Investing in Irrigation Systems in India
How are we doing?

Despite increasing expenditures for major & medium irrigation

- Increasing dependence on alternate sources
- Increasing gap between irrigation potential created and utilized (IPC – IPU)
How are O&M costs assessed?
Budgetary provisions for O&M costs

Nearly 4 decades of norms

<table>
<thead>
<tr>
<th>Year</th>
<th>Commission</th>
<th>Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1983</td>
<td>8th Finance Commission</td>
<td>INR 100/ha</td>
</tr>
<tr>
<td>1987</td>
<td>9th Finance Commission</td>
<td>Differentiated charges: (1) utilised (INR 180/ha ), (2) unutilised (INR 60/ha)</td>
</tr>
<tr>
<td>1991</td>
<td>Vaidyanathan Committee</td>
<td>Highlighted norms for assessing O&amp;M cost, advised states to self-assess</td>
</tr>
<tr>
<td>1992/98</td>
<td>10th, 11th Finance Commission</td>
<td>O&amp;M cost at constant inflation rate - ratio 3:1 for utilised: unutilised</td>
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<tr>
<td>2002</td>
<td>12th Finance Commission</td>
<td>(1) INR 600/ha, (2) INR 300/ha, Ratio changes to 2:1</td>
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<tr>
<td>2007</td>
<td>13th Finance Commission</td>
<td>(1) INR 1175/ha, (2) INR 588/ha, To be inflated per year @ 5%</td>
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<tr>
<td>2013</td>
<td>14th Finance Commission</td>
<td>No comment on O&amp;M costs</td>
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</tbody>
</table>

Budget projections for all states continue to be based on FC recommendations

Budgetary provisions for O&M costs
Support vs. requirements

Actual O&M costs depend on several factors

- Size, design, location
- Use pattern (multiple vs single purpose)
- Age, physical condition of the system
- Quality of construction etc.

But norms remain the same for all the systems

Irrespective of:
- Revenue collected as user fee
- Nature of the institution operating and maintaining
- O&M requirements of the system

Budgetary support provided for O&M may differ significantly from requirements

SOURCE: Vaidyanathan Committee, 1991; Malik et. al., 2014, Various FC reports
Growth in O&M expenditures & gross receipts have not kept pace with capex investments

SOURCE: Malik et. al, 2014; CWC 2017
How is the allocated budget for O&M being spent?
Closer look at O&M expenditures

Actual expenditure per hectare is higher than FC recommendations

SOURCE: Malik et. al, 2014; CWC 2017
What constitutes O&M costs?

O&M includes the following

- Direction & Administration
- Machinery & Equipment
- Maintenance & Repair
- Miscellaneous
  - Training
  - Research
  - Survey & Investigation
  - Suspense
- Other expenses

SOURCE: Vaidyanathan Committee, 1991; Malik et. al., 2014; Five-year plans
Maintenance & repair expenditure

Significant decline

SOURCE: Malik et al, 2014, Five year plans

Extension & improvement of completed projects & expenditure on unapproved projects
Gross receipts and irrigation water tariffs
Some states/UTs charge nothing
Recommendations over the years

Determining irrigation water tariffs

Method of classification of rates
Overview of states

<table>
<thead>
<tr>
<th>Type of source (Major, Medium, Minor or canal commands)</th>
<th>Irrigation type (flow or lift)</th>
<th>Crop type</th>
<th>Crop season</th>
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<tbody>
<tr>
<td>Andhra Pradesh</td>
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<td>Tamil Nadu</td>
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<td>✗</td>
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</table>

SOURCE: CWC 2017
What is the range of tariffs?

Most states/UTs have last revised tariffs before 2005

SOURCE: CWC 2017; Note: Maharashtra rate for crops like sugarcane & banana, which is as high as INR 6297 (for sugarcane), have been excluded in this graph.
Rate of recovery
Increased 10 percentage points in 20 years but it still remains low

Is this rate of recovery enough to finance O&M?

SOURCE: CWC 2017; CEEW 2011
Key questions

How should the cost of O&M be determined?

How should O&M be financed (public vs receipts)?