Groundwater Governance in Nepal

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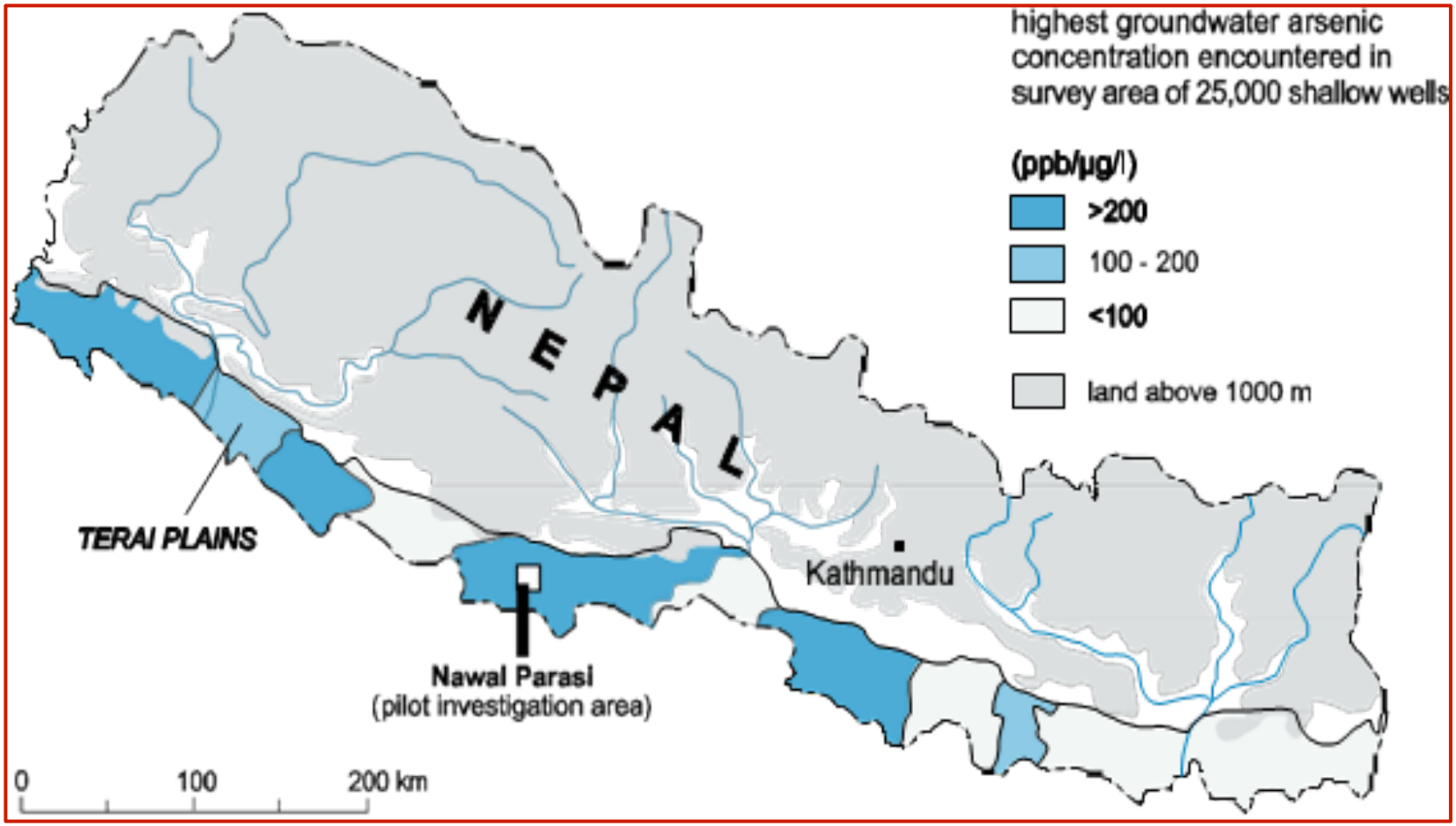
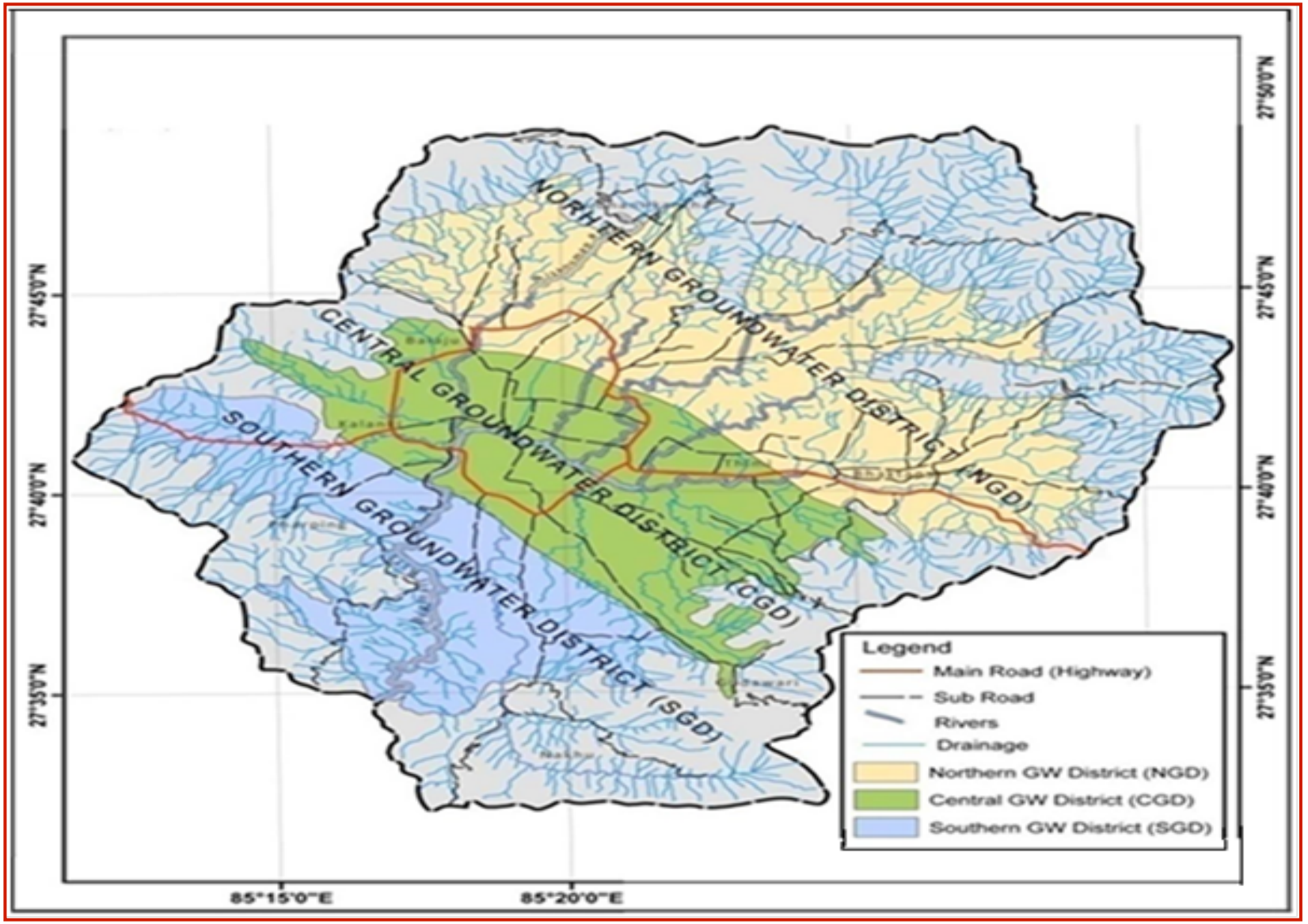


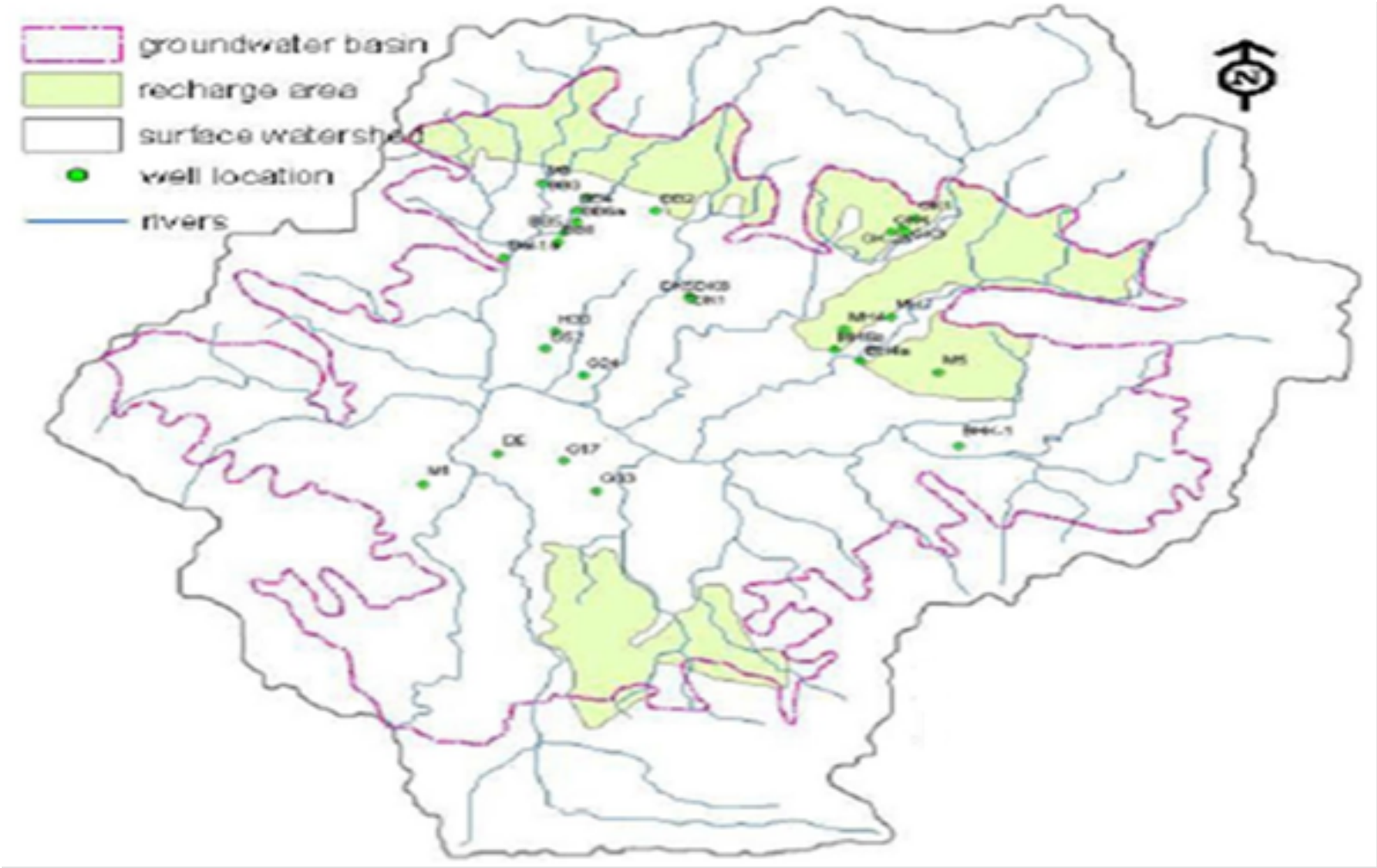
Groundwater Potential & its Use

- Terai, Siwalik Valleys (shallow and/or deep aquifers)
- Kathmandu Valley (shallow and/or deep aquifers)
- 726,000 ha of Terai - good potential for STW
- 305,000 ha of Terai - marginal potential for STW
- 190,000 ha of Terai- good potential for deep and medium TW
- 37,000 shallow tube-wells and 400 deep tube-wells in Terai
- Total GW in Terai - about 8800 MCM
- Irrigation & industry - 756 MCM; Drinking - 297 MCM
- Surplus GW in Terai - 7747 MCM
- Conjunctive management of GW with SW is a viable option to increase the crop production by providing year round irrigation and also to supply the safe drinking water

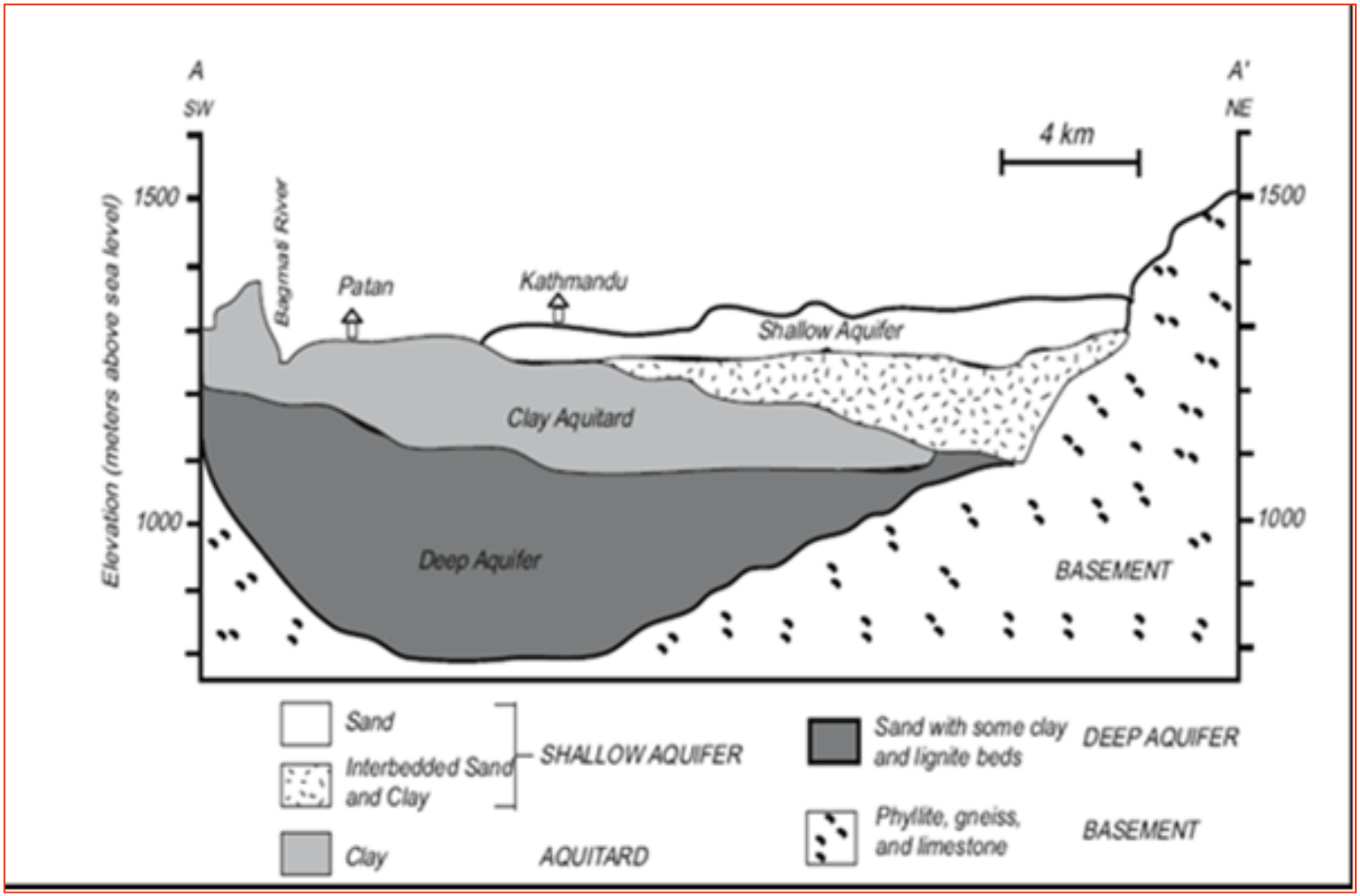
Groundwater in Kathmandu Valley



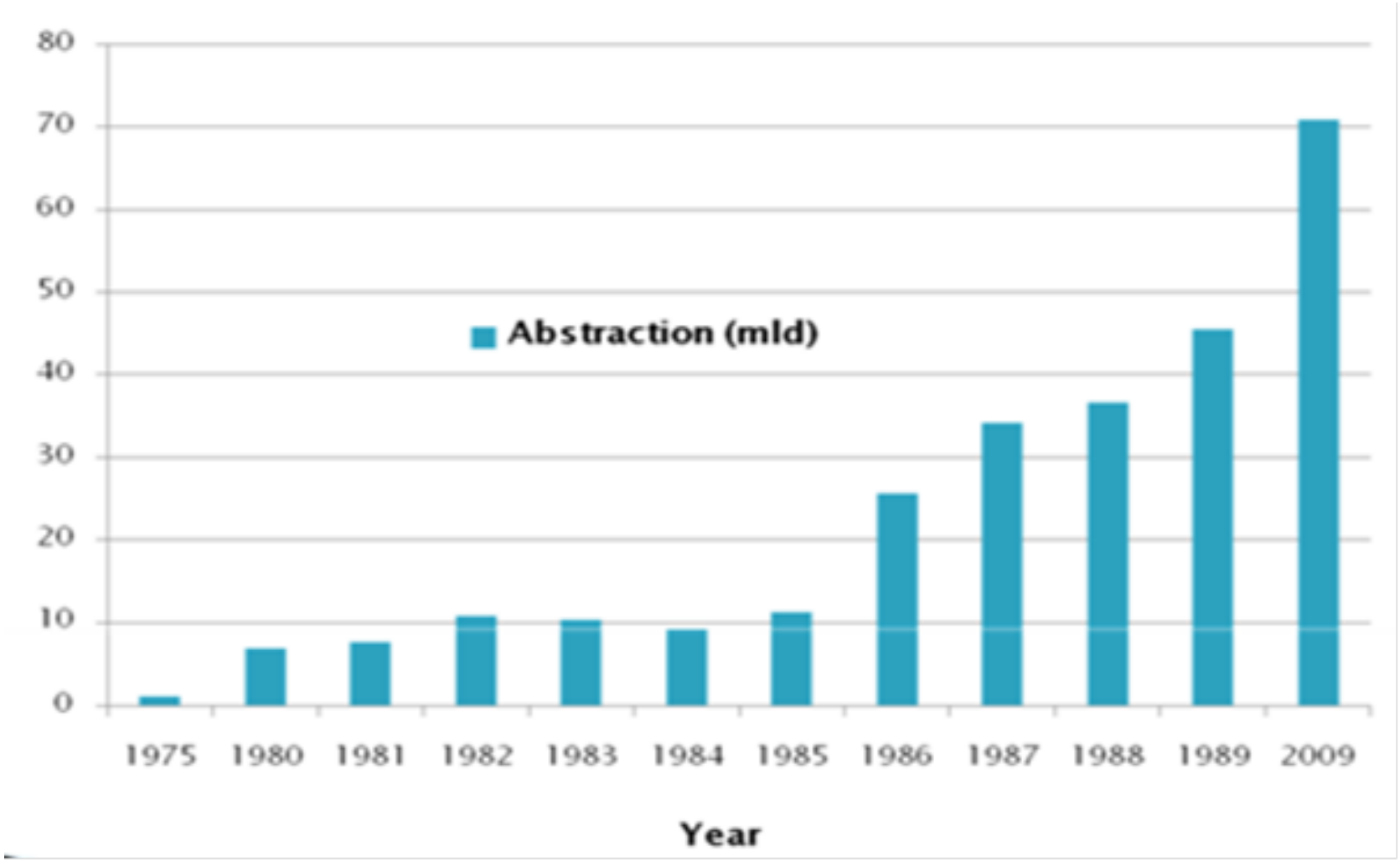
Groundwater basins and recharge area of Kathmandu Valley



HYDROGEOLOGY OF KATHMANDU VALLEY

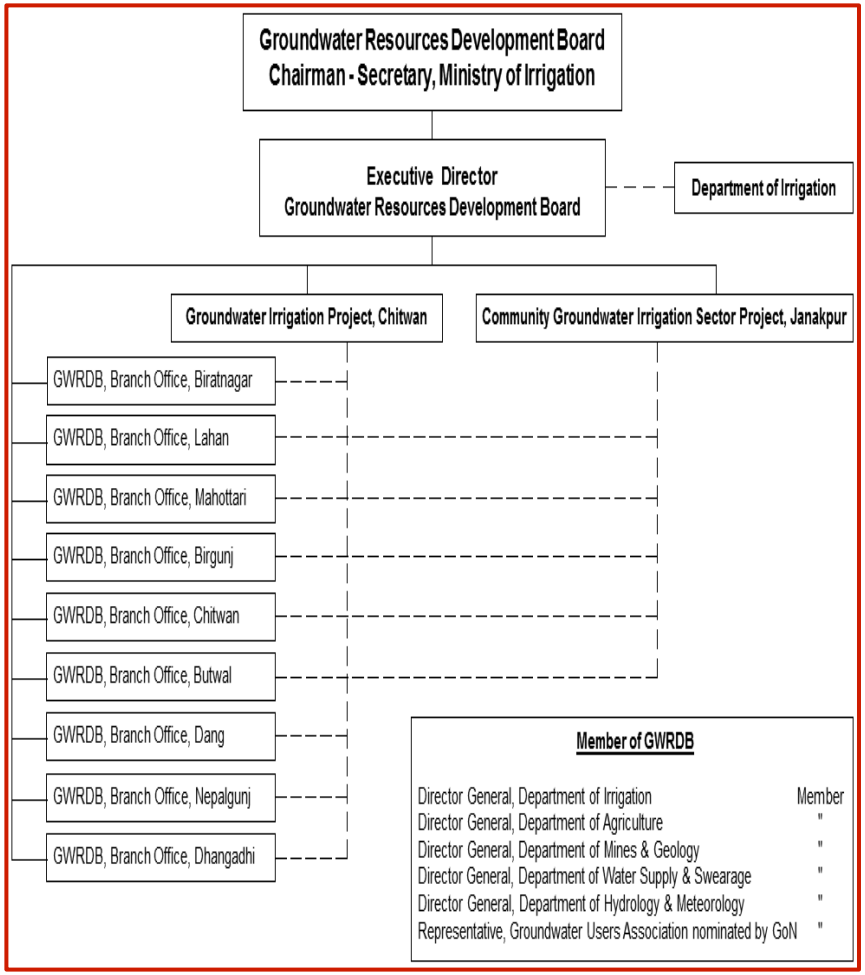


Trend of Groundwater Abstraction in Kathmandu Valley



Groundwater Governance

Governing Institutions



Policies and Legislations

- No formal policies & laws
- Discussions are still underway
- Several laws, acts and regulations related to water but not covering the issue of GWG
- Water Resource Act 1992- license for industry uses except domestic
- Water Resources Strategy 2002- replace GWRDB by GW Authority
- Supreme Court- to implement the groundwater act

Groundwater Governance

Public Participation

- high population densities, small landholdings
- landowner can extract as much water as desired without any kind of restriction
- pump required, not all can afford
- well owners cannot irrigate all their plots using a single pump
- ***public participation is needed to develop and govern groundwater at local level***

Challenges and Opportunities

- **Lack of research and investigations, lack of funding, lack of experts, lack of strict policy and legislation**
- **difficulty in the collection of water fee from people**
- **political instability and interference**
- **formation of different states**
- **appropriate policies and laws for the development and sustainable use of groundwater for different purposes in different states**
- **GW development is flexible, more reliable, less costly, equitable, productive and important tool for poverty alleviation**
- **GW can be recharged in monsoon**

Improvement of Groundwater Governance

Institutional features of GWG

According to Theesfeld (2008)

Policy Instruments may be:

- **Voluntary compliance**
- **Traditional practices**
- **Strong administration**
- **Conflict resolution mechanisms**
- **Political economics**
- **Actual data and information**

Policies related to GWG

- **Regulatory policy instruments like tube well listing, regulations and user right allocation**
- Economic policy instruments like tax, subsidy, cost of groundwater, and pollution allowance
- **Voluntary/advisory policy instruments like collective action, practical experience**

Improvement of Groundwater Governance

Socio and economic aspects

- **Few studies of GW economics**
- **social and economic impacts of intensive groundwater use**
- Positive impacts: increased productivity, food security, job creation, livelihood diversification
- Negative impacts: lowering of WT, deterioration of water quality

Framework of water market

- **farmers unable to construct STW due to limited resources**
- **Can buy water from the neighboring farmers**

Improvement of Groundwater Governance

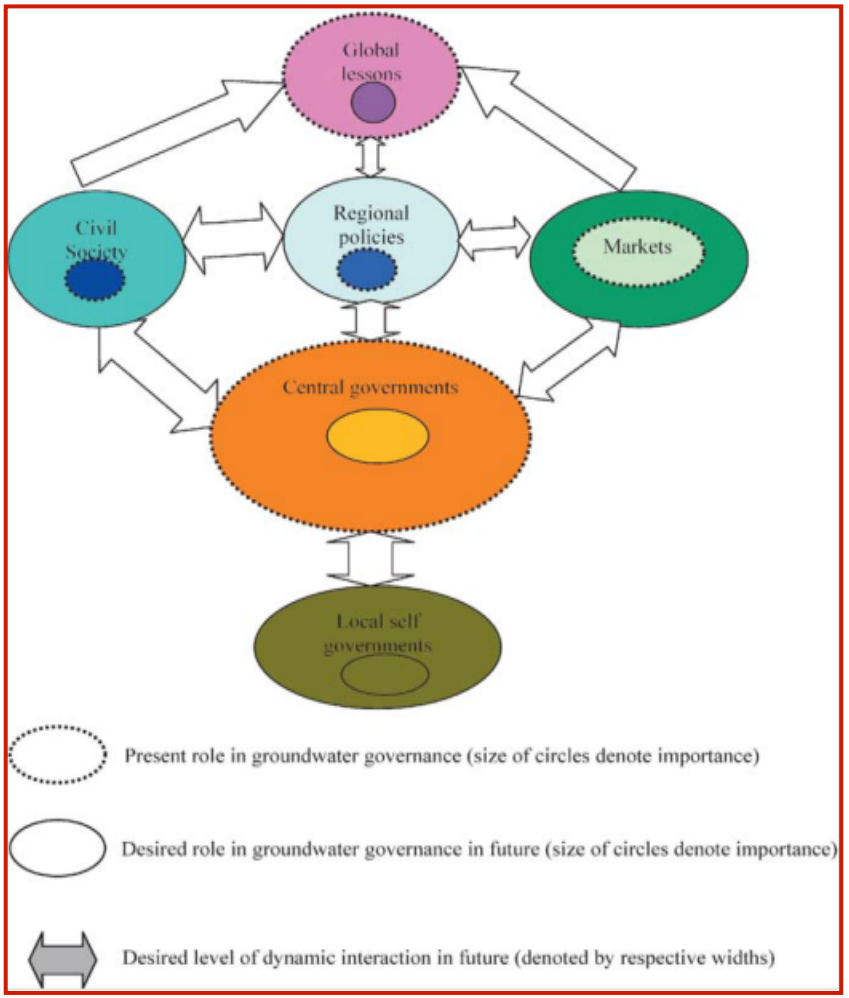
Sustainable GWG in Nepal

- adequate and high-quality hydro-geologic and socio-economic information
- Clear responsibilities
- Direct management by groundwater agencies
- Community management
- Strategic indirect management

3 distinct perspectives

- resource perspective
- user perspective
- institutional perspective

Desirable GWG Scenario



Conclusion and Recommendations

- Groundwater has been important source of water for various human needs
- Unique characteristics of GW create difficulty in assessment of its quality and quantity
- Less awareness about the contamination and pollutant into the GW reserves
- Lack of alertness and inadequate knowledge of GW complicated the governance
- No control over the exploitation of the GW, even in the water scarce region
- Due to lack of technologies & poor governance, vast potential of GW is underutilized
- Urgent need to address the problem of GW use and the governance issues
- GW should be recognized as a basic requirement to livelihood by the Government
- Groundwater Act should be approved as soon as possible
- GWRDB should be replaced by a Groundwater Authority

Conclusion and Recommendations

- Strict policies and legislations of groundwater should be worked out and approved
- Sufficient funding should be managed and allocated for the development of GW
- Development of GW should be initiated through investigation and research
- Monitoring, Controlling, O & M of schemes should be perfect and in time
- GW should not be used to the extent that lowers the ground water table
- Replenishment or recharge of ground water should be managed properly
- Person not following the rule should be punished
- GW should be preserved and used as supplementary to surface water
- For poor people groundwater facility should be subsidized
- Business of groundwater should be generated through water market
- STWs ownership and water markets can solve inaccessibility of GW to small farmers
- Privatization of GW should be only after strict legal provision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