drinking water to the community in compensation of using land areas in Taronik. Nevertheless, this commitment was performed in 2005-2006 only. “When water horizons decreased, drinking water hasn't be supplied any longer,” Taronik Community Head said. The letter was sent in March 2018 to the PM Karen Karapetyan, which says, “We would like to inform you that “The Armenian Nuclear Power Plant” (ANPP) CJSC used buildings and land areas in Taronik Community in Armavir Region without state registration in an illegal manner. “The Armenian Nuclear Power Plant” (ANPP) CJSC has been warned about it many times, nevertheless, no relevant measures are taken by the company. We are requesting to support us to solve this problem.” This problem hasn't been regulated so far.



Fig. 7 Taronik village





Fig. 8 The sewage in Taronik village

## 2.8. Aratashen Community

Aratashen community with a population of around 3000 people is located at a distance of 10 km in a direct line. The population is living in a hazardous zone but they don't have shelters, are not informed and don't have privileges. There are only basements designed for emergencies. There are no shelters in the community school, culture house and kindergarten.

There are no awareness-raising posters in the community. “The nuclear power plant shall inform the residents about possible dangers, but we haven't seen something like that” the residents said.

Many people in the area are sick with cancer and people think the ANPP may be the cause. Why isn't it discussed? For the ANPP not to give us any privileges? If it is like this, let them relocate to another zone to live there in order not to endanger us and other children.

Not only has the population been neglected, but also the local authorities. “I am not aware whether or not radiation has ever been measured here. Recently we have been told to allocate an area for the device to measure radiation background, but we haven't still received it. Why hasn't this device been installed for so many years? If they have measured so far, why they haven't told us whether the situation is good or bad,” Community Head noted.

The ANPP doesn't cover expenses on installing safety signals leaving them on the community. Village Municipality employees and surveyed residents assessed their knowledge of nuclear hazards as insufficient.

According to the community head, people mainly use gas and electricity for heating – 10% use wood. Monthly fees for gas makes up 50,000 AMD, electricity fees make up 10,000-30,000 AMD, the average wood volume is 5 cum.

## **2.9. Yeghegnut Community**

Yeghegnut Community with over 2000 residents is located at a distance of 8-9 km from the ANPP. The impacted community doesn't have antiradiation shelters, there are no posters guiding in case of nuclear hazards, no nuclear safety plan. The medical point and school in the community are not supplied with protective means designed for radiation hazards. The only places to hide are basements, which are technically not equipped and can't ensure the safety of the population in case of radiation hazards. The community residents noted that they are not informed about the discussions of the legal acts aimed at ensuring the nuclear safety of the ANPP and they have never taken part in them. There is no irrigation water, then with sewage water. In the irrigation season, the community is experiencing problems with lack of water. According to community head, there is no water in the Sevjur River, while the water taken from Lake Sevan doesn't reach the community. The land areas are irrigation either with the water from Akhuryan reservoir or the water from deep wells – they have 17 deep wells. Nevertheless, the water is not sufficient and new deep wells are needed. If there is no water, the WUC pumps sewage water from Zartonq station.

Like other communities in this region, Yeghegnut also doesn't have a centralized system for sewage discharge and a cleaning station. The drinking water is also a problem in Yeghegnut. They have two deep wells and water is supplied via pumps, but the water network is too old. Currently, the water network is being replaced within the frames of the ASPIRED project.



Fig. 8 Wastewater of Armavir and Metsamor towns as means of irrigating the agricultural lands of several communities in the region

## **Heating with Gas and Wood**

The surveys showed that the residents mainly use gas and wood for heating purposes: gas fees make up 25,000-45,000 AMD, while wood can be used up to 15 cum. This year one cum of



timber cost 25,000 AMD. Electricity is used for household purposes monthly spending from 10,000 to 20,000 AMD.

## 2.10 Zartonq Community

Zartonq Community is located at a distance of 9 km from the ANPP in a direct line: the community has a population of 2655 people, out of which 60% are Armenians and 40% are Yezidis. The water from ANPP territory flow into the territory of Zartonq Community, as Zartonq Municipality Chief Secretary Qyaram Ajoyan told EcoLur. “The water from the ANPP territory flows into our area, into the community aqueduct, which serves Zartonq, Artashar, and Yeghegnut. If the pumping station doesn't take this water, they flow into the neighboring communities. Several years ago we beat an alarm signal to Nature Protection Ministry: specialists came, examined on the spot and left. No one has dealt with this issue anymore,” Qyaram Ajoyan said. In reply to EcoLur's question, whether there is monitoring of soil, and water carried out, Qyaram Ajoyan replied negatively. Besides the ANPP territory water, the sewage water of Armavir and Metsamor towns flow into Zartonq area. During EcoLur's visit, the community residents beat an alarm signal – they don't have irrigation water and have to irrigate their agricultural land areas with this sewage.

Zartonq doesn't have shelters, the residents are not ensured with necessary protection means in case of radiation hazards. 'About four years ago a seminar was held in the municipality. Our medical point serving 3 residential areas was provided with iodine and iodized salt. The seminar was about how to preserve and use it,' Qyaram Ajoyan said<sup>1</sup>.

There is no guidance poster on nuclear safety of the population in the community. There is an evacuation plan in case of nuclear hazards available in the village municipality, but it is not posted anywhere in the community. Training sessions for the residents were last held in July 2017. Zartonq residents mentioned that the community doesn't take part in the discussions of the legal acts aimed at ensuring the nuclear safety of the ANPP. The village municipality employees and responded residents assessed their awareness of nuclear hazards as satisfactory.

Zartonq, being an ANPP impacted community, anyway doesn't receive social support from the ANPP. The residents heat their houses mainly with wood and kizyak. The firewood costs 20,000-25,000 AMD for one cum, while they use from 7 to 10 cum firewood in the winter.



**Fig. 9 ANPP: View from Zartonq village**

<sup>1</sup> <https://www.ecolur.org/hy/news/water/--/6036>

## 2.11 Hovtamej Community

Hovtamej community with over 1400 residents is located at an impact zone of 5-10 km of the ANPP. “We are not aware of the ANPP risks, don’t possess information related to radiation safety and don’t know what the consequences will be if there are emergencies.”

“Our basements are not shelters: they have doors and windows, are all open, there is nothing protective such as gas masks, iodine, nothing – how can I protect people,” Hovtamej Community Head Armen Sargsyan said.

Besides probable accidents, the residents here are concerned with the current impact of the ANPP on agriculture and human health. There are no guiding posters on nuclear safety Hovtamej, while the evacuation plan in case of a nuclear hazard is not in a visible place. The issue of protective means has been raised but they haven’t received anything. The community head says large amounts of money are needed to obtain them which are not envisaged in their budget. The construction of antiradiation shelters are not envisaged in any project: there isn’t even an alarm signal. The training sessions in case of emergencies were last carried out in 2017. The locals don’t take part in the discussions of the legal acts aimed at ensuring nuclear safety at the ANPP.

### Irrigation and Drinking Water – Extra Problems

The residents in Hovtamej mainly deal with cultivation of vegetables and gardening. They receive irrigation water from different springs such as Qasakh River, Sevan-Hrazdan canal and Aparan reservoir. They also have an artesian well drilled, but there is always a lack of water in the season. They relate the problem with drinking water to “Veolia Jur” CJSC: water lines are extremely worn out but “Veolia Jur” CJSC refuses to replace them.

There are 250 houses in Hovtamej, out of which only 20 ones don’t have gas supply, nevertheless, most household use mainly wood – the percentage ratio is 30% with gas and 70% with wood, according to the community head. In the season, one household uses, on average, 7-8 cum wood, while the price of one cum in the fall makes up 28,000 AMD. Electricity is mainly used for greenhouses within the ranges of 20,000-25,000 AMD per month.



Fig 10. Hovtamej Community

## 2.12 Armavir town

Armavir town with a population of 37053 residents is the Center of Armavir marz (province). The main occupation of the population is service, agriculture, industry, communications, small businesses. Armavir town is located at a distance of 6 km from ANPP.

There are two shelters in the kindergarten and hospital in Armavir Community. Basements serve as shelters, which don't have conditions necessary for protection, proper structures, etc. According to most respondents, there are no population evacuation plans and posters guiding on nuclear safety in the community. Certain residents are not aware at all. Only one resident noted that there is an evacuation plan available in schools. According to Armavir residents, there are safety training sessions held in schools. Residents not having relations with the school were not aware of conducting the training session. At the same time, the respondents assessed their level of awareness as satisfactory. None of the respondents took part in the discussions of the legal acts on ANPP nuclear safety.

A part of the respondents mentioned that there are no cleaning stations and a centralized sewage drainage system. For the purpose of heating, Armavir uses electricity, gas, wood, and biofuel. Expenses are different: monthly it will make up 30,000 AMD in the winter and 50,000-80,000 AMD in case of gas. There are families in the communities adjacent to Armavir, which heat their houses in the winter with wood.

## CHAPTER 3: FINDINGS OF STUDY

- The safety of ANPP Impact Zone Communities is not ensured in case of radiation accidents.
- Residents' knowledge of radiation and environmental safety requirements is superficial, often contradictory, even diametrically opposite.
- The overwhelming majority of respondents, 95%, were unaware of the new government's nuclear energy policy.
- There is no cooperation between the ANPP and the impact-zone communities. The public is not involved in ANPP programs, further re-equipment of the plant, decision-making in the field, and no such discussions were held in the communities studied in the ANPP impact zone.
- The ANPP and the government have no social programs for the communities and do not support them.
- The local population has no information on the monitoring of air, water and soil contamination in the ANPP impact zone, as well as on the qualitative composition of agricultural products produced; their progress and final outcomes. Even if analyses are performed, the population is not aware of it.
- Residents are insufficiently aware of the potential hazards of radiation, and there is no adequate means to prevent and respond to it.
- Community-based health facilities and residents lack stable iodine preparations for thyroid blockage.
- Personal protective equipment intended for population protection, masks, did not have 100% of the surveyed residents.
- There are no community-based shelters and other protective facilities in the national plan. The basements and sports halls designated as temporary hideouts do not meet the elementary requirements for areas and structures to be protected from radiation hazards. There are no

guiding posters for community evacuation, evacuation plans in the communities, no danger alarms.

- Electricity tariffs for ANPP residents are the same as for all RA citizens. Impacted communities do not have a subsidy mechanism. Seventy percent of locals use firewood for heating because electricity and gas tariffs are high.
- ANPP is not included in the list of organizations envisaged by Law on Targeted Use of Environmental Taxes Payable by Companies. Communities do not have the status of an “impacted community”. The residents of communities are deprived of the right to receive an environmental tax exemption from the ANPP for implementation of environmental improvement projects. They cannot also dispute any decision in court.