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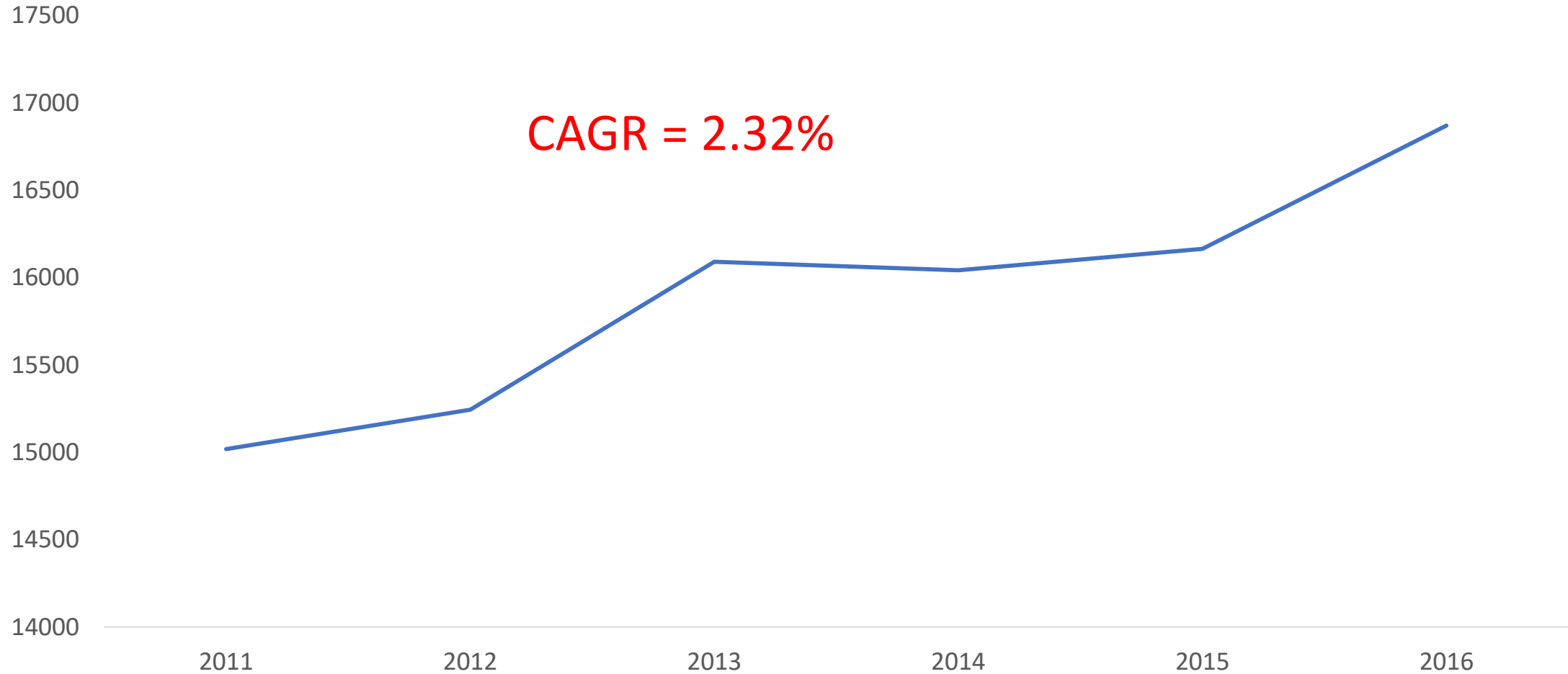
# Agrarian Stagnation in Eastern Gangetic Plains

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# Agriculture is stagnant across India

## AgGDP of India (2011-12 billion rupees)



# More than a century of stagnation

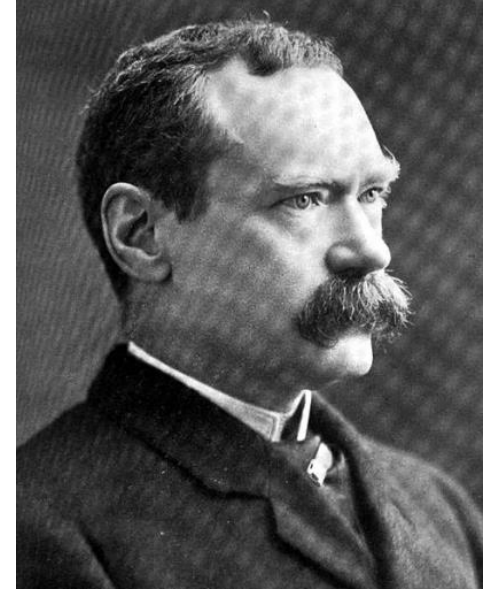
- **1876 (Lord Antony McDonnell)**

- Rice Yield = 500-1700 kg/ha
- Intensity = 1.32

- **2018**

- Rice Yield = ~1500 kg/ha
- Intensity = 1.4

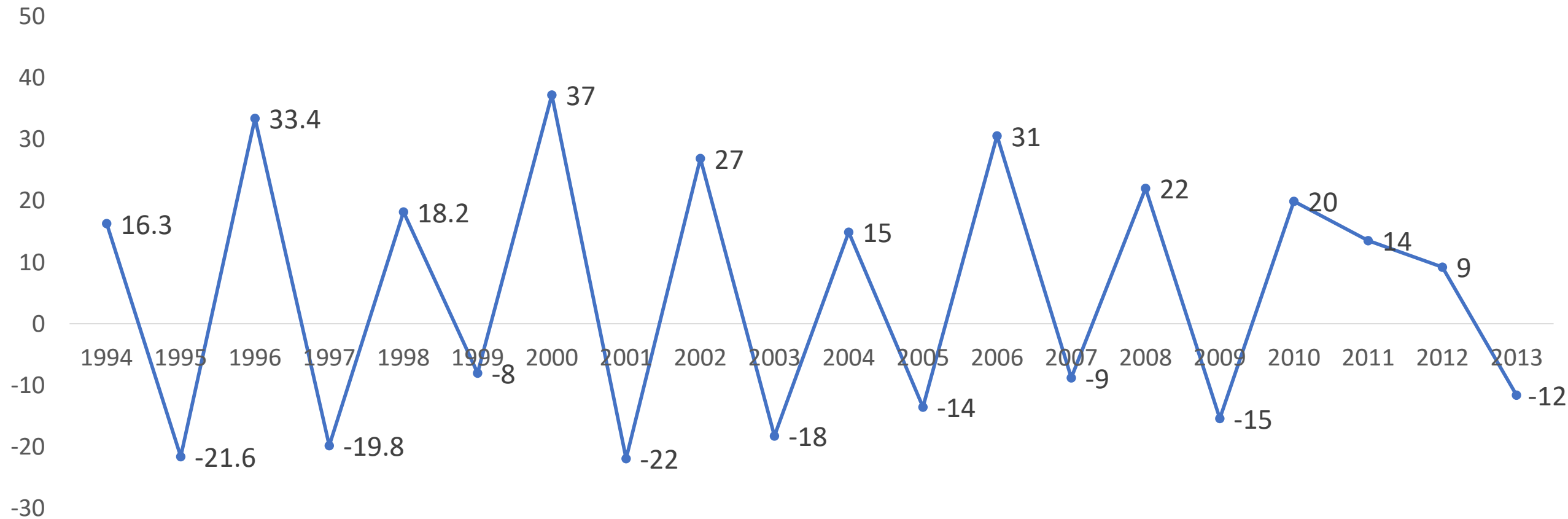
- Population pressure on land increased 5 times
- Major expansion in irrigation, HYV seeds, fertilizers
- **Boserup vs. Malthus**



# Not just stagnant, but also volatile

A high-risk, low  
return business

Growth (%) in GSDPA in Bihar



The literature ascribes the stagnation to:

**“Floods, Feudals and Fabians”**

(Geography, Production Relations, and Public Policy)

# Could floods be a reason?

| Zone | % NCA affected<br>by floods | Rice Yield<br>(kg/ha) | Wheat Yield<br>(kg/ha) |
|------|-----------------------------|-----------------------|------------------------|
|      |                             |                       |                        |
| 1    | 44                          | 1.30                  | 1.81                   |
| 2    | 84                          | 1.14                  | 1.58                   |
| 3    | 6                           | 1.88                  | 2.20                   |

\* Yields are for triennium 2001-04.  
Zone 1 = NW Bihar; Zone 2: NE Bihar; Zone 3: South Bihar

Similar long-term trends in flood free south and flood prone north Bihar

# Semi-feudalism: I have 4 Problems with this Argument

- **1<sup>st</sup>: I am a Bhumihar from Bihar**
- 2<sup>nd</sup>: The argument that land reforms are pre-requisite to agrarian development lets the government and the bureaucracy off the hook
  - Shifts the focus from need for better infrastructure, credit and price support—things that governments can do something about to the so-called semi-feudal society and culture—something most people agree (even if wrongly) is very difficult for governments to change
- 3<sup>rd</sup> : Half-hearted implementation of land reforms may even hurt sharecroppers and reduce productivity
- 4<sup>th</sup> : Lack of individual initiative among landowners in Bihar—the keystone of this argument for stagnation—does not hold anymore

# The Changed Context

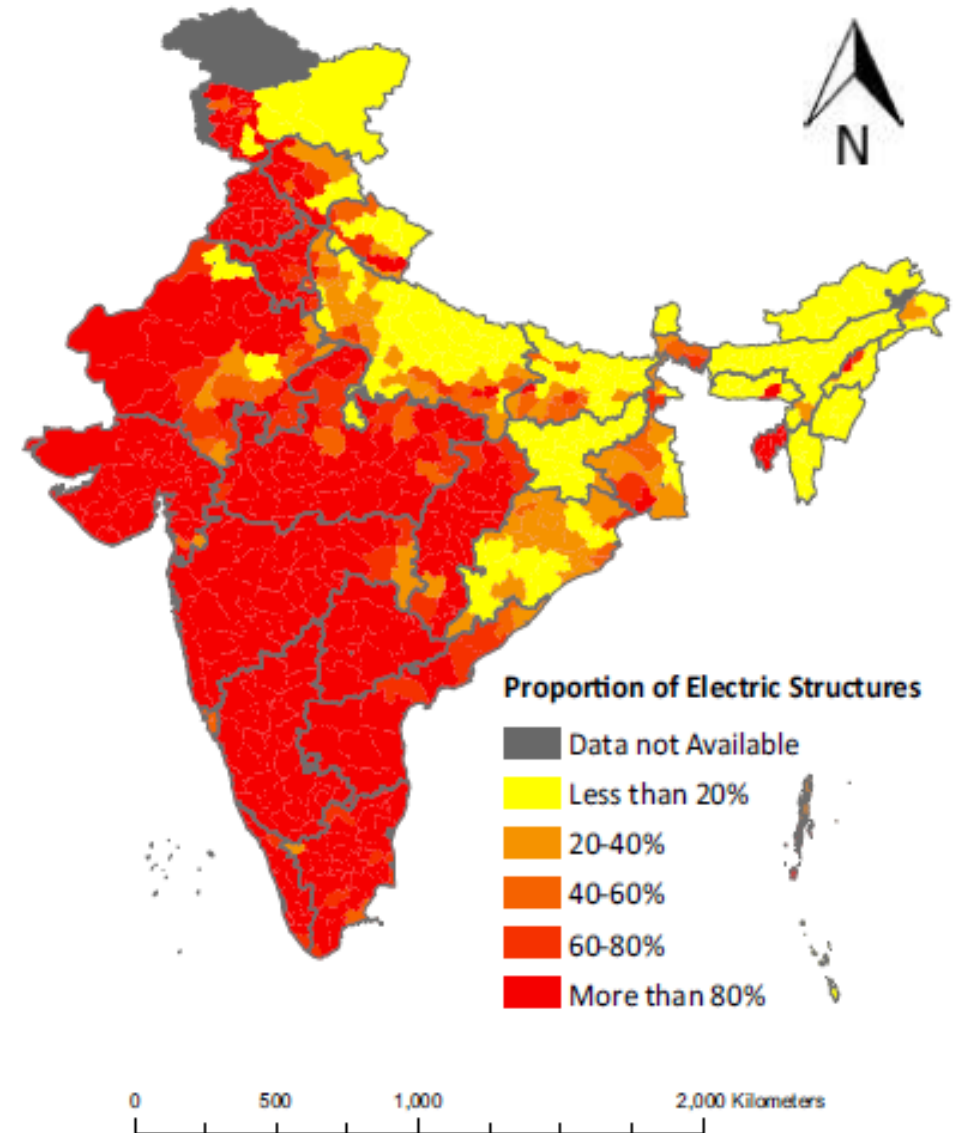
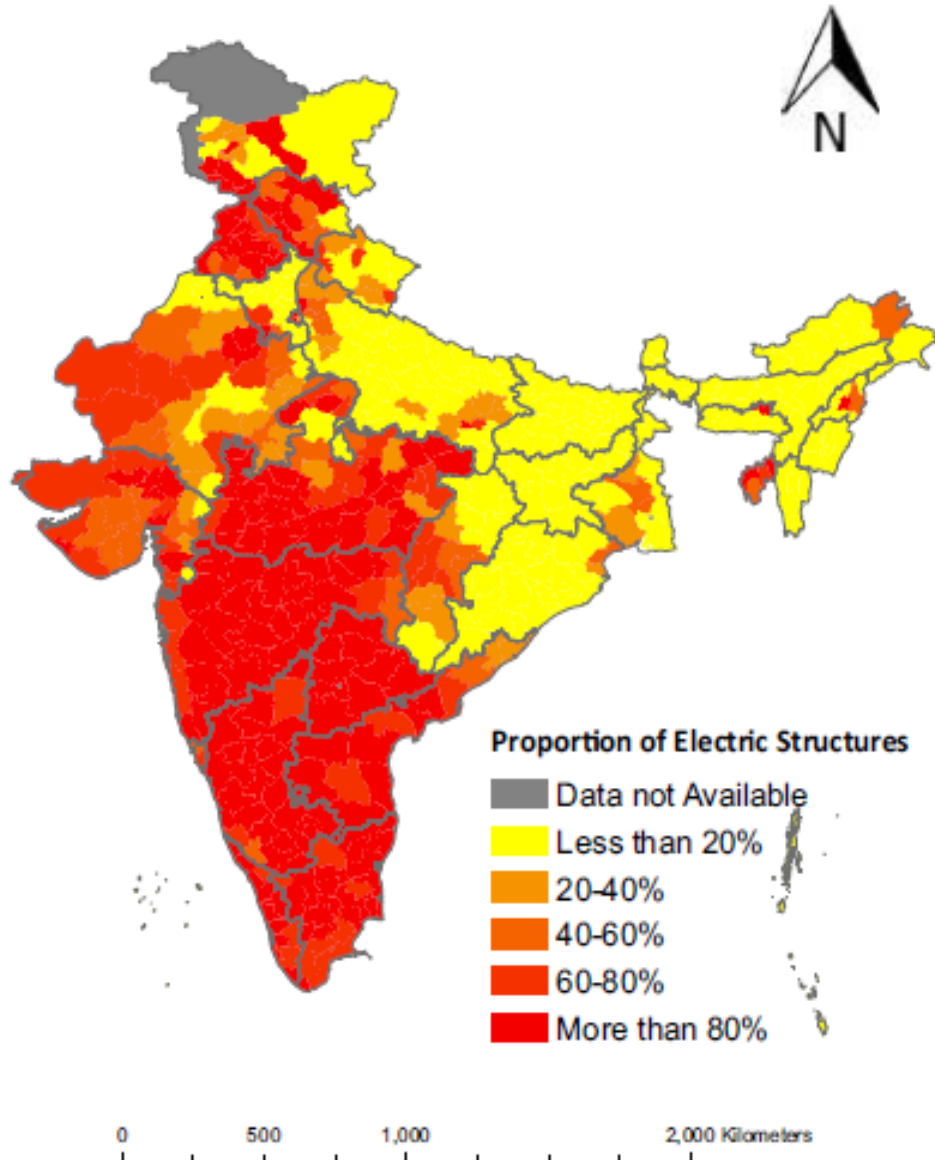
- In 1970s: low productivity due to low use of inputs
- **Research Question**
  - Why are farmers in eastern India slow to adopt yield enhancing inputs and practices?
- New data show that farmers in the region have caught up with the rest of India in input use intensity and capital investments
- **Now the more pertinent questions are:**
  - Why do these technologies and inputs have low returns in the region?
  - If returns are so low, why do farmers continue to invest in them?



# Land

- Smallholders are more productive
  - But how small?
    - [average parcel size = 0.14 ha in Bihar; 0.21 ha in WB; 0.22 ha in Assam; 0.24 ha in Chhattisgarh & Jharkhand and 0.33 ha in Odisha
  - Is there a floor below which you fall into the abyss of subsistence farming?
    - The counter example of Vietnam\*
- What is the impact of fragmentation of marginal and sub-marginal holdings into numerous plots and parcels?
  - Management, oversight, investments, use of machines, etc.
- The extent of tenancy and are tenant holdings less productive than the self-cultivated ones?

# Water and Energy

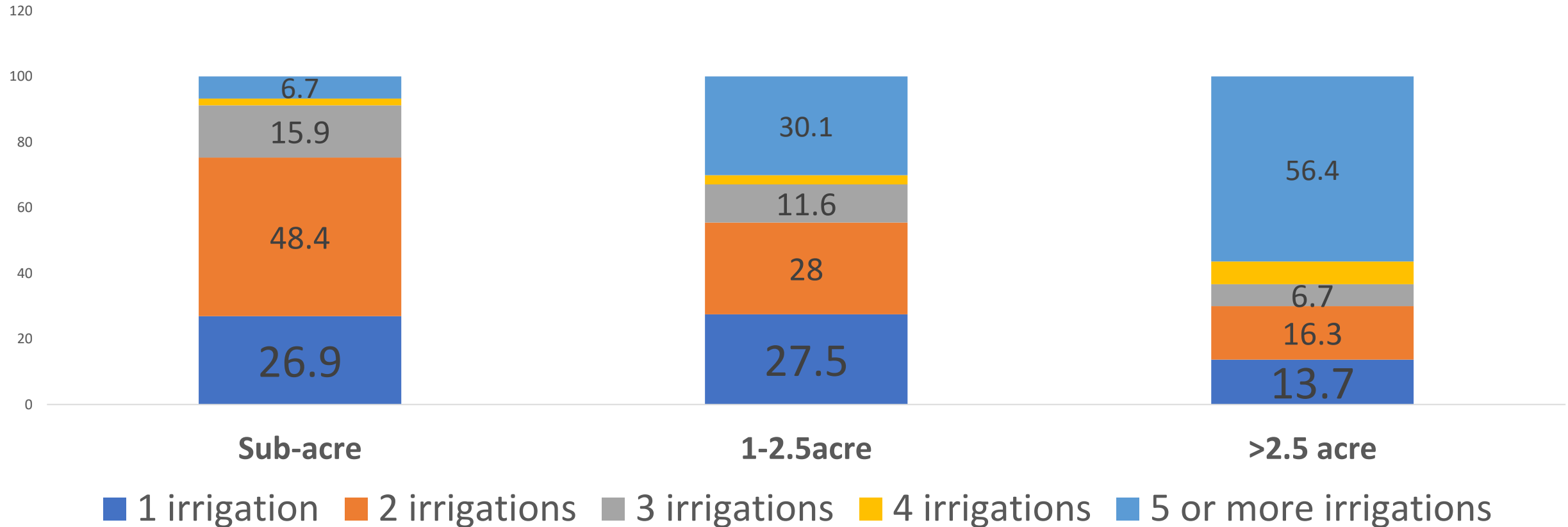


# Unequal access to water to the marginalized groups

| States        | Marginal Farmers |                 | SC Farmers |                 |
|---------------|------------------|-----------------|------------|-----------------|
|               | % Area           | % GW Structures | % Area     | % GW Structures |
| Bihar         | 57.4             | 13.6            | 11.4       | 6.8             |
| West Bengal   | 52.5             | 45.9            | 19.9       | 18.3            |
| Rest of India | 19.9             | 35.8            | 8.1        | 10.2            |

# Smallholders under-irrigate paddy even in a drought year

Percentage of Paddy Area Getting Different Number of Waterings

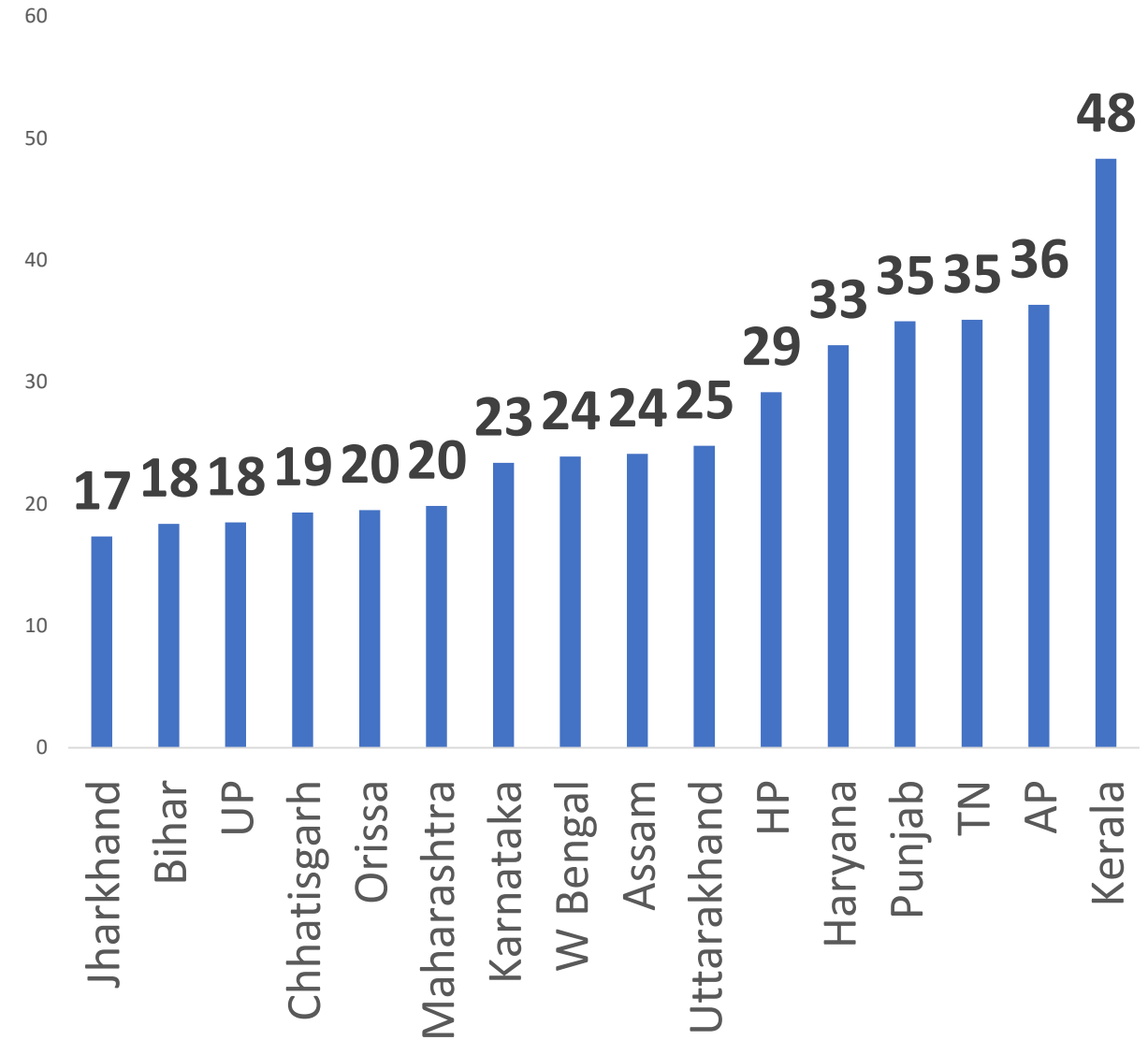


Source: Singh (2013) based on VDSA data in 2012

# Labor: Scarcity in Surplus

- Eastern India is the world's most densely populated rural area
  - Highest number of (farmers + farm laborers)/ha of NSA in the world
- Rice-wheat cropping system is not labor intensive
  - Rice: 900 hrs/ha
  - Wheat: 400 hrs/ha
- The lowest agricultural wages in India
  - Except Assam & West Bengal: the least mechanized states of India
- WB has higher cropping intensity, higher crop yields and higher wage rates, but lower levels of mechanization than Bihar or eastern UP

Wage Rates (Rs./hour) across States



# Public Policies

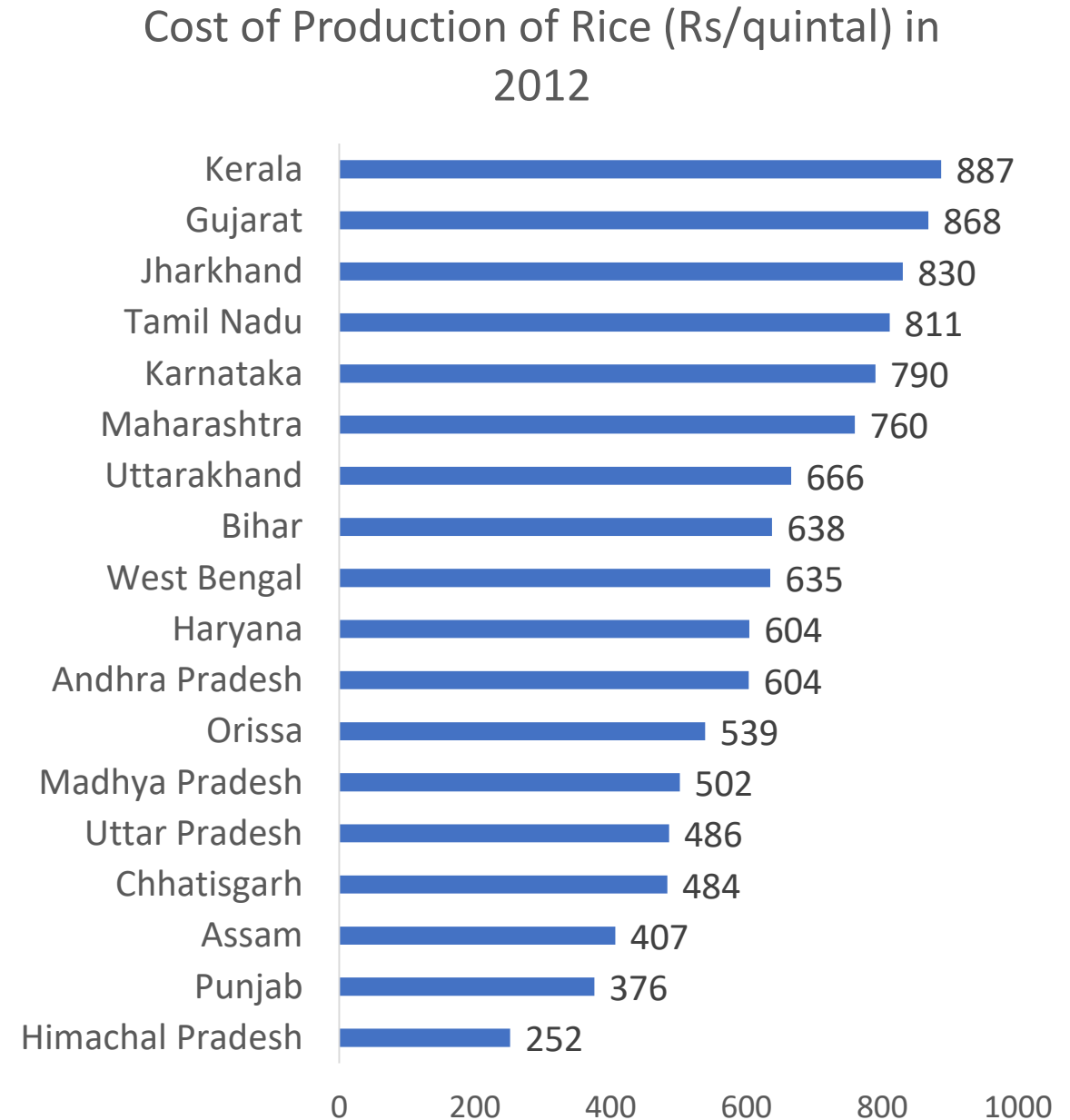
Farmers in EGP have limited interactions with government in running their farm enterprise

| Agricultural Activity or Facility             | % Farmers who Benefit Directly from the Government |        |
|---|--|--------|
|   | Bihar  | Punjab |
| Electricity for groundwater irrigation        | <1   | 92.89  |
| Technical advisory by government institutions | 11.52  | 18.30  |
| Institutional loans for agriculture           | 16.51  | 49.24  |
| Awareness of MSP                              | 43.57  | 87.90  |

**Farmers in EGP depend almost entirely on private parties for securing different agricultural inputs and for disposing off their produce**

# Bringing Green Revolution in Eastern India

- Green revolution relies on subsidized irrigation and procurement at premium
  - Neither is available to farmers of Assam, Bihar, Jharkhand and West Bengal
- A povertarian idea
  - Avg. holding size is 0.4 ha in Bihar (0.16 ha for the bottom 75% farmers)
  - **At 10 tons/ha yield, total production = 1.6 tons → Gross income = Rs. 24,000/year**
- Something akin to pre-mature deindustrialization
  - Price of cereals were historically low when cereals-led green revolution arrived in the region





# Higher MSP + NFSA : A double whammy for farmers of the region

- MSP for paddy from Rs. 1550 to Rs. 1750/quintal
  - Will not help most farmers in states like Assam, Bihar and West Bengal
    - However, Chhattisgarh and Odisha procured nearly 5 million tons of paddy each
- Big increase in subsidized rice and wheat to eastern states after the NFSA
  - Increase of 1.94 million tons in Bihar = 14% of the domestic production (or demand)
- **(Local production + NFSA imports) >> Domestic demand + Procurement at MSP**
  - NFSA imports = Dumping of cheap grains into the eastern states
    - More dumping through the open market sales operations

# Investment deficit in the eastern India

| Facility                            | Eastern India | Rest of India |
|-------------------------------------|---------------|---------------|
| Warehouses capacity                 | 824.21        | 3460.25       |
| Road density                        | 101.22        | 280.21        |
| Market density                      | 0.41          | 0.44          |
| Bank density                        | 0.046         | 0.3           |
| Per capita power availability (Kwh) | 83            | 320           |
| % Urban Population                  | 20.23         | 35.20         |

Thrust area to trigger sustained agricultural  
growth in EGP



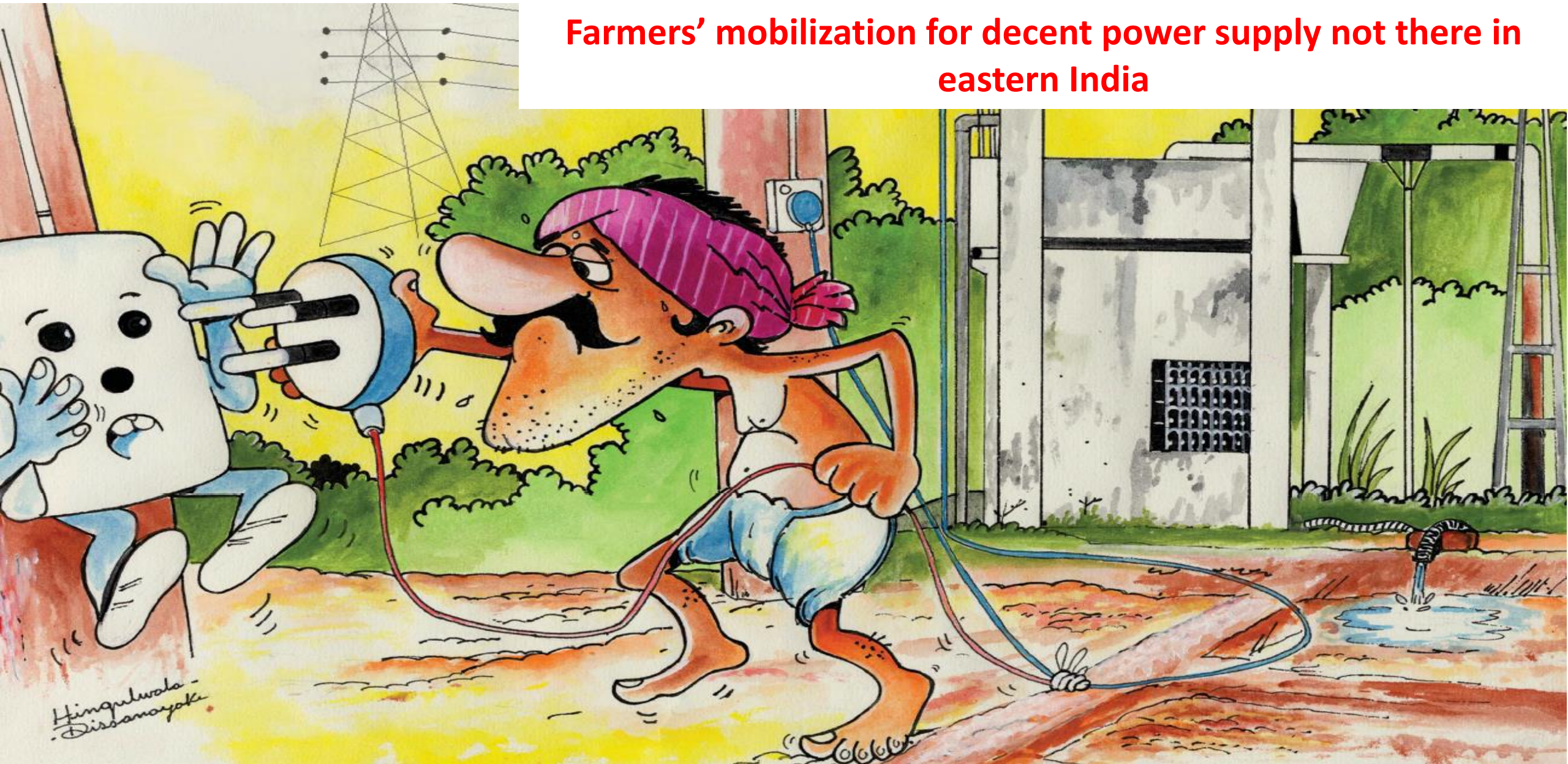
Increase public procurement  
of rice and wheat

- Chhattisgarh and Odisha already do it
- Assam, Bihar, Jharkhand and West Bengal need immediate action
- Foregoing tens of billions of rupees of federal support



# Power flows to rural areas only when actively demanded

**Farmers' mobilization for decent power supply not there in eastern India**







## Invest in the market infrastructure

- Little private investment in markets forthcoming in spite of deregulation (abolition) of the APMC Act in Bihar in 2006
  - Grading and quality testing facilities also
- Also true for many other states
- Public investment in market infrastructure is needed
- Promotion of more farmer-friendly modes of aggregation



# Institute machine reforms

- >95% of all farmers in EGP rent at least 1 machine from another farmer
- Inefficient rental markets reinforce the existing inequalities in land ownership
- Subsidy and credit policies are not helping : benefit only those with collateral
- **Opportunity: create machine service providers in agriculture**
- Use technology to create competitive rental markets in ag. Equipment
- Liberalize imports: Learn from Bangladesh

I have ignored the political economy issues, but some questions are hard to ignore

- Why has Eastern India historically had such low levels of public investment in agriculture?
- Why has there been no peasant mobilization in the region to secure concessions from the state like free electricity, procurement at MSP, loan waivers, etc.?
- Can the state governments kick start and sustain higher levels of public investment without touching 'production relations'?
- Would the very arguments about the impossibility of land reforms apply also to the question of public investment?



# Thank You!

