



PEER research project  
“Transboundary water  
management adaptation in the  
Amudarya basin to climate  
change uncertainties”



# Future development water management complex Amudarya basin

Prof. Viktor Dukhovniy  
PEER project SIC ICWC  
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# Destabilizing challenges

- Demographic pressures 320 thousand persons per year 2.5 km<sup>3</sup>
- Climate changes – reductions of flow 1.5 km<sup>3</sup>
- Growth demand of North Afghanistan 3.0km<sup>3</sup>
- Growth of water demands irrigation lands of 3 NIStates 1,0 km<sup>3</sup>

Total 8,0 km<sup>3</sup>

# What we can expect?

- The common deficit of water for the year of average capacity **9,6 - 10 km<sup>3</sup>!**
- For 2030 deficit will achieve **6,3 km<sup>3</sup>.**
- **Account flow deviation** small Amudarya basin over the range  $\pm 15 \text{ km}^3$  real deficit will be **20 km<sup>3</sup>!!!**



# What can be done?

- Future generation should approach to water follow on to LAW of our predecessors

WATER IS HOLY SUBJECT!!!

TO CARE, TO SAVE AND TO PROTECT!!!

# REDUCE LOSSES OF FLOW IN RIVER BED

- Present time river losses together with error deviated from **5756** millions m<sup>3</sup> in water scarce year to **16200** millions m<sup>3</sup> in water rich year when accordance of ICWC their size

**9,03 -9,23 km<sup>3</sup>.**

Implementation SCADA system can give at least **3000 - 4400** millions m<sup>3</sup> per year with cost of investment approximately **23** millions USD or **0,5** cent per m<sup>3</sup>!!!



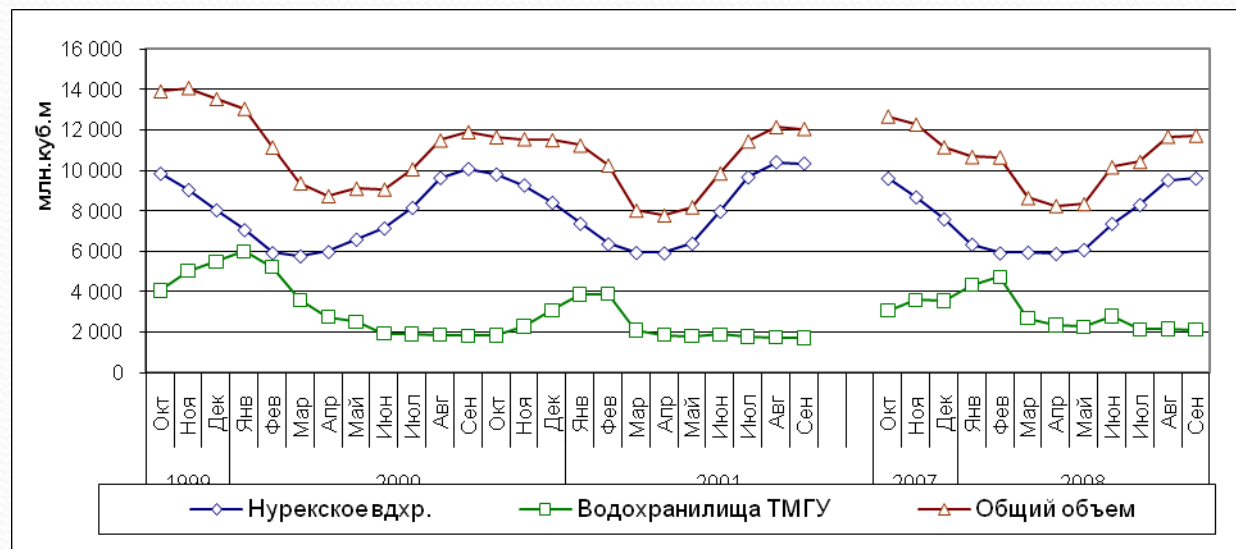
# Improvement accuracy water account.

		КПД по данным космических снимков
• Узбекистан	5119	
• Сурхандарья	681	0.58
• Карши	728	0.65
• Бухара	1210	0.58
• Хорезм	489	0.72
• Каракалпакстан	719	0.67
• КМК	860	
• АБМК	540	
• Туркменистан	9940	
• Мары	2277	
• Ахал	1759	
• Лебап	418	
• Дашауз	1200	
• ККК	4286	
• Таджикистан	4308	
• Всего по зонам планирования ( без внутрихозяйственной сети)		
• и магистральным каналам	<b>19367 миллионов кубометров.</b>	Доведение КПД этого вида сети до норматива в 0.7 позволит сохранить <b>3.7 кубокилометров.</b>

# Implementation of multiyear flow regulation

- Increase of accuracy long term flow forecast;
- Improve quality of annual hydrological and climatic forecast;
- Transfer planning of BWO schedule on multiyear regime.

Effect of  
Regulation  
3,0km<sup>3</sup>





# Positive impact of climate changes on the plants growth

- Establishment of network climatic stations for each BUIS (one station on 10 thousands ha) and special technological service of forecast water consumption for account weather deviation and information of farmers.
- Reassessment of irrigation rates and schedules of crops will permit to save 12 -15 % or 700 - 800 m<sup>3</sup> per ha or 1.4 -1.6 km<sup>3</sup>.



# OTHER MEASURES

- **Increase of use collector-drainage waters.** Total quantity of such return waters in basin account 14 km<sup>3</sup>, from which release to lakes - 7.39 km<sup>3</sup>, in river Amudarya - 4.94 km<sup>3</sup>. Possible volume of saving at least 2 km<sup>3</sup>.

# Establishment of public platform of movement in condition of water deficit.

- Broad involvement of water users for achievement required targets of efficient water use. Existed experience of creation public Basin water users should lay in frame of involvement all kinds of stakeholders in formation of it, consisted from representatives of different organizations of water, power, agrarian, water supply specific in field of planning and control rivers' regime and allocation of waters. Specific attention would be done to including from experience of former leaders same as academicians and specialists for analyze and planning of innovations that together with leadership of BWO to prepare further concept of work such NGO, Its ideology and mutual work with BWO leaders.



# Research and innovations.

- Improvement long-term water forecast and rules of multiyear regulation.
- Investigation of ways to definite sources of river bed losses.
- Research of specific of growth different crops in different conditions for definition of water consumption in condition of climate changes.
- Implementation of “smart water” system water measurement and SCADA.
- Revision of coefficient efficiency different canals.



Thank you for attention!!!  
We hope on collaboration!!!