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# Water Security and the Rule of Law
# –
# Clouds in the Horizon

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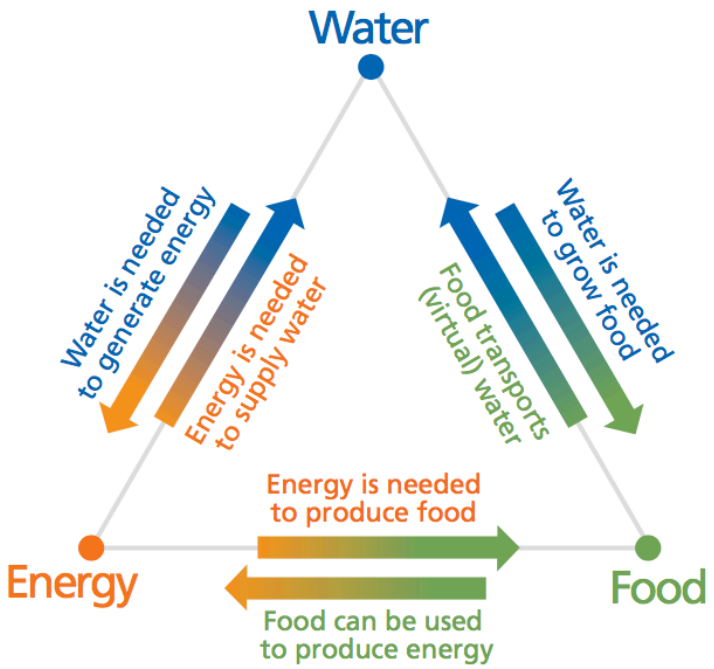
# Water as a source of

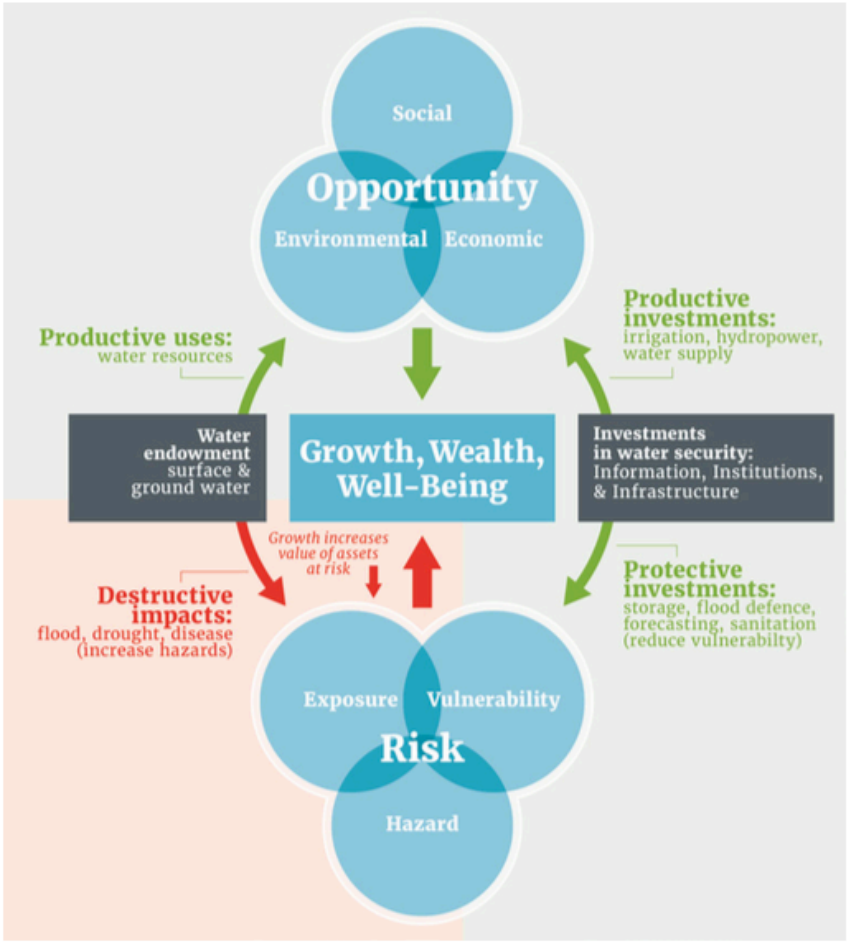
Figure 1. The Water-Food-Energy Nexus




*Adapted from: Water - A Global Innovation Outlook Report, IBM, 2009*

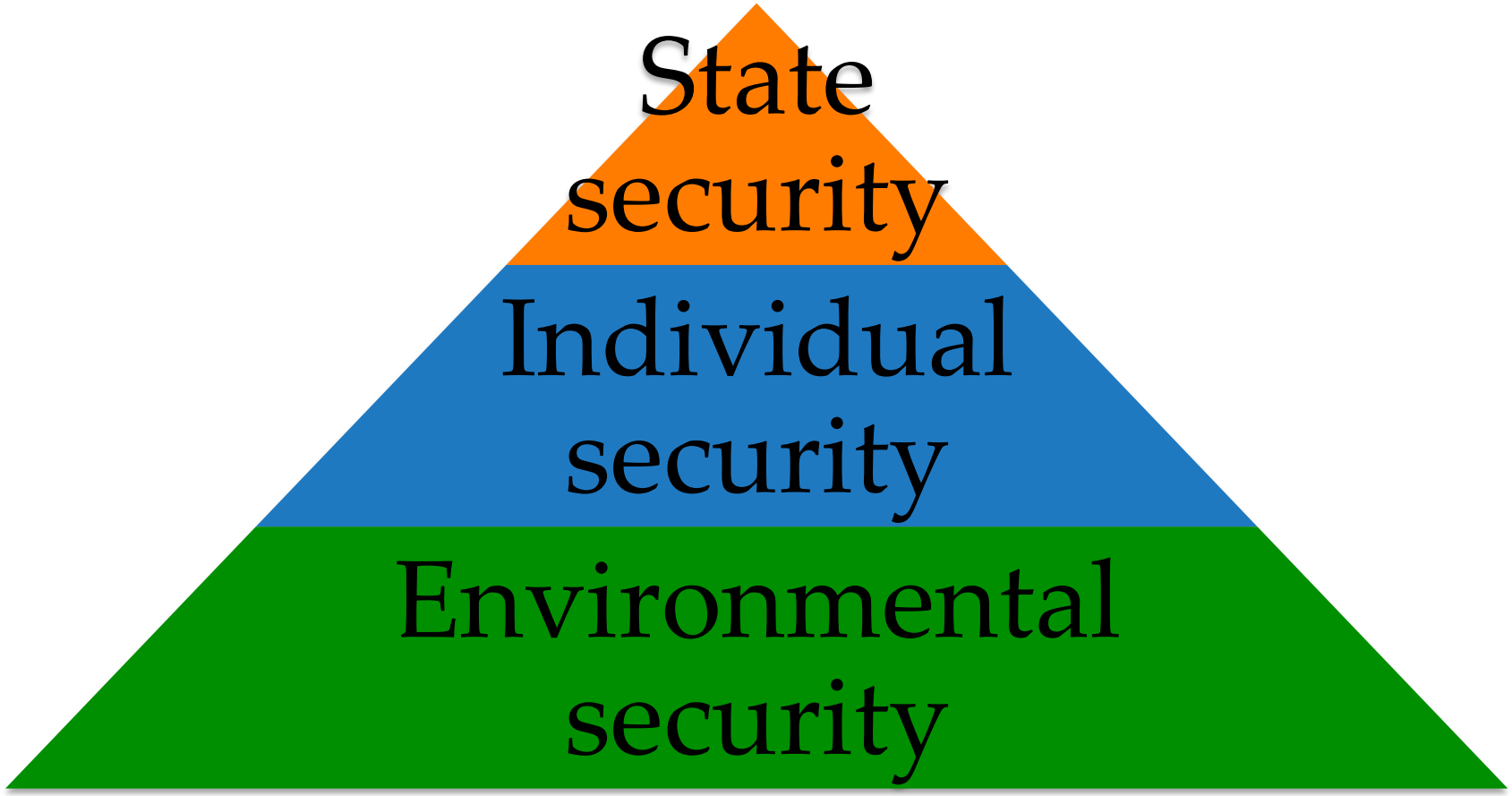
UN Water: Water Security & the Global Water Agenda. A UN-Water Analytical Brief. United Nations University 2013 at 14

**Conceptual framework of the dynamic of water security and sustainable growth**

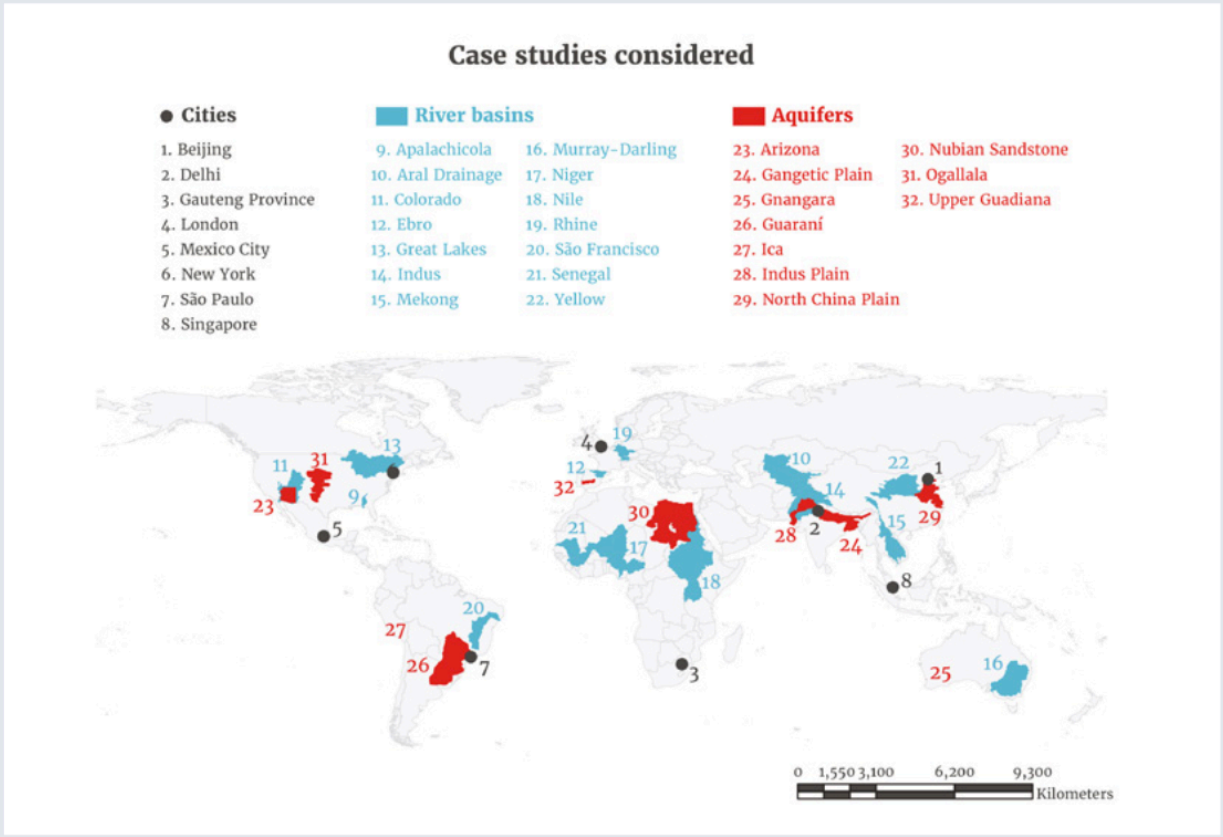



Source: Sadoff et al: Securing Water, Sustaining Growth. Report of the GWP/ OECD Task Force on Water Security and Sustainable Growth, University of Oxford 2015 at 14–15.

# Water securities



## Case studies of cities, river basins, and aquifers




Eight case studies are presented in the Report, selected from an analysis of 32 cases. They include: Mexico City, Gauteng Province, and Singapore (Cities); Colorado, São Francisco, and Rhine (Rivers); and the Guarani and Nubian Sandstone (Aquifers).

ATER,
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on Water Security and Sustainable Growth

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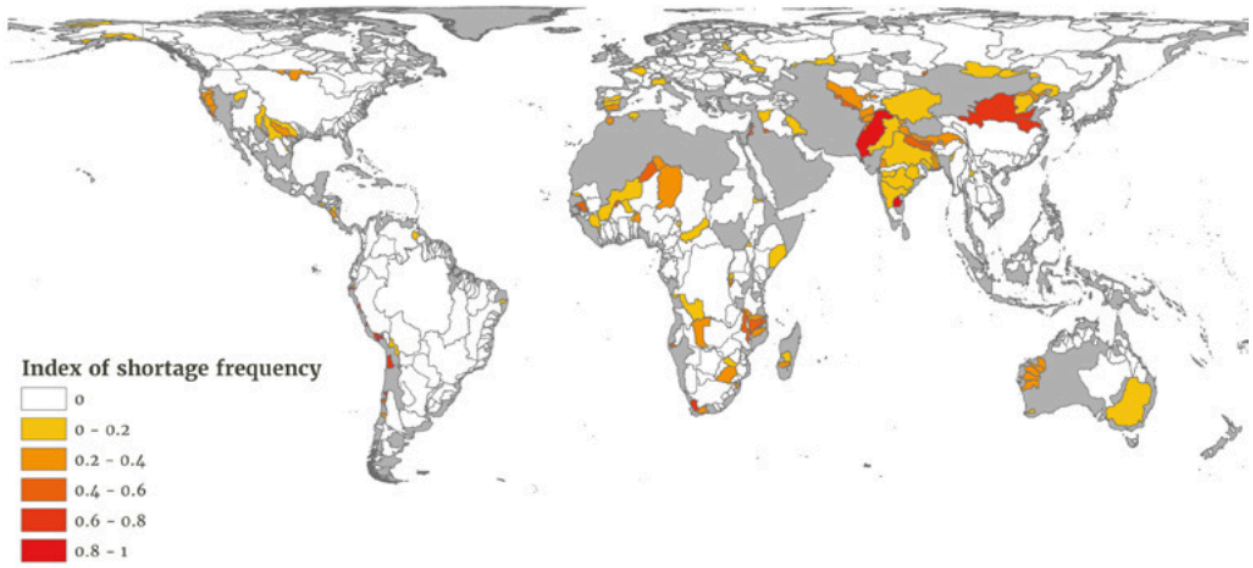
Source: Sadoff et al: Securing Water, Sustaining Growth. Report of the GWP/ OECD Task Force on Water Security and Sustainable Growth, University of Oxford 2015.

# Index of frequency of shortages of water available for use

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Source: Sadoff et al: Securing Water, Sustaining Growth. Report of the GWP/ OECD Task Force on Water Security and Sustainable Growth, University of Oxford 2015 at 21.

# Top ten countries for people at risk of water insecurity

| Rank | Shortage Index: Total population at risk of frequent water shortages | Flood Index: Expected population flooded | Water and Sanitation Index: Total population lacking sanitation |
|---|---|---|---|
| 1 | China | India | India |
| 2 | Pakistan | China | China |
| 3 | India | Vietnam | Nigeria |
| 4 | Bangladesh | Bangladesh | Indonesia |
| 5 | Nepal | Myanmar | Pakistan |
| 6 | Algeria | Indonesia | Ethiopia |
| 7 | Saudi Arabia | Pakistan | Bangladesh |
| 8 | Uzbekistan | Egypt, Arab Rep. | Congo, Dem. Rep. |
| 9 | United States | Thailand | Russian Federation |
| 10 | Afghanistan | Nigeria | Tanzania |

Colour scale is GDP per capita income classification:

Low income | Lower-middle income | Higher-middle income | High income



Source: Sadoff et al: Securing Water, Sustaining Growth. Report of the GWP/ OECD Task Force on Water Security and Sustainable Growth, University of Oxford 2015 at 25.

# Top ten countries for risks to the aquatic environment *(Table 3)*

| Rank | Pollution Index | Environmental Flow Violation Index | Biodiversity Index | Percent Threatened Amphibians |
|---|---|---|---|---|
| 1 | Tunisia | Pakistan | Czech Republic | Haiti |
| 2 | Israel | South Africa | Luxembourg | Jamaica |
| 3 | Moldova | India | Kuwait | Dominican Republic |
| 4 | Syria | Spain | Belgium | New Zealand |
| 5 | Hungary | Nepal | Tunisia | Cuba |
| 6 | Macedonia | Afghanistan | Germany | Honduras |
| 7 | Germany | Korea | Moldova | El Salvador |
| 8 | Netherlands | Bangladesh | Syria | Guatemala |
| 9 | Czech Republic | Madagascar | Slovak Republic | Philippines |
| 10 | Algeria | Iraq | Spain | Ecuador |

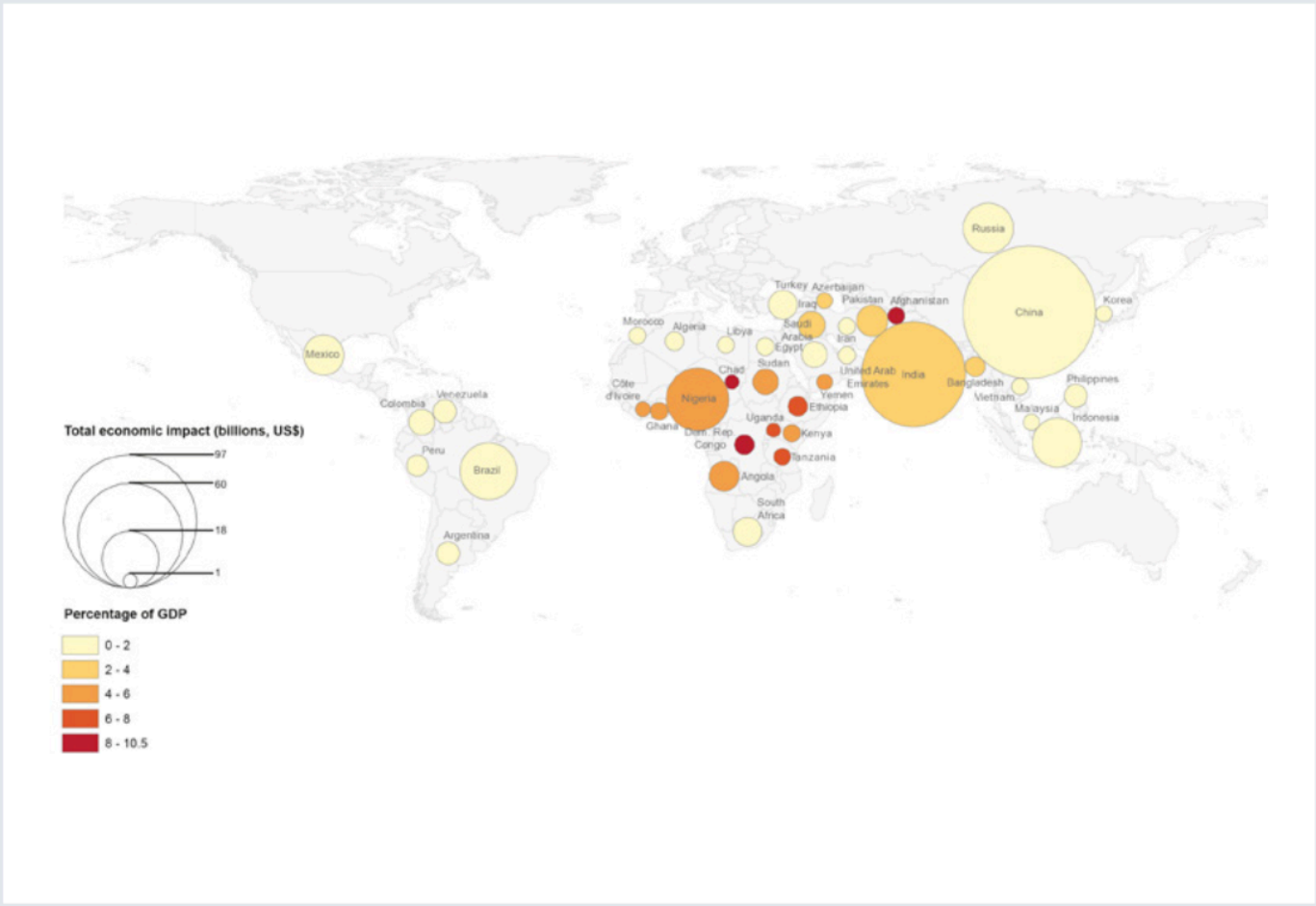
Colour scale is GDP per capita income classification:

| Low income | Lower-middle income | Higher-middle income | High income |
|---|---|---|---|



Source: Sadoff et al: Securing Water, Sustaining Growth. Report of the GWP/ OECD Task Force on Water Security and Sustainable Growth, University of Oxford 2015 at 103.

# Economic losses from inadequate water supply and sanitation

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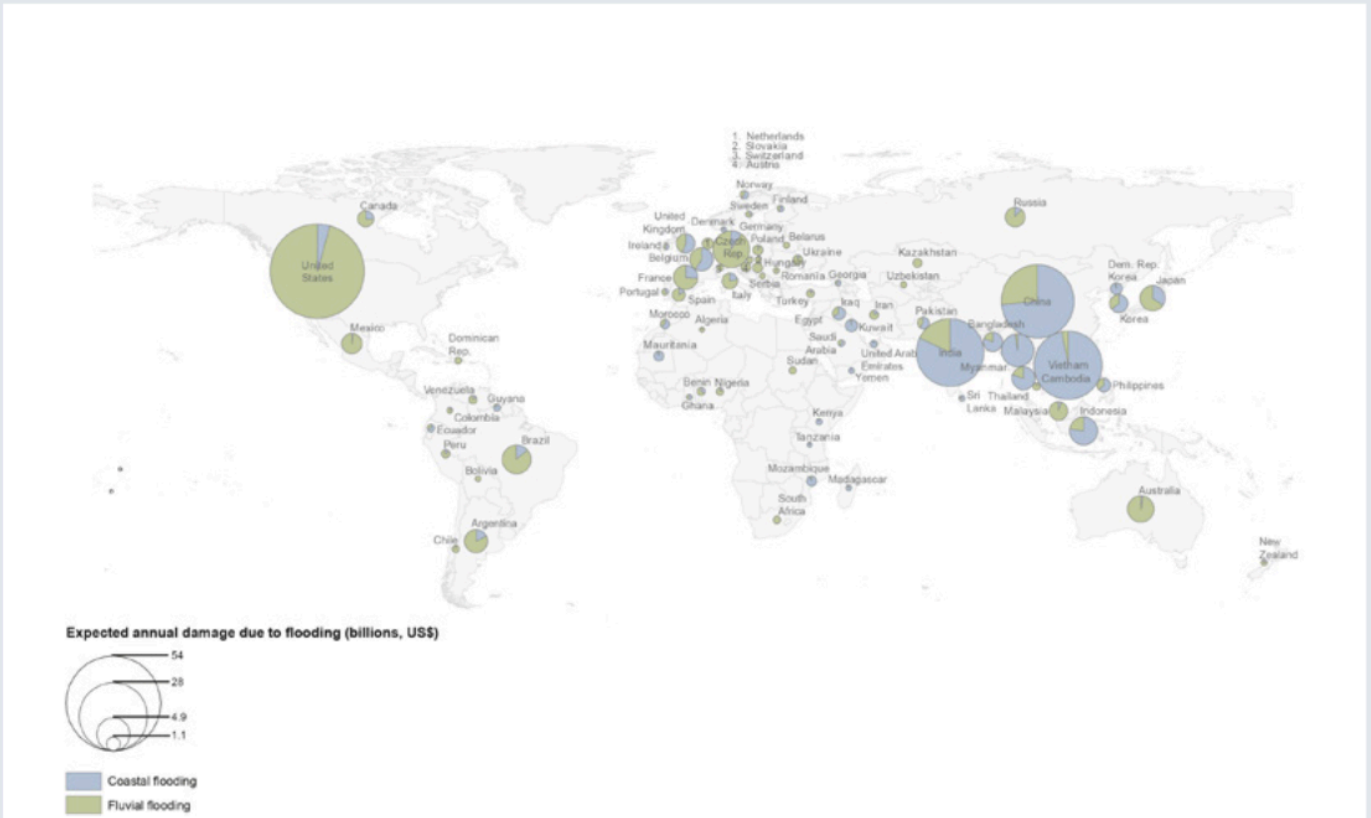
Source: Sadoff et al: Securing Water, Sustaining Growth. Report of the GWP/ OECD Task Force on Water Security and Sustainable Growth, University of Oxford 2015 at 22.

# Expected annual damage due to fluvial and coastal flooding

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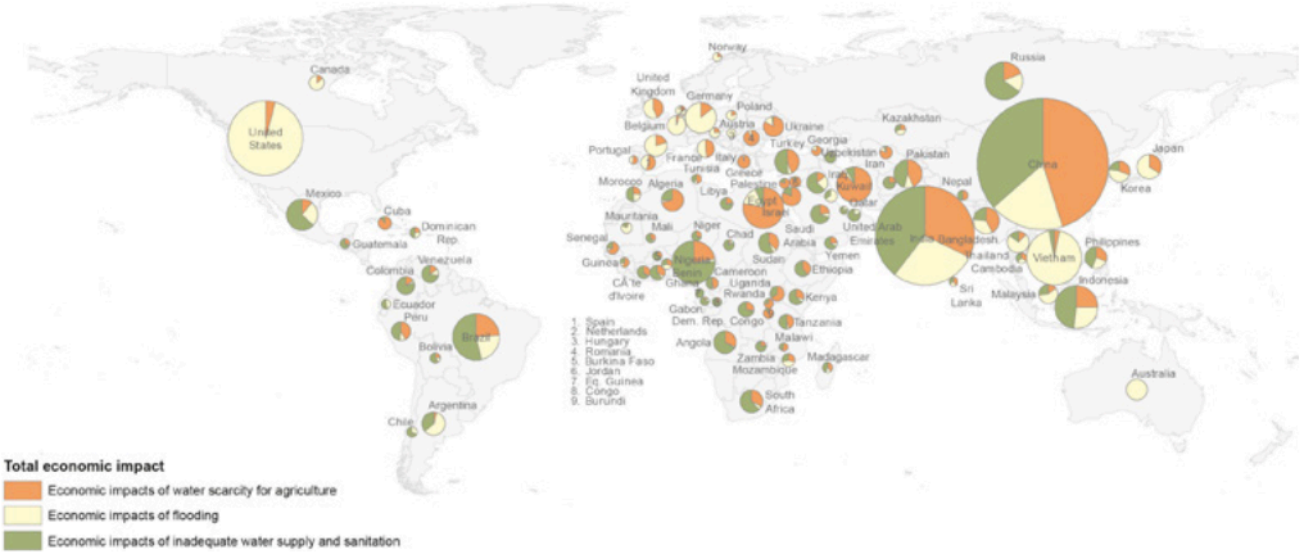
Source: Sadoff et al: Securing Water, Sustaining Growth. Report of the GWP/ OECD Task Force on Water Security and Sustainable Growth, University of Oxford 2015 at 21.

# Relative economic impacts of water insecurity

Three economic risks have been standardized to the same total economic impact globally: (1) Water scarcity to agriculture; (2) Flood damage to property; and (3) Inadequate water supply and sanitation.

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Source: Sadoff et al: Securing Water, Sustaining Growth. Report of the GWP/ OECD Task Force on Water Security and Sustainable Growth, University of Oxford 2015 at 23.

# Water and the economy

- ”World Economic Forum’s 2015 *Global Risks Report* – – water is ranked as the global risk with the single greatest potential impact on economies over the next ten years.” (at 14)
- ”The findings confirm that water insecurity acts as a drag on global economic growth.” (at 19)
- ”In Malawi, for example, a 50 percent reduction in the drought effect led to a 20 percent higher per capita GDP at the end of the simulation. The countries that stand to reap the greatest benefits from drought reduction were concentrated in the Middle East, Africa, South America, and Southeast Asia.” (at 19)
- ”There is no small irony here: because water is so important for so many reasons, it is difficult to actually show, statistically, the importance of water-related investments to economic growth.” (at 16)



Source: Sadoff et al: Securing Water, Sustaining Growth. Report of the GWP/ OECD Task Force on Water Security and Sustainable Growth, University of Oxford 2015.

# How to solve to problem?

- Effectiveness of water security governance:

  ”Policies and infrastructure investments are needed to enhance water security; to allocate water between alternative uses; to deliver water at specific times, places, and prices; to ensure water quality; and to protect people and assets from water-related hazards. All of these can create opportunities and reduce risks for different regions, sectors, and communities. This, in turn, can have a profound impact on economic growth, inclusiveness, and the structure of economies.”



Source: Sadoff et al: Securing Water, Sustaining Growth. Report of the GWP/ OECD Task Force on Water Security and Sustainable Growth, University of Oxford 2015 at 14.

# How to achieve effective governance?

- Adaptivity of governance frameworks:
  - ”Water security is not a static goal: it is a dynamic continuum that will alter with changing climates, growing economies and asset stocks, and resource degradation. As social, cultural, and aesthetic priorities and values evolve, water security will evolve with them.” (at 16)
  - ”Looking forward, decision makers will need to innovate and adapt, without being limited to the solutions adopted in the past.” (at 28)
  - ”For example, in the Gauteng Province of South Africa (which includes the cities of Johannesburg and Pretoria), rapidly growing human settlement in the headwaters of the relatively dry and variable Limpopo system has made investment in water security essential. The end of Apartheid in 1994 brought the political imperative to expand water services to peri-urban settlements. Extensive storage and transmission infrastructure has been developed in order to cope with climatic variability - designed and operated to achieve reliability levels of 99.5 percent for power, and 98 percent for urban supplies. Ninety-five percent of the Province’s population has access to a safe water supply, although human settlement and industry impact on water quality. ” (at 28)



Source: Sadoff et al: Securing Water, Sustaining Growth. Report of the GWP/ OECD Task Force on Water Security and Sustainable Growth, University of Oxford 2015.

# Water security vs. rule of law?

- ”– – rule of law continues to underpin (and should be seen to underpin) the architecture of international relations, and offers compelling framework for cooperation in the field of international trans-boundary watercourses.”

- Predictability, permanence of legal rules, control of legislative and judicial power

- ”The rule of law calls for legal process that is detached and impersonal, in which general rules are created **without a view to the particular case**, and particular cases are resolved by applying only general rules. In this way, legal disputes are **insulated from individualised notions of justice**, and therefore from the politicisation of the law. ”



Sources:
1. Wouters: Water Security: Global, regional and local challenges. IPPR 2010, at 11.
2. Pardy: Towards an Environmental Rule of Law. Asia Pacific Journal of Environmental Law (2014) Vol 17 at 164.

# Water security vs. rule of law?

- *Lon L. Fuller*:
  1. There has to be rules to be obeyed (legal principles and human right to water?)
  2. Rules have to be public (soft law?)
  3. No retroactive legislation (eternal licences?)
  4. Rules have to be understandable (level of detail; effectiveness?)
  5. No contradictory rules (problems of multi-level governance)
  6. Rules cannot require conduct beyond the powers of the affected party (so how do we share the burden of safeguarding water security?)
  7. Rules cannot change constantly (adaptivity?)
  8. Rules have to administered as they are announced (adaptivity?)



Source:
Fuller: Morality of Law. Yale University Press at 39.

# Rule of law vs. rule of law?

- ” The rule of law, in the sense of the *letter* of the law, is not, therefore, enough. Lawyers must be concerned with the *content* of the law and the *content* of the procedures and institutions that deliver law to society. Above all, lawyers must be ever vigilant to see new truths (often revealed by scientific research) which earlier generations did not perceive. This is why the rule of law means more than obedience to a law than exists in the books. We can never ignore our duty as lawyers, and as citizens and human beings, to ask whether the law so appearing is contrary to universal human rights.”

- Human right to water as a substantive requirement of rule of law?

Sources:
1. Kirby: The Rule of Law Beyond the Law of Rules (2010) Australian Bar Review Vol. 33 at 210.
2. Carrothers: Rule of Law Temptations’ in James J. Heckman, Robert L. Nelson and Lee Cabatingan (eds), Global Perspectives on the Rule of Law. Routledge 2010 at 21