

## Basin short profile

Name	<b>Zayandeh Rud</b>	Country	<b>Iran</b>
Area	41,500 km <sup>2</sup>	Altitude	From 3,974 m to 1,466 m
Rainfall/Evapo	<p>Average rainfall: 130 mm            Max in upstream 1500 mm            Min in down stream:50 mm            Annual potential ET:1500 mm            Average humidity 39% (24-57)            Monthly average temperature: 3-29°C</p>		
Landuse (1997)	<p>Pasture: about 22,800,000 ha            Irrigated: about 270,000 ha            Dry farming: about 30,000ha in the western part of the basin</p>		
Irrigation	<p>270,000 ha, including nine main hydraulic units along the Zayandeh Rud totalling 210,000 ha. Other areas are irrigated by wells, qanats and springs in lateral valleys.</p>		
Water Indicators	<p>Water diverted per person: 240 lit /day in urban area and 150 lit/day in villages            Surface water use per sector: Agriculture :80%, Industry: 7%, Human consumption: 10%, Other: 3%</p>		
Drinking water	<p>Mostly from the river + sometimes from wells in summer, together with surface water</p>		
Main crop(s)/yield	<p>Wheat(3.2 t/ha), Barley(3.6 t/ha), Rice(3 t/ha)</p>		
Population	<p><b>4,500,000</b> people (including 1.27 million in Esfahan); Pop. Density: 191 person/km<sup>2</sup>. Religion: &gt;99% Moslem Population growth 1983-2003: <b>1.3 %</b> per annum (but 3.5% in the early 1980s). Large population under 18.</p>		
Floods	<p>No floods since the construction of the Chadegan reservoir (1972)</p>		
Groundwater	<p>72% of total water resource in the basin is from groundwater(3500MCM) :</p> <ul style="list-style-type: none"> <li>• Wells :83% , 19000 wells,with tot.vol.:2,600 MCM</li> <li>• Qanats :12% , 1750 qanats, with tot.vol.:707 MCM</li> <li>• Springs:5% , :1070 springs with tot.vol.:190 MCM</li> </ul> <p>Wells digging requires official authorization. A minimum distance of 500m with other wells must be respected.</p>		
Environmental and health issues	<p>Gavkhouni swamp is an international swamp (RAMSAR convention). Environmental authorities call for a minimum flow into Gavkhouni of 70 MCM.            Water quality in the Zayandeh Rud has drastically declined. In time of drought, impact on domestic water and human health are observed.</p>		
Protected areas	<p>No officially protected area</p>		
Land/labour	0.5 ha per capita	Daily agri. wage: 4,000 tuman (5\$)	
Land tenure	<p>Most irrigated lands are privately owned, a small amount of the lands is semi private. Communal (state) land can be appropriated if it is brought under productive use (agricultural or not).</p>		
Water	<p>Water management belongs to Ministry of Energy, provincial Authority of</p>		

Management	Isfahan. The ministry of Jihad and Agriculture intervene in matters such as land integration project and extension.
Allocation rules	The allocation of water to the different diversion channels branching off the Zayandeh Rud and below springs was based earlier on 16 <sup>th</sup> century documents (Cheikh Bahaii documents). The construction of the Chadegan dam (1972) and modern irrigation infrastructures overrode these rights. Allocation is now decided by the provincial authorities. Qanat based irrigation is based on traditional communal rights.
Hydropower	Power station at the Chadegan dam. Energy mainly from thermal units.
Legal framework	A new committee at provincial level called committee of water crisis started in 2001 its activities (since last drought). Final decision is taken by this committee. Ministry of Energy, authority of Esfahan plays its role at a lower level.
Politics, Civil Society	There is an active NGO called Green Group now. There are several NGOs that are going to be formed but civil society participation is very incipiente. The Ministry of Energy and Water has overriding power in water-related matters.
Futur development	.Water flow into basin: by third tunnel: 280 MCM (near future) .Water flow into basin from Langan spring: 150 MCM .Water transbasin diversion to cities outside the basin: 125MCM
Main problems and challenges	.More water to be allocated to the swamp, pollution and salt dilution .Water is overallocated and uses sensitive to shortages and droughts .Main aquifer overdraft; destruction of qanats by wells .Need of a more participative governance framework

- Layout of the Zayandeh Rud Basin

