EXPERIENCES IN
IRRIGATION REFORMS IN MAHARASHTRA

Dr. Suresh A. Kulkarni
Secretary
Maharashtra Water Resources Regulatory Authority, Mumbai

4th India Water Week & 1st Indian Irrigation Forum
7 April 2016, New Delhi

By 2050, global water withdrawals are projected to increase by 55% due to growing demands from manufacturing (400%), thermal electricity generation (140%) and domestic use (130%).
"If some Asian countries face a water crisis in the future, it will not be because of physical scarcity of water, but because of inadequate or inappropriate water governance, including management practices, institutional arrangements, and socio-political conditions, which leave much to be desired."

Prof. Asit Biswas (ADB, 2007)

"India’s water problems are not those of scarcity, but rather of inefficient use and bureaucratic policies."

Prof. Gleick P.H., Pacific Institute, Circle of Blue.org (2014)
Drivers for rising demand

- Growing population
- Rapid urbanization
- Growing industrialization
- Increasing no. of thermal power plants
- Large no of sugar factories
- Rising living standards
- Decreasing water quality

Thirsty Maharashtra

- Unprecedented drought in 25,000 villages
- Less than 30% of cultivable land has access to irrigation,
- Regional backlog in irrigation,
- Completed state sector projects: 3141
- Non-functional GLIS,
- Groundwater levels are rapidly declining,
- Conflicts between u/s and d/s, large dam vs small schemes; rural and urban areas; sugarcane vs. food crops

Present Water Use and Future Demand in Maharashtra

Source: 2015, WRD, GOM
2030 – MW & I, 1999
Irrigation in Maharashtra

Total cultivable area = 22.5 million ha

- Groundwater (micro/sprinkler irrigation), 1.5mha, (22%)
- Groundwater (surface methods), 1.5mha, (22%)
- Minir irrigation (local sector), 0.5mha, (8%)
- Canal irrigation (state sector), 1.78 mha, (26%)
- Irrigation from rivers & nalas, 0.35mha, (5%)
- Well irrigation in command, 1.11mha, (17%)

Total gross irrigated area: 6.7 million ha (30%)

Total cultivable area = 22.5 million ha

Issues in Irrigation Water Management

- Low performance of public irrigation schemes,
- Dilapidated infrastructure, lack of modernization of irrigation schemes,
- Low water use efficiency and crop productivity,
- Domination of water guzzling crops (sugarcane) in command areas
- Slow pace of formation/functioning of WUAS,
- Volumetric water supply and charging on very small area,
- Low recovery of irrigation charges,
- Equitable distribution of water resources among u/s and d/s stakeholders

(WRD, 2015)
Wastewater Generation and Treatment in Maharashtra

- Population: 115 million (2011)
- Urban Population: 42%
- No. of Municipal Corporations: 26
  - With treatment facility = 17
  - W/O treatment facility = 9
- No. of Municipal Councils: 212
- Wastewater Generated: 6,383 MLD (Municipal corporations)
- Wastewater treatment capacity: 58%
- Inadequate sewerage system to collect sewage generated
- Inadequate sewage treatment capacity
- STPs not operating at their full capacity
- Rivers, water bodies, and groundwater is being polluted due to disposal of untreated sewage
- Low water pricing leading to inadequate recovery of cost of STPs
- A few MCs are charging for wastewater treatment and disposal, but not treating adequately

Key Water Sector / Irrigation Reform Initiatives

- Participatory Irrigation Management (1990)
- State Water Policy (2003, amended in 2011)
- Maharashtra Water Resources Regulatory Authority Act (2005)
- Entitlement Programme (2006)
- Bulk Water Pricing (2010)
- Maharashtra Management of Irrigation Systems by Farmers Act (2005)
- Maharashtra Groundwater (Development & Management) Act, 2009
- Integrated State Water Plan (2016?)
Irrigation Reform Initiatives in Maharashtra

- Benchmarking Report
- Irrigation Status Report
- Irrigation Audit Report
- E-Jalseva

Sectoral Water use and Water Charges Allocation

- **Water use**
  - Domestic: 79%
  - Industry: 17%
  - Irrigation: 4%

- **Cost allocation**
  - Domestic: 22%
  - Industry: 19%
  - Irrigation: 59%

Parameters influencing cost allocation:

- Affordability (60%)
- Timeliness (10%)
- Quantity & Accessibility (10%)
- Impact on water Quality (20%)
- Irrigation water rates
## O & M Cost, Establishment cost, Assessment and Recovery Of water Charges in Maharashtra

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Year</th>
<th>Expenditure on O &amp; M cost (Including establishment charges)</th>
<th>Assessment of irrigation and non-irrigation water charges</th>
<th>Recovery of water charges</th>
<th>Percentage of recovery to the assessment (6/4)</th>
<th>Percentage of recovery to O &amp; M cost (7/3)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Expenditure (Rs. Crore)</td>
<td>From arrears</td>
<td>From assessment</td>
<td>Total</td>
<td>From arrears</td>
</tr>
<tr>
<td>1</td>
<td>2004-2005</td>
<td>376</td>
<td>497</td>
<td>98</td>
<td>350</td>
<td>448</td>
</tr>
<tr>
<td>2</td>
<td>2005-2006</td>
<td>453</td>
<td>418</td>
<td>84</td>
<td>329</td>
<td>413</td>
</tr>
<tr>
<td>3</td>
<td>2006-2007</td>
<td>416</td>
<td>499</td>
<td>91</td>
<td>403</td>
<td>494</td>
</tr>
<tr>
<td>4</td>
<td>2007-2008</td>
<td>466</td>
<td>674</td>
<td>99</td>
<td>548</td>
<td>647</td>
</tr>
<tr>
<td>5</td>
<td>2008-2009</td>
<td>555</td>
<td>808</td>
<td>70</td>
<td>603</td>
<td>673</td>
</tr>
<tr>
<td>6</td>
<td>2009-2010</td>
<td>709</td>
<td>811</td>
<td>165</td>
<td>638</td>
<td>803</td>
</tr>
<tr>
<td>7</td>
<td>2010-2011</td>
<td>745</td>
<td>767</td>
<td>174</td>
<td>572</td>
<td>746</td>
</tr>
<tr>
<td>8</td>
<td>2011-2012</td>
<td>765</td>
<td>651</td>
<td>128</td>
<td>492</td>
<td>620</td>
</tr>
<tr>
<td>9</td>
<td>2012-2013</td>
<td>762</td>
<td>753</td>
<td>66</td>
<td>440</td>
<td>506</td>
</tr>
<tr>
<td>10</td>
<td>2013-2014</td>
<td>843</td>
<td>607</td>
<td>58</td>
<td>457</td>
<td>515</td>
</tr>
</tbody>
</table>
MAHARASHTRA WATER RESOURCES REGULATORY AUTHORITY

- Established by statute in June 2005.
- Became operational in August 2006.
- One of the components under 'Institutional Restructuring and Capacity Building' of the MWSIP.
- First regulatory body functional in water sector in India.

MAIN OBJECTIVES OF THE MWRRA

• To facilitate and ensure judicious, equitable distribution, and sustainable management, allocation and utilization of water resources,
• To fix the rates for use of water for agriculture, industrial, drinking and Other purposes,
• To act as the state Ground Water Authority, and
• To support the enhancement and preservation of water quality
Wide Public Consultations is an Integral Part of the Decision Making Process in MWRRA

Conflicts over Equitable Distribution of Water in a Sub-basin are Rising
Maharashtra Groundwater (Development & Management) Act, 2009 enacted for sustainable and equitable groundwater supply and regulation with community participation, became effective from 1 June 2014.

Mandatory Adoption of Water Saving Irrigation for Perennial Crops

- Micro Irrigation 1.4mha, (74%)
- Sprinkler irrigation 0.5 mha, (26%)
- Drip irrigation to sugarcane
- Drip irrigation to banana
- Drip irrigation with mulch to cabbage
Way Forward

- Importance of reforms & regulation in water sector is generally appreciated in India.
- Reforms are not always accepted by all stakeholders and line departments.
- Water sector is dominated by the government and socio-political system dominates the decision.
- MWRRA has done some pioneering work in the bulk water tariff, equitable distribution of water in a sub-basin and dispute resolution.
- Merely introducing programmes and preparing various reports is not enough, their analyses and evaluation should lead to improvement in system performance.
- Water problems are site specific and so also their solutions.
- Restructuring of water resources/irrigation departments, preparing bureaucrats, Engineers, managers, professionals for the complex challenge of water sector.
- Regulatory Authorities need to be established at the earliest in other states.
- Water reforms take place at slow pace – decades even in the advanced countries.

Thank you

www.mwrra.org