



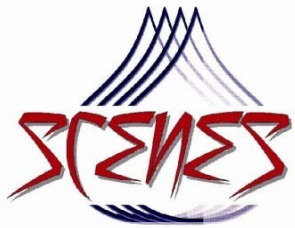
# Planning the water future of the Black Sea region – lessons learnt from work with Crimean stakeholders



Olga Zhovtonog and all Ukrainian SCENES team  
Final Scenes Conference,  
Budapest, March 2011



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# Water in Crimea

## Water use

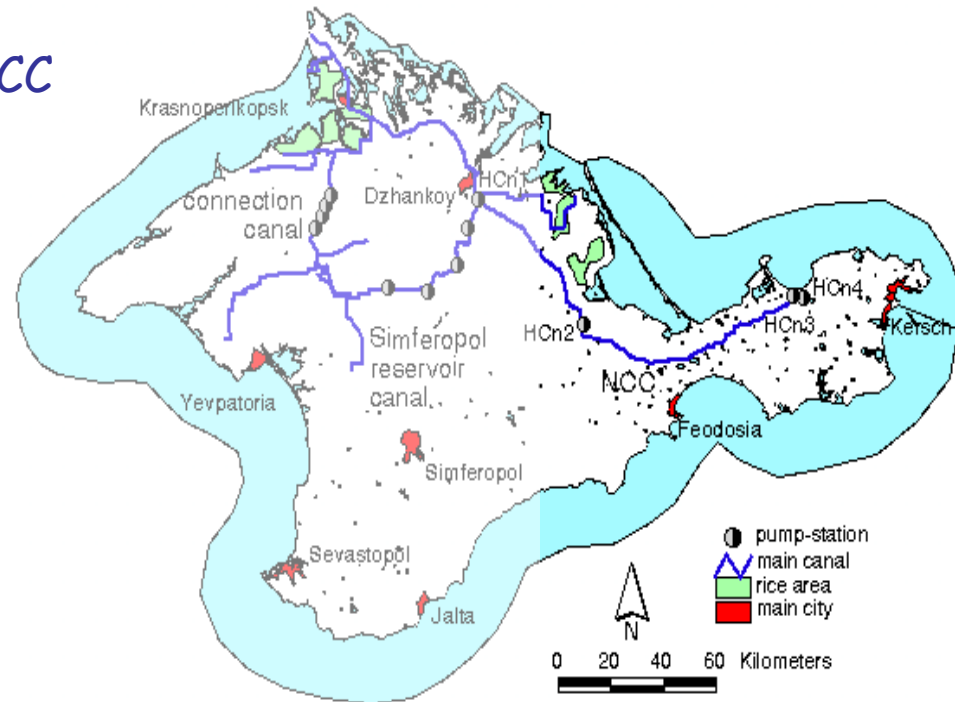
- 80% - surface water ( 70% from NCC and 10 % from local rivers)
- 10% - ground water
- 10% - return use of drainage water

## Water users :

- Irrigation - 67.1%
- Water supply for population - 25.1%
- Industry - 5.9%
- Fishery - 1.9%

## Water for Food

- Long distant canal delivers water on 400km
- Irrigated area 370 000 ha ( now less than 200 000 ha)





# The role of Crimea pilot in Scenes

To develop qualitative water scenarios for the Black Sea region in Ukraine and use them for enrichment of European scenarios and for cross scaling enrichment together with Low Don pilot scenarios in Russia

- To contribute to the SH process methodology reflecting specific situation and problems in the region in Ukraine (privatization, transformation, climate change, extreme events, irrigation performance, protection of ecosystems )
- To demonstrate for national and regional policy makers the usefulness of water scenarios as a tool for decision making
- To develop modeling of water resources by linking the SWAT river basin model with Water Use model for the large scale irrigation systems
- To develop and check indicators for the region in Ukraine ( WfF, WfN, WfP..) by crop and water modeling with local and international model
- To stimulate and contribute to the process of national water vision development



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# Organisation and management of stakeholder's process

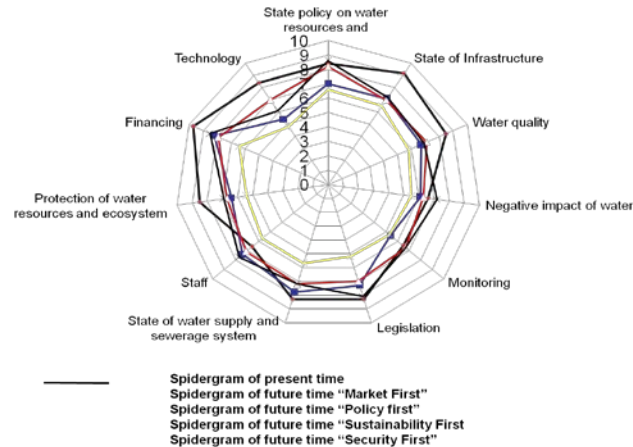
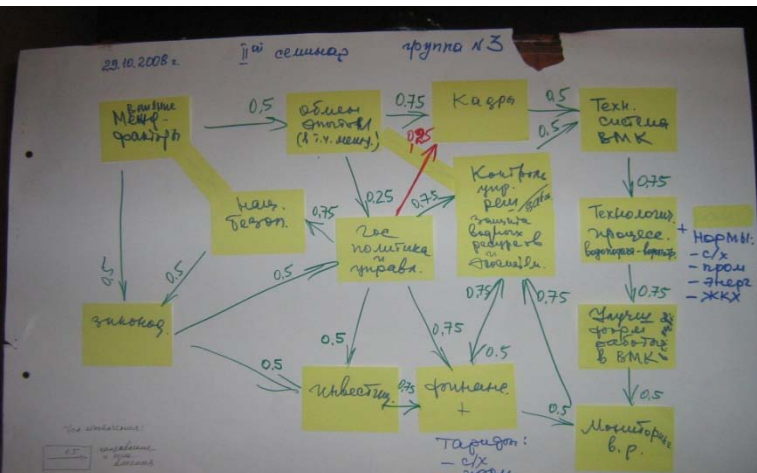
- Preparation phase: stakeholders analysis and involvement, informing authorities, training of moderators
- Top-down order (official letters) to bring people together
- Presentations about methodology at the beginning
- Participation of project coordinators and result presentation from other pilots and PEP
- 2 days in nice venue and surrounding, cultural programs



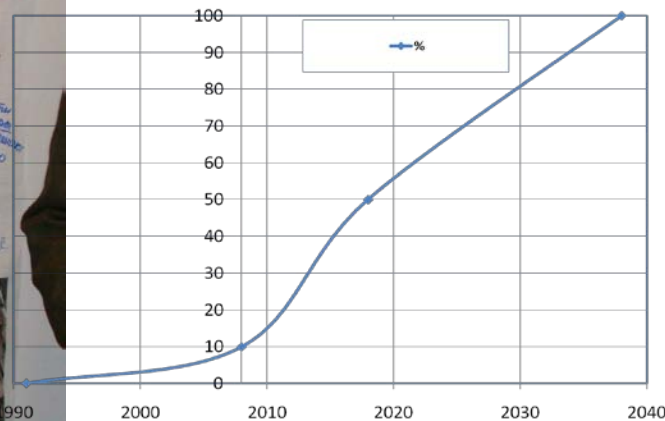
# Stakeholders' workshops in Crimea



## Checking, adaptation and evaluation of tools and methods

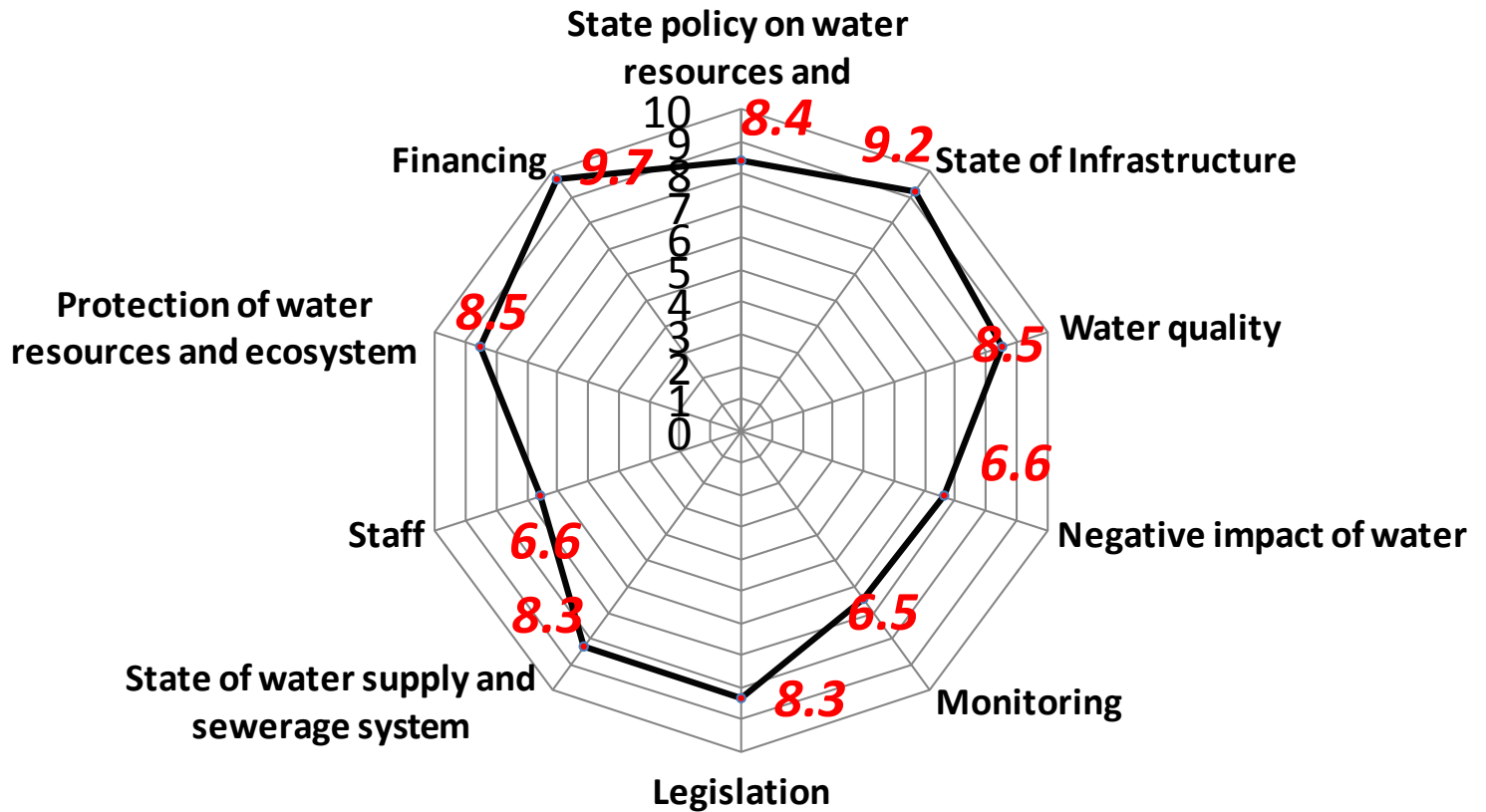


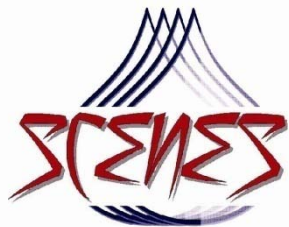
- FCM
- Collages
- Spidograms
- Indicators
- Story lines
- CLD
- Backcasting
- Irrigation game





# Spidergram of present time





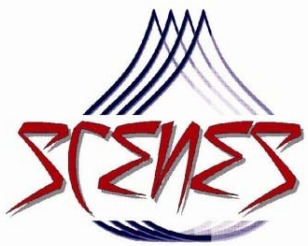
# Cross scaling of the water issues

	European level	Crimea pilot	Lower Don pilot area
	<ol style="list-style-type: none"> <li>1. Water policies</li> <li>2. Water valuation</li> <li>3. Demography</li> <li>4. World economy</li> <li>5. Consumption patterns</li> <li>6. Other policies (CAP)</li> <li>7. Water and Society</li> <li>8. Public involvement</li> <li>9. Water governance</li> <li>10. Technology</li> <li>11. Political security</li> <li>12. Climate change</li> <li>13. Ecological impacts\ water quality</li> </ol>	<ol style="list-style-type: none"> <li>1. Water Tariffs in sectors</li> <li>2. Water infrastructure</li> <li>3. Protection of water res. and ecosystems</li> <li>4. National security</li> <li>5. Policy</li> <li>6. Exch. of experiences and knowledge</li> <li>7. Legislation</li> <li>8. Staff</li> <li>9. International influence</li> <li>10. Monitoring</li> <li>11. Water governance</li> <li>12. Technologies</li> <li>13. Investments</li> </ol>	<ol style="list-style-type: none"> <li>1. Water quality</li> <li>2. Water resources availability</li> <li>3. Antropogenic loads on water resources</li> <li>4. Legislation</li> <li>5. Water governance</li> <li>6. Infrustructure and technologies</li> <li>7. Cimate change</li> <li>8. Public opinion</li> <li>9. Watershed state</li> <li>10. State of bio-resources and water ecosystems</li> </ol>



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# Sustainability first "Crimea as a heaven"

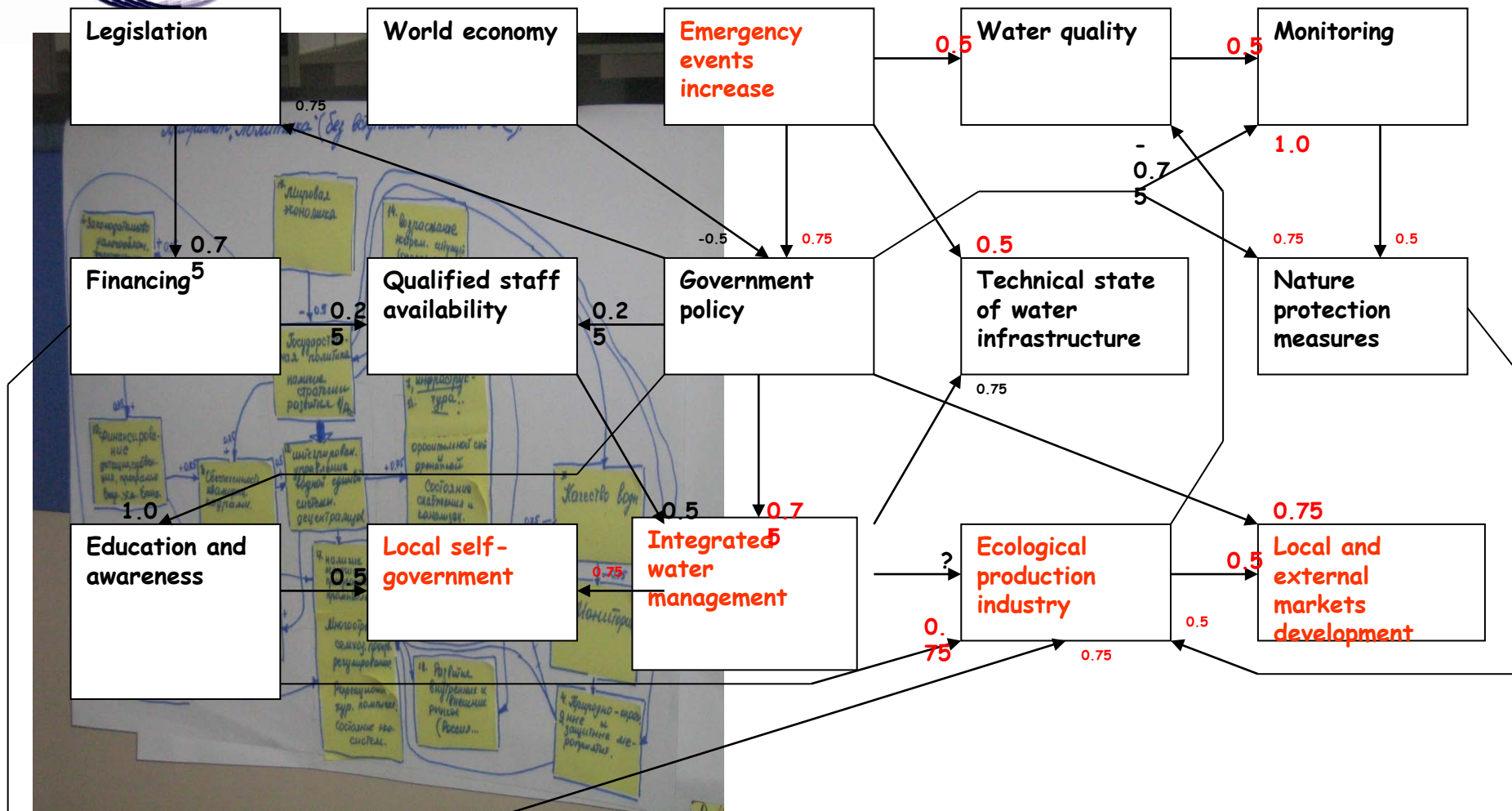


# Security first scenario "Laugh through tears"





# Policy first (without EU membership)





# Market first ( Catching Fish )



**Economy.** Investments in agriculture, industry, tourism, recreation and information technologies. **Water infrastructure privatized, monopolists can appear.** New opportunities after world economical crises

**Policy.** WFD + IWRM help to keep standards of water quality and improve conditions for **tourism and recreation**

**Society.** Conflicts between intensive agriculture and ecosystems, between rich and poor. Big capital influence on policy and legislation. Weak control from government



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## Policy first (with EU membership )

**Economy.** Competition with global markets, increasing of local agriculture including irrigated agriculture, only large farms can survive, **foreign investments** in tourist sector, services development, investments in new technologies

**Policy.** WFD implementation, following international standards of food quality , water treatment etc., development of a **national strategy according to the EU policy and legislation**, control of corruption level from EU

**Society.** Free mass media, **public control**, rising awareness, participation, cleaner environment



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# Sustainability first



**Economy.** Less intensive agriculture incl. irrigated agriculture and also industry. More focus on development of tourism and recreation (10mln.tourists per year), drinking water and other communal services.

**Policy.** Government develops long term vision and ecological monitoring

**Society.** Increase of public participation more and rising of awareness including moral and culture aspects.



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# Security first (self-saving)

**Economy.** Restriction and conflicts in water use for agriculture, communal sector and industry. Some developments in tourism sector. Developing of rainfed agriculture, changes in crop rotations to more grain crops. GMO technologies. Water, energy saving technologies ( gravity irrigation, water reuse). Increasing use of local water resources. **Bad state and deterioration of large scale water infrastructure (NCC system).** Water pollution , decrease of soil fertility and **worsening of environment** (land abundance, loss of biodiversity).

**Policy.** WFD does not work; raider behavior of some investors; **spontaneous self-governance** to survive with strict limitation rules with "police" methods; dividing Crimea into problem zones; "Red card" from international organizations (sanctions, penalties, etc); **'hot-spot' area in Europe**

**Society.** **Worsening of living conditions** and health, decrease of population; conflicts between different nationalities, poor and rich.



## Comments on story lines



- Policy first and Security first scenario attracted the most attention from participants
- Climate change is not yet recognized as a high priority
- IWRM and implementation of WFD is foreseen in three scenarios
- Water deficit provokes conflicts in "Market first" and "Security first" scenarios
- "Sustainability first" is evaluated as nice dream or desired future
- "Market first" was felt as a scenario, which exists now and should be changed in future



The main goal, selected by Crimean stakeholders  
for development of water economy in Autonomic  
Republic of Crimea:

Effective water use for food  
production





## Strategic highways

Improvement and development of legislation, government and regional programs and regulations

- Institutional development and capacity building
- Modernisation and rehabilitation of water infrastructure, implementation of new technologies, development and implementation of new financial mechanisms
- Cooperation between sectors and stakeholders
- Development and implementation of ecological monitoring
- Provision of information for society and rising awareness on all levels
- Improvement of water governance and management in organisations; Development of government and public control on policy implementation



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# Recommendations for regional and national policy improvement






- To develop **legislation on IWRM, land and water consolidation**
- To organise a monitoring of implementation of government programs and legislation enforcement
- To develop **economical mechanisms** to stimulate implementation of water and energy saving technologies on irrigation systems
- To provide favourable conditions for **attraction of investors** in water sector
- To develop long term **strategic plan** for development of water economy in Crimea and make feasibility study of its implementation. Preparations for modernisation of water infrastructure
- To organise and implement irrigation **investment projects**
- To create **Water Bank and Reserve Fund** for water economy development in Crimea
- To **develop and approve norms on differentiation of tariffs on water services**. To inform the public about goals and objectives of moving to a more strategic base of planning
- To increase government activities in water management for development of tourism potential
- To **develop a knowledge dissemination and coordination centre** for regional development



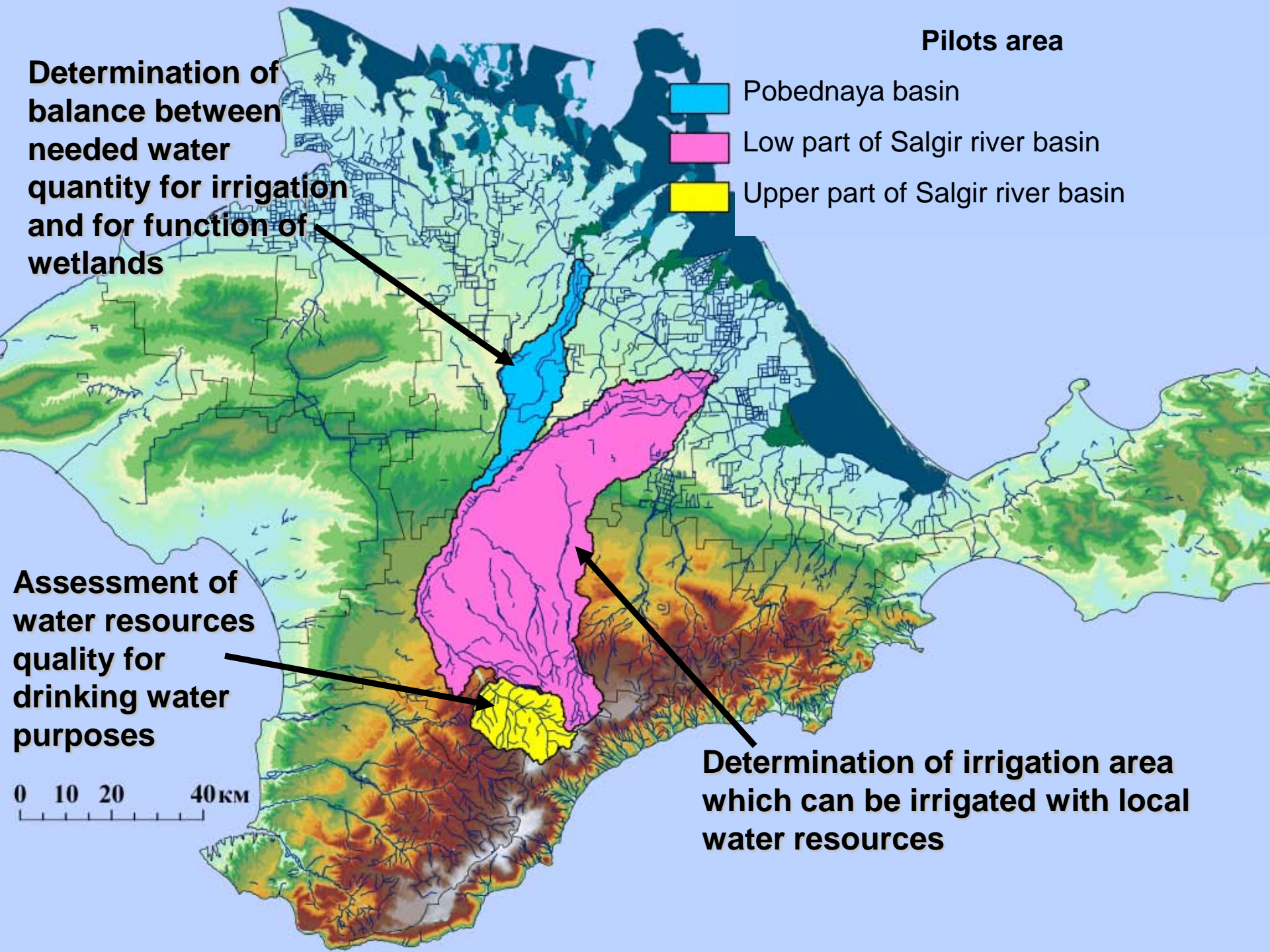
## Pilots area

**Determination of  
balance between  
needed water  
quantity for irrigation  
and for function of  
wetlands**

-  Pobednaya basin
-  Low part of Salgir river basin
-  Upper part of Salgir river basin

**Assessment of  
water resources  
quality for  
drinking water  
purposes**

**Determination of irrigation area  
which can be irrigated with local  
water resources**





## SHs' water related demands (summarised) and set-up of the modeling tasks

### Sh's demands:

- Improvement of water quality data base
- Stop of pollution
- Implementation of the WFD and of RBMP
- Investments in water infrastructure and RD

### Tasks for modeling:

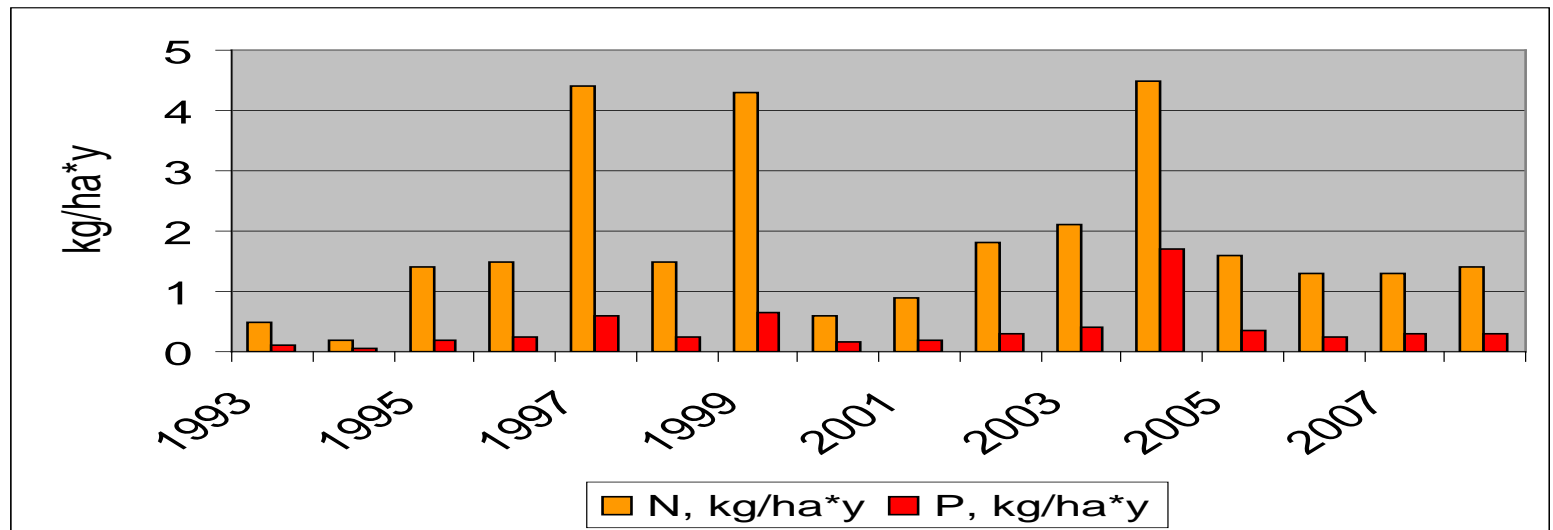
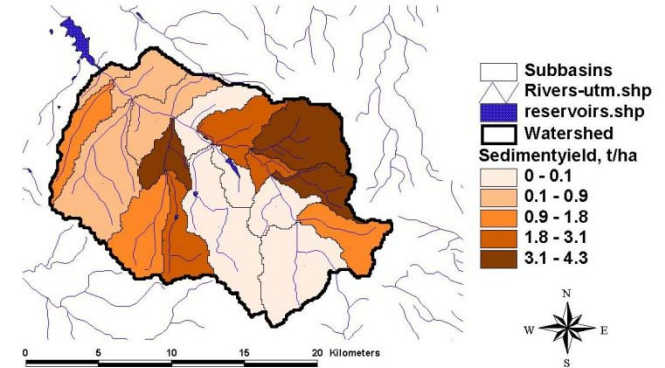
- Assessment of the present state of river basins
- Simulation of various scenarios for the future incl. zero option & climate change:
  - *no changes in land and water management ( **Market first** )*
  - *optimization of land and water use ( **Policy + Sustainability first** )*
- Recommendations for RD planning ( selection together with stakeholders of the optimal variant of land and water use) and for development of water policy in Crimea

### Impact indicators:

- Relationship between already existing pollution and concentration standards
- Changes of contaminated sites in the river basin
- Freight of nutrients loading the Simferopol reservoir



## Analysis of erosion and nutrient transport to the drinking water reservoir





## Recommendations from modeling results on pilot areas that can contribute to the Crimean policy making process

- To improve water quality and water quantity monitoring within river basins and drainage systems and access to data ( of all three pilots)
- Reconstruction of sewage and treatment facilities (1<sup>st</sup> pilot)
- Integrated land and water management within landscape management ( of all three pilots)
- Investments in modernization of irrigation infrastructure ( of 2<sup>nd</sup> and 3<sup>rd</sup> pilot )
- Introduction of adaptive environment friendly irrigation on the lands with not favorite ecological conditions (3<sup>rd</sup> pilot)
- To optimize use of local water resources in combination with NCC waters in the frame of IWRM plans (2<sup>nd</sup> pilot)
- To optimize the land and water use to provide the ecological standards for drainage to Sivash to protect biodiversity (3<sup>rd</sup> pilot)



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# Conclusions about participatory water scenarios development process in Crimea

Scenario development can be implemented as a permanent learning process for implementation of democracy principles of decentralised IWRM

- Bottom-up culture for IWRM already exists on a lower level and can easily be activated when the government policy will be on place and former top-down approach will be replaced by a more flexible, strategic and integrated way of thinking
- Knowledge dissemination on all levels for introduction of innovative tools on qualitative and quantitative scenarios development is necessary to speed up reforms in the water sector
- Implementation of the long term strategic planning of water resources will help to improve and develop existing state water policy and programs and solve current problems taking into account future challenges
- Modelling has two functions: strengthening policy recommendations on integrated land and water planning on the level of river basins and irrigation systems



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We need to chose our way and work  
today for our future with “open  
eyes”!

Thank you!



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