Factors Preventing Finalization of the Draft Articles in the 2008 UNGA Resolution on the Law of Transboundary Aquifers

Malcolm J. Gander, Ph.D.

Transboundary Aquifers (TBAs)

- Groundwater is the primary source of drinking water worldwide (UN-Water 2014).

- Much of this groundwater is present in aquifers that are located within two or more neighboring countries, and are termed **transboundary aquifers (TBAs)**.

Methods to Manage TBAs

- Growing global interest in establishing effective methods to manage TBAs

Most notably:

- United Nations General Assembly (UNGA) established Resolution 63/124 on the **"Law of Transboundary Aquifers"** in 2008, which took note of the **19 Draft Articles** on the Law of Transboundary Aquifers

What Might Be the Final Form of the Draft Articles?

- A binding treaty
- A resolution or declaration of principles that could serve as guidelines for nations forging an agreement

  (Eckstein & Sindico 2014)

Purpose of Study is Two-fold:

#1:

Examine the factors preventing finalization of the Draft Articles as part of the development of an international legal instrument for transboundary aquifers

And broadly:

What are the obvious, & subtle, reasons why there are there so few TBA agreements?

Purpose of Study

#2:

- Establish seven core hydrogeologic principles **(the science)** that should be applied during TBA agreement-making **(the policy).** (Eckstein & Eckstein 2005: Articulated concept, & defined legal implications from various circumstances where gw resources traverse international borders. Decision makers and lawyers alike must develop a stronger understanding of hydrogeological terms and processes

Experts in this field have identified in great detail the important hydrogeologic principles; however, a shortlist is needed for non-technical participants.

Bridging Science & Policy

- Assist decision makers and policymakers, and raise awareness of the broad audience that is involved in, or has an interest in, the management of TBAs shared by two or more nations.

Impetus for Study

- Over the years have been involved in aquifer assessment (pump tests) & aquifer restoration

  (USA, European Union, China; on behalf of international mining and energy companies, & USA government entities including US EPA and Department of Defense)

- Continually faced with the need to distill technical information into concise pieces that can be understood by non-technical decision makers

  "Science in isolation is insufficient" (Puri)

Why are There So Few TBA Agreements?

- Invisible nature of groundwater and aquifers
- The poor understanding of basic hydrogeologic principles by decision makers
- Lack of international legal frameworks to guide policymakers
- Water-supply problems (quantity & quality) progress slowly & are not obvious
- Mistrust between countries
- Other political & economic priorities take precedence
- Overcoming the bias where the majority of existing funding is directed toward surface water projects

States Seek to Retain Absolute Sovereignty over "Their GW"

- Individual States often seek to retain absolute sovereignty over that portion of a TBA within its physical boundaries

- Given that most accessible groundwater is moving, it is akin to surface water from an international water law perspective, and thus treating it as an entity manageable by sovereign rule is inconsistent with equitable and reasonable use. (McCaffrey; Salman; and others)

Overcome the Status Quo & Promote Sustainable GW Management

- A political regime may favor continuing the status quo of overpumping in order to stay in the good graces of the current population's perception that their water needs are being met. The regime may only be concerned for their reputation in the here and now, and ignore the critical need for sustainable use of an aquifer (Dellapenna and others)
- A State may realize that establishing a TBA that promotes the equitable and reasonable utilization of an aquifer system will result in less available water for their own State. Thus, the State will resist such an action. (Uprety)

7 Core Hydrogeologic Principles

1: Aquifers are finite resources.

2: Aquifer depletion can occur through overpumping.

3: Recharge zones collect aquifer H_2O, & must be protected (e.g. Dellapenna).

4: Polluted aquifer cleanup requires years and great cost.

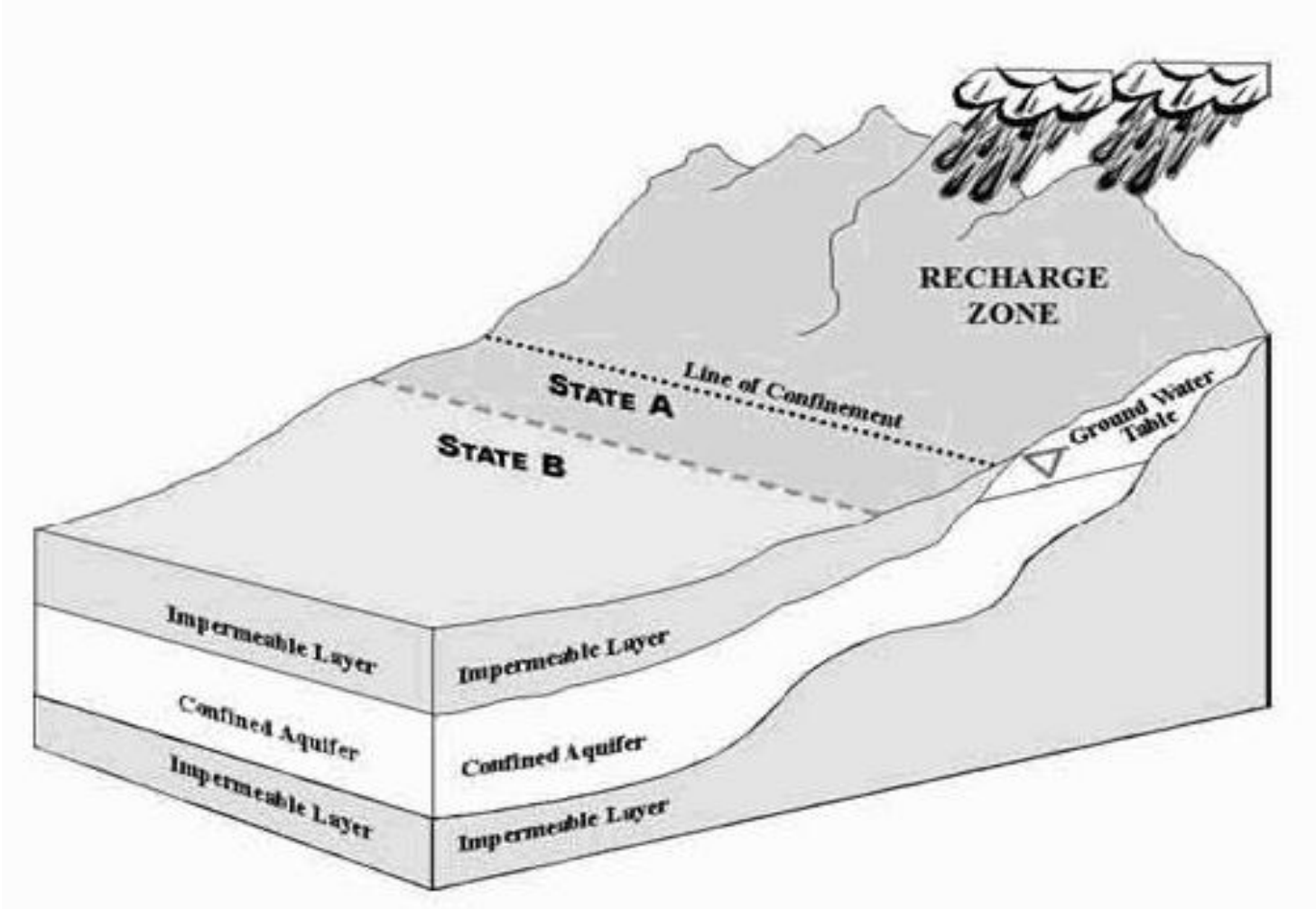
5: Need early definition of aquifer characteristics (Puri and others).

6: Most of world's accessible gw is moving (Mcaffrey and others).

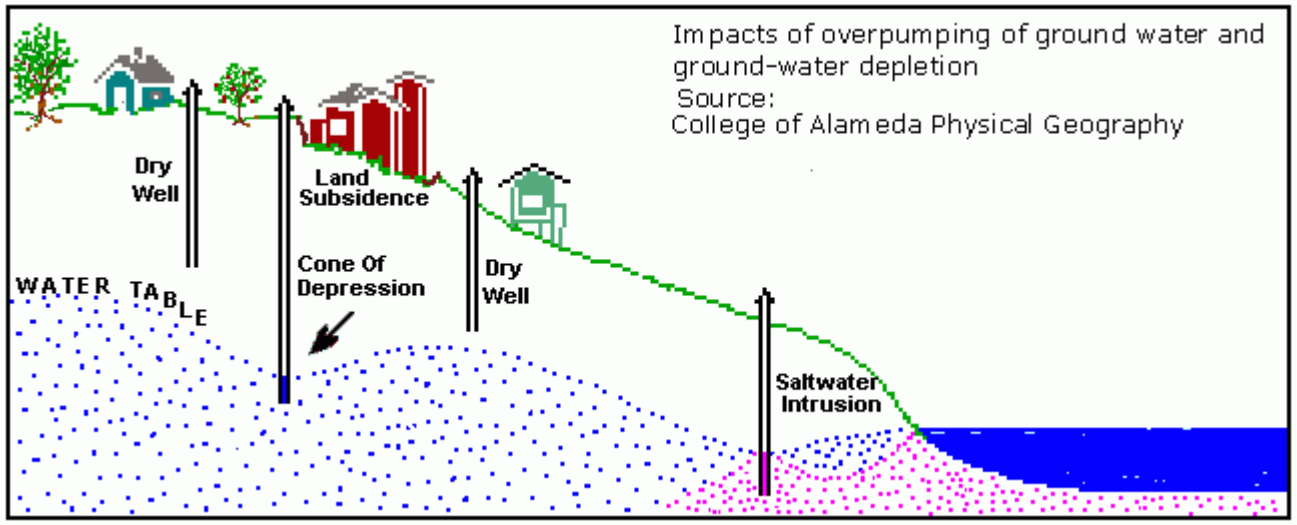
7: Most aquifers are of two types: those replenished by surface water, and fossil aquifers (Mechlem and others)

Recharge

- Failure to understand or acknowledge the **need to identify and manage recharge zones** which may exist within one or more transboundary aquifer States, or may exist outside the borders of transboundary aquifer States. (Israel – Mountain Aquifer)


RECHARGE
ZONE
Line of Confinement
STATE A
STATE B
Ground Water
Table
Impermeable Layer
Impermeable Layer
Confined Aquifer
Confined Aquifer
Impermeable Layer
Impermeable Layer

Overpumping Causes Wells to Go Dry & Can Cause Seawater Intrusion



The 7 Core Principles Complement the Essential International Water Law Tenets

- Cooperation between States
- Equitable & reasonable utilization of resource
- Inflict no significant harm
- Ongoing information sharing
- Prior notification of activities that will affect the resource.

Path Forward

Promote more data-sharing between nations

- Tracking water levels in productive aquifers in all wells year-over-year is enormously useful and relatively inexpensive
- Provides water resource quantity data and gw flow direction

Protect recharge areas