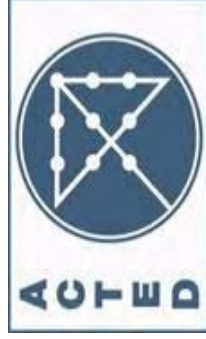


**5 MANUAL FOR OPERATION AND MAINTENANCE
OF RURAL WATER SUPPLY SYSTEMS**



Water User Association and Small Water User Groups on Maintenance and operation of water supply system in Bolshevik village of Qabadiyan district.

MANUAL ON WATER USER ASSOCIATION'S WORK IN BOLSHEVIK VILLAGE, KOLKHOZ "AVESTO" OF QABADIYAN DISTRICT

November 2008



Japan International Cooperation Agency

PROBLEMS OF DRINKING WATER IN TAJIKISTAN

«There is no life without water» - it is hard to argue with this. Life comes from water. The human body itself is composed of 90% water. Two-thirds of the earth's surface is covered with water, and the UN has stated that the deficiency of fresh water will be a vital issue in the coming decade. In 1993, based on the initiative of International Association of Water Supply, the 22 of March was announced as International Water Day. According to data from the World Health Organization (WHO), 2 billion people do not have sufficient access to fresh water. Fresh water is rapidly become to scare natural resource. During the 20th century its usage increased seven-fold, whereas the world's population only increased three-fold. Scientific predictions do not bode well – the world is approaching "water crisis". In addition, after thirty to fifty years it will affect our descendants. The main reasons for water deficiency are population upsurge and ineffective usage of water resources. Tajikistan has a significant fresh water reserves and still provides water at a very low cost – by comparison, in Europe, 1 litre of water is comparable in cost to 1 litre of petrol, around €1.20.

This manual on the Water Users Association's work in Bolshevik village of Qabadiyan district is designed to encourage the rational and safe use of the water supply system. We hope that the Water Users Association of Bolshevik village will make its first steps in this direction, conducting technical activities on adopting of safe sanitary engineering armature and counters, and also spreading information about the safe and rational use of water.

Foreword

This operational manual is the final product of an experimental initiative of ACTED aimed at the creation of a Water Users Association for maintenance and repair of system of water supply in Bolshevik village of Qabadiyan district.

This process was fully demand-driven and proceeded according to the following successive steps:

- Conduction of Participatory Rural Appraisal with representatives of initiative groups and Mahalla committees in Bolshevik village from the 1st to the 14th of September, 2008.
- Conducting of General Assembly Meeting on the results of PRA on the 15th of September, 2008.

Prepared by ACTED departments of Kurgan- Tube:

- Community Mobilization (CMD),
- Health education and environment (HE),
- Local governance initiative (LGI)

Approved by the Healthy Life Centre of Dushanbe.

- Meeting of ACTED and representatives of JICA to discuss the technical component of water supply system in Bolshevik village on the 16 of September, 2008
- Meeting of the Social Mobilization and Health Education departments of ACTED with the representatives of the Mahalla Committee of Bolshevik village for discussing methods and strategies of Water Users Association's creation on the 17th of September, 2008.
- General Assembly Meeting in secondary school №39 for approving the Water Users Association's creation on 24th of September, 2008.
- Meeting by the employers of Social Mobilization and Health Education departments of ACTED with Kolkhoz "AVESTO" management board, who financed the rehabilitation of the water supply system in Bolshevik.
- Meetings with households near each tap of Bolshevik village for electing members of 66 Small Water Users Groups (SWUG) from 25 of September to 6th of October, 2008.
- Presentation of project on creation of Water User Association in Bolshevik village, in Qabadiyan district Hukumat on the 7th of October, 2008 and in Jamoat Khudoyqulov on the 8th of October, 2008. Confirmation letter to Hukumat and to Jamoat from donor JICA, and requesting permission from district Hukumat for project realization.
- First Administrative Committee for this project with the participation of the head doctor of district central hospital, representatives of Hukumat, Sanitary Epidemiological Inspection (SEI), Centre of Healthy Life Style of district, centre of AIDS, representatives of Reproductive Health, department of Public Education and others. This was held on the 30th of October, and directed to the presentation of the project and introduction with the methodology of Water Users Association creation.
- First seminar, conducted from the 7th to 24th of October, 2008 for education of 132 members of WUA, was directed to the creation and management of water user association and definition the main peculiarities of administrative and financial structure of WUA.
- Second seminar, that was conducted in November, 2008, was devoted to education of 66 technicians of SWUG, technical service and repair of water supply systems which included 7 lessons starting from technical aspects up to the solving of community problems through development.

- Publication of article "Fresh water comes out of 72 taps...." about rehabilitated water supply system project in Bolshevik village of Qabadiyn district local newspaper "Sharaf" № 10 (8024) on the 5th of November.

Many thanks indeed to the numerous village representatives, members of Mahalla Committees, to Hukumat, management board of Kolkhoz "Avesto", that spontaneously expressed their interest into the initiative and that took the lead in WUA creation and put all efforts in its strengthening.

Currently there is 1 Water User Association and 66 Small Water Users Groups.

We present our best wishes of success to these pioneers and hope that they will further develop in the years to come and serve as a demonstration for the initiative to spread.

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VOLUME I – TECHNICAL SECTION

I Water supply system in Bolshevik village

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Picture №1-Water supply tap with water meter, of rehabilitated water supply system in Bolshevik village of Qabadiyan district, Khatlon region.

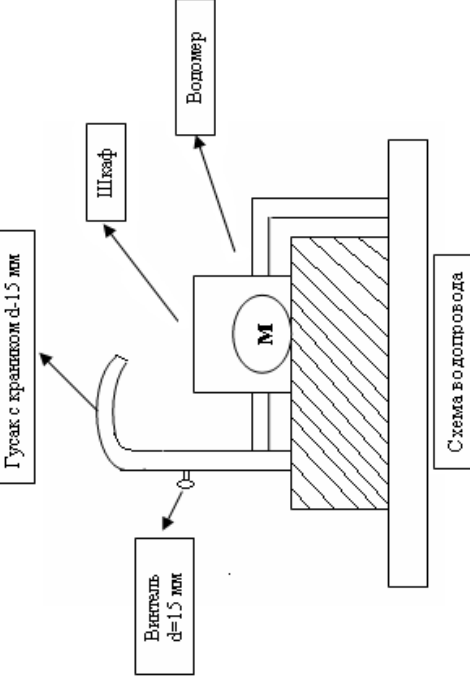
1.1. How does a rehabilitated water supply system work?

Water supply system line in Bolshevik village of Jamoat Khudoyqulov, Qabadiyan district, Khatlon region works as follows:

For the present project on rehabilitation of water supply system in Bolshevik village, according to the scheme №1 of existing water supply line was renovated the territory of pump station. Pump ECH, V- 6, 16, 90 and water meter were installed. Operation station "OS 3 - 40 (10-40A 3.13 kv)".

Installation of tap with water meter scheme.

All constructive works are realized according to the technical security; facilities must correspond to sanitary hygienic standards and have modern acceptable design. It is recommended to provide water analysis for sanitary epidemiological inspection on a monthly basis.



Scheme 1 –Design of water supply tap with water meter.

Component of water meter with lock box gives guarantee of water meter security. Valve with 15 mm diameter and rubber laying. Exploits during work process. Period of validity is 3-4 years.

1.2 Design of water supply pump.

There are 4 types of water supply pumps:

2. 1. Standard self-locking town style water supply pumps.
2. 2. Universal water supply pumps on valve regulation.
2. 3. Universal water supply pumps with strengthened upper part (with casing tube) in valve regulation.
2. 4. Ordinary taps non-regulative, with the constant water supply.

1.3. Sanitary perimeters

For prevention of pollution of underground water, sanitary perimeters must be observed in accordance with the following guidelines:

- Horizontally 30m – absence of dry wastes, toilets, livestock....
- Vertically 40m, chink must have casing tube.
- Concrete cover - for water leakage prevention and ensuring of surface water resistance.
- Dry territory around, absence of drainage and irrigational canals, silt places.

1.4. Monitoring of fresh water quality.

B ox 1 – Drinkable water quality

Water quality monitoring consists in the surveillance of 3 types of parameters:

- Physical parameters
Generally consists in: pH, turbidity (NTU¹), odour and colour,
In our case, one of the most interesting parameters could be the conductivity (µS/cm) because it gives an idea of the mineral level of the water and help detect salinity (if repeated cases of villagers argue not to drink the water because of its salty taste).
- Chemical parameters
The most common chemicals are Phosphate (PO₄ⁱ), Nitrate (NO₃⁻), Nitrite (NO₂⁻) and Ammonium (NH₄⁺), all of them expressed in mg/l. Indeed, these chemicals usually indicate the presence of organic matters resulting from human waste or from the use of fertilizers. So far, no specific indication can lead us to be suspicious about alarming chemical quality of the water. It is normally subject to little room for variation in a given geographical area.
- Bacteriological parameters
The most important one is the Faecal Coliform (CFU²/100 ml), because it indicates a faecal

¹ Nephelometric Turbidity Unit

contamination of the drinkable water, which means that the faecal-oral route for transmission of water borne diseases is open. This parameter needs to be closely monitored insofar as results are highly dependent on local conditions (possible infiltration of run off water, contamination because of poor sanitary perimeter...). SES is expressing bacteriological results in terms of Coli-index³ or in Coli tittle⁴, according to the methodology defined by the standard GOST 18963-73, further amended by 2874-82.

The normative for drinkable water quality is defined by GOST 2674-82 (with a set of 2 bacteriological, 12 chemical and 13 organoleptic parameters). Especially:

- Nitrate (NO₃) to stand below 30 mg/l,
- Nitrite (NO₂) to stand below 0,3 mg/l,
- Ammonium (NH₄⁺) to stand below 2,5 mg/l.

While commonly interpreting the bacteriological results, one should take into account the following information:

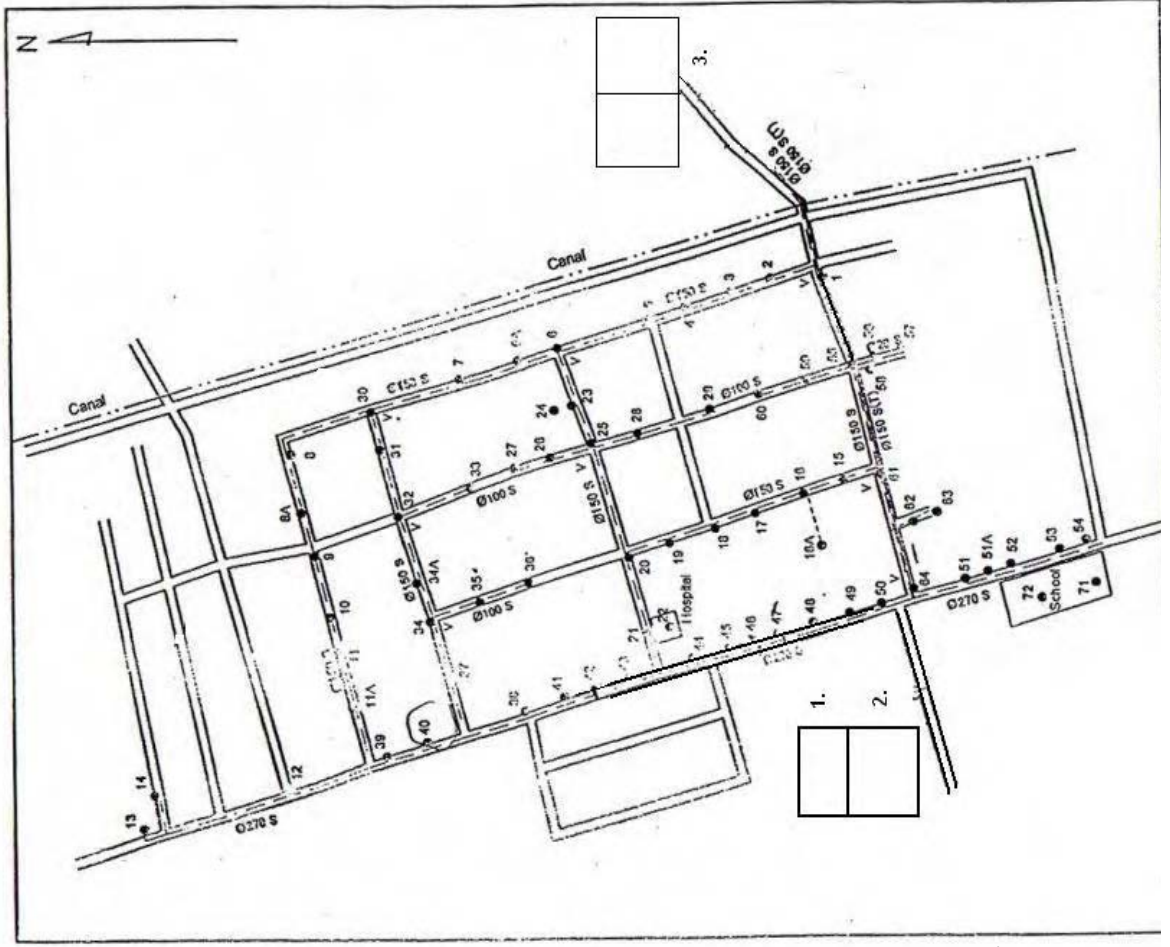
- 0 < FCU < 10: good quality,
- 10 < FCU < 100: acceptable quality,
- 100 < FCU < 1,000: bad quality, need for disinfection,
- 1,000 < FCU: not acceptable for human consumption.

The Sanitary-epidemiological supervision is under the jurisdiction of the State agencies called SES, under the umbrella of the Ministry of Health, in conformity with the law n°987 dated on July 20, 1994

1.5. Scheme 2 - On existing water supply line established 72 water taps.

- | | |
|-----------------------------------|---------------------------------|
| 1. Pump Station | 2. Operation station |
| 3. Two tanks - 500 m ³ | 4. Water supply points - 72 pcs |

Layout of the Pipelines and Public Water Taps



1.6. Calculation of water consumption

Calculation of all established water supply points are conducted by taking registration of water volume passed through the water meters, which are installed at all water supply taps. Since kolkhoz "Avesto" is an owner of rehabilitated water supply system in Bolshevik village, they control the supervision of financial expenses connected with technical maintenance and assignment of bills for water users for payment for 1 m3. All expenses and income items of mentioned actions are considered in clause 4.5. At the present time for the period of November. 2008 tariff for 1 m3 of water makes 1 dirham.

Government of DFS "Avesto" must consider two basic types of tariffs: sale by retail of spare parts of sanitary ware equipment and monthly tariff for water consumption, according to the water meter indications. For devaluation of capital, spare parts and details must be realized at least for its initial price, taking into account transportation costs. Tariffs for water supply also should consider price for electricity, wear of equipment, amortization and overhead expenses. From this we can get the minimal tariff for 1 m3 of supplied water. All technical conditions of the project are implemented according to the building regulations- 60-108-99.



Photo №2. Usage of water supply taps in secondary school №39 in Bolshevik village.

Diagram 3 - Table of calculation of water consumption, according to the water meter indicators.

Record of Pump Operation/Запись Действия Насоса
 6.16-30
 30 м
 около 11 м

Date Дата	Time Время	Pressure давление (бар)	Flow Rate (м3/ч) Подача (л/мч)	Water Meter (м3) Водомер (Лит)	Current (A) Ток (А)			Voltage (B) Вольтаж (В)			Sand Contents Содержание песка	Transmission to Передача к Резервуару (Tank) Обход (Bypass) Резервуару (Tank)	Observation Наблюдение
					A	B	C	A	B	C			
14/10/08	6:00	41	15	118201	14			200	210	220	3***	Обход (Bypass) Резервуару (Tank)	12.00
15/10/08	7:30	41	20	2244	14			225	209	210		Обход (Bypass) Резервуару (Tank)	12.00
16/10/08	5:00	43	20	8320	14			225	200	210		Обход (Bypass) Резервуару (Tank)	12.00
17/10/08	6:00	41	10	8888	14			160	200	200		Обход (Bypass) Резервуару (Tank)	12.00
18/10/08	6:30	43	10	8853	14			210	200	200		Обход (Bypass) Резервуару (Tank)	12.00
19/10/08	6:00	43	10	8888	14			200	200	200		Обход (Bypass) Резервуару (Tank)	12.00
20/10/08	6:00	41	10	8888	14			220	220	210		Обход (Bypass) Резервуару (Tank)	12.00
21/10/08	6:00	41	10	8925	14			220	210	200		Обход (Bypass) Резервуару (Tank)	12.00
22/10/08	6:00	43	10	9024	14			220	210	200		Обход (Bypass) Резервуару (Tank)	12.00
23/10/08	6:00	41	10	9104	14			200	210	220		Обход (Bypass) Резервуару (Tank)	12.00
24/10/08	6:00	41	10	9187	14			200	210	220		Обход (Bypass) Резервуару (Tank)	12.00
25/10/08	6:00	41	10	9254	14			200	200	220		Обход (Bypass) Резервуару (Tank)	12.00
26/10/08	6:00	41	10	9350	14			180	200	200		Обход (Bypass) Резервуару (Tank)	12.00
27/10/08	6:00	41	10	9403	14			180	200	190		Обход (Bypass) Резервуару (Tank)	12.00
28/10/08	6:30	41	10	9477	14			180	200	190		Обход (Bypass) Резервуару (Tank)	12.00
29/10/08	6:10	41	10	9576	14			200	200	200		Обход (Bypass) Резервуару (Tank)	12.00
30/10/08	6:10	41	10	9674	14			200	200	200		Обход (Bypass) Резервуару (Tank)	12.00
31/10/08	6:10	41	10	9773	14			200	180	180		Обход (Bypass) Резервуару (Tank)	12.00
1/11/08	6:00	41	10	9869	14			200	180	180		Обход (Bypass) Резервуару (Tank)	12.00
2/11/08	6:00	41	10	9903	14			200	180	180		Обход (Bypass) Резервуару (Tank)	12.00
3/11/08	6:00	41	10	10048	14			180	160	200		Обход (Bypass) Резервуару (Tank)	12.00
4/11/08	6:00	41	10	10138	14			180	180	200		Обход (Bypass) Резервуару (Tank)	12.00
5/11/08	6:00	41	10	10232	14			180	180	200		Обход (Bypass) Резервуару (Tank)	12.00
6/11/08	6:00	41	10	10325	14			180	180	200		Обход (Bypass) Резервуару (Tank)	12.00
7/11/08	6:00	41	10	10416	14			180	180	200		Обход (Bypass) Резервуару (Tank)	12.00

Bolshevik Village / Большевик

II. TYPES OF RECOMMENDATION ON EXPLOITATION OF PUMP STATION

2.1 Necessary actions on proper exploitation.

- A) In the framework of the project ACTED conducted 2 types of seminars for Small Water User Groups. The first one on organizing and operation of WUA and the second one on technical service of water supply system for WUA technicians. Besides this, this training for on duty technicians on the exploitation of electrical water pumps and operation of water stations was conducted. Furthermore, three working shifts, according to the decision of WUA and management board of "Avesto", were established.
- B) In the framework of the project there are two tanks of 500 m³ each, which deliver water to the supply system. It is necessary to conduct preventive works for the fresh water supply security and provide airtight hatches (it is preferable to install locks on hinges).
- C) To have a work schedule on water chlorination and an order of inspection and conducting of laboratory analyses.



Photos №3. Women of Bolshevik village fill water.

2.2 Principals of electrical pump station work.

A. SETTINGS

A.1 Operation station OP-3 (hereinafter) is determined for automatic, remote and local operation of three phase electrical motors of submersible pumps and protection from electricity overloads, short circuit, open phase work and dry motion work.

In automatic operating conditions, the station provides operation according to the upper and lower sensor signals, installed in the tank, from electro contact manometer (contact type 3.4.5.6) or from pressure relay.

In remote operating conditions, the station provides operation on twin-lead wire line (up to 2 kms).

In local operating conditions, the station turns on and off by an automatic switch. The station has an in-built sensor to detect electricity overloads, which allows the adapting station to maintain the electricity stream without using any additional devices.

In station foreseen block system in the case of hydroblow. Time of block system can be adjusted.

In station foreseen opportunity of alarm signal transferring out of device coverage area.

All operation chains have galvanic isolation. In all three operating conditions, station provides:

- Shutdown of electric motor in the case of break 1 of the 3 phases.
- Shutdown of electric motor in the case of overload in any of 3 phases.
- Shutdown of electric motor in the case of water lack in chink, light alarm of electricity overload, open- phase mode conditions, dry motion working conditions, reduced voltage and condition of electric motor, while in automatic working conditions water level in the storage tank (concerning to the level sensors).

Restart process after alarm-induced stoppage. Stoppage time of switching is regulated.

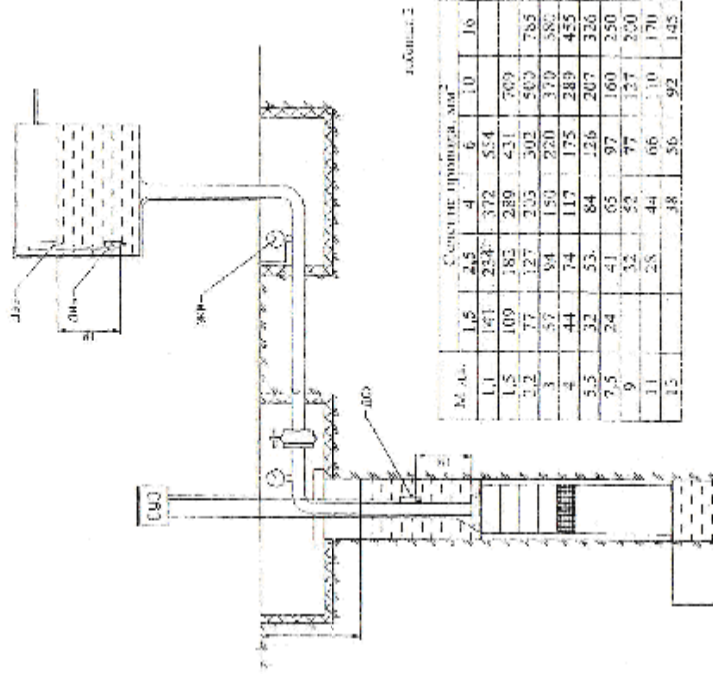
- Indication of used electricity, in any of phase of electric motor.

A.2 Station is directed for exploitation in indoor placements without artificially regulated climatic conditions.:

- Temperature of surrounding air is between -45 ° and 40 °C;
- Comparative humidity is up to 98% at temperature of plus 25°C;
- Altitude above sea level up to the 1000 meters; surrounding environment is not explosive, not containing conductive dust, aggressive gases or steam.

2.3. Design, characteristics of deep electrical pump installation to the chink and scheme of water supply into distribution tanks.

Scheme-4. Design, characteristics of deep electrical pump installation to the chink and scheme of water supply into distribution tanks.



III ORGANIZATION AND WORKING PRINCIPLES OF ELECTRICAL PUMP STATION

3.1 Arrangement and settings of control panel and indications.

Station is a metallic box of hinged type with a door. Inside the box there is an automatic switch, magnetic starter, transformer block, and a gate-based processing of signals with the elements of indication and operation and introductory clamp.

Power supply is connected to the clamp. Electrical pump is connected to the KM-1 starter. Recommended wire sections which brings to the electrical pump, depending from the length and capacity is shown in table 2.2 (Where section is selected at the rate of 2% voltage loss on the wires)

Protective grounding is connected to the grounding screw, located in the back wall.

1. Built-in power overloading button.
2. Reset after alarm stoppage.
3. Setting of protection time from hydroblow.
4. Operational switch to change pressure levels.
5. Automatic, manual or remote operating switch.
6. Switch, drainage-barrage.
7. Clamp for alarm signal connection (passive contact is 200 V, 0,1 A)
8. Clamp for remote operation connection.
9. Safety device (3, 15A).
10. Safety device (0,16 A).

Caution: while pressing button «tuning», all protection devices are switched off. Button can be used for switching water pump on, after emergency influence. On upper part of station light indicators are located.

«Overload» - switching water pump of in the case of electricity overload.

«Dry stroke» - switching electrical pump of in the case of water level reduction in chink lower than dry stroke sensor.

«Phase defect» - switching of electrical pump of in the case of phase asymmetry more than 10%.

3. Dry stroke sensor is fixed on water lifting pipe at a distance of 1m from pressure pipe of electrical motor, with metallic connection clip (see picture 1).
4. In station there is foreseen connection of upper and lower sensors based on electro conductivity of water, electro contact manometer DM 2005 or pressure relay.
5. NU and BU sensors are installed directly in tank and connected with three wire cable.
6. Electro contact manometer or pressure relay are installed on main water line in direct closeness from water tower, in the place of plus temperature that excludes water freezing in the manometer. EKM is connected with station with three wire cable.

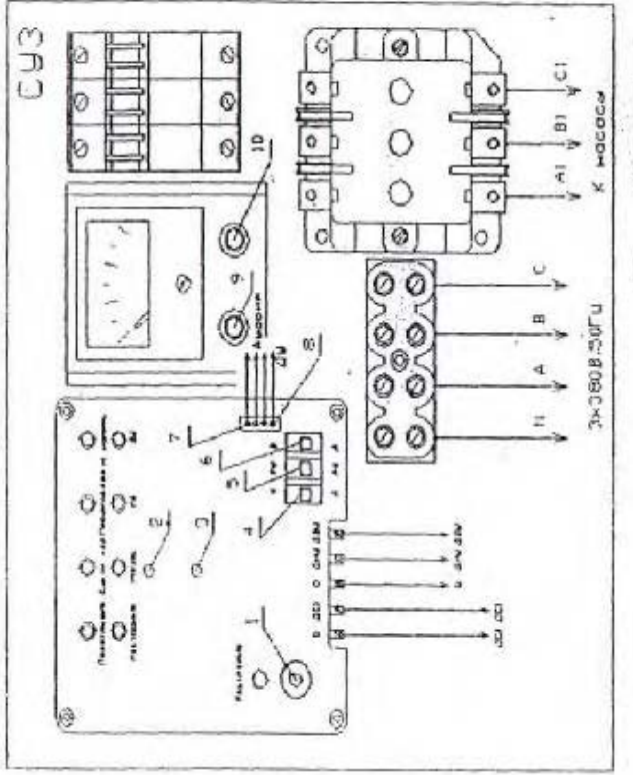


Photo №4. on duty electrician starts the pump.

3.2. Protection level reconstruction order.

Manufacturer supplies station that's tuned up to the main electricity line SUZ--10-7±1A. 5.2. For electrical motors with specified electricity it is necessary to make protection reconstruction as follow:

- Ø Before protection reconstruction it is necessary to measure the electricity in each of the three phases and be sure in absence of asymmetry.



Scheme -5 Location and setting of operating parts and indication.

- «Voltage drop» - reducing of voltage in measured phase less than 200V (electrical motor in this case is not switched off).
 - «Tuning» - signalize about, overloading of voltage for 25%, Is used for voltage overload protection.
 - «Pump» - signalize on electrical pump work.
 - «NU» - water level in reserve tank lower than low-level sensor.
 - «BU» - water level in reserve tank higher than in high-level sensor.
2. The device of repeated inclusion is intended for automatic inclusion of the electropump after the termination of emergency influence. Delay time for connection can be regulated but not less than 1 minute.

Ø If there are defects in electricity it is necessary to take measures to resolve this. For example, to change order the electric motor connection, but note that alternation of phases should not be changed. It should be kept in mind that even a 10% voltage defect can multiply by 150% the electricity supply, and accordingly decrease the electrical pump KPD and prevent motor cooling.



Photo №5. Execution of assembly works

Protection tuning from overloading is produced on the phase that has more electricity. Protection tuning can be done in two ways:

- 1- Increase electricity supply from station by 20%-30% for example, by rotating the slide valve on the water pipe or with the connection of executive overloading. With the slow rotation of potentiometer axis anticlockwise to achieve that yellow light diode "Tuning" turned on. To transfer electrical motor into working condition.
- 2- If there is no opportunity to use the first way of tuning one should use a built-in imitator of motor overloading. For this it is necessary to set nominal working conditions of electrical pump, in this case engine stream should not exceed certified value. To push protection installation-specific-settings button and while holding it, with slow rotation of potentiometer axis

to achieve that yellow light indicator "Tuning" turned on. It corresponds to voltage 1.25 times more than fixed. To release button, indicator in this case must be turned off.

3.3. Guideline of safety arrangements

1. Only certified users, who have expertise in electricity plants generating up to are allowed to assemble and exploit the station.
2. During implementation of assembly works and station exploitation it is strictly recommended to follow the requirements stated in "Consumers electricity generating plant exploitation guidance" and "safety standards of electricity generating plant exploitation guidance".
3. Grounding terminal of the station must be reliably connected with the grounding loop with wire section not less than 6mm². Examination, cleaning, replacing of the spare parts should be done whilst turned off or disconnected. Station door must be closed all the times. It is strictly prohibited to use grounding wire as general wire of remote control, dry stroke sensor, upper and lower level sensors.

3.4. Station installation order.

1. Station installation must be carried out in facilities accessible only for qualified personal, on vertical surface, not liable for strokes, vibration, spontaneous for atmospheric precipitation influence, with the help of screws.
2. During installation process it is necessary to take measures of electrical motor and station protection from overstrain in electricity transmission lines, caused by lightning discharge. For this case to install lightning conductor, dischargers or other protective devices on the think.

3.5. Station connection order

1. To connect grounding cable. To connect electricity transmission line cables and electrical motor from corresponded holes in the bottom of the station. If electricity transmission cable three is wired, to connect "N" clamp of XTI with grounding terminal. To connect level sensors or remote control wires to correspond clamps.
2. For dry stroke sensor connection use separate two wired, waterproof cable of any section.
- 8.3. In the case of "dry stroke sensor" absence to unite "DSH" contact with contact "O".

increment of water supply point capacity on water output increment in think. Rational usage of water as well leads to sufficient economy of energy resources, which is necessary for its supply and reproduction after utilization. Therefore, proper exploitation of water meters is indispensable.

It is necessary to keep in mind that our health is dependent on access to quality water.

4.2 Main recommendations of technical service

As main water loss happens while supplying from water supply point to consumer through defective water pipes and defectives valves, we offer basic recommendations on the proper exploitation of a rehabilitated water supply system:

- a) Monthly, complete survey of water supply systems with careful survey of water supply point facility, suction pump and chink.
- b) Monthly inspection of stanpost and definition of small breakdowns.
- c) Monthly water saving system (tank) inspection.
- d) Holding a discussion with population on proper exploitation of water supply system, accurate and careful relationship with system elements.
- e) Installation of devices, which disinfect water, bacteriological and chemical analyse of water by SanInspection.

4.3 Repair of water supply system.

Repair of water supply system is divided into:

- a) Capital repairs
- b) Seasonal repairs
- c) Emergency repairs

Capital repairs –series of activities that take place after 10-15 years of proper exploitation of a water supply system, where 80% or more of the main components are replaced: tank, standposts, pipelines, sanitary fittings, restoration of water supply point and chink.

Seasonal repairs – take place twice a year (winter and summer) and it implement small repair works of system: pipeline parts replacement, concrete works on strengthening of water conduit or intake of waterworks. Painting of system metallic parts. Lubrication or replacement of water valves.

Emergency repair – is a special work on re-establishment of water supply system that is temporarily, partially or fully out of order as a result of catastrophe or human activity. It contains special measures that lead to fast rehabilitation of water supply system.



Photo Mé6 Association technician implements water supply adjustment from pump station to the tanks

IV. Resources for repair and maintenance.

4.1. Recommendation on proper and rational usage of water supply system.

Daily, the population of Tajikistan uses twice as much water per person as in Western Europe. The basis of rational water usage is an instrumental calculation of its consumption. Organisation of water consumption systems forces water user to repair all sanitary devices. Efficient water users for example, will not use water to remove food from plates, and will wash dishes and food separately. It may seem unlikely to the average water user but 10-15litres of water will be produced from the water tank every minute. That's why the main effort of the project should be directed at organization of individual (or divided to the quantity of water user households) water calculation. Based on WHO data dependency availability of such calculation system saves about 30% of water. This is also a good opportunity to get an extra

II Sanitary Educational chapter

1. Health education guidelines

1.1 Water borne diseases

- **Hepatitis A**

Hepatitis is a viral infection that harms the liver. The disease is usually mild in small children in age from 2 to 7 years old, but more serious in older persons (30 years old). It is common in winter and autumn (end of August- January).

Hepatitis is an intestinal infection, so far as virus is passed from organism-to-organism through oral contact, from food and infected vegetables, fruit and water, or dirty hands or linen. The virus stays in blood only in the height of disease and extracts to environment mostly from intestine.

Carriers are infectious from the first day and during 3 weeks from the beginning of the jaundice. Incubation period (from the beginning of infection until the first symptoms) is around 21 days, and already by the end of this period the carrier has become infectious.

- Mode of Transmission – Contaminated water and food, and person-to-person by the faecal-oral route (The Hepatitis virus passes from the stool of one person to the mouth of another by way of contaminated water or food).

Infected fruits and vegetables;

Through unwashed hands after the contact with infected person or using his possessions (dishes, towel, tooth brush and etc.);

- Symptoms

The person does not want to eat.

Often goes days without eating anything.

Sometimes there is a pain on the right side near the liver;

May have fever that comes abruptly;

The urine turns brownish, and the stools become whitish.

After a few days, the eyes turn yellow (jaundice)

- Infectious Agent : Hepatitis

As far as hepatitis is infectious disease where main source of infection is a human, sick people must be hospitalized to infectious hospital as soon as possible, before jaundice starts. It is really important to see the doctor in first symptoms of the disease, only qualified doctor can define infection. The sooner a sick person is hospitalized the better, as this lowers the



Photo №7. ACTED engineer explains characteristics of water supply system repair in Bolshevik village to technicians of Small Water User Groups.

chances that other people will become infected. Houses and kindergartens must be disinfected.

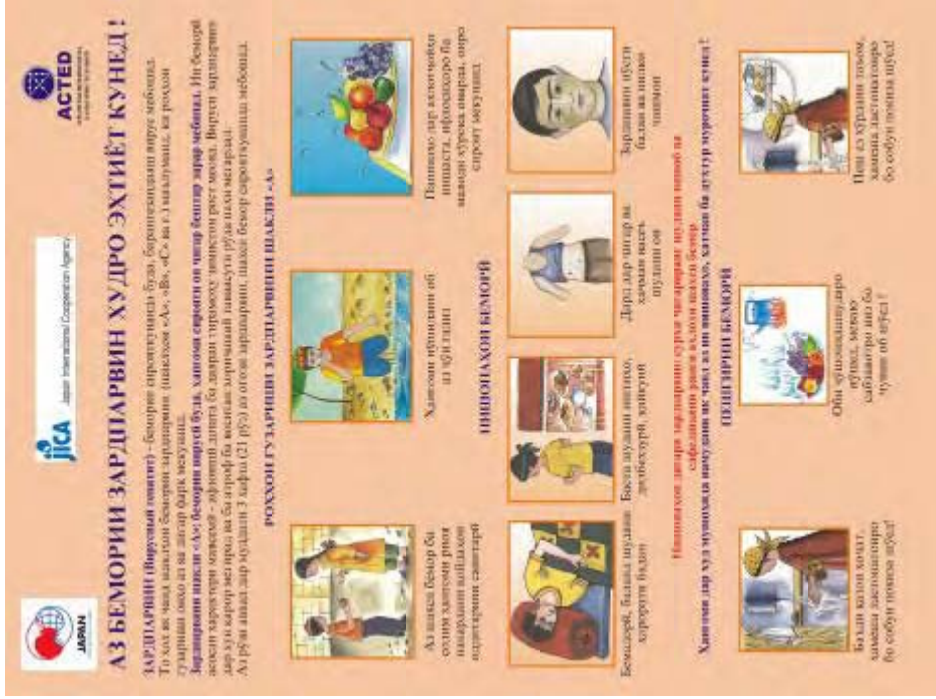


Photo №8 – Poster on theme “Hepatitis”

Everyone can be infected with hepatitis A, but there are existing preventive measures of viral hepatitis.

- Preventive measures

Wash hands carefully after going to the toilet, before preparing food and before eating. The person providing care should wash her/his hands well after each time she/he goes near the sick person.

Small children often have hepatitis without any signs of sickness, but they can spread the disease to others. It is very important that everyone in the house follow all the guidelines of cleanliness with great care.

For at least 3 weeks after the signs of hepatitis go away, take steps to prevent passing it to others. Use separate dishes for eating, and do not handle food.

• TYPHOID FEVER

Typhoid Fever – Infection of the stomach that affects the whole body with the rapid rise of temperature, presence of general intoxication and lesions luphatic system of intestine.

Infectious agent – intestine bacteria and its name is pertaining to typhoid fever **salmonella**. Salmonellas stay in water and soil from several days up to the several months. Positive environment for bacteria is food products (milk, sour cream, stuffing). In the process of heating up to the 100° C microbes immediately die, chloramines and disinfectant substances kills salmonellas during several minutes. Only human can be infected by typhoid fever.

Source of disease

- Sick man or bacteria carrier (man who has pertaining to typhoid fever salmonella) they carry bacteria in their gall, urine, excrements.
- Transfer of infection from sick person to healthy happens through:
- Water (while using water infected by the disease agent from the water supply system, well, in summer period from water reservoir while swimming or sudden swallow of water and also using water from ark, that is transfer of disease agent by the water plays at the present time the great role)
 - By contact (direct contact of sick person by healthy and through the things that sick person touched- dishes, linen.)
 - By food (through milk or milk products, especially in hot seasons, vegetables, fruits, bread, non observance of sanitary standards, standards of transportation and realization of food products.
 - By insects (in conditions of population overcrowding, pollution of territory, not unsatisfactory refuse disposal)

Sickness rate by the typhoid fever characterized is expressed by summer and autumn seasonal prevalence. Mostly people from 15 to 30 are amenable to this disease.

Bacteria (pertaining to typhoid fever salmonella) goes to human organism by mouth, thin and thick intestine, where they injure lymph node of intestine and makes little sores on intestine walls. From intestine salmonellas goes into the blood. In this period infected person has a

fever rising. With the blood, current typhoid fever bacteria goes to various organs: liver, spleen, marrow. Poison, which is produced by pretending to typhoid fever salmonellas or toxins affects nervous system and heart.

Eclipse period of disease: (when it is impossible to define it in laboratory conditions) from 10 to 14 days.

Symptoms.

Primary

- Raise of body temperature up to 38-39 which is keeps 6-7 days.
- General weakness,
- Bad appetite,
- headache,

In the further the following symptoms will appear:

- abdominal swelling,
- constipation, sometimes liquid stool.

After 7-8 days, pink rash may appear on the stomach.

In the first 6-8 days, the infected tongue will display symptoms of oedematous: will increase in size. Back of the tongue is covered with massive grey thin coat. In further development of disease tongue becomes dry and brown, ("typhus", "fried" tongue).

In late detection or in irregular treatment of typhoid fever there is a possibility of the below follow complications
Intestine bleeding.

- Break of thin intestine wall in the place of sore formation, peritonitis – acute inflammation of abdominal cavity.
- Acute insufficiency of heart and vessel activity.
- Delirium.
- Pertaining to typhoid fever coma (loss of consciousness)

Preventive measures:

→ Permanently to observe for sanitary conditions of objects responsible for data collection, storage, transportation, and realization of food products, semi finished products and ready to go products.

Caution of milk pollution and milk products.

- Drink only boiled water.
- To follow the sanitary – technical condition of wells: they must have tightly covered taps and public pail.
- While using river water for drinking water supply point must be above centre of population, and water can be used only after boiling.

→ Choose place for establishment of hand pump properly (not less than 50 m. From the place of junkyard).

→ Follow the observation of hand pump using rules.

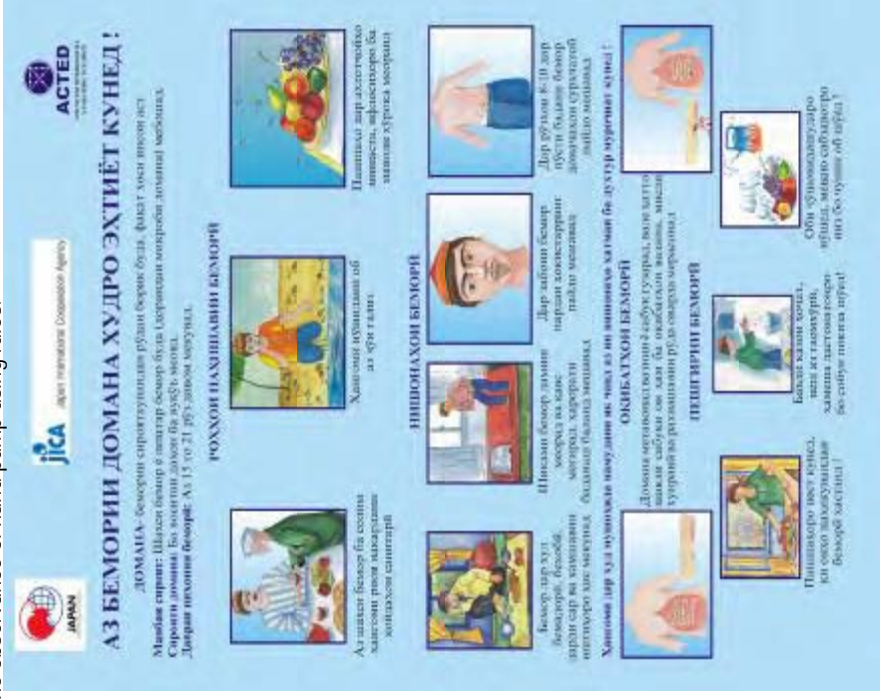


Photo №9 – Poster on theme "Typhoid fever"

→ Ensuring of proper and in time moving of garbage and wastes from settlements.
→ Pest control.

→ Sanitary conditions are vital when storing food products, ways of transportation of food products (for example, we can see transportation of bread in car's luggage rack), when

there is specialized bags for bread. Also big importance has sanitary condition of food products, semi food products and finished food products realization.

- Observation of personal hygiene.
- Well-timed detection and isolation of infected people and bacteria carrier, that means people who were infected before and still extracts bacteria but has no infection symptoms

- DYSENTERY

Dysentery – infectious; intestine infection caused by microbes of dysenteric group. Source of infection- sick person or bacteria carrier (chronic form of dysentery). From the organism of infected person dysentery bacillus comes out with the excrements. Dysentery is oral – faecal infectious disease that is such disease when infection gets to organism through mouth and transfer factors are food products, drinking water. Role of dirty hands in infection transmission is obvious. Infection happens through water, food products, dirty hands, and also flies, infected by microbes.

Symptoms: first symptoms are appears after 2-5 days of infection, in separate cases in few hours. Disease starts sharply and even suddenly.

- Severe stomach pains.
- Frequent liquid stool with slime and blood up to 10 times and more.
- Frequent false calls to defecations.
- Occasional sickness and vomiting.
- Rising temperature.
- Dryness of skin and slimy covers, dryness in mouth.
- Loss of weight and dehydration.

In detecting of such symptoms one should immediately see the doctor!

For preventing dysentery, it is necessary to:

- Always to keep hands clean, and surely wash them with soap before food preparation and after toilet;
- To keep food products away from flies;
- Always keep garbage tanks closed, clean them in time and wash with hot water;
- To wash fruit, vegetables, berries with boiled water before using;
- To drink water from bare sources only after boiling.

For preventing of disease in children try to more often wash their hands before food and after playing. Do not allow them to eat in the streets!

Upon detection of intestinal disease: vomiting, diarrhoea, stomachache immediately consult with doctor.

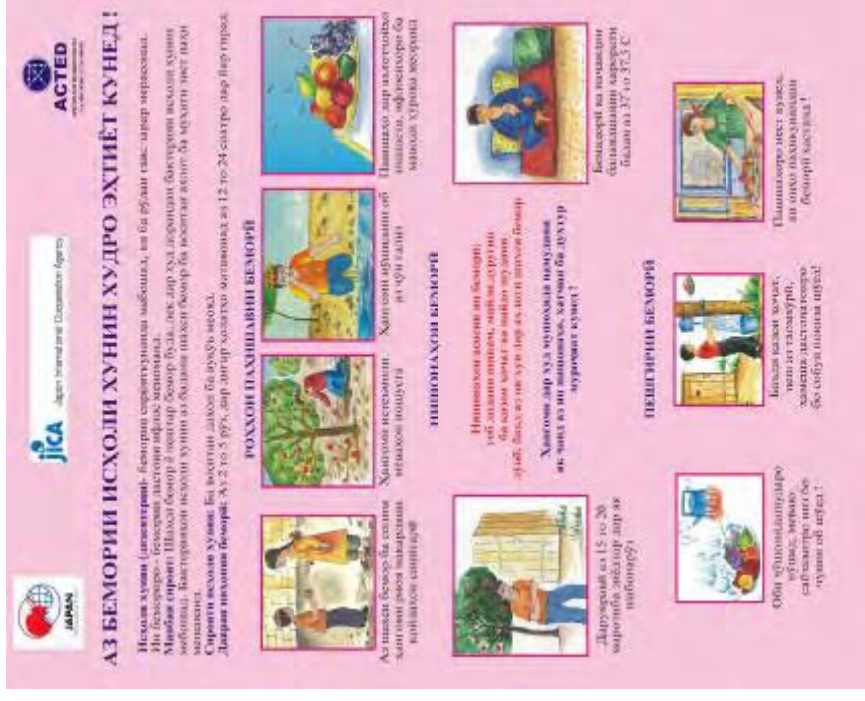


Photo №10 – poster on “Dysentery”

- Helminthosis

Helminthosis – it is a disease caused by parasitic worms settled in humans organism – helminth and their larvae.

In humans organism registered more than 160 types of helminth and 68 of them are located in Central Asia.

Among parasitize helminth in humans body classified 3 types:

1. Nematelminths – asarids, trichuris, trichocephalasis, enterobiasis and others.
2. Cestodes – broad tapeworm, beef tapeworm, pig's tapeworm, darwish tapeworm, echinococcus larvae and others.
3. Fluke worms- cat liver fluke are more common.

Widely spread Nematelminths and Cestodes.

Most helminth are parasitize in intestine, locating in its different parts. Ascarids seteles in thin intestine and pinworms in thick intestine, trichuris in blindgut. From intestine parasites can penetrate to other organs, causing inflammatory processes. In g B all passage of liver and in gall bladder parasitizes flukes. In the stomach's muscular systems, young porkworms are resident. In the liver, lunges, central nervous system, and eye, the parasite echinococcus is present.

Detection in any organ of helminths can lead to its irreparable damage.

Travelling in circulation and lymphatic vessels larvae as alien particles can stick in capillary veins and cause sweat of fluid into the surrounding cells, breaking safety of tissues and organs.

Infection happens in the process of engulfment of helminth larva through:

- Dirty food products (unwashed fruits, vegetables; bad prepared or fried meat and milk products)
- Through water (using of dirty water, accidental engulfment of water in summer period from bare reservoir while swimming, and also using unclean water)
- Through contact (in non-observance of sanitary and hygiene regulations in usage of food products; contact with person who is infected by helminths – his dishes, linen; contact with animals infected by helminths- dogs, cats, livestock, small cattle.)

Symptoms – for each type of helminths is typical different symptoms, depending of which organ is infected. But there is a symptom of helmintosis that is typical for all types:

Patient complains of sickness, indisposition, stomachache. Appears diarrhoea, anorexia or limosis, loss of weight, headache, giddiness, undue fatigue, nightmares. In multiple invasion sleeping children have toothache – grinding; appears itching around anus or genitals (when seatworms comes out from straight intestine in the night); they might have bronchitis, asthmatic suffocation (in ascariasis), anaemia; they become nervous, sparse. On skin appears rounded whitish stains, as in herpes.

In some types of helmintosis in diseased excrements helminths are visible.

Those people who have helminths most of the disease take deeper treatment, and often accompanied by protracted forms of disease, for example tuberculosis, dysentery, scarlet fever and others.



Photo №11 – poster on “Helmintosis”

Complications:

In the process of penetrating to gall bladder and gall ways, ascarids can cause festering of gall bladder, liver, blood, and abdomen. In pancreatic glands canal- inflammation, in appendage- appendicitis, coking of ascarids in clear space of intestine may cause gross obstruction, and also asphyxia in the result of getting of ascarids into respiratory ways: in the all types of helminthosis develops anaemia. Echinococcus brings to kidney, liver, lung and brain injury.

Prevention:

Prevention comes to the protection of environment from pollution (efficient organization and looking after garbage cleaning), supervision of water supply sources, observance of cleanness and personal hygiene, usage of well prepared food, washing hands with soap before using of meal and after the contact with animals.

1.2 Hygiene

What is hygiene itself? It is actions or exercises on personal cleanliness that lead to good health.

Why it is important? Proper observance of hygiene is one of the best methods for protection of your family from infection (stomach, skin, eyes, lungs and others) and disease. Most of the disease and death among younger children are caused by microbes, which gets to their organism by food and water.

● PERSONAL HYGIENE

- Cleanliness of the hands

Wash your hands thoroughly, if possible with soap, after the toilet, before preparing meals, after the contact with raw products, before meals, after washing child's lower parts, after you touch animals. This kills microbes on your hands and preventing their getting to food or your mouth. Children often put their hands into the mouth. That is why it is important to wash children's hands, as often as possible, especially before feeding. Frequently cut their nails. Microbes and helminth larvae often hide under long nails.

- Cleanliness of teeth

Cleaning of teeth with tooth paste and brush in the most method to keep your teeth and gums healthy. If you have no tooth paste and brush with you, use piece of tree for cleaning your teeth with salt and household soda. You must clean your teeth everyday after eating sweets.

- Cleanliness of the body

In the hot weather have a bath everyday. Have a bath after hard work and after perspiration. Frequent baths will help you to prevent skin disease, pimples, and itches. Diseased, including children must bathe every day.

Wash your child's face every day. It prevents from flies touch and from eye disease.

Disease can be prevented, if you wash your hands with soap after contact with faeces and before and after using food products.

● DMESTIC HYGEINE

- Home cleanliness

Clean your house often. Sweep and wash your floors, walls and under furniture. Fill holes and cracks in the floors and walls, where cockroaches, mice and fleas may hide. Try to prevent flies entering the house and places where food is kept.

Do not spit on floor. Spittle can cause disease. While coughing or sneezing cover your mouth with your hand or napkin.

- Products

Meal preparation

Prepare your meal in cleanness. Keep the surface on which you prepare your food clean, because microbes propagate mostly in dirty places.

Provisions, especially meat, must be well-cooked to kill microbes.

Microbes like warm meal. So try to eat your food at once after preparing it, not giving time for microbes appearing and development of infection.

Yesterday's provision must be well warmed up before using for microbes termination.

Raw provisions often dangerous, because usually they have a lot of microbes. Raw provision must be washed well enough. Prepared food can be infected even in insignificant contact with raw provision. That is why raw provision and prepared food must be kept separately.

Wash fruits, which lied or fell on the floor before using. Do not allow to the children to pick up and eat food that they dropped, - wash them beforehand.

Provision keeping

Keep your provisions in solid places: freeze it, if it is possible. Prevent it from infection, cover it, and keep it in boxes or in cupboards. Do not allow flies or other insects to rest on provisions. These insects spread infection. Do not leave food remaining and dirty dishes, as it attracts flies and propagate microbes.

Preparation and keeping of fresh water

Even if water is clear it may contain microbes.

Clean water by boiling it or with the filtration. Protect it from dirtiness and insects.

Another effective way of water preservation is keeping it in clean bottles (take off all labels), in clean dishes or clean plastic canteens. Put it in open space under the sun for the whole day. As long as this water will stay under the sunrays, it is safe. This will kill most of the microbes in the water.

Disease can be prevented by keeping food clean.

Raw food products are very dangerous. They should be well washed or prepared (fried).

Use food after preparing it- do not let it sit.

Warm up your food well enough.

Disease can be prevented by using clean water.

- **HYGEINE OF ENVIRONMENT**

- Ejection of garbage/visit to the toilet

An important rule for preventing of microbes spreading is utilization of garbage and litter in safety places. Most of the disease especially diarrhoea, are caused by the microbes containing in humans faeces. People can swallow these microbes if the get to the water, provision, hands, on kitchen accessories or to the surface used for food preparation.

Use toilets; observe sanitary norms, i.e. bury faeces, down from the sources of drinking water. Use paper or other materials for avoidance of contact with hands. Try to avoid penetration of flies to the toilet. Wash your hands with soap after visiting toilet; toilets must be clean everyday and keep it closed.

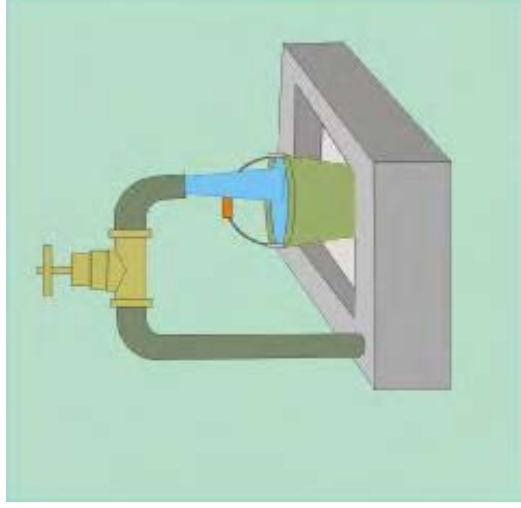
Disease can be prevented, using toilets.

- Removal of Garbage

Throw out your garbage to toilets with cesspools, burn them and bury. Microbes can be spread by flies, which likes to propagate in garbage wastes and fruit and vegetables peel.

Disease can be prevented by burning and burying domestic waste.

VOLUME III – ORGANIZATIONAL CHAPTER



system. The reason for this was that ordinary water users didn't feel themselves as real owners of WUA and in different ways tried to evade from payments for used water.

Therefore to avoid this, in the process of WUA creation, it is necessary to work directly with water user families. WUAs must be created from bottom, during the process of consulting contact with all water users, so that they can understand what WUA itself is, and how they can benefit from it.

1.2 Aims and stages of Water User Association creation.

What is a Water Users Association?

Water User Association – is non-commercial, public organization, created and run by a group of fresh water users, who have united in the frame of one or more water supply system line or network (distribution network, water tanks, pump station and others).

Under the "fresh water users" terminology we consider, those people who use water directly for drinking water, bathing, preparing of food, washing of products, dishes and laundry. Fresh water users are collectively responsible for operation and maintenance of water supply system, including monthly monetary payment for delivered water.



Photo № 12 – Poster propagandize proper usage of water cock.

INTRODUCTION

1. WATER USER ASSOCIATION

1.1 Preliminary principals of successful Water user association creation.

Our experience in Central Asia shows, that in the past most of the Water Users Association were created according to one principal "bottom-to-top" (which means when initiative and realization of its creation was ordered from upper structures). In this case, nobody consulted with ordinary water users and nobody informed them that they are members of WUA. Almost in all cases such WUAs faced corruption, or were unable to cover its expenses, connected with delivery of fresh water, expenses on exploitation and technical service of water supply

1.3 Aims of Small water user groups creation.

In the process of exploitation of technical systems of water supply there is, usually, wearing of spare parts, which needs to be replaced. Various parts of water supply system have different expiration dates, replacement of which is described in technical part. Beside this, it is necessary to carry out preventive, capital, and emergency repair of the water supply system (types of repair and their terms are indicated in technical part). Moreover, for conducting such repair works, constant technical service and explanation of proper exploitation of water systems by ACTED Small Water User Groups (SWUG) are created and united to Water User

Association, which provides sustainability of technical projects of JICA after their implementation.

2. Water user association structure

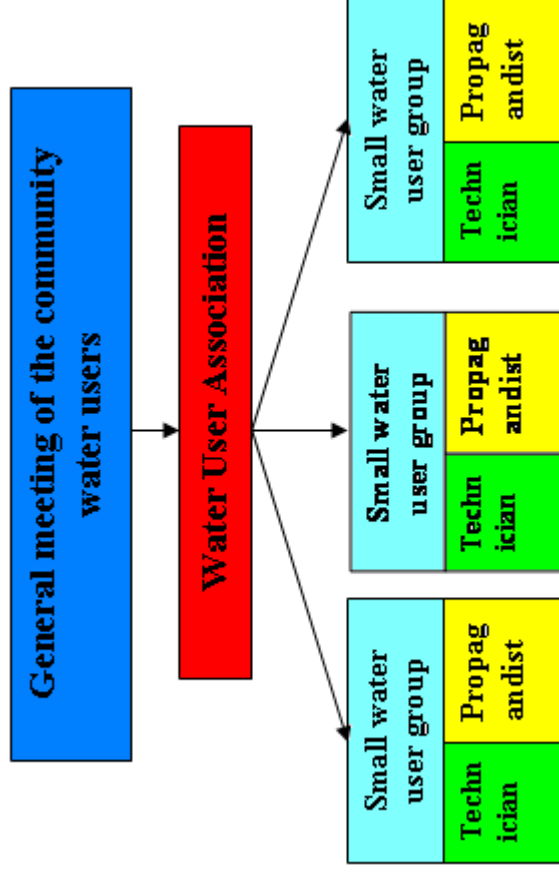
2.1 Organizing structure of Water Supply Association

SWUG is organized and selected by water users i.e. define families, which use the concrete water supply system, getting water from water supply standpost. As a rule, 15-20 water user households, receive water from one water cock, who elects among them their own SWUG. For achieving the best results on technical service and the process of hand over of water supply system to the community, it is reasonable to create SWUG before conducting of technical project on rehabilitation of water supply system. This will allow to members of SWUG to take part in the initial phases of the project, to learn technical skills in the process of water supply system mounting, practically, will allow them to control the quality of constructive works.

On service of centralized system of water supply system it is preferable to create one SWUG for each water cock on general assembly meeting. In applied by ACTED standards of drinking water supply one water cock is for 150-200 users, which makes totally 15-20 households from the community, and they elect members of SWUG. These groups consist of 2-3 members. Head of the group- leader, one technician and one sanitary propagandist. Mostly obligations of leader and technician are run by one person. SWUG will be responsible not only for the technical service of concrete water cock, but also for the indicators of water manometers, installed on concrete water cock with the further transfer of this data to chairman of WUA.

All structures created by WSUG are united by Water User Association. Regulations, administrative staff machinery of water user association are elected on general assembly meeting for all population of the village, because all community is water supply system users. (Regulation sample see in appendix №1). Number of SWUG's are depending to the length of water pipelines, number of tanks, gauge cocks. One SWUG will be responsible for technical service and repair works of water supply point and think, starting and disconnection of electrical deep pump. Another SWUG – technicians will be responsible for technical condition of water pipelines, for working conditions of water cocks, concrete grounds, also there will be responsible people for the working conditions of tanks and water manometers. Propagandists will be responsible for the sanitary conditions of the area around water supply point. Repair procedures and listed technical services of water supply point are written in the technical chapter.

2.2. Scheme-6. Structure of Water User Association.



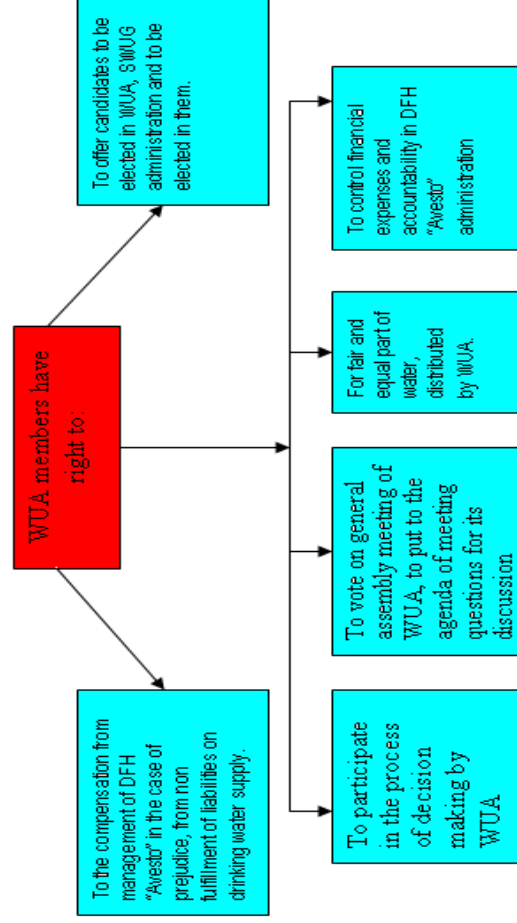
There are 66 SWUGs. Though each SWUG is responsible for 1-2 water cocks, anyway in general community of water users will be responsible for constant technical service of established water supply system, its sustainability. This is why it is recommended to use it properly by the each inhabitant of the village.

2.3 Rights of WUA members

- implement control for financial expenses (tariffs for water, expenses for repair of water supply system and etc.), for the quality of drinking water.
- to the compensation from management of DFH "Avesto" becoming member of WUA, drinking water users can benefits from following.
- Rational distribution of drinking water between all users, unaffected from their arrangement along water pipeline;
- Reliable and permanent supply with drinking water;
- Quick solving of arguments, connected with water supply on places;

- Management of water supply and maintenance in appropriate technical condition;
- careful and economical usage of water;
- To control financial expenses (tariffs for water, expenses for system repair and others).
- to the compensation from management of DFH "Avesto" in the case of prejudice, from non fulfillment of liabilities of DFH "AVESTO" on drinking water supply.
- For fair and equal part of water, distributed by WUA.
- To vote on general assembly meeting of WUA, to put to agenda of meeting questions and be elected to the management of WUA.

2.4 Structure of Water User Association rights.



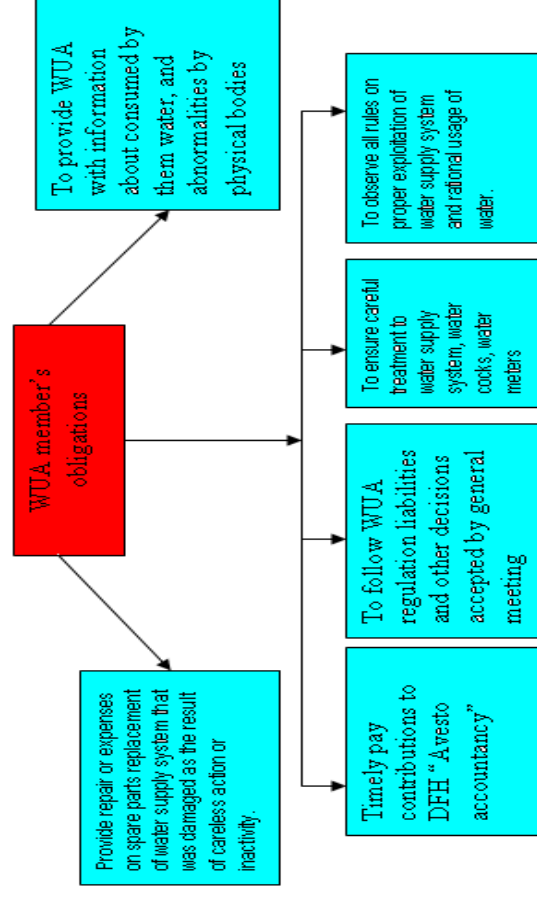
Scheme - 7 WUA rights

2.5 Obligations of WUA Members

- Except rights, WUA members have also obligations near Association.
- to observe regulations and another legal acts of Association.

- Defer to decisions of general meeting and management.
- Timely implement his liability near association.
- Fully and in deadlines implement payments for water according to the indicators of water meter.
- provide repair or expenses on spare parts replacement of water supply system, which were damaged as the result of careless action or inactivity.
- to ensure careful treatment to water supply system, water cocks, water meters; propagandize sanitary works among population.
- to observe all rules on proper exploitation of water supply system and rational usage of water.

2.6 Structure of water user Association liability



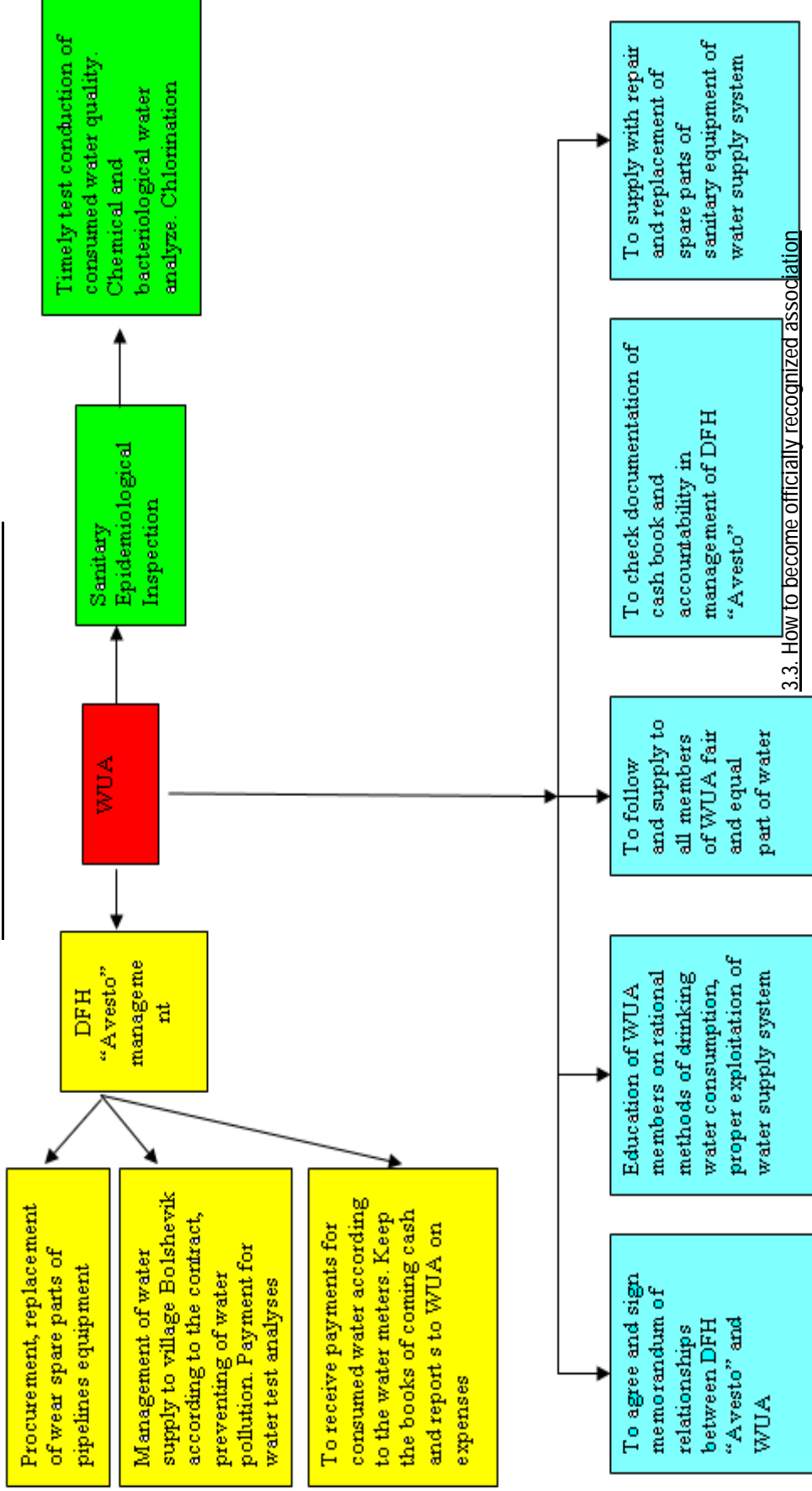
Scheme – 8 WUA members liability

3. ADMINISTRATIVE ASPECTS.

3.1 Relationship with local authorities.

Receiving the maximum amount from the population provides opportunities to contribute to the repair and maintenance of the water supply system and to create an organization, which can offer its services for several villages at once. Supplying with clean drinking water from tanks to water users is carried out by gravity on water pipelines system through 72 water taps- cocks. The advantage of this is that the organization is active, thereby, enhancing its legality. Furthermore, this can help to establish cooperation with local authorities on collective farm "Avesto" or Jamoat Khudoyqulov level, to provide connections with Sanitary Epidemiological Inspection.

3.2 Scheme -9. Administrative structure of WUA



3.3. How to become officially recognized association

In frame 2, the necessary laws pertaining to association registration are outlined.

<p>Frame 2 – Official registration of association.</p> <ul style="list-style-type: none">- Law of the Republic of Tajikistan № 213 from November 21, 2006 “On water user associations”.- Decree of Majlisi Oliy of the Republic of Tajikistan on 2006 №11 article 474 «On water user associations»- Civil code, № 799, June 30, 1999- Articles 133/134/135 defines rules for association establishment- Civil Law, № 644, May 23, 1998- Water code article 43. Water user Association rights – Unification to water user association.- Minutes of Governmental commission №45/2-13 «On reorganization of cultural enterprises near Prime-Minister of RT»- Order of Ministry of water economy №187 from 31.08.2000- Order of Regional administration of water economy and Regional administration of cultural economy №89 and №35 from 14.06.01- Developed action plan «About creation of WUA approved by the president of RT and Region Chairman from February 17, 2000 and from June 26, 2001- In the republic developed project of exemplary Water Users Association Regulations and approved by the Ministry of Water economy and by the Ministry of Cultural economy and send to everyone as methodical visual-aid material for WUA creation at places.- By the assignment of Government of the RT №13-6 from March 19, 2000 was given indication to the Ministry of water economy, Ministry of cultural economy, land committee, Regional Hukumats to assist in any issue on WUA creation at places. <p>Registration as local municipal association with their local justice department. Registration of Association in Republic sub-districts is carried out in the Ministry of Justice in Dushanbe</p>
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associations, as the main link of drinking water supply is described in Frame 3. Legal documents see in appendix III.

3.4 Laws of the Republic of Tajikistan on Water User Associations

Frame 3 – Laws of the Republic of Tajikistan on Water User Associations

In creation of Association, it is awarded by the Association status (WUA), on the base of Water code (№34, 29 of November, 2000), which gives to WUA rights of potential water user.

Such associations are already created for the management of irrigational waters, and Non-governmental organization as ACTED, CARE, Tajik agency TASIF and Republic centre on support of privatization of collective farms are engaged with the creation of such associations.

As concerning to the official registration of water user Association, it can be realized if its founders are legal entities, according to

- The law of the Republic of the Tajikistan № 213 from November 21, 2006 «On water user associations»
- Decree of Majlisi Oliy of the Republic of Tajikistan 2006 №11 article 474 «On water user associations»

See example of Water User Associations in Appendix II.

Though, decentralized management of drinking water at the same time can be considered as such WUA, as independent association. This type of organization (have WUA structure or independent organization) usually called Water village organization (in the project of International Bank on cultural rehabilitation) or Water Sanitary Committee (in the project of Asian Development Bank on cultural rehabilitation).

According to the Law of the Republic of Tajikistan № 213 from November 21 2006 «On water user association» and Decree of Majlisi Oliy of the Republic of Tajikistan 2006 №11, cr.474 «On water user association» registration of WUA is allowed only for legal entity. In addition, as the population of Bolshevik village constitute physical bodies, they can create formal, social WUA without legal registration.

Having special task for management of drinking water on households level, administration of DFH “Avesto” can act as juridical entity for creation of officially registered, in the Ministry of Justice “Water user Association”. Regulations of registered Association see in Appendix II. In reality this form of association is for the management of irrigational water already created in the Republic of Tajikistan, may have prosperous future for the development of some

Some of the main advantages in the process of official registration:

- Formulation of Association labour rules (such as appointment procedures and settling of members obligations, internal regulations and financing control mechanisms, tasks and obligations of administration).
- Supporting of work, earning recognition of population and making population fully responsible for their work,
- Possibility to open bank account for organization.

4. Financial aspects

4.1 Basic features of financing system

In financial management system of WUA there are existing categories of expenses and revenues, and its balance will help to evade crisis in financial management.

4.2 Category of expenses.

- Capital depreciation

This category of expenditure, because it is not so visible in the daily functioning, is likely to be forgotten. However, if the financial management of the organization is not taken into account, soon or later the Organization will face some serious problems which might lead to the total collapse of the structure. The capital depreciation component represent the lost of value of the initial assets made available to the Organization, i.e. equipment and spare part of water supply system. Not considering these aspects may lead to the organization collapsing.

- Options to reduce expenditure

Consist of the following:

- Observance of proper exploitation of Water supply system
- Qualitative implementation of repair works, in the accordance to building code (there will be no need for elimination of defects).
- Timely payment for consumed water.
- Timely repair of sanitary- technical equipment.
- Regular technical supervision of sanitary- technical equipment.
- Rational and protective relation to water resources.
- Procurement of qualitative construction materials.

4.3 options to raise revenue

- Community contribution

It is likely that the community contribution will represent the main source of revenue. In any cases, this component is crucial from an educational point of view for population. Indeed, people of the former Soviet Union are not used to paying for public services, which according to their culture is to be provided free by the State. Such an approach is no longer viable in most of the developed economies and switches towards progressive payment of the population for public services needs to be initiated.

The community contribution can take the form either of regular payment for using fresh drinking water according to the water meters, and also for the defined quantity of services. This contribution may be paid as cash or as natural barter (grain, livestock) also in the accordance of DFH "Avesto" administration, can be deducted from their salary.

- Extra funding

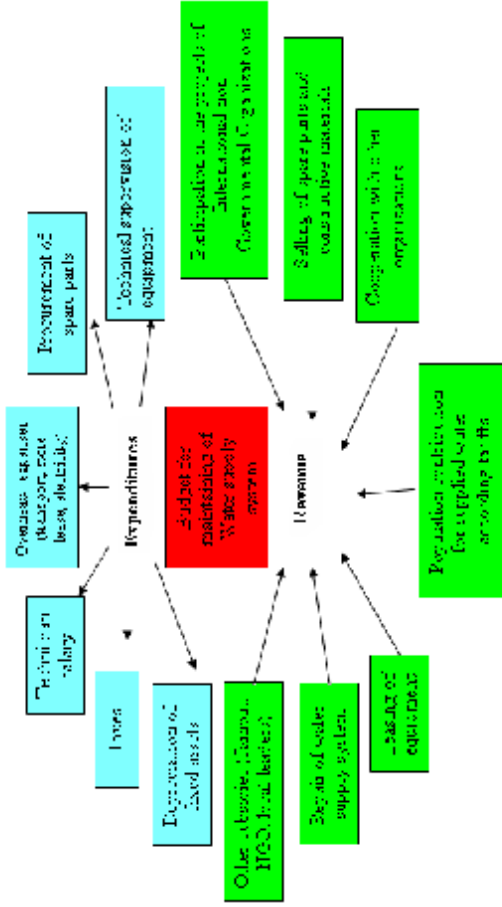
As sources of extra- funding may become funds, organized by Mahalla committees at the expense of voluntary contribution of some wealthy people of the community (in cash or any other form), subsidies or preferential tariffs from local authorities – Jamoats (Hukumats), Water Canal organizations, or a Mini-project supported from outside. In addition, WUA can cooperate with other organizations, to participate in water supply systems rehabilitation tendering, conducted by various international organizations and local funds. Beside this Water User Associations might even have their own monetary funds.

4.4 Forming of WUA fund

For the technical maintenance and repair of water supply system, WUA must own material – technical resources. For the procurement of necessary spare parts SWUG's must have defined monetary funds. This fund must be established by those families who are concrete water users. In this case, the population may use micro- credit (if there is such opportunity) or establish accumulation fund from the monthly contributions that comes from families that use an exact water cock or tap. As practice showed, monthly accumulation funds are more convenient for the population and do not demand large financing in the case system breakage. In any case the type of capital fund is decided by the community.

4.5 Scheme of budget for maintaining of water supply system. Expenditures and Revenue

Scheme 10. WUA budget. Expenditures and Revenue of WUA.



4.6 Forms of management system

- DFH "AVESTO" AS A SERVICE PROVIDER
Provision of services to demanding villagers only, Comparable to the private company approach, Contractual payment, depending, from the quantity of work, but with the calculation of established tariffs.
- DFH "AVESTO" AS AN OPERATOR
Conduction of systematic repairs based on a regular monitoring, Comparable to the governmental agency approach which provide permanent maintenance, Justify monthly payment of the population at a fixed rate.

4.7 Fixation of tariffs

To fix a tariff in the case of the management system of "DFA" being that of an Operator is rather difficult.

In the case of the management system being that of a Service Provider, the calculation is a bit easier but still needs to be done with care. Indeed, there will be 2 main types of tariffs: retailing of spare parts and monthly fees for used water, according to the indications of water manometer. In order to cover the capital depreciation, spare parts have to be sold at least at their original cost, and provisions shall be made for transportation costs of delivery. The rental tariff will have to take into account two different assumptions: the life span of the equipment and the estimated number of days of rental per year. From this the minimum daily rental tariff can be calculated that will ensure replacement of the equipment. Provision will have to be made for price actualization and coverage of the maintenance costs. Tariffs for supplied water must take into account cost for electricity, wear of equipment, depreciation and laid on expenses. From that, we have minimal tariff for 1 m3 of supplied water.

Should no other Extra-funding being available, some benefits will have to be secured over the Community contribution in order to cover the Structure costs as well. In such a case, one will quickly be aware that the easiest is to reduce the structure costs from the beginning. It is worth to underline that the tariffs should be fixed for good from the beginning with very little revision then, in order to gain immediate trust from population and any change of price for resources.

5. Operational aspects

5.1 Staff employment

The staff of the executive branches of the Organization, the operational body in itself, can be provided:

- Either on the basis of informal involvement, to be rewarded by means of a compensation given proportionally to a given contribution,
- Or on the basis of a formal employment of personnel, thereby due to have proven technical skills related to a given field of activity and defined working hours. In this case, the staff is hired by means of contract, and a sample is given in Appendix IV.

5.2 Warehouse

This place shall be under the full responsibility of the management of DFA "AVESTO" who shall ensure that the stocks match the information given in the stock keeping form. A sample of stock keeping form is given in Appendix IV.

5.3 Cash box and bank account

The cash shall be under the full responsibility of the accountant of management of DFH "AVESTO" who shall ensure that the cash box/bank account status match the information given in the accounting book.

A sample of accounting book sheet is given in Appendix IV.

5.4 Financial control mechanisms

Ideally, the financial control mechanisms shall take place at least according to the here-under agenda:

- On a monthly basis from the Accountancy of DFH "AVESTO",
- On a yearly basis from the management of DFH "AVESTO" to the Administrative council, and to the extent possible it should include a projection relating to the Organization's capital depreciation (a form of financial report is given in Appendix IV).

6. Conclusion

There is no standard way to form a successful Water User association on technical content and repair of water supply system. Since some key principles are followed there is no easy solution, and all will be question of permanent trade-off between:

- The 2 types of management system that is WUA and management of DFH "AVESTO" on whose balance water supply system is. This relations can be established , taking into consideration their implication in terms of financial balance and organizational structure,
- The degree of collaboration with local authorities,
- The level of formalization of the structure, namely the rules for the definition of its administrative bodies and the mechanisms to regulate their relationships, but also the possible legal registration of the Association.

In any case, the functioning of the Organization will take all benefit from being governed by representation, legitimacy, accountability and transparency.
Regulation of social organization NGO association of Water Users is given in Appendix IIV.

Appendix 1

Project of exemplary regulations
Of Water User Association, without legal registration.
WUA created in privatized lands

PROJECT: "Exemplary regulations of Water User Association - WUA"

"Approved "

On constitutive meeting
Report №1 from 24th of September, 2008.

Regulations
of Water User Association
— "Avesto" —
Statute of Water users associations
Created on privatized lands

1. General situation

1.1 Association of water users in Bolshevik village of Qabadiyan district (hereinafter called as 'the Association'), is created on the basis of voluntary union of land users in the irrigation area (area of water users) in correspondence with the acting law of RT. It is conducting activities in correspondence with the Water Code, Ruling of RT dated 25 June 1996 #281 "About the affirmation of situation on the money collection for water related service for consumers from state irrigation systems", others prescriptive and law acts and this statute.
The Association is created in the framework of the JICA project – "Rehabilitation of water supply system in Bolshevik village of Qabadiyan district and corresponds to the project of "Privatization of kolkhoz corporation farms" supported by The Government of RT.

1.2 Name of the association

An official full name of the association is Water Users Association "Water User Association "Avesto" of Qabadiyan district.

The short name of the association is "WUA "AVESTO"

1.3 legal address

The legal address of the association is RT, Qabadiyan district, Bolshevik (town) village, _____ street, # of house _____.

1.4 Working Area

WUA consists of 72 taps located in the village streets. WUA activity is limited by the territory of and by the number of members but not limited by the time. Working area is divided into 66 Small Water User Groups, representatives of different areas of the village.

1.5 Operational period

The period of association operation is not defined.

1.6 Establishers

The establishers of the association are following legal and (or) physical bodies:

1. _____
Name of physical body, number and date of the state registration
2. _____
3. _____
4. _____

1.7 Status of association

Water User Association "Avesto" is created on water users' initiative, on the basis of private property of its establishers in the form of Voluntary Corporation with limited responsibility. Association is non-commercial organization, and its main aim is not to make money from conducted activities, and does not distribute incomes among management board nor its members.

Association possesses uses and officiates its activity on the basis of Constitution of Republic of Tajikistan property in correspondence with their purpose. Association guarantees the third bodies with all its property. The members of the association are responsible for the property. Association is not responsible for the duties of its members.

2. Aim, tasks and rights of association

2.1 Aim of association

Association is created purposing to support, exploitation, and maintenance of centralized water supply network on the territory of Bolshevik village of Qabadiyan district, management of system, collecting of fees for consumed water, solving of arguments arising during water consumption and also for other issues.

2.2 Task of association

The main tasks of the association are:

- Work implementation for supporting of the existing water supply network, water supply point, distributive tanks and constructions in working conditions, creation of new construction network;
 - Maintenance, exploitation, repair and rehabilitation of the secondary (tertiary) network of water supply, from the distributive tank, (slot meter) distribution up to the individual borders of property (individual slot meters-water meters);
 - Distribution of drinking water among the members of Association and control over its rational use;
 - Maintenance and exploitation of pump installation, regulation and water-measuring constructions;
 - Provision with nature-securing measures, including averting from flooding, eroding of canal sides, land erosion, rising damp and bogging up of lands, contamination of water resources;
 - Co-ordination of members' activities and presentation of their interests dealing with water organizations and other third bodies;
 - Collection of fees for the proposing service and implementation of share to the water supply organizations;
 - Solving of problems and conflicts between the members of the Association, regarding water use;
 - Implementation of other works regarding the improvement of water supply system on the appointed territory.
- ### 2.3 Rights of the association.
- 2.3.1 Association has the following rights for the implementation of the tasks, defined by this statute:
- To sign other contracts and agreements as on the territory of Tajikistan, so beyond it, in correspondence with the acting legislation;
 - To procure (acquire) all necessary property, property and non-property rights;
 - To create joint corporations and unions;
 - To receive credits, required for works' conduction on reconstruction and rehabilitation of existing and installation of new water supply networks;
 - To assume instructions and other normative documents, for association activities' regulation;
 - To conduct other activities, according to the legislation of RT.
- Activity liable to license in accordance to the RT legislation can be implemented after the reception of the relevant license.
- In case of withdrawing or exit from the Association membership, last one has a right to blockade the water supplying and to demand the moving of one part of the network. Association is on-going with the water supplying, informing the water organization about it and stopping to pay for water use of the member, who left the Association.

2.4 Relationship between Association and Water organizations

2.4.1 The relationship between Association and local water organizations on maintenance, exploitation, repair and technical securing water supply network, etc. is set on the agreement basis.

2.4.2 Association in the beginning of a year creates a plan of water user in agreement with water organization, and in the accordance with this plan signs contracts for water supply

2.4.3 Association realizes the payment to water organization for water delivery and other service of agreement given in accordance with the Legislation.

2.4.4 Association realizes the registration of water delivery co-operatively with water organization;

2.4.5 In case of water non-delivery to the Association or breakdown of water delivery schedule because of irrespective reason by the water organization, the council created by the local executive power, involving interested organs for participation in the process – defining of damage volume. Special acts are comprised and handing over to the relevant organizations for execution.

3. Members of the association, their rights and obligations

3.1 Members of the association

Members of the association can be legal and physical bodies, land users, in the inhabited localities of Qabadiyan district, which take water from one source (water reservoir, main irrigation canal, pump station).

3.2 Admission and expel of members

The admission and expulsion from the membership are realized by the general meeting. Decision of general meeting about admission of general members are accepted with taking into account condition of facilities and technical possibilities of water supply network add-ins. Application for admission will be considered by administration within 2 weeks. A legal or physical body after the meeting approval about the admission into the Association membership is considered as a member of the association after the contribution of required share into the statute fund during 10 days period.

3.3 Rights of the members

The members of the association have a right to:

-Rational distribution of drinking water between all users, unaffected from their arrangement along water pipeline

- Reliable and permanent supply with drinking water;
- Accept the Association's service in correspondence with its statute;
- To receive technical services, providing improvement of water quality;
- Quick problem solving connected with water supply at places;
- To participate in making of decision of WUA;
- Management of water supply and maintenance in appropriate technical condition;
- Careful and economical usage of water;
- To implement control for financial expenses (tariffs for water, expenses for system repair and others).
- To the compensation from management of DFH "Avesto" in the case of prejudice, from non fulfillment of liabilities of DFH "AVESTO" on drinking water supply.
- For fair and equal part of water, distributed by WUA.
- To vote on general assembly meeting of WUA, to put to agenda of meeting questions and be elected to the management of WUA.

- To offer candidates to be elected in WUA administration

- To have an information on accountancy data.

- To use Association services in the accordance with the regulation.

- lodge a complaint against General meeting and administration of the Association

3.4 Members' obligations

The members of the association are obligated to:

- Observe the statute and other laws of the Association;

- Obey to the decisions of the general meetings and management board;

- Implement his (her) duties regarding the Association in time, to pay for the service fully and in appointed period, and to pay out his (her) shares in the statute fund.

-Timely payment of fees for consumed water, according to the tariffs to DFH "AVESTO"

3.5 Members' responsibilities

3.5.1 Any member of the association, who is not implementing requires of this statute, is excluded from the Association by the general meeting's decision.

3.5.2 In case of rules' breakdown of the statute, and as a result association had damages, the general meeting can require compensation of damage or arose judicial action with fixing of responsible person, who will represent the Association at the judicial process.

3.5.3 On the contribution and accounts, not paid during 30 day from the day of their payment, is subtracted 0.2 penny per each overdue day. In case of non-payment, during 6 months, the water supply is aborted and the question of debtor's expel from the Association is discussed at the nearest meeting.

4. Management and control boards of the Association

4.1 Competence of the general meeting

4.1.1. The general meeting is the highest organ of management of the Association and solves all the problems connected with its activity.

Exclusively, to the competence of general meeting are related following:

- Statement of regulations and making corrections in it in the case of necessity
- Admission and expel of the Association members;
- Selection of the management board and its president;
- Selection of financially controlling panel;
- Budget affirmation for forthcoming financial year and annual report on financial activities of the Association;
- Discussion of Association management reports by DFH "AVESTO" and controlling panel;
- Identification of the main directions of the Association activity, as well as plans and schedules of water distribution for the irrigation period;
- Identification of the tariffs among association members in the accordance of consumed water by households;
- Creation of Association funds and identification of filling order.
- Making of decisions on Association's liquidation.

4.1.2 Internal legal documents (settings, instructions, rules), are accepted on exploitation issues, repair and technical maintenance of water supply networks and constructions on them, intake and delivery of water, establishment of order and volume of payment for Association service, compensation of damages from schedule breakdown of water supply, etc.

4.2. General meetings

- General meetings are organized not less than 3 times a year by the management board of the association. Special meetings may be organized by the management initiative, financially controlling panel or not less than in proportion as 1/3 members of Association.
 - The members of the association should be aware of announcements on meeting convocation with agenda of the meeting not later than for 10 days before its beginning.
 - By the requests of the 1/3 members of the association, they can change the agenda and include some additional information.
- In the case of convocation of special meeting participants must be aware of reasons and agenda of the meeting. In the case non-fulfilment of convocation during one-week members of association have rights to conduct special meeting independently

4.3 Quorum of the general meeting

2/3 members of the association are creating the quorum for making decisions on the general meeting.

Absence of quorum causes the reiteration of general meeting not less than after one week. In case, if the quorum is not done again, than the members have a right to take decisions.

4.4. Order of voting

-Decisions on changes' inclusion into the statute and liquidation of the association are made by the overall majority of members' votes (in proportion of 2/3), all other questions (selection of management and its chairman) are decided by the rest majority of votes.

-Decisions are taken, as a rule by open elections. The organs of management and control are elected by the general meeting's decision through voting by a show of hands (open) or voting ballot.

-Each member has only one vote, irrespective of volume of share he's got from association.

- Members of association can be presented by another person who has his power of attorney. In this case authorized member can present their voices, but not more than three voices including his own.

4.5 Association's management board

- Management board is the executive organ accountable to the general meeting and has a right to take any decisions of their competence, indicated by the Statute and the general meeting.

- Management board and its chairman are elected on the general meeting for 1 year period, which should consist not less than 3 persons. Management board consists of a chairman – specialist on organization of WUA, technician on organization of water supply point and pump station, agent on data collection from water metres.

- Relatives cannot work together in the management board of association. The members of management can be re-elected for a new period, but not more than 2 times in succession. They also can quit before the appointed time, by the decision of the general meeting in case of his (her) statute breakdown or acting legislation.

4.6 Management convocation and voting

The management of the association is called in case of need, but not less than 2 times a month. The quorum for taking of decisions – not less than 2/3 out from the number of members of the management board. Each member of the management board has one vote. Decisions are made by the major part of the present members of management. In case of equal number of votes, the chairman's vote is deciding. Management, also, can be called by the SWUG's request or 2/3 members of WUA

4.7 Management board's competence

Management:

- Represents Association in relations with the Management of DFH "Avesto".
- Follows –up the registration of water metres and presents to the Management of DFH "Avesto" register for the deduction from salary of water users. Presents to the general assembly of water users report on financial- economical activity and balance of the association in the end of a year;
- Organizes general meetings;
- Presents to the general meetings the questions on acceptance to the Association and expel from it;
- Makes monthly and quarter reports and other operational documents. Approves work estimation provided by annual budget;
- Prepares for the general meeting the programme of Association development and proposals to the questions, connected with the on-going activity as well as take and grant on lease the property.
- Follows –up the accountancy registration, take the payment for the Association service and realize payment of Association to Management of DFH "Avesto".
- Recruits the specialists to the work in the association in the limit of expenditures estimation, provided by the budget.

5. Budget and transparency of the association

5.1 Affirmation of Association budget

5.1.1 The management develops the budget of association for forthcoming financial year and each article is discussed and affirmed by the general meeting not later than 15 December. The financial year is beginning from the 1st of January and ends on the 31st of December.

5.1.2 Amendments can be included into the budget (in case of need) at the end of the financial year by the decision of the general meeting. Particularly, if the income of the Association is small enough for the service supporting, the budget may be balanced by payment rising for the service of Association reduction of expenses.

5.1.3 By the decision of the general meeting are created Reserve Funds of the Association in a form of share from the pure income for Association's development, extraordinary cases and insurance.

5.2 Budget income

The budget incomes may come from:

- Material and monetary shares of the establishers;
- Payment from the members of Association for water use and service for exploitation, repair and technical service of secondary (tertiary) irrigation network and constructions;
- Credits and assistance of international organizations;
- Subsidies of state and local budgets;
- Benevolent contributions of legal and physical bodies;
- Fine (penalty) for rules' breakdown of water use and salaries' delay to the members of the Association;
- Other sources, which are not forbidden by the legislation.

6. Liquidation of Association, resolution of moot points

6.1 Liquidation of the association

Liquidation of the association can be done in the following ways:

- General meeting's decision;
- Judicial decision in the foreseen legislation order;
- In other cases, foreseen by the legislation acts.
- In Liquidation of the association by the general meeting of founders – liquidation commission is created

6.2 Resolution of moot points

The moot points of association with legal and physical bodies are decided through negotiations. Otherwise, otherwise the law court or economical court solves them.

APPENDIX II – Water Users' Association STATUTE - SAMPLE

Statute of Water users associations
created on privatized lands

1. General situation

Association of water users "_____ " of _____ district (hereinafter called as 'the Association'), is created on the basis of voluntary union of land users in the irrigation area (area of water users) in correspondence with the acting law of RT. It is conducting activities in correspondence with the Water Code, Ruling of RT dated 25 June 1996 #281 "About the affirmation of situation on the money collection for water related service for consumers from state irrigation systems", others prescriptive and law acts and this statute. The Association is created in the framework of the project – "Privatization of kolkhoz corporation farms" supported by The Government of RT created by the Republican centre on support of farm privatization in RT.

1.1 Name of the association

An official full name of the association is Water Users Association "_____ " of "_____ " district.

The short name of the association is "_____ ".

1.2 A legal address

The legal address of the association is RT, _____ district, _____ (town) village, _____ street, # of house _____.

1.3 Operational period

The period of association operation is not defined.

1.4 Establishers

The establishers of the association are following legal and (or) physical bodies:

1. _____ Name of legal body, number and date of the state registration

2. _____
3. _____
4. _____

1.5 Status of association

Association is created on water users' initiative, on the basis of private property of its establishers in the form of Voluntary Corporation with limited responsibility. Association is a legal agency, has special property and autonomous balance, round stamp, angular cliché and company blank, calculation, currency and other accounts. Association possesses uses and officiates its property in correspondence with their purpose. Association guarantees the third bodies with all its property. The members of the association are responsible for the property. Association is not responsible for the duties of its members.

1.6 Statute fund

The statute fund of the association is formed out from the shares of establishing members and consists of _____ TJS.

Each establisher should possess at least with one share. Shares among establishers are divided in the following order:

Name (full name) of establisher, quantity of shares, sum in TJS.

Total sum of statute fund should be paid out during one year from the moment of registration of Association statute.

In case of non-contribution of this sum by the establisher into the statute fund, at the general meeting are discussed and taken decisions on membership issue in the Association.

. Aim, tasks and rights of association

2.1 Aim of association

Association is created purposing to support irrigation and drainage networks on the territory, consisted from land plots on the inhabited localities _____ of _____ district.

2.2 Task of association

The main tasks of the association are:

- Work implementation for supporting of the existing irrigation network, drainage network and constructions in working conditions, creation of new construction network;
- Maintenance, exploitation, repair and rehabilitation of the secondary (tertiary) network of irrigation canals, constructions and drainage on them, from the point of main canal "_____ " (slot meter) distribution up to the individual borders of property (individual slot meters-water meters);
- Distribution of irrigation water among the members of Association and control over its rational use;
- Maintenance and exploitation of pump installation, regulation and water-measuring constructions;
- Cleaning of drainage networks, conduction of irrigation works, irrigation of lands.
- Provision with nature-securing measures, including averting from flooding, eroding of canal sides, land erosion, rising damp and bogging up of lands, contamination of water resources;
- Control over water distribution on the territory of association and provision of the networks with water-measuring equipment;
- Reconstruction and installation of irrigation and drainage network;
- Co-ordination of members' activities and presentation of their interests dealing with water organizations and other third bodies;
- Collection of fees for the proposing service and implementation of share to the water supply organizations;
- Solving of problems and conflicts between the members of the Association, regarding water use;
- Implementation of other works regarding the improvement of water supply system on the appointed territory.

2.3 Rights of the association.

2.3.1 Association has the following rights for the implementation of the tasks, defined by this statute:

- To sign other contracts and agreements as on the territory of Tajikistan, so beyond it, in correspondence with the acting legislation;
- To procure (acquire) all necessary property, property and non-property rights;
- To create joint corporations and unions;
- To receive credits, required for works' conduction on reconstruction and rehabilitation of existing and installation of new irrigation and drainage networks;

- To assume instructions and other normative documents, for association activities' regulation;
- To conduct other activities, according to the legislation of RT.

Activity liable to license in accordance to the RT legislation can be implemented after the reception of the relevant license.

2.3.2 Association is able to give such a right of "Passage" to the land user, if he agrees, which is required in irrigation and drainage purposes and other irrigation works. The land user, who received the passage right, receives relevant compensation from the association.

2.3.3 In case of withdrawing or exit from the Association membership, last one has a right to blockade the water supplying and to demand the moving of one part of the network and constructions from his land. In case if the land user refuses to implement it, association has a right to do it with the compensation of expenditures, including the expenses for the additional averting of lands, in account of land user. If the moving of the network is not feasible technically, Association is on-going with the water supplying, informing the water organization about it and stopping to pay for water use of the member, who left the Association.

2.4 Relationship between Association and Water organizations

- 2.4.1 The relationship between Association and local water organizations on maintenance, exploitation, repair and technical securing of irrigation and drainage network, etc. is set on the agreement basis.
- 2.4.2 Association in the beginning of a year creates a plan of water user in agreement with water organization. The further agreements on water delivery are signed according to this plan.
- 2.4.3 Association realizes the payment to water organization for water delivery and other service of agreement given in accordance with the Legislation.
- 2.4.4 Association realizes the registration of water delivery co-operatively with water organization;
- 2.4.5 In case of water non-delivery to the Association or breakdown of water delivery schedule because of irrelative reason by the water organization, the council created by the local executive power, involving interested organs for participation in the process – defining of damage volume. Special acts are comprised and handing over to the relevant organizations for execution.

3. Members of the association, their rights and obligations

3.1 Members of the association

Members of the association can be legal and physical bodies, land users, in the inhabited localities "_____ " of _____ district, limited by the perimeter on secondary (tertiary) irrigation network and constructions, which take water from one source (water reservoir, main irrigation canal, pump station).

3.2 Admission and expel of members

The admission and expel from the membership are realized by the general meeting. The management board views applications for admission during 2-weeks time. A legal or physical body after the meeting approval about the admission into the Association membership is considered as a member of the association after the contribution of required share into the statute fund during 10 days period.

3.3 Rights of the members

The members of the association has a right to:

- Accept the Association's service in correspondence with its statute;
 - Elect and to be elected into the management board of the Association, participate in activities and elections during general meetings, receive information about its activity, use other rights on co-operation, allowed by the Legislation;
 - Receive his (her) share in case of leaving or expel from the association. Thus, payment of share is realized by the decision of the general meeting after the reimbursement of all members' debts.
- In case of some member's death, his rights are handing over to one of the legal heir (relative) with the general meeting's approval.

3.4 Members' obligations

The members of the association are obligated to:

- Observe the statute and other laws of the Association;
- Obey to the decisions of the general meetings and management board;
- Implement his (her) duties regarding the Association in time, to pay for the service fully and in appointed period, and to pay out his (her) shares in the statute fund.

3.5 Members' responsibilities

- 3.5.1 Any member of the association, who is not implementing requires of this statute, is excluded from the Association by the general meetings decision.
- 3.5.2 In case of rules' breakdown of the statute, and as a result association had damages, the general meeting can require compensation of damage or arose judicial action with fixing of responsible person, who will represent the Association at the judicial process.
- 3.5.3 On the contribution and accounts, not paid during 30 day from the day of their payment, is subtracted 0.2 penny per each overdue day. In case of non-payment, during 6 months, the water supply is aborted and the question of debtor's expel from the Association is discussed at the nearest meeting.

4. Management and control boards of the Association

4.1 Competence of the general meeting

4.1.1. The general meeting is the highest organ of management of the Association and solves all the problems connected with its activity.

Exclusively, to the competence of general meeting are related following:

- Admission and expel of the Association members;
- Selection of financially controlling panel;
- Budget affirmation for forthcoming financial year and annual report on financial activities of the Association;
- Discussion of management reports and controlling panel;
- Identification of the main directions of the Association activity, as well as plans and schedules of water distribution for the irrigation period;
- Acceptation of settings, instructions, rules, which regulate the Association activity in correspondence with the Statute;
- Identification of the share volume in the statute fund in order of income apportion among the members of the Association in correspondence with the shares in the statute fund;
- Creation of Association funds and identification of filling order.
- Making of decisions on Association's liquidation.

4.1.2 Internal legal documents (settings, instructions, rules), are accepted on exploitation issues, repair and technical maintenance of irrigation and drainage networks and constructions on them, intake and delivery of water, establishment of order and volume of payment for Association service, compensation of damages from schedule breakdown of water supply, etc.

They also can quit before the appointed time, by the decision of the general meeting in case of his (her) statute breakdown or acting legislation.

4.2. General meetings

General meetings are organized not less than 3 times a year by the management board of the association. Special meetings may be organized by the management initiative, financially controlling panel or not less than in proportion as 1/3 members of Association. The members of the association should be aware of announcements on meeting convocation with agenda of the meeting not later than for 15 days before its beginning. By the requests of the 1/3 members of the association, they can change the agenda and include some additional information.

4.3 Quorum of the general meeting

2/3 members of the association are creating the quorum for making decisions on the general meeting.

Absence of quorum causes the reiteration of general meeting not less than after one week. In case, if the quorum is not done again, than the members have a right to take decisions.

4.4. Order of voting

Decisions on changes' inclusion into the statute and liquidation of the association are made by the overall majority of members' votes (in proportion of 2/3), all other questions (selection of management and its chairman) are decided by the rest majority of votes. Decisions are taken, as a rule by open elections. The organs of management and control are elected by the general meeting's decision through voting by a show of hands (open) or voting ballot.

Each member has only one vote, irrespective of volume of share he's got from association.

4.5 Association's management board

Management board is executive organs accountable to the general meeting and has a right to take any decisions of their competence, indicated by the Statute and the general meeting. Management board and its chairman are elected on the general meeting for 2 years period, which should consist not less than 4 persons. Management board consists of a chairman – specialist on organization of WUA, specialist on water management, field agent, and accountant-cashier.

Relatives cannot work together in the management board of association. The members of management can be re-elected for a new period, but not more than 2 times in succession.

4.6 Management convocation and voting

The management of the association is called in case of need, but not less than 1 time a month. The quorum for taking of decisions – not less than 2/3 out from the number of members of the management board. Each member if the management board has one vote. Decisions are made by the major part of the present members of management. In case of equal number of votes, the chairman's vote is deciding.

4.7 Management board's competence

Management:

- Represents Association in relations with the third bodies and in the law court;
- Follows –up the financial registration and presents to the general meeting for the establishment the project of Association's budget and balance of the Association in the end of a year;
- Organizes general meetings;
- Presents to the general meetings the questions on acceptance to the Association and expel from it;
- Makes monthly and quarter reports and other operational documents;
- Prepares for the general meeting the programme of Association development and proposals to the questions, connected with the on-going activity as well as take and grant on lease the property.
- Follows –up the accountancy registration, take the payment for the Association service and realize payment of Association to the third bodies.
- Recruits the specialists to the work in the association.

4.8 Election of financially controlling panel

4.8.1 The financially controlling panel is elected at the general meeting for 2-years period out from the number of Association members: in quantity not less than 3 persons.

The members of the financially controlling panel may be re-elected for a new period, but not more than two times in succession. They also can be expelled before the appointed time by the decision of the general meeting in case of statute breakdown or acting legislation.

4.8.2 The members of the financially controlling panel cannot be the members of the management board, as well as relatives of the management board's members.

4.9 Financially controlling panel's competence

- 4.9.1 The financially controlling panel has a power to check-up the receipt registration, cash, and control over transparency and correctness of accountancy balance and reports, as well as reliability of data on credit grants and reimbursements.
- 4.9.2 The financially controlling panel realizes inspections according to the plan, affirmed by the general meeting. Special inspections can be conducted to the request of the general meeting, not less than 2/3 members of the management board.
- 4.9.3 For the conduction of an effective inspection the controlling panel can realize its functions in jointly with independent audience.

5. Budget and transparency of the association

5.1 Affirmation of Association budget

- 5.1.1 The management develops the budget of association for forthcoming financial year and each article is discussed and affirmed by the general meeting not later than 15 December. The financial year is beginning from the 1st of January and ends on the 31st of December.
- 5.1.2 Amendments can be included into the budget (in case of need) at the end of the financial year by the decision of the general meeting. Particularly, if the income of the Association is small enough for the service supporting, the budget may be balanced by payment rising for the service of Association reduction of expenses.
- 5.1.3 By the decision of the general meeting are created Reserve Funds of the Association in a form of share from the pure income for Association's development, extraordinary cases and insurance.

5.2 Budget income

The budget incomes may come from:

- Material and monetary shares of the establishers;
 - Payment from the members of Association for water use and service for exploitation, repair and technical service of secondary (tertiary) irrigation network and constructions;
 - Credits and assistance of international organizations;
 - Subsidies of state and local budgets;
 - Benevolent contributions of legal and physical bodies;
 - Fine (penalty) for rules' breakdown of water use and salaries' delay to the members of the Association;
- Other sources, which are not forbidden by the legislation.

5.3 Budget expenses

The budget expenses of the budget foresee:

- Expenses for exploitation, repair and technical service of secondary (tertiary) irrigation network and constructions and service providing to the members of the association in accordance with this statute.
 - Expenses for maintenance of management board of the Association;
 - Business trips' expenses of the management board's members and Association, and the other members of Association as well;
 - Expenses for project and research works, funding of investments;
 - Payment for the service of water organization;
 - Payment to the state and local budget;
- Other expenses.

5.4 Income distribution

Pure income, remaining from tax payment is spending by the Association for purposes, allowed by the statute.

5.5 Book-keeping of Association

An association follows-up the accountancy registration and submits statistics and financial reports to the relevant organizations in order, established by the legislation.

6. Liquidation of Association, resolution of moot points

6.1 Liquidation of the association is realized by:

- General meeting's decision;
- Admission of association's bankrupt in the order foreseen by the legislation;
- Judicial decision in the foreseen legislation order;
- In other cases, foreseen by the legislation acts.

Panel realizes the liquidation of the association at the general meeting of establishers. The law court creates the liquidation panel. All remaining budgets are spent for the staff salaries' payment off, debts' reimbursements, and debts' reimbursement to the creditors. Remaining resources are divided between the establishers in accordance with their shares in the statute fund.

Association is considered liquidated after the determination from the state register of RT.

6.2 Resolution of moot points

The moot points of association with legal and physical bodies are decided through negotiations or Court of Arbitration. Otherwise, otherwise the law court or economical court solves them.

The Court of Arbitration solves debates between the Association members concerning distribution and use of water. The Court of Arbitration is created by the written approvals of Association members.

APPENDIX III – Legal documents

Legal documents on Water user association in republic of Tajikistan.

- In the republic of Tajikistan accepted following legal documents on WUA creation. Civil codec – foreseen creation of association as non- commercial organization. Water code article 43. Rights of association- Unification to Association of Water Users. Association of Water Users created for:
 - Joint usage of internal water supply network.
 - Joint usage of internal land reclamation network.
 - Regular distribution of water.
 - Effective and in time ensuring with water.
 - Collection of fees for water supply services.
 - Solving of misunderstandings between members of WUA on water distribution and usage.
- Minutes of governmental commission №45/2-13 «On reorganization on cultural organizations near prime minister of RT»
- For rational usage of water supply network Dehkan farm associations, self- financed brigades and links and other water user of internal water supply network to take into balance and create WUA.
- Order of Ministry of water economy №187 from 31.08.2000
- On supporting of WUA creation in the Republic of Tajikistan:
- Organized permanently active commission for assistance fro WUA creation.
- Order of Provincial Administration of water economy and Provincial Administration of cultural economy №89 and №35 from 14.06.01.
- On WUA creation assistance.

- Organized permanently active commission for assistance fro WUA creation.

Developed activities plan “on WUA creation approved by President of RT and by Chairman of province from February 17th 2000 and from June 26 from 2001”

- Law about Water users associations in being prepared.

In the republic developed project of exemplary Regulations of Water User associations and approved by the Ministry of Water economy and Ministry of Cultural economy of the republic of Tajikistan and send to all as methodological visual- aid for creation of WUA.

By the assignment of the government of the Republic of Tajikistan №13-6 from March 19 2000, was given indication to Ministry of water economy, Ministry of cultural economy, land committee, Hukumats of district and provinces to assist in all kinds of issues in WUA creation at places.

APPENDIX IV – OPERATIONAL FORMS

Staff contract - Sample

Contract of Employment	
Article #1	Name and Position
Mr./Mrs. is hired by the WO
AS.....with the following grade.....
Article #2	Duration of Contract
2.1	The contract is valid from the.....to the.....
Article #3	Termination of the contract
3.1	Both parties can terminate the contract. A five day written notice period is required.
3.2	The employer can terminate the contract with immediate effect in case the employee is found guilty of a serious violation of the contract.
Article #4	Salary
4.1	The salary amounts to USD per month.

**Article #5
Working Time**

- 5.1 The working week has five working days (Monday to Friday).
- 5.2 Daily working hours are from 08H00 to 17H00, with one-hour lunch break from 13:00 to 14:00.
- 5.3 No overtime is paid. Half of full day worked beyond the normal working time can be compensated by taking the corresponding period of holidays.

**Article #6
Holidays**

- 6.1 Day off corresponds to the official list of day off in Tajikistan.
- 6.2 Entitlement to holidays amounts to 2 working days per month worked.
- 6.3 Request for holidays must be submitted to the Administration 2 weeks in advance (Request form).

**Article #7
Travel Allowance**

- 7.1 Travel costs are paid on the basis of actual costs and upon presentation of receipts.

**Article #8
Responsibilities and Duties**

- 8.1 The employee must execute the tasks described in his/her Terms of Reference and in internal independently and with competence.
- 8.2 The Employee should make an efficient use of the WO financial means and equipment.
- 8.3 The Employee is liable for damage inflicted to equipment or material through gross negligence.
- 8.4 The Employee must maintain respectful contacts with partners and collaborators.
- 8.5 The Employee must comply with the laws and regulations in force in Tajikistan.
- 8.6 During and after the period of his/her employment, the Employee must observe strict secrecy regarding the activities of the WO.
- 8.7 All reports, notes and other documents compiled and collected by the Employee are considered as confidential and are the property of the WO.

**Article #9
Income Tax**

Any liabilities towards taxes are the entire responsibility of the Employee.

The Employer:
Water Organization
Address:

The Employee:
Mr./Mrs.

Signature: _____ Signature: _____

Date: _____ Date: _____

Financial report

name of organization:
FINANCIAL REPORT

OBI ZULOL

Year:

Месяц	Expenses (somoni)			profits (somoni)		
	OK/CO	OK/ДВ	CP/TP	ВН/АО	ВН/ПДВ	ДФ/СД
january						
February						
march						
april						
may						
june						
july						
august						
september						
october						
november						
december						
total						
total quantity						
financial balance						

title

devaluation/ storage of equipment	OK/CO
devaluation/ spare parts, details	OK/ДВ
structural expenses /goode	CP/TP
structural expenses /salary	CP/3П
contribution of population/equipment leasing	ВН/АО
contribution of population/ selling of parts	ВН/ПДВ
additional financing/subsidy	ДФ/СД
additional financing/mini projects	ДФ/МП