Policies to Manage Agricultural Groundwater Use

TURKEY

Turkey is the third largest agricultural groundwater using OECD country. Furthermore, agricultural groundwater use has been steadily increasing in the past 20 years. The agriculture sector accounts for 55% of total groundwater withdrawals. Management plans and regulations are the core instruments applied to control groundwater use in agriculture. Groundwater is notably used for agriculture in the Küçükmanderes Basin region.

1. Main national governmental agency responsible for quantitative management of groundwater

<table>
<thead>
<tr>
<th>Institution</th>
<th>Role</th>
</tr>
</thead>
<tbody>
<tr>
<td>State Hydraulic Works (DSI)</td>
<td>DSI is the primary executive state agency of Turkey for Nations overall water resources planning, managing, execution and operation. The main objective of DSI is to develop all water and land resources in Turkey. It aims at all the wisest use of the principal natural resources.</td>
</tr>
</tbody>
</table>

2. Status and use of groundwater resources

- Total groundwater resources 14.7 km\(^3\) 2013.
- Groundwater irrigation area 1 615 000 ha in 2013.
- Groundwater withdrawals for irrigation 13.56 km\(^3\) in 2013.
- Total irrigation area 25 850 000 ha in 2013.

Note: Domestic includes industry.
3. Inventory of national policies affecting agricultural groundwater use

Recent groundwater management reforms

<table>
<thead>
<tr>
<th>Reforms</th>
<th>Year</th>
<th>Scope and objective</th>
<th>Degree of implementation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Groundwater Law No:167</td>
<td>1960</td>
<td>To project the groundwater sourced in our country and to promote their best usage and utilization. According to the law, the groundwaters are brought under direct control and rule of the Government.</td>
<td>Complete</td>
</tr>
<tr>
<td>By-law on Protection of Groundwater against Pollution and Deterioration</td>
<td>2012</td>
<td>To determine the principles for maintaining the present condition of groundwater which are in good condition, prevent the pollution and deterioration of groundwater and necessary principles to improve the quality of these waters.</td>
<td>Partial</td>
</tr>
<tr>
<td>Installing a recording system to industrial wells is an obligation after year 2013</td>
<td>2013</td>
<td>To record and follow the amount of groundwater withdrawal effectively.</td>
<td>Partial</td>
</tr>
</tbody>
</table>

Core groundwater management approaches at national level

Groundwater ownership
► The groundwater is the general territorial waters of the country and they are under the control and ownership of state.

Groundwater entitlement characteristics
► Permanent, temporary
The investigation, usage, protection and registration of groundwater are subject to the provisions of Groundwater Law 167.

Beneficiaries of entitlement
► The groundwater is the general territorial waters of the country and they are under the control and ownership of state. The investigation, usage, protection and registration of groundwater are subject to the provisions of Groundwater Law 167.

Groundwater entitlement allocation doctrine
► The groundwater is the general territorial waters of the country and they are under the control and ownership of state. The investigation, usage, protection and registration of groundwater is subject to the provisions of Groundwater Law 167.

Main types of instruments used to manage groundwater use in agriculture

Regulatory approaches

Groundwater management plans
► Mandated

Regulations on wells
► Approval of new wells
  • Accounting for well space restrictions
  • With environment impact assessment
► Groundwater withdrawal restrictions

Mandated metering or monitoring system for groundwater
► Installing a recording system to industrial wells is an obligation since 2013. Additionally, basins that have to establish measuring systems have been determined by the Ministerial Decision (2013/5276). Monitoring systems will work online.
4. Agricultural groundwater use at the regional level

Küçükmenderes Basin

Characteristics of the main aquifers in the regional unit
► Unconsolidated (clay, sand and gravel)
► Consolidated (limestone)

<table>
<thead>
<tr>
<th>Type of aquifer</th>
<th>Geological type</th>
<th>Maximum Thickness</th>
<th>Groundwater reserve</th>
<th>Groundwater recharge rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mixed</td>
<td>Sand and Gravel Karst</td>
<td>300 m</td>
<td>0.180 km³/year</td>
<td>0.231 km³/year</td>
</tr>
</tbody>
</table>

Recent groundwater management reforms

<table>
<thead>
<tr>
<th>Reforms</th>
<th>Year</th>
<th>Scope and objective</th>
<th>Degree of implementation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Determined by the Ministerial Decision (2013/5276)</td>
<td>2013</td>
<td>To record and follow the amount of groundwater withdrawals effectively.</td>
<td>Partial</td>
</tr>
</tbody>
</table>

Basins that have to establish measuring systems have been determined by the Ministerial Decision (2013/5276).

5. Bibliography

Institutional websites

- [www.dsi.gov.tr](http://www.dsi.gov.tr)

Official reports

- DSI Annual Report

This country profile was compiled by the OECD Secretariat and reflects information obtained in a 2014 OECD questionnaire on groundwater use in agriculture. Further information and analysis can be found in OECD (2015), *Drying Wells, Rising Stakes: Towards Sustainable Agricultural Groundwater Use*, OECD Studies on Water, OECD Publishing. The countries profiles for 16 countries of OECD are available for download at: [www.oecd.org/tad/sustainable-agriculture/groundwater-use.htm](http://www.oecd.org/tad/sustainable-agriculture/groundwater-use.htm)