



## **Watershed Development as a Tool for Sustainable Climate Proofing**

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# Climate Change Challenges and IPCC AR 06 WG I, II and III Findings- Indian Context

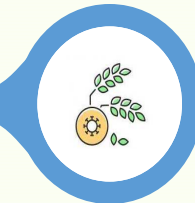
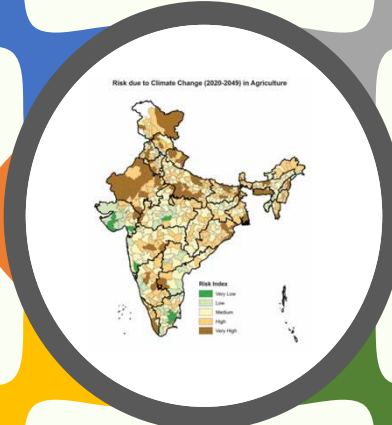


1.5°C warming is inevitable in the best case scenario by 2030



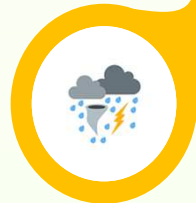
Global GHG emissions reduced by 43% by 2030 to limit warming to 1.5 °C

Each tone of CO<sub>2</sub> is costing around \$ 86 to India's GDP



Rice, wheat, pulses and coarse cereal yields could fall almost 09 % by 2050

Extreme rainfall events will intensify by 7 % for each additional 1°C rise in temperature



40 % of population will live in water scarce areas by 2050



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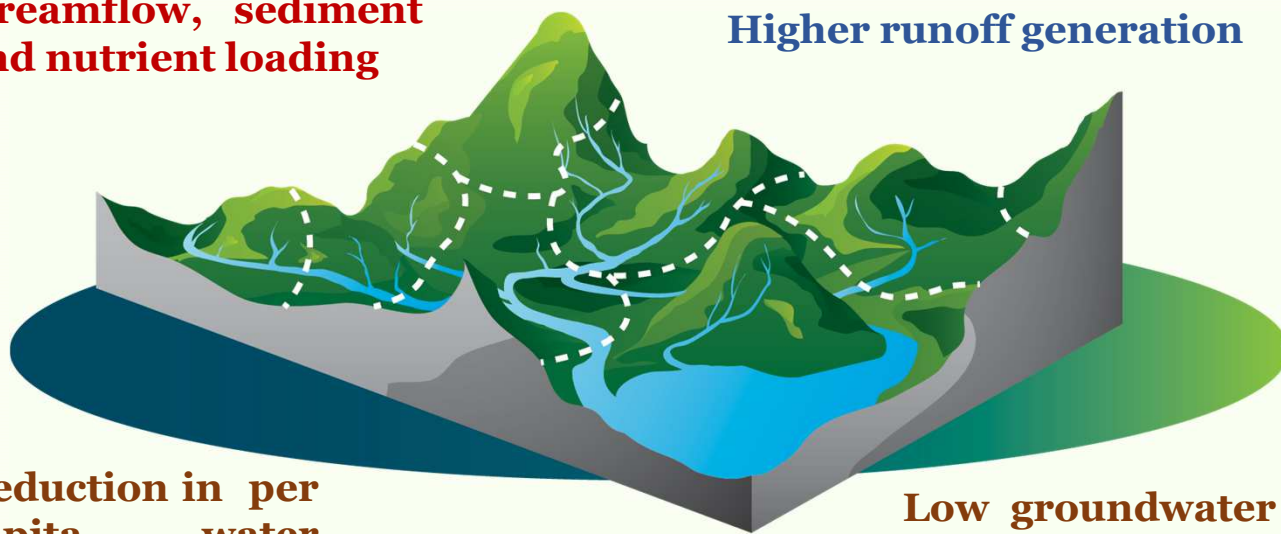
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# Climate Change Impacts on the Watershed Systems



**Negative effects on streamflow, sediment and nutrient loading**

**Higher runoff generation**



**Reduction in per capita water availability**

**Low groundwater recharge**

**Eutrophication and pollution loading**

India is Ranked 13<sup>th</sup> most water-stressed country amongst the 17 countries (Aqueduct Water Risk Atlas, WRI, 2019)

40 % of the India's population to be living in water stress conditions by 2050 (IPCC, 2022)

54 % of India's groundwater wells have depleted water levels (WRI, 2015)



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## Rainfed areas- Need for NRM

### Importance

- 60% of Indian farmers
- 51% of cultivated area
- 40% of food grain production
- 90% of Millets & Pulses
- 70% of Cotton and Oilseeds
- 40% of Paddy

### Major issues

- Land degradation
- Poor soil fertility
- Risk due to vagaries of monsoon
- Poor productivity
- Declining ground water table
- Poor technology adoption
- Under Employment

**Climate Change exacerbates**



**Solution: Holistic and Integrated Watershed Development based on climate vulnerability assessment**



# Watershed Development



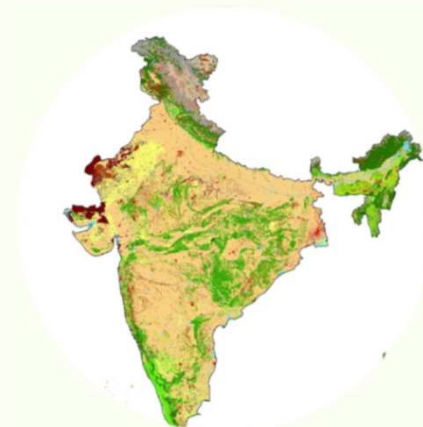
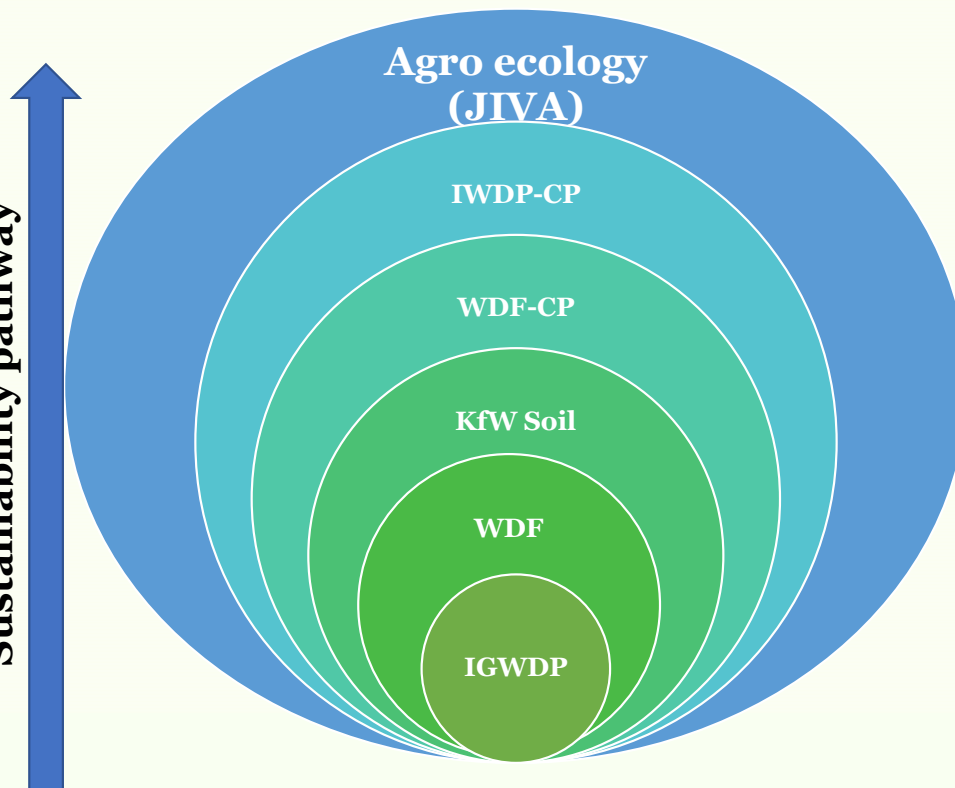
**3557 Projects**



**265 million  
US \$**  
**Amount  
released**



**Sustainability pathway**



**2.364 million ha**  
**Area Covered**



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<https://www.youtube.com/watch?v=TJ8KmCy2fWo>

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# Climate Proofing Components

## Components



Soil & Water  
Management

Agriculture  
Development

Community  
Development

Livestock  
Management

Credit Linkage

Regular watershed programme

<https://www.youtube.com/watch?v=6dMmcN1nxII>

- Prioritization of vulnerable districts using RAPI
- **Vulnerability analysis** at watershed level
- Selection of interventions

## Climate Proofing – Components



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# View of Field Interventions



## Soil and Water Conservation Works



Trench cum Bunding

Water Harvesting Structure

FB with vegetation

Recharged wells

## Climate Proofing Initiatives



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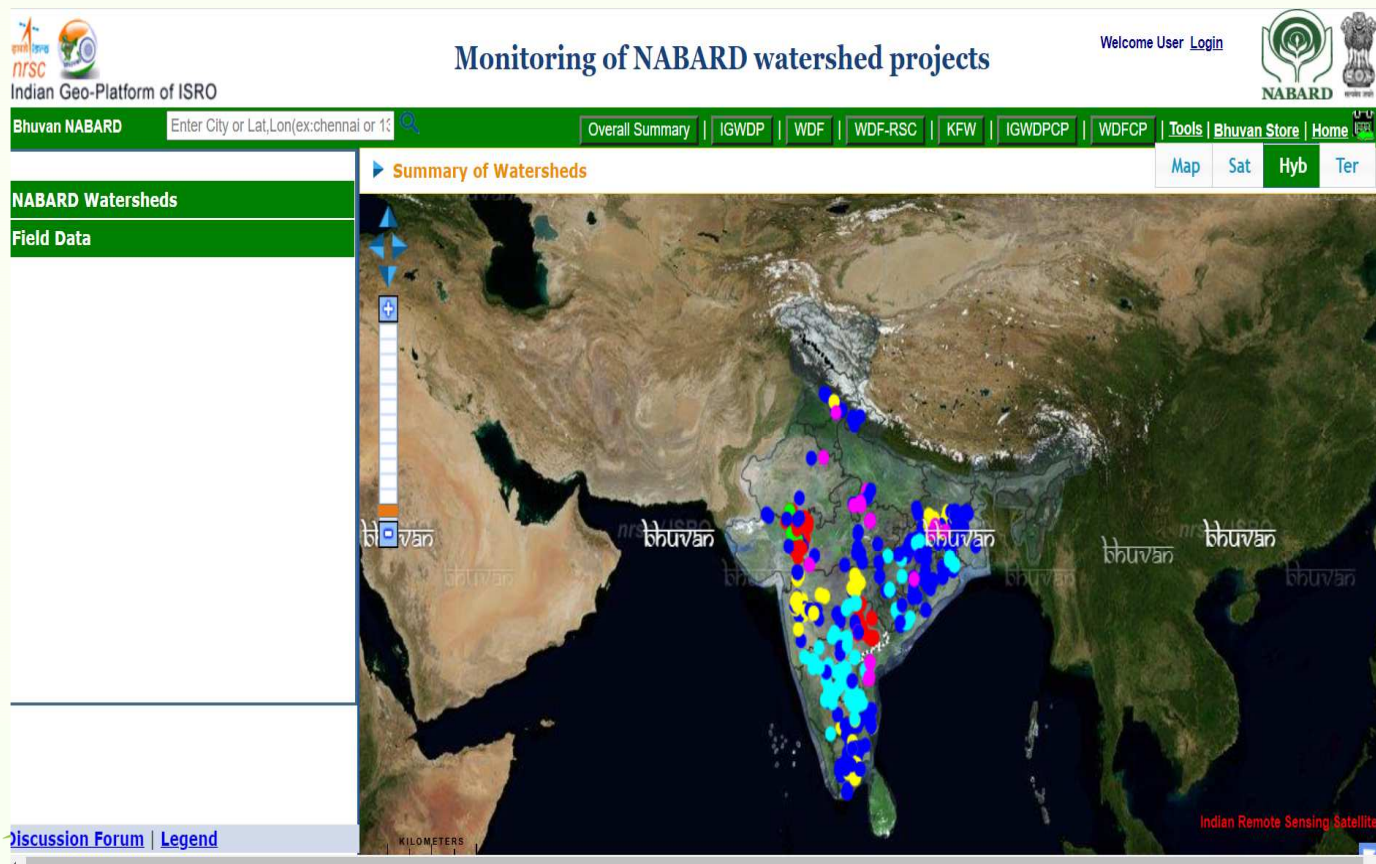
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# Web Based Monitoring of Projects



- 901 projects
- We can track
  - Physical and financial progress
  - Generate MIS
  - Geotagging of assets(mobile app)
  - Impact evaluation of projects in terms of LULC changes



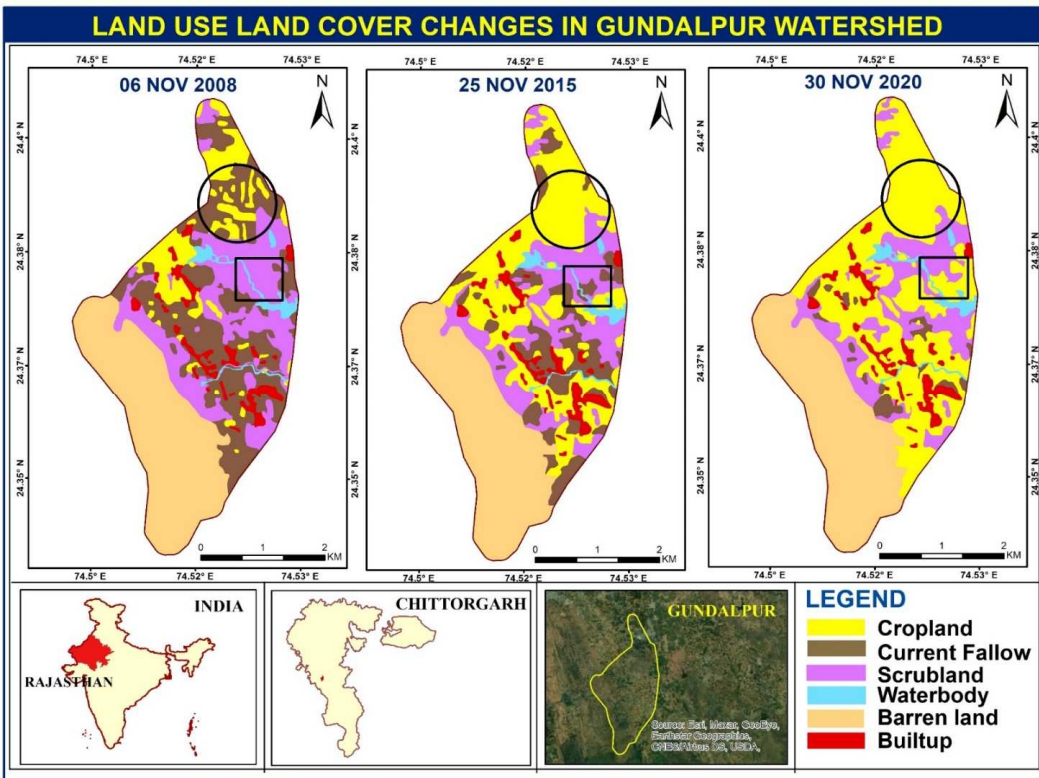
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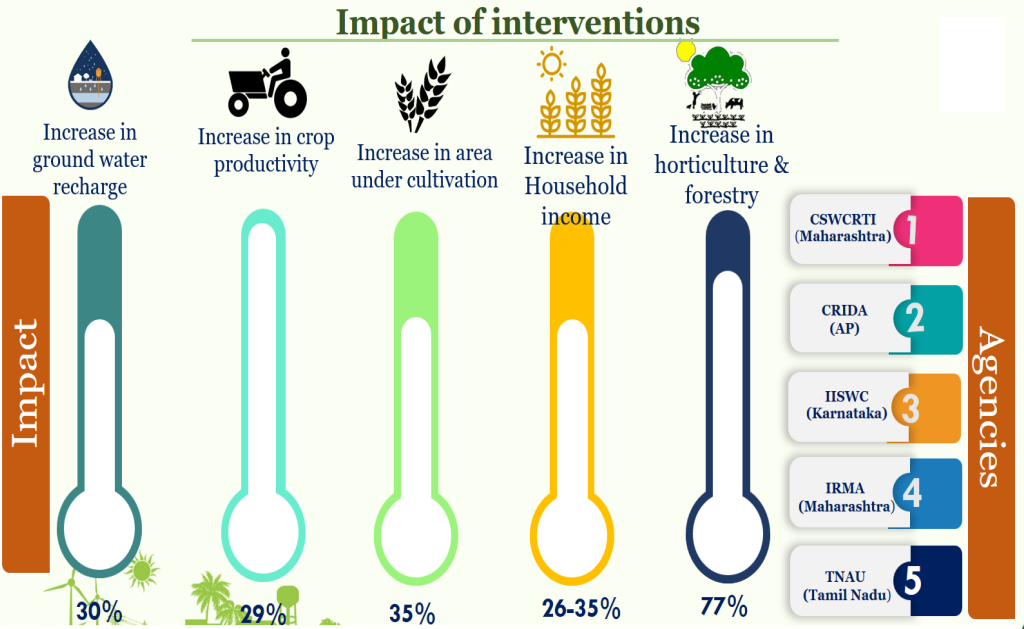
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# Impact of interventions



- Current fallow converted to Crop land
- Scrubland converted to Crop land

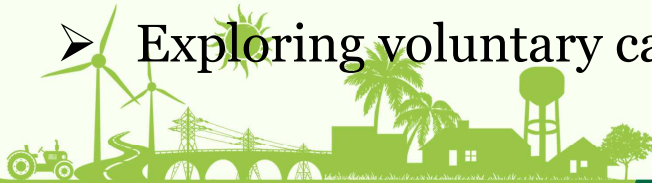


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## Way forward



- Upscaling of **climate resilient agriculture practices** especially Agro-Forestry, Integrated Farming System, Natural farming practices, etc.
- **Demand side management of water** through crop diversification and improving water use efficiency
- Banking plans to **enhance credit** flow through special refinance scheme.
- Remote monitoring of projects along with physical monitoring to enhance coverage and authenticity.
- Promotion of **FPOs** for input supply and aggregation and marketing of produce.
- Convergence with CSR funds of corporates and Government programmes.
- Exploring voluntary carbon markets and linking to farmers







Thank You