

IDMP

Integrated Drought Management Programme



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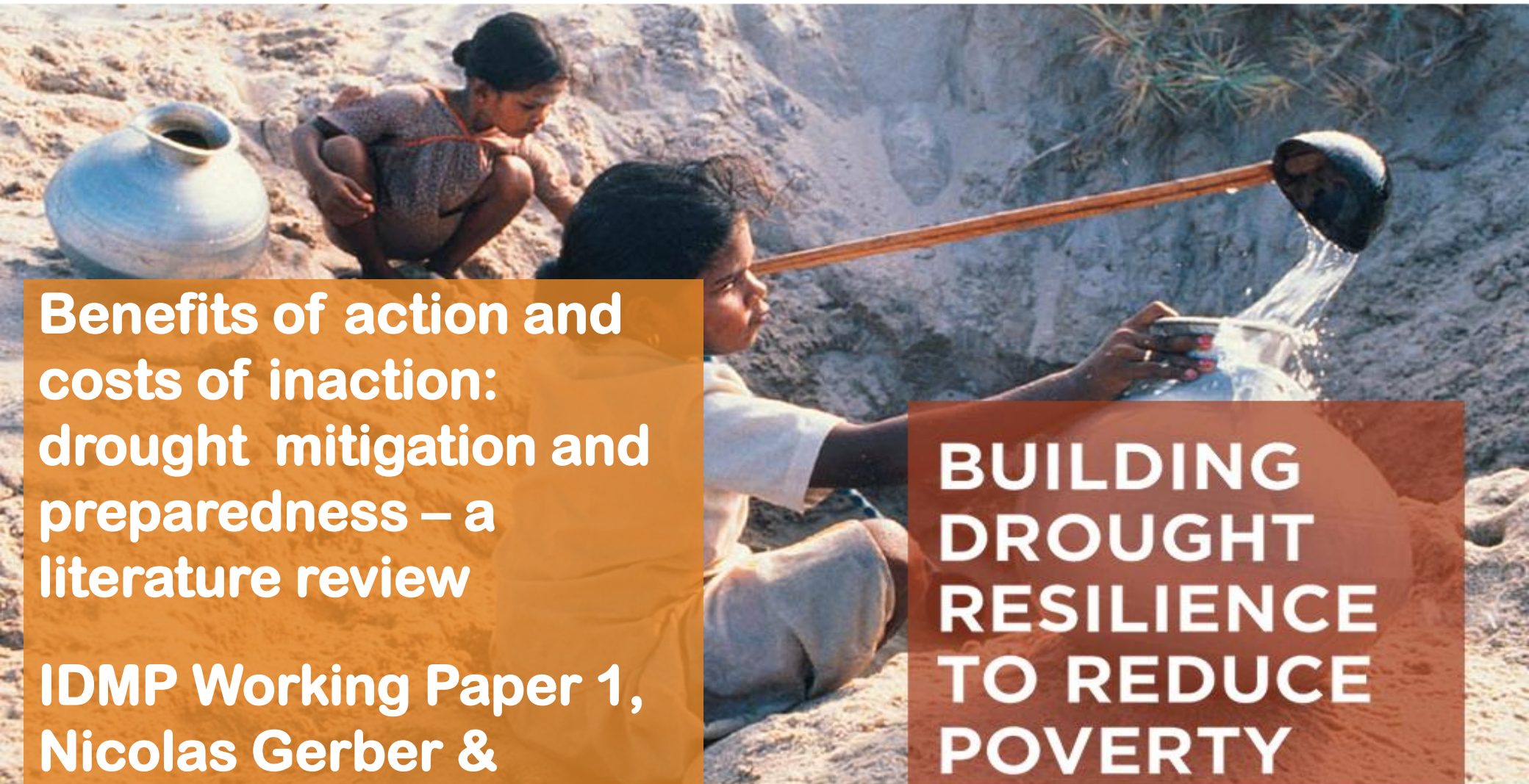


Global Water
Partnership

Benefits of action and costs of inaction: drought mitigation and preparedness – a literature review

**IDMP Working Paper 1,
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**BUILDING
DROUGHT
RESILIENCE
TO REDUCE
POVERTY**

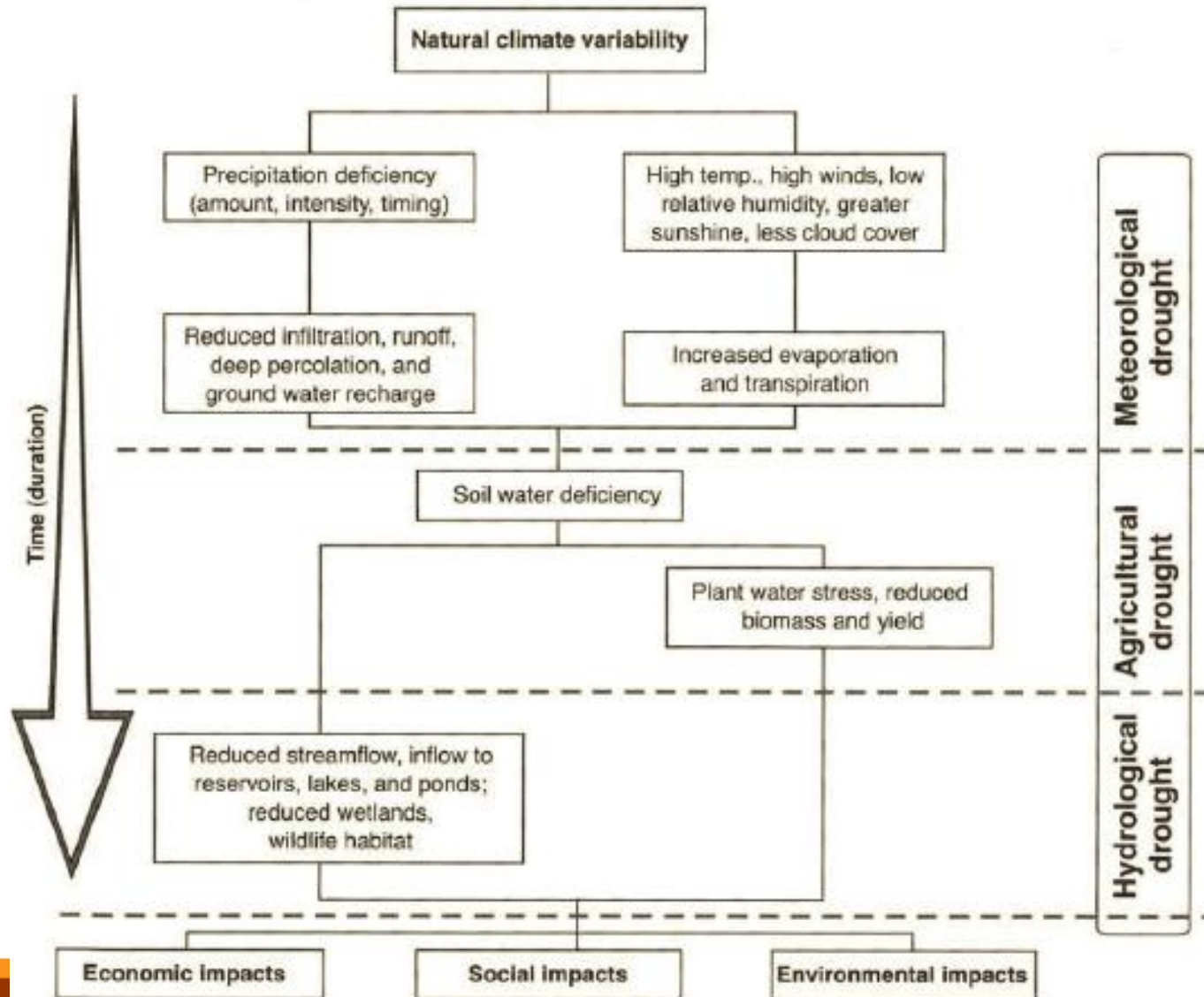


Aim of the review

Why is the shift from crisis management to risk management not faster/more systematic?

- Considering barriers and drivers to risk management:
 1. Perverse effects of crisis management
 2. Extent of direct drought costs
 3. Total costs certainly much higher
 4. Costs are likely to rise with climate change

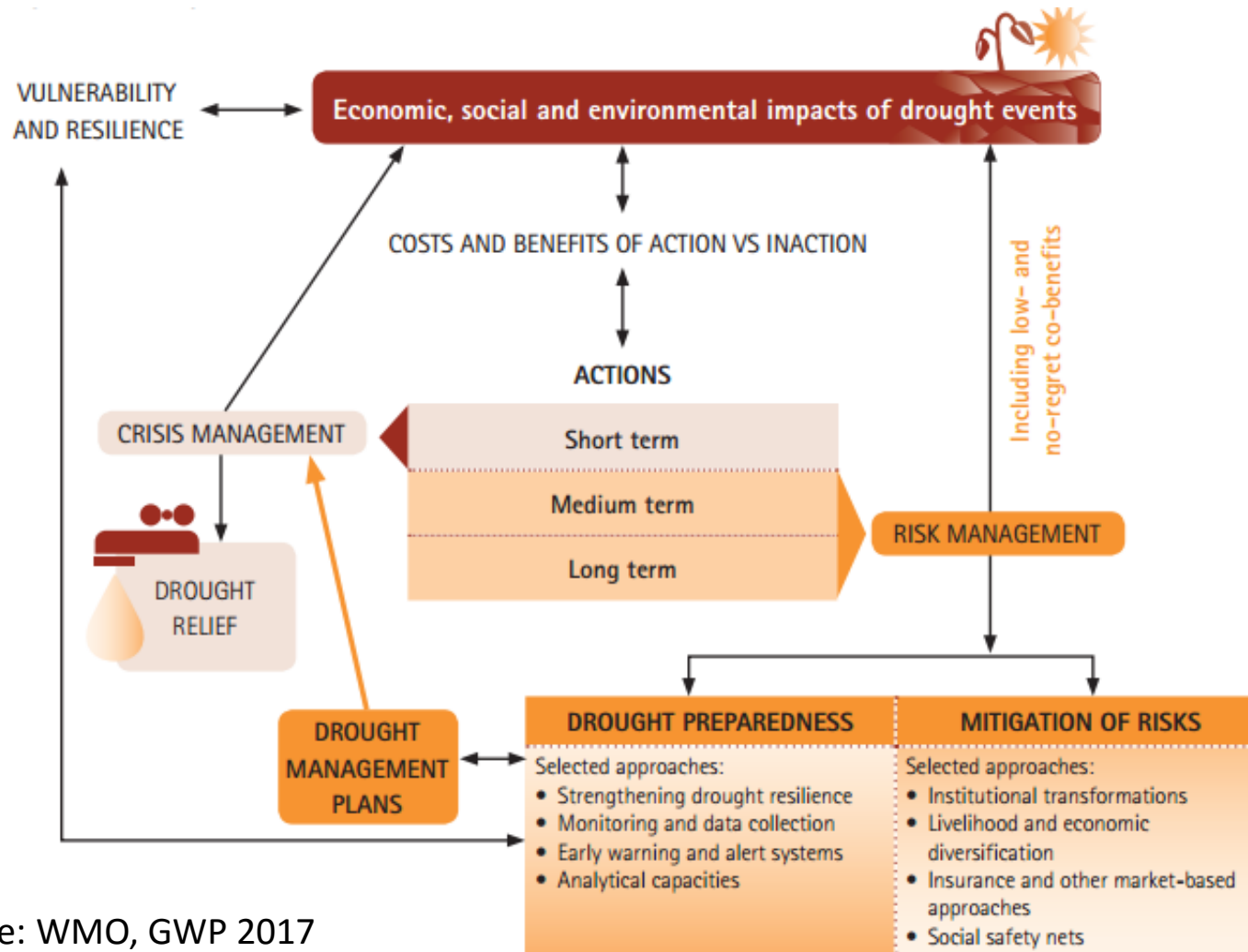
Drought types & sequences



Defining drought risk management

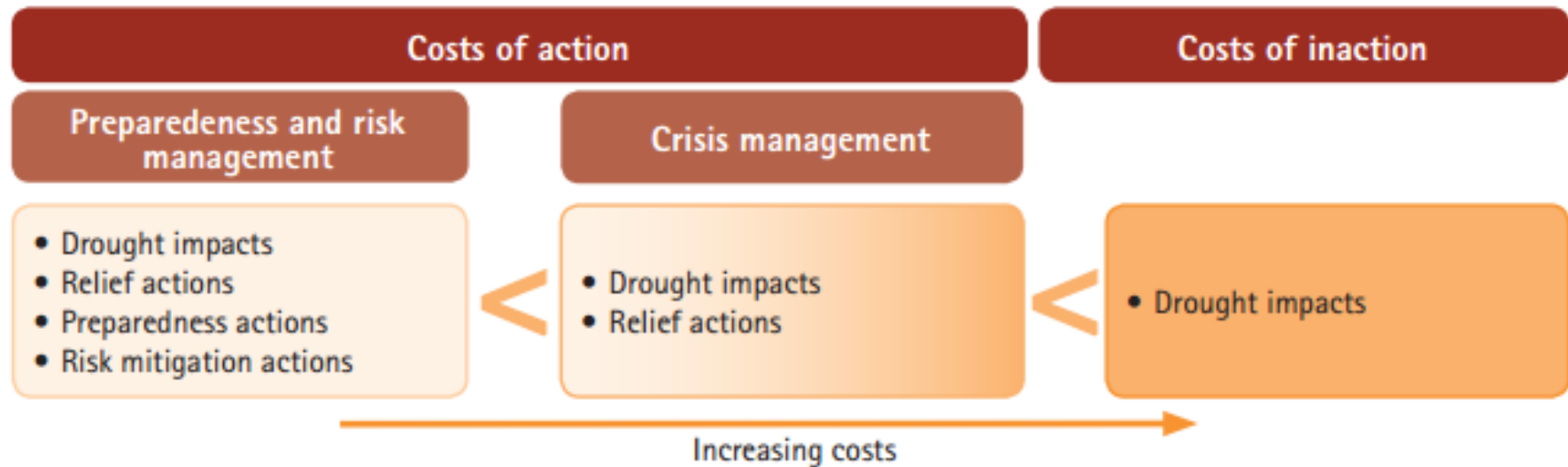
1. Drought preparedness: actions before droughts to improve operational and institutional responses to droughts (Kampragou et al 2011).
2. Drought risk mitigation: risk management activities before droughts to minimize the impacts of droughts on people, economy and environment.

Conceptual framework



Source: WMO, GWP 2017

Hypothesis: the (social) costs of action are lower than the (social) costs of inaction



Source: WMO, GWP 2017

Supported by evidence: in the US, each \$ spent on drought risk mitigation saves > 2\$ of future disaster costs (FEMA, in Logar & van den Bergh, 2013)

Costs and benefits of drought preparedness and mitigation

- Costs: assuming no “bads” in preparedness, costs = costs of measures improving operational and institutional responses
- Benefits: avoided impacts of drought, as well as secondary positive impacts (development, co-benefits)

Approaches to drought RM and benefits



Source: WMO, GWP 2017

Evaluating the costs of droughts

Drought costs per annum (USD billion)	Period	Geographical unit	Source
0.75	1900–2004	Global	Below et al. (2007)
6.0–8.0	Early 1990s	USA	FEMA (1995)
40.0	1988	USA	Riebsame et al. (1991)
2.2	2014	California	Howitt et al. (2014)
2.7	2015	California	Howitt et al. (2015)
2.5	2006	Australia	Wong et al. (2009)
6.2	2001–2006	European Union	EEA (2010)

- Drought risk assessments must inform evaluation
 - Incl. analysis of drought hazards (historical patterns, probabilities and magnitudes), drought vulnerability and risk management plans

Reducing vulnerability to droughts-

Macro scale

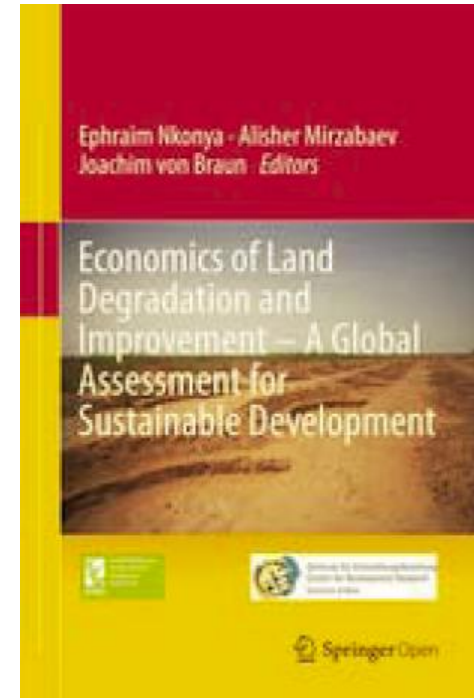
- **water markets** (Booker et al. 2005)
- **early warning system** (Pulwarty and Sivakumar 2014),
- **drought preparedness plans,**
- **increased water supply infrastructure** (Zilbermann et al. 2011),
- **demand reduction, e.g. water conservation programmes** (Taylor et al. 2015), and
- **crop insurance**

Drivers of and barriers to drought risk management

Drivers	Barriers
↑ frequency, severity & socio-econ costs	Path dependency, Size of costs up-front costs in multi-year events (e.g. Brazil)
↑ awareness of efficiency of drought RM, evidence on various benefits	Information failure on: occurrences, impacts, costs/benefits of drought RM
↑ burden of drought relief costs on budgets	Market failure (credit constraints)
Past shocks	Economic rationality of ex-post action (uncertainty and irreversibility)
Evidence	Negative externalities of preparedness plans
	Institutional failure (no direct costs of drought to government)

Conclusion and next steps

1. Build-up of case studies based on consistent, comparable methods
2. Improve drought risk assessments (requires improved weather and drought monitoring capacity)
3. Get to clear picture on C-B ratio of action
4. Identify more efficient drought responses
5. Research & partners need to connect to governments, show 'low-hanging fruits'



Thank you!



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