Earth Observations
For
Sustainable Water Management

Nepal Country Paper

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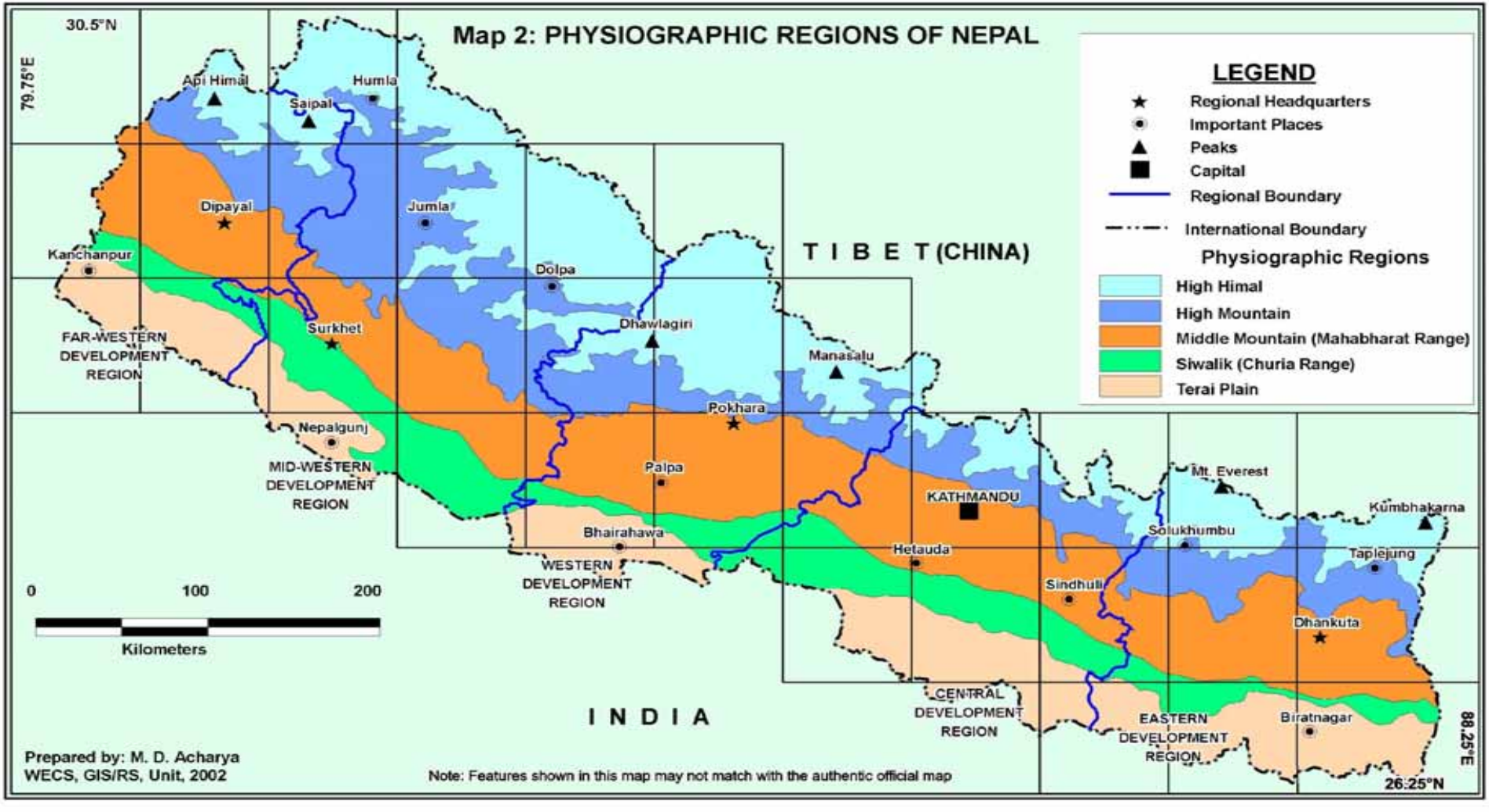
PHYSIOGRAPHIC REGIONS OF NEPAL



Impact of Climate Change

Only Visible Impact of Climate Change Observed are:

- **Receding Glaciers in the High Himalayas.**
- **Glacier Lakes are increasing in size.**

Others Attributed largely to People's Perception:

- **Increased general temperature (I have a mango tree in my garden at Ktm).**
- **Increase in Flood Magnitude.**

Needs a lot of scientific observation and research for quantifying the Impacts.

Water Resources Strategy (WRS)

- Approved in 2002
- Integrated Water Resources Management Principle
- Goal “Living Condition of Nepali People are significantly improved in a sustainable manner”
- 25 Years Timeframe

Ten Strategic Outputs

Security

- Water induced disaster
- Watershed and aquatic ecosystem

Uses

- Water supply sanitation & hygiene
- Irrigation
- Hydropower
- Economic use of water, Industries, Tourism, Fisheries

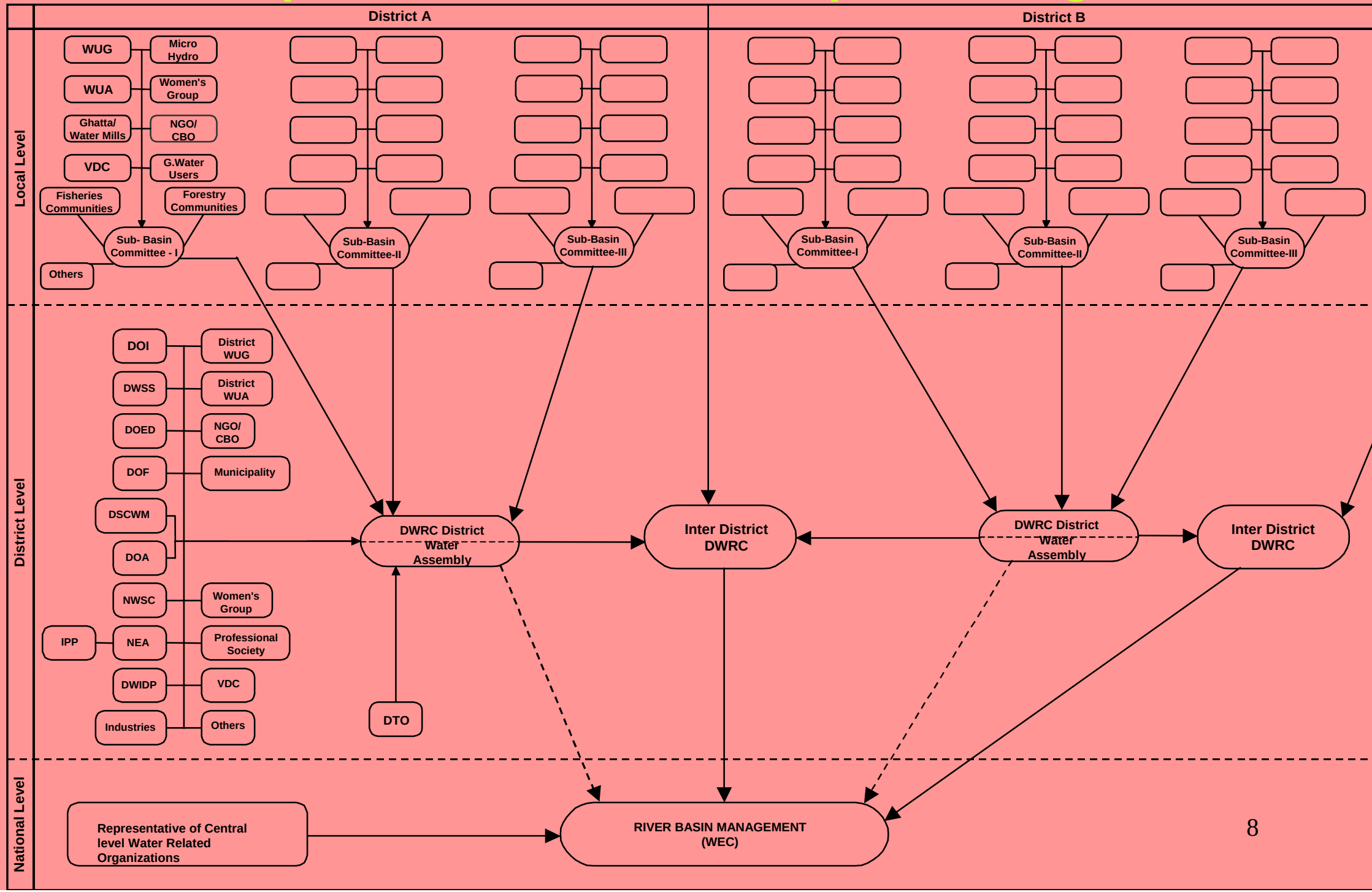
Mechanism

- Water related Information System
- Legal Framework
- Regional Cooperation
- Institutional Mechanism

National Water Plan (NWP)

- Prepared to implement the activities defined by WRS
- Approved in 2005
- Extensive stakeholders' participation

Conceptual Framework for Implementing IWRM



Targets in Water Related Information Systems

- **By 2007**
- **Rehabilitate and equip existing Hydro-Met Stations**
- **Increase the number of observation stations;**
- **Equip sufficient no. of stations with telemetry facility to assist weather and flood forecasting;**
- **Establish Himalayas Climate change study and Research center;**
- **Initiate and create meta data of all relevant water resources data on river basin basis; and**
- **Human Resources Development**

Targets in Water Related Information Systems

- **By 2017**
- **Extend Observation station network to meet WMO standards**
- **Improved dissemination of relevant quality data**
- **By 2027**
- **Well equipped hydrological and meteorological stations increased to meet Nepal's requirements.**

Targets in Water Induced Disaster

By 2007:

- **potential disaster zones are identified by type and are located on district maps;**
- **emergency relief materials are available in all five regions;**

By 2017:

- **infrastructure for mitigating predictable disasters are put into place in 20 districts;**
- **warning systems are established and functional, encompassing the whole country;**

By 2027:

- **social and economic losses due to water induced disaster reduced to the levels experienced in other developed countries.**

Current Activities

- **WECS updating/ preparing water use inventory of a number of basins.**
- **DOI preparing irrigation inventory.**
- **DHM upgrading and putting up real-time hydro met observation stations.**
- **DWIDP making disaster hazard maps and inventory of river systems.**
- **DHM and ICIMOD jointly doing work on flood warning systems.**
- **ADB and World Bank supporting activities through CMIASP & IWRMP Projects.**
- **Participation in APRSAF, APN, ADRC and AWCI activities.**

Challenges:

- Integrating line agencies' activities through Himalayas Climate change study and Research center or through WECS.
- Intensive Research on Himalayan Climate.
- Popularizing use of remote sensing data on IWRM (Capacity Building).
- Availability of RS data.
- Resource constraints on inventorying water use info.

Meeting the Challenges:

- External Support for establishment of Himalayan Climate change study and Research center.
- Intensive On-the-job training to government and NGO professionals on RS technology and use.
- Support local universities for RS courses.
- Ease availability of high Res archive Satellite images.
- Avail cheap technology for real-time ground data acquisition and processing
  - Increase Accuracy of GPS
  - Standardize real time hydro met observation stations
  - Software for automation in processing and archival
- Integration of various networks and initiatives.

Thank you