Offshore freshwater: Governing a new resource

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Global Water Consumption 1900-2025
(by region, in billions m³ per year)
Increasing Global Use

km$^3$ per year

- Domestic Use
- Agricultural Use
- Industrial Use
- Total Use


Chart shows the increasing global use from 1900 to 2000, with a significant rise in total use post-1980.
Global water stress

Locations of offshore aquifers

Source: Nature Dec. 2013
More offshore water

Global Inventory of Methane Hydrate Deposits

Source: USGS
Possible governance regimes

- UN Convention on the Law of the Sea
- Customary laws for land-based freshwater
- Customary practices of offshore oil & gas
• UNCLOS silent on transboundary NR
• Boundary delimitation to be “equitable”
International law for land-based water

- Two global treaties: UN Watercourses Convention (36 parties) and UNECE Water Convention (40 parties)

- Customary water law principles:
  - Reasonable/equitable/sustainable use
  - No significant harm
  - Sharing data/information
  - Cooperation
  - Prior notification
  - Ecosystem protection
2015 UNESCO-IGRAC Map
TBAs with "agreements"

- Franco-Swiss Genevese Aquifer (1977, 2008)
- Al-Sag/Al-Disi Aquifer (2015)
- Iullemeden Aquifer (2009)
- Guarani Aquifer System (2010)
- Iullemeden, Taoudeni/Tanezrouft System (2014)
TBA treaty commonalities

- Data sharing
- Cooperation
- Coordinating bodies
Offshore oil & gas development

- Unitization – develop field as single unit
- Joint development agreements
- Implemented through treaties and contracts

→ Nations voluntarily limit sovereignty over NR for commercial purposes
Summary of current law

• Law of the Sea/ICJ – equitable arrangements
• Land-based water – reasonable and equitable use
• Oil and gas – pattern of joint development
Emerging trends

- Common heritage of mankind
- Common pool resource management
- Benefit sharing

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\text{Limited/joint/shared sovereignty}
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Research questions

• Should offshore freshwater resources be managed globally, regionally or individually?

• Will states limit their sovereignty over TB offshore aquifers for humanitarian or economic reasons?

• Should offshore aquifers with connections to land-based aquifers be treated differently than stand-alone units?