ANDMA
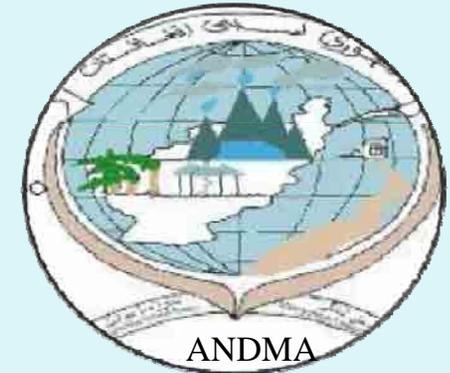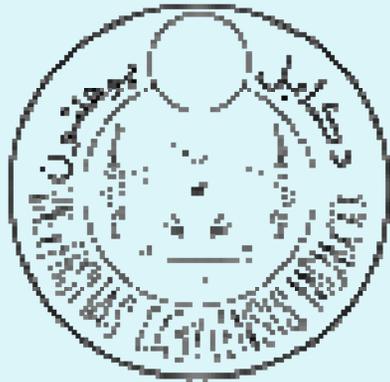
Participatory Flood Preparedness and Management Measures in Afghanistan

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Venue: SAARC Disaster Management Center (SDMC-IU)
         Gujarat Institute of Disaster Management (GIDM)

25 ~ 27th Oct. 2017

Flood Disaster Management in Afghanistan

Contents

Participatory Flood Preparedness and Management Measures in Afghanistan

Introduction

- Subduction of Indian Plate under the Eurasian Plate.
- Hindukush mountains series is raised by Himalayan orogeny.
- Ten major river basins of Asia.

Legend
- Glaciers
- Basin boundary
- HKH boundary

210 million people in the HKH
1.3 billion people downstream (ICIMOD)

Afghanistan Disaster Risk Profile

**Natural Hazards, such as Flooding, Earthquakes, Avalanches, Landslides and Droughts are the major natural disasters cause Vulnerability and Poverty in Afghanistan.**

Since 1980, disasters caused by natural hazards have affected 9 million people and causes 200000 fatalities.

- **Flood:** Flooding is the most frequent natural hazards causing average USD 54 Million damages and 100000 people affected annually.

- **Earthquake:** Since 1980 more than 10000 people are have been killed due to earthquakes.

- **Drought:** USD 280 million agriculture damages annually since 2000, 6.5 million people are affected.

- **Landslide:** Over USD 6 billion worth assets and 3 million people are exposed to Landslides. 400 schools and 300 health centers.

- **Avalanche:** 2 million people, 4 billion assets and over 10000km roads are exposed to avalanches. From 2000 to 2015 over 153000 people were affected by avalanches. (World Bank, 2017)
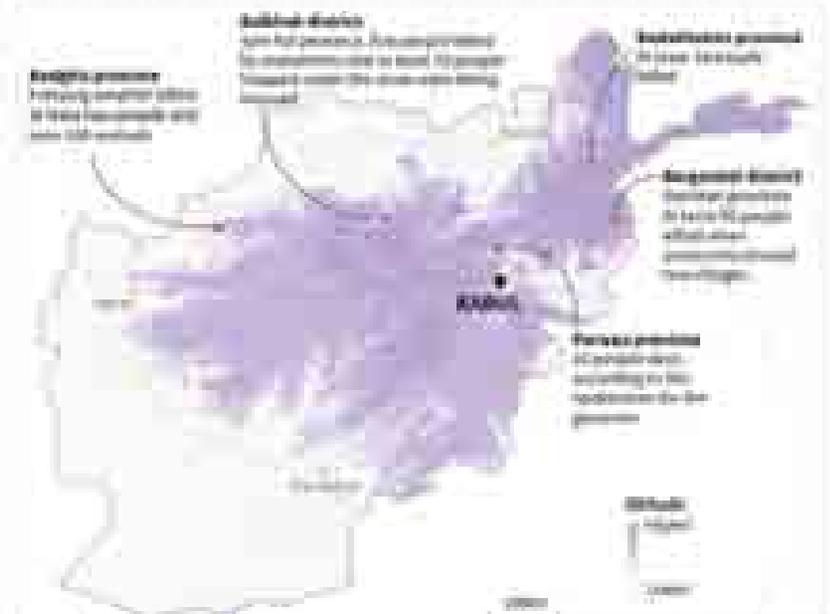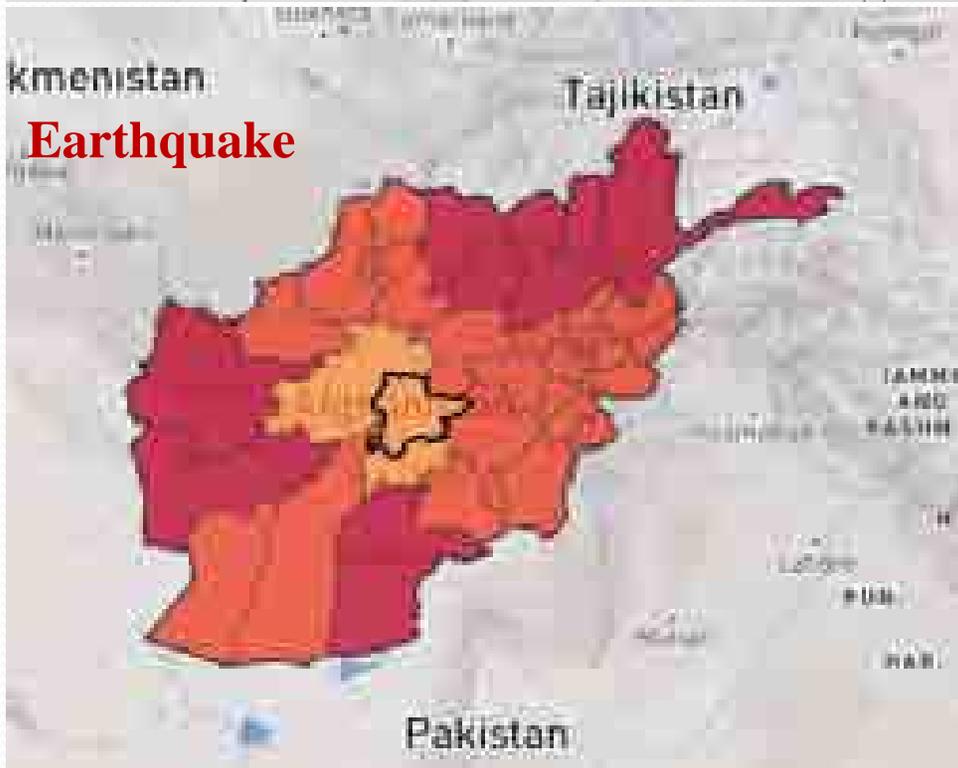
Afghanistan Disaster Risk Profile
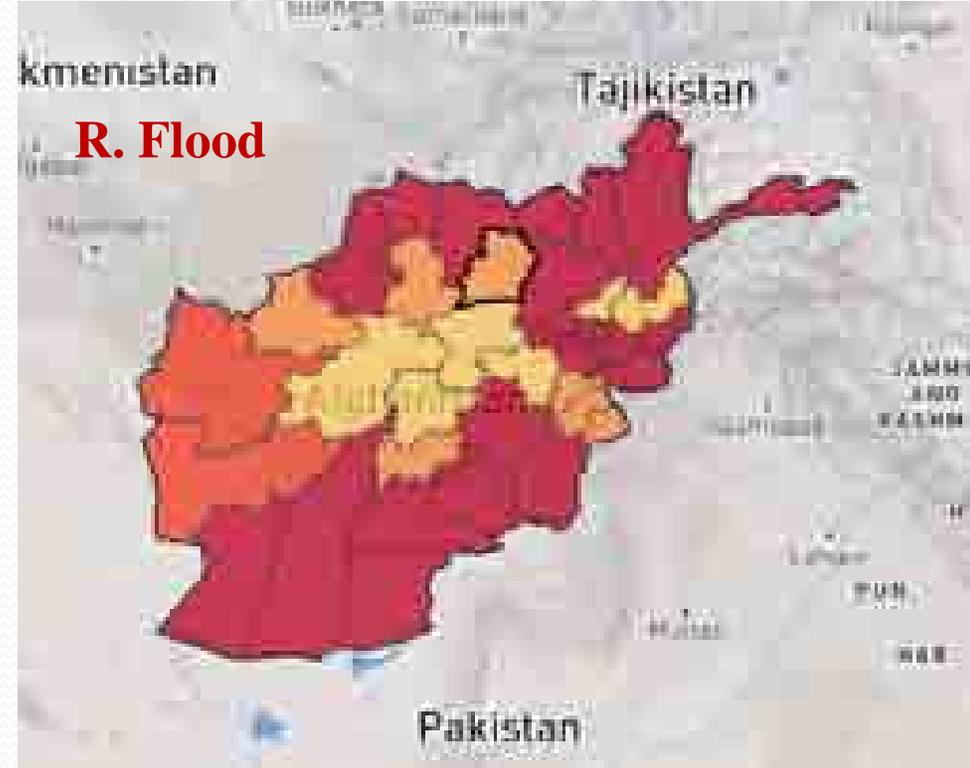
Landslides
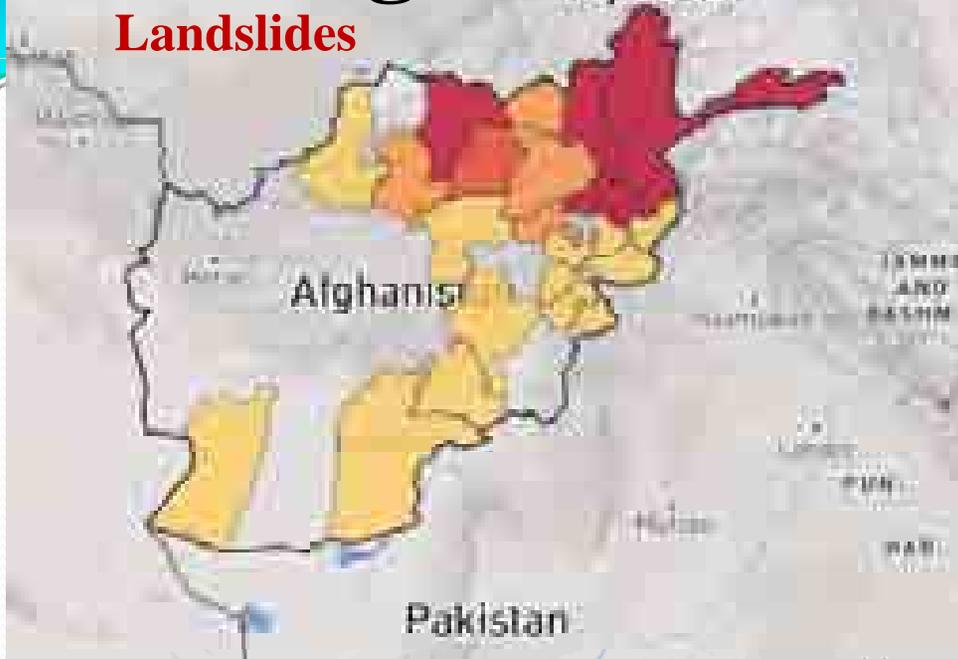
Afghanistan avalanches

More than 100 people killed over the weekend in a series of avalanches after three days of heavy snow
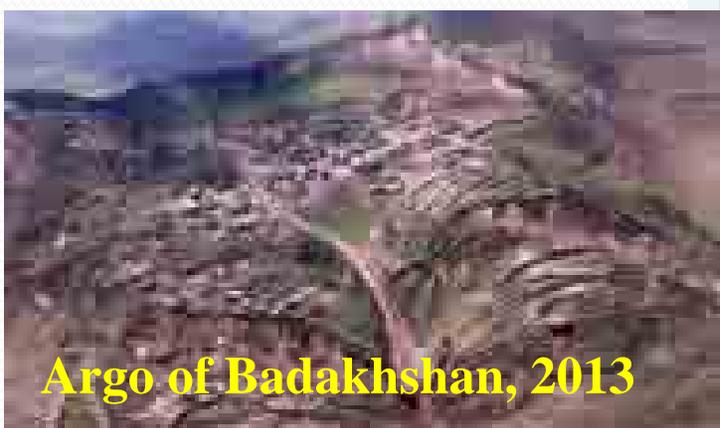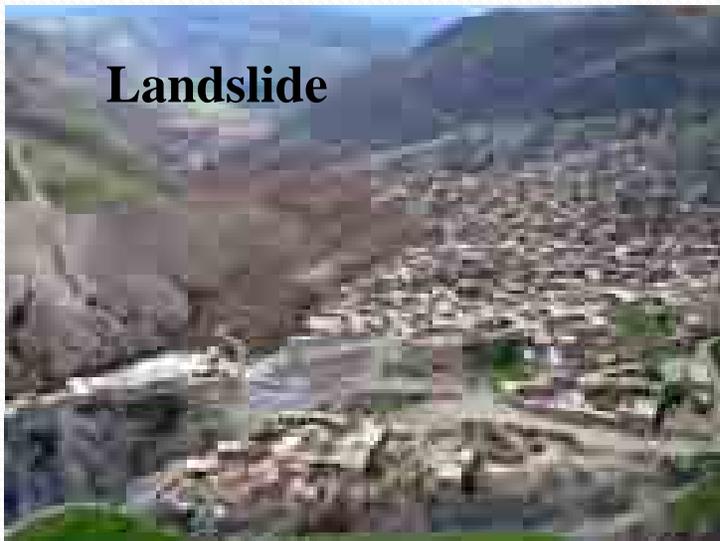
Earthquake

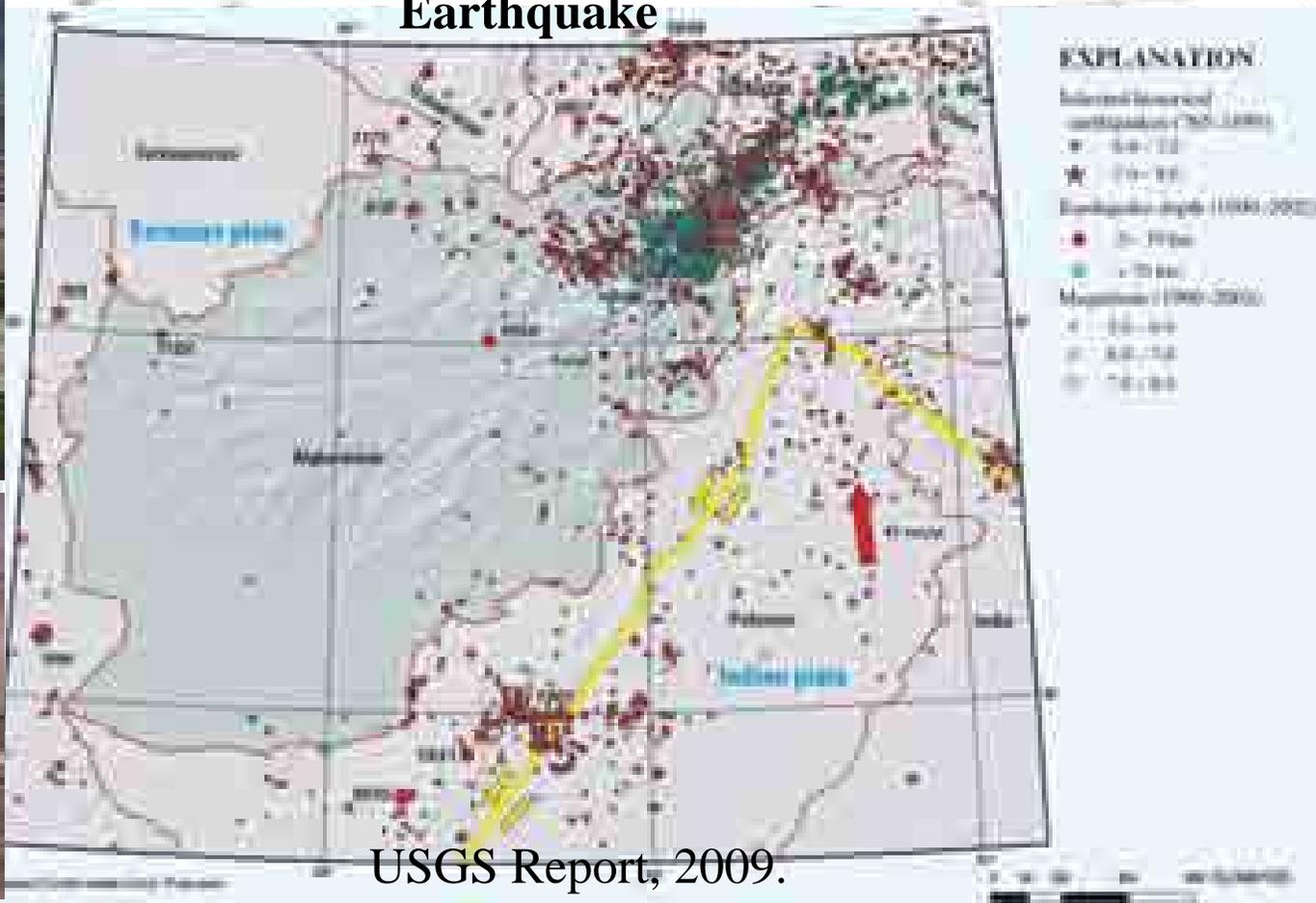**R. Flood**

Afghanistan Disaster Risk Profile

Geological Disasters

Earthquake is one of the major disaster it is due to Himalayan young Orogeny.

Landslide

Argo of Badakhshan, 2013

Earthquake

USGS Report, 2009.

Afghanistan Disaster Risk Profile

Hydrometeorological Hazards

Wind Storm
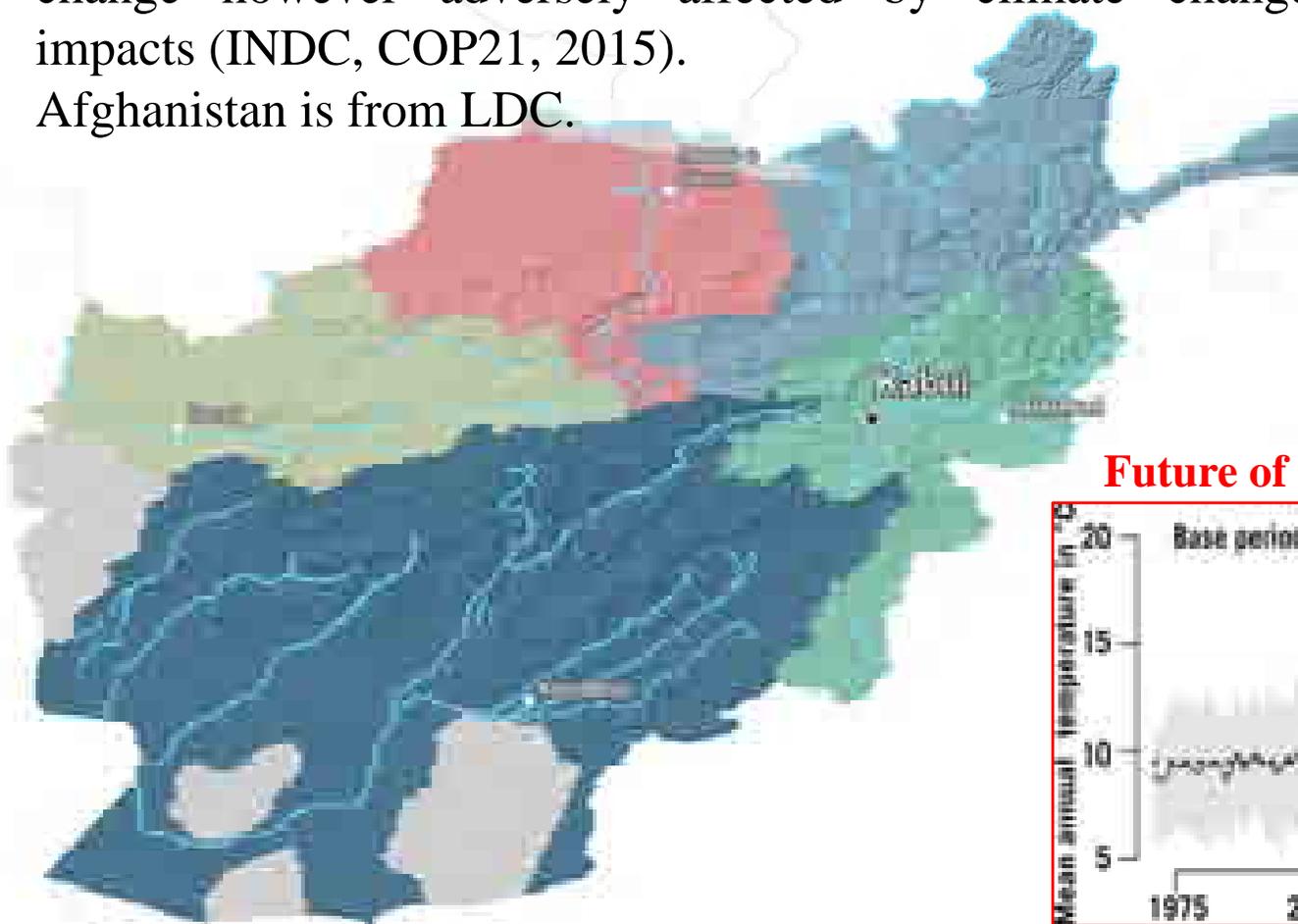
Flood

Snow Avalanches

Drought

Afghanistan Disaster Risk Profile

Climate Change Induced Disasters

- Afghanistan is a low emission country not has role in climate change however adversely affected by climate change impacts (INDC, COP21, 2015).
- Afghanistan is from LDC.
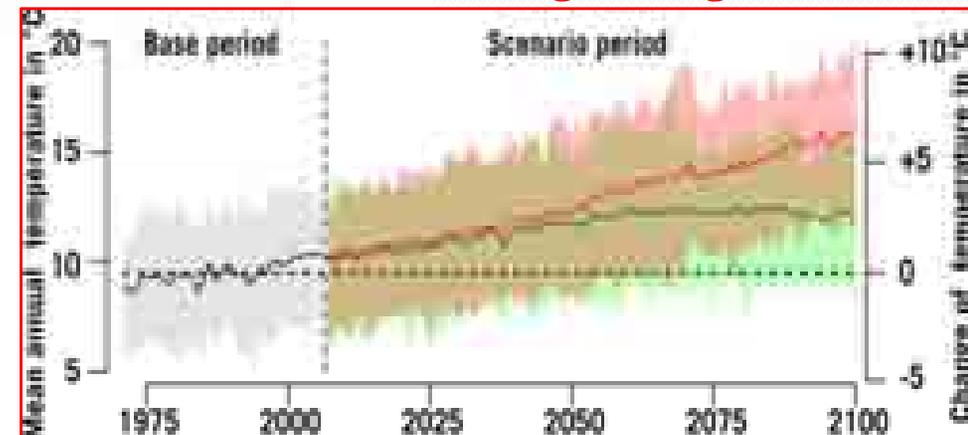
Impacts
- ❖ Temperature Rise
- ❖ Livelihoods
- ❖ Food Security
- ❖ Drought
- ❖ Floods
- ❖ Desertification

Natural Resources
- ❖ Water Resources
- ❖ Irrigation and Agriculture
- ❖ Ecosystem

Future of Climate Change in Afghanistan

Figure: Temperature projections for Afghanistan until the end of this century (Aich, et al., 2017).

Report prepared by WFP, UNEP and NEPA, 2016.

Flood Disaster in Afghanistan

Afghanistan Climate
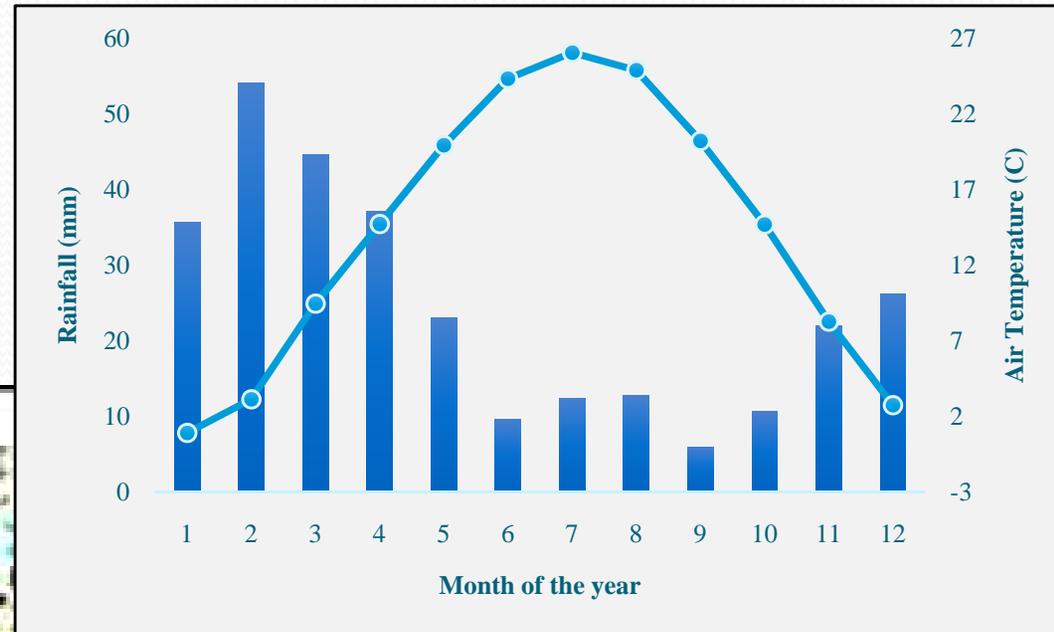
Annual average temperature and precipitation
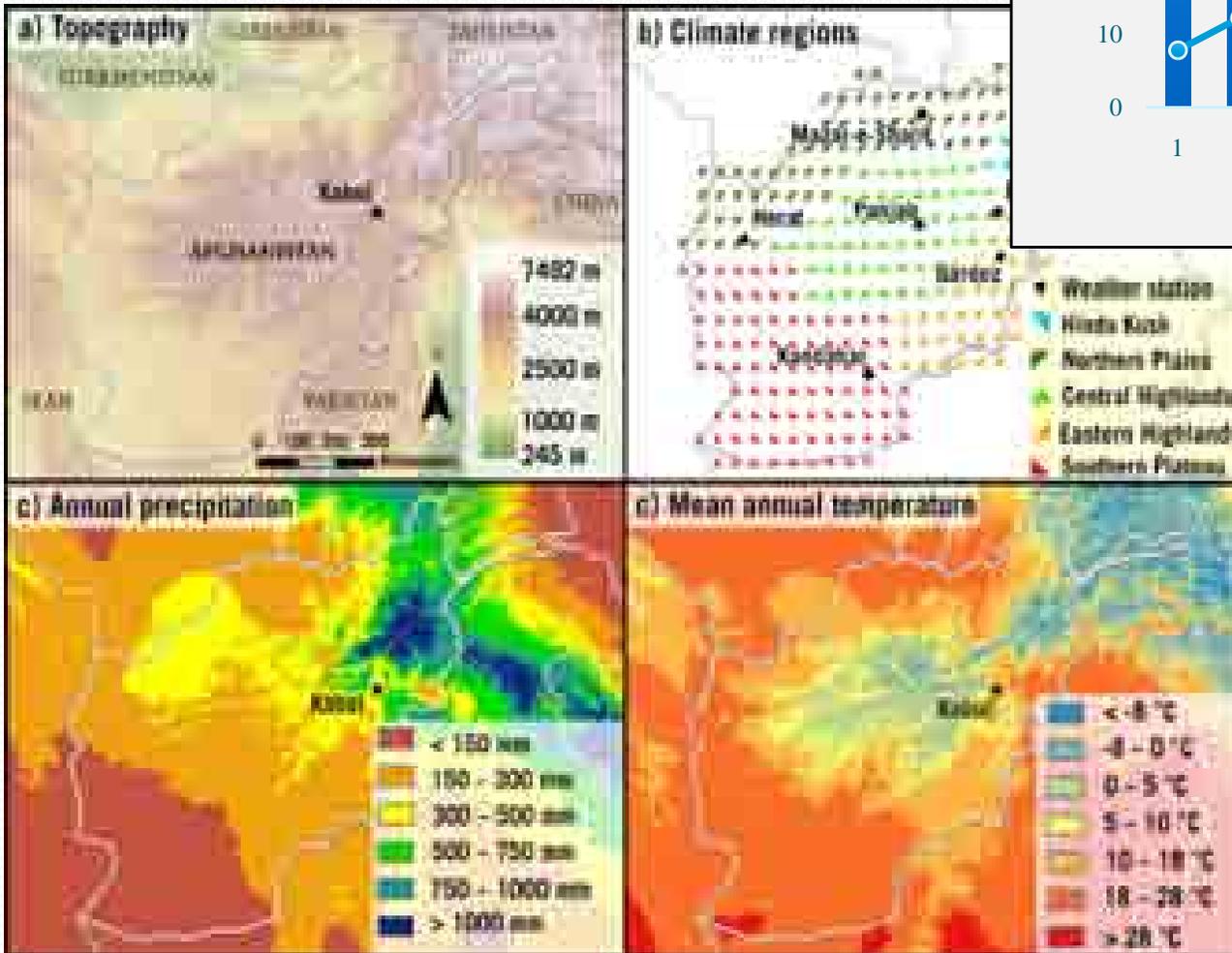
Figure: a) Topography (a), b) Climatic regions, c) Annual precipitation for the period 1960−1990, d) Mean annual temperature for the period 1960−1990 (Climate 2016, 4, for Peer review).

Flood Disaster in Afghanistan

Afghanistan River Basins and Water Resources

Water Resources

Total Precipitation : 180BMC
Surface flow : 84BCM
Groundwater : 18 BCM

Total W. R. = 102BCM

$$P - R - G - ET = 0$$

Flood Disaster in Afghanistan
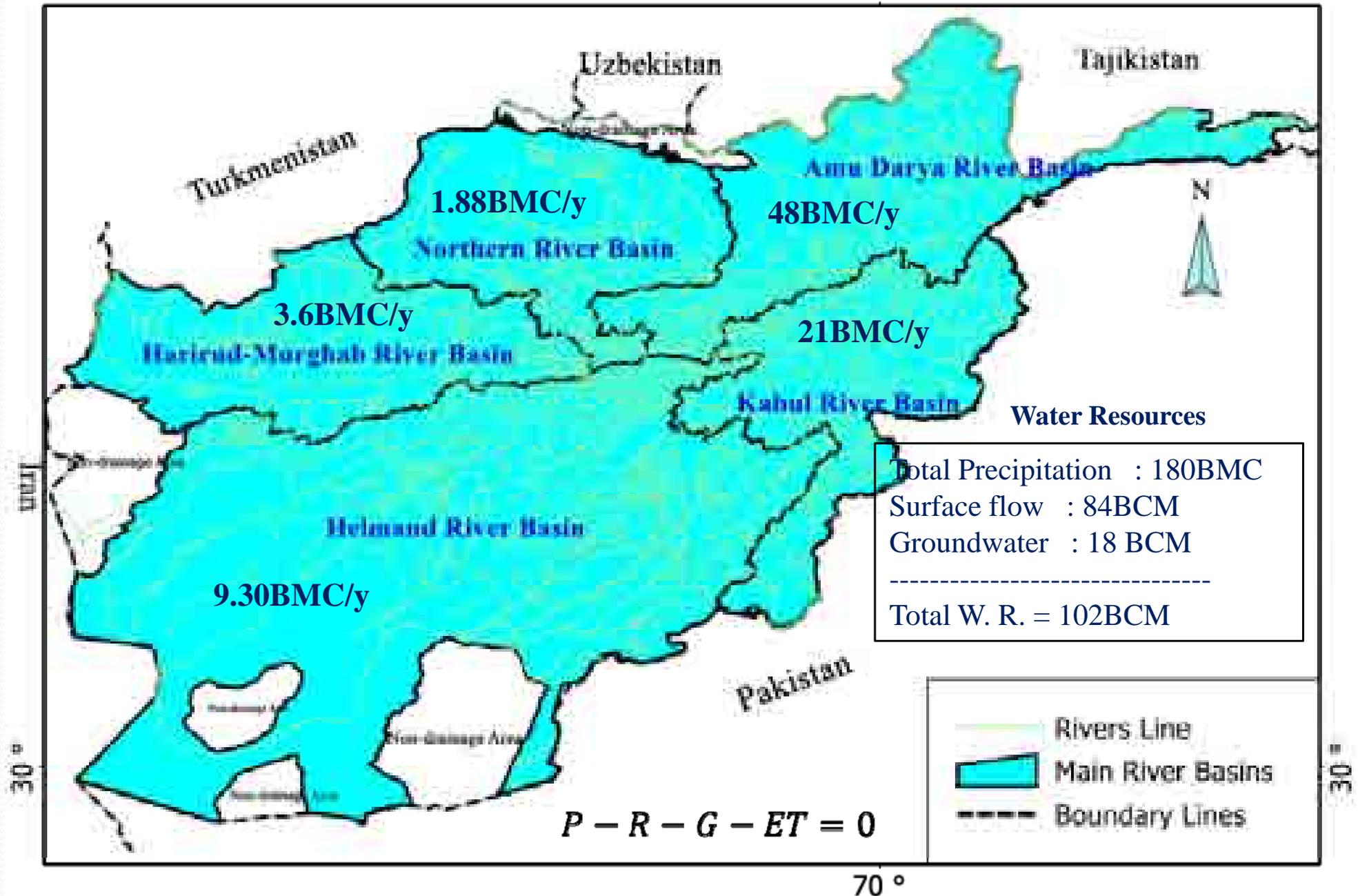
Transboundary Basins in Afghanistan

Afghanistan has shared water with Tajikistan, Uzbekistan, Turkmenistan, Iran and Indus R.

Flood Disaster in Afghanistan

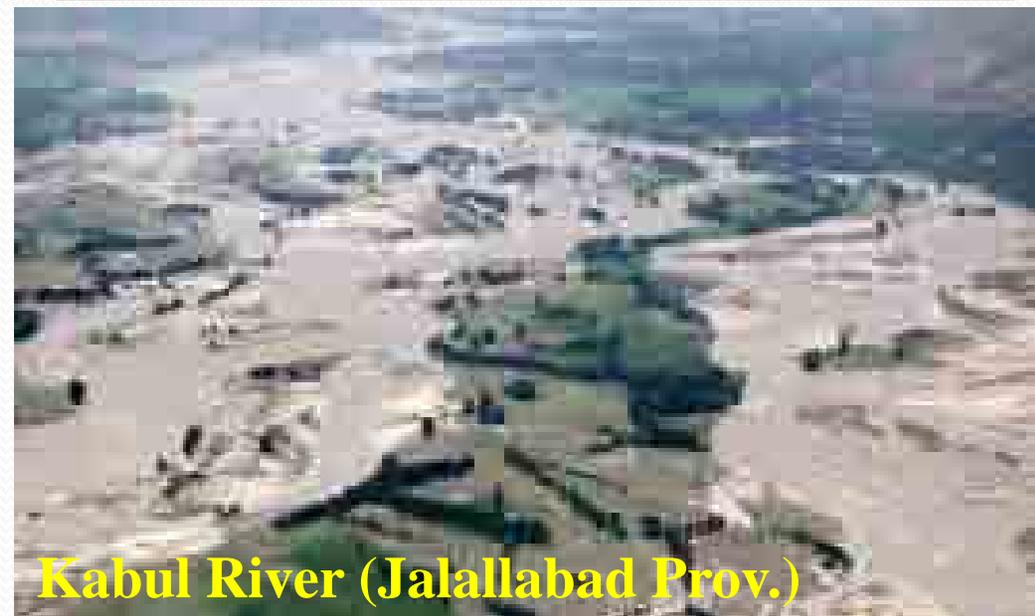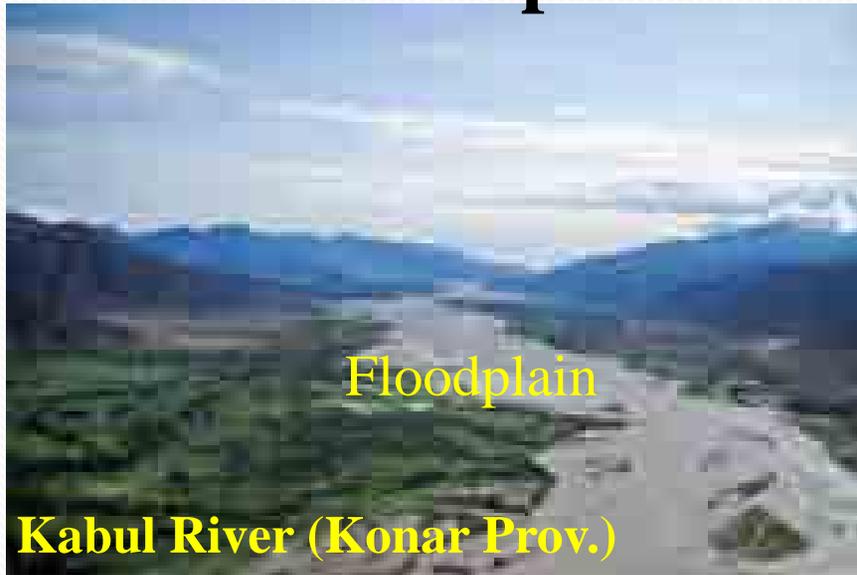## Disasters Impacts

Floodplain

Kabul River (Konar Prov.)

North West and West (Faryab and Badghis Prov.)

Floodplain

North Afghanistan (Jozjan, Saripol)

Kabul River (Jalallabad Prov.)

Flood Disaster Vulnerability

Vulnerability

Main cases of flood vulnerability

❖ Living and construct building near and inside of floodplain.

❖ Lack public awareness.

❖ Lack of Early Warning System.

❖ Weak preparedness and response.

❖ Lack of national disaster management plan and budget.
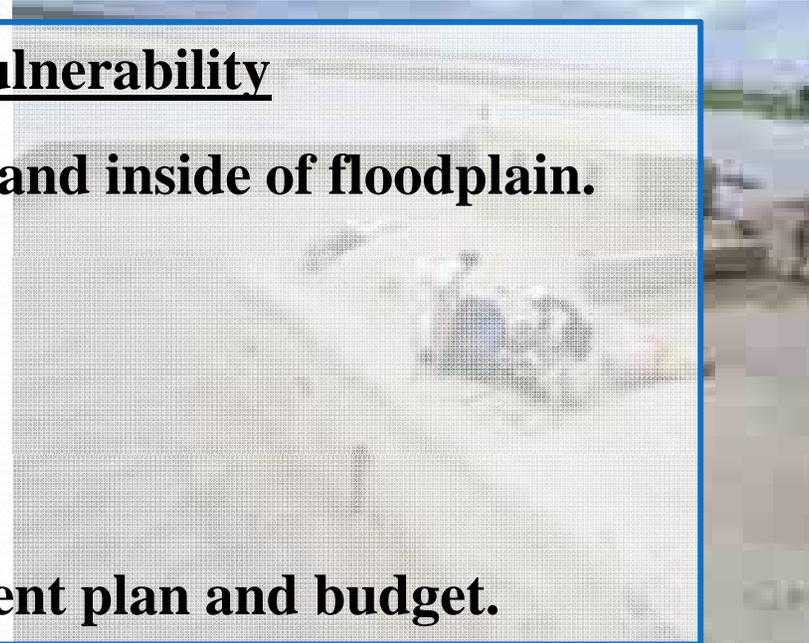
Flood Disaster Vulnerability

Flood Disasters Impacts and Vulnerability

Since 1980s about 5.7 million peoples are affected by floods (ANDMA, 2013).

Lack of Land use management.

Unplanned Urbanization

IDP
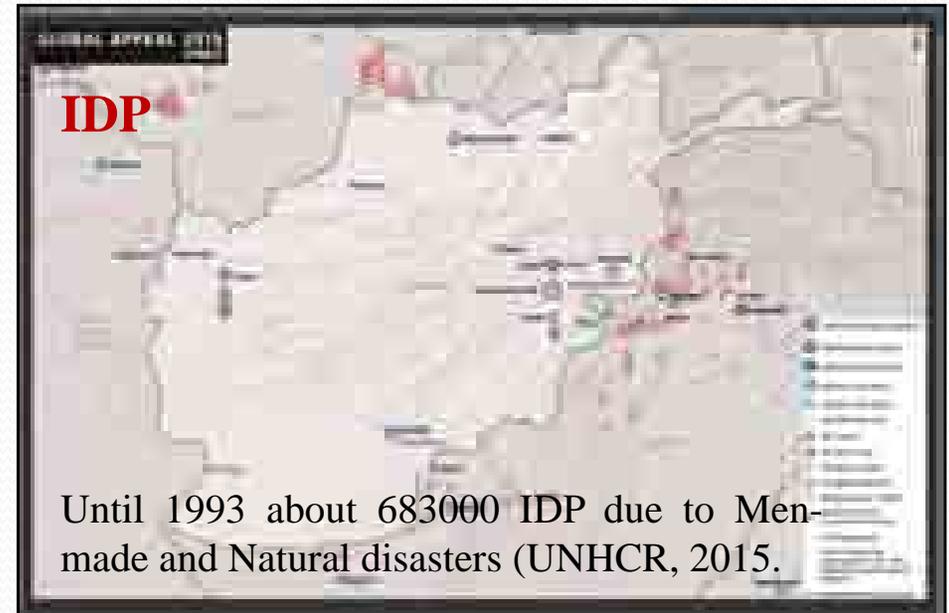
Until 1993 about 683000 IDP due to Men-made and Natural disasters (UNHCR, 2015.

War and conflict

Refugee

Flood Disaster Management Techniques

Traditional Techniques

- Soil Dams

- Artificial Levees

- Embankments on the rivers banks

- Wing Dykes

- Afforestation and floodplain zoning.

Most of these techniques are implemented through community cooperation.

Flood Disaster Management Techniques

Traditional Techniques:

Community Based Disaster Risk Reduction (CBDRM)

- CBDRM is a holistic approach links among vulnerability, poverty and socio-economic development.

- CBDRM approach seeks to build on existing community coping mechanisms and adaptation capacities.

- People are at the heart of decision making and implementation of disaster risk management activities.

- It is about listening to people.

- Empowerment CDCs.

Flood Disaster Management Techniques

Advanced Techniques

1. **Engineering Measure**
2. **Ecosystem Based DRM**

Advanced engineering techniques, as RCC dams, retaining walls, gabions, channel straightening and river restoration.

Salma Dam

Kagaki Dam

Flood Disaster Management Techniques

2. Ecosystem Based DRM

Surface water resources management, Forestation and Ecosystem development.

Khoshkak Bamyan, 2016.

Flood Disasters

Khoshkak Bamyan, 2016.

Surface water

Irrigated Agriculture

Groundwater Bamyan, 2016
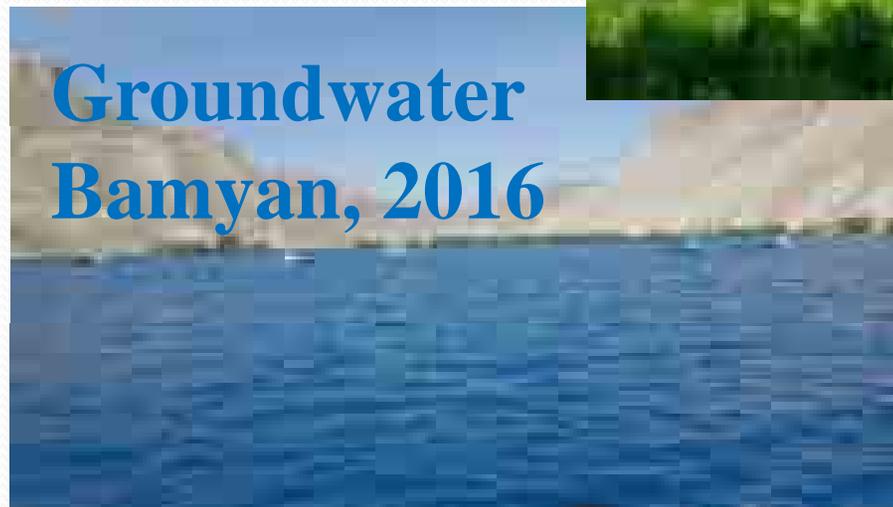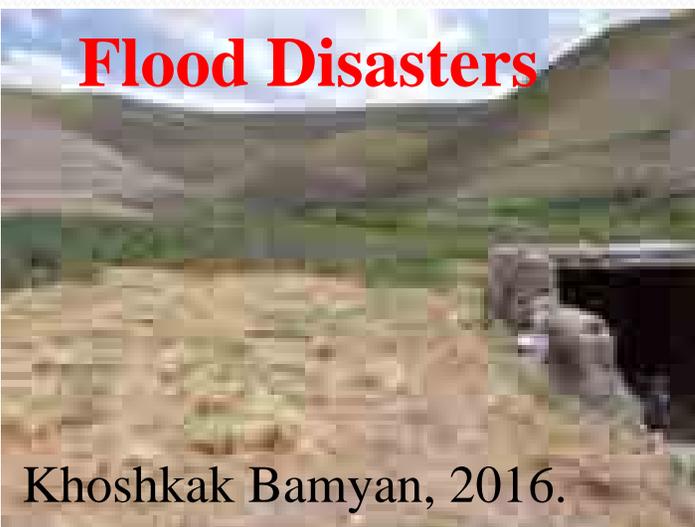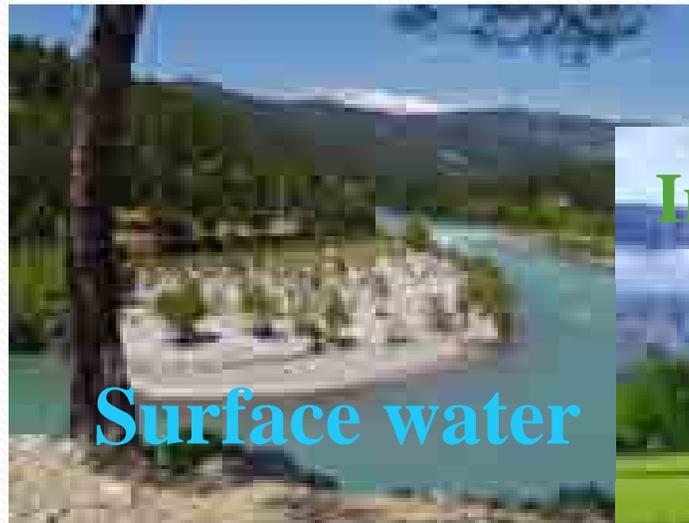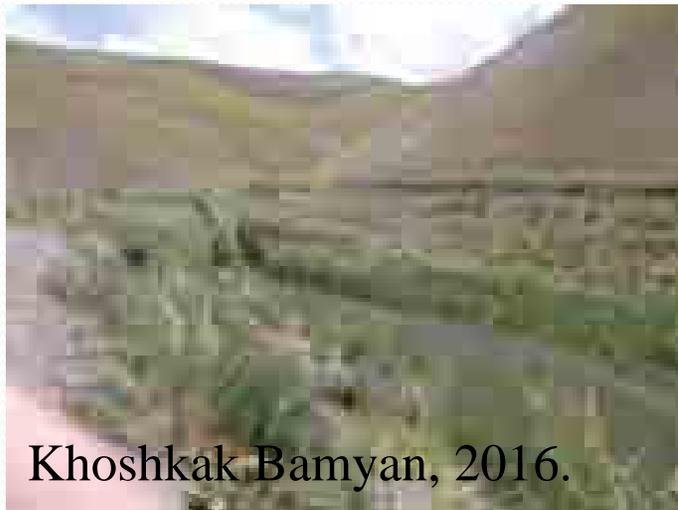
Disaster Management Agencies

Agencies in Disaster Management

In 1971 a Department of Disaster Preparedness (DDP) was established then in 2006, DDP was integrated to Afghanistan National Disaster Management Authority (ANDMA).

DRR ruling in Afghanistan

- The Presidential Decree No. 1089-10.07.1391 (2012), stating the Disaster management law in the country which indicates the roles and responsibilities of each government entities.
- Chair by NDMC (National Disaster Management Commission) and the Secretariat is on the State Ministry for Disaster Management (SMDM).
- With support of other national and international partner organizations.

Currently ANDMA involves mostly in Response.

Conclusions and Recommendation

❖ Afghanistan is prone to intense and recurring natural hazards, including earthquakes. Floods, Flash Flood, Landslides, Avalanches, Droughts and Man-made Disasters.

❖ Disaster management through CBDRM, Eco-DRR and Structural Measures.

❖ Climate mitigation and adaptation (Structural measure, Eco-CCA, sustainable energy use and forestation).

❖ Setup EWS.

❖ Institutional strengthen.

❖ Fostering regional cooperation (Knowledge sharing, capacity building, partnership, policy & investment advice, etc).

❖ Security.

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از توجه تان تشکر | له توجه نه مو مننه

Thanks for Attention