Climate Change considerations under international groundwater law

Climate Change and Groundwater: Law and Policy Dimensions

SOAS University of London

29-30 May 2015

Raya Marina Stephan

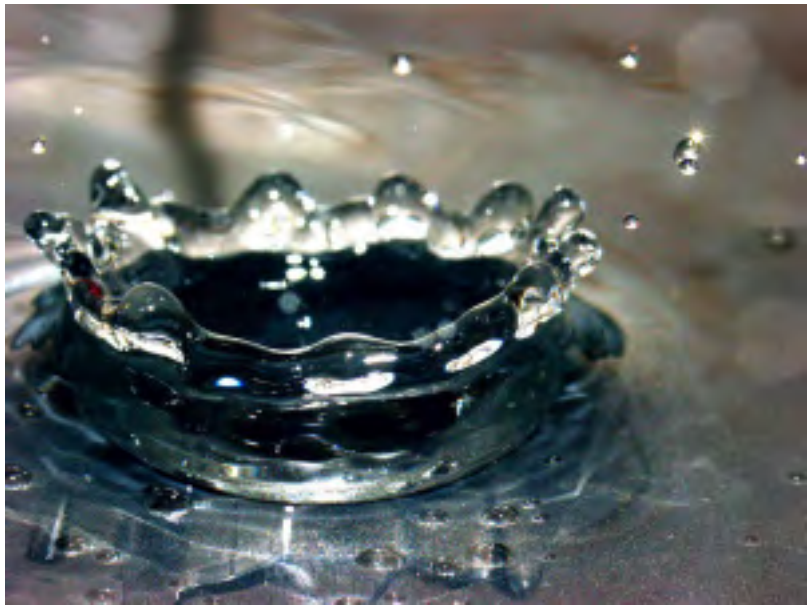
Introduction

Many uncertainties on CC, however

☞ freshwater resources are vulnerable and have the potential to be strongly impacted by climate change

Various consequences:
Climatic variability (increased intensity of precipitation & dry periods):

- risks of flooding and drought
- effect on water quality and quantity



Introduction

Specific effect on groundwater

If the climate is drier

- Recharge season might be shortened, leading to seasonal deficits in groundwater
- long term decline in groundwater storage

Heavy rains:

- Could compensate the recharge deficit. However, aquifers are recharged more effectively by prolonged steady rain, rather than short periods of intense rainfall.
- increased frequency and severity of groundwater-related floods

Specific role of GW : storage

I. Introduction

- **<u>Importance of GW on earth</u>**

➢ **Salt Water 97.47%**

➢ **Fresh Water 2.53%**

Polar Ice & Glacier 1.53%

Available Fresh Water 1.00%

Surface Water 0.01%

Groundwater 0.99%

➡ **97% of the available freshwater** ***(excluding water in polar ice and glacier)***

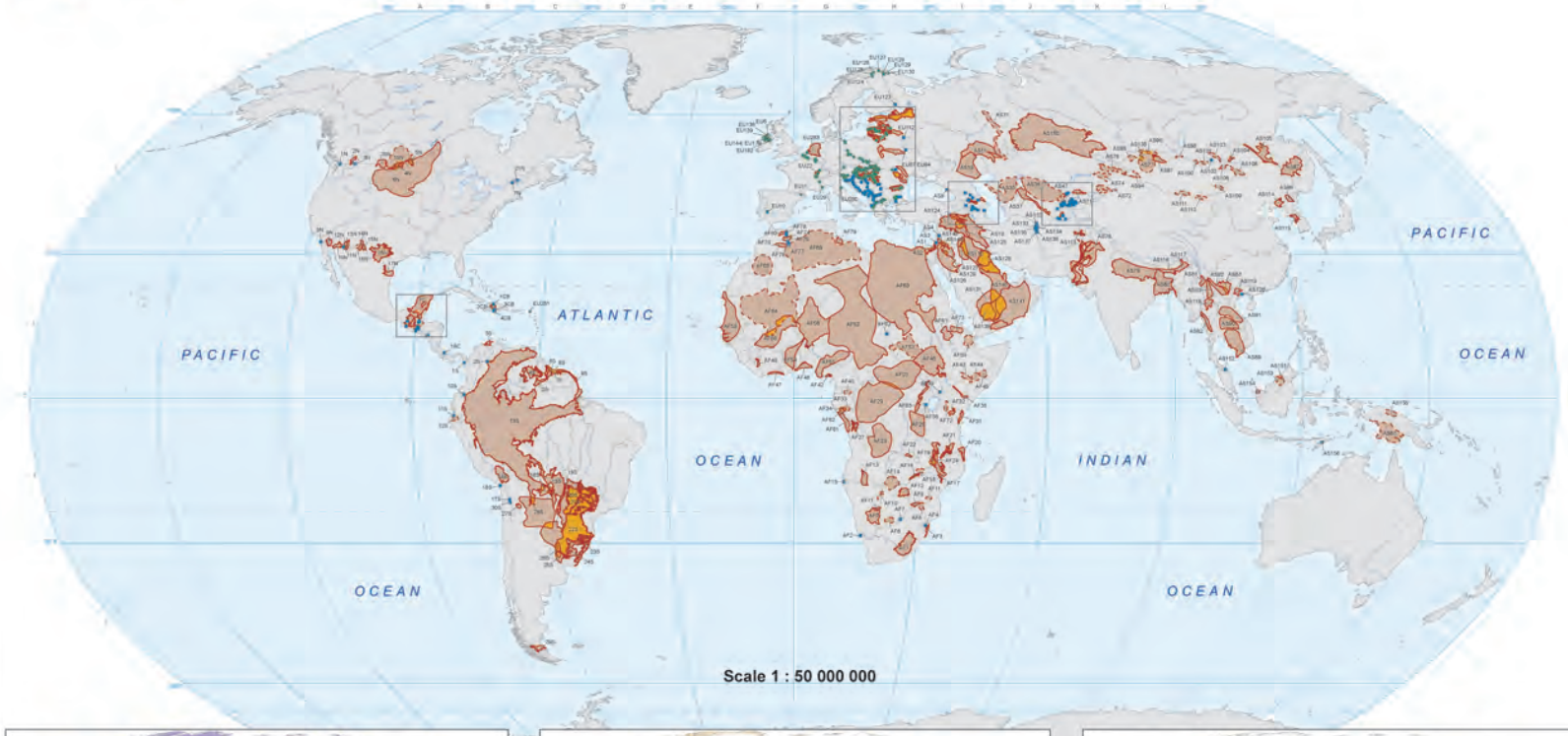
Most of it is in TBA ➡ 592 TBA including TB 'groundwater bodies' ***(IGRAC 2015)***

Transboundary Aquifers of the World

Special Edition for the 7th World Water Forum 2015

igrac
International Groundwater Resources Assessment Centre

United Nations Educational, Scientific and Cultural Organization · International Hydrological Programme · World Meteorological Organization · Government of The Netherlands



Legend

Ocurrence and extent

- aquifer
- groundwater body
- overlapping area
- small aquifer
- small groundwater body

TBAs type of delineation

- confirmed boundary
- approximate boundary
- AR12 aquifer/groundwater body label

Geographic elements

- country boundary
- detailed maps provided on back
- rivers
- lakes

Prepared by IGRAC

Base maps
Country borders: ESRI World Country Generalized layer (April, 2014)
Rivers and lakes: ESRI (2009)

Map projection
Robinson projection, geographic coordinates, spheroid WGS84, longitude of central meridian 0°.

ABOUT THIS MAP

This map is about transboundary aquifers of the world. It shows the state of information presently available on the occurrence and extent of TBAs world-wide. The map provides a global overview of these important transboundary water resources and intends to encourage further research and assessment thereof. The map is based on the most recent inventory results of many active working groups around the world; details on the procedures for preparing this map are available in the section 'Map compilation and labelling'. Inventories and assessments of transboundary aquifers across the world and information exchange between states overlying them are requisite for informed transboundary aquifer governance. This map aims to contribute to raising awareness on the importance of the governance of transboundary aquifers and to building a much needed global knowledge base.

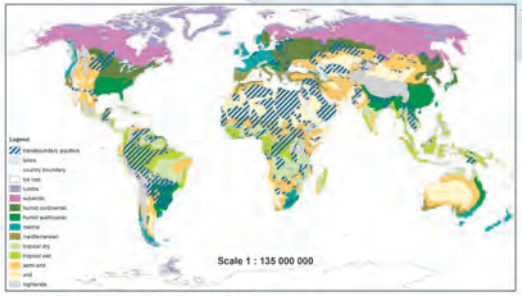
Since its establishment in 2003, IGRAC has been involved in the identification and assessment of transboundary aquifers within the frameworks of the UNECE Transboundary waters assessment, GEF International Waters (IW) Focal Area and the International Shared Aquifer Resources Management (ISARM) initiative led by UNESCO-IHP and IAH.

DISCLAIMER

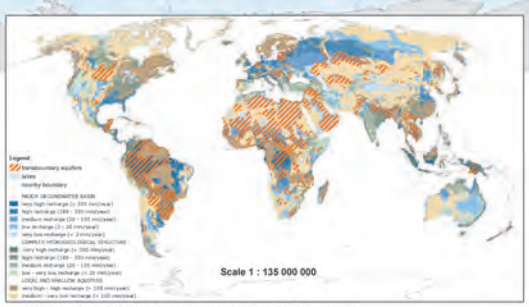
Any designation employed and the presentation of material throughout this publication do not imply the expression of any opinion whatsoever on the part of IGRAC, UNESCO, WMO or the Government of the Netherlands concerning the legal status of any country, territory, city or area, nor of its authorities and sovereignty on its territory and natural resources, and delineation of its frontiers or boundaries. Furthermore, the location and boundaries of several transboundary aquifers have not yet been confirmed by representatives of all countries involved. In such cases, an effort was made to indicate on the map the corresponding provisional status.

COLOPHON

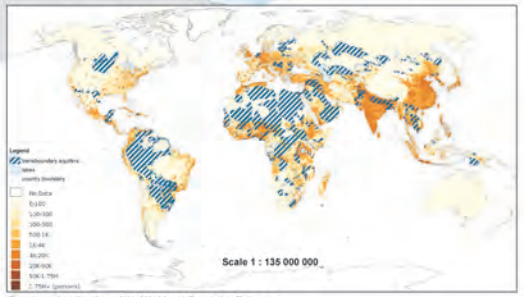
The mission of the International Groundwater Resources Assessment Centre (IGRAC) is to facilitate and promote global sharing of information and knowledge required for sustainable groundwater resources development and management. As an independent and non-profit centre, IGRAC operates under auspices of United Nations Educational, Scientific and Cultural Organization (UNESCO) and the World Meteorological Organisation (WMO). IGRAC is an in-house partner of UNESCO-IHE in Delft, the Netherlands, and receives financial support from the Government of the Netherlands.



Transboundary Aquifers of the World and Climate Zones
(Source: ArcGIS Online, owner: MapingOurWorld, credits: National Geographic)



Transboundary Aquifers of the World and Groundwater Resources and Recharge
(Source: WHYMAP - BGR & UNESCO)



Transboundary Aquifers of the World and Population Estimate
(Source: Socioeconomic Data and Applications Center; layer name: Population Count Future Estimate 2015)

Outline

I. Water/*groundwater (?)* considerations under the CC legal framework

II. CC considerations under the TBA legal framework

CC Framework

UNFCCC (1992):

Commitment of the Parties:

- Formulate, implement, publish and regularly update national and eventually regional programmes measures to facilitate adequate ***adaptation*** to climate change;

- develop and elaborate appropriate and integrated plans for water resources (inter alia),

CC Framework

Adaptation regime under the UNFCCC:

1. 2001: COP 7 LDC Work programme

Preparation of NAPA

LDC Fund (GEF)

CC Framework

2. 2006: COP 12 Nairobi Work Programme

to assist all Parties to improve their understanding and assessment of impacts, vulnerability and adaptation,

→ sound, scientific, technical and socioeconomic basis,

→ current and future climate change and variability.

CC Framework

3. 2010 COP 16: Cancun Adaptation Framework

☞ refers to water (art 14§a):

"Planning, prioritizing and implementing adaptation actions, including projects and programmes"

Including in the areas of water resources;

CC Framework

5 clusters:

a. *Implementation*

b. *Support*: developed to developing Parties

c. *Institutions*:

Global level: Adaptation Committee

Regional level

National level

d. *Principles*

in accordance with the Convention; adaption:

- country-driven, gender-sensitive, participatory and fully transparent approach, with the consideration vulnerable groups, communities and ecosystems;
- best available science and, as appropriate, traditional and indigenous knowledge;
- integrating adaptation into relevant social, economic and environmental policies and actions.

CC Framework

e. stakeholder engagement

- Relevant multilateral, international, regional and national organizations, the public and private sectors, civil society and other relevant stakeholders are invited to undertake and support enhanced action on adaptation at all levels.

CC Framework

Key mechanism for water/groundwater under CC framework :

- adaptation

Adaptation under TBA legal framework?

International GW Law

At the global level:

- UN Watercourses Convention (1997)

➔Limited consideration of GW:

- Related to surface water
- *And* common terminus

Exclusion of a great number of TBA

UN GA Resolutions on the law of TBA ((63/124 (2008); 66/104 (2011); 68/118 (2013))

International GW Law

Resolution 68/118 (2013): change in language:

Commends to the attention of Governments the draft articles on the law of transboundary aquifers (…) as guidance for bilateral or regional agreements and arrangements for the proper management of transboundary aquifers;

➔Will to promote the DA

as declaration of principles

International GW Law

<u>At the regional level:</u>

UNECE Water Convention: covers all GW "which mark, cross or are located on boundaries between two or more States"

➔ Model Provisions on TB GW (2012)

International GW Law

- No explicit mention of climate/CC

- Framework for cooperation on TBA

  → on CC

  → development of adaptation strategies

Provision	UNECE Water Convention	DA
Prevention & Protection	Article 2.1 *TB impact (includes cc)*	Article 1
Equitable and reasonable use	Article 2.2 c	Article 4 - Long term benefits - Utilization plan: taking into account present and future needs of, and alternative water sources - Effective functioning
No significant harm	Article 2. TB impact	Article 6
Precautionary principle	Article 2.5 c	Article 12 precautionary approach
Monitoring	Articles 4 & 11	Article 13
Research & development	Article 5 & 12 (common)	
Management		Article 14 - plans
Exchange of information	Articles 6 & 13	Article 8
Technical cooperation with developing States		Article 16

Conclusion

Water/groundwater:
strong adaptation & attenuation potential

Transversal issue

Call for a stronger presence at the COP 21