

# Preparedness, Mitigation and Response – the 3rd pillar

- Measures and actions aimed at reducing the vulnerability to drought and reducing the impacts of droughts

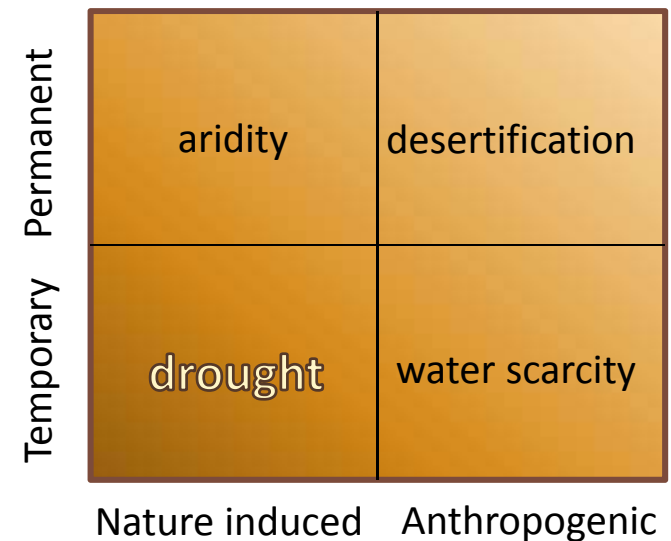
**Goal: Identify the appropriate actions for drought risk reduction**

- Measures can be subdivided into long-term, medium-term or short-term options
- Measures can be structural or non-structural



# Mitigation measures - basics

- Countries have different opportunities for mitigation measures due to
  - Climatic region
  - Topography
  - Existing infrastructure
  - Socio-economic context
- Drought conditions vs aridity vs water scarcity vs desertification



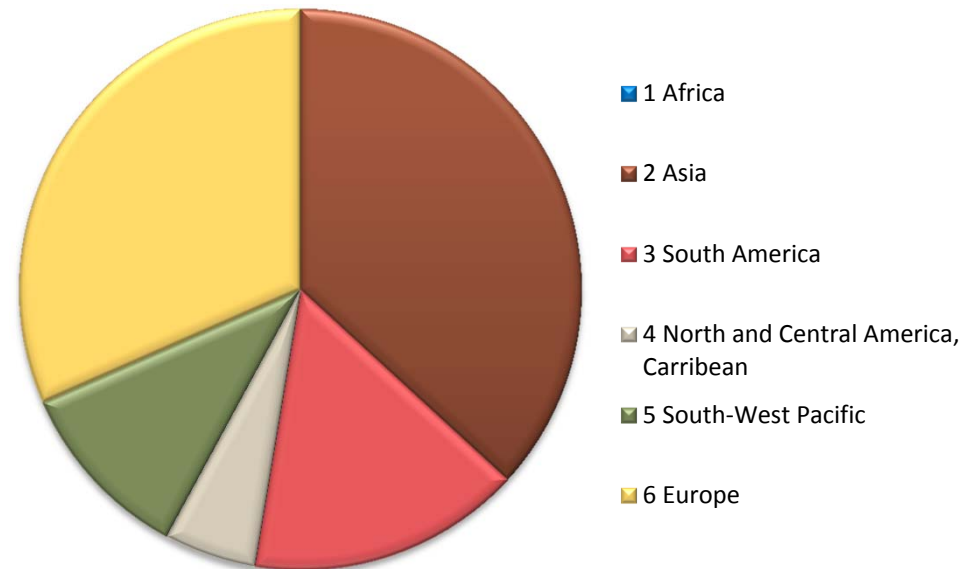
# Online Survey on National Drought Mitigation Strategies

- **Scope of Survey**

Gather information on current National Drought Mitigation Strategies available online

- **Basic information**

**17 countries:** Argentina, Austria, Brazil, Chile, China (PRC), Dominican Republic, Greece, Israel, Jordan, Lithuania, New Zealand, Pakistan, Russian Federation, Slovenia, Spain, Thailand, Australia



# Online Survey on National Drought Mitigation Strategies

## Search Keywords:

- National Drought Plan / Mitigation
- Meteorological/hydrological service
  - Drought monitoring, drought forecasting
  - Hydrological monitoring
- Ministry for Agriculture / Water
- Current or past drought emergency response

## • Challenges:

- Drought Management Plans versus Actions
- Digital versus analogue data and information dissemination
- Variety of climatic, geographic and socio-economic backgrounds
- Intra-national complexity: Preparation of drought management plans per region/watershed

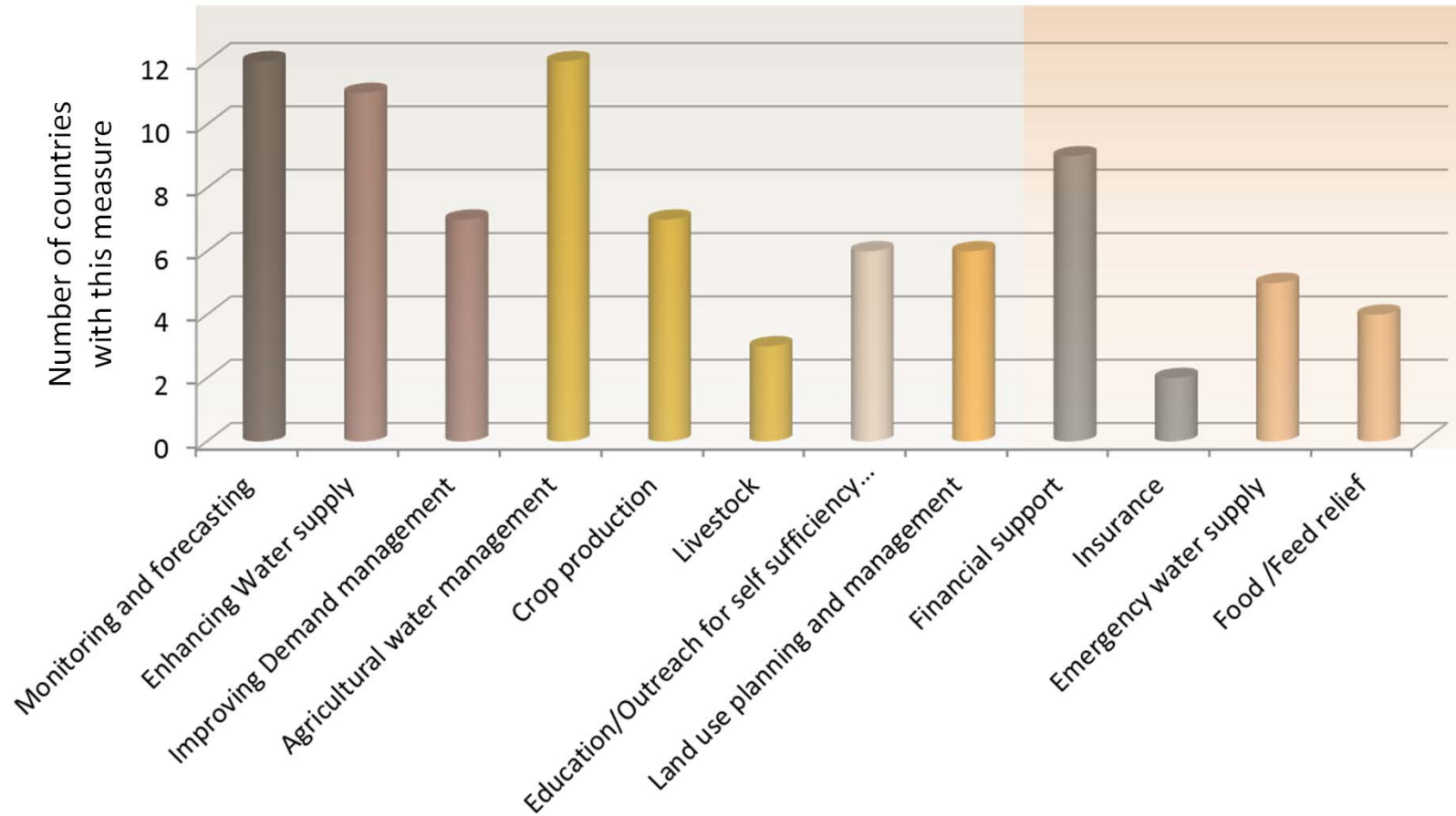
# Summary: Categories of encountered Mitigation Measures

- Monitoring and forecasting of water resources
- Enhancing water supply (water storage and allocation)
- Water demand management (priorization, restrictions)
- Agricultural water management (irrigation, efficiency increase)
- Adaptation of crops (varieties, breeding)
- Public education and awareness (increase self sufficiency)
- Land use planning and management
- Insurance
- Financial help (compensation,
- Emergency water supply
- Food / Feed relief

proactive

reactive

# Analysis of mitigation strategies



## Short-, Mid- and Long Term Proactive Measures

### Enhancing water supply

Brazil, Chile  
**China (PRC)**, Dominican Republic, Greece, **Israel\***, Jordan, Pakistan, Spain, **Turkey**, Australia

### Water demand management

Austria, **Brazil**, Chile, Greece, **Jordan**, **Spain**, Turkey

### Education and self reliance

Brazil, **Israel\***, **New Zealand**, Pakistan, Spain  
**Australia**

### Improving agricultural Practices/water supply

**Argentina**, Austria, **Brazil**, Chile, China (PRC), Israel, New Zealand, Russian Federation, **Slovenia**, Spain, Thailand, **Turkey**, Australia

## Reactive Measures

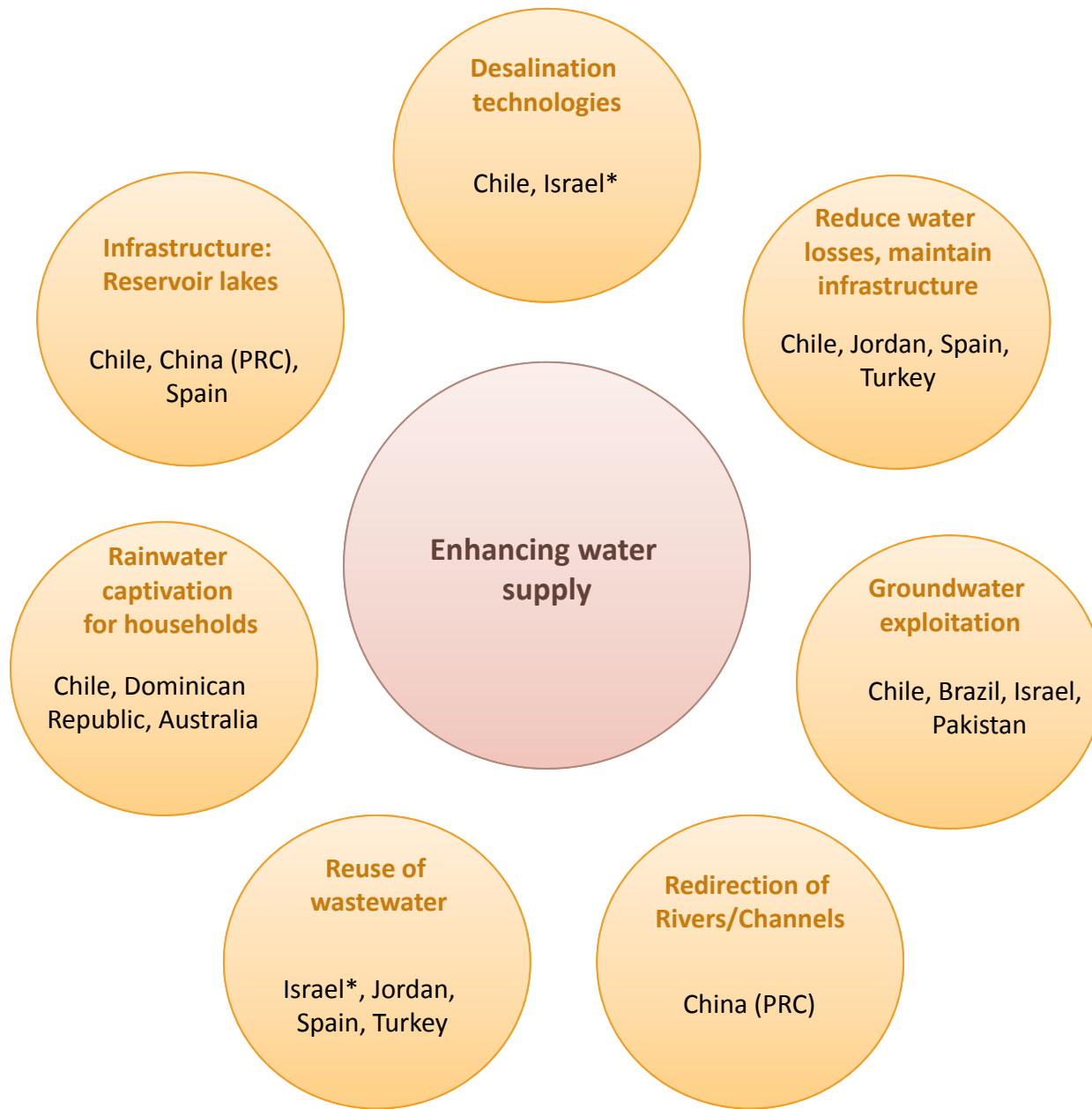
### Emergency water, food and feed supply

Brazil, Chile, Dominican Republic, Greece, Pakistan, Thailand

### Financial provisions, Insurance

Argentina, Austria, Brazil, China (PRC), New Zealand, Pakistan, Slovenia, Thailand, Australia

\*tackles both water scarcity and drought







# Spain: Management of water usage

- Drought management plans are developed for water sheds
- Distinction between water scarcity and prolonged drought
- Example Miño-Sil watershed drought plan:
  - Clear definition of drought indicators → Monitoring
  - Definition of territorial units and water demand
  - Definition of drought stages and severities
  - **Key Measures:**
    - Outreach and education – water saving campaigns
    - Restrictions on water usage, prioritization of vital sectors, nocturnal decreases in water pressure, water cuts
    - Attenuation of water usage from sensitive or protected areas

*New Special  
Drought  
Plans approved  
in 2018*

**Resources:** [https://www.miteco.gob.es/es/agua/temas/observatorio-nacional-de-la-sequia/planificacion-gestion-sequias/Copia\\_de\\_default.aspx](https://www.miteco.gob.es/es/agua/temas/observatorio-nacional-de-la-sequia/planificacion-gestion-sequias/Copia_de_default.aspx), <https://www.chminosil.es/es/chms/planificacionhidrologica/nuevo-plan-especial-de-sequia/consulta-publica-plan-especial-de-sequia>

# Pakistan: Drought emergency response

- No drought management plan in place: Early stage development of national drought management plan
- National consultative workshop in January 2019
- Emergency response measures to current drought (IFRC):
    - Provision of safe drinking water through solar boreholes and storage facilities
    - Conduct hygiene and water treatment awareness activities
    - Provision of unconditional cash grants for immediate needs such as food, foddors for livestock

**Resources:** <http://ndma.gov.pk/files/NCWD%20Report-11.2.2019.pdf>, <https://reliefweb.int/sites/reliefweb.int/files/resources/MDRPK015do.pdf>

# Australia: Support self-reliance

- Intergovernmental approach to drought management between the Commonwealth of Australia and states/territories
- Well established drought monitor and forecasting system – data for farmers
- **Measures:**
  - Self-reliance:
    - Farm business trainings: develop and monitor business plan and manage risk
    - Rebate scheme for self-reliant improvement of water infrastructure (pipes, pumps, etc. )
    - Social support and well-being assistance
  - Financial aid: Farm household allowance for families in hardship, Farm management deposit scheme, Drought communities programme (including work opportunities)



**Resources:** <http://www.agriculture.gov.au/ag-farm-food/drought/drought-policy/national-drought-agreement>,  
<http://www.agriculture.gov.au/ag-farm-food/drought>

# Chile: Infrastructure and technology

- Coordinated plan elaborated by ministries of the interior, agriculture, civil engineering, mining, energy and environment
- Long-term measures: construction of 19 reservoir lakes until 2024, desalination plants
- Mid-term measures: construction of small reservoir lakes, micro-desalination plants, hydro-efficiency in housing projects
- Short-term measures:
  - Farmer support: financial support for feed, seeds or materials, food provisions
  - Household water storage systems, Geomembranes for decreased water loss
  - Groundwater exploitation, channelling of rivers or channel restoration, improvement of irrigation techniques
  - Water trucks

**Resources:** <https://www.gob.cl/noticias/las-medidas-que-componen-el-plan-nacional-para-la-sequia/>