

Towards Strategic Planning of Development in the Amu Darya River Basin

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POLICY BRIEF

Planning bodies of economic sectors in most countries all over the world make their projections proceeding from the current trends mainly. However, given a diversity of changes in external environment, including those in policy and economic directions and priorities and different internal aspirations of the states, this way leads to a deadlock.

Planning in the water sector is no exception. The typical examples are the so-called “Schemes for comprehensive basin resource use” that were developed in the Soviet period for all river basins. In the decline of this period such schemes were developed for Amu Darya and Syr Darya Basins as well and agreed upon among the riparian republics (in 1984 and 1983, respectively, by Sredazgiprovodkhopok Institute).


While noting the advantages of those schemes in the efforts to coordinate interests in and the needs for water of all riparian republics and, at the same time, of all sectors (hydropower, irrigation, water supply, environment), thus

laying the grounds for integrated basin management, nevertheless, the schemes were based on 'business as usual' or 'built upon what has been achieved'. Life at a turning point between the failed socialistic period and the primitive market has shown that most of assumptions and projections of those Schemes turned to be absolutely unrealistic. That is what has led, to a certain extent, to the fact that under new conditions most of positions in water governance and development in the Central Asian region as a whole and, particularly, in its river basins have got new orientation and virtually broken seemingly a well-grounded vision of the future water sector. Although the Agreement of 18 February 1992, which is the cornerstone of cooperation among the riparian countries, sets that “The Parties are committed to enforce the agreed order and established rules for water use and protection”, most of the clauses of the Schemes have failed under new conditions and the current water management practices. First of all, this concerns the establishment of river flow regulation regimes (especially for the Syr Darya River), water allocation along small rivers,



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meeting of environmental demand, etc. As to the Amu Darya River Basin, considerable difficulties have been encountered in meeting of demands, on equitable manner, in upper, middle and lower reaches under current conditions because of poor equipment of metering sites, underestimation of flow time, and under-accounting of growing Afghanistan's demands.

Thus, there is an acute need to shift from the former Schemes-based practices to new approaches in river basin assessment, management, and development.

The world practices of IWRM offer strategic planning and management of resources (SPM) (Douglas Webster, Ti Le-Huu, 2004) as one of the most important mechanisms. The authors formulate the tasks at the national level this way:

- (1) to provide frameworks and directions for: overall development, water sector and organizations,
- (2) to facilitate coordination among: agencies, sectors and stakeholders,
- (3) to improve implementation: funding, accountability monitoring, resources mobilization,
- (4) to bridge the present and future: to identify problems, to overcome present weakness, to respond to uncertainties and to enhance flexibility,
- (5) to share water among sectors & regions.

In addition, the following SPM mechanisms are proposed:

- (1) to take into consideration different institutions, stakeholders, agendas of the different sectors (e.g. forestry, environment, lands, mines, protected areas),
- (2) to achieve expected outcomes within an anticipated timeframe,
- (3) to identify common objectives and a shared vision.
- (4) to provide criteria for allocation of limited budgets,
- (5) to provide guidance in achieving tangible expected outcomes,
- (6) to improve the legal framework, reconciling many laws,
- (7) to address needs of different target groups with different abilities to pay.

SPM is not the prerogative of planners who are entrusted to determine priority tasks and indicators and relevant measures – **it proceeds from identified by all actors potential deviations and failures** in routine activities of each group of water users, water management organizations and stakeholders; hence, it becomes clear that the **'public participation' principle applies to SPM.**

SPM relies on the **analysis of disturbances and deviations that could lead to breach of normal functions and necessitate a plan of actions** to compensate or prevent these disturbances rather than on forecasting of potential development. It is clear that this cannot prevent all deviations

except for those that pose the greatest risk or have the highest degree and frequency of risk. For example, in our case, irregular water supply in the Amu Darya Basin is the most probable due to imperfect methods for accounting of transformations of flow as it travels, losses, accumulation in the river channel, etc.

SPM determines priority actions in the places, where the causes - rather than effects - can be prevented with minimum inputs.

In this context, where one should and could search for priority solutions?

As to Amu Darya, the detailed consecutive institutional and negotiation activity should be focused on assessment of losses, development of regulations for consideration of such losses and flow transformation, and improvement of water accounting and distribution, as well as on determination of the order of water withdrawals within different river reaches in order to avoid catastrophic water scarcity for the lower reaches and the nature.

In contrast to the formerly existing planning system (let say, never implemented in the Soviet time "Schemes of development... ", with their unachievable extra-optimistic targets), SPM focuses on certain institutions, more correctly, on a set of interacting institutions that have sufficient powers for coordination and implementation of the actions to avoid failures, deviations and disturbances from national water management activities.

Thus, **SPM involves a system of both relations of power and the trust-based, economic, legal and partnership relations** that are based on deep understanding of the importance and uniqueness of work related to water resources management.

SPC focuses on the **assessment and balanced management of external and internal environments** of given sector (country, basin, etc.) through a combination of different future scenarios - climatic, socio-economic (including demographic), water management (irrigation or hydropower), and agricultural ones. In addition, primary attention should be paid to deviations to which one should adapt. The Tables below (Table 1-2) show broad estimates of usable water resources in the Amu Darya Basin based on a combination of climatic and water scenarios. In the PEER Project, we introduced additional climatic scenario in order to estimate water resources and also water use by various planning zones. The REMO-0406 scenario estimations were made using a model of the Max Planck Institute in Hamburg and the regional model of the Wurzburg University and published by N.Agaltseva in "Climate Risk Profile in Uzbekistan" (UNDP, UzHydromet, T., 2015, 90 p.).

In SPM, various agricultural scenarios should be considered for each planning zone, including business as usual, food security, and maximum export. As part of the PEER Project, we made such assessments for each planning zone and country in the Amu Darya Basin.

Particular attention in SPM for Amu Darya should be paid to prospective development of water sector and irrigation in Afghanistan.

The above-mentioned Scheme of comprehensive use and protection of water resources for the Amu Darya provides for 2.2 km³/year only for Afghanistan. In the meantime, even today Afghanistan uses about 3.0 km³/year in the basin. Earlier, before independence, Afghanistan claimed up to 9 km³/year. Unfortunately, yet Afghanistan is overlooked as a water consumer by the riparian countries in the region.

Table 1

Estimation of usable water resources in the Amu Darya River Basin, km

Indicator	Normal year	Driest year 2008	Scenario B2		Scenario A2	
			Average year	Dry year	Average year	Dry year
Surface water:						
Amu Darya	79.3	59.4	73.7	55.2	71.3	53.5
Groundwater:						
Amu Darya	16.9	13.5	16.4	13.1	15.7	12.5
Return water:						
Amu Darya	32.4/21.6	12.9	20.8	12.5	20.1	12.0
Amu Darya	19.06/9.7	5.8	9.0	5.4	8.7	5.2
Water losses in river channel:						
Amu Darya	13.9	13.9	13.9	13.9	13.9	13.9
Environmental demand:						
Amu Darya	8.0	5.2	8.0	5.7	8.0	5.7
Amu Darya	4.8	3.2	4.8	3.2	4.8	3.2
Total water availability:						
Amu Darya	133.05	94.1	126.4	88.7	120.6	85.0
Amu Darya	81.3	57.9	74.6	53.0	71.7	50.9
Syr Darya	51.7	36.1	51.7	35.6	48.7	34.0

Table 2

Combination of climate and water scenarios

Water management scenario	Climate scenarios					
	General natural flow		Scenario B2		Scenario A2	
	Average year	Dry year	Average year	Dry year	Average year	Dry year
Total	133	94	126.4	88.7	120.5	85
Amu Darya	81.3	57	74.6	53	71.7	50.9
Hydropower (irrigation regime W1)			126.4	95.8	120.5	89.9
Amu Darya			74.6	39.6	71.7	53.8
Hydropower (energy regime W2)			119.2	81.2	113.9	76.3
Amu Darya			69.7	45.8	67.4	43.5

Table 3

Estimation of water resources through the REMO-0406 climate scenario

River – cross-section	Nom Qveg, m ³ /s	Average flow rates in April-September, % of the norm			
		2020	2040	2060	2080
Amu Darya River Basin					
Amu Darya – Kerki conditional-natural	48.41	97	96	95	94
Flow lowering, km ³		1.45	1.394	2.42	3.88

This Policy Brief is prepared as part of the Project “Transboundary water management adaptation in the Amudarya basin to climate change uncertainties”.

The Project objective is studying in a holistic manner transboundary water management issues in the Amudarya basin for the long run under conditions of climatic and other changes along with the national plans on irrigated agriculture and hydropower development.

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