



HYDROGRAPHIZATION

Unlike the hydrographic one, the scheme of water management structures, set within administrative boundaries affects the operational controllability of separate elements of the hydrologic system, exerting subsequently negative impact on constancy and uniformity of water distribution which is the main objective of water management. The aforesaid can be referred to both – the whole river basin and separate irrigation systems.

Such approach results in the so called “administrative hydro egoism” represented by the well-known “head-tail” problem when, mostly during water deficit situation (rights of downstream water users (a state, province, district, WUA, farm) are impaired as compared to upstream user. All these lead to conflicts of interests and controversy between water users along administrative boundaries..

Introducing the hydrographic approach is one of the main lines of activities to improve water management. To be more exact it might be called as restoration of the former hydrographic management principle that had been applied some fifty years ago when water management organizations were established as a rule on the basis of the hydrographic approach. Later ISA were substituted for “rayvodhoz” (district water management). These district water authorities shared separate sections of canals (systems) between themselves. Only large water management structures were left unchanged – such as Administration of Inter-District Canals (“UMRK”), Administration of Amudarya Irrigation canals (“UPRADIK”) and some others.

“Obvious example of the hydrographic approach to water management may be demonstrated through reviewing a natural plant leaf – one can see contours of arteries and their interconnections forming a single integrated system (Fig. 1)..” (prof. V.A. Dukhovny).

The process of developing the hydrographization chart should start bearing in mind the following considerations regardless of water distribution levels:



Natural plant leaf – the single integrated system

1. Hydrographization – is not an end in itself. It must facilitate control, monitoring and evaluation of water distribution – thus improving decision making process and supervision over their implementation.

2. IWRM is not a dogma:

- The issue of water management improvement cannot be considered in isolation from the land management issue, the social and other factors. If in specific conditions some other factors (technical, national, ethnical, etc.) facilitate the relaxation of conflicts and improve the water management, then there may be some deviations from the

hydrographic principle.

3. IWRM by virtue of its appellation requires not only organizational separation of lands by their attachment to the source of irrigation but it also means integration of lands Hydrographization should be made at all levels of hierarchy, beginning from Farm (“F”) up to the River Basin.

4. It is necessary that “F” is to be fed from one irrigation source. On diversion canal of higher order it is expedient to group farms into:

- Water Users Groups;
- Production Cooperatives (PC);
- Associations (WUA, ADF).



5. It is expedient that hydrographization should be carried out in the following order and based on the following general rules:

- The monitoring (and its generalization), the collection and analysis of results of:
- The MC water distribution (stability of discharges and water availability at the control posts, stability and uniformity of water delivery from the MC, etc.),
- The conflict situations (location, causes, types, participants, their frequency) .
- The assessment of the hydrographization feasibility (assessment of the hydrographization potential / practicability, and the existence of possible opposition to this process)
- The development of the unified plan of hydrographization process (in case of a positive feasibility assessment).
- The approval of the unified and coordinated plan of hydrographization by the stakeholders (representatives of water users, water managers, authorities, nature protection agencies, etc.).
- The implementation of the hydrographization plan with the participation of all the stakeholders.
- The monitoring and evaluation of the results, focusing on the real benefits.

It is extremely difficult to organize high quality water management when the water management structures are set within administrative territories, because the irrigation system is governed by too many “masters”

The perfect type of management structure should imply that the Main Canal Administration (MCA) is responsible for operation and maintenance (engineering service) with regard to:

- The whole system of the main canal – from the water intake at the irrigation source (river, brook, water reservoir) to the water delivery for water users (WUA, CF, Farmers), as well as to transit and emergency discharge, regardless of administrative boundaries, which are traversed by the main canal and its diversions of all orders.
- To all land reclamation system located in the main canal command zone.

Nevertheless, the hydrographization of a main canal is a very difficult process due to both – objective and subjective reasons:

- The main canal area may belong to different countries.
- Locations of irrigation and land reclamation systems often do not coincide.

- Some representatives of local authorities are not interested in hydrographization since this reduces their power to unreasonably intervene in water management. Irrigation systems (especially in the Ferghana Valley) are often interrelated (cycled) and interdependent. Not infrequently water is transferred from one system to another because of difference in water availability between various irrigation sources.

Hydrographization principles for WUA

1. It is expedient that WUA is:
 - Located within one district (except from WUA established on the inter-district canal);
 - "Fed" only from one irrigation source;
 - Located within one hydro section of the canal;
 - Located on both banks of the canal – that is this section of the canal is managed by one WUA. This abates probability of "breach of the water peace".
2. It is desirable that other water users in the area become WUA's members and deal with the Main Canal Administration through the association.
3. The ideal variant of organizing WUA within the hydrographic boundaries is the case when the main system has "nodal" network (Fig. 1, on the right). In this case, WUA is fed only from one canal of junior (second) order.
4. When the main system has a herringbone structure, (Fig. 1, on the left), WUA is fed from several canals of junior (second) order. In those cases - the construction of a unifying canal is expedient.

As to large inter-district (inter-provincial) canals of second order, it is expedient to consider a variant of organizing either a single unified WUA or several WUAs located in different administrative territory formations but united into a single Federation of WUAs.

Experience of hydrographization in the area of pilot main canals

Starting situation on pilot canals (before the project)

1. SFMC was managed by 3 organizations: BFCA, Andijan and Ferghana province water authorities.
2. AAC was managed by two organizations: Aravan and Karasu district water authorities.
3. KhBC was managed by two organizations: Gafur and Rasul district water authorities.
4. Disputes and conflicts had been constantly taking place along boundaries between provinces and districts.
5. The chain of reconciliation used to be like this (on the example of AAC): Aravan district water authority – Aravan district state administration – province state administration – Karasu district state administration – Karasu district water authority.
6. It took several days of coordination to implement water rotation on KhBC between Gafur and Rasul districts.
7. After Rasul district had received water, to convey water up to the end section of KhBC, there have been during 3 days, about 100 people who were constantly on duty at the upper part of KhBC to prevent water theft!

What has been achieved

1. 3 CA - established within the hydrographic boundaries: SFC, AAC, ChBC.
2. Transition to hydrographic principle on KhBC and AAC has been completed, - that is CA concludes agreements on water delivery directly with water users.
3. Hydrographization process on SFMC is at the stage of being completed.
4. Conflicts along boundaries between provinces and districts actually got ceased or considerably reduced.
5. Decision making process became easier, and more prompt. Water delivery is getting more stable and uniform.

Experience of hydrographization at WUA

Kyrgyzstan

WUAs have completely spread over AAC and RBC zones, and a majority of WUAs are established within hydrographic boundaries.

Adjustments were made in the boundaries of some WUAs on the Right-bank Main Canal concerning WUA Union "Uvam" proceeding from hydrographization principles.

Before hydrographization had been made as applied to the "Guch-Gunan" canal, this water source irrigated farm lands of three water users: "Shark-Uvam" WUA, "Rahmat" WUA and colkhoz "Aiyty". After hydrographization the "Guch-Gunan" canal irrigates lands of newly formed "Uch-Kunan" WUA (with total irrigated area of 1002 ha).

Tajikistan

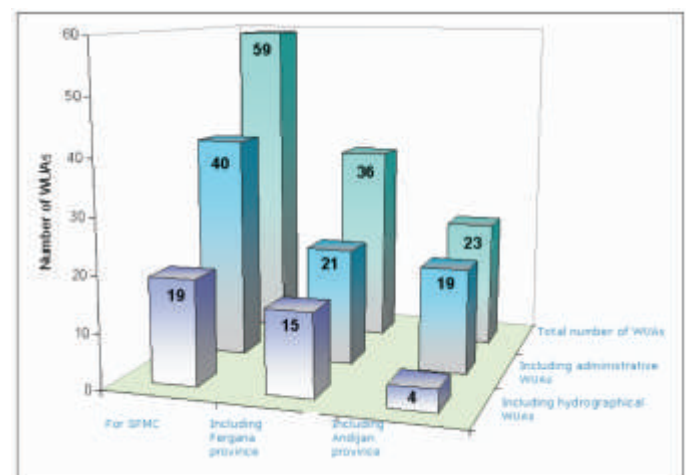
On the KhBC the process of organizing WUAs has been developing gradually. There are also possibilities to introduce hydrographization.

Uzbekistan

The SFMC system is larger and more complex by order than KhBC and AAC. Here reorganization of production cooperatives (shirkats) had been carried out rather rapidly. As a rule, WUAs were established within the boundaries of shirkats – that is not within hydrographic boundaries.

The hydrographization plan in the SFMC zone has been developed and launched for implementation, taking into account local conditions.

This hydrographization in the SFMC zone enables to: Significantly reduce the number of WUAs (from 64 WUAs down to about 50 WUAs), - thus undoubtedly improving the level of water management on this canal Prepare conditions for closing down ISA, being for the meantime a necessary intermediate member between SFC and WUAs.



Hydrographization state along SFC (December 2008)