Sinnar Taluka Overview:
Water resources and cropping patterns

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TD603 field trip
Sinnar Taluka Overview

• Nashik district: large vegetable producing district with big agricultural markets

• Water situation
  – Rainshadow region of the western ghats
  – Largely dry and drought prone with drinking water scarcity
  – Highest groundwater exploited taluka in Nashik district
Sinnar Taluka – Cropping

• Changing trends in cropping pattern
  – Shift towards cash crops including horticulture
    • *per acre more crop/more cash, greater market dependence*
  – Move towards higher water infrastructure for assured access
    • High well density, horizontal bores, farm ponds, increasing distance from water source to farm (multi-stage pumping)
    • drip irrigation, sprinklers
    • *Rising cost of per unit water => more incentive for cash crops*

• What is the impact of this on low-irrigation farmers? Do the overall gains offset the losses in the region?
• Promotion of horticulture: is it sustainable? Can it be done sustainably?
• Allocation of irrigation water: how do we ensure *Per drop more crop* across the region?
Sinnar Taluka - Rainfall

- Taluka average annual rainfall 616 mm
- Steady decline in past 10 years (435mm, 132% received so far in 2016 monsoon)
- High regional differences from west to east
Sinnar taluka – GW development and drinking water scarcity
Sinnar block cropping pattern

- Significant area under foodgrains (45%) and oilseeds (16%)
- Increasing vegetable cultivation (from 13% of cultivable land in 2008-09 to 18% as of 2014)
- Kharif crops: bajra, soyabean, onions, vegetables, maize, peanuts (also tur, cotton sowing)
- Rabi crops: wheat, harbhara, onions, vegetables

<table>
<thead>
<tr>
<th>Crop type</th>
<th>Hectares under cultivation (2014-15)</th>
<th>% of cultivable land</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kharif pulses</td>
<td>1,182</td>
<td>1%</td>
</tr>
<tr>
<td>Kharif cereal</td>
<td>30,617</td>
<td>31%</td>
</tr>
<tr>
<td>Kharif onion</td>
<td>4,558</td>
<td>5%</td>
</tr>
<tr>
<td>Rabi cereal</td>
<td>8,330</td>
<td>8%</td>
</tr>
<tr>
<td>Rabi harbhara</td>
<td>4,650</td>
<td>5%</td>
</tr>
<tr>
<td>Rabi onion</td>
<td>5,607</td>
<td>6%</td>
</tr>
<tr>
<td>Sugarcane</td>
<td>532</td>
<td>1%</td>
</tr>
<tr>
<td>Cotton</td>
<td>1,583</td>
<td>2%</td>
</tr>
<tr>
<td>Oilseeds</td>
<td>15,990</td>
<td>16%</td>
</tr>
<tr>
<td>Other Vegetables</td>
<td>7,084</td>
<td>7%</td>
</tr>
<tr>
<td>Fruits</td>
<td>4,906</td>
<td>5%</td>
</tr>
<tr>
<td>Gross sown area</td>
<td>85,038</td>
<td>87%</td>
</tr>
<tr>
<td>Total Cultivable land</td>
<td>98,226</td>
<td>100%</td>
</tr>
</tbody>
</table>

Source: Sinnar block Agriculture dept
Kharif 2015 dominant crop

Source: Sinnar taluka krishi office
Rabi 2015 dominant crop

Source: Sinnar taluka krishi office
Cropping: Rabi Onions (2015-16)
(% share of net cultivable area under Rabi onions)
Vegetable cropping (Sep 2015)

% share of net cultivable area under vegetables
Fruits (2014-15)

% share of net cultivable area under fruits (grapes, pomegranates)
Total mm crop water requirement based on 2015 cropping
mm water use beyond rain in cultivable area
Villages +ve in water use yet tanker-fed

Jam watershed villages
Villages –ve in water use and GW overexploited

Devnadi watershed villages
Diversion based irrigation on Devnadi – important intervention to counter GW exploitation
Village level studies
Village level studies

• Slides by Gopal
Conclusions and way ahead

• Changing cropping patterns increasingly more water-intensive
  – cash-crops and horticulture accompanied by kharif crop failure and drinking water scarcity
  – Need to understand regional flows of groundwater and surface water

• Inequity in access to water for irrigation
  – Importance of canal/surface water allocation
    • Tail-end effect

• Need to carefully re-examine the emphasis on horticulture and NHM farmponds