Conditions for Area-based Water Security in India: Time to Act?

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I. What is the Problem?

II. Big Four Barriers

III. Roadmap for Area-based Water Security
Dietary water requirements are set to grow exponentially...

India per capita water requirement currently among lowest globally
Per capita agri-water use near highest of the world...
...yet dietary water use remains one of lowest
Groundwater crisis is uncontrolled...
Rapidly expanding rapidly across Northern, Central and Southern India

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<tbody>
<tr>
<td>Over Exploited (&gt;100%)</td>
<td>12</td>
<td>41</td>
<td>86</td>
<td>168</td>
</tr>
<tr>
<td>Critical (90% to 100%)</td>
<td>11</td>
<td>26</td>
<td>80</td>
<td>28</td>
</tr>
<tr>
<td>Semi Critical (70% to 90%)</td>
<td>10</td>
<td>34</td>
<td>21</td>
<td>20</td>
</tr>
<tr>
<td>Safe (&lt;70%)</td>
<td>203</td>
<td>135</td>
<td>49</td>
<td>32</td>
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Source: Ground Water Status of Blocks, PHED, GoR (2008 data excludes Taranagar)
Rural poverty alleviation is the political priority...
India has 30% of the world’s poor, predominantly smallholder farmers

120 million Farmers

More than 50% of electoral votes

Average land holdings (2 acres)
The “Multi Water Nexus” plays out in full in India…
Food-water-energy-land nexus ties together through linkage with climate change

Component Linkages

Water Security
Every calorie of food requires 1 litre of water

Energy Security
Impact of biofuel production on land & natural resources

Food Security
Every calorie of food requires 5 calories of energy

Land Security
Competition for land = less arable land for food production

Climate Change
Increasing demand for water for electricity production (e.g., hydro, cooling)
Water security challenges will escalate in coming years...

India is projected to have a 50% demand-supply deficit by 2030

Current
- Population: 17% of world
- Water Resources: Only 4% of world’s renewable water resources
- Agriculture Share: 80-85%
- Industry Share: 8%

2030 projections
- Demand forecast: 1.5 trillion m³
- Supply forecast: 744 billion m³
- Agriculture Share: 80%
- Industry Share: 13% share

Source: 2030 WRG
I. What is the problem
II. Big Four Barriers
III. Roadmap for Area-based Water Security
Four key barriers restrict participatory WR management
Among India’s many challenges, these need to be overcome to create favorable conditions for participatory area-based water security

Barriers to Collective Action Plans

- Water is government by many different government departments at both central and state level
- Slow process to (a) develop policy consensus at center, and (b) trickle down to state- and lower government levels
  - Regulatory enforcement is weak
- Business case focused on short-term financial returns, while risk management is lacking
- Weak transformation from (engineering) Irrigation Department to (integrated) Water Resource Department
- Strong mistrust among private sector, civil society, government, MNCs, private-to-private (local)
- Lack of credible honest brokers/ convening partners
- Awareness is high, but problem -ownership is weak across private sector
I. What is the problem?

II. Big Four Barriers

III. Roadmap for Area-based Water Security
Private Sector has to assume leadership...
Emerging water challenges require scalable solutions with multi-stakeholder involvement

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<th>Leadership from Private Sector</th>
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<td><strong>Demand Management</strong></td>
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<td>• India is running out of water supply solutions</td>
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<td>• Strong need for demand-side management, especially in the agri-sector using ~85% of country’s water resources</td>
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<td>• Interventions need to have meaningful hydrological impact</td>
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<td>• Water solutions need to be equitable and inclusive</td>
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<td><strong>Private Sector Role</strong></td>
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<tr>
<td>• Inadequate government response to country’s water challenges inadequate</td>
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<td>• Current private sector responses are segregated, dispersed and not impact full</td>
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<tr>
<td>• Need for development of replicable and scalable models for private sector participation</td>
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<td><strong>Multi-Stakeholder Engagement</strong></td>
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<td>• Tangible and measurable impact at the watershed level requires multi-stakeholder initiatives in geographically concentrated areas</td>
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Central to the solution is farmers’ participation...

10-year vision for sector aims at facilitating watershed-level action in partnership with other stakeholders

**Long-Term Horizon**

- **National/State Policy Dialogue**
  - Alignment with India WRG on participatory approaches and integrated water resources management
- **Watershed**
  - Watershed-level action plan including farmers, communities, industry, government
  - Engagement with industry association (e.g. rice miller association) on sustainable supply chains
  - Participation at local district/municipal level in order to disseminate good practices among a larger farmer base
- **Industry Associations**
- **Local Municipal/District Bodies**
- **Farming Community**
- **Lead Farmer**
  - Demonstration of good water/agri practices at lead farms
  - Acceleration of technology uptake through effective models
  - Support to farming community organization (WUAs/Producer Cooperatives) for participative action
Single information- and decision support system is key...
Consistent hydrological and stakeholder data need to span four levels covering farmer to watershed

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<tr>
<th>Spatial Coverage</th>
<th>Macro</th>
<th>Meso</th>
<th>Micro</th>
<th>Nano</th>
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<td>Watershed/Sub-River Basin</td>
<td>Hydrological mapping and establishment of safe groundwater abstraction levels</td>
<td>District/ Block</td>
<td>Mapping of multiple competing water users the district</td>
<td>Community/ Village</td>
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Implementation model is straightforward yet untested in India...

‘ACT’ model developed by WEF/WRG is used at Meso/District/Watershed Level

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<th>Stage</th>
<th>Details</th>
<th>Tools</th>
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| Analyze (6-9 months) | • Setting goals and geographical/hydrological boundaries  
                      • Mobilizing sponsoring partners and resources  
                      • Applying analytical tools for program area  
                      • Identifying range of solutions and options  
                      • Piloting | • Water Availability Cost Curve (WRG)  
                      • Water Footprint Assessment of key water users/stakeholders (WFN)  
                      • Integrated baselining, monitoring & field advisory (eg. eLEAF) |
| Convene (3-6 months) | • Consulting stakeholders on range of options  
                      • Developing collective action plan  
                      • Mobilizing implementation partners and resources | • PPD – Public Private Dialogue (IFC IC)  
                      • Action Hub (CEO Water Mandate) |
| Transform (24-36 months) | • Governance (steering committee, roles & responsibilities)  
                      • Monitoring & Evaluation | • Farmer Production Training (IFC)  
                      • Agri Tech Service Providers (IFC)  
                      • Rural service hub (eg Tata Kisan Sansar) |
Using fact-based analytics – eg Water Cost Curve, WFAs...

Agri-Water levers represent majority of demand-side solutions to close supply-demand deficit

Agri-Water Solutions in Cost Curve

Source: 2030 Water Resources Group
National platform is needed for sharing knowledge and experiences regarding area-based water security...

Overarching goal centers on bringing sustainable farming to a critical mass of farmers in a geographically concentrated area

- National platform sponsored by the IFC and partners to develop and catalyze application of methodologies and tools for building long-term water security
- Specific geographical areas at a scale that has a meaningful impact to address India’s growing water resources challenges

- Knowledge/convening partners:
  eg. IFC, CEEW, GIZ, WWF, Solidaridad, WRG, CEO WM, CII, FICCI, WBCSD, HUF, SRTT

- Core Team

- Approach

- Partners

- Objective

- Alignment of unique group of institutions across India to share lessons of experience and promote best practices regarding large-scale, participatory water resources planning and management

- Private sector partners: eg. Tata, Mahindra, Jain Irrigation, Netafim, SABMiller, Nestle, Coke, Pepsico, Unilever, etc

- Other associate partners: CYMMIT/CGIAR, FAO, World Bank, ADB, CWC, CGWB, etc
THANK YOU