

In rural areas Small Hydro Power Stations are needed

The need in construction of new, and renovation of existing small hydropower stations (SHPS) was also expressed by Mr. Rustam Fayziev, Chief Engineer, Community Development, UNDP in Tajikistan.



Most of the people in Tajikistan (70%) live in the rural area. At the same time, from 500 thousand to 1 million people have no access to permanent electricity. The rural population suffers from shortages of electricity more than urban. In winter, the problem is compounded by lack of water reservoirs of multiyear regulation in Tajikistan and difficulties in the transit of imported electricity from neighboring countries. The problem is also aggravated by the deteriorated condition of the electricity system, resulting in electricity supply interruptions, low profitability and as a result - economic and social losses.

Currently, 95% of all power capacity in Tajikistan is based on hydroelectric power stations (HPS) subject to seasonal fluctuations of water inflow in autumn and winter; besides, in autumn and winter the power is produced in the minimum amount, while the demand of consumers increases to the maximum. As a result, during winter time the majority of settlements is supplied with

electricity by an average of 2 to 6 hours per day. In spring and summer due to high inflow of water the energy supply is more sustainable. However, some rural settlements, especially the newly rehabilitated villages in mountainous areas have no access to electricity due to lack of transmission lines.

The development of small hydropower system is reasonable, because it enables achieving economic and social sustainability in rural communities. In other words, SHPSs are needed not only to reduce the electricity deficit, but also to create preconditions for the development of agricultural and the economic growth in general. In addition, small hydropower station is the most environmentally safe and fast way to get electricity.

In the coming years without lunching of own micro- and small hydropower stations, the situation in the areas remote from the main distribution networks, in number of regions of the country may deteriorate significantly. Tajikistan has experience in using the SHPSs, which were constructed in Soviet times, and most of them now do not function due to various reasons. Rural communities have expressed interest in the rehabilitation of existing and construction of new SHPSs and need technical support and appropriate funding.

In this connection, in 2006 the Government of Tajikistan signed an agreement with the UNDP for the use of renewable energy sources, aiming at rural development. Based on this agreement, the Community

Development Program, UNDP, is implementing a project «Development of power supply system in rural areas of Tajikistan.»

- What are the goals and objectives of the project?

The project contributes to poverty reduction in rural areas and improved socio-economic development, as well as the income growth through the use of renewable energy sources. In these terms Hydropower Station is the most realistic and reasonable development perspective. The project includes: distributing advanced technologies to use renewable power sources; support in funding pilot projects; raising awareness about the possibilities of renewable power source use among stakeholders; developing projects for renewable power sources and their use for income generation.

The project envisages the construction of five SHPSs in Kulyab district and one in the Jamoat named after Bozorboy Burunov in Vakhdat city. Preparatory work started in year 2007. As of today, the "Nurofar" HPS in Jamoat named after B. Burunov has been launched, its capacity reaches 100 kW, and the average annual electricity production capacity is 650 thousand kW/h/year. The hydroelectric power station is located on the "Uzun" irrigation canal with water coming from Kafirnigan river. On the rehabilitated power station which hasn't been functioning since 1973 it is possible to set up a second hydraulic with the capacity of at least 100 kW. The



Ms. Kori Udovicki, Director of the UNDP Regional Bureau, hands over a symbolic key of the Nurofar small HPP

"Nurofar" SHPS provides electricity to 84 households of the "Gulobod" village, as well as to the rural hospital, 24 hours per day.

There also three SHPSs launched, with the capacity of 10 kW, located on the mountain streams of the "Dashtidzhum" Jamoat, Shurobad district. In other SHPSs the project has identified the features to be considered in the future, during the construction at the insufficiently explored watercourses, which are characterized by large variability in distribution of intra-annual water volume, depending on rainfalls and groundwater recharge. Nowadays there is a trend in water decrease in many small rivers and streams, especially in dry years. Therefore, when selecting the location for a SHPS to ensure sustainability, all possible risks should be taken into account.

- What costs are envisaged by the project?

According to the World Bank, primary investment in the SHPS construction ranges from 1800 to 8800 US dollars per 1 kW of installed capacity (for the water pressure of 2.3 m to 13.5 m) and from 1000 to 3000 US dollars per 1 kW (for the pressure of 27 m to 350 m). At the same time the maintenance costs of the SHPSs are not high.

The total amount of capital investment by UNDP for six SHPS pilot projects was about 450 thousand US dollars. Within these pilot projects activities are implemented and funding is provided, technical documentation is prepared, equipment is manufactured and supplied, construction and commissioning work was carried out, personnel has been trained.

ПРОДОЛЖЕНИЕ НА СЛЕД. СТ.

Dialogue on improved drinking water supply

Insure the rural area with safe drinking water is one of the priorities of the GoT Action Plan and the UN Development Program in the country for years 2005-2009.

Currently, the United Nations Development Program, with the financial support by Swiss Agency for Development and Cooperation is implementing the Program named "Dialogue on improved implementation and sustainability of water supply projects in the rural areas", under which the efforts of local communities, interested governmental bodies, donors, international and nongovernmental organizations will be unified, in order to establish a commonly agreed approach in implementation of water supply projects in the rural

areas. To identify existing problems and ways to solve them meetings have been conducted at local, inter-ministerial levels, where issues of enhanced collaboration and coordination in regulatory, organizational and technical matters, as well as funding arrangements in the area of rural water supply are discussed.

Particularly, on 26th February a meeting with the First Deputy Minister of Land and Water Resources of Tajikistan, Mr. Hidoyatsho Inoyatov took place. It was attended by experts from the UN Development Program in Tajikistan, and representatives of ministries and departments of Tajikistan, responsible for implementing the Program «Improving drinking water supply to the population of Tajikistan



Meeting at the Ministry of Land Reclamation and Water Resources of Tajikistan

during 2008-2020». During the meeting the issue of drinking water supply to rural areas were discussed, which were earlier raised at the round tables and workshops in Khatlon and Sughd with the support of UNDP and SDC.

Within the project also special working groups comprised of highly skilled

experts dealing with relevant analysis and formulation of sound recommendations based on which the Rural Water Supply Project Implementation Manual will be elaborated.

To support the targeted process a Memorandum of Understanding was signed between the UNDP and the Ministry of Land and Water

Resources of Tajikistan, which is responsible for the development drinking water supply system in rural areas. This project is implemented in the context of «Water for Life» International Decennium of Actions (2005-2015) and to support governmental programs for improved water supply to Tajik population.

ПРОДОЛЖЕНИЕ НАЧАЛО НА ПРЕДЫДУЩЕЙ СТР.

In rural areas Small Hydro Power Stations are needed

- How the training on the SHPS maintenance was provided?

- In rural areas there is a big problem with lack of staff for the maintenance and operation of power facilities. It was therefore developed a training curriculum, which included number of questions relating to operation and maintenance of SHPSs. Professionals with access to power facilities were allowed to participate.

For each SHPS a technical maintenance passport was developed, with explanations on the maintenance and operation of the equipment mounted. The staff got on-the-job training in dismantling and assembling the equipment, as well as in repair, installation and launching.

- Collaboration with governmental institutions

- Basically, all governmental bodies have expressed interest and supported the idea of pilot projects. It should be noted that the community also contributed to the project through the construction of low voltage networks and optimal distribution of power to consumers based on the set up capacity of the SHPS. But you understand that in practice things are not as easy as desired.

Sometimes, implementation of agreed decisions delays due to various reasons. There are construction intensions in the field without sufficient justification and relevant baseline data. Besides that, it is required to proceed from real natural, financial and social possibilities. For the sustainable operation of SHPS at the preparatory stage, it is required to address the issue of staff and responsibility over fixed assets. Power consumers shall be interested in keeping the SHPS functioning within a year or two. There was a case when the staff trained under the project traveled to Russia, and people appointed instead had no

relation to the maintenance of power equipment. Such indifference is unacceptable, since maintenance and operation of the facility should be managed by trained and committed professionals. Also there are some negative examples, when domestic garbage entered the turbine; this may lead to failure of the expensive equipment. This shows the irresponsibility of people to what has been created. These issues should be solved with the involvement of community and local authorities. We are concerned and hope that in the future for each SHPS a person who will maintain the facility will be identified.

- Is there a possibility of commercial use of the SHPS?

- Originally, this was discussed in Jamoats. The point is that gradually, over time, the cost of electricity in power system of Tajikistan will grow, and in any case, consumers will realize the need to find alternatives: either save energy or use SHPSs.

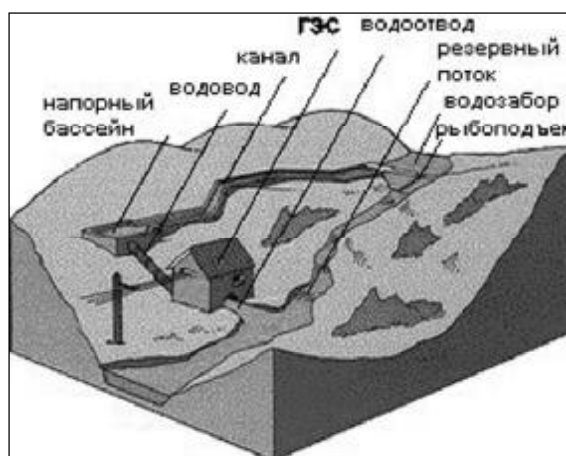
But the question of creating mini-industries to process agricultural products and other commercial activities with the help of SHPS remains open. This is due to the selection of needed equipment and, certainly, due to funding. The first phase of power reproduction is done; further, time and financial participation of the population will show.

In terms of future actions towards the development of industries with SHPS in Jamoats, there are micro-loan funds (MLF). The communities are encouraged to collaborate with the MLFs, banks, and to use personal savings for joint investing. To pay the SHPS maintenance commercial

facilities need to be connected; at the same time this would increase employment.

- How promising is the construction of SHPS for Tajikistan, and what to do in this direction?

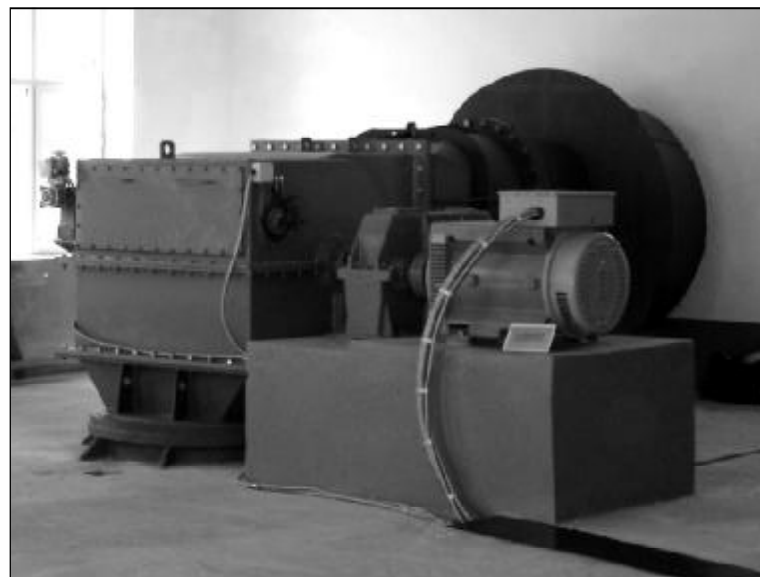
- Small hydropower system is particularly important for countries with developing economies, especially because it enables the principle of decentralization. Electricity produced is usually transmitted via low-voltage distribution network to relatively little number of consumers located near the SHPS. At the same time for the development of small hydropower stations the following conditions are required: decentralized, low power consumption, small industry, individual farms and enterprises; rural population, low-voltage distribution network, and, obviously, intra-regional micro-power network; individual,



Scheme of the small HPP

cooperative or community ownership; mid-qualified labor and cooperative administration, average duration of planning, use of local materials and labor resources.

Due to the high level of adaptability to rapidly changing loads in the network, SHPS is the preferred element in any



Small HPP Equipment

integrated power system. The period of SHPS operation is quite long; some stations function within more than 70 years. An example is the «Varzob» HPS-1 with the capacity of 7.15 MW constructed in 1936. Nowadays SHPS may have even longer service period. They can provide electricity to several generations without causing any harm to environment. Depending on the capacity the small hydropower stations can significantly improve the living standards of rural residents.

Thus, long-term development of small hydropower system is linked with the following issues: definition of the capacity of the renewable energy sources based on the analysis of project, statistics and cartographic data, hydro-meteorological data and others; develop a scheme of small hydropower facilities location in the considered area, in view of using the existing water facilities in the power system;

rehabilitation and reconstruction of SHPSs (in 1978 in Tajikistan there were 69 SHPSs, and in 1990 there were 5); the creation and production of high-quality equipment in the enterprises of Tajikistan and use of a reliable foreign equipment; construction of simulated small hydro-power facilities; gaining experience in SHPS maintenance, training of operating staff and creation of regional structures for service maintenance.

- Are there any plans to build new SHPSs?

- As known, the Government of Tajikistan intends to construct 50 SHPSs this year. However, the leadership of UNDP plans to continue to support the community in the development of small hydropower facilities. We will, in close cooperation with the Ministry of Energy and Industry of Tajikistan and other stakeholders to participate in projects for construction and rehabilitation of small hydro power stations. This is one of the UNDP priorities, a priority with the same essence, as the drinking water.

Safo Safarov

Trainings on de-mining have been conducted in Tajikistan

Following the plan and operational manual 2009, demining activities started with trainings. Particularly, on February 2nd special courses for the Task Force doctors and dog-fanciers were delivered. Moreover, between 9 and 22 February the Task Force leaders underwent training.

Activities have been conducted by Demining Agency in Tajikistan - the Swiss Foundation for Demining (SFD) under coordination of the Tajik Mine Center (TMC). The Monitoring and Quality Control Team of the TMC conducted 4 monitoring activities of the trainings, as a result of which the work carried out was highly appreciated.

In addition, on 12th February in the engineering battalion of Tajik Defense Ministry the TMC experts organized a final workshop on the results of 2008 de-mining actions. The workshop was attended by over



30 task force leaders having participated in the demining program in Tajikistan. During the workshop information about mine actions in Tajikistan, including the results of demining activities over the past year were presented. The discussion covered the gaps encountered and ways of addressing them, in order to avoid troubles in the coming season.

At the end of the workshop particularly distinguished officers who have reached the targets set in 2008 and have

made an effective contribution to the implementation of the demining program in Tajikistan were awarded valuable gifts and TMC Certificates.

One day after, on 13th February, the TMC experts – the senior officer for quality control, Mr. Asafbek Shonazarov; National Program Officer, Raising population awareness on mine danger, Ms Shahriniso Davlatova; and the Mine victims support officer, Ms Rayhan Muminova, conducted trainings in their areas for team leaders and supervisors.

The mine action program in Tajikistan is carried out with the financial support of international community, such international organizations as UNDP, OSCE and ICRC. In this program implementation a significant technical support is provided by Government of Tajikistan.

Management of anti-tuberculosis drugs

For the Tajik TB centers' staff a five-day national training in «Management of second-line TB drugs» was delivered between 26th and 30th January this year. During educational events, where international trainers from the United States were involved, 15 specialists were trained.

Training was organized by Global Fund to Fight AIDS, Tuberculosis and Malaria (GFATM) with financial and technical support of the U.S. government, ensuring the implementation of grants by Global Fund, as well as following the request of the Tajik National Coordination Committee on HIV, Tuberculosis and Malaria.

Training participants studied issues of management, forecasting, and determining the number of essential drugs, as well as the purchasing procedures, quality assurance, inventory of second-line TB drugs distribution systems.

On the fourth day of training the participants visited the main

TB facilities and warehouses in Dushanbe, as well as the «Machiton» Republican TB hospital in Vahdat district to see the work of those institutions and to explore methods of TB drug storage.

After the training the organization of which was supported by USG GF TS, the Tajik specialists from the TB Control Program improved their knowledge and skills in developing second-line TB drug management and procurements plans. Improved program management will facilitate the proper and affordable treatment of patients diagnosed with MDR, as well as the timely implementation of program indicators.

It should be noted that in January 2009, the Green Light Committee (GLC) approved the introduction of DOTS in Tajikistan for the treatment of 50 patients diagnosed with MDR, for which the second-line TB drugs will be purchased.

Pure potable water for rural residents

The situation on water supply in rural areas of the country is deplorable. UNDP and the Government of Tajikistan implementing joint efforts, in order to identify and eliminate existing problems. Regarding this issue Anatoly Kholmatov - national consultant of UNDP on pure water supply for rural residents stated following point of view:

- Tajikistan is the leading country of world water events, for instance proposals of Tajikistan regarding "International Year of the Pure Water" (2003) and International Decade for Action "Water for Life", 2005 – 2015 were welcomed by the world community. Tajikistan contributed on realization of these events. Particularly, in 2006, the Government of Tajikistan adopted the "Program of improvement of clean potable water supply of population of Tajikistan for 2008-2020". Total cost of this program is more than 3,3 billion somoni, 15% of which should come from republican budget, 10% from local governments' budgets and 5% from economic activities. The remained 70 % will be attracted from various investment sources.

It should be noted that, at the beginning because of several existing problems the implementation of the program was not well realized. Accordingly, on November 2008 between the Ministry of Melioration and Water Resources of the Republic of Tajikistan and UNDP Tajikistan Office a Memorandum of Understandings was signed and on the base of this memorandum the existing problems will be identified and proposals for eliminating of those problems will be worked out.

In order to achieve this goal, currently the Project on "Improvement of cooperation amongst government agencies, investors and organizations for augmentation of responsibility, stability and effectiveness of potable water supply in rural area" is implementing. This project is implementing during one year up to November 2009 by UNDP and Swiss Cooperation Office. First, in November and December 2008 we conducted several consultative meetings with participation of representatives of

21 districts of Kulob region and Khujand city. Thus, three directions of problems were identified, which include legislation, technical organizational and financial-economic issues. After studying situation we prepared a report, which mostly includes the activity of low level. The discussion of this report will be conducted in March 2009 at the level of ministries and agencies which are responsible for potable water supply. Afterward it will be concluded that which agency and in what level should resolve each of the existing problems.

In the second phase, we will conduct meetings in Rasht region, Zarafshon valley and Rayons under the Republican Subordination. Although the Rayons under the Republican Subordination located very close to Dushanbe, however they not fully supplied by potable water.

Apart from this, we will conduct consultative meetings with persons in charge of planning, investment, pricing, regulations, hygiene, environment etc., related to potable water and collect their inquiries and proposals.

In the third phase, we will conduct joint consultative meeting with managerial staff of ministries and agencies and local government. The aim of the project is to achieve understanding and coordination of activities among related ministries and agencies, jamoats, international organizations, civil society as well as population, which will assist on solution of potable water supply of rural residents.

- Does your project has mostly consultative role or also has practical part?

- During the project we need to complete mental work. Namely, we need to understand problems, identify obstacles, shortage of necessary documents, actions should be

taken, necessary bodies which is required to accomplish work, we need to fully understand and analyze these issues.

Next, on the basis of analyzes and conclusions, we will propose recommendations to responsible authorities of Tajikistan, investment organizations and international organizations on resolution of problems in potable water supply of rural residents. When everything is transparent and investing organizations properly understand situation, I believe that in future stages we will have more and more the projects on construction of water supply facilities.



International organizations have two main requirements: the water supply facilities should work sustainable and each country and region should have contribution. Tajikistan has contribution, however many issues should be solved in cooperation.

- According to of your analyses, what is your conclusion about potable water supply in Tajikistan and where you can see the solution of existing problems?

- Despite the economic problems in Tajikistan, the Central of Tajikistan and heads of districts support this sector. If we look at Water Code of the Republic of Tajikistan and other related laws and regulations we can notice that the high priority is given to the potable water supply. For instance, on Clause 8 of the Water Code of the Republic of Tajikistan, which is dedicated to the "Issues of regulation and state support in the area of relations connected to water", the preferences on providing subsidies, subventions, preferential loans, tax and customs duty preferences are stipulated. However in order to realize these preferences in practice in district and republican level, the state support programs should be worked out and adopted. In this case, due to tax and customs preferences additional funds will be available. However, most of people do not know how to prepare such programs.

Consequently, our project's task is together with Ministry of Melioration and Water Resources of the Republic of Tajikistan to explain existing problems to the population. We need to identify which kind of laws and regulations are necessary for development of this sector. Then, these laws and regulations should be worked out and adopted in order people could act according to them. Another problem is the lack of training centers on water issues in Tajikistan. In order to develop this sector we need to increase number of such centers. Such centers can contribute to preparation of high qualified specialists.

After collapse of Soviet Union, the potable water supply facilities belonged to collective farms became ownerless. In this circumstance they should be re-counted, the owners should be identified and the exploitation should be started. Thus, the foreign investors will increase the investment on construction of new water supply facilities and reconstruction of existed ones.

- Which water sources people use for consumption in regions?

- More than 90% of water in Tajikistan is used for irrigation purposes. While only 52,3% of population of Tajikistan has access to potable water. Rest of the people drink irrigation water from channels, or use rivers and springs water which do not meet any sanitation norms.

In some regions people use water from portable water pipes, in this direction the Department of the rural water and pasture of Ministry of Melioration and Water Resources of the Republic of Tajikistan works. However, these facilities are not available everywhere. In mountain areas people use water from irrigation ditches, wells, springs and rivers for their household activities.



For instance in Qumsangir, Jilikul, Vakhsh, Bokhtar, Jalolidin Rumi, Nosiri Hisrav, Qabodiyon, Shahrituz, Huroson, Konibodom districts etc. people use for drinking rain water, canal water and water used for cotton irrigation.

Therefore, portable water supply in all regions of the country should be established according to the requirements of technical and sanitation norms.

- What are the norms for portable water?

Portable water must desilted and after that necessary chemicals must be used for its disinfection. Water should not have too much salt and bacteria. Moreover, the water source and water supply pipes should be free of any infections and dirt.

I should note that around 40% of infection diseases in the world disseminate through water.

Sometimes adult and especially children, because of careless behavior and unawareness, use unboiled water from various sources and catch infectious diseases.

Therefore, UN and the Government of Tajikistan give first priority to the solution of this problem.

- What are your suggestions for improving water supply in rural areas?

If we compare, 2.5 billion of people in the world do not have access to potable water and they travel several kilometers in order to get water. Although Tajikistan has plenty of water, however in order to use those sources properly, people must be directed by officials in different levels. For example, in Jamoat level, heads of jamoats should organize using of those water sources.

In some villages people affirmed about their contributions through work, equipment, even money, but someone should lead this initiatives and design on this base projects and start works. From our side we are ready for support and participation.

INFORMATION: 55.4% of all water in Central Asia region originates in territory of Tajikistan. At the same time 42% from underground water of Central Asia region is located in Tajikistan. Altogether Tajikistan has 64 cubic km of river water, 18.7 cubic km of underground water, more than 40 cubic km of lake water, out of which 20 cubic km is sweet potable water. In Tajikistan the water reserves makes 10200 cubic meter capita/year.

Safo Safarov



Journey to Gulobod

During the autumn and winter periods, mainly population of rural areas suffers from electricity shortage. In order to change the situation, UNDP assisted to construct Small Hydro Power Plants in some of Jamoats. To what extent construction of such power plants mitigated problems of rural residents? With the aim of finding answer to this question we visited Bozorboi Burunov Jamoat of Vahdat city.

Foreword

It was a sunny day of the end of February, when the weather was demonstrating signs of the forthcoming spring; we left territory of Dushanbe and moved to the east. We were grateful that the weather in the winter was not so severe and lack of electricity was tolerable. At the same time we were keen to see how in Gulobod village of the country people could construct Small Hydro Power Station "Nurofar" and overcome electricity shortage problem.

At Jamoat's administration

"Gulobod" is one of the 15 villages which belong to Bozorboi Burunov Jamoat of Vahdat city. During meeting and discussion the Head of the Jamoat Anorgul Vohidova stated:

We are very glad that in cooperation with UNDP in July 2008 we could establish Small Hydro Power Station "Nurofar" in Gulobod village. Owing to this event 84 families of our Jamoat got access to 24 hours electricity supply.

The head of Jamoat has also mentioned about other cooperation with UNDP. With the support of UNDP water reservoir of Jamoat was reconstructed as a result 10,000 people got access to potable water. Also UNDP initiated civil society "Jamoat Support Center", which cooperate with Jamoat on irrigation, construction of Small Hydro Power Stations, etc.

A. Vohidova added that with assistance of UNDP the microfinance organization "Orif" has been established. Currently this organization lends to the farmers of Jamoat from 100 to 500US dollars.

In response to our question, whom people of Jamoat pay for water and electricity consumption, the head of Jamoat responded:

- People pay cost to the SLLC "Jilkomkhoz", which work with Jamoat on the basis of agreement. According to A. Vohidova, currently 6 villages of the Jamoat have access to potable water and "Jilkomkhoz" plan to construct water supply facilities for other 4 villages of the Jamoat. Thus, "Jilkomkhoz" will use generated income for procurement and installation of water pipes for those villages.

Acquaintance with work of Hydro Power Station

When we arrived to power station, the head of SLLC "Jilkomkhoz" Aminjon Umarov showed us the facilities and installed equipments. Small HPS "Nurofar" constructed on Uzun acequia and equipped with computer management system.

On the informational display of the power station, that is hanged on internal wall of the station, we can read following:

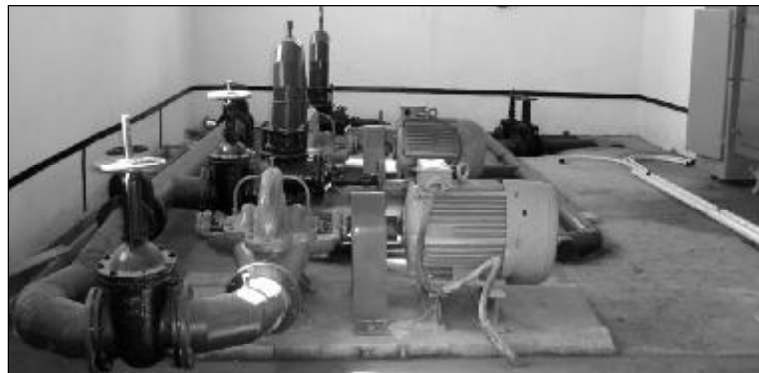
- Production capacity of the first wheel – 100 kilowatt;
- Annual power generation – 650 000 kilowatt. hour/year;

- Total operational period of the wheel – 40 years.

According to employees, the equipment of the station have been produced in St. Petersburg and installed in "Nurofar" Small Hydro Power Station by the Russian experts.

Noisy sound of the wheel and generator do not allow us to continue our conversation and we leave the station's building and with intention of seeing water draining pool we walk upstairs. Canal water, which is 5-6 meter in width, leak to the wheel of the station through one of the two big pipes with grating entrance. Reminders of water flow leaks through parallel water channel and do not generate electricity. As A. Umarov enlightened, by installation of necessary equipment the reminders of water flow could be directed to the second pipe and used for electricity generation.

- We hope that with support of UNDP we will be able to activate one more generator and new wheel in the station, which will increase the production capacity of the station.



The safe drinking water supply equipment

Cost of service

The selling price of electricity for the residents of the village has been settled down by the SLLC "Jilkomkhoz", which is responsible for exploitation, maintenance and repair work in the power station, at the rate of 7 dirams for 1 kilowatt/hour. This organization is also responsible for potable water supply of residents of "Gulobod". In this connection, A. Umarov says:

- Because the absence of water counters in houses of the people, we set water consumption price equal to 1 somoni per capita. At the same time, 10 families where the head of family is invalid, pensioner, or women, exempted from payment, another part of population pays only 50% of price. Since our organization is a self-sustained organization, we use received income for expansion of our activities. We have 15 employees that are working in power station and water reservoir. If we do not pay them 400-500 somoni per month they will not work.

Electricity, water and health of population

Lastly the regional hospital #2 of Bozorboi Buturov Jamoats has been provided with electricity of the power station. In this connection Abdugaffor

Mallaev the Head doctor of hospital says:

- Starting from February 25 our hospital receives 10 kilowatts electricity a day. However according to the norm we should receive 20 kilowatts and we need to install cables with higher current transfer capacity. We use electricity mainly for lighten and partially for heating of wards, dental equipment and storage of vaccines in refrigerator. Currently, we do not have any problem with water supply.

In reply to our question, whether absence of clean portable water in the past caused any kind of infectious diseases, A.Mallaev answered: "In the past, because of drinking unclean water the number of infected people in Bozorboi Burunov Jamoat was very high. For instance, the number of infected people by such diseases as typhus, hepatitis and diarrhea in 2005 made 62 persons, in 2006 28 persons, in 2007 42 persons. These diseases usually arise between May and September; because

the weather in this period is very hot, people consume unboiled water from channel and irrigation ditch. Children swam in and drink from that dirty water.

- After renovation of Jamoat's water reservoir and improvement of portable water supply, in 2008 only 6 cases of diseases registered, thankfully said the head doctor of the hospital.

My neighbor has, it means that I have

After visiting several houses in Gulobod village we were assured that they all provided with electricity. Residents were very glad to have electricity. I have asked Jamshed Numonov a 35 years old resident of the village about previous and current situation with electricity supply.

- Until beginning of work the Hydro-Power Station in the village, sometimes we had 3 hour electricity supply in the evening, sometimes we did not have at all. A year ago during two winter months electricity supply was totally stopped. Now we have 24 hours electricity supply. We can watch TV and get world's news everyday. Children can do their homework on light.

They also wear clean and ironed clothes and go to school clean and pretty.

My interlocutor says that his family has preference for using



The Nurofar small HPP

of water and electricity: "Last year my wife and our five children got sick with typhoid and during several months we spent a lot of money for their's treatment. Therefore, the authority charges us only 50% of cost for using electricity – that is 25 somoni per month. Currently, we live in one house altogether 16 people, including our parents and other relatives. Taking into consideration our problems, the authority 100% released our family from payment for water consumption."

According to J. Numonov the potable water supply has been improved.

- In the past, when there were no electricity and water, we had no choice and therefore we used water from canal and irrigation ditch initially desalt and boiled it. But now water supply situation is good. Every day at noon and evening time people receive and reserve potable water.

At the end of our conversation my interlocutor acknowledged about his following wish:

-Tajiks have a saying: "My neighbor has, it means that I have". Sometimes my friends from Mehnatobod village come to our house and watch TV and DVD discs and charge their mobile phones. When we see the darkness in our neighboring villages we become upset, because there also living Tajiks and they are our brothers. I have a dream that one day Tajik families will have light in their houses.

Necessity of establishment of small enterprises

The electricity which generates Small Hydro Power Station "Nurofar" is used by local residents only during autumn and winter period. However, in warm period of the year all country is provided by electricity from "Norak" Hydro Power Station and other large scale Hydro Power Stations. During this period capacity of Small Hydro Power Stations, including "Nurofar" Hydro Power Station could be provided to small enterprises and also used for trade activities. Although, all counterparts support the idea that during warm period of the year electricity produced by "Nurofar" could be used by small scale enterprises, the issue has not been solved yet.

Anorgul Vohidova the Head of Jamoat:

In order to increase profitability of power station we are going to establish small production enterprises near to power station.

Aminjon Umarov the Head of "Jilkomkhoz":

If we get 0,02 – 0,03 hectare land near to the power station

we can build up several small enterprises. Two months ago the local government promised to allocate land, however the land has not been allocated so far. If we get land and construct small enterprises we can create 50 jobs. Taking into consideration the demand, we are going to establish bakery, vulcanization workshop, shoes repairing workshop, sewing workshop and production of other commodities. We have German technology which cost 60,000 dollars and specialists, but we need land. We also plan to install another generator with capacity of 75 kilowatt, in order to have separate source for electricity supply and avoid using of electricity produced for the residents.

Rustam Fayziev, Chief Engineer, Community Development, UNDP in Tajikistan:

- In the beginning of construction of power station 3 electric keys has been installed on it, currently installation of power cables for three direction is predetermined: first, for the residents of the village and the public organizations (hospital, school, reservoir, etc.), second, for the needs of power station, and third for initiations of commercial purposes. At present first two directions are effective, however the capacity of power station has not been used for production purposes so far. Though such small production enterprises could be the source of additional income for power station and guaranteed sustainable activity of the "Nurofar" HPS. Power station should work all around the year and generated electricity should have consumer.

Jamshed Numonov resident of Golobod village:

- I have heard that in near future an enterprise will be established. If we will have such production enterprises in our village e will not go to work in abroad, but we work in our country near to our families. We could improve our life and our country.

Conclusion

After all the things we have seen and heard, we will wait for the new initiatives by government, community and international organizations as well as local population directed to solution of problems with electricity and water supply in rural areas of the country. In addition, under the newly established Small Hydro Power Stations small production enterprises could be established, so that local population could find new jobs.

We hope to reach the time when Mehnatobod and other villages of our country could be free of suffering from shortage of electricity, water and unemployment and became Gulobod.

Safo Safarov