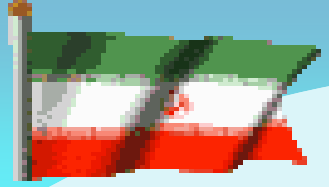


In the name of God

Roundtable On Iranian Infrastructures

Country Level Presentation

Iran Country Report

Rome, Italy , December 15th , 2015

IRAN

Area	**1.648 million km^2**
Population	**>78 million**
No of provinces	**31**
Average Rainfall	**243mm**
Neighboring Countries	**Afghanistan, Pakistan, Iraq, Turkmenistan, Azerbaijan, Armenia, Turkey , Arab States in Persian Gulf**
Language	**Persian**

Capital: Tehran (12,000,000)

Population growth rate: 1.29

Number of major basins (first order): 6

Number of sub basins (second order): 30

Number of Ministries: 18

Ministries dealing with water: MOE, MOJA, and DOE.

Based on 2014 year statistics

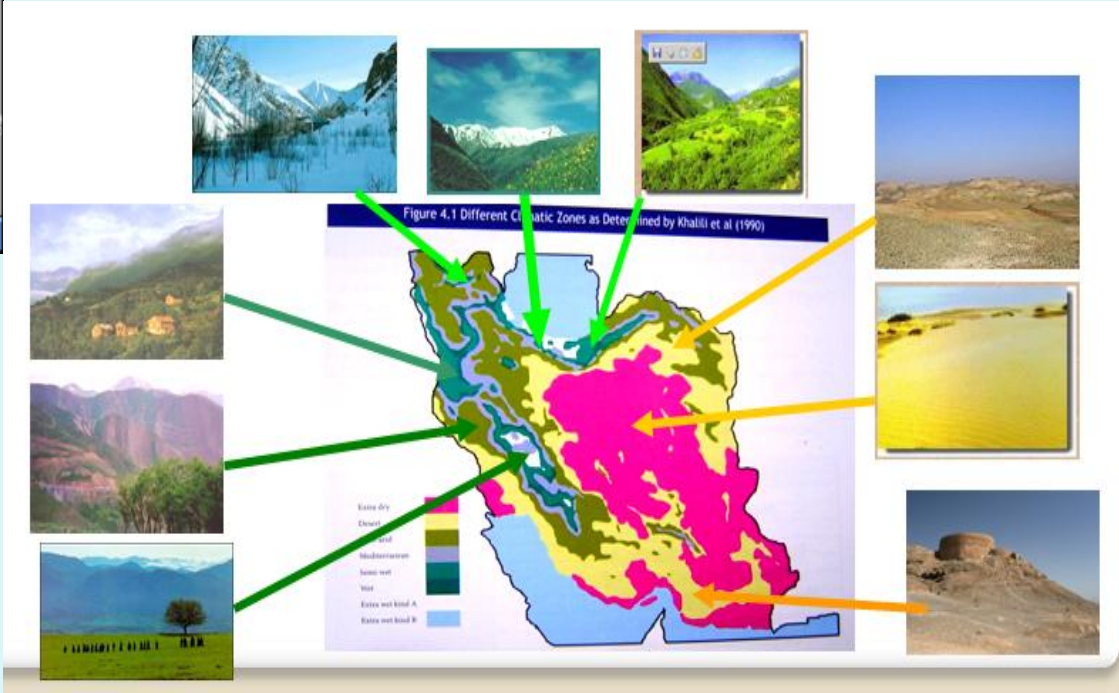
Major Basins in Iran

1.Persian Gulf
2.Markazi
3.Caspian Sea
4.Urmia Lake
5.Gara Gom
6.Hamoon

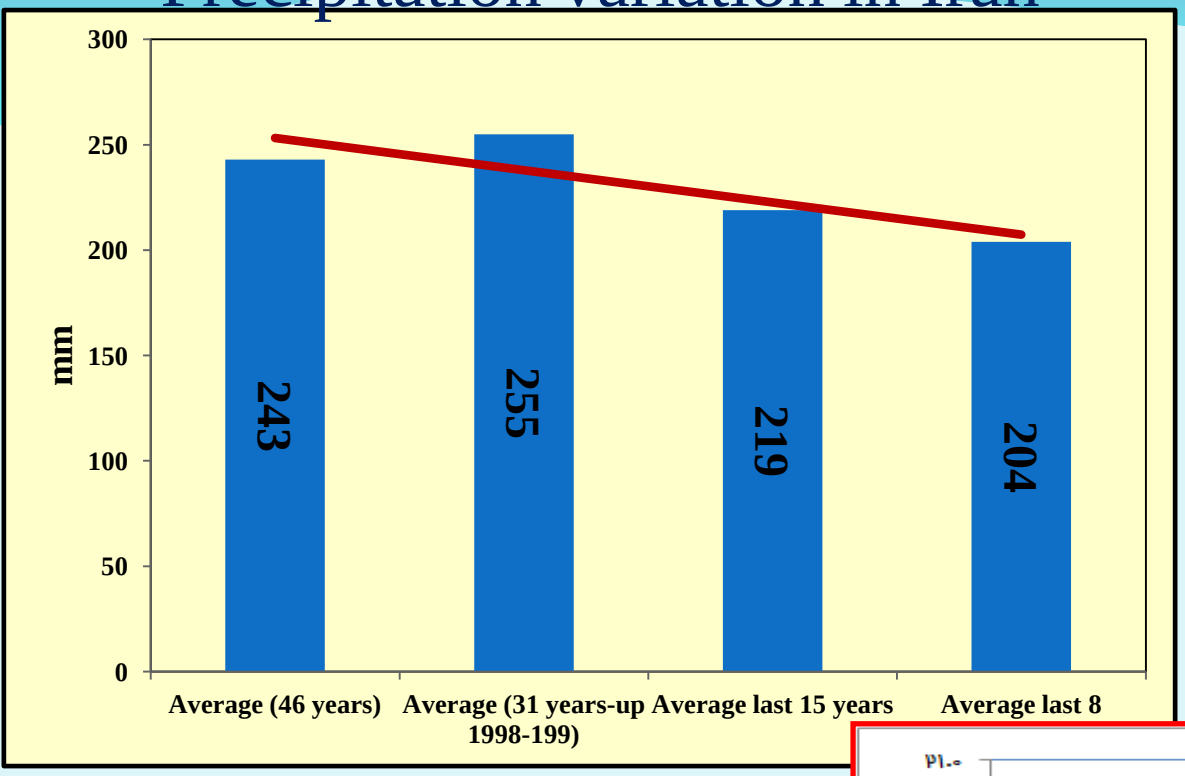
Climatic Status

Iran is located in an arid and semi arid climate

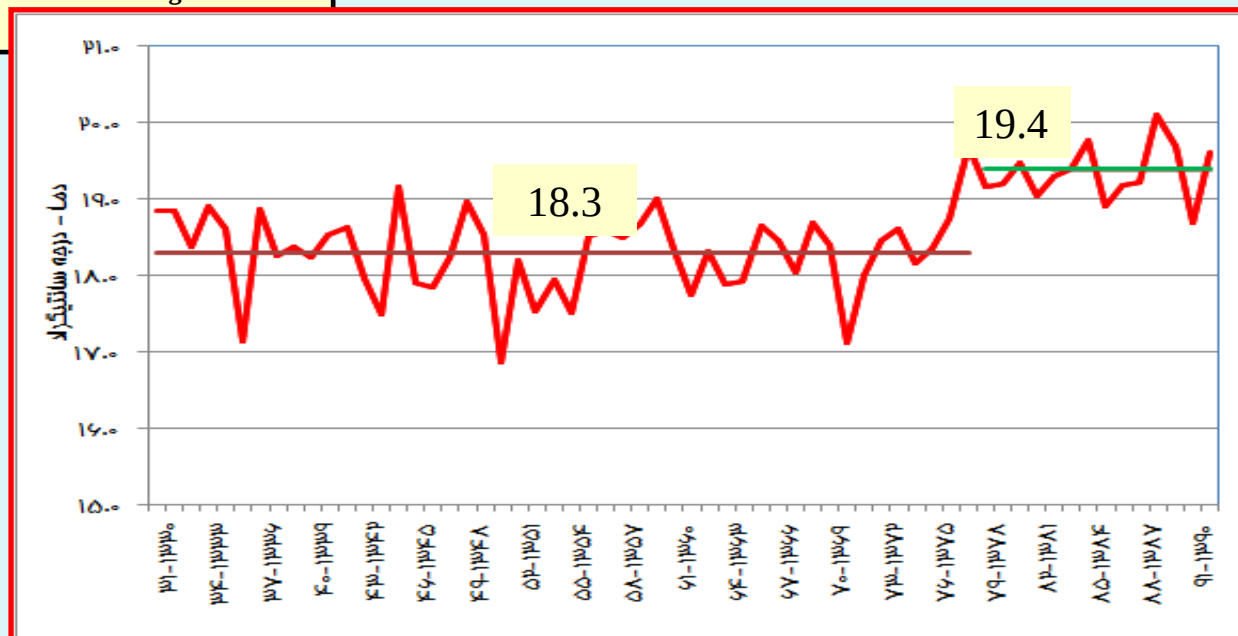
- **15 % humid and semi humid**
- **20 % semi arid**
- **65 % arid.**

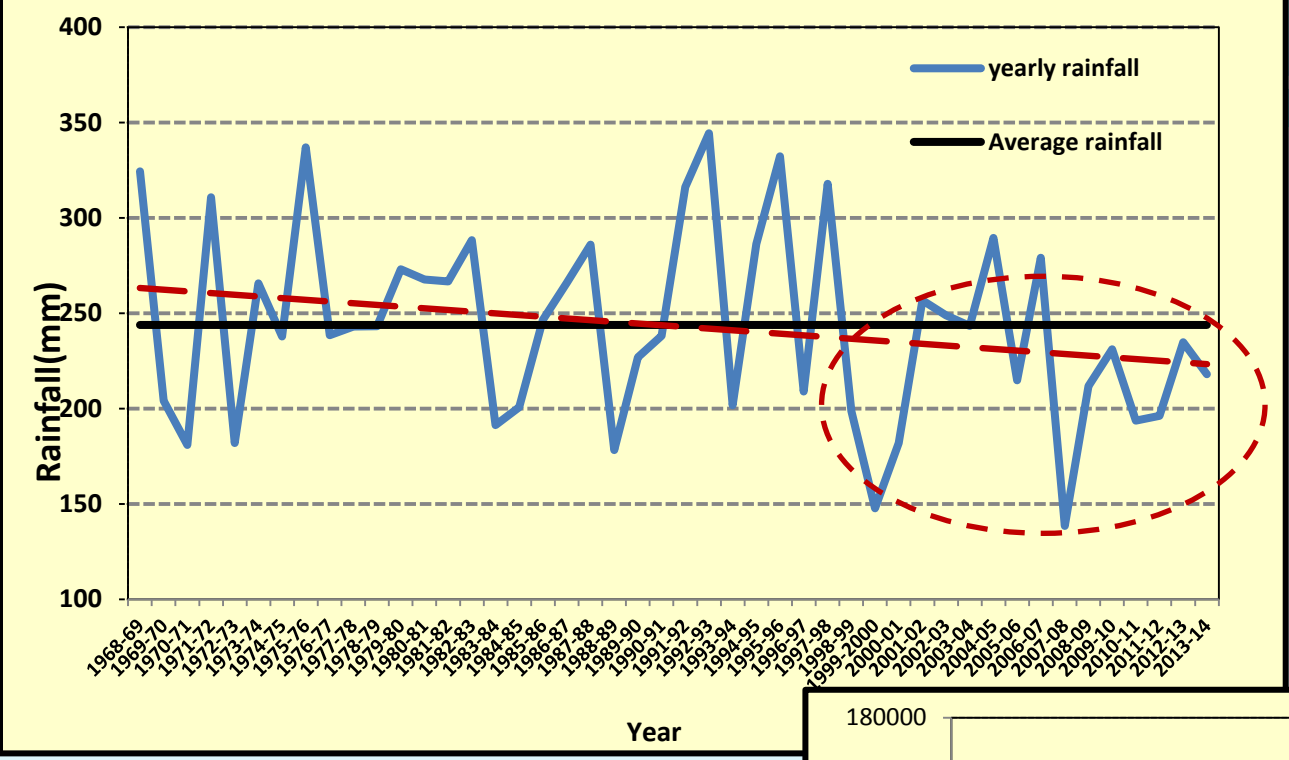


Precipitation variation in Iran



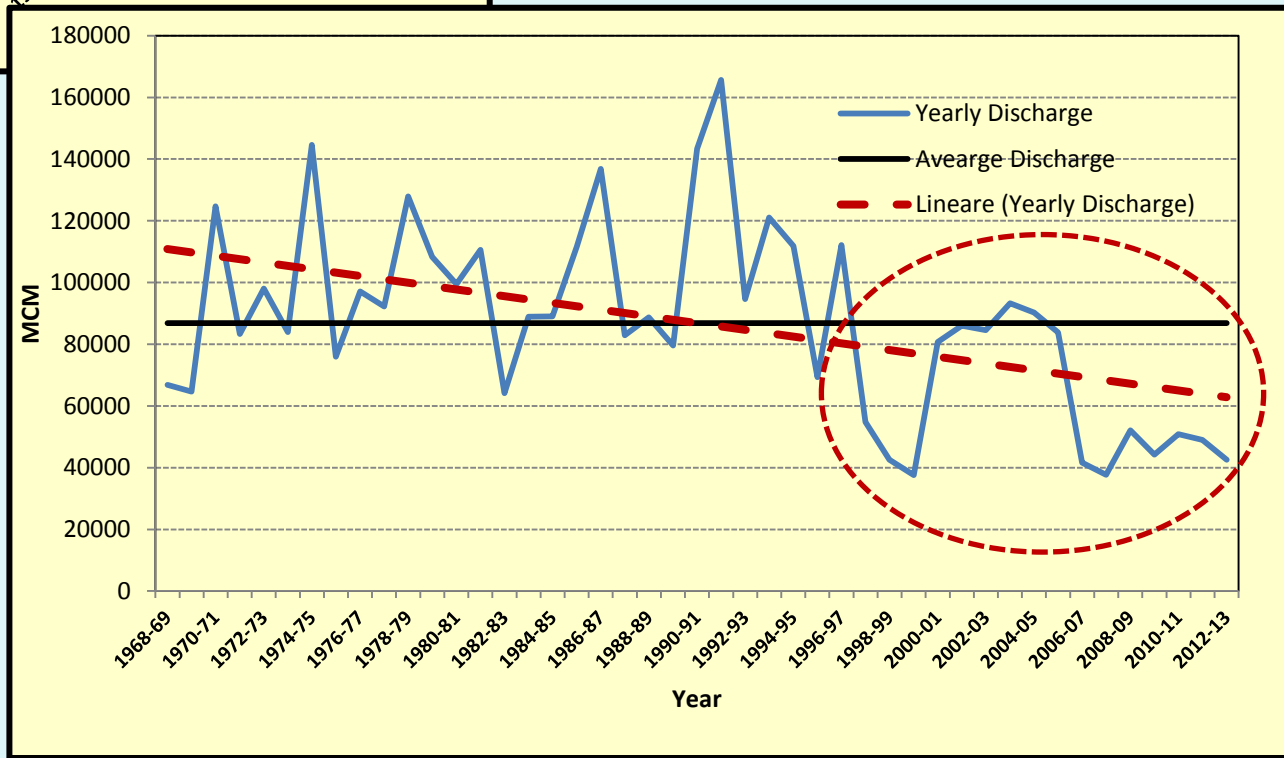
Temperature variation in Iran



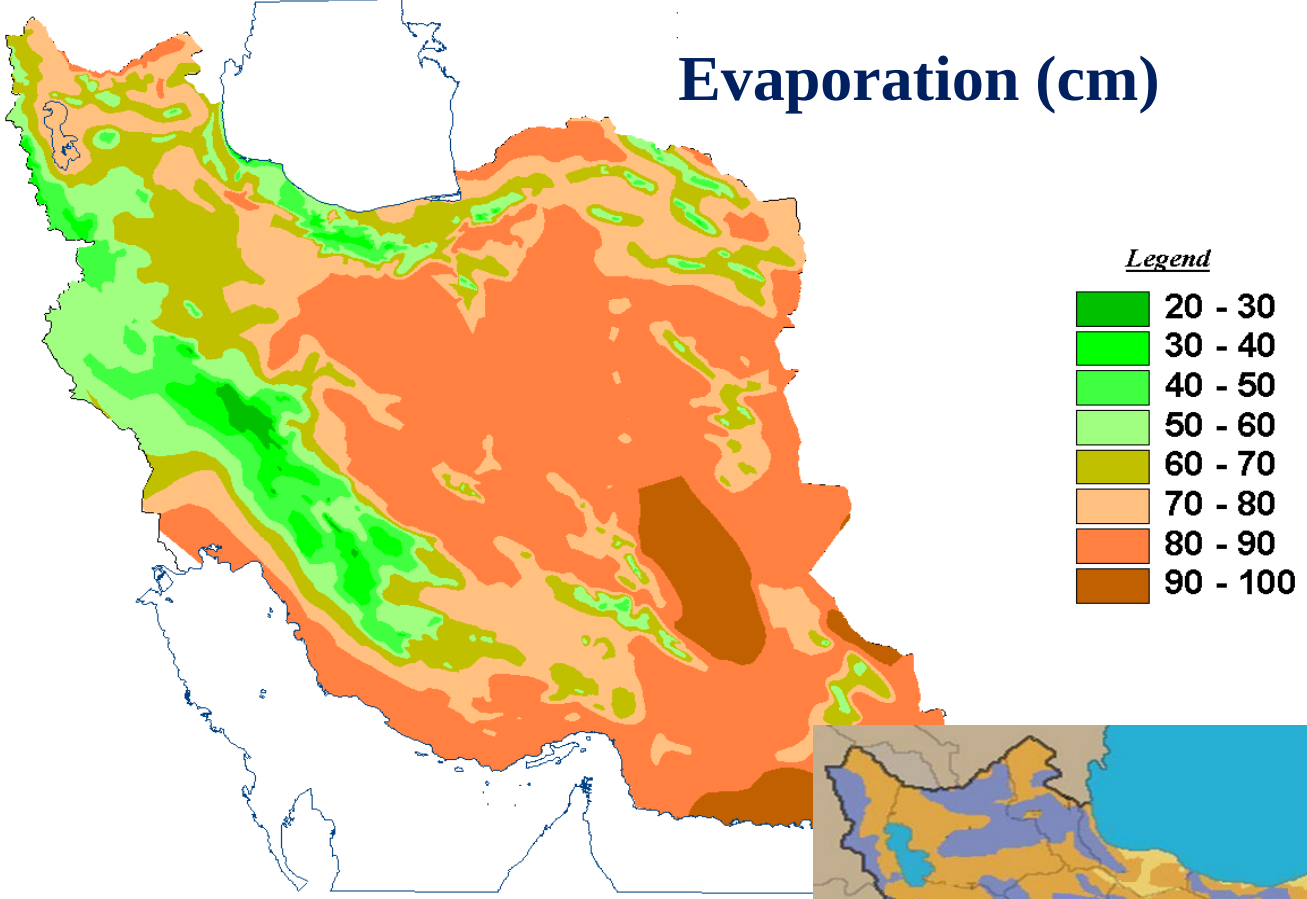


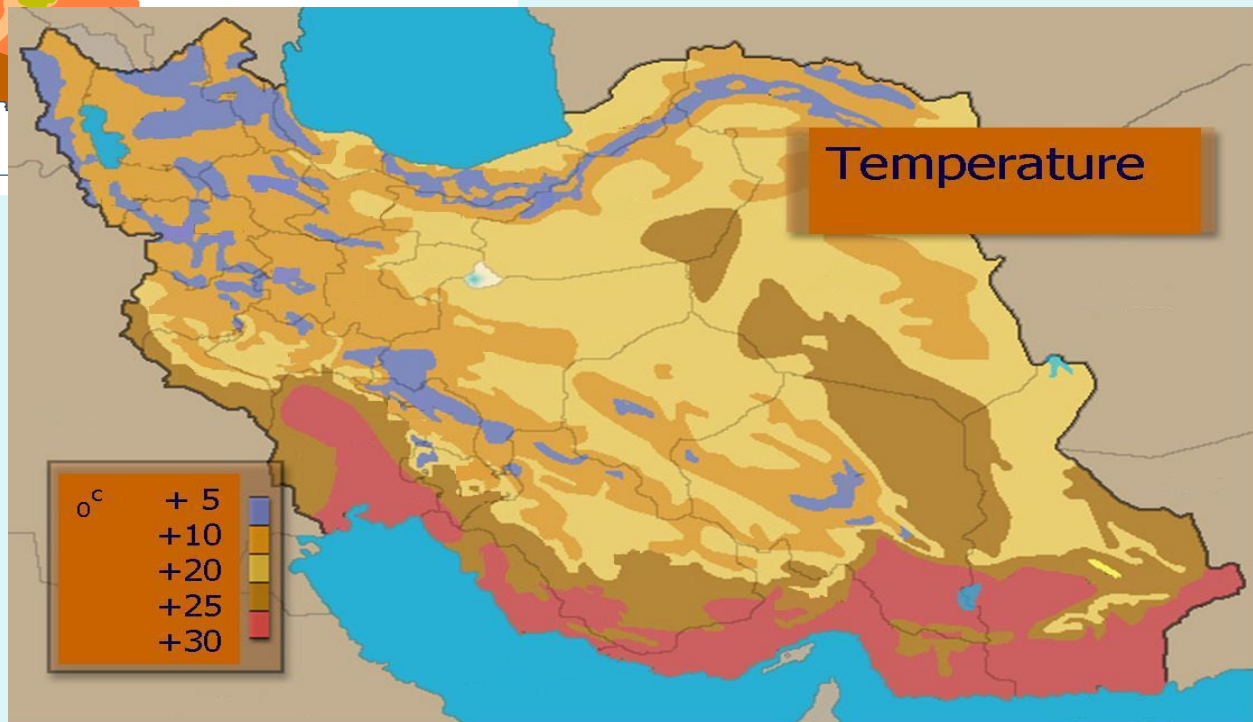
Yearly Rainfall variation

Yearly Discharge variation



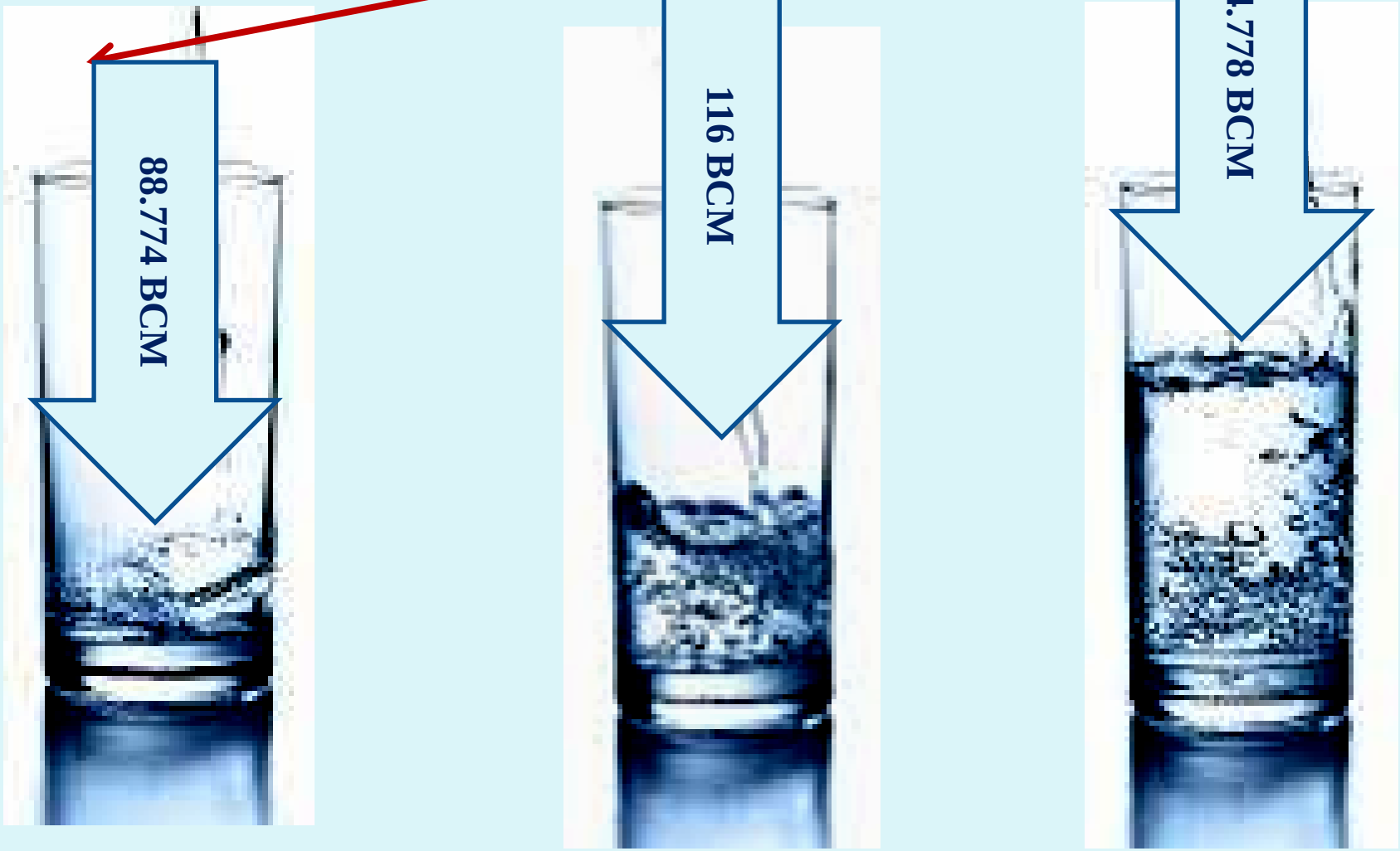
Evaporation (cm)





Renewable fresh water variation in Iran

(Based on water allocation group studies)

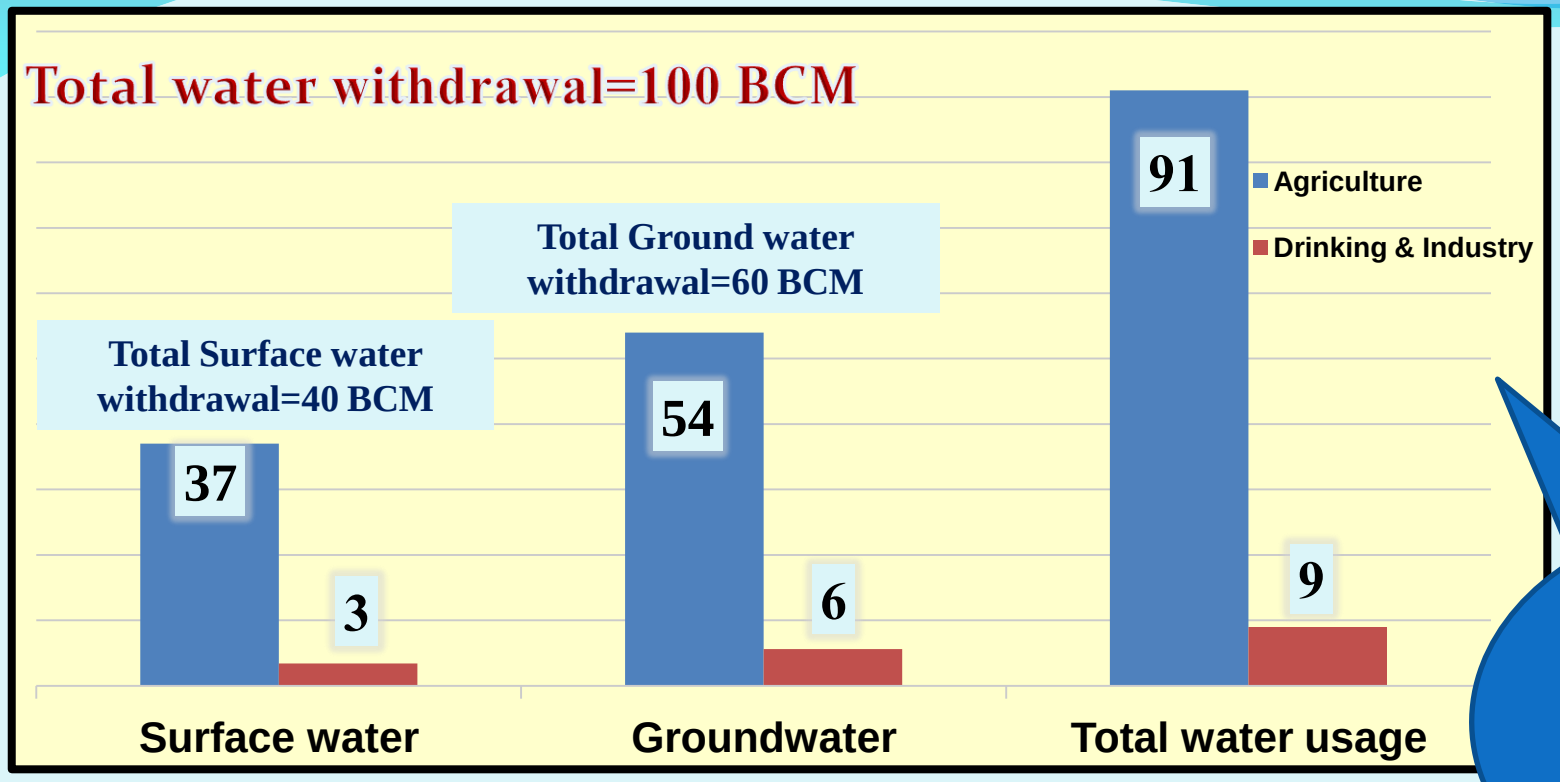


Last 17 years

Long term average

30 years-up to 1998

Water Withdrawal



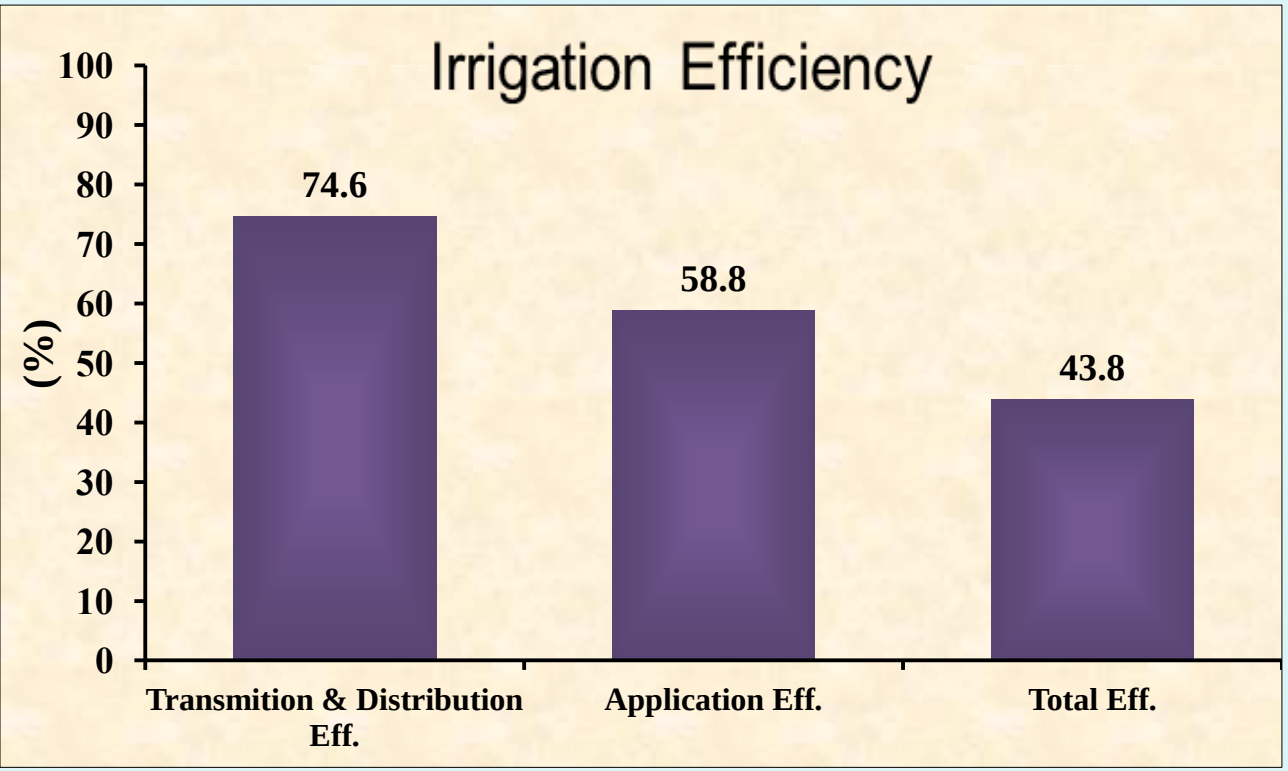
Percentage of total renewable water resources withdrawn =86% (upper than normal percentage (40%))

Water Allocation by Sector

- ✓ Domestic: 6.5%
- ✓ Industrial: 1.5%
- ✓ Agriculture: 92%

Agriculture Condition

- ✓ Total irrigated land: 8.6 million ha
- ✓ Crops land: 6.4 million ha
- ✓ Garden: 2.2 million ha



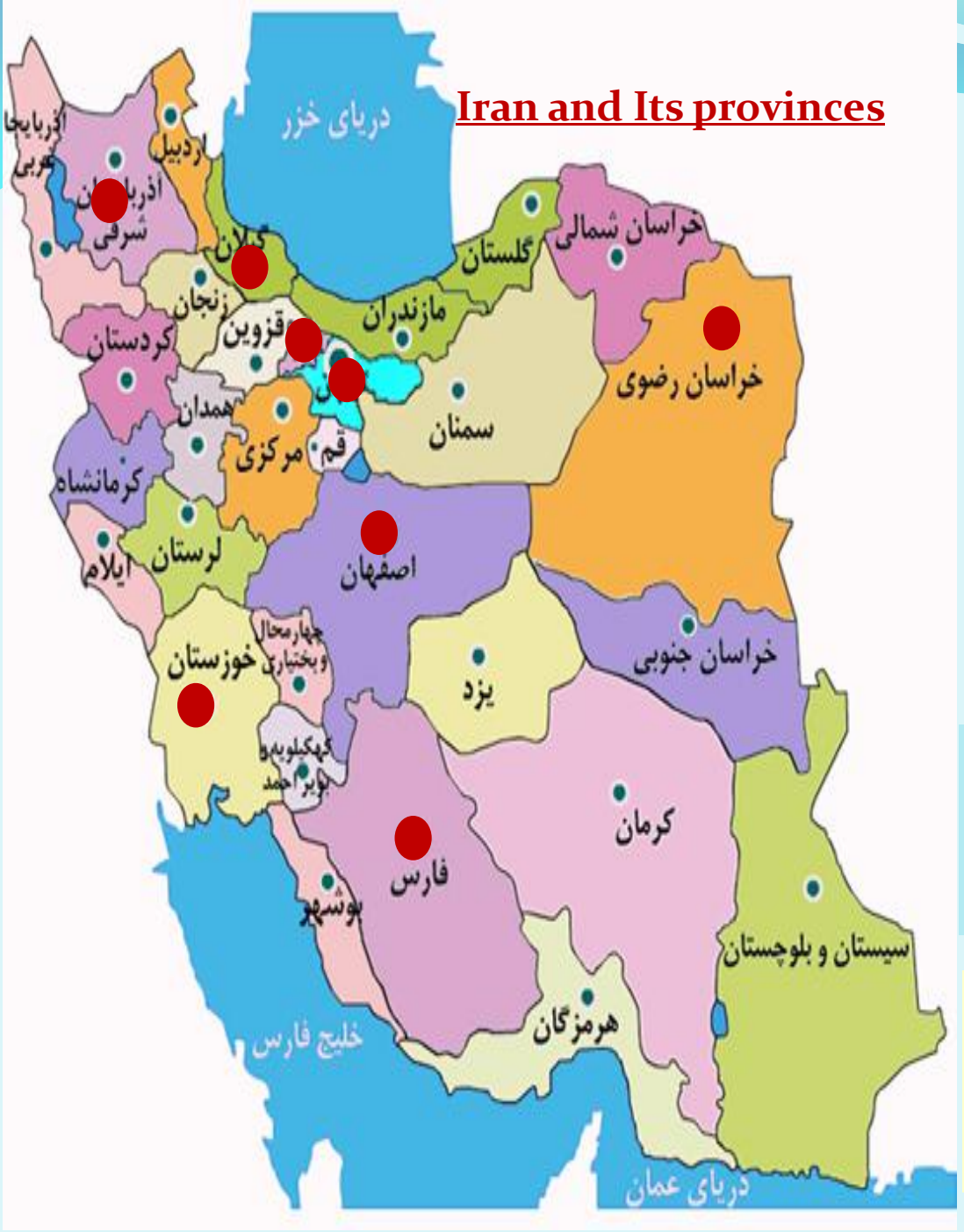
Agriculture section, is the biggest water users in Iran

Importance to GDP (Average): **only 15.6%**

Based on Iranian Central Bank data

FOOD SECURITY
(based on FAO report-2014)

- Number of people undernourished: 4 million
- Percentage of children under 5 years of age who are stunted: 7.1% (2004)
- Cereal import dependency ratio: 28.7% (2009-2011)



Mega cities are:

- ✓ Tehran
- ✓ Karaj
- ✓ Mashhad
- ✓ Tabriz
- ✓ Ahvaz
- ✓ Isfahan
- ✓ Shiraz
- ✓ Rasht

People Access to drinking water :

- Urban: 99.1%
- Rural: 74%

People Access to Improved Sanitation (Sewerage system):

- Urban: 41.51%
- Rural: 0.3%

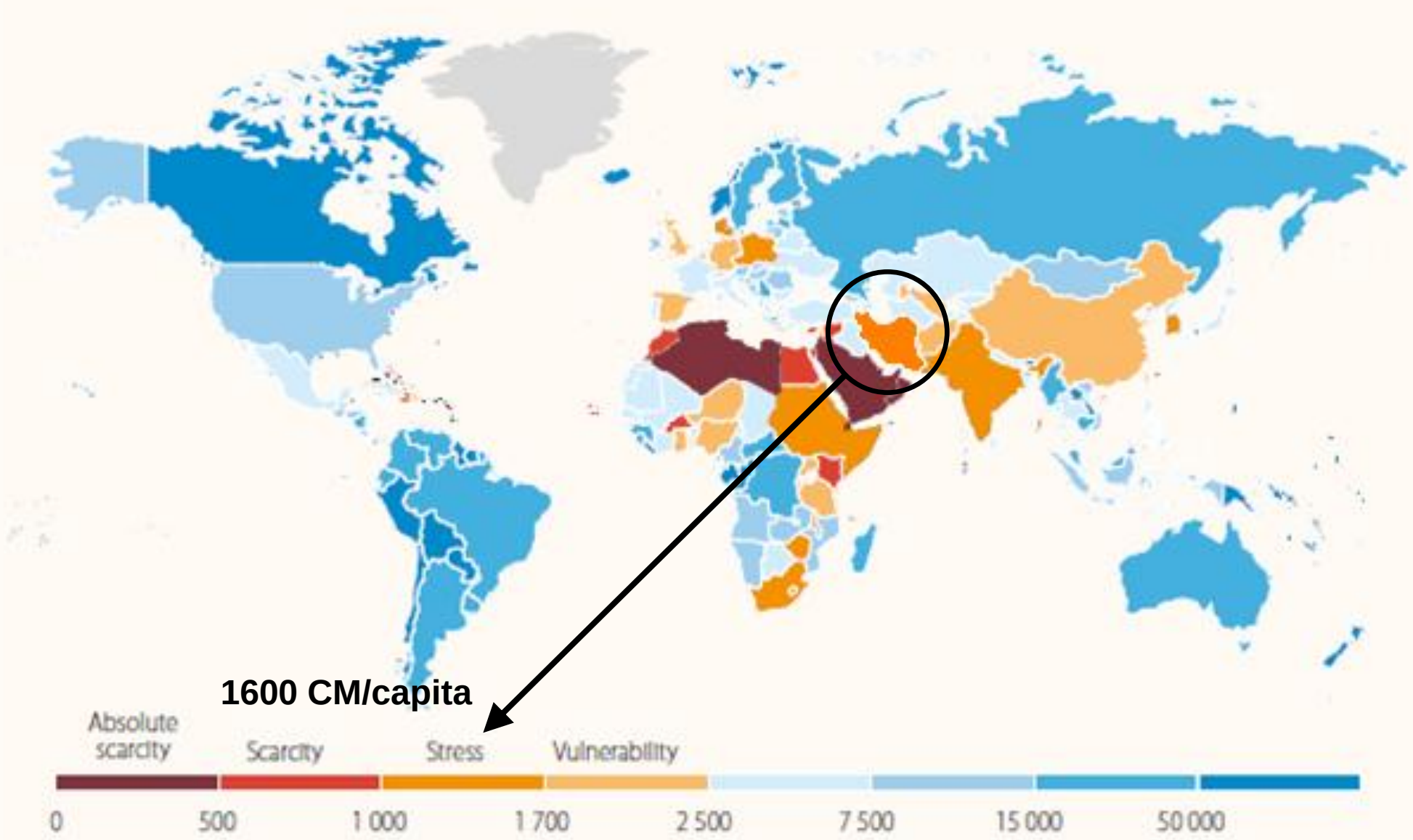
Basic Electricity Indicator:

- Nominal Generation capacity : 73745 MW
- Demand: 50177 MW
- Actual power: 57759 MW

Main Water Challenges in Iran

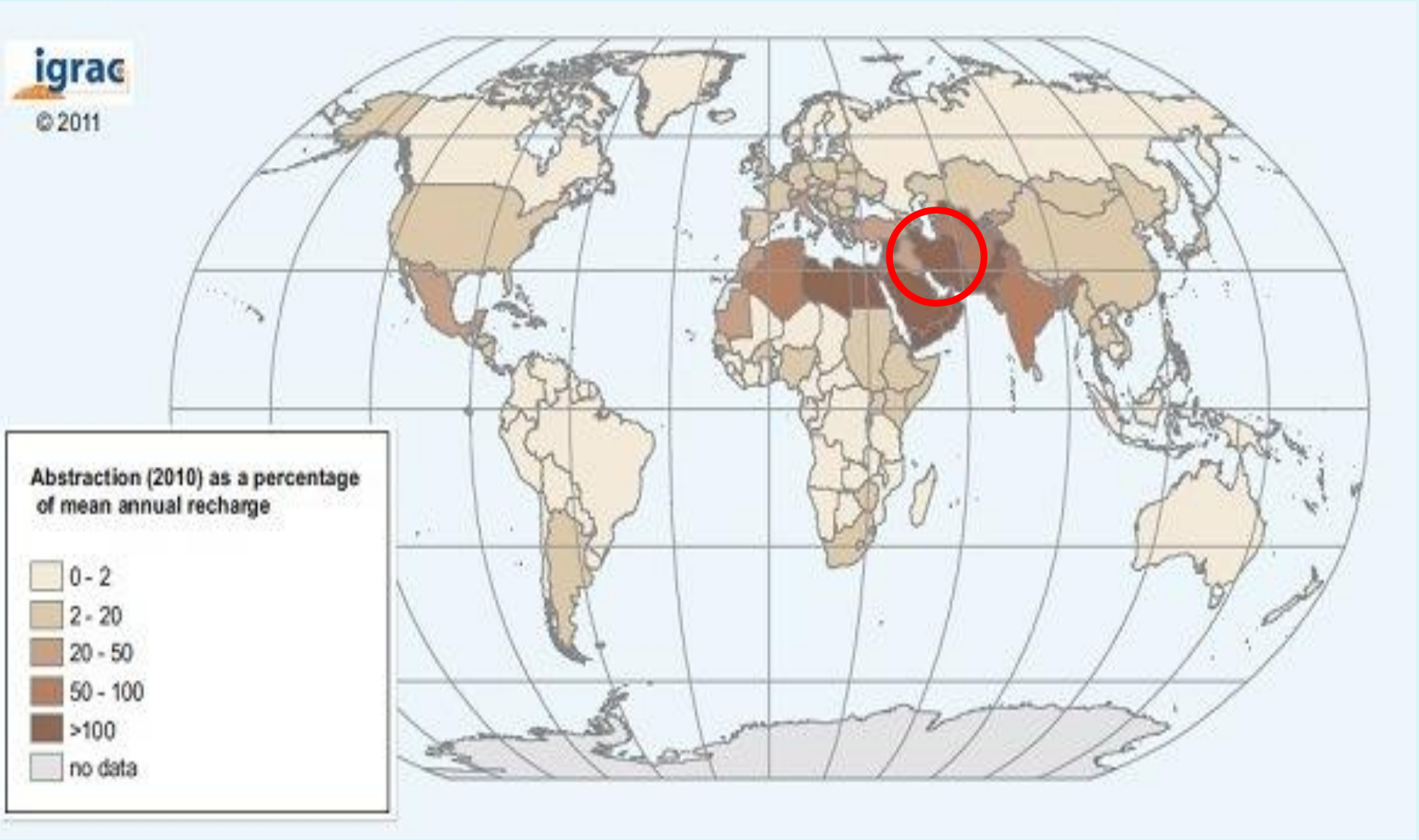
- ✓ **Climate change & Drought**
- ✓ **Renewable fresh water reducing & water scarcity**
- ✓ **Groundwater drawdown (more than 115 billion cubic meters cumulative overdraft)**
- ✓ **Lakes & Lagoons Drying/Dust Storm**
- ✓ **Deterioration of water quality**
- ✓ **Insufficient drinking water in urban & rural regions (quantity & quality)**
- ✓ **Low irrigation efficiency and Low water productivity specially in Agricultural section**
- ✓ **Lack of economically view to water (high difference between the marginal cost and the sale price of water to the consumers)**
- ✓ **Increasing of water stress (between users)**
- ✓ **Land fragmentation and farms in small size**
- ✓ **Lack of native water technologies (gap between current technologies and new technologies)**
- ✓ **Careless use of unconventional water resources**
- ✓ **Lack of volumetric water delivery (specially in agricultural section)**

Water Stress Situation in the World



Source: WWAP, prepared with data from FAO AQUASTAT (aggregate data for all countries except Andorra and Serbia, external data) (website accessed Oct 2013), and using UN-Water category thresholds.

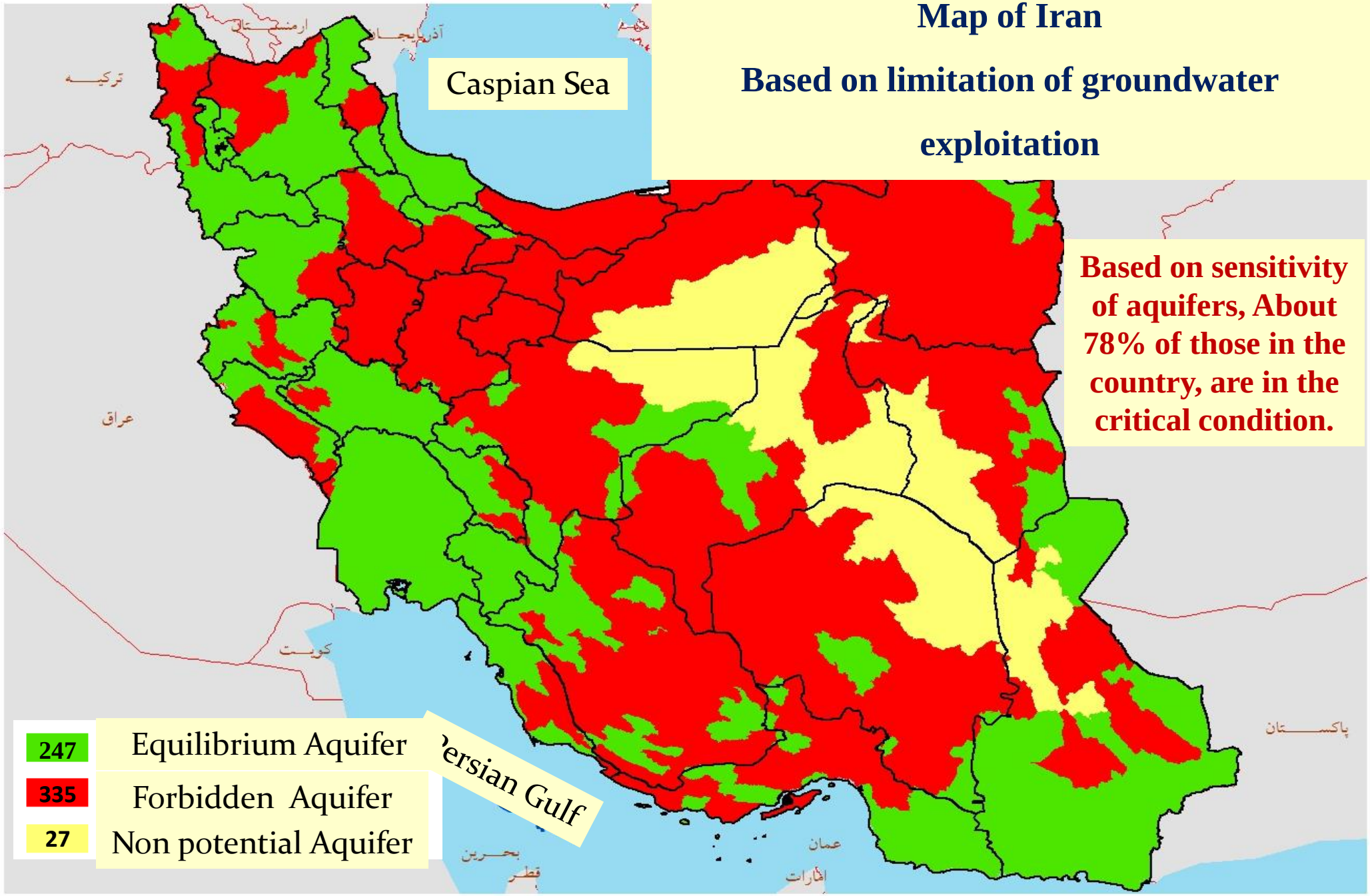
Groundwater stress in the world - 2012



The United Nations World Water Development Report 4, Volume 2, Knowledge Base, 2012

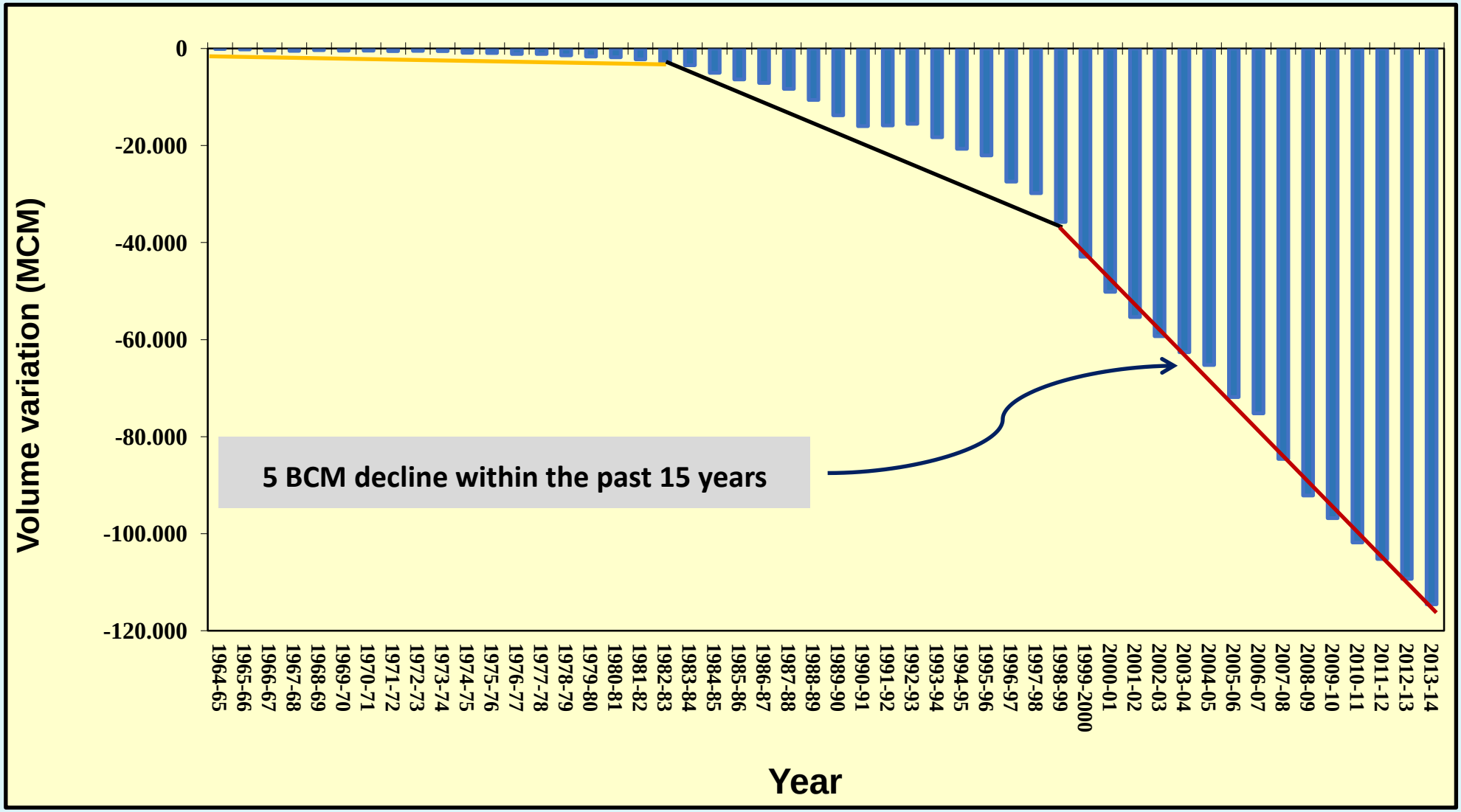
Map of Iran

Based on limitation of groundwater exploitation



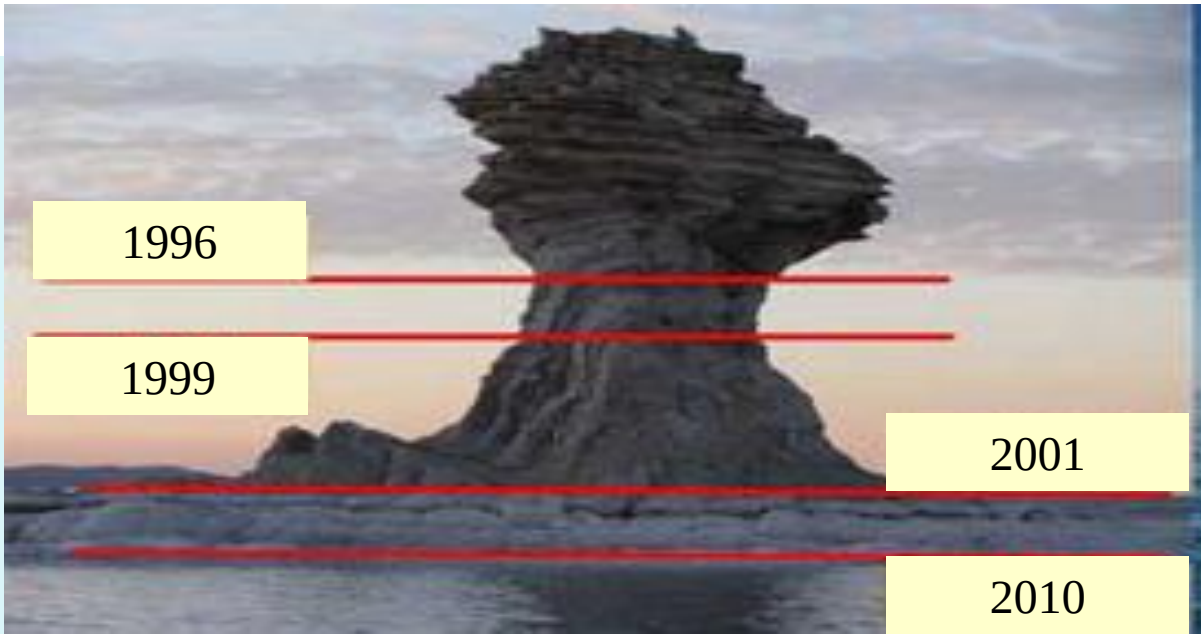
Based on sensitivity of aquifers, About 78% of those in the country, are in the critical condition.

The decreasing trend of groundwater resources

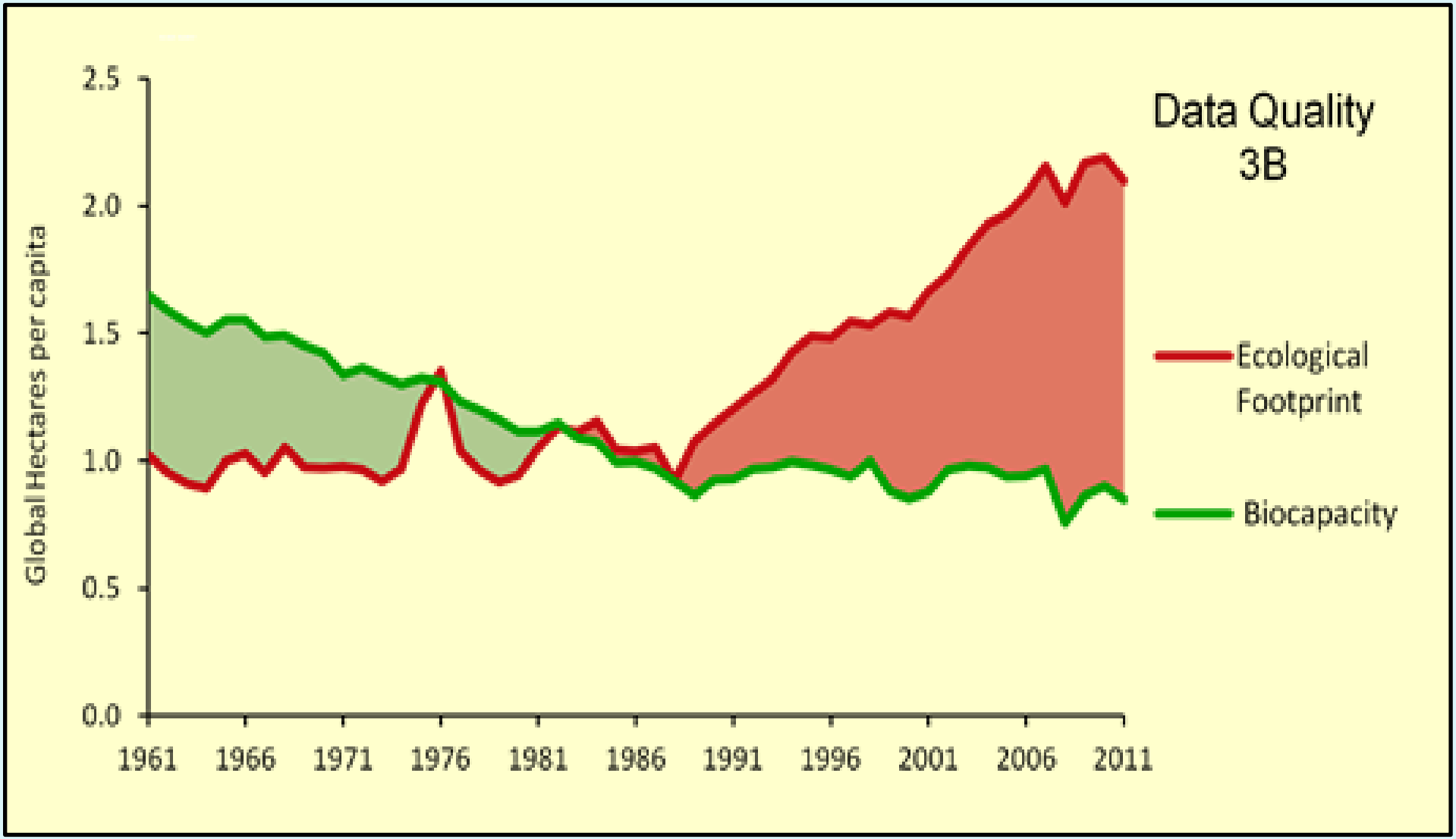


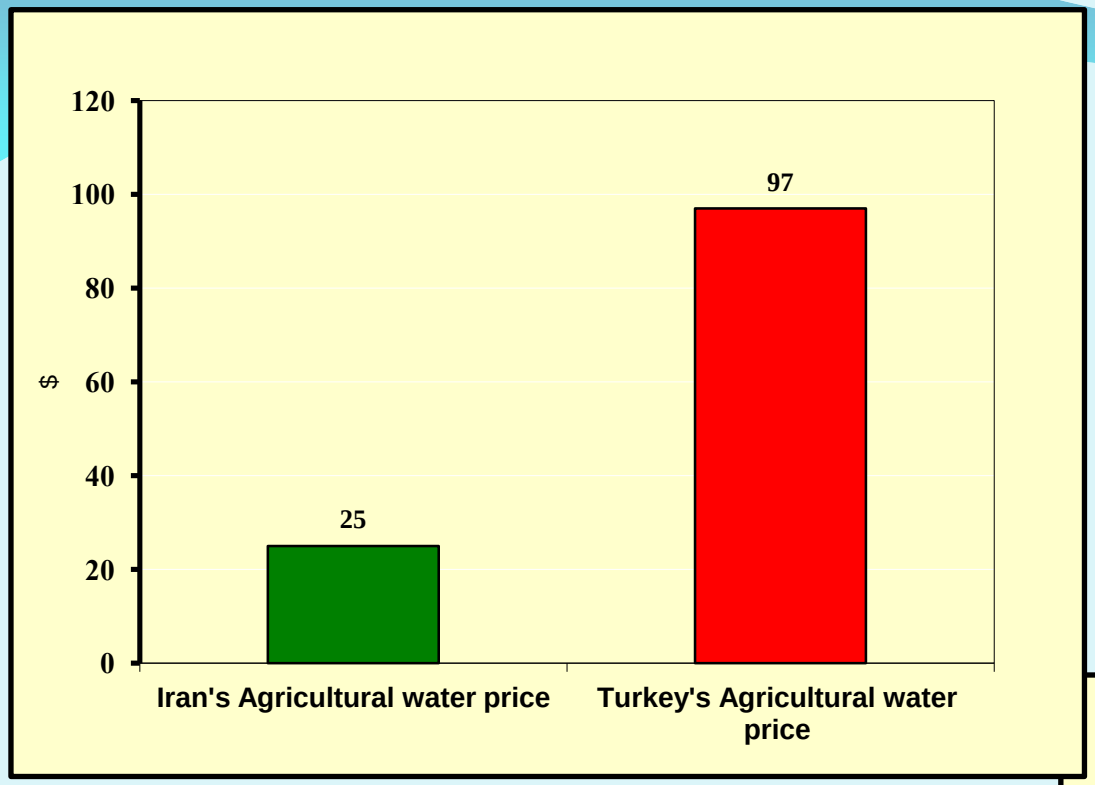
Surface water pollution

Urmia Lake



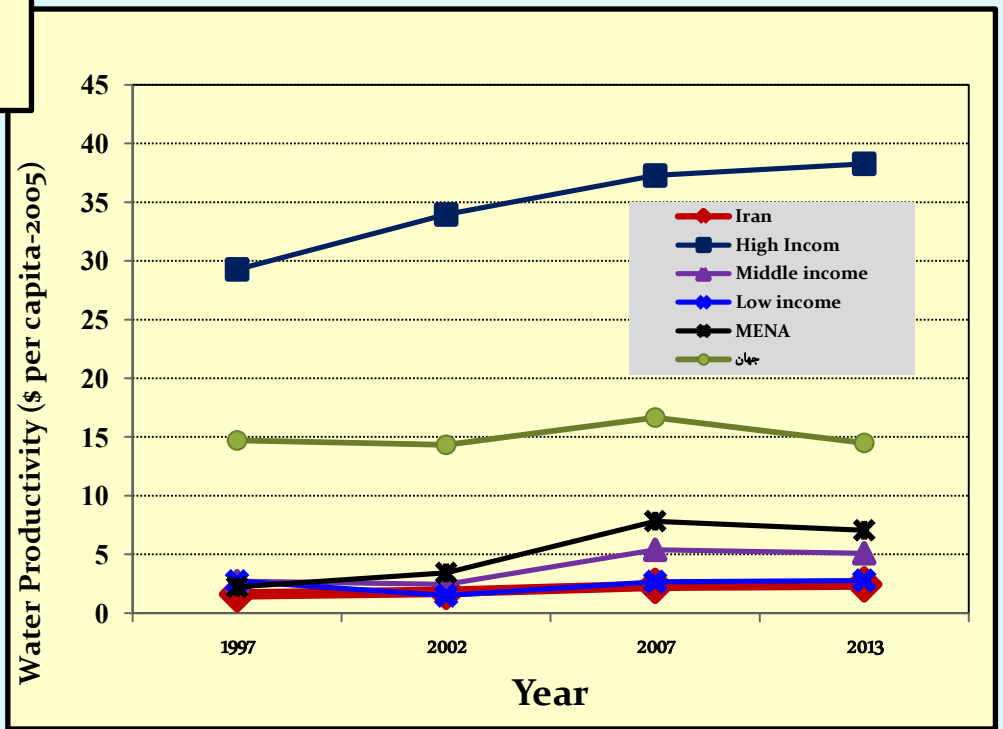
Ecological footprint and bio capacity





Comparing of Iran & Turkey agricultural water price

Comparing of water productivity in the world



Iran' water Policies

- Coordination in different parts of consumption through the High water Council
- Establishment of River basin organization
- Rehabilitation and Equilibrium of groundwater resources (recovery)
- Climate change study and its impacts on water resources
- Comprehensive studies of drinking water, industry and mining in Iran through looking at the use of unconventional water with a focus on costal saline resources
- Water recycling and use of gray water
- Consumption management and improvement of water efficiency in all sectors of consumption
- Using new technological tools in water management - (as: RS, GIS)
- Study of Deep and karst water resources
- Pay serious attention to basic studies of water resources and Installation and Upgrading the Measurement Tools for monitoring the quality and quantity of water resources and consumption
- Establishment of water market
- Upgrading water standards and criteria
- Studying of water master plan based on IWRM Approaches
- Revision in the methods water allocating

Total allocated water for different sectors

Based on renewable water resources potential

- **Surface water: 39776 MCM**
- **Groundwater: 37125 MCM**

MCM

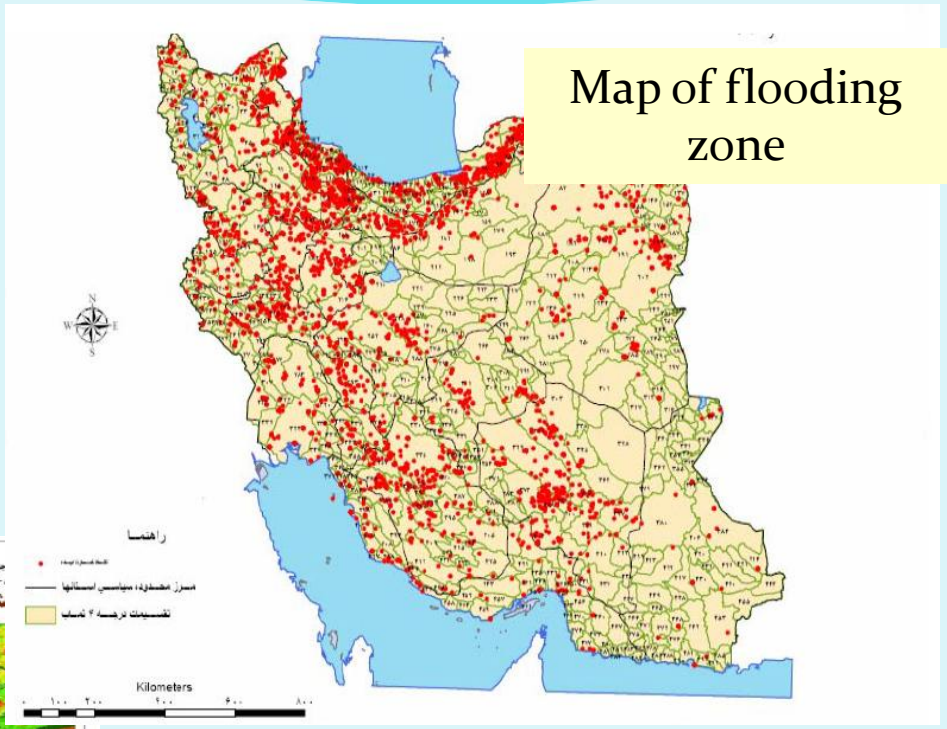
	Agriculture		Drinking water		Industry		Park &Green space		Total		Total
	SW	GW	SW	GW	SW	GW	SW	GW	SW	GW	
Future usages	30331	31379	6771	4477	2553	870	121	399.8	39776	37125	76901

Environmental water rights: 10777 MCM (from surface water)

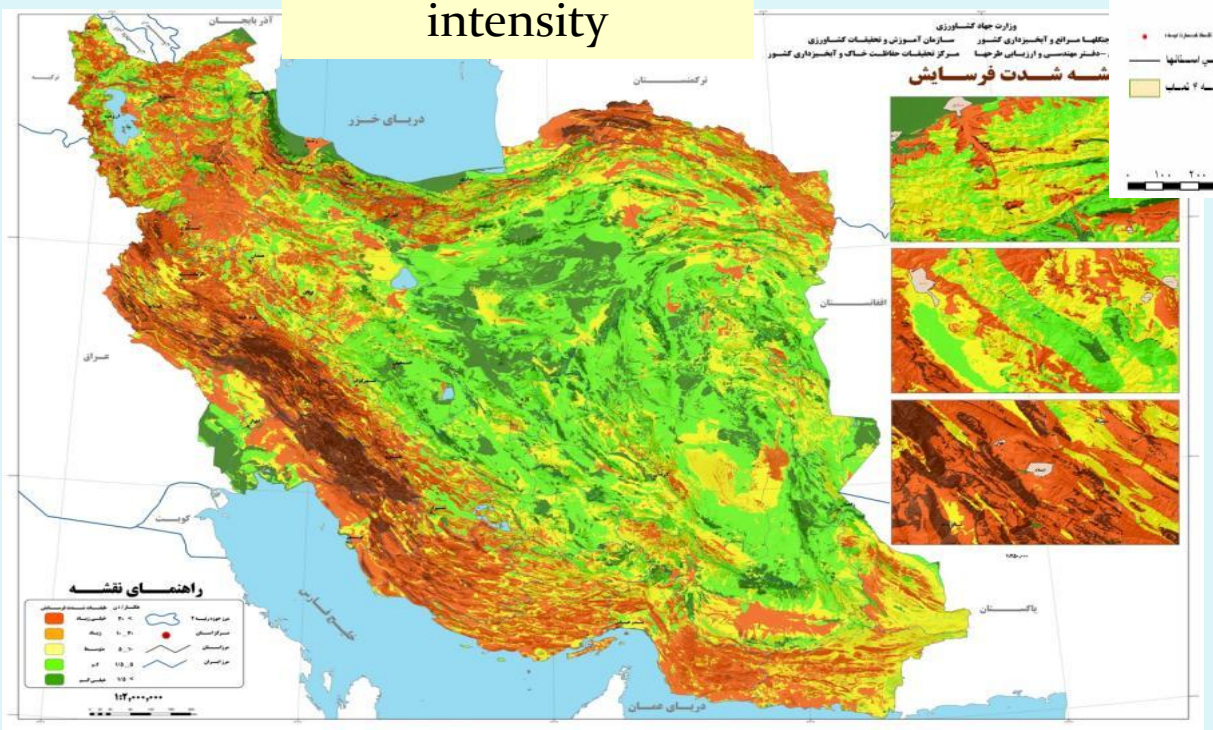
Natural Disasters in Iran

- Flooding
- Drought
- Earthquake
- Erosion & Land sliding

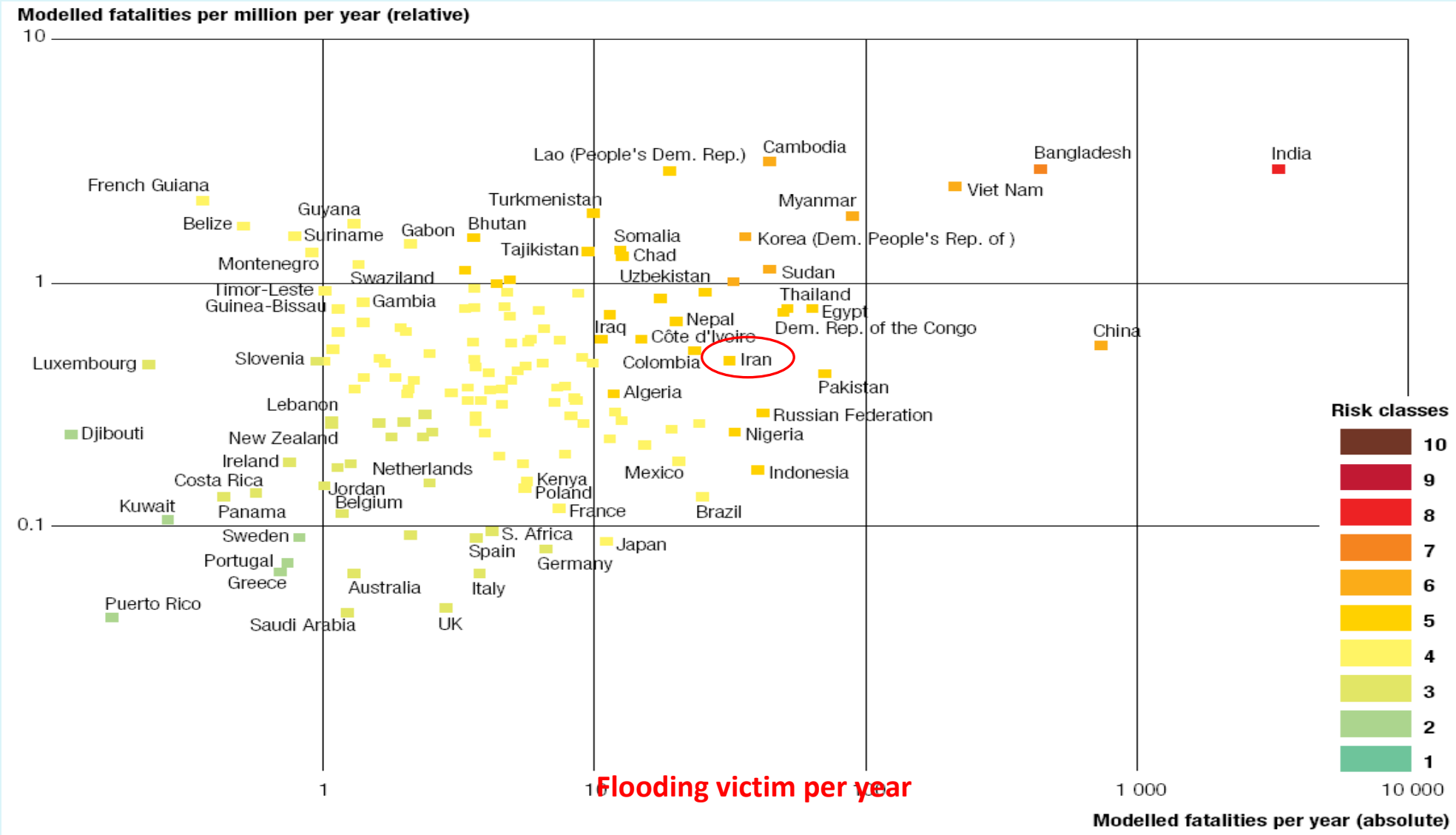
Map of flooding zone



Map of erosion intensity



Comparison between Iran flood ranking and other countries



Emergency Preparedness and Response Plans

- **Generally It is Interior Ministry Responsibility (**governmental structure for dealing with crisis)
- **In the Ministry of Energy**
  - **Annual water release schedule for each dam according to Variety of related parameters**
  - **Flood warning system for some sensitive reaches**
  - **Drought / flood management cooperation and administrative regulations**
  - **Performing passive defense projects**
  - **Performing retrofitting projects against earthquake, especially in the vital issues, including transmission and distribution of drinking water**

Thanks for your kind attention