The Tokyo Conference on International Study for Disaster Risk Reduction and Resilience

14 to 16 January, 2015, The University of Tokyo

Natural Disasters in West and Central Asia: Drought

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INTERNATIONAL DROUGHT INITIATIVE

www.idi-drought.com

IUST

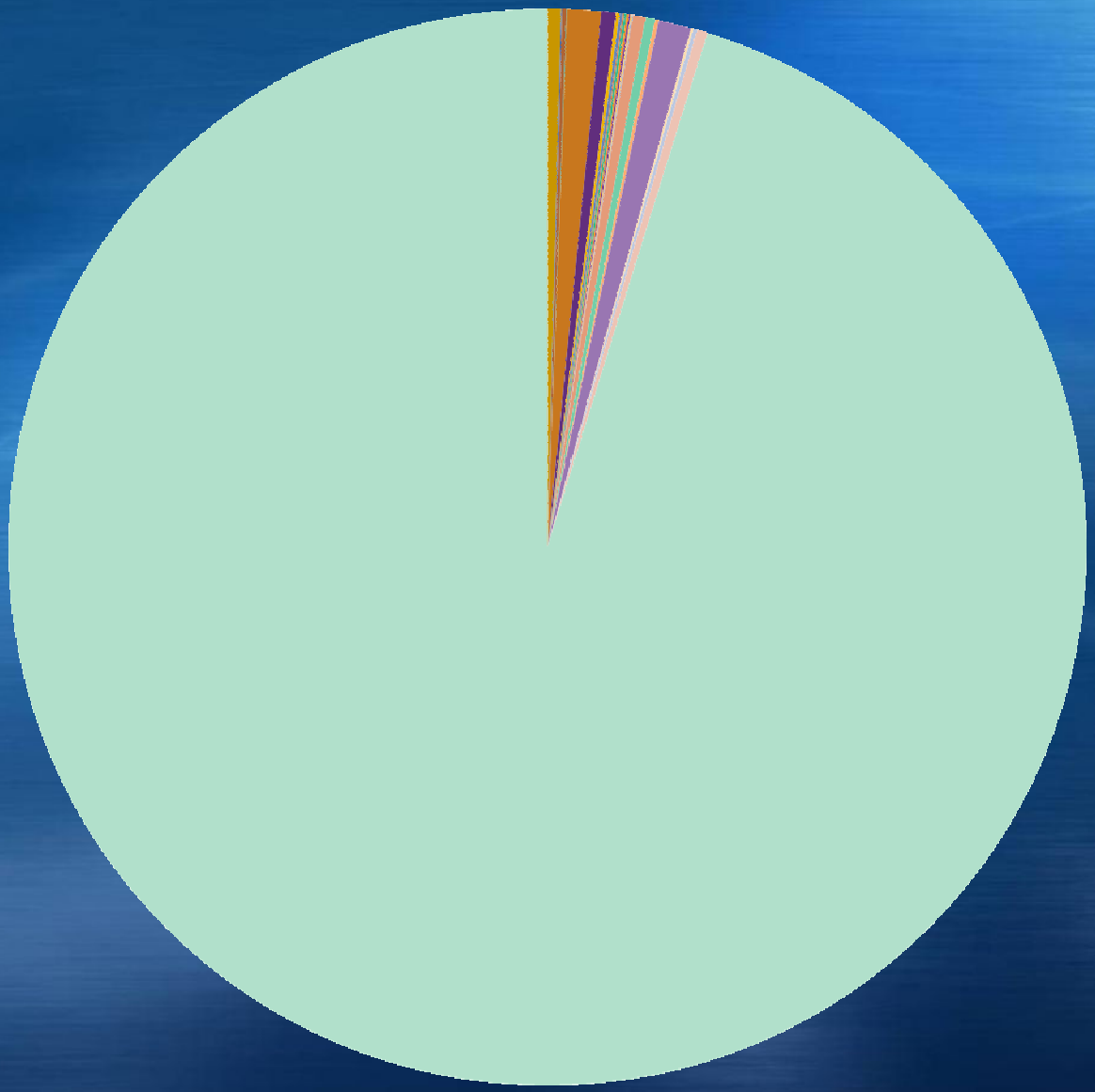
Geographic Scope

General Overview of Disasters

Drought & Coping Strategies

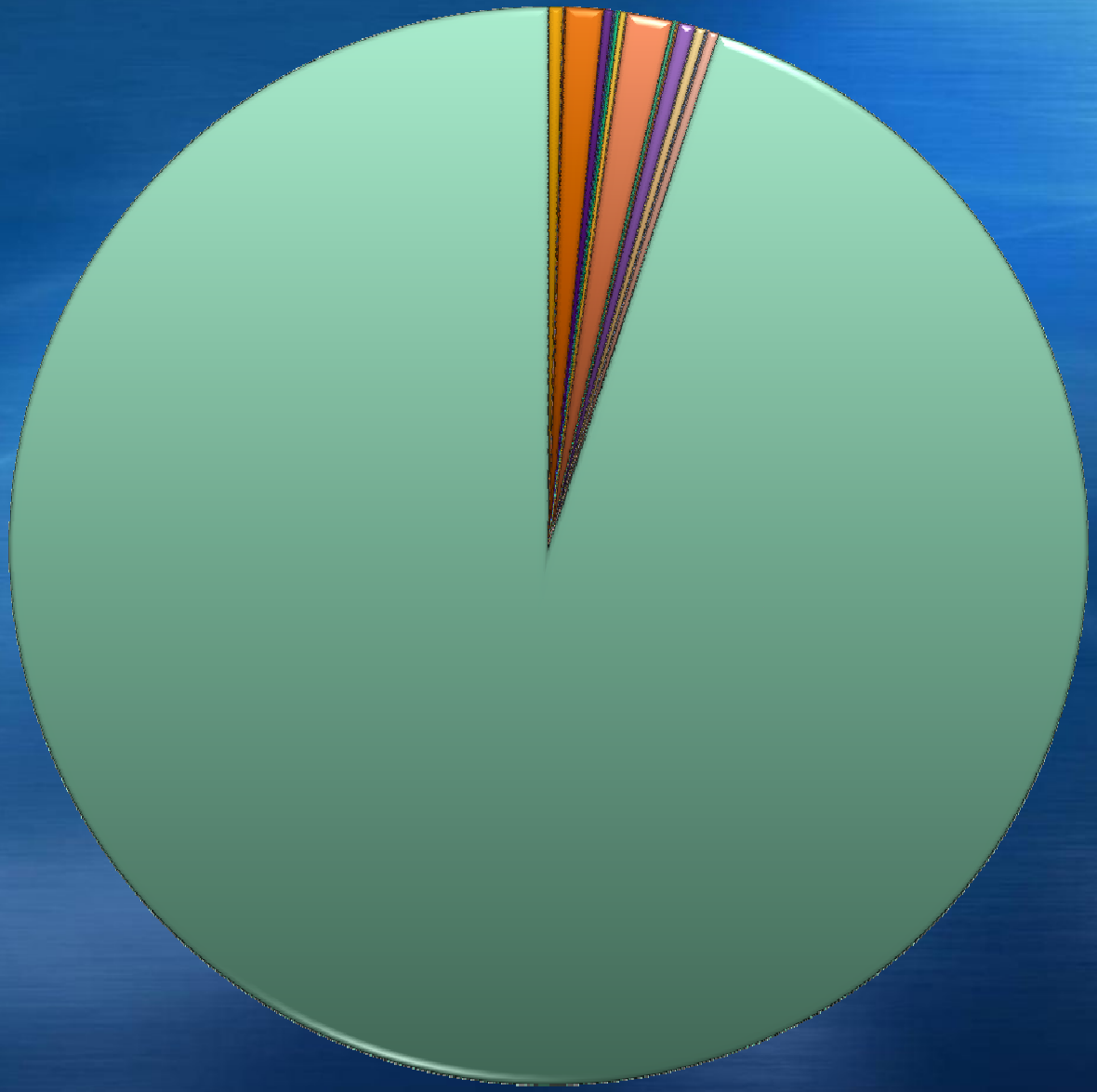
West and Central Asia

%5 of the World Population (2012)



- Afghanistan
- Armenia
- Azerbaijan
- Bahrain
- Iran
- Iraq
- Israel
- Jordan
- Kuwait
- Kyrgyzstan
- Lebanon
- Palestinian
- Oman
- Qatar
- Saudi Arabia
- Syria
- Tajikistan
- Turkey
- Turkmenistan
- UAE
- Yemen
- Total Global

%5 of the World Land Surface



- Afghanistan
- Armenia
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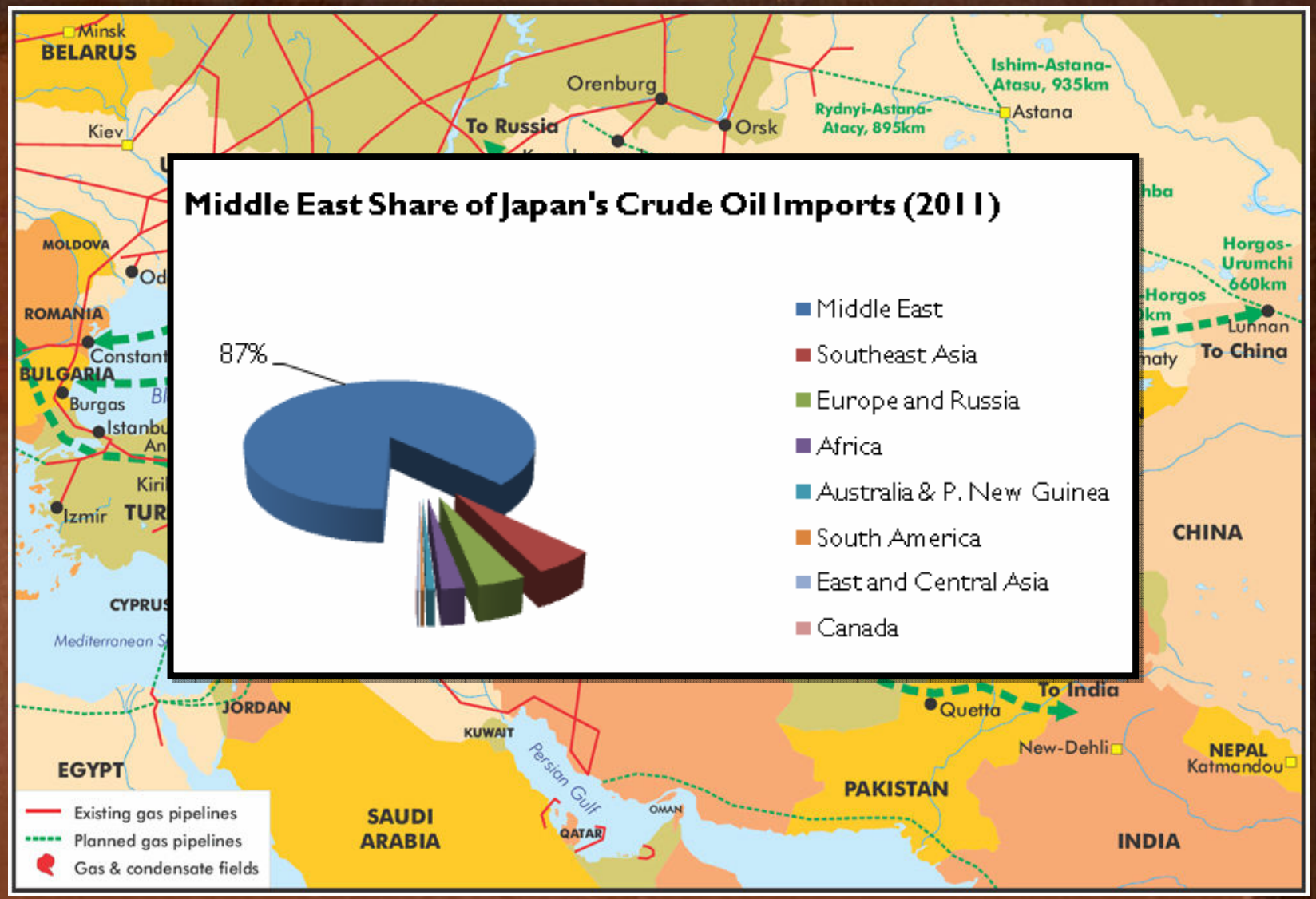
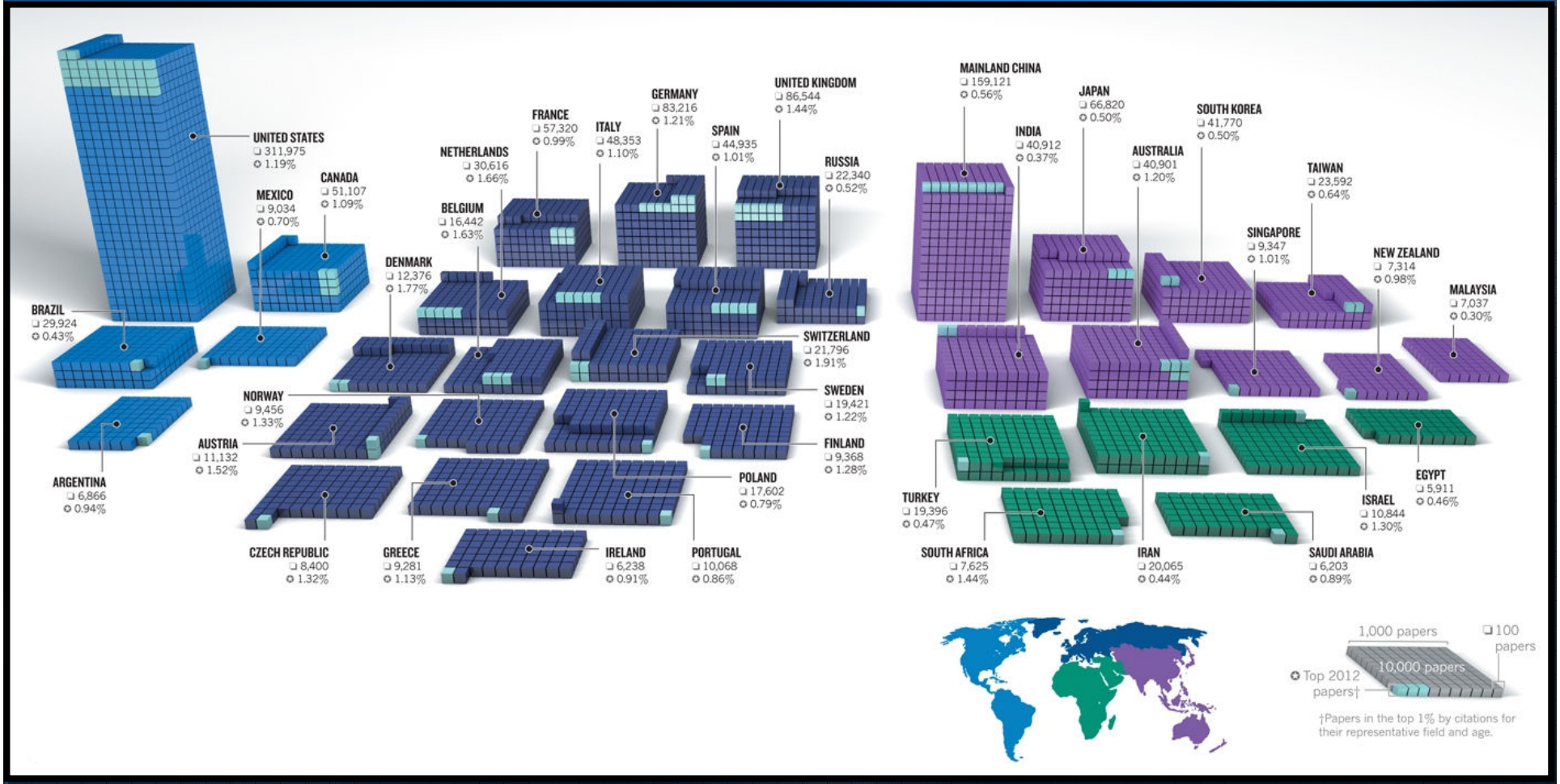
- Palestinian
- Oman
- Qatar
- Saudi Arabia
- Syria
- Tajikistan
- Turkey
- Turkmenistan
- UAE
- Yemen
- Total Global

Important Energy Source



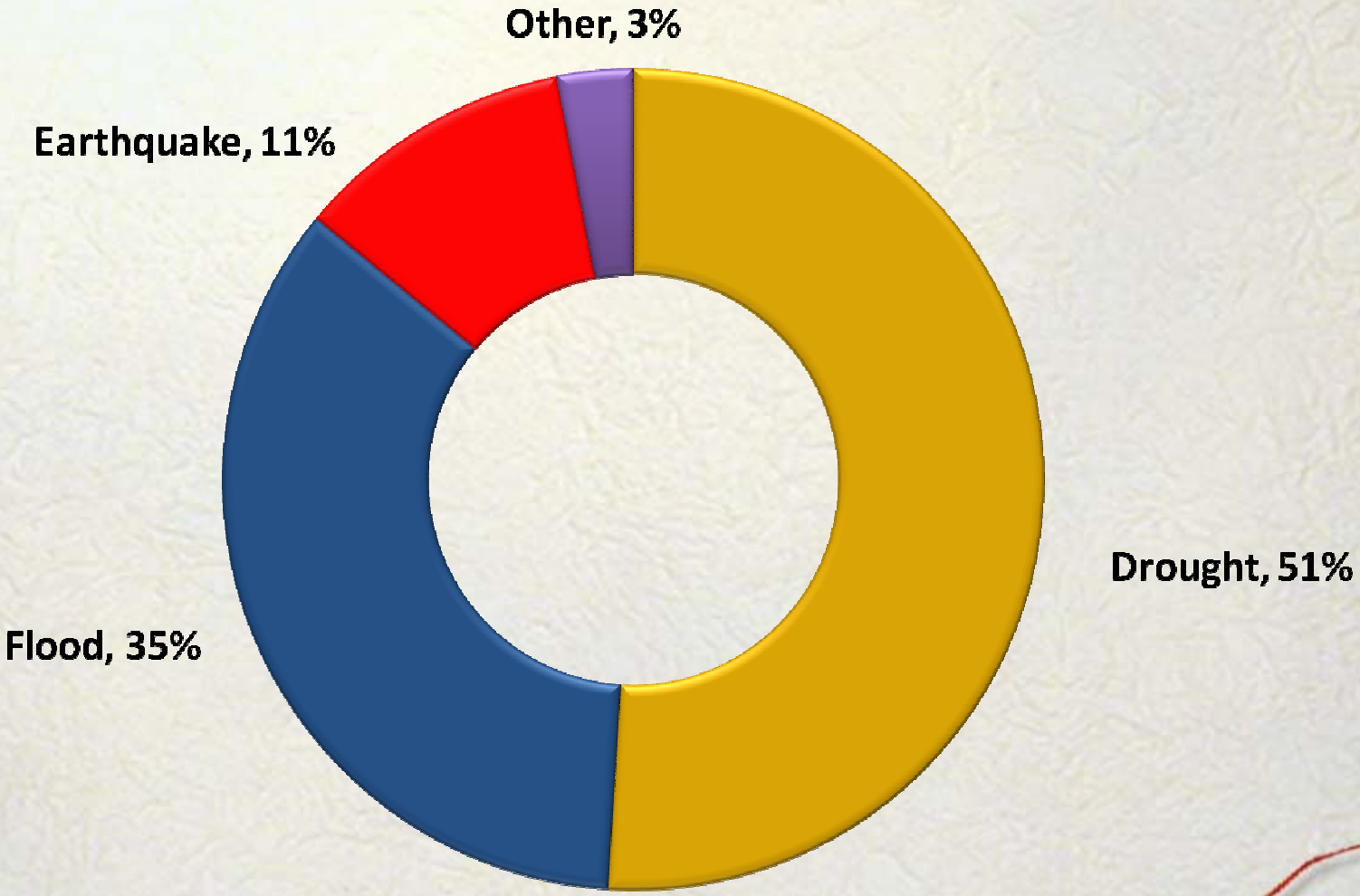
Scientific Publication by Region (2012)

Source: the Nature (Thomson Reuters/Essential Science Indicators)

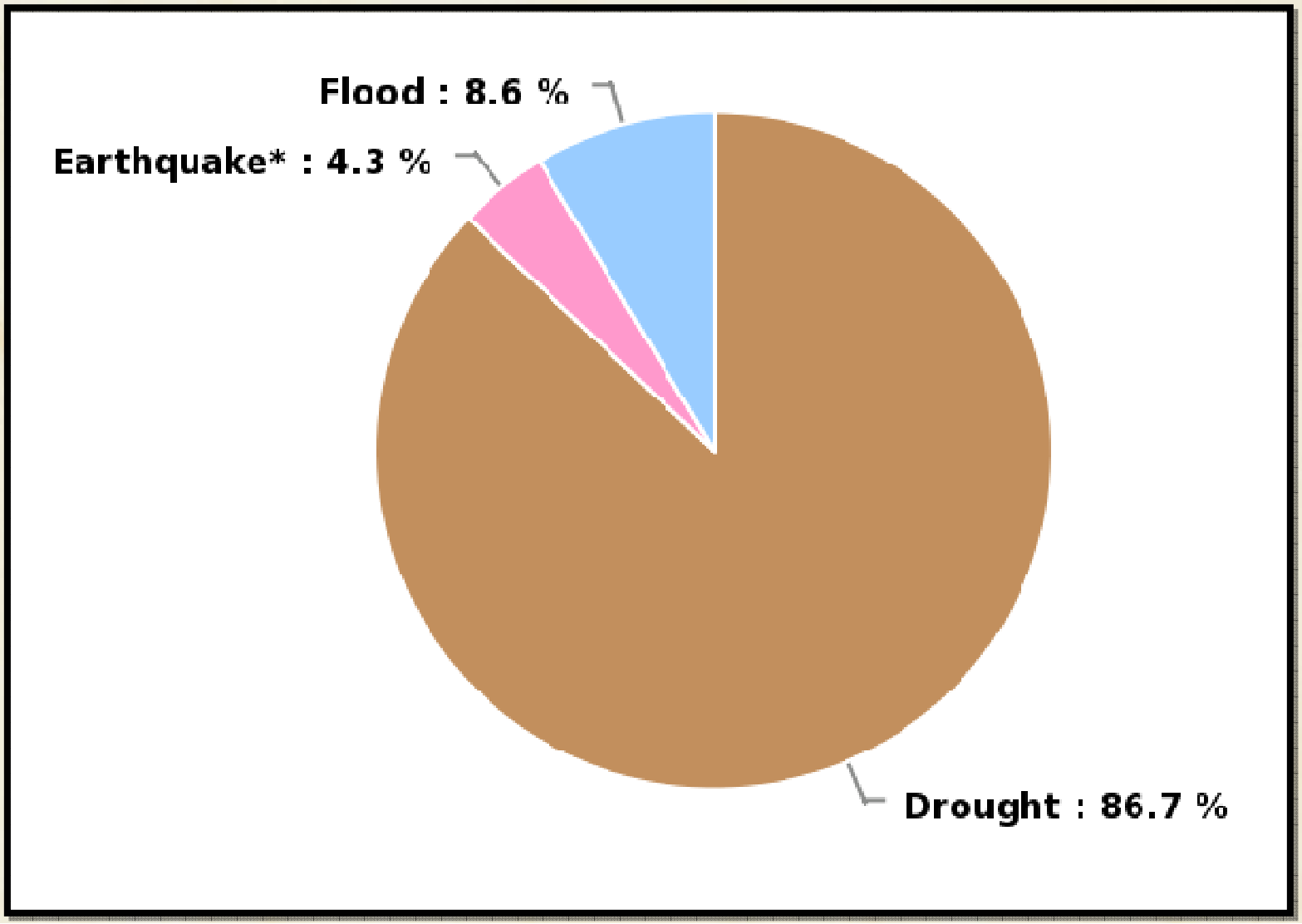


Major Disasters in West and Central Asia

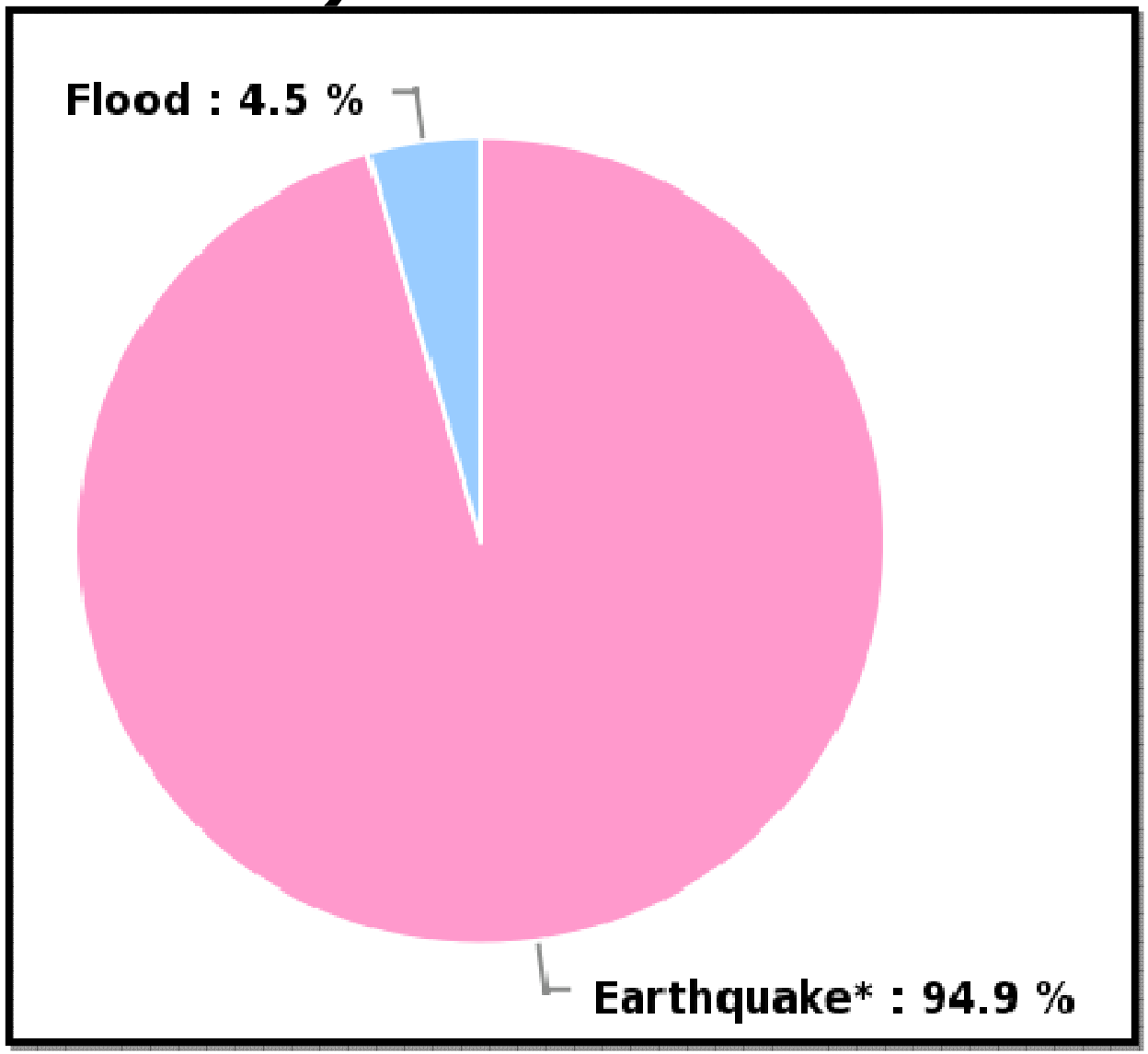
(Based on reported affected people,1980-2010)



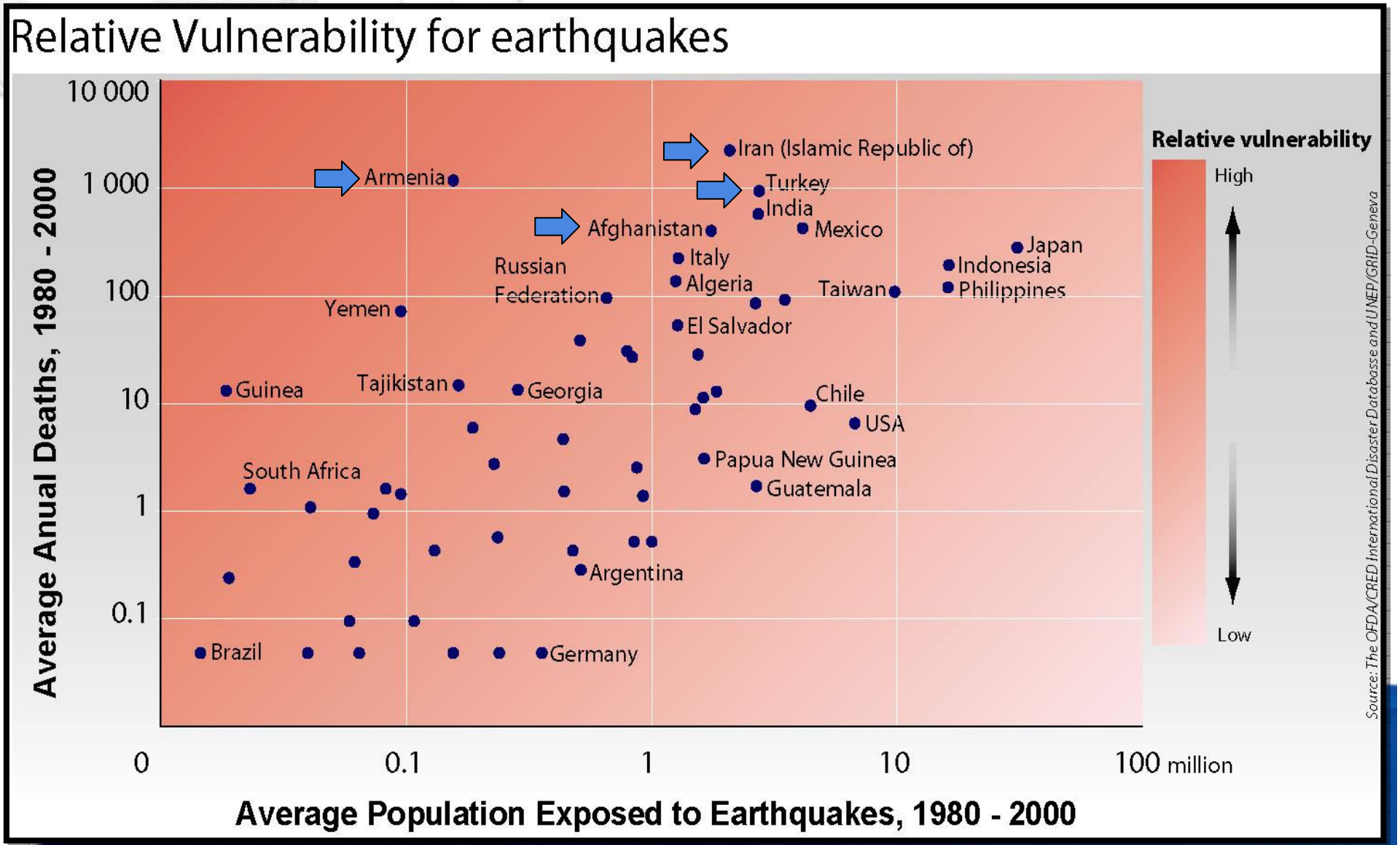
Iran:
Percentage of reported people affected
(1980 to 2010)



Percentage of reported people killed (1980 to 2010)



Earthquake

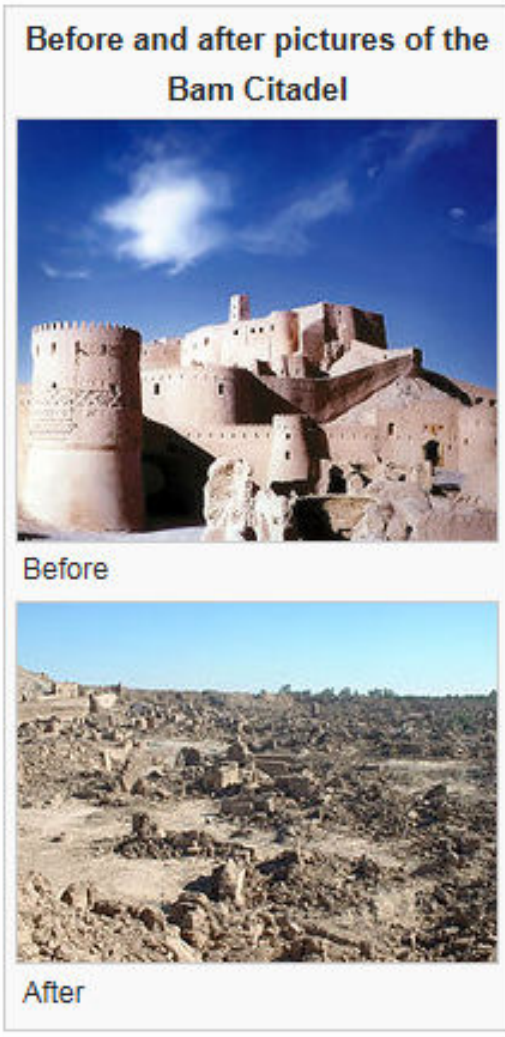

Relative Vulnerability for earthquakes
Average Anual Deaths, 1980 - 2000
10 000
1 000
100
10
1
0.1
0
0.1
1
10
100 million
Average Population Exposed to Earthquakes, 1980 - 2000
Iran (Islamic Republic of)
Armenia
Turkey
India
Afghanistan
Mexico
Japan
Italy
Indonesia
Russian Federation
Algeria
Taiwan
Philippines
Yemen
El Salvador
Guinea
Tajikistan
Georgia
Chile
USA
Papua New Guinea
South Africa
Guatemala
Argentina
Brazil
Germany
Relative vulnerability
High
Low
Source: The OFDA/CRED International Disaster Database and UNEP/GRID-Geneva

The Bam Earthquake

26 December 2003,

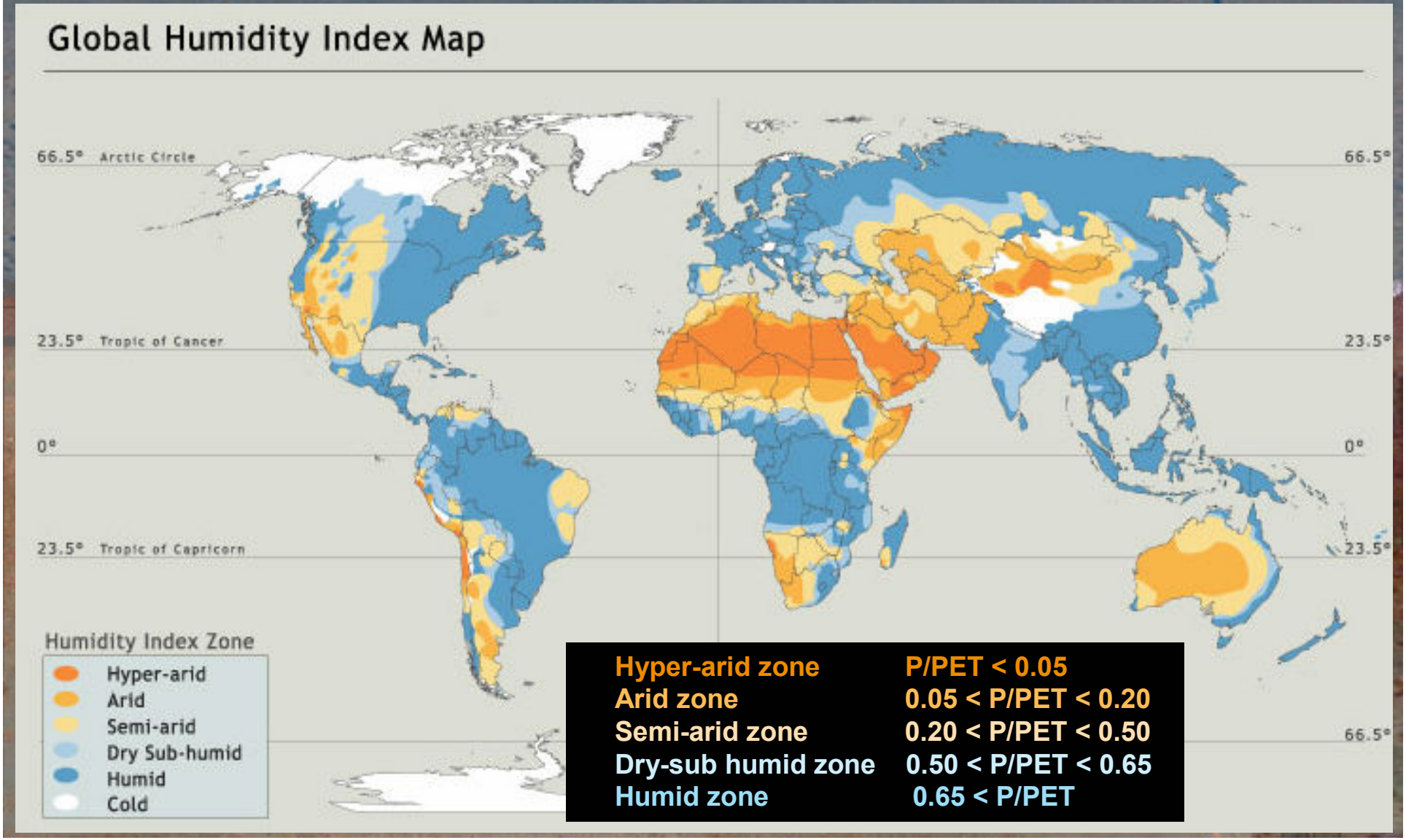
6.6 on the Richter Scale

Damage:
-26,300 dead
- $ 1.9 billion damage

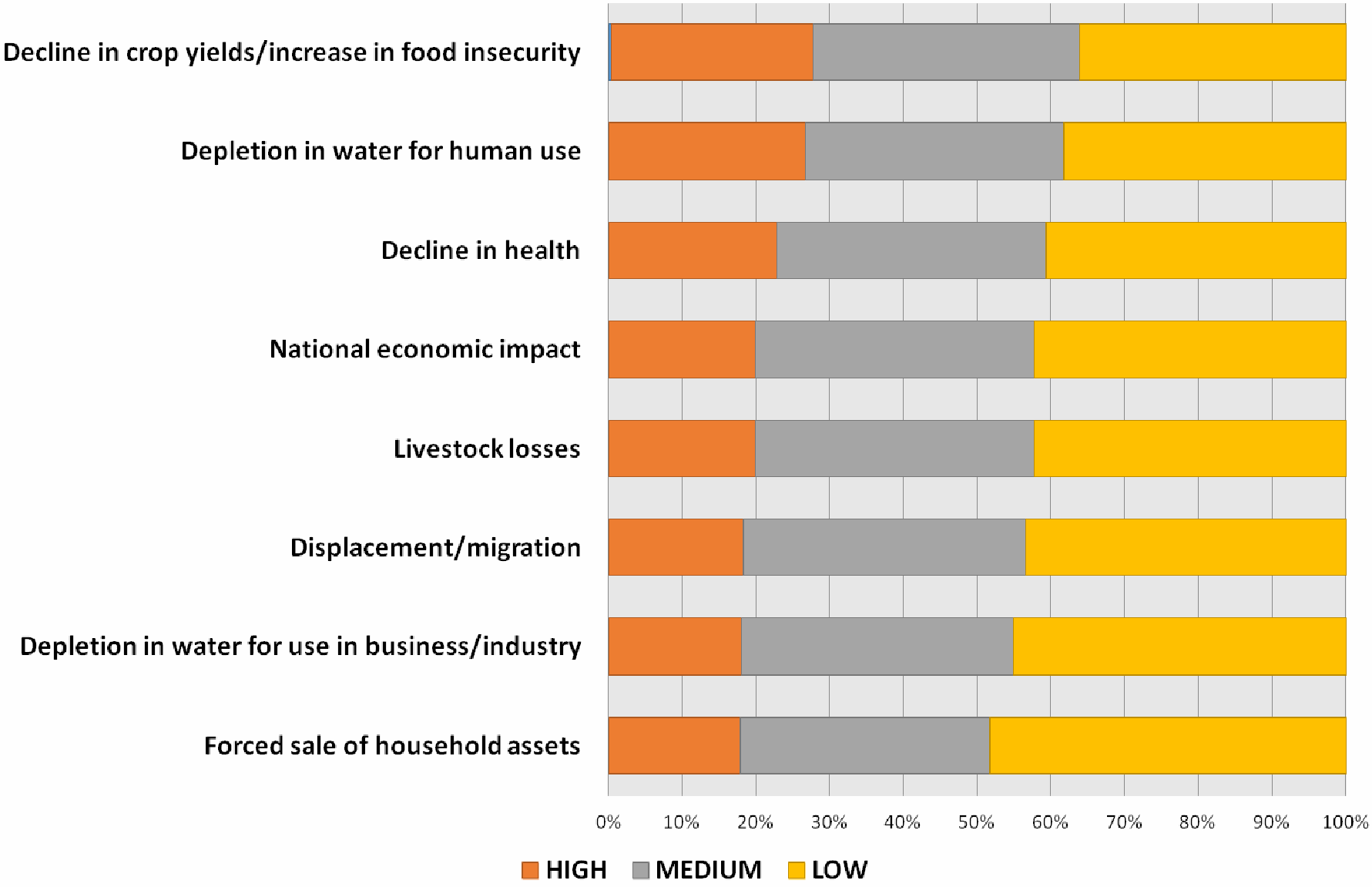


2,500 year-old historic citadel of Bam *(Arg-e-Bam)*, an internationally known heritage site, almost completely destroyed.

Arid and Semi-arid Areas



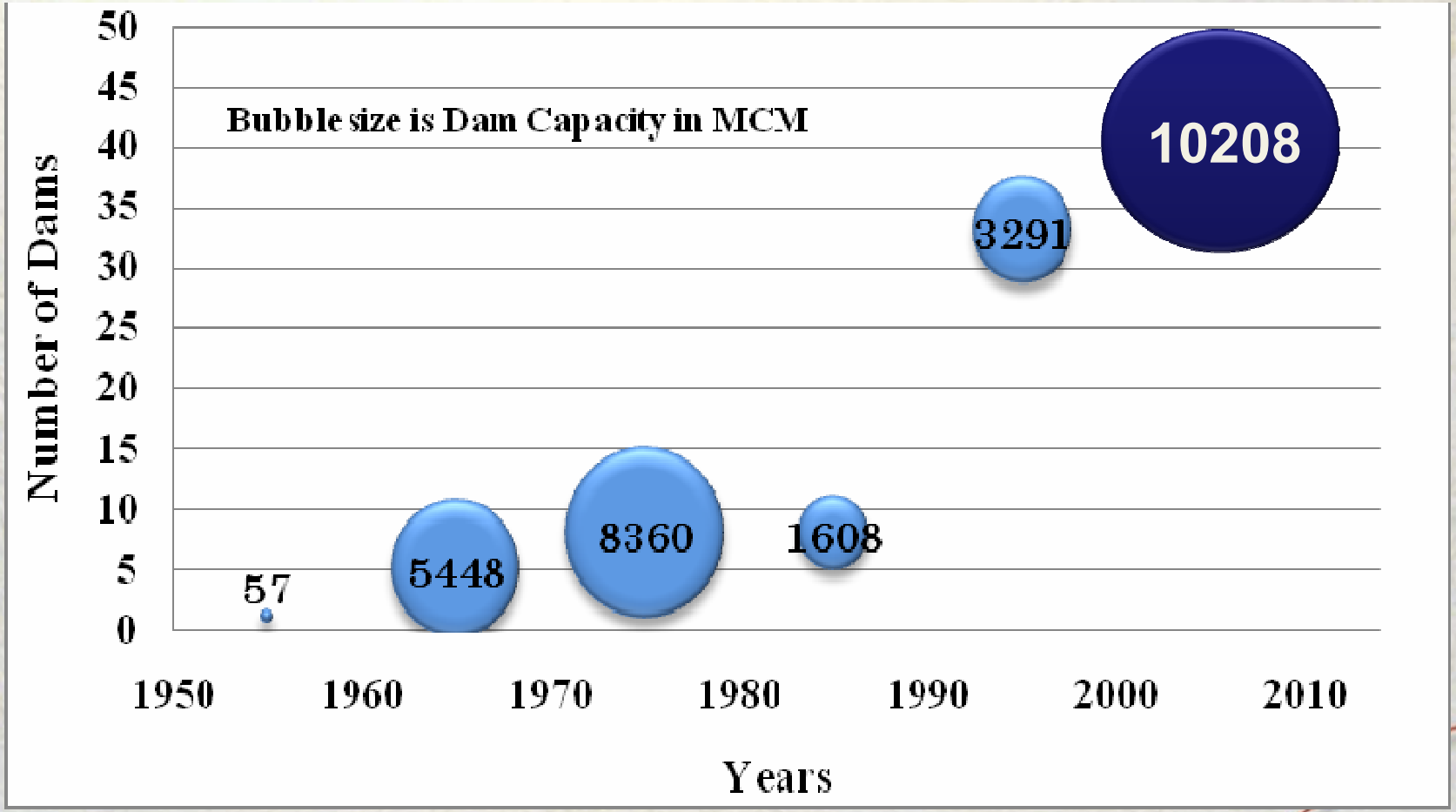
Drought Impact



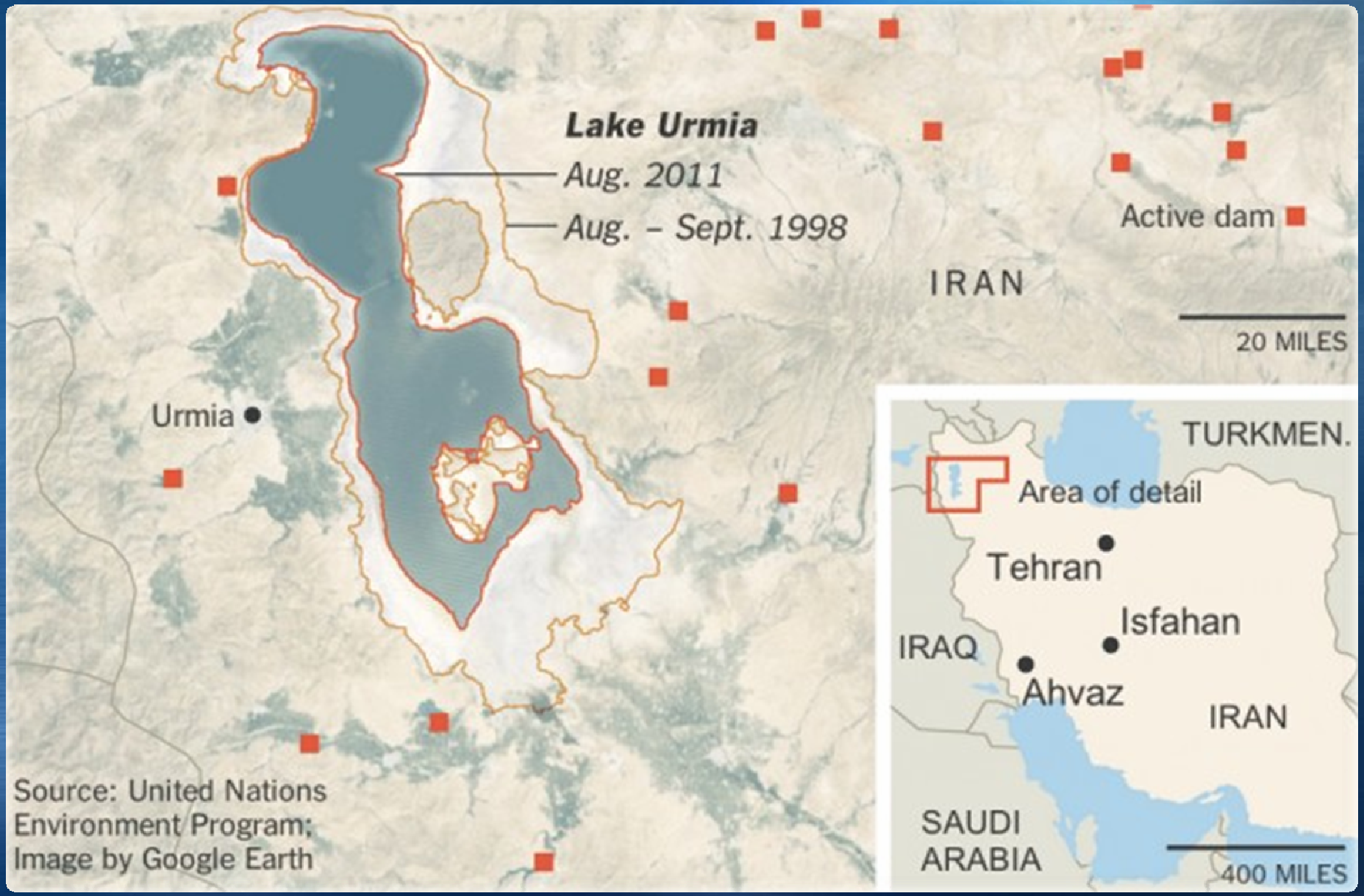
Historical background

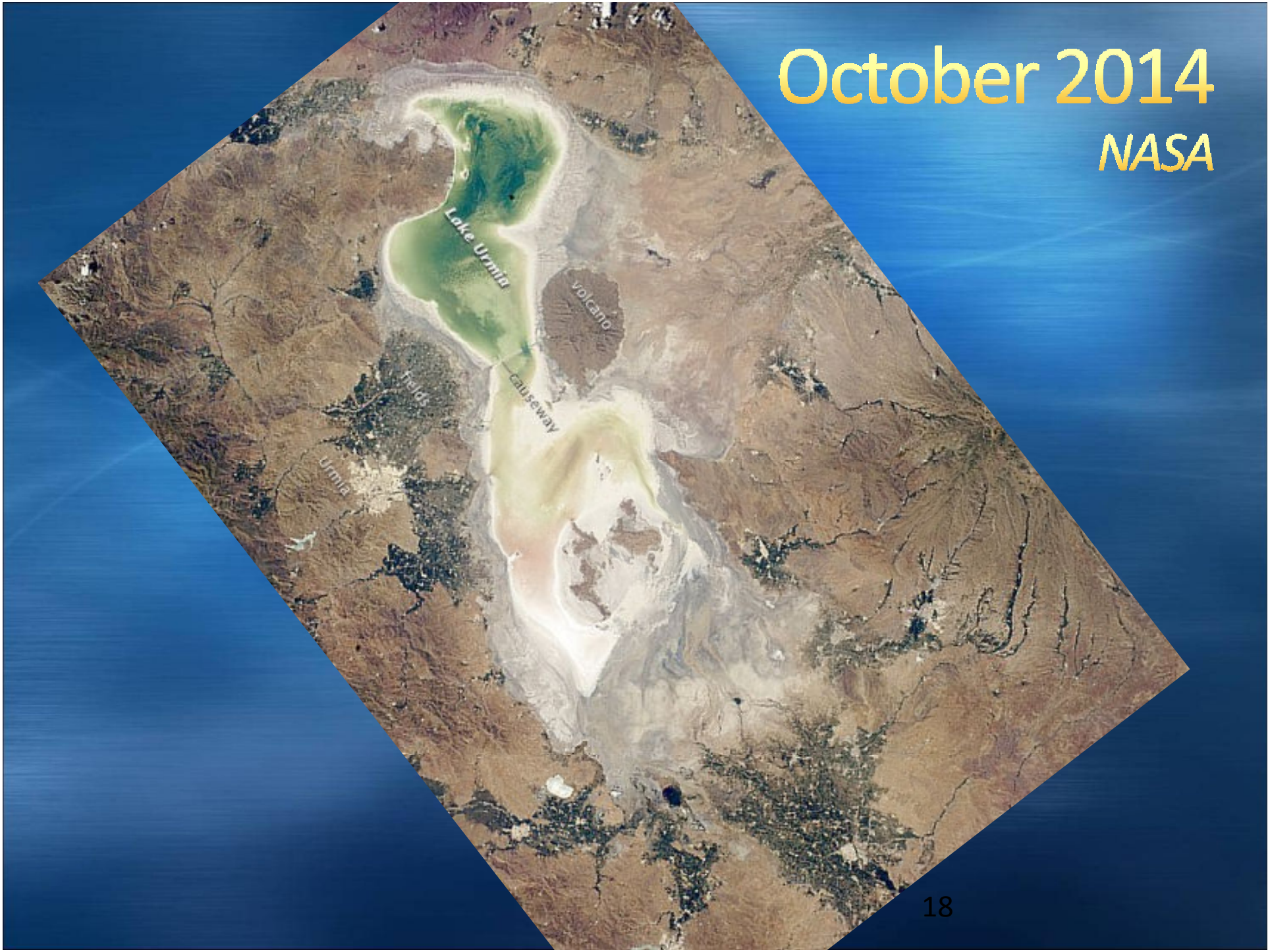
- Kebar Dam, one of the oldest arch dams in the world (1300) has a height of 26 m, a crest length of 55m and a thickness of only 5m with an arch radius of 38m.
- Its main purpose was flood control to delay in flow discharge larger than 10-year in return period and save water for dry period.

Large Dams under Operation
Reservoir capacity (MCM)
(1950~2010)

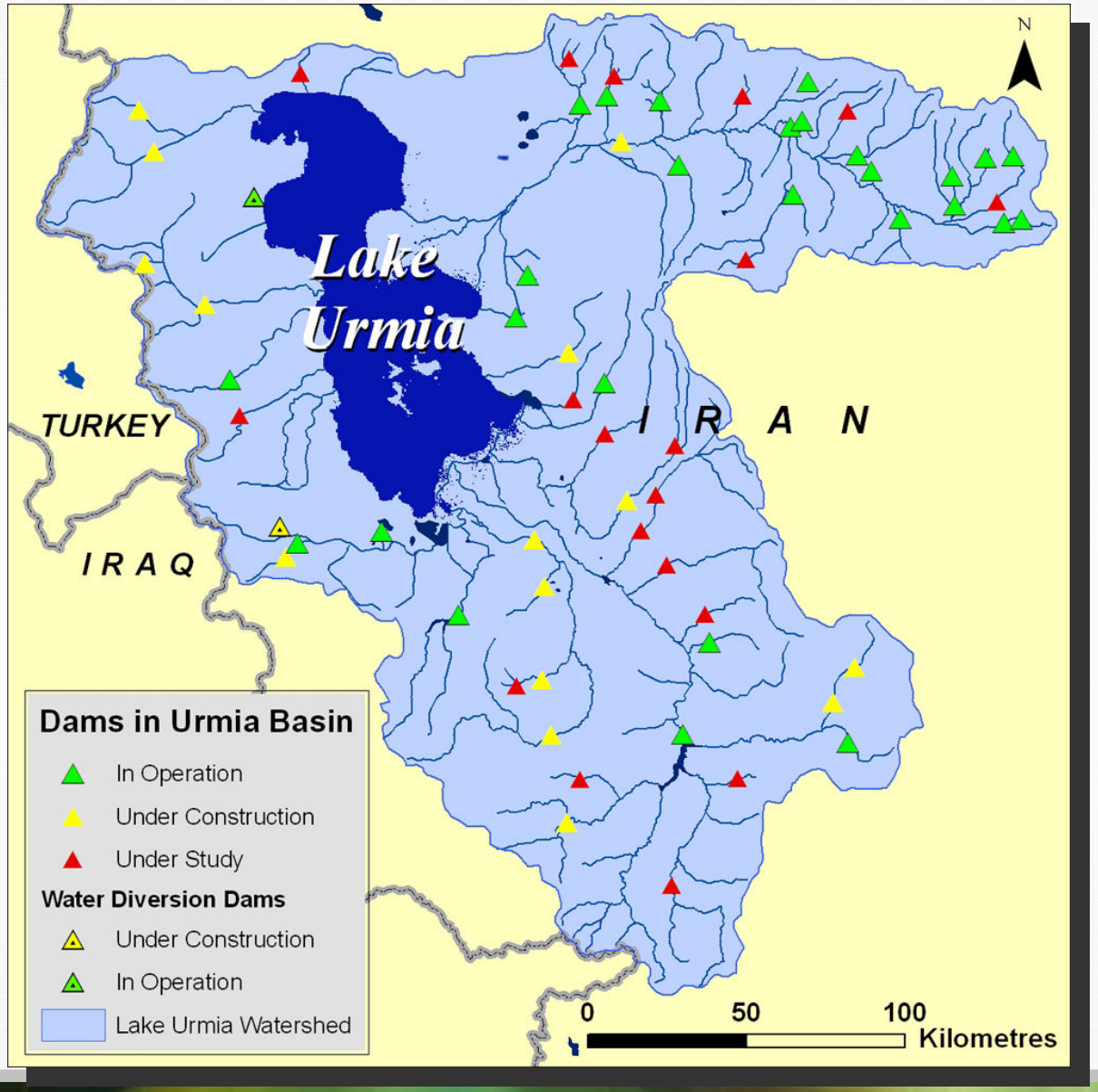


Case study: Lake Urmia

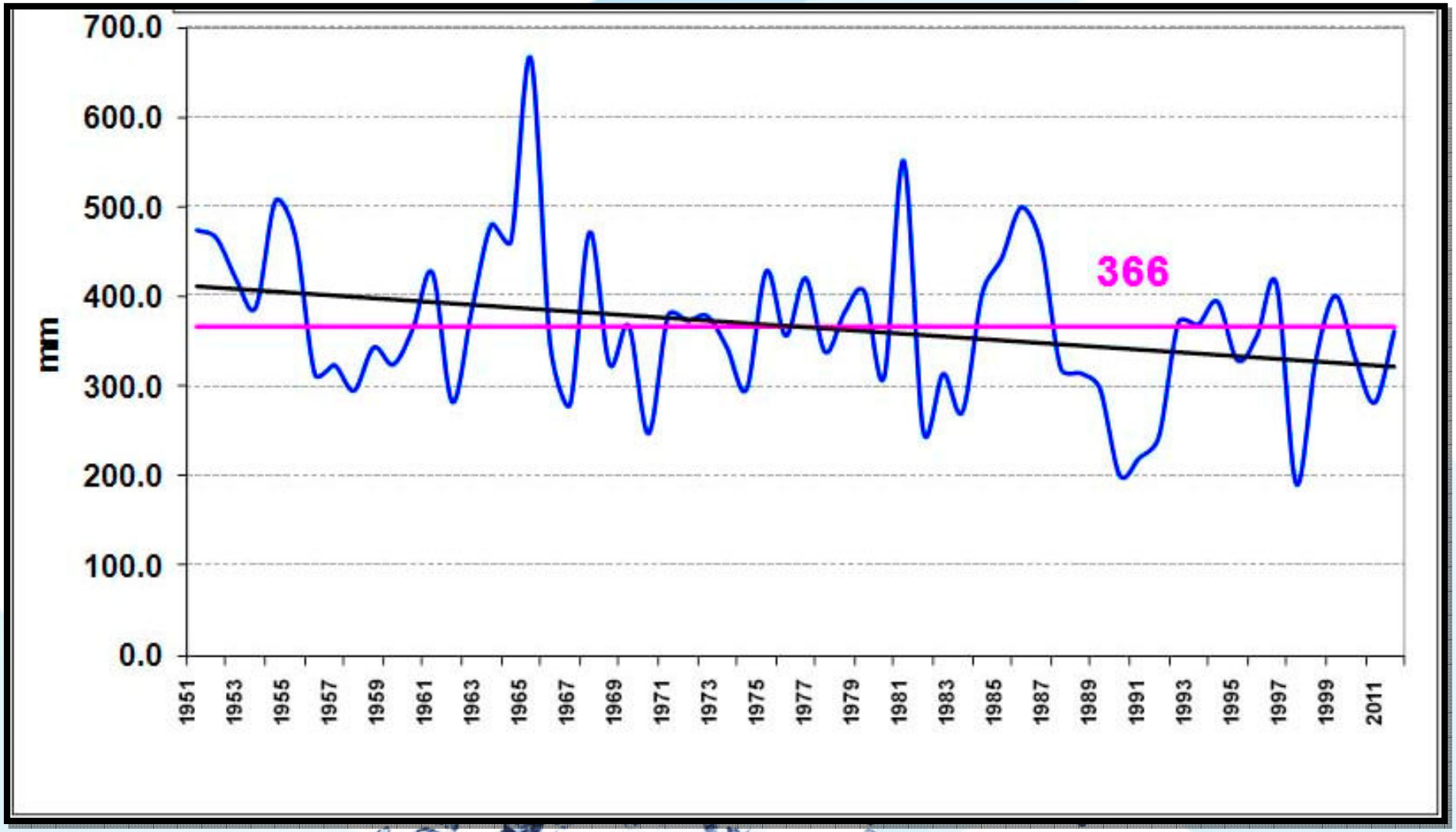



October 2014
NASA
Lake Urmia
volcano
causeway
fields
Urmia

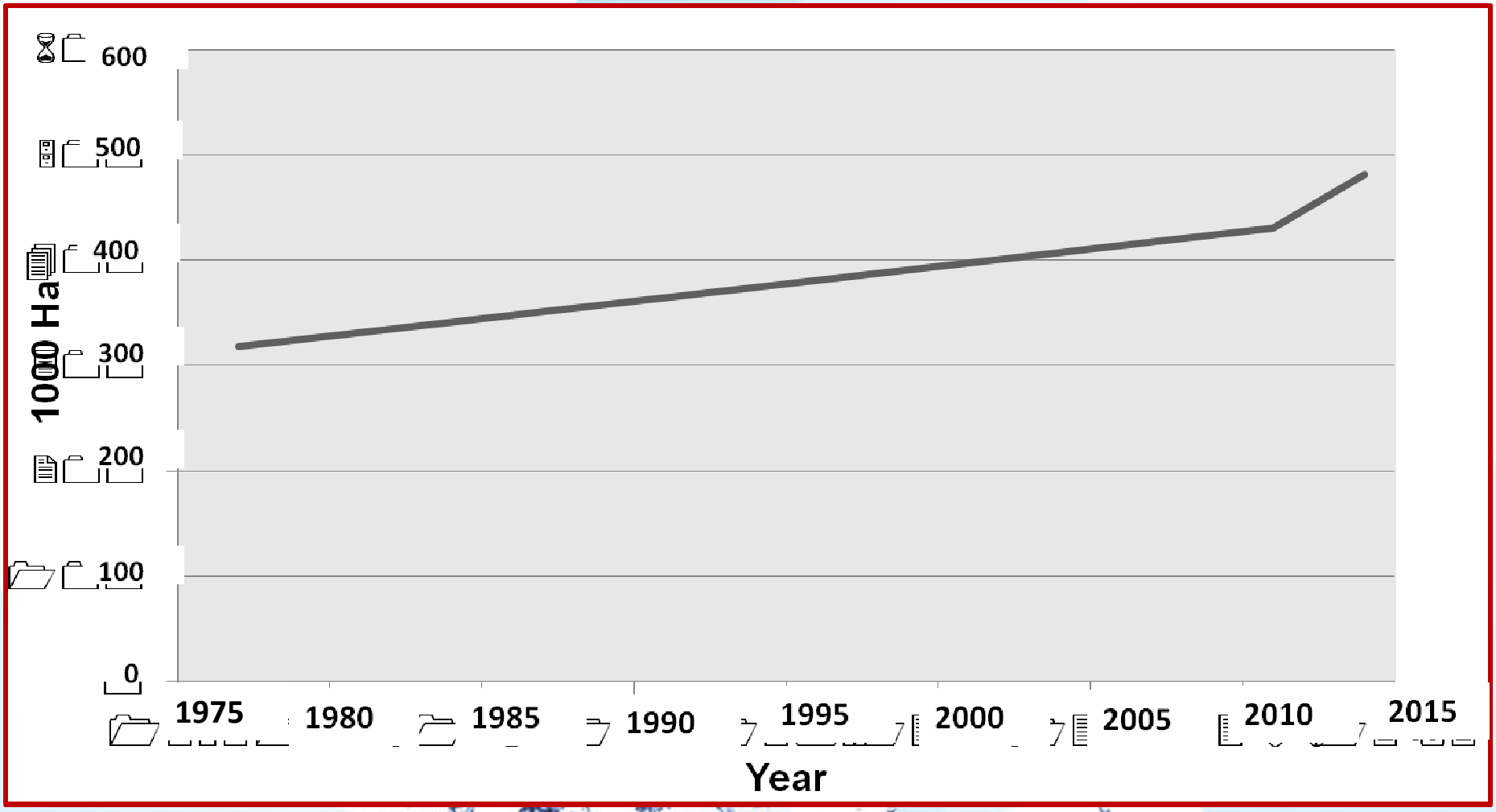
Dams in Urmia Basin



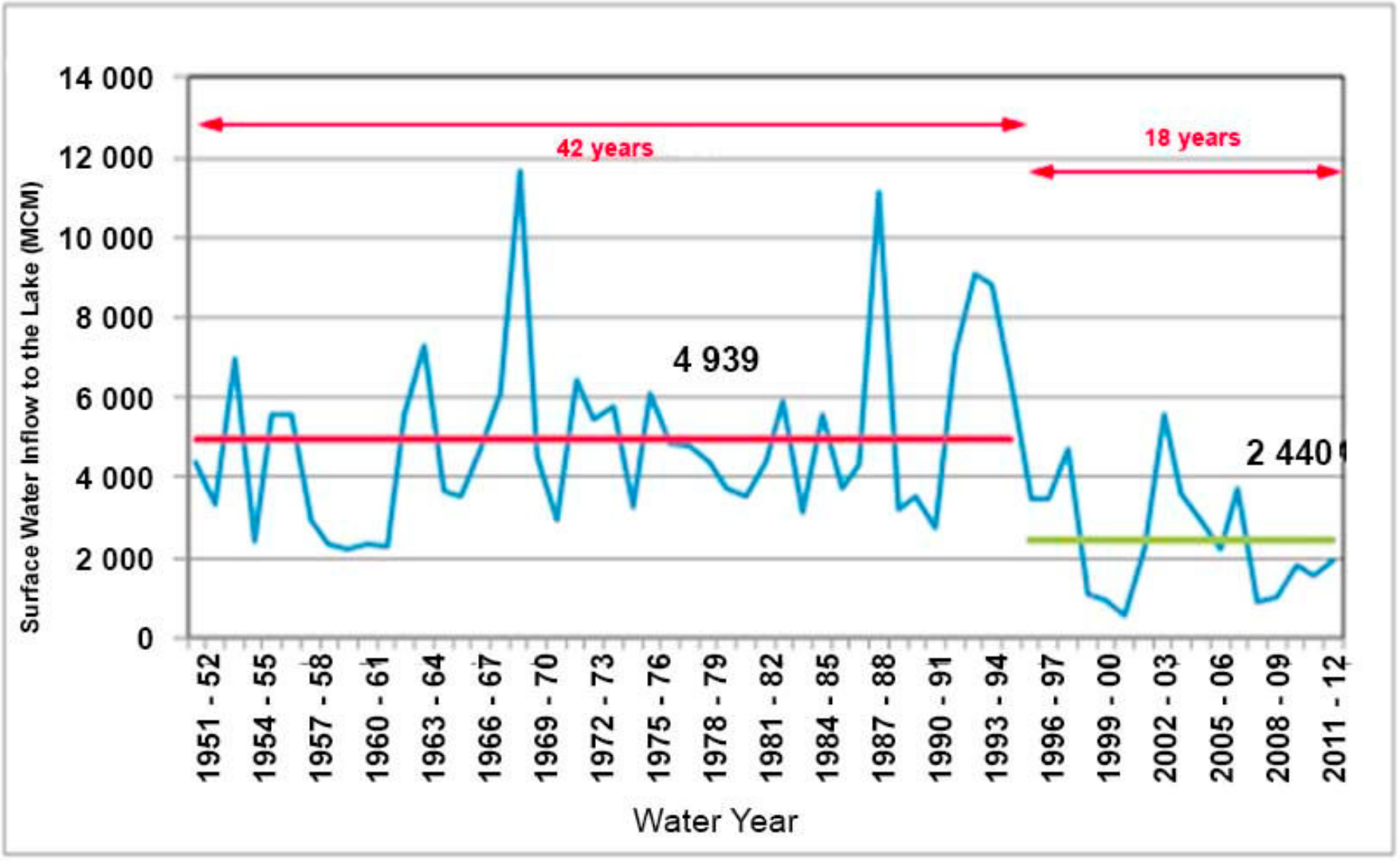
Average Annual Precipitation in Urmia Lake Basin



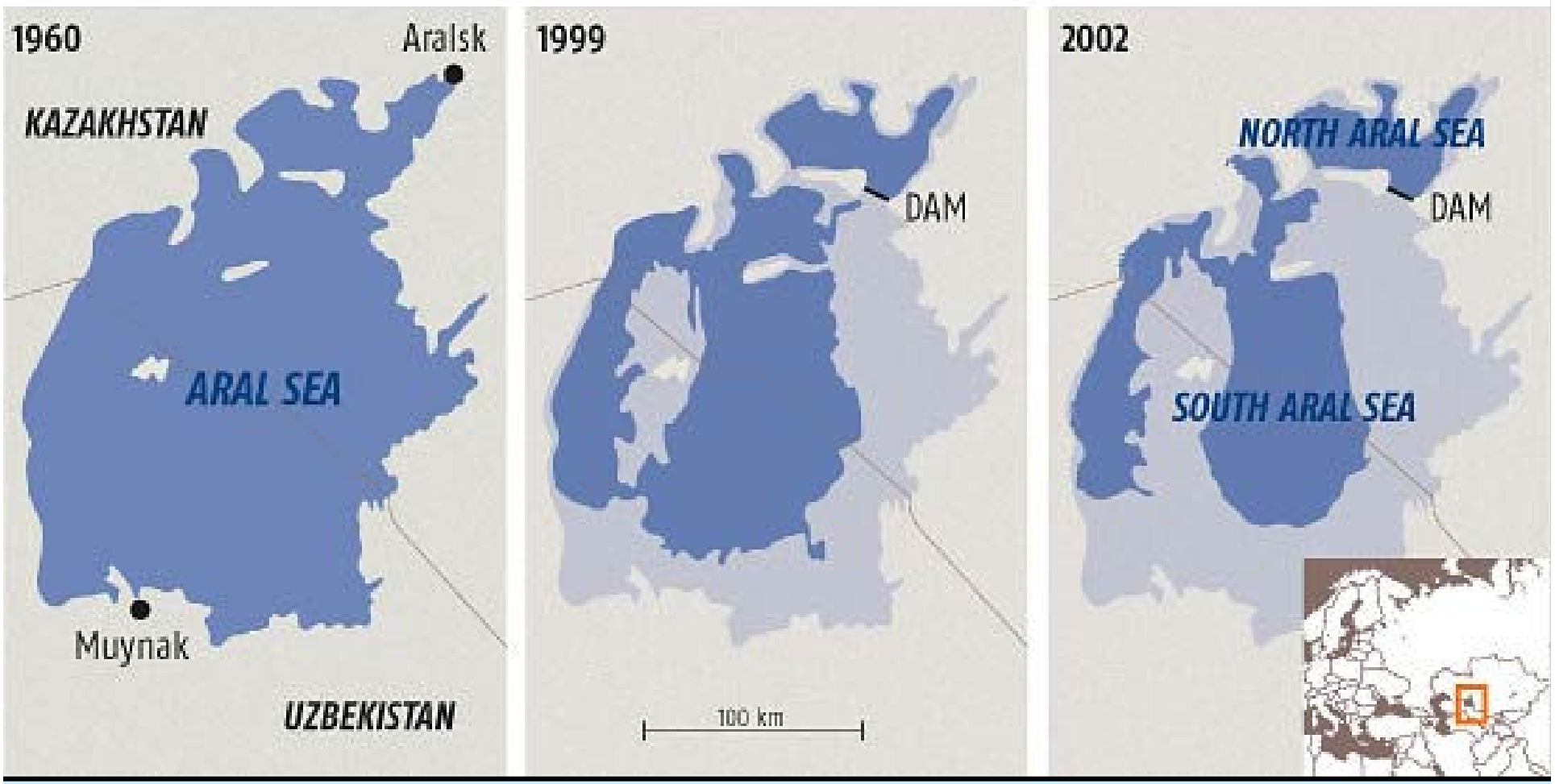
Increasing Cultivated Area in Urmia Lake Basin



Average Annual Inflow to the Lake



Aral Basin


1960
Aralsk
KAZAKHSTAN
ARAL SEA
Muynak
UZBEKISTAN
1999
DAM
100 km
2002
NORTH ARAL SEA
DAM
SOUTH ARAL SEA

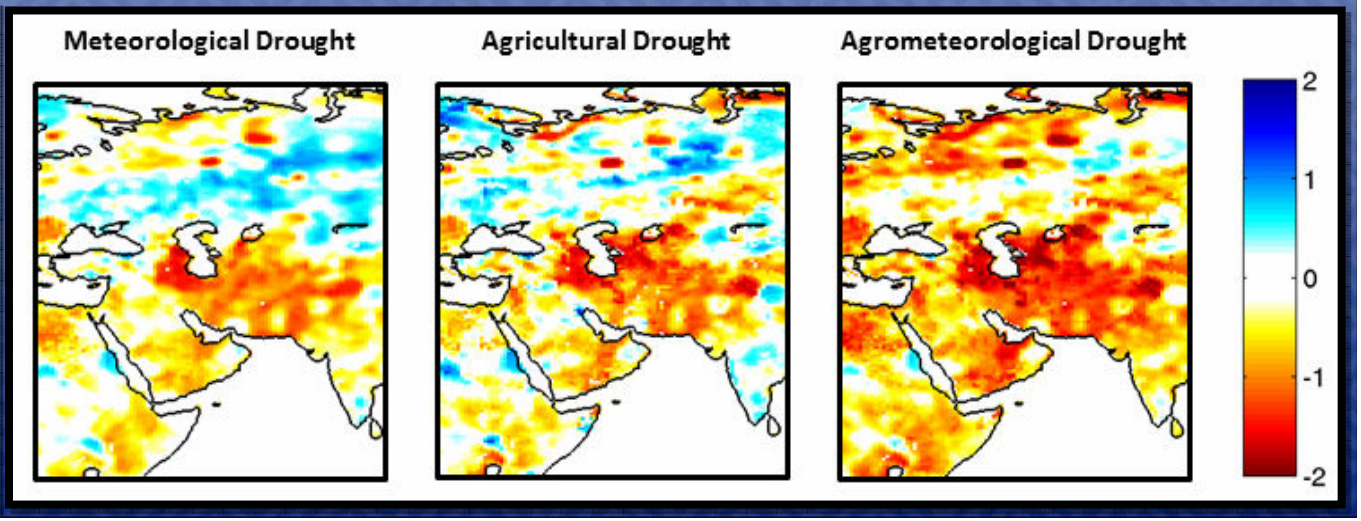

نشست بین المللی تخصصی
از زردکوه تا تالاب گاوخونی
INTERNATIONAL EXPERT MEETING ON
ZAYANDEH-RUD RIVER SUSTAINABILITY
FROM ZARDKUH MOUNTAIN TO GAVKHONI WETLAND
ISFAHAN,JANUARY,2015 | اصفهان/دیماه ۱۳۹۳
شهرداری اصفهان
Isfahan Municipality
دانشگاه صنعتی اصفهان
Isfahan University of Technology
استانداری اصفهان
Isfahan Governor General

Integrated Drought Monitoring/Prediction System in West and Central Asia

1-Providing drought information based on multiple indicators and data sources including satellite observations and local ground-based data.

2-Providing multi-model multi-index seasonal drought prediction information for the region.

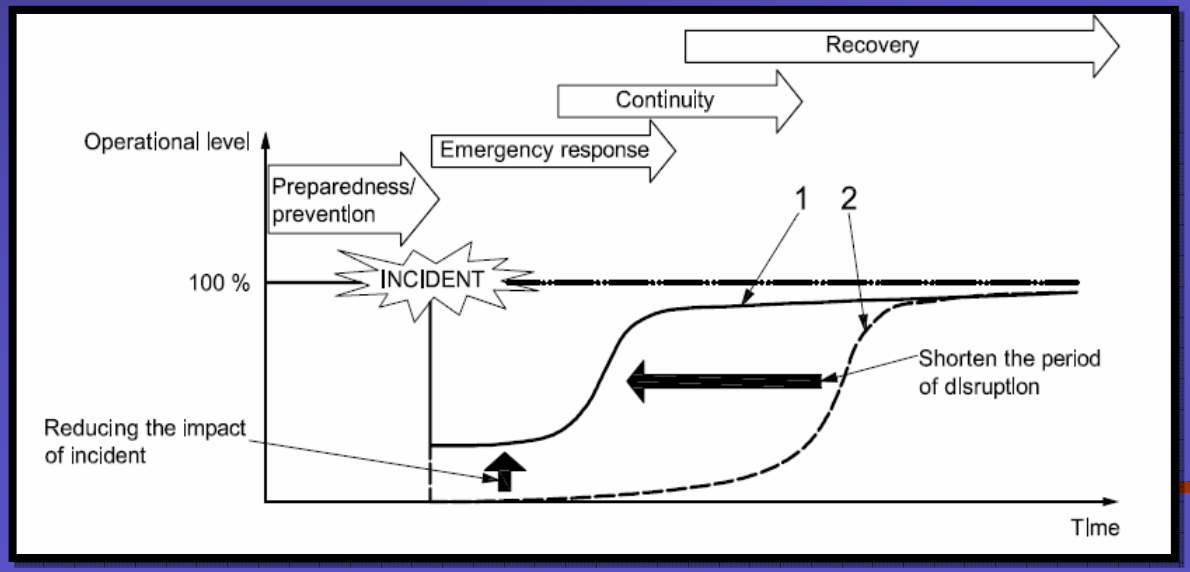
3-Develop a user-friendly system for dissemination of the Drought information.



Conclusion

Coping Strategies: Reactive to Proactive

- Reactive approach: The coping strategies will shape by drought impact.
- Proactive approach: Socio-economic vulnerabilities (Pressure) will increase drought damages (Release). Coping strategies will try to increase socio- economic resiliency in advance.



Thank you