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Implementing *PMKSY* in India's Eastern Geography

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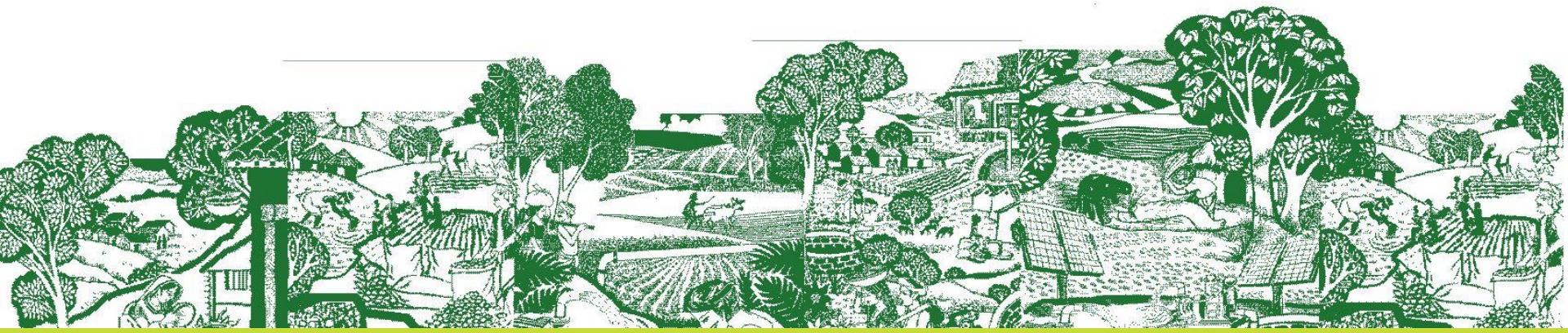


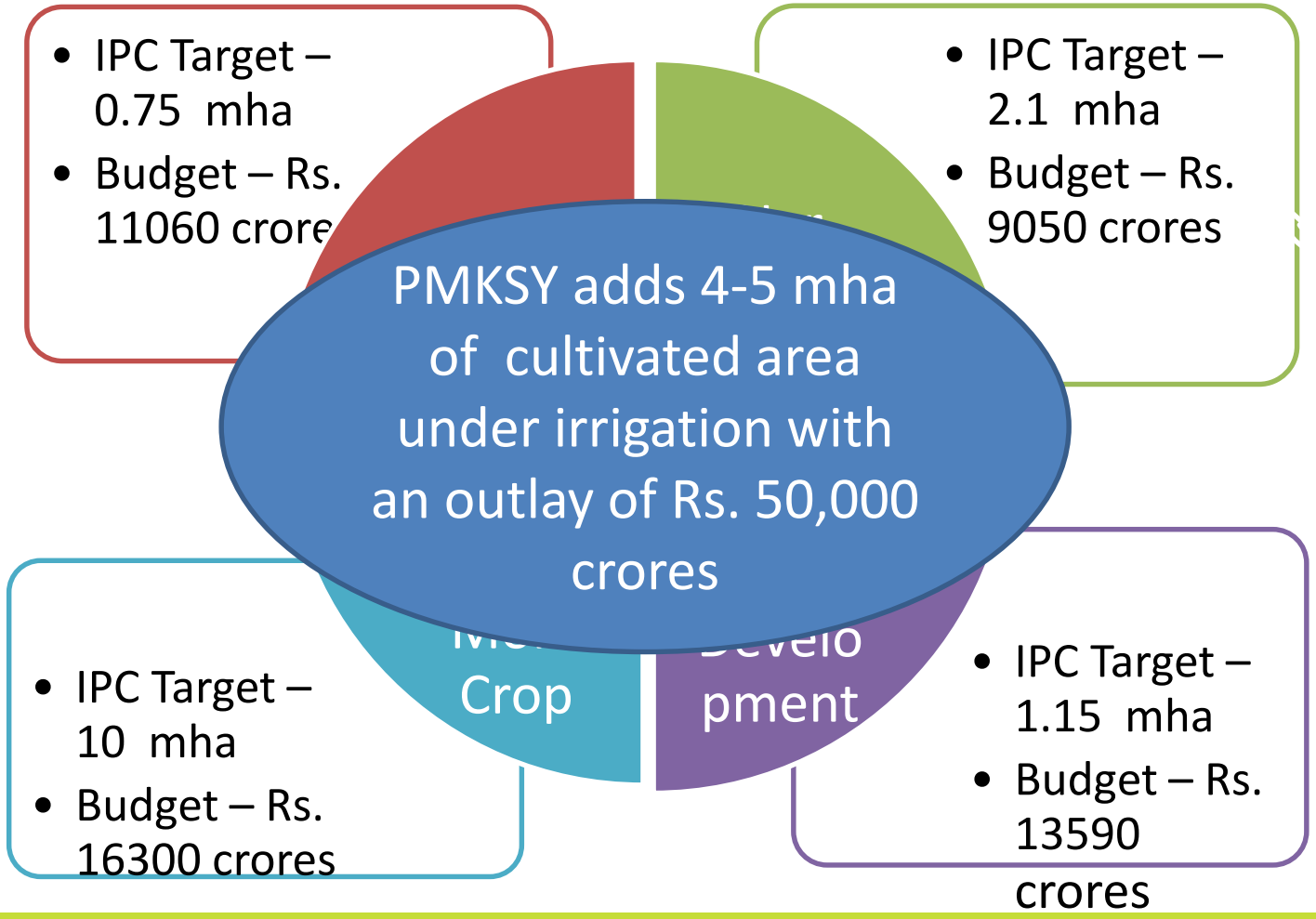
Pradhan Mantri Krishi Sinchayi Yojana (PMKSY)

- India's flagship Irrigation Scheme

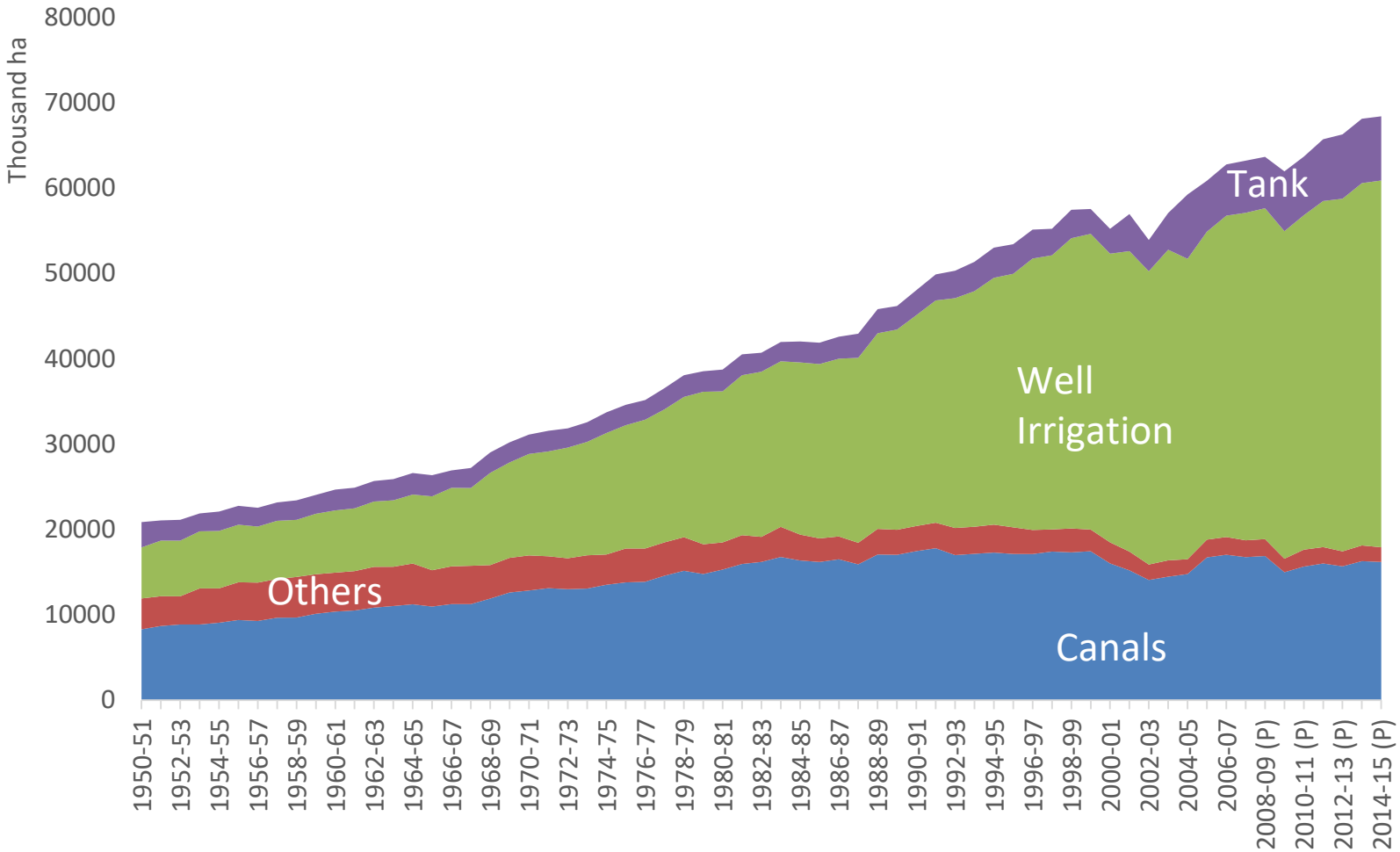
- Overarching vision is to ensure irrigation access to every farm in the country- *Har Khet Ko Pani (HKKP)*

- Scheme has multiple objectives which includes
  - *Physical access to water on every farm*
  - *Improve on-farm water use efficiency*
  - *Enhance aquifer recharge*
  - *Convergence of investments at field level*

Components of PMKSY



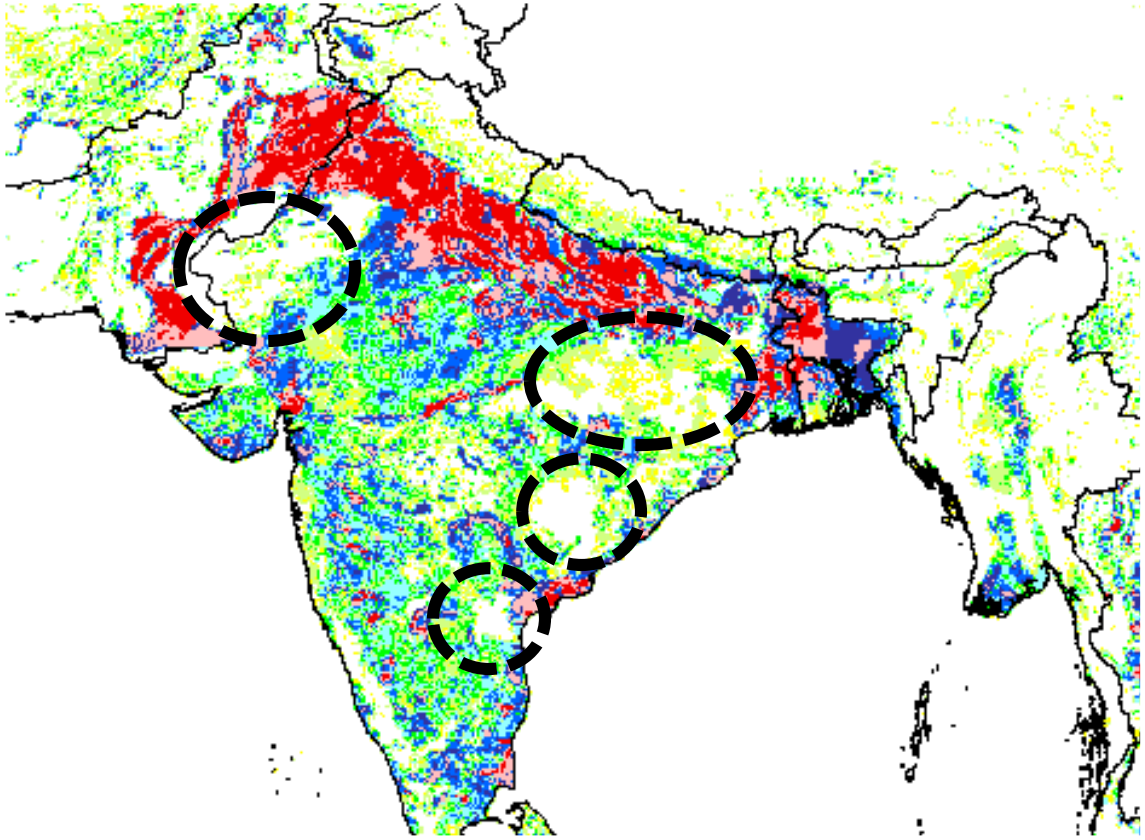
PMKSY and Irrigation Realities of India



Type I vs Type II Irrigation

Type I	Type II
Government/Community	Individual/group
Canals/Tanks/Watersheds	Wells/Tubewells/Surface Lift
Low year-round, on-farm water control	High year-round, on-farm water control
Farming system adapts to the irrigation regime	Irrigation regime adapts to farming systems
Unsuited for micro-irrigation	Suited for micro-irrigation

Unirrigated Geography of India

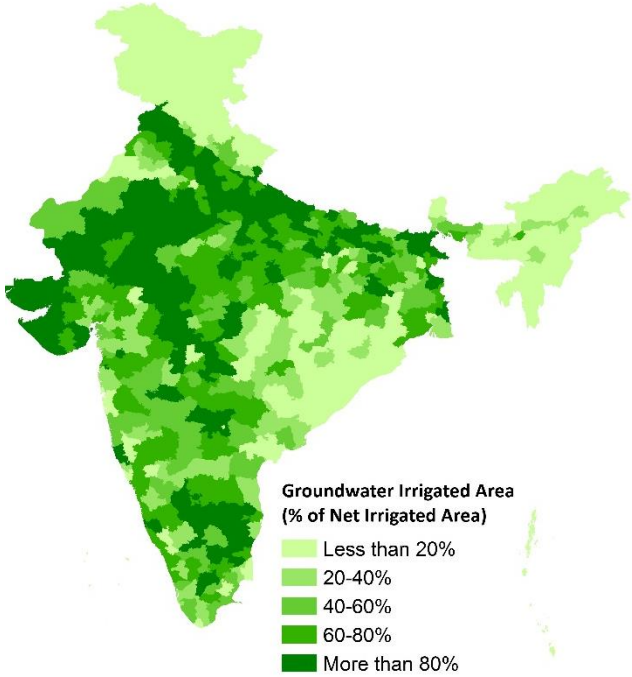


- Half of the cultivated area around 68 million farm holdings remains totally rain-fed
- Major chunk of unirrigated area are concentrated in the eastern geography

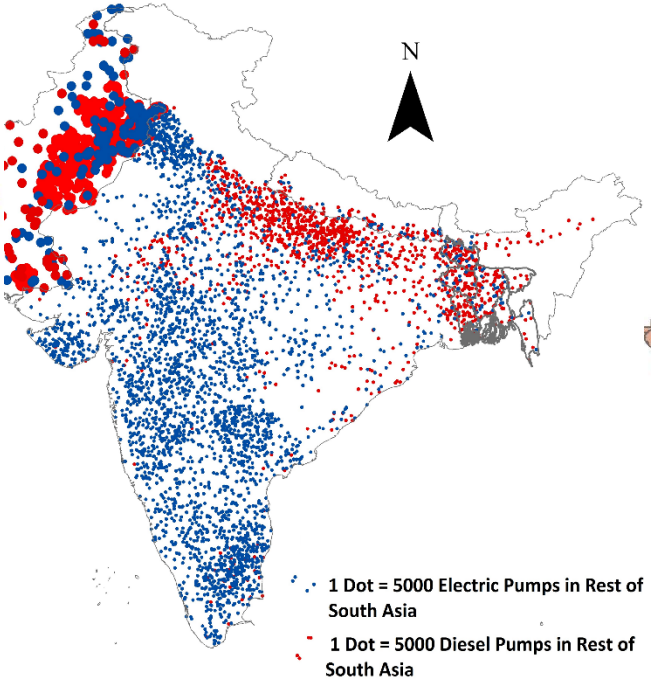
Percentage of land irrigated

1 - 2 | 2 - 5 | 5 - 10 | 10 - 20 | 20 - 35 | 35 - 50 | 50 - 75 | 75 - 100

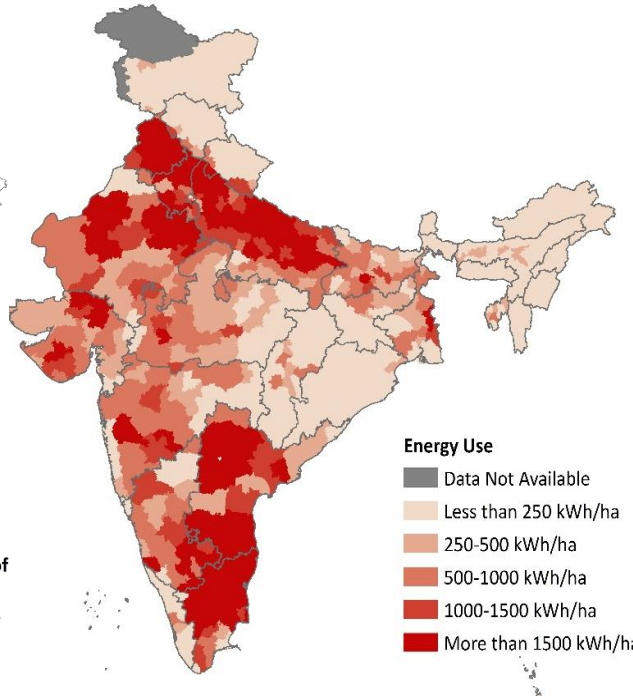
%GW Irrigated Area



Well Distribution



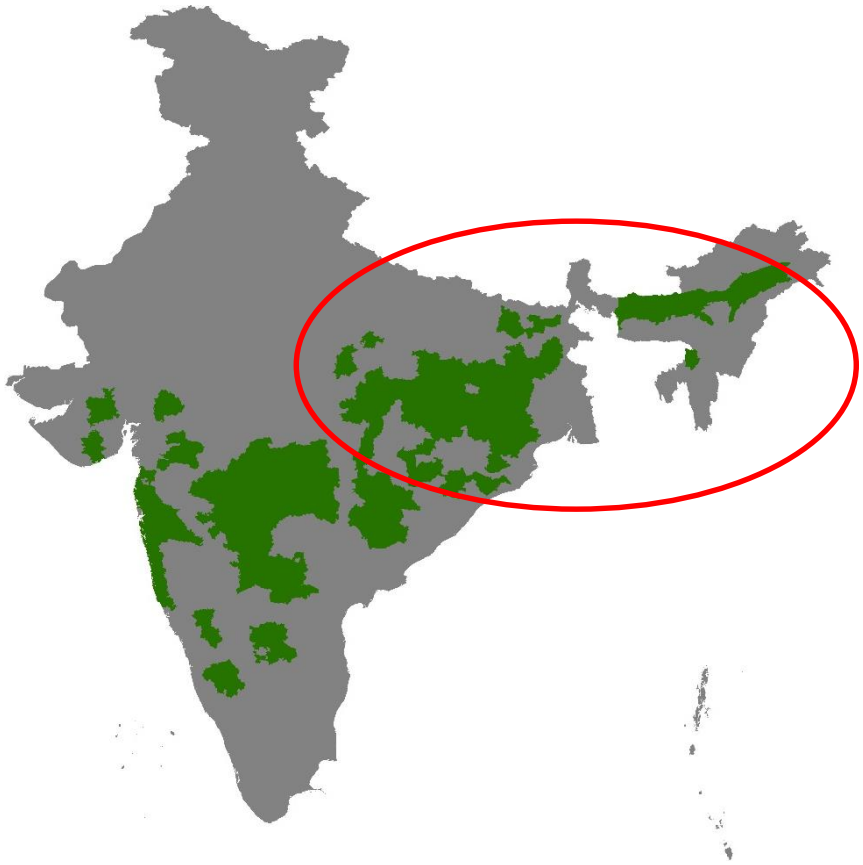
Energy Use in Irrigation (kWh/ha)



Can PMKSY achieve *HKKP*?

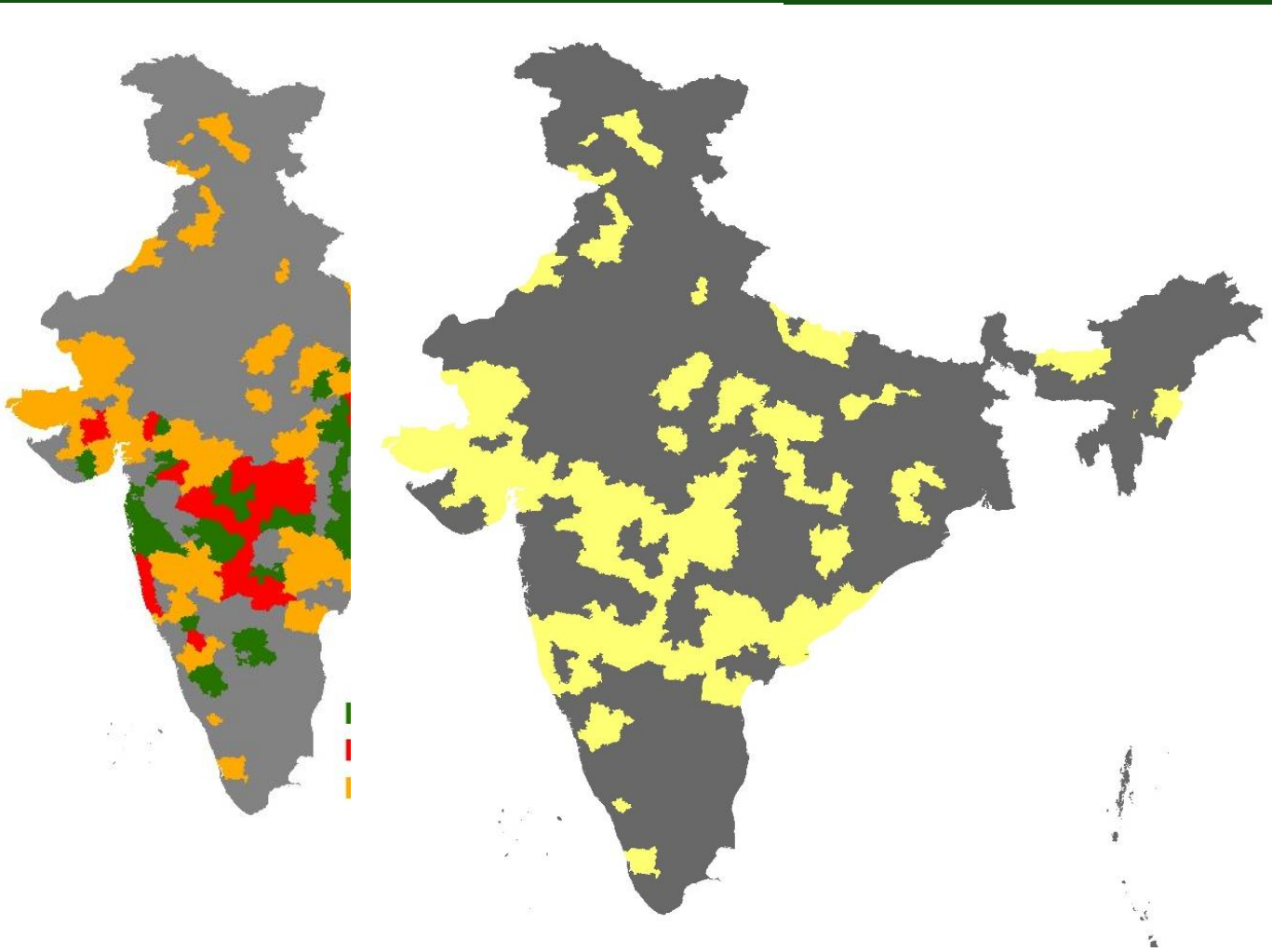
- Current design of PMKSY looks insufficient to achieve *Har Khet Ko Pani*
  - *Against 68 m ha of rainfed area, PMKSY offers to provide irrigation to only 5 million ha*
  - *Relies on Type I irrigation for irrigation expansion*
  - *Only 0.25 m ha through groundwater irrigation*
  - *Overlooks the irrigation-deprived geography*

Spatial and Social Dimension of Irrigation Deprivation



- 112 most irrigation-deprived districts which have unutilized GW potential for future irrigation development
- Districts have less than 30% irrigated holdings and less than 70% GW development
- Half of India's unirrigated holdings concentrated in these districts
- 68 out of 112 districts are located in eastern geography
- This geography also represents social dimension of irrigation-deprivation

AIBP overlooks Most Irrigation-Deprived Districts



Projects will
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2 benefit from
und 0.2 m ha of

Re-visioning PMKSY

- Quickest and most cost-effective way of expanding irrigation access through Type II irrigation
- PMKSY should focus on 112 districts which have unutilized groundwater resource
- PMKSY should design a loan-subsidy scheme to enable farmers to own a dug well, a 3.5-5 kWp solar pump and 500 meters of flexible distribution pipe.
- PMKSY should aim at 1-1.5 million solarized irrigation wells in target 112 districts by 2020. These will add 5-7.5 mha of gross irrigated area in the country's most 'irrigation deprived' districts.

Uptake of ITP's Recommendation

- Central Groundwater Board (CGWB) and Government of India

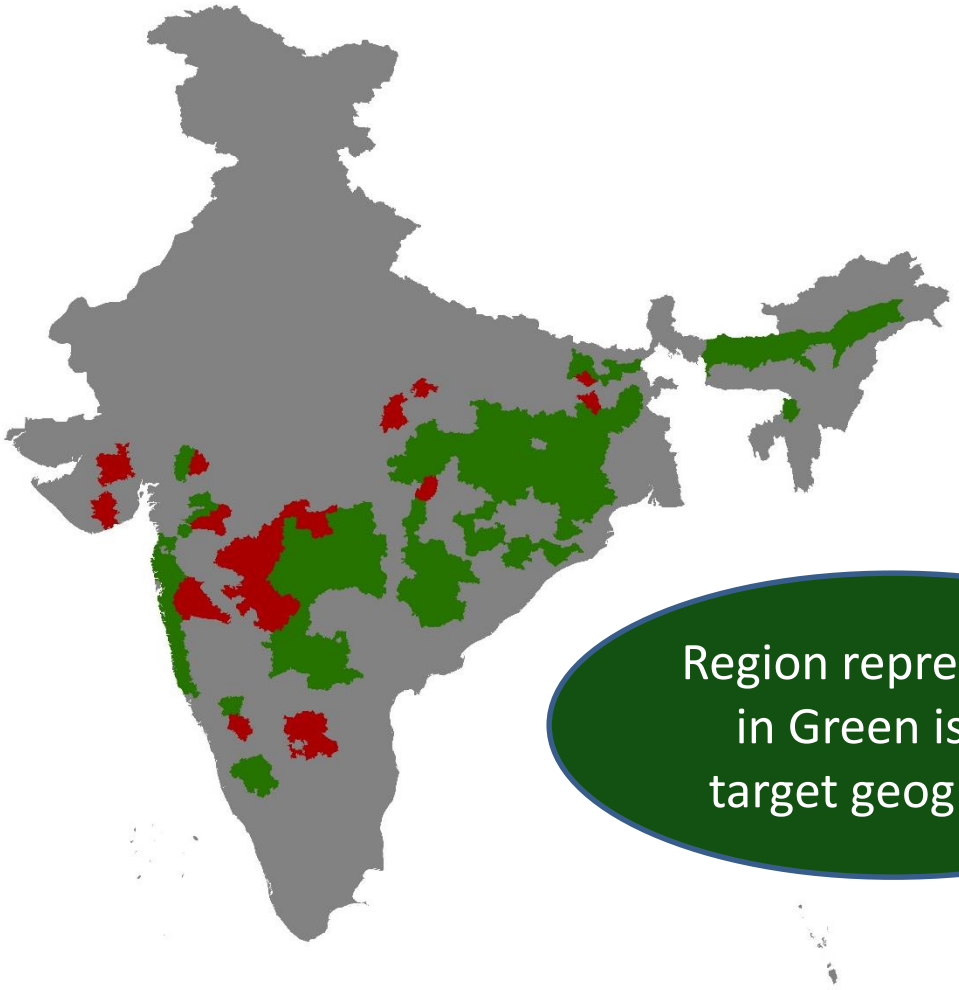
"Groundwater irrigation scheme under Prime Minister Krishi Sinchai Yojna – Har Khet ko Pani will be taken up in 96 deprived irrigation districts where less than 30 per cent of the land holdings gets assured irrigation presently. I have allocated ₹2,600 crore for this purpose."

– Excerpt from Union Budget 2018 Speech

- In its 2018 Budget, the Finance Minister allocated Rs. 2600 crores for 2018-19 to kick start the scheme.

Target Geography of PMKSY-HKKP-GROUNDWATER

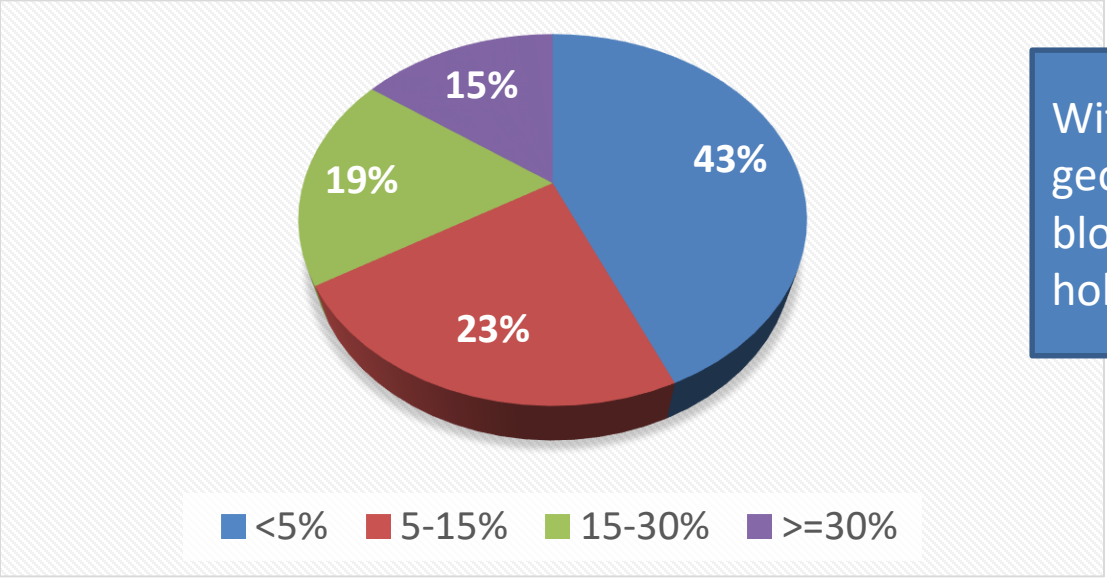
- Selection crit istricts
  - *Less than*
  - *Less than*
  - *More tha*
  - *GW occu*



Region represented in Green is the target geography

From District to Block level Implementation

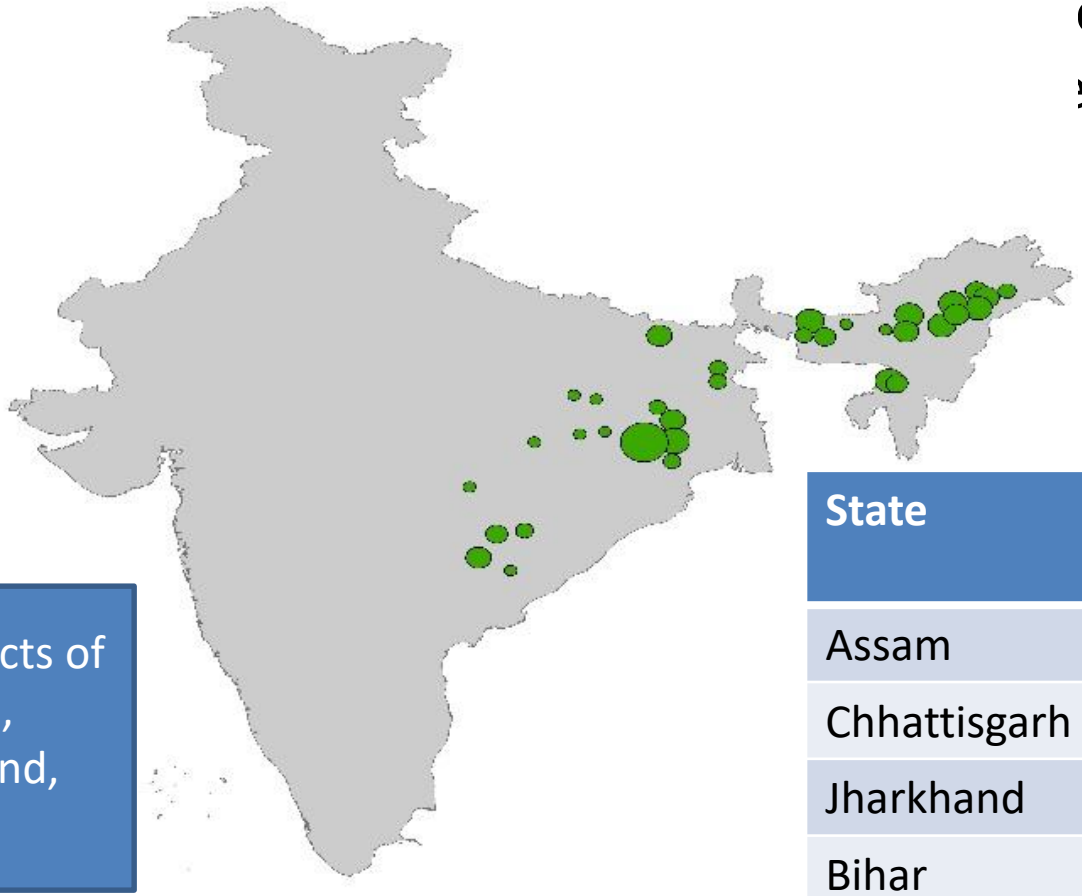
- Block should be the unit of planning and implementation of the scheme
- Around 800 blocks in 96 districts are targeted by the scheme



Within unirrigated geography, around 347 blocks have <5% irrigated holdings

Implementation Roadmap for PMKSY-HKKP-GW

- Within irri of blocks which hav e form and least grou
  - Less th
  - Less th



110 blocks in 34 districts of eastern states- Assam, Chhattisgarh, Jharkhand, Bihar, WB and Odisha

State	Target Blocks
Assam	57
Chhattisgarh	10
Jharkhand	29
Bihar	4
WB	4
Odisha	6

How many new wells in 110 Blocks?

- Quantum of GW Available in 110 blocks
  - 0.5-0.6 million ham of additional GW available for utilisation in without posing any threat to GW utilisation *(CGWB 2013*)
- Potential of creating 0.25-0.3 million groundwater wells using available GW
- With the allocated amount of Rs. 2600 crores, the scheme can construct 0.1-0.12 million groundwater wells
  - *Cost of constructing dugwell/borewell/shallow tubewell*
  - *Cost of mechanised pumps (25% are solar pumps)*
  - *Cost of 200 m of water delivery pipe*

Way Forward….

- Impacts of prioritizing investments in these 0.1-0.12 million groundwater wells
  - *Increase the irrigated area from 7% to 24%*
  - *enhance the gross value of crop-milk output by more than Rs. 20-25 billion annually*

- Convergence of the scheme with other govt. schemes like KUSUM and Aspirational District Program

- PMKSY-HKKP-GW scheme should involve the participation of grassroots NGOs and CSOs for its effective implementation