SWIM and Horizon 2020 Support Mechanism

Working for a Sustainable Mediterranean, Caring for our Future

Drought Risk Management (DRM) current approaches Introducing the UNDP DRM Mainstreaming Framework

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SWIM-Horizon 2020 SM Regional Training on

"Drought Risk Management Mainstreaming (DRMM)"

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Presentation Outline

- Basic definitions
- Problem statement
- Background of DRM (response types & approaches)
- The concept of the UNDP DRMM
- Methodological Steps of DRMM
- Conclusions

Basic Definitions

- **Drought**: deviation of precipitation from normal conditions
- **Water scarcity**: a situation of imbalance between supply and demand of freshwater (result in unmet demand)
- **Water stress**: demand for water exceeds the available amount during a certain period or when poor quality restricts its use
- **Drought Hazard characteristics**: magnitude (intensity), speed of onset, duration, extent. Creeping phenomenon that develops over time

✓ Drought is different than aridity, where low precipitation is a permanent characteristic of the climate of a certain region

✓ Multiple conceptual and operational definitions are used worldwide, differentiating drought on the basis on its impacts, scale of operation (meteorological, agricultural, hydrological)

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Basic Definitions *(cont.)*

Impact:	adverse effect of a drought hazard event on the society, economy and the environment, (direct or indirect)
Vulnerability:	characteristics of a system that make it susceptible to the damaging effects of a hazard
Risk:	potential disaster losses, which could occur to a system as a result of a drought hazard
Resilience:	ability of a system (exposed to hazards) to resist, absorb, accommodate and recover in a timely and effective manner
Adaptation:	the adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm

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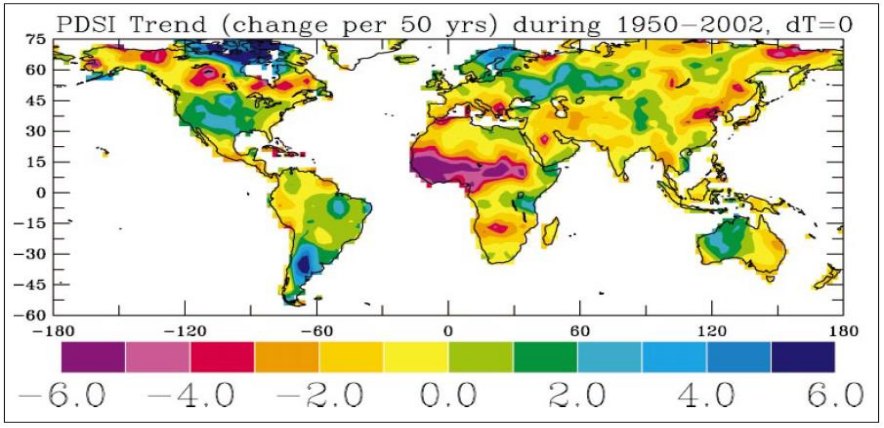
Why do we care about drought?

- Drought episodes are becoming more frequent and severe worldwide
- Adverse impacts on the economy, environment, society

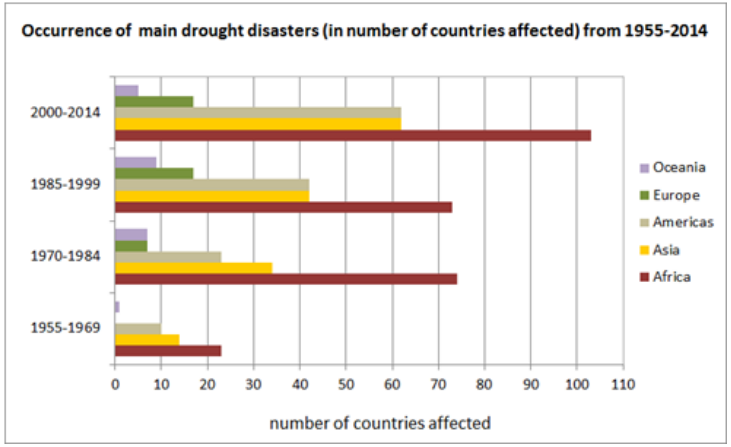
Map of linear trends of PDSI [change (50 yr)$^{-1}$, 1950–2002. Red and blue areas indicate drying and wetting respectively. Source: Dai et. al., 2004.

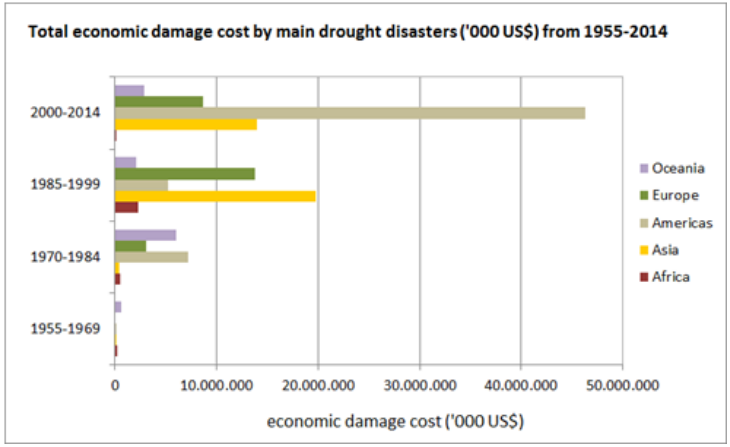


very dry areas globally (with a PDSI < −3.0) have more than doubled since the 1970s, with a large jump occurring in the early 1980s due to an ENSO, while global very wet areas (PDSI > +3.0) declined slightly during the 1980s

Left: Occurrence of main drought disasters (in number of countries affected) from 1955-2014;

Right: Total economic damage cost by main drought disasters ('000 US$) from 1955-2014. Data source: EM-DAT International Disaster Database.





Problem Statement

- **Responses and adaptation measures** are needed to mitigate drought (and water scarcity) impacts, but these may differ substantially, depending on the issues and priorities of each region, as well as the prevailing policy and institutional frameworks → **no solution fits all cases**

- **Drought Risk Management (DRM) is still poor** in many countries

- **A concrete methodology/approach** on drought risk management, integrating physical and anthropogenic drivers and pressures, impacts and response, **is lacking** in many countries

Problem Statement: Impeding Factors

There are many factors which have led to poor drought management:

- The **lack of a universally accepted drought definition** confuses managers and decision-makers in characterizing the degree and severity of drought. It is more realistic to tailor drought definitions on the basis of the characteristics of a region and the experienced impacts, but this requires a thorough analysis at the regional/local scale, necessary data and science.

- The **slow onset of drought** (creeping phenomenon) **and its end are difficult to identify**, leading to confusion on when/where to declare a drought. As drought impacts may last long after the hydrometeorological variables return to normal conditions, **defining the time span of a drought event is even more complex**.

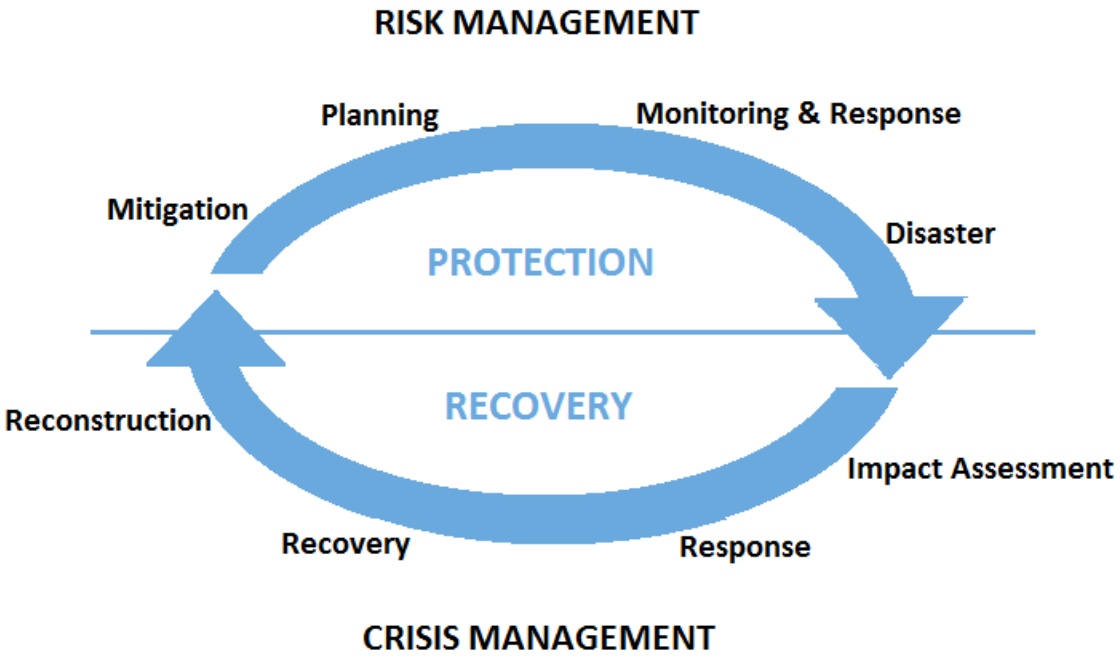
Problem Statement: Impeding Factors *(cont.)*

- The **quantification of drought impacts is challenging** (not straight forward as in other natural hazards), since they can affect the society, the economy and the environment for months to decades after the physical phenomenon has ended, spatially extending over large areas, and varying in type and magnitude

- The **lack of knowledge and public awareness** pose constraints. Stakeholders, and the general public, are often unaware of the wide range of drought consequences

- The **lack of concrete methodologies on drought risk management** and planning at the national and regional levels, and the **lack of robust drought policy frameworks**.

DRM Approaches



Crisis management only addresses the symptoms - seriously flawed from the perspective of vulnerability reduction → **Reactive Approach**

Risk management focuses on identifying vulnerabilities and addresses the prevailing risks through implementing mitigation and adaptation measures → **Proactive Approach**

DRM Approaches and Response Types

Approach	Response Type	Associated Measures	Effectiveness	Pros/ Cons
Crisis Management	Post-Impact/ Reactive	Relief measures: Economic, food or other types of assistance to the drought victims and impacted communities	Short-term	Most common, seriously defective in terms of vulnerability reduction since it only addresses the symptoms
Risk Management	Pre-Impact/ Mitigation	Mitigation measures: - Early warning systems - Monitoring and forecasting - Demand management and water saving - Additional and/or alternative water supply - Increasing water storage capacity - Drought insurance schemas - Awareness raising - Education, etc.	Short to medium-term	Intended to reduce vulnerability and impacts, and alleviate the risk associated with future drought events
	Proactive planning/ Preparedness	Development and Implementation of preparedness plans and polices, incl. operational frameworks and arrangements: - Development & Implementation of a National Drought Policy - Development & Implementation of Drought Management and Preparedness Plans (DMPPs) - Identification and implementation of advanced regulatory and economic instruments - Institutional capacity building, governance and operational arrangements	Medium to long-term	Aims to create greater institutional capacity through improved coordination and multi-disciplinary collaboration between government, stakeholders, private entities, beneficiaries and the affected communities

DRM: Emerging Paradigms, the way forward

✓ The need to **move towards a more efficient and proactive risk-based drought management** has been recognized at the higher policy level (WMO, UNCCD, etc.)

High-level Meeting on National Drought Policy (HMNDP, March 2013) findings and conclusions:

- Insufficient policies for appropriate drought management and pro-active drought preparedness in many countries. Countries respond in a reactive crisis management mode, and they need to understand the necessity of improved risk management strategies and develop preparedness plans to reduce drought risks.
- Need for urgent inter-sectoral coordination of the assessment of drought vulnerability and impacts
- The identification of relief/ emergency measures is still relevant, yet these need to be synergetic with preparedness, mitigation and adaptation actions for long term resilience.
- Effective drought policies are necessary. Governments are encouraged to develop and implement National Drought Management Policies (NDMPs), consistent with their national development laws, conditions, capabilities and objectives.

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Proactive DRM: what does it entail?

Goal:	increase the coping capacities and resilience of the affected communities, while minimizing the severity and extent of the adverse impacts of drought
Focus:	effective impact assessment procedures preparedness and coordinated measures that should be planned proactively and implemented before, during and after droughts
Media:	Develop and Implement national/local **Drought Risk Management Plans (DMPs)**

- ✓ Several drought planning methodologies have been developed to provide guidance on developing DRMPs (FAO/NDMC, WSDEN, Iglesias, Wilhite, etc.).
- ✓ They identify main steps and provide a "checklist" for the planning process

- ✓ Regardless of the different methodologies, it is widely accepted that the development of a DRMP requires the following components:
    1. a monitoring and early warning system
    2. vulnerability and impacts assessment
    3. mitigation and response actions
    4. involvement of stakeholders through participatory approaches

Proactive DRM: one step further → internalization

- While **DRMPs** provide the basis for a paradigm shift, they are only one building block in vulnerability reduction, as they constitute the **instruments** through which a national drought policy can be executed and/or downscaled.

- **They need to be intrinsically linked to the national drought policy**, and most importantly **to the national development and funding frameworks**, so that their suggested measures can be **internalized into a high-level trans-disciplinary planning**.

- Toward this direction, the UNDP proposed the **concept of "mainstreaming drought risk management" (UNDP, 2011)** which moves proactive risk management one step further, **by linking the related measures to existing policies and institutions, and internalizing risk management plans into the development national, sectoral and local programs and frameworks**. This approach can boost their implementation and sustainability.

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The Concept of Drought Risk Management Mainstreaming (DRMM)

Mainstreaming: "a process of change, whereby certain issues are integrated into planning and decision-making processes, and these issues continue to be part of the agenda in subsequent planning, implementation and revision"

In the context of Drought Risk Management, mainstreaming:

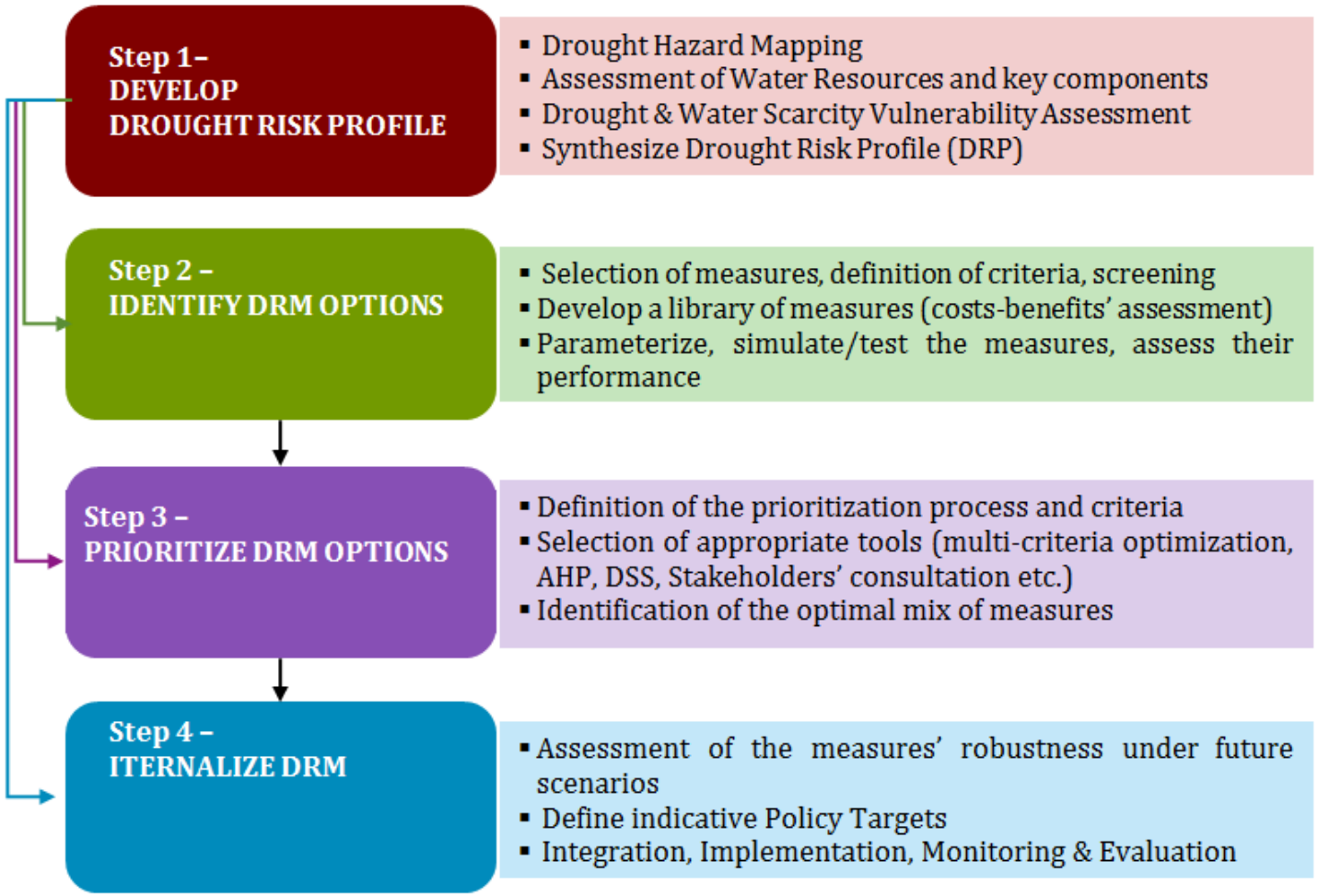
- **relates to proactive risk management**, as it helps addressing drought issues not simply as a natural phenomenon, but as a more complex development issue
- **supports the internalization** of drought risk in development framework and **sets the cornerstones** towards the development of the proper enabling environment and institutional setting.
- requires a **set of steps**, coherently linked, covering **science to policy** activities

Ref.: United Nations Development Programme (UNDP), 2011. Mainstreaming Drought Risk Management: A primer. UNDP Publication, March 2011.

DRM Mainstreaming steps

- To achieve DRMM a **set of 4 steps** are suggested to be followed
- They **span from science to policy activities**, while **interfacing between them** holds an important role so that the developed tools are tailored to the local specificities and can directly support future developments enhancing the local adaptive capacity

Main steps and actions in DRMM



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Added-value elements of DRMM

- It fits well with the essence of **proactive DRM**, while it **places an additional emphasis on implementability and sustainability issues**, by opting at the internalization of the DRM measures in the development policy and planning frameworks.
- It helps to **redefine drought**, not just as a natural phenomenon, but **as a more complex development and sustainability issue** (substantive mainstreaming)
- It **supports multiple goals**: penetration of measures in local development programmes, development of cross-sectoral and mutually reinforcing policies, leveraging resources throughout the planning and implementation stages of any development framework
- It ensures that **sectoral policies do not counter** their intended purposes of drought mitigation efforts
- Is helps the **creation of an enabling environment to reinforce the adaptive capacity** of communities and societies in a sustainable fashion
- It supports the **integration of DRM at sub-national and local levels,** and the development of **decentralized DRM roles and responsibilities**, through the potential for integration into the local development plans (entry points)
- It provides a **useful roadmap for designing and implementing an effective DRM strategy**, while maintaining a flexible and adaptable character.

Concluding Remarks

- ✓ **DRM** may appear as a straightforward practice based on local knowledge; In actual practice, however, it **is a complex operation** with variety of interrelated steps and approaches at different levels

- ✓ Beyond simply providing a framework for managing the impacts of drought, the process of **DRMM could provide countries with an opportunity to consider deeper policy transformations** designed to lead them away from vulnerable investments or towards more balanced sources of growth

The SWIM-H2020 SM Project in a Snapshot

Sustainable Water Integrated Management and Horizon 2020 Support Mechanism

SWIM-H2020 SM

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Mediterranean Issues and Challenges

The environmental problems of the Mediterranean are many, complex and interlinked. Uncontrolled coastal development, population growth, increasing tourism, loss of biodiversity and environmental pollution stemming from the above and from poor management of municipal waste, urban wastewater and industrial emissions, including their respective pressures to the quantitative and qualitative characteristics of surface and groundwater resources ending up in the Mediterranean, constitute major pressures on its marine and coastal environment. Their impact is particularly reflected in the land-sea interface, the coastal zone. In addition, economic and social crises, high refugee flows, in combination with climate variability and change have made it more difficult to deal with the accumulated problems. Renewed efforts to address the challenges are made within the **SWIM-H2020 SM Project** (Sustainable Water Integrated Management and Horizon 2020 Support Mechanism 2016-2019) jointly by the Mediterranean countries and the European Union.

The SWIM-H2020 SM Project

The SWIM-H2020 SM Project, funded by the European Union, aims to contribute to reduced marine pollution and a sustainable use of scarce water resources in the Mediterranean Region with emphasis on the countries of North Africa and the Middle East (Algeria, Egypt, Israel, Jordan, Lebanon, Libya, Morocco, Palestine, [Syria] and Tunisia). The Project is the continuation and merging of two successful previous EU-funded service contracts, Horizon 2020 Capacity Building/Mediterranean Environment Programme (H2020 CB/MEP) (2009-2014) and the Sustainable Water Integrated Management Support Mechanism (SWIM SM) (2010-2015).

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Thank you for your attention.

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