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# Regional Experiences on Irrigation Modernization

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# Why Modernize



- Few main reasons why to modernize:
  - Rapidly increasing competing uses for water.
  - Irrigation sector needs to reduce water use.
  - Climate Change.
  - Low water use productivity.
  - Insufficient focus on on-farm water management.
  - Little attention to conjunctive use of surface and ground water.
  - WUAs not seen as clients/customers.

# What to Modernize?



- What to modernize?
  - Overall focus on water resources management and river basin planning.
  - Irrigation infrastructure.
  - Operation and management.
    - Institutions – Irrigation agencies, water users associations.

# Water Resources Management



- Water scarcity is already, or is becoming, a key issue in most countries in Asia.
- Change is required as “business as usual” is not an option anymore.
- Better understanding is required of water management, from the river basin down to the field level of the irrigation schemes.
- New approaches, technical innovations, and institutional change and support are required
- Focus on the irrigation sector will be essential, considering that it is by far the main water user, but reforms at river basin and policy level are also important.

# Water Resources Management



- Set up operational institutions with well-trained multi-disciplinary staff for overall and integrated water resources management (Madhya Pradesh).
- Form River Basin Councils and prepare and implement river basin plans (MP, Nepal, Philippines).
- Prepare the necessary legislation for integrated water resources management. Important, but time consuming. Start differently (MP Water).
- Strengthen water resources management in universities and other training establishments (India).
- Flood management and groundwater management and its conjunctive use with surface water to become integral parts of water resources management and to be included in river basin plans.

# Infrastructure



- Modernization is more than canal lining.
  - Limited time for construction:
    - India - construction timeframe is typically limited to about three months per year (April-June).
    - Philippines - construction timeframe is typically limited to two water cut-off periods per year that normally last 4 and 6-8 weeks.
- Sufficient number of hydraulic structures in a system is key to manage water.
- More account needs to be taken of the feasibility of carrying out extensive modernization programs in limited time frames. Determine opportunities for more effective implementation of irrigation modernization programs, including the use of the most appropriate construction materials (Bank study).

# Infrastructure

- Major gains to be made at on-farm level.
  - Command area development / field channels (MP Water, Nepal).
  - Sprinkler, drip irrigation (India).
  - Laser leveling (Pakistan).

# Operation and Management



- Change irrigation agency staff attitudes, with increased understanding of service delivery, farmers as clients, etc.
- Introduce performance-based management systems in irrigation schemes;
- Modernize management systems through the use of remote sensing, geographical information systems (GIS), management information systems (MIS).
- Use asset management planning and establish revised budgeting, fee setting, and collection procedures based on such asset management planning.
  - it is especially the failure to adequately maintain I&D systems that results in their declining performance.
  - Total lost production exceeds by far the cost of adequately maintaining infrastructure.
- Consider private partnership involvement for system management.



# Operation and Management



- Adaptive research on water management.
- Train farmers in water management.
- Improved agricultural practices linked to improved water management, e.g. SRI, deep ploughing, and sowing of field crops by seed-cum-fertilizer drills.
- Increase attention to the development of viable WUAs of adequate size, including the development of decentralized capacity to monitor, train, and support WUAs (MP Water).