Disaster Loss Data and Climate Change Impacts in the Arab Region

Fadi Jannan
Deputy Chief of Office
United Nations Office for Disaster Risk Reduction
Regional Office for Arab States

High Level Conference on Climate Change Assessment and Adaptation in the Arab Region – Beirut, Lebanon – 26-28 September 2017

Why Account for Disaster Loss?

- To Measure and understand disaster risk in all its dimensions: vulnerability, capacity, exposure of persons and assets, hazard characteristics and the environment.

- To Identify changing and emerging trends in the frequency and losses of disasters (loss of life, livelihood, economic assets, or cultural heritage), especially when it comes to extensive risk

- To observe and identify extreme weather events within the context of climate-change

- To Inform decision-making, financing, and implementation of DRR, and CCA policies and strategies across the region

Why National Disaster Loss Data?

- New data allows to have a more complete picture of disaster losses.

- Direct losses are at least 60% more than the ones registered internationally.

- Small-scale disasters hamper local development and countries' competitiveness.

UNISDR & Disaster Loss Data

- Disaster loss data collection is now standardized and rolled out in more than 90 countries worldwide.

- In 2010 UNISDR's Regional Office for Arab States (ROAS) rolled-out the Global Initiative in the region. To date, ten of the twenty-two Arab countries established their national disaster damage and loss databases.

- 10 disaster loss databases in the Arab Region (Comoros, Djibouti, Egypt, Jordan, Lebanon, Morocco, Palestine, Syria, Tunisia and Yemen).

90+
Countries have disaster loss data available online

6 National Hazard Profiles
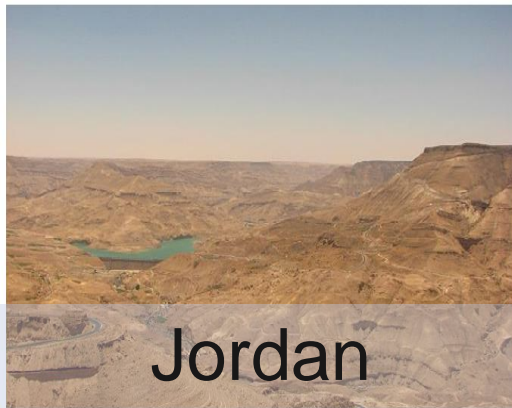
Wadi Mujib, Jordan, 2008. Source: Reibai -flickr.com
Jordan

Forest fire, Lebanon, 2010. Source: Carol Chouchani Cherfane.
Lebanon

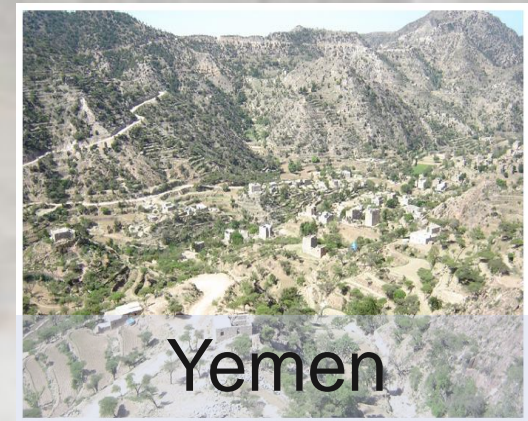Souss Massa region, Morocco, 2005. Source: Soufiane M -flickr.com
Morocco

Jordan Valley, West Bank, Palestine, 2017. Source: Alaa Kanan.
Palestine

Matmata, Tunisia, 2014. Source: Nanou El -flickr.com
Tunisia

Al Ramaa Mountain, Yemen, 2015. Source: Ihab Jnad.
Yemen

The 2017 RICCAR report on disaster loss data and climate change impacts is a collaborative effort undertaken by UNISDR and UN-ESCWA and the RICCAR framework is jointly implemented by the UN and LAS

Disaster Loss Data

- Disaster frequency, mortality, and economic losses are measured for all 6 countries

- The overall trend of disaster **frequency** is clearly *increasing* across the region

- The overall trend of disaster **mortality** is *decreasing* in all of the assessed countries

- Although disaster related deaths have decreased, **economic losses** due to disasters have mainly *increased with some exceptions to the trend*
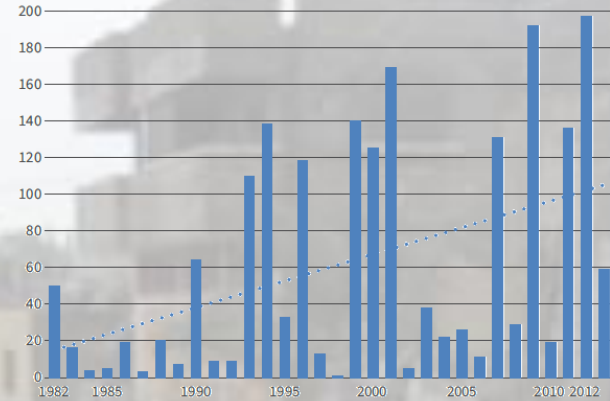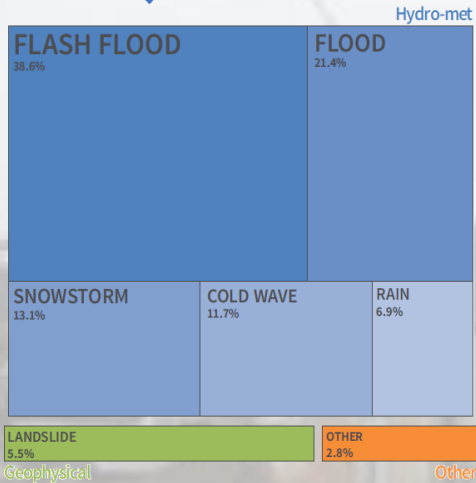
Tunisia: Disaster Frequency (1982-2013)
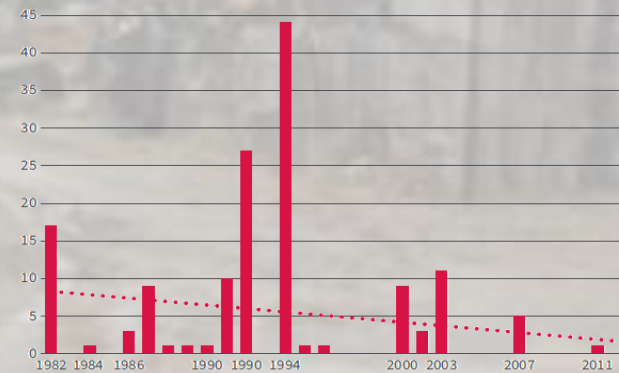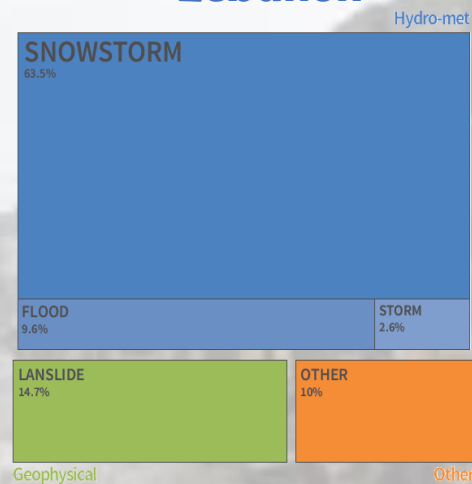
Jordan: Disaster Mortality: (1982-2012
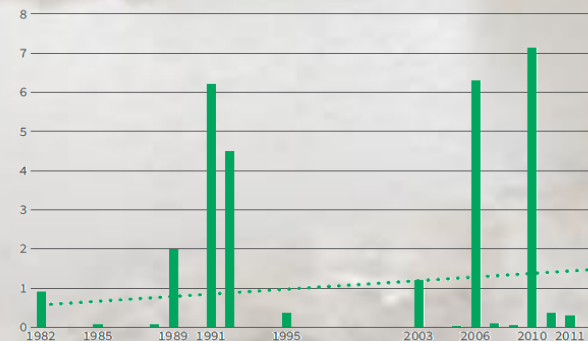
Lebanon: Economic Losses (1980-2013
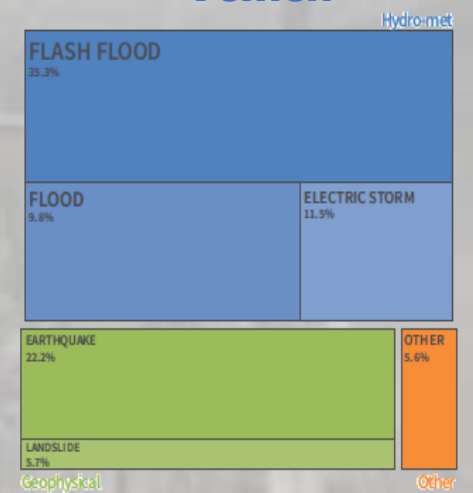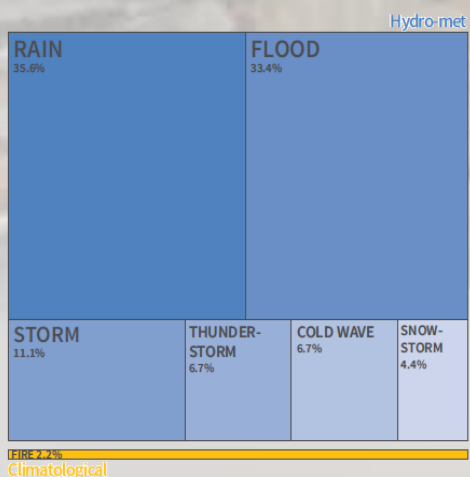
Disaster Mortality: Breakdown by Hazard type

Jordan

Hydro-met
- FLASH FLOOD 38.6%
- FLOOD 21.4%
- SNOWSTORM 13.1%
- COLD WAVE 11.7%
- RAIN 6.9%
- LANDSLIDE 5.5%
- OTHER 2.8%

Geophysical / Other

Lebanon

Hydro-met
- SNOWSTORM 63.5%
- FLOOD 9.6%
- STORM 2.6%
- LANSLIDE 14.7%
- OTHER 10%

Geophysical / Other

Yemen

Hydro-met
- FLASH FLOOD 35.3%
- FLOOD 9.8%
- ELECTRIC STORM 11.5%
- EARTHQUAKE 22.2%
- OTHER 5.6%
- LANDSLIDE 5.7%

Geophysical / Other

Palestine

Hydro-met
- RAIN 35.6%
- FLOOD 33.4%
- STORM 11.1%
- THUNDER-STORM 6.7%
- COLD WAVE 6.7%
- SNOW-STORM 4.4%
- FIRE 2.2%

Climatological

Tunisia

Hydro-met
- FLOOD 78.2%
- ELECTRIC STORM 2.4%
- SNOWSTORM 2.1%
- FIRE 15.5%
- OTHER 1.8%

Climatological / Other

Morocco

Hydro-met
- FLOOD 61.8%
- EARTHQUAKE 21.1%
- FIRE 9%

Geophysical / Climatological
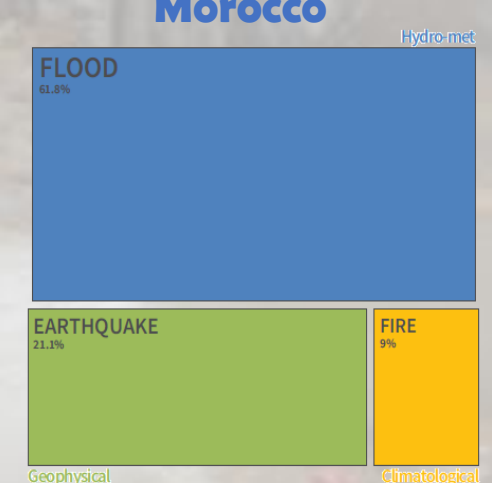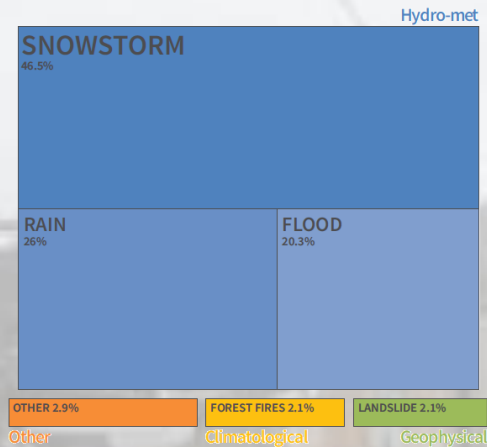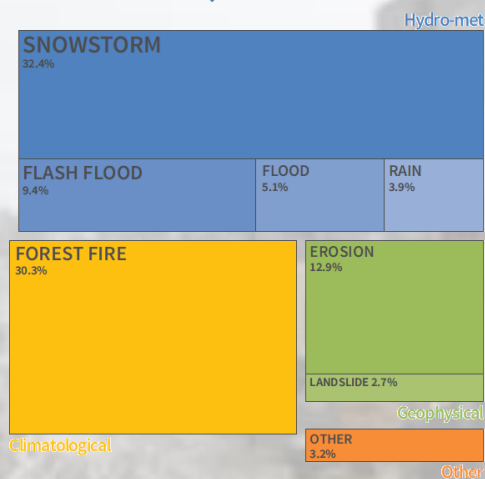
Floods cause the overwhelming majority of fatalities followed by flash floods; however, other hazards are also responsible such as snowstorms in Lebanon
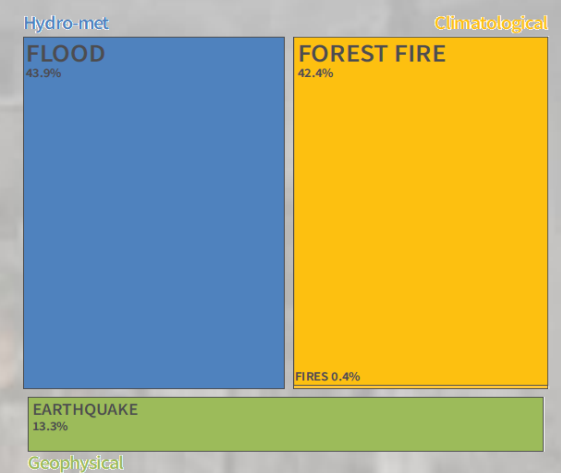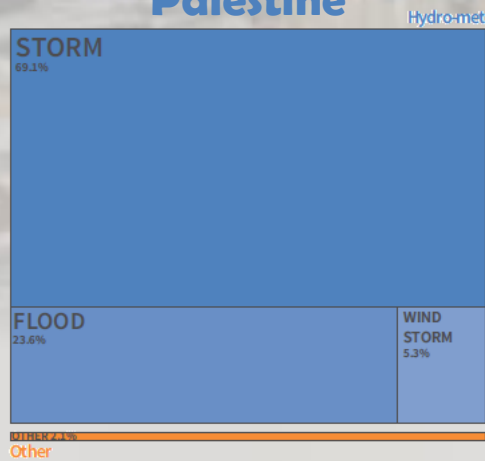
Economic Loss: Breakdown by Hazard type
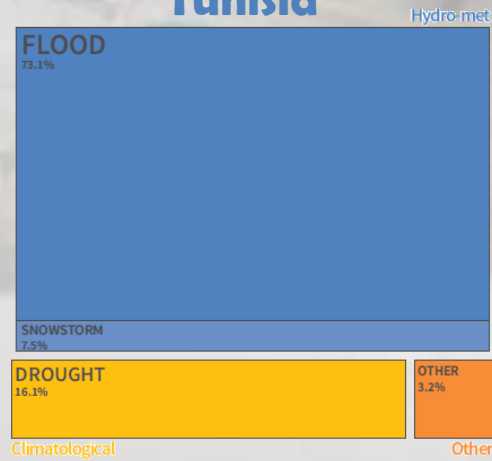
Lebanon

Hydro-met
- SNOWSTORM 46.5%
- RAIN 26%
- FLOOD 20.3%

Other
- OTHER 2.9%

Climatological
- FOREST FIRES 2.1%

Geophysical
- LANDSLIDE 2.1%

Jordan

Hydro-met
- SNOWSTORM 32.4%
- FLASH FLOOD 9.4%
- FLOOD 5.1%
- RAIN 3.9%

Climatological
- FOREST FIRE 30.3%

Geophysical
- EROSION 12.9%
- LANDSLIDE 2.7%

Other
- OTHER 3.2%

Morocco

Hydro-met
- FLOOD 43.9%

Climatological
- FOREST FIRE 42.4%
- FIRES 0.4%

Geophysical
- EARTHQUAKE 13.3%

Palestine

Hydro-met
- STORM 69.1%
- FLOOD 23.6%
- WIND STORM 5.3%

Other
- OTHER 2.1%

Tunisia

Hydro-met
- FLOOD 73.1%
- SNOWSTORM 7.5%

Climatological
- DROUGHT 16.1%

Other
- OTHER 3.2%

Yemen

Hydro-met
- FLOOD 87.2%
- FLASH FLOOD 9.8%

Geophysical
- EARTHQUAKE 2.4%

Other
- OTHER 0.6%

Hazards which cause Economic losses can be quite different from those responsible for the highest levels of mortality (for example, in Morocco forest fires cause 42% of economic losses but only 9% of disaster-related deaths
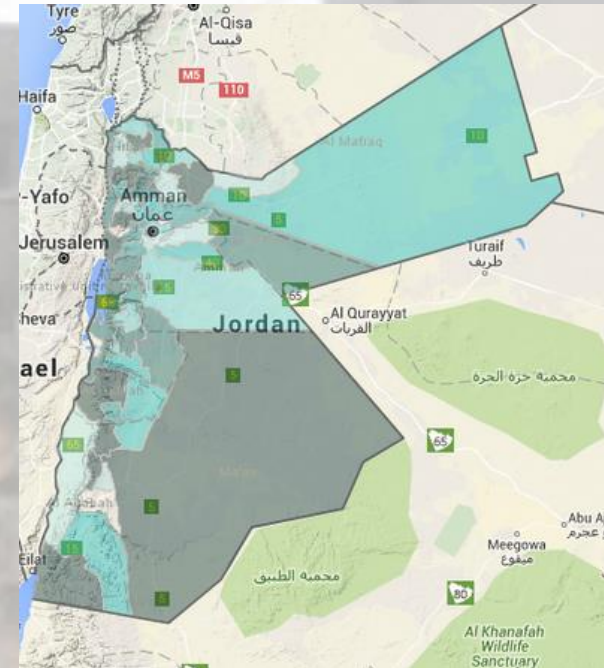
8

1981 – 2012 Jordan
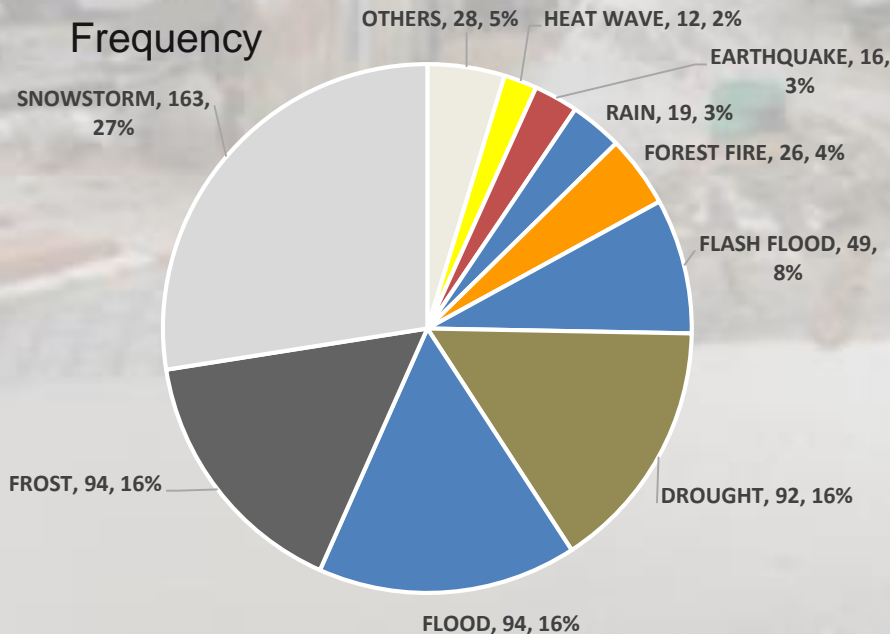
593 records
145 deaths
29 million US$ estimated losses
83 houses destroyed
594 houses damaged
840 ha of crops damaged

Frequency

OTHERS, 28, 5%   HEAT WAVE, 12, 2%
SNOWSTORM, 163, 27%
EARTHQUAKE, 16, 3%
RAIN, 19, 3%
FOREST FIRE, 26, 4%
FLASH FLOOD, 49, 8%
FROST, 94, 16%
DROUGHT, 92, 16%
FLOOD, 94, 16%

Spatial footprint of frequency

No data
< 4
4-5
5-7
7-10
10-17
> 17

Hydro-meteorological related impacts:

97% of all records
97% of mortalities.
95% of economic losses.
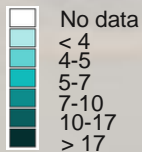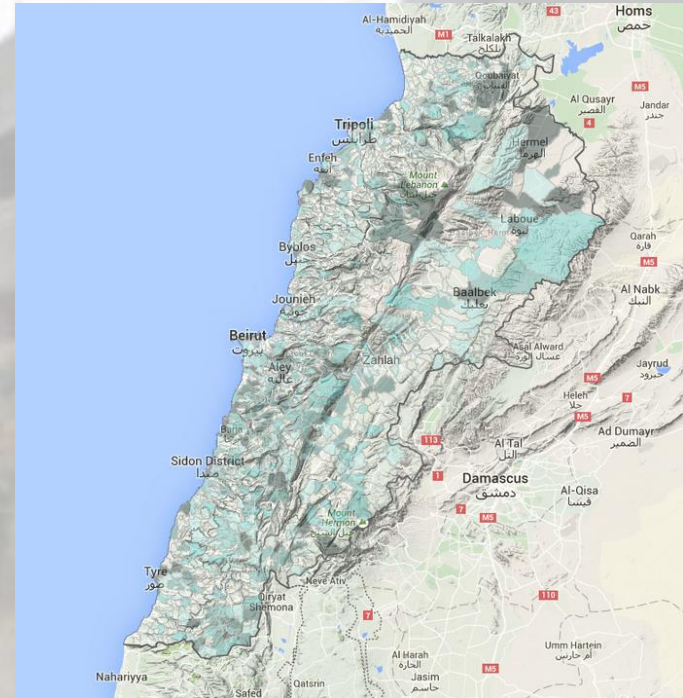
1980 – 2011 Lebanon

2527 records
156 deaths
48 million US$ estimated losses
181 houses destroyed
1366 houses damaged
17700 ha of crops damaged

Frequency

Spatial footprint of frequency

Pie chart (Frequency):
- OTHERS, 116, 4%
- RAIN, 66, 3%
- LANDSLIDE, 69, 3%
- STORM, 70, 3%
- EROSION, 102, 4%
- FLOOD, 115, 4%
- FLASH FLOOD, 168, 7%
- SNOWSTORM, 429, 17%
- FOREST FIRE, 1392, 55%

Map legend:
- No data
- < 1
- 1-2
- 2-3
- 3-4
- 4-5
- > 5
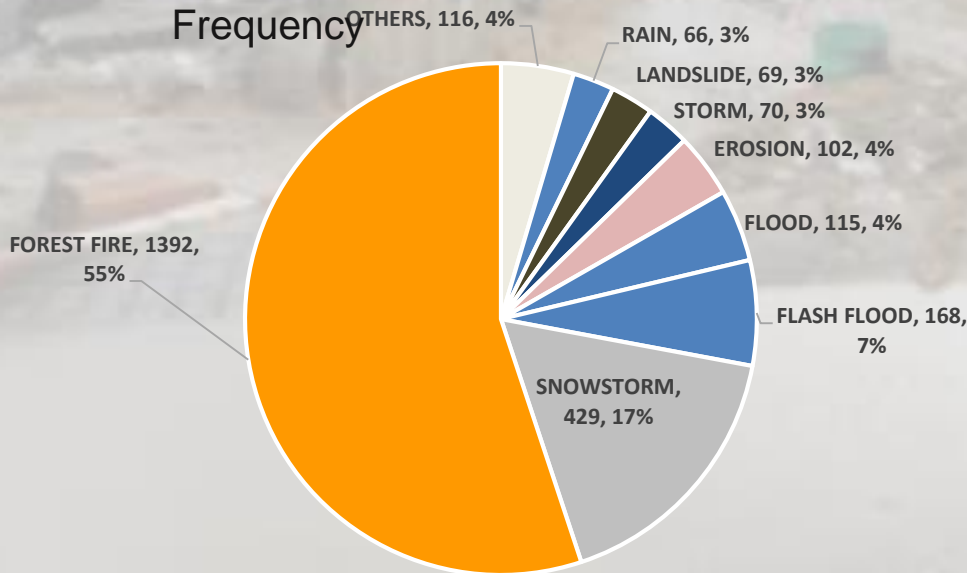
Hydro-meteorological related impacts:

75% of all records
100% of mortalities.
86% of economic losses.

1990 – 2013 Morocco

713 records

2165 deaths

530 million US$ estimated losses

5109 houses destroyed

21915 houses damaged

281000 ha of crops damaged

Frequency

Pie chart:
- OTHERS 17 2%
- FLOOD 69 10%
- FOREST FIRE 627 88%

Spatial footprint of frequency

Legend:
- No data
- < 1
- 1-2
- 2-3
- 3-4
- 4-5
- > 5
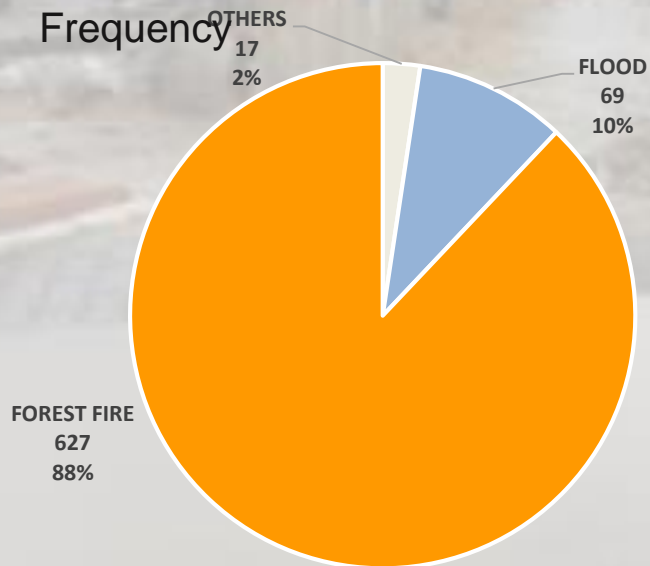
Hydro-meteorological related impacts:

88% of all records
70% of mortalities
75% of economic losses.
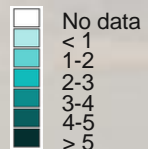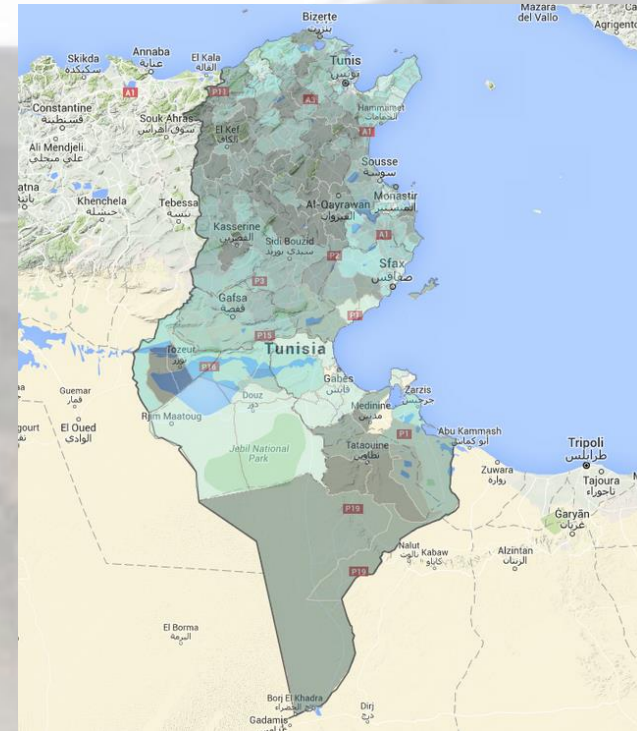
1982 – 2013 Tunisia

1918 records

330 deaths

684 million US$ estimated losses

17821 houses destroyed

24728 houses damaged

837000 ha of crops damaged

Frequency

Spatial footprint of frequency

Pie chart:
- DROUGHT, 1121, 59%
- OTHERS, 113, 6%
- FIRE, 85, 4%
- HAILSTORM, 94, 5%
- FOREST FIRE, 121, 6%
- FLOOD, 384, 20%

Legend:
- No data
- < 3
- 3-6
- 6-8
- 8-11
- 11-13
- > 13

Hydro-meteorological related impacts:

99% of all records
100% of mortalities!
98% of economic losses.
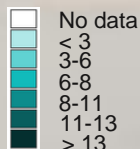
1980 – 2013 Palestine

388 records
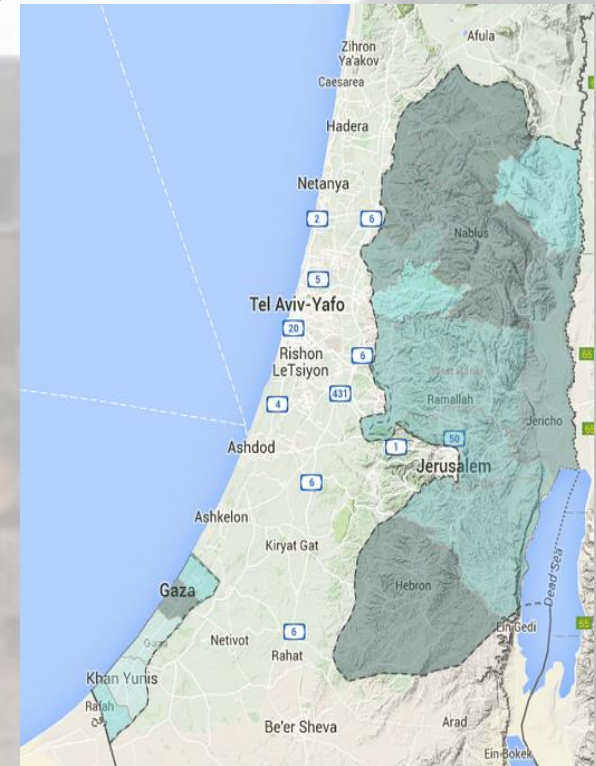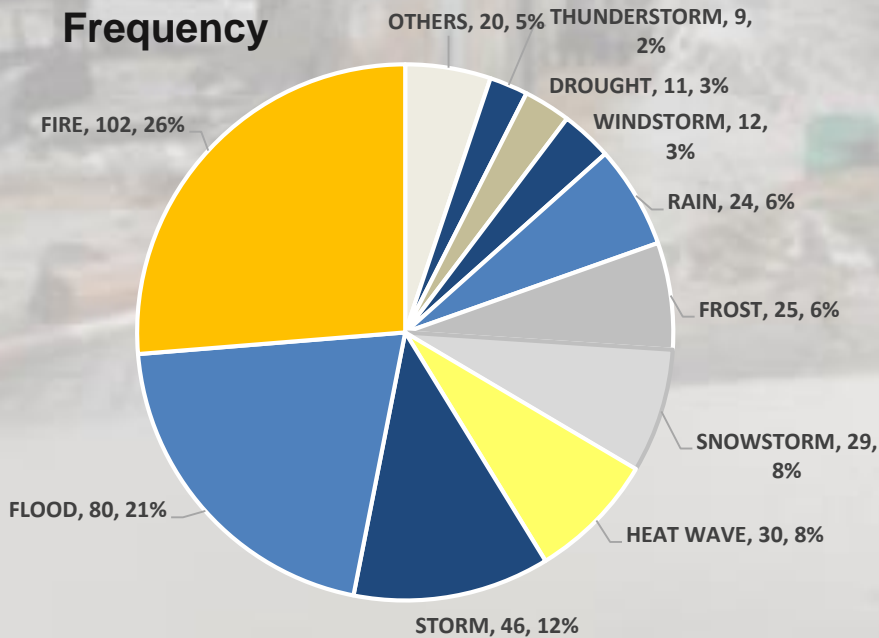
45 deaths

11 million US$ estimated losses

65 houses destroyed

798 houses damaged

Spatial footprint of frequency

Frequency

- FIRE, 102, 26%
- FLOOD, 80, 21%
- STORM, 46, 12%
- HEAT WAVE, 30, 8%
- SNOWSTORM, 29, 8%
- FROST, 25, 6%
- RAIN, 24, 6%
- WINDSTORM, 12, 3%
- DROUGHT, 11, 3%
- THUNDERSTORM, 9, 2%
- OTHERS, 20, 5%

Legend:
- No data
- < 5
- 5-20
- 20-30
- 30-40
- 40-70
- > 70

Hydro-meteorological related impacts:

99.23% of all records
69% of total mortality
92% of total economic losses
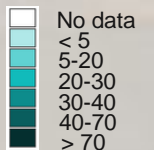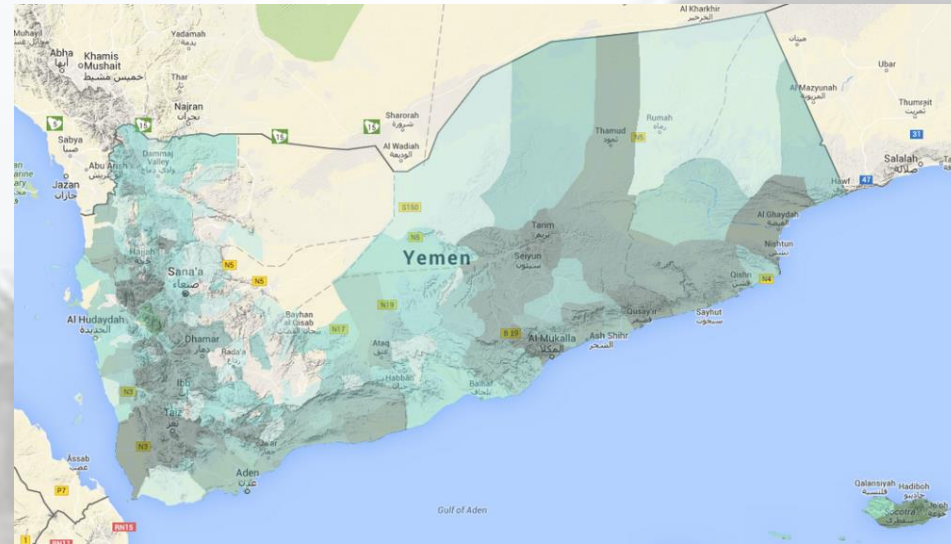
1971 – 2013   Yemen

1637 records
4126 deaths
3 billion US$ estimated losses
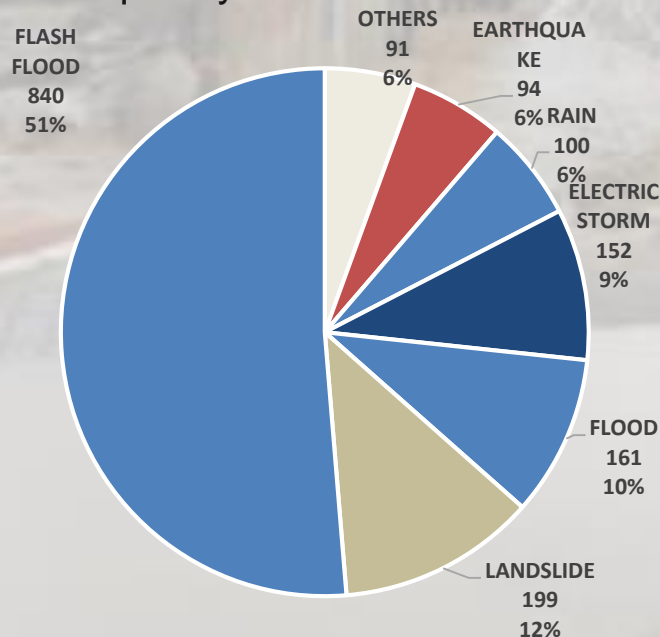**22392** houses destroyed
37311 houses damaged
20200 ha of crops damaged

Spatial footprint of frequency

No data
< 1
1-2
2-4
4-7
7-15
> 15

Frequency

- FLASH FLOOD **840** 51%
- OTHERS **91** 6%
- EARTHQUAKE **94** 6%
- RAIN **100** 6%
- ELECTRIC STORM **152** 9%
- FLOOD **161** 10%
- LANDSLIDE **199** 12%

Hydro-meteorological related impacts:

95% of all records (out of which 51% of records refer to flash flood)
Flash flood is the deadliest disaster.
97% of 3 billion USD due to flash and flash floods events.

Sendai Framework Monitoring

- Disaster loss data can be used for the Sendai Framework Monitor starting January 2018

- Establishes baselines for measurements against the Sendai Framework's targets:
  - Target (a): 'reduce disaster mortality'
  - Target (c): 'reduce economic loss/GDP'

- Disaster loss data will lead to risk-informed planning, which in turn will lead to the achievement of target (e): 'increase the number of countries with national/local DRR strategies by 2020'

Challenges

- Data is limited (all loss databases in the region are only up to 2012/2013)

- Further investments and efforts are needed to update, enhance, and harmonize the national loss databases

- Better understanding of past losses, and risk levels including climate change impact is needed to empower policy making.

Recommendations

1. **Invest**
   - Historical loss databases
   - High quality data on hazard, exposure, and vulnerability

2. **Share**
   - Data is more valuable with more stakeholders
   - Widespread, understandable, easy to access, ideally open to public, and using online platforms.
   - Enable the general public to understand disaster risk and climate change

3. **Build Capacities (to use and understand)**
   - Availability for decision makers, public and private sectors
   - Education and training in understanding risk data
   - Further analysis to provide more accurate maps

Thank You!