STATE WATER CADASTRE INFORMATION SYSTEM OF THE REPUBLIC OF ARMENIA

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CONTENTS

- Definitions
- Purpose of the SWC
- Stakeholder Institutions
- SWC Tabular Database
- SWC Spatial Database
- Stakeholder Institution Databases
- Recommendations
DEFINITIONS

- **State Water Cadastre (SWC)** – A permanent operating system to keep comprehensive records of quantitative and qualitative indices on water resources, water intakes, watersheds, and composition and quantities of materials and biological resources, which are extracted from water basins beds and coasts, as well as records of water users, water use permits, and water system use permits.

- **State Water Cadastre Information System (SWCIS)** - A system of inter-linked electronic databases and geo-databases to facilitate the maintenance and use of the SWC.

- **Date Warehouse (DW)** – The core database of the SWCIS with the user interface allowing data transfer to/from other database components of the SWCIS both at tabular and spatial levels.
PURPOSE OF THE SWC

- State Water Cadastre
  - Establishment of data warehouse related to water sector,
  - Registration of documentation in the cadastre and provision of corresponding information,
  - Formation of tasks for water resources monitoring
  - Planning of the implementation of monitoring, and inclusion of monitoring results into the management process,
  - Inventory of hydro-technical structures related to water resources
  - Composition of water resources balance and water-economic balance
## STAKEHOLDER INSTITUTIONS

<table>
<thead>
<tr>
<th>Stakeholder institution</th>
<th>Acronym</th>
<th>Available Data</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Water Resources Management Agency, MNP</strong></td>
<td>WRMA</td>
<td>Water use and wastewater discharge</td>
</tr>
<tr>
<td>Armenian State Hydro-Meteorological Service, MEA</td>
<td>ASH</td>
<td>Surface water quantity</td>
</tr>
<tr>
<td>Environmental Impact Monitoring Center, MNP</td>
<td>EIMC</td>
<td>Surface water quality</td>
</tr>
<tr>
<td>Hydro-geological Monitoring Center, WRMA, MNP</td>
<td>HMC</td>
<td>Inventory of groundwater resources, groundwater quantity and quality</td>
</tr>
<tr>
<td>State Committee on Water Systems, MTA</td>
<td>SCWS</td>
<td>Water systems and WUAs</td>
</tr>
<tr>
<td>State Hygiene and Anti-Epidemiological Inspectorate, MH</td>
<td>SHAEI</td>
<td>Drinking water-related sanitary violations</td>
</tr>
</tbody>
</table>
SWC TABULAR DATABASE

- Overall design

- Administrative data

- Water object codes

- Technical data

- 34 reports
SWC SPATIAL DATABASE

- SWC Geo-database
  - Coding of rivers, lakes, canals, reservoirs and catchments
- 75 feature classes (layers)
- First Water Resources Atlas (80 pages) was printed in 2008
STAKEHOLDER INSTITUTION DATABASES

- WRMA: Water Use Permitting Database
- ASH: Hydrological Databank
- EIMC: Water Quality Monitoring Database
- GA: Groundwater Resources Database
- SCWS: Water Systems database
- SHAEI: Sanitary Violations Database
## STAKEHOLDER INSTITUTION DATABASES

<table>
<thead>
<tr>
<th>Database</th>
<th>Data populated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water Use Permitting</td>
<td>WUP information from 2002 to present. 1620 WUP, 1050 und.water, 550 surface water, 20 discharge</td>
</tr>
<tr>
<td>Hydrological Databank</td>
<td>Water level and discharge data from 2000 to present. Data before 2000 are kept in MS-Excel worksheets. 100 hydrological observation posts</td>
</tr>
<tr>
<td>Water Quality Monitoring</td>
<td>Water quality data from 1978 to present. Data before 1978 are kept in MS-Excel worksheets. 131 permanent and 90 temporary observation posts</td>
</tr>
<tr>
<td>Groundwater Resources</td>
<td>Inventory data on 49 springs and 24 wells</td>
</tr>
<tr>
<td>Water Systems</td>
<td>Summary information on water systems grouped by 52 WUAs</td>
</tr>
<tr>
<td>Sanitary Violations</td>
<td>Summary information on violations from 2000 to present</td>
</tr>
</tbody>
</table>
RECOMMENDATIONS

Data and information sharing

- At the moment “open access of data” is not general practice
- Urgent need to adopt and implement new procedures on data flow and information exchange among the SWC stakeholder institutions
- The frequency of data exchange should be changed from annually to quarterly
RECOMMENDATIONS

- Decentralize data and information management
  - Basic data and information that BMOs need for WUPs should be housed in a localized water information system managed by BMOs
  - BMOs need to continue collect and store local data not included in the SWCIS into a Basin Information Management System
  - Enhance the SWCIS by providing on-line interactive services to perform ad-hoc tabular and spatial queries, and generate customized maps and reports via the WRMA website
Thank you for attention!

State Water Cadastre Design for the Short Term

-------- State Water Cadastre Information System --------

Data Warehouse Centralized model with summary information

- Data Loader
- GIS
- Portal to data sources
- Websites

Applications
- Groundwater modeling
- Canal scheduling
- Hydrologic Forecasting

Data sources
- Water structure locations
- Hydro networks
- Admin boundaries
- Land Cover

Water Uses
- Water Systems
- Groundwater

Monitoring
- Monitoring – State of Water Resources Report

National Applications
- National water planning
- Water budgeting
- Surface water allocation
- Consumptive use
- Conjunctive use

Website

- Water Quantity DB (ASH)
- Water Quality DB (EIMC)
- Water Use Permit DB (MWRA)