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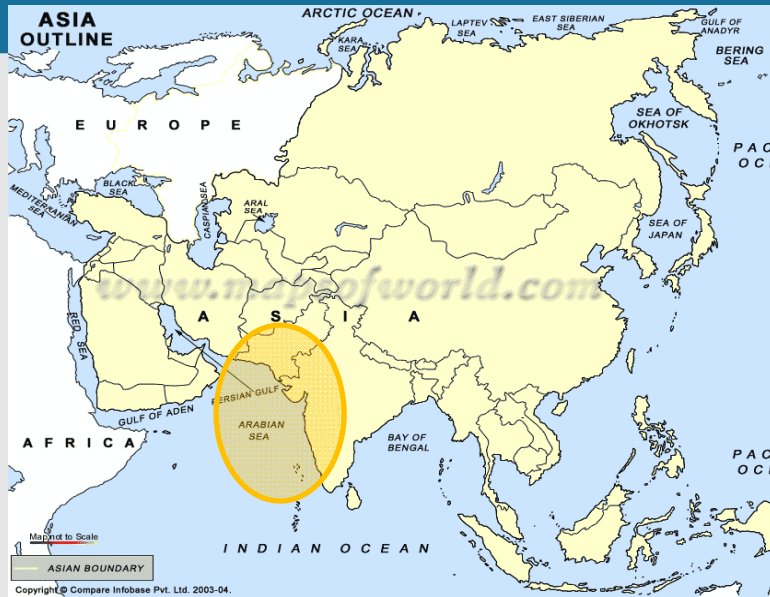
# IWRM in Karnataka, India: Crafting a new future

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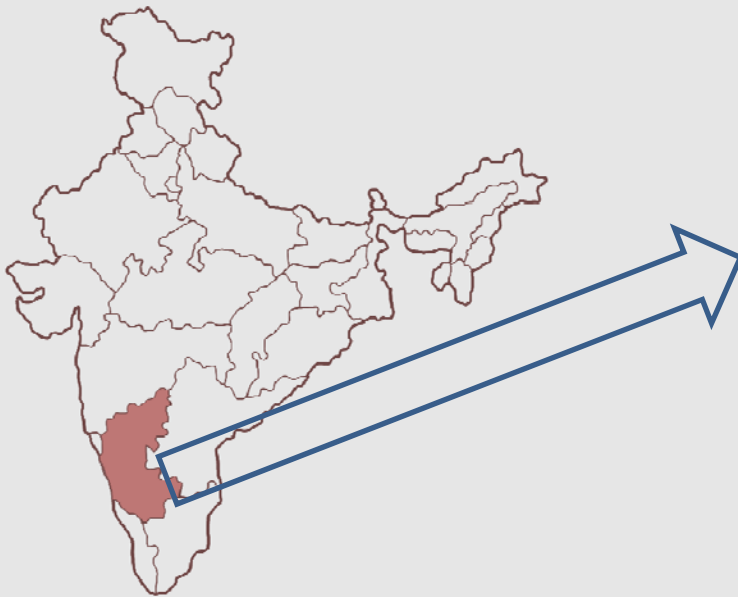
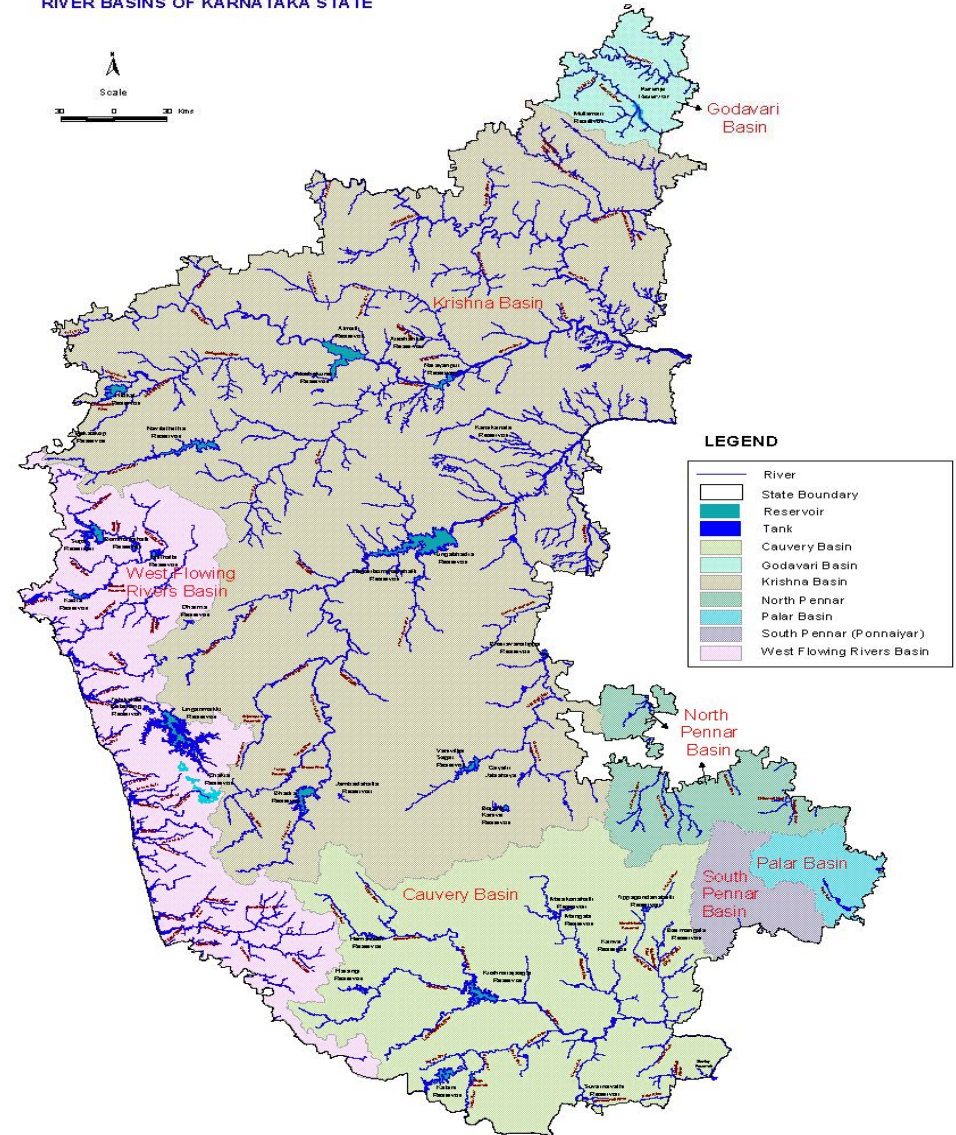
# Focus

- Karnataka Water Sector
- Rationale
- Vision
- IWRM Initiatives
- Program Design
- Outputs
- Expected Benefits

# Karnataka – Leading IWRM



RIVER BASINS OF KARNATAKA STATE



# Rationale

## Projected Sector Water Demands in 2025 (Karnataka)

Sector	Water Demand 2000		Water Demand 2025		Growth Rate per Annum (%)
	Million m <sup>3</sup>	TMC	Million m <sup>3</sup>	TMC	
Agriculture	31,431	1,110	38,397	1,356	0.80
Household	1,647	58	2,594	92	1.84
Industrial	1,347	47	3,542	125	3.94
Power	1,497	53	1,846	65	0.84
Others	1,497	53	5,987	211	5.70
Total	37,419	1,321	52,366	1,849	1.36



# SWOT for Karnataka Water Sector

## Strengths

- \* Progressive & comprehensive policy statements
- \* Accepts need for change
- \* Skilled technical workforce
- \* Actions to establish AC-IWRM
- \* Commitment of funds and donor support
- \* Leadership and support

## Weaknesses

- \* Inadequate focus on resources mgmt
- \* Limited coordination across agencies
- \* Inadequate operational level linkages
- \* Rigid service systems
- \* Less priority to better governance

## Opportunities

- \* Central government support for key actions
- \* Alignment of agri & irrigation plans & actions
- \* Adoption of new technology & systems
- \* Use of local IT to develop water control, GIS systems

## Threats

- \* Political instabilities
- \* Change of key leaders & key drivers for change
- \* Resistance to change by lobby groups
- \* Water crisis causing poor decisions

# State Vision for IWRM

- Water resources management
  - IWRM
  - Climate variability
- Water services delivery
  - Irrigation services
  - Domestic water supply and sanitation
  - Industrial water services
  - Waste water management
  - Other uses, fisheries, navigation, tourism and multi-use systems



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- River and ecosystem health

- Water quantity & quality
- Watershed mgmt & sediment management
- In-stream water quality & management objectives



- On-going initiatives

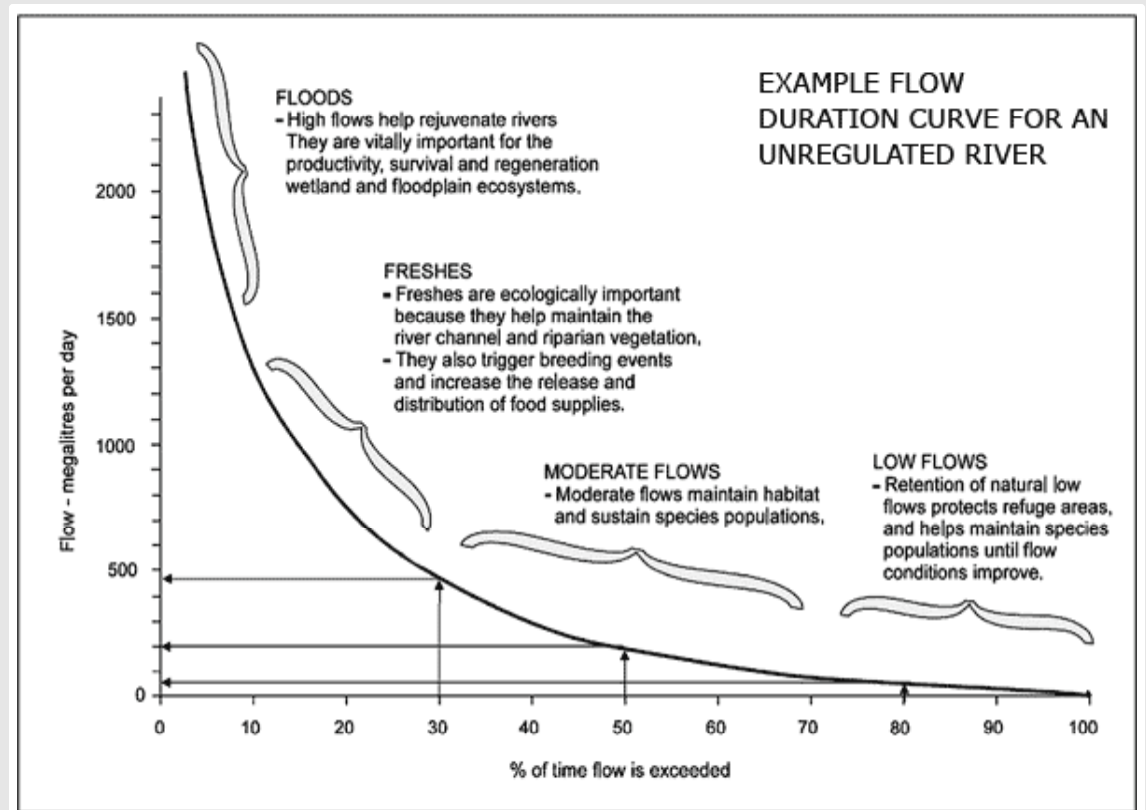
- FAO support: capacity building + MASSCOTE
- WB support for hydrology project, watershed + rejuvenation of tank irrigation systems
- ICRISAT support to Bhoochethana in 5 m ha.
- WEF-WRG support to identify and analyse options
- Strategic mgmt & coordination



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# Sustainable Environmental Flow

- Meet requirements in low & high flows periods
- Cauvery tribunal awarded 10% of flow for environment



# IWRM Initiatives

- **Advance Centre for IWRM**

- **Budget speech 2011–12**

- Advanced Centre for IWRM with financial assistance from the ADB.
    - Merging WALMI, Dharwad+ KERC, Mysore+ CMO, Bangalore.
    - 10 m \$ to develop a model institute.

- **Budget speech 2012–13**

- “ *A centre of excellence for IWRM will be established with an objective to co-ordinate efforts for effective irrigation maintenance and to improve the services provided to the farmers emphasising on efficient water management from storage to maintenance*”.



# Budget Speech 2013-2014

- **Budget allocation for irrigation of \$2.0 billion**
- **Priority for IWRM:** first time in India
- **Policies & procedures :** formulation in progress and required MOUs with national/international agencies
- **ADB financed IWRM program:** firm loan for 2013 covering K-8 sub-basin of Krishna basin
  - Strengthening basin and sub basin institutions – specifically AC-IWRM through partnerships including UNESCO-IHE, FAO, eWater
  - Irrigation service delivery improvement (selected medium and major irrigation projects)
  - \$75.0 million SGOK, \$150.0 million ADB
  - Implementation 2013-2022



# IWRM Initiatives

- **Policy & legal Framework**
  - Strengthening institutional arrangements
  - Economic instruments and water user fee
  - PPP
  - Climate Change
  - Green growth initiatives
- **Basin Planning**
  - River Basin issues and concerns
  - Basin selection
  - RBO
  - Basin planning process & execution



# IWRM Initiatives

- **Irrigation Service Delivery Improvement**
  - Increased irrigation efficiencies & crop productivity
  - Conjunctive management
  - Main system water allocations & irrigation service fees
  - Irrigation area sustainability
  - Irrigation modernization process
- **Water Supply & Sanitation**
  - Improved water quality, qty & sanitation in at least 3 towns
- **Capacity Building in IWRM**
  - WRD, allied departments, SPVs/Nigams
- **Stakeholder participation**
  - Various stakeholders & specific roles identified
  - Rigorous and continued public awareness & consultations



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# IWRM Roadmap

**Integrated & Sustainable  
Water Resources Management**  
(enhanced access and security of  
water resources in rivers in  
Karnataka)

## KEY THEMES

**Institutions  
and Policies  
for IWRM**

**Integrated  
River Basin  
Management**

**Inter-sector  
integration**

**IWRM Based  
Irrigation  
Management**

**IWRM and Learning Processes**

## Foundation Actions

**Data, Information, and  
Knowledge Management**

**Stakeholder Involvement**

# IWRM Program

- **Piloting in K-8 sub-basin of Krishna basin** –leading to state wide
- **Urban WSS under separate ADB financed program** – coordination through IWRM steering committee and planning approach
- **Strengthening state & basin level institutions** - policy framework, knowledge and information systems, science-based planning, basin organizations, partnerships for institutional capacity building
- **Modernization of irrigation infrastructure & management systems** – diagnostic approach not construction driven, system operation using telemetry, innovations:
  - improve water balance with new technologies & institutional modalities
  - Includes – buried pipe networks, micro irrigation, water saving crops, GW use
  - Rigorous WUCS strengthening
- **Stakeholder participation** - including gender action plan for women's more focused participation, identification and communication strategy



# Expected Impact

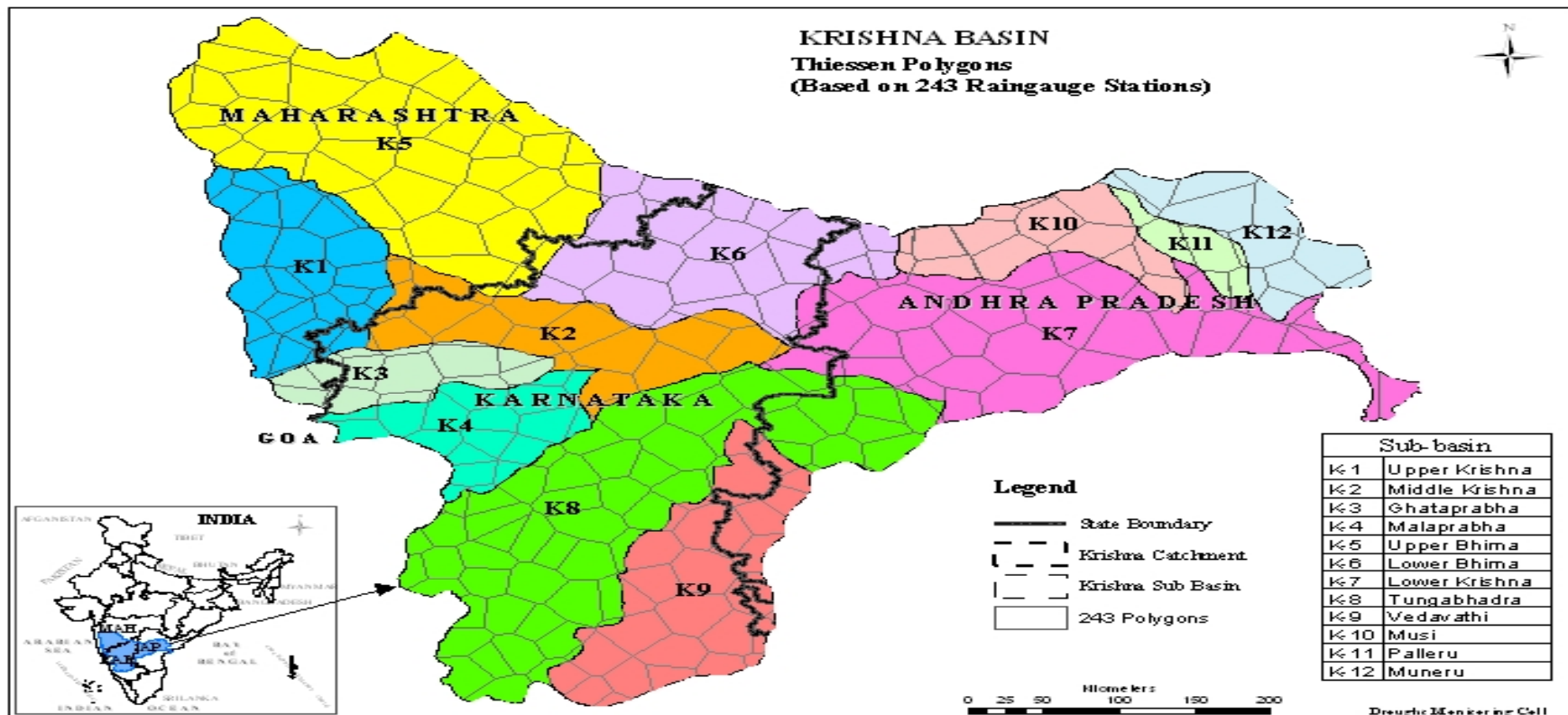
- ❖ By 2028, in selected sub-basins:
- ❖ River basin management arrangements established in at least 3 sub-basins
- ❖ Water quality in 90 % of river reaches in selected sub-basins maintained above class for intended use
- ❖ Gross value (2012 INR) of annual irrigated production increases

## Expected Outcomes

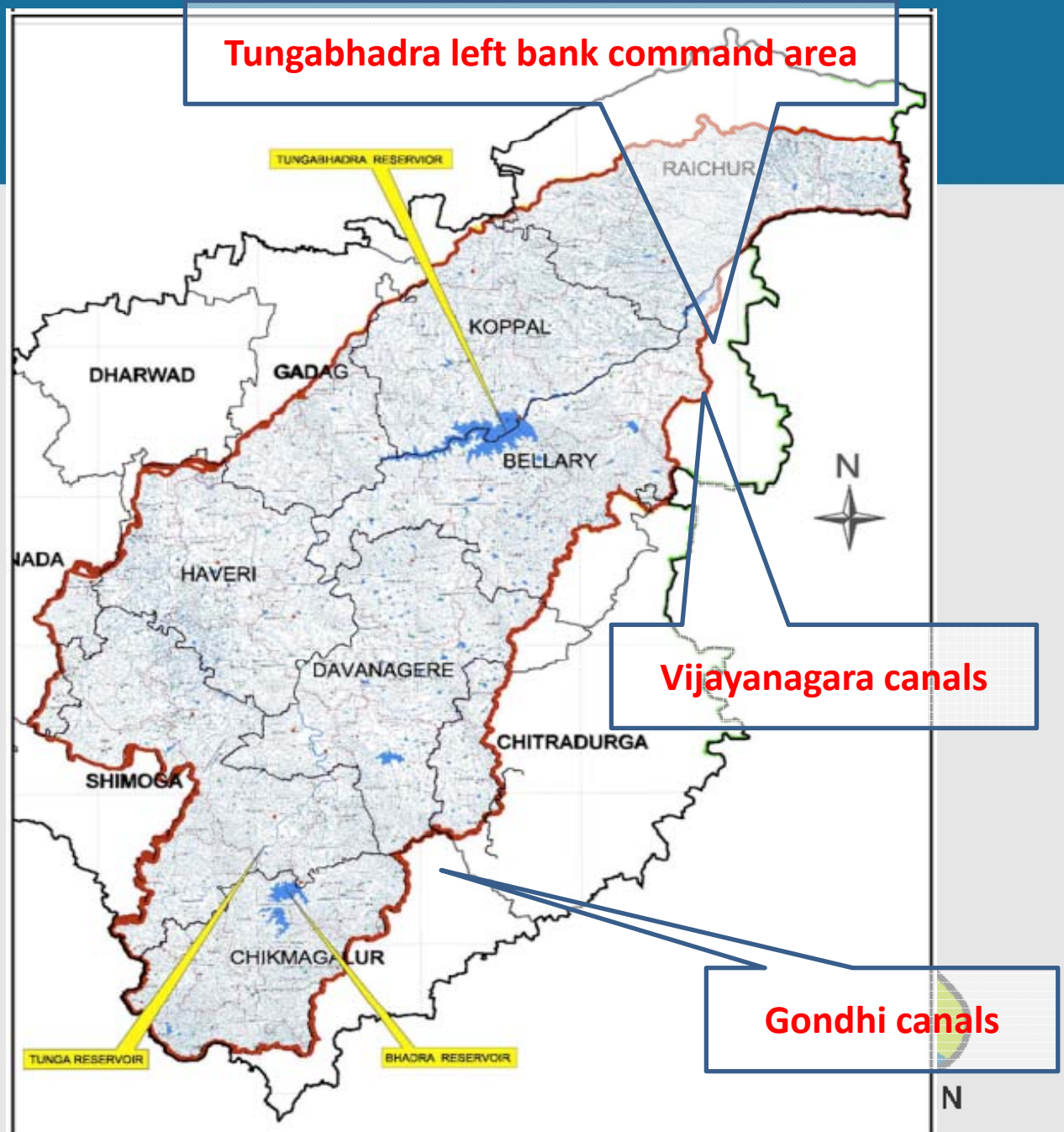
- ❖ By 2020  
State IWRM strategy implemented
- ❖ By 2023  
Annual water resources monitoring and assessments in program sub-basins and corresponding water allocations to users implemented
- ❖ By 2023  
Increase in land irrigated in 2023 as a result of the program



# Krishna Basin- K8 -Tungabhadra sub basin



# Subproject Locations



# Organizations Involved

## Water Use Departments

- Rural
- Urban
- Agriculture + Horticulture
- Livestock & Fisheries
- Energy - Hydro + Thermal
- Industries
- Industries Development Corporation

## Water Resources Development

- MOWR
- CWC
- Water Resources Development Organization
  - Major, Medium, Minor
  - Command Area Devlpt
  - KNNL
  - CNNL
  - KBJNL
  - GW
- Panchayat Raj & Rural Development

IWRM in Karnataka

## Water Monitoring Departments

- WRDO (Surface water)
- Groundwater Dept.
- Environment, Forests, Science & Technology Dept.
  - Pollution Control Board
- Meteorology

## Capacity Building Organizations

- KERI
- ESC
- WALMI
- CMO
- UNESCO-IHE, FAO, eWater, CGIAR

# Expected Benefits

- Systematic, science based planning of water resources with functional basin institutions for planning and allocation
- AC-IWRM regionally recognized centre of excellence for IWRM
- State policy for IWRM implemented
- Improved livelihoods of 1.5 million people by modernize 345,000 ha of irrigated area
- Meeting future target allocations for water uses
- Improved water productivity for irrigation – increased yields less water



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The People of  
Karnataka

Thank you