Law and Policy Regime for Sustainable Groundwater Regime in Pakistan

Daanish Mustafa
Department of Geography
King’s College, London
E-mail: daanish.mustafa@kcl.ac.uk
Groundwater Regime in Pakistan

- Dominant GW related Acts:
  - Canal and Drainage Act 1873
  - The Balochistan Groundwater Rights Administration Ordinance 1978

- In the Indus River Valley a gravity based surface irrigation system, where up to 80% of the crop water needs are satisfied by groundwater

- Two Pakistans 64% fresh and 36% saline groundwater

- Highland Balochistan, Karez system in peril

- Major unsustainable groundwater mining in Balochistan
Figure -- Indus Basin and its Major Infrastructure
Canal and Drainage Act 1873

Law is simply politics dressed in a different garb (Blomley 1994: 11-12)

Law is indeed contingent, political and contestable, often perpetuating and legitimizing exploitative and oppressive geographies of social power (Mustafa 2001: 818)
Canal and Drainage Act 1873

- Allows water for only 64% cropping intensities
- Does not provide mechanisms for conjunctive management of surface and groundwater.
- Does not take into account different groundwater quality
-Insensitive to physical geography and hence creates differential access
- Reinforces colonial social engineering instead of addressing contemporary reality
### Number of Tawan and Sec. 68 cases in Sidhnai Sub-division

<table>
<thead>
<tr>
<th>Section</th>
<th>Yr. &amp; No. of Tawan cases</th>
<th>Section 68 Cases</th>
<th>No. of Mogas</th>
<th>mogas per tawan case</th>
<th>mogas per sec. 68 case</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1997 84</td>
<td>1997 4</td>
<td></td>
<td>1997 1</td>
<td>1997 28</td>
</tr>
<tr>
<td></td>
<td>1997 130</td>
<td>1997 56</td>
<td></td>
<td>1997 4</td>
<td>1997 8</td>
</tr>
</tbody>
</table>
### Number of tawan & Sec. 68 cases in Shorkot sub-division

<table>
<thead>
<tr>
<th>Section</th>
<th>Yr. &amp; No. of tawan cases</th>
<th>Section 68 Cases</th>
<th>No. of Mogas</th>
<th>mogas per tawan case</th>
<th>mogas per sec. 68 case</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dauranpur</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1996</td>
<td>68</td>
<td>1996</td>
<td>29</td>
<td>1996</td>
<td>2</td>
</tr>
<tr>
<td>1997</td>
<td>23</td>
<td>1997</td>
<td>19</td>
<td>1997</td>
<td>5</td>
</tr>
<tr>
<td>Silotty</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1997</td>
<td>22</td>
<td>1997</td>
<td>7</td>
<td>1997</td>
<td>20</td>
</tr>
<tr>
<td>Shorkot</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1997</td>
<td>22</td>
<td>1997</td>
<td>7</td>
<td>1997</td>
<td>20</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1996</td>
<td>84</td>
<td>1996</td>
<td>44</td>
<td>1996</td>
<td>5</td>
</tr>
<tr>
<td>1997</td>
<td>45</td>
<td>1997</td>
<td>26</td>
<td>1997</td>
<td>10</td>
</tr>
</tbody>
</table>
Karez System

[Diagram showing the Karez System, including labels such as Mother-Well, Karez shafts, Alluvium, Bedrock, and Cross sections a-b, c-d.]

- **Mother-Well**: A water source for the Karez System.
- **Karez shafts**: Vertical tunnels through the bedrock to access groundwater.
- **Alluvium**: Layer of sediment deposited by flowing water.
- **Bedrock**: The solid rock underlying the alluvium.
- **Cross sections a-b, c-d**: Diagrams showing the cross-sectional view of the Karez System components.
- **30-100 m**: Distance from the mountain to the Karez shafts.
- **2-30 km**: Distance from the Karez shafts to the village.

[Diagram also shows the aerial view of the Karez System with a mountain, alluvial fan, and village.]
Features of Karez System in Balochistan

- Responsibility for water management
- *Harim* rule
- Equity in Water distribution
  - Water distribution rules
  - Land distribution rules
- Water markets
- Moral economy
Land Distribution along a Karez

AERIAL VIEW
Social Capital: In our area there is no govt. restriction on tubewells. Even if one of us wants to install a tubewell he will have to do it by the villagers' consent. It is not going to happen without collective consent (Abdul Hakim, Pesha Morezai).
Karezes were a great source of social and communal life for us village folks. People would sit on their sides and discuss their issues and find solutions to their problems. But modern times, new technologies and tubewells have dried out the karezes (Ghaus Bux, Karez Kunghar).
Modernity, Culture and Society: People have turned to the tubewell because the karez went dry. Some people even sold their land and water right because of the drought which is considered extremely low and objectionable in ordinary circumstance (Roohullah, Yakub Karez).

Nowadays times have changed. New technology is coming in, with new machines, and new [modern] people who like latest machines. The traditional irrigation is being progressively forgotten (Khaliqdad, Karez Kunghar).
Poverty Alleviation: But a tubewell is owned by an individual from which two or three people are earning their living, but a karez is communally owned from which 500-1000 people may be earning their living. So you figure out that when a tubewell gives an individual benefit, how many loose out (M. Ismael, Banghi Karez).

Karez was better because we women could get together there and share the gossip, news and advice. It flowed perpetually and we could use it anytime (Gohar Khatoon, Karez Noth)

Sustainable Development: [With tubewells] I would go so far as to say that we are spending away our future generations' water today let alone [water for] the future of karez irrigation! (M. Ayub, Karez Kunghar)
Consequences of Increased Water Pumping

- Decline in water tables
- Large farmers became more powerful
- Greater adoption of inappropriate cash crops
- Some help with drought coping
- Better quality drinking water
Karez Decline has led to Increased:

- Breakdown of social capital
- Strain on community cohesion
- Talibanization in Youth
- Intra & inter-community conflict
- Rural to urban migration
- Pauperization
- Power of the rural elite
- Vulnerability to climate change
Concluding Thoughts

- GW committees at the district and provincial level in Balochistan non-existent

- Customary legal regimes for GW management in decline

- The Canal and Drainage Act 1873, reflects colonial socio-geographical imaginaries and realities.

- Critical legal engagement with enabling legislation such as the Canal and Drainage Act (1873) is imperative for progressive reform in the Pakistani water sector.

- Equity and recognition of the diverse set of values that contemporary democratic polity in Pakistan seeks to realize from water resources should a starting point for such an engagement.

- Legal pluralism?