Indian Partners

Norwegian Partners

Klimatilpasning, sårbarhet og konflikt i India

Trond Vedeld, NIBR – Leder CIENS International Forum

19 mars 2013

UN WATER DAY

CIENS

Forskningssenter for miljø og samfunn

”Water: New weapon of mass conflict”
Hindustan Times, 27/3/2012

- Indus, Ganga, Brahmaputra among world top 10 water conflict zone nex 10 years
  - US intelligence report
- 2012-2022 – increased inter-state conflicts
  - will disrupt national and global food markets
  - 1000 water-related conflicts reported in 4 years
  - India signed treaty with Pakistan on Indus > 25 years
- Beyond 2022 – water as potential weapon of war or tool of terrorism


India Rivers and Lakes Map
FreshWater Lake
River
SaltWater Lake
Coastline
Arabian Sea
Bay Of Bengal
Andaman Sea

Conflict levels and types - upstream vs. downstream

- Transnational
- Inter-state
- Intra-state and inter-regional
- Inter- and intra-village

➔ affect research approaches and methods e.g. focus on water scarcity, security, conflicts, politics, and water governance

Upstream vs. Downstream ++

- Upstream nations & societies more powerful due to geography/location - will limit access to water for economic or political reasons
- But also many other inter- and intra-society conflicts over access and use of water

Water resources & climate change

- Scarcity
  - Availability of water per capita drops
  - E.g. women need to travel longer > 500 m
- Quality
  - pollution & water borne diseases due to open (ground) water sources
- Accessibility
  - upstream/downstream; powerful/wealthy vs. poor ++

- > Climate change adds complexity, risks, insecurity and inequality

Multiple uses and users – climate and non-climate drivers

- **Non-climate drivers**
  - Agricultural irrigation/intensification - 95%
  - Urbanization, demographic pressure, demand for hydro-power and water supply - 5%
  - Ecosystem services vs. environment degradation
    - Economic & agricultural policies/liberalisation
    - Water resources politics & policies
- **Climate drivers**
  - Greater rainfall + variability, more erratic

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Some observations from

The EVA Project

Extreme Risks, Vulnerabilities and Community-based Adaptation in India

Project funded by

Focus of EVA project

extreme risks (drought) & impacts on water resources, agriculture and livelihoods

adaptation at community level

Partners

Five partners in consortium: AFPRO, TERI and CIENS (NIBR, CICERO, NIVA)

Funded by the Norwegian Embassy, New Delhi

AFPRO
Action For Food Production

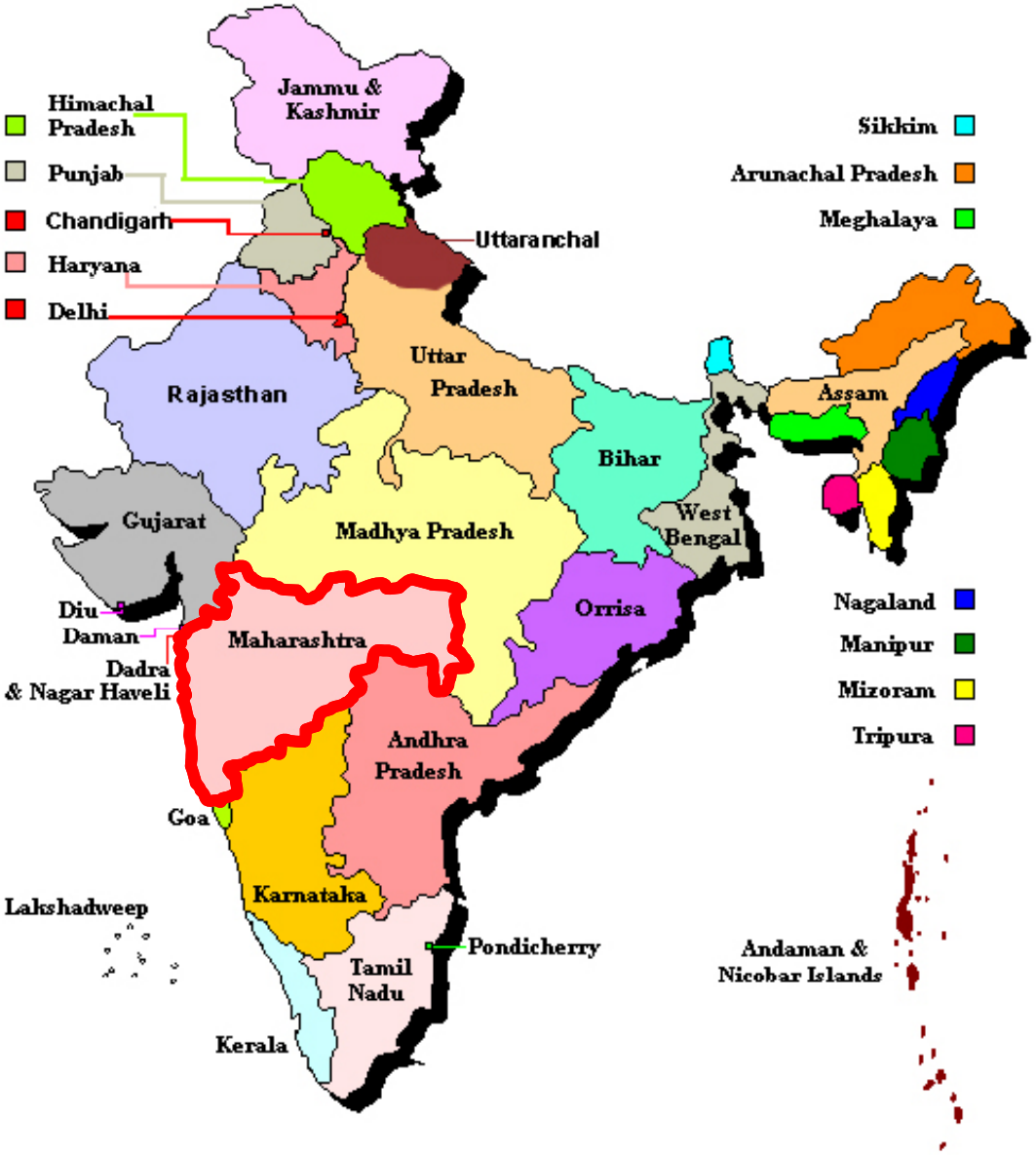
teri

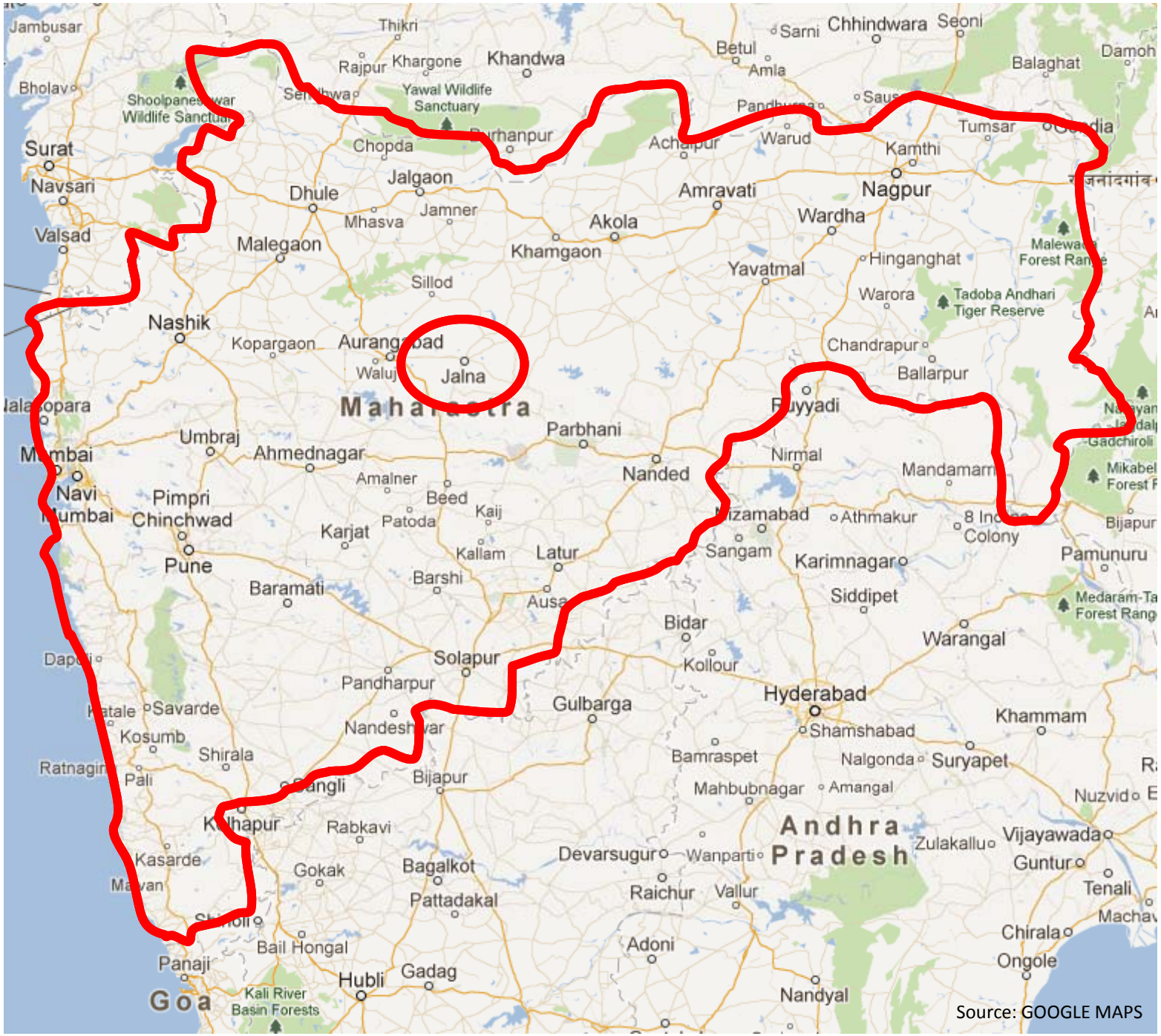
NIBR
Norwegian Institute for Urban and Regional Research

°CICERO
Center for International Climate and Environmental Research - Oslo

NIVA
Norwegian Institute for Water Research

Case study-site: Maharashtra





Source: GOOGLE MAPS

Jalna District

- Upper/west Godavari River basin
- Deccan Platteau
- Rainshadow area of Western Ghats – catchment area that drains 40% of India

Jalna District, Marathwada

- **Current climate**: low/variable rainfall (650 mm)
- **Resources**: great diversity, limited irrigation, variable groundwater levels
- **Communities**: social and political inequalities
- **Farming system**: cotton, sugarcane, citrus, pulses + monocropping + market
- > increasing dependency on water/irrigation
- **Land tenure and property rights to water:** large and small, reduction in farm sizes

2012 drought in Jalna – worst in 40 years


Warudi,

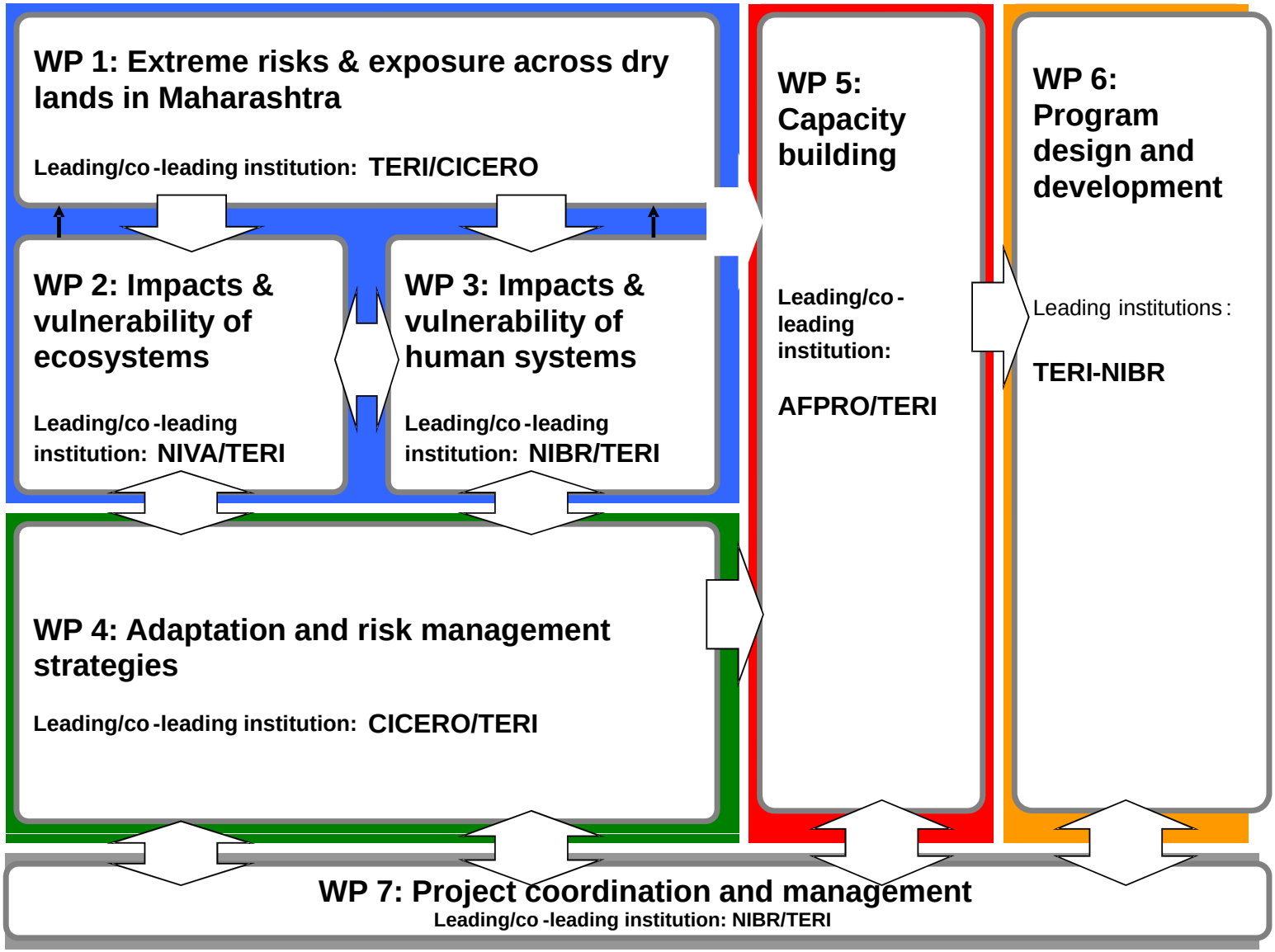

Kadegaon, Sep 2012

Study of *local* impacts and responses

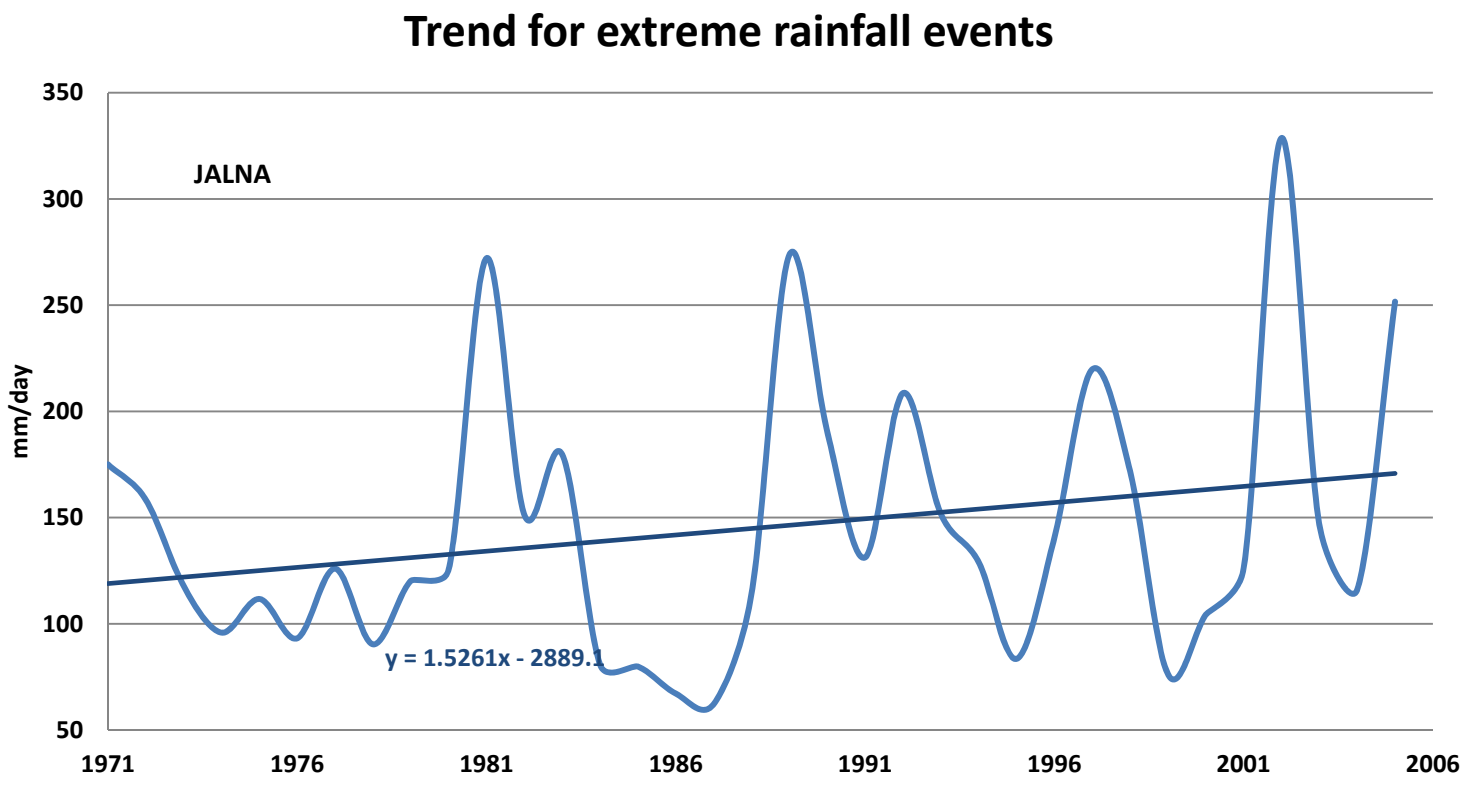
- **Climate and non-climate drivers of change**

Key: Understand perspectives and responses of local households and policymakers

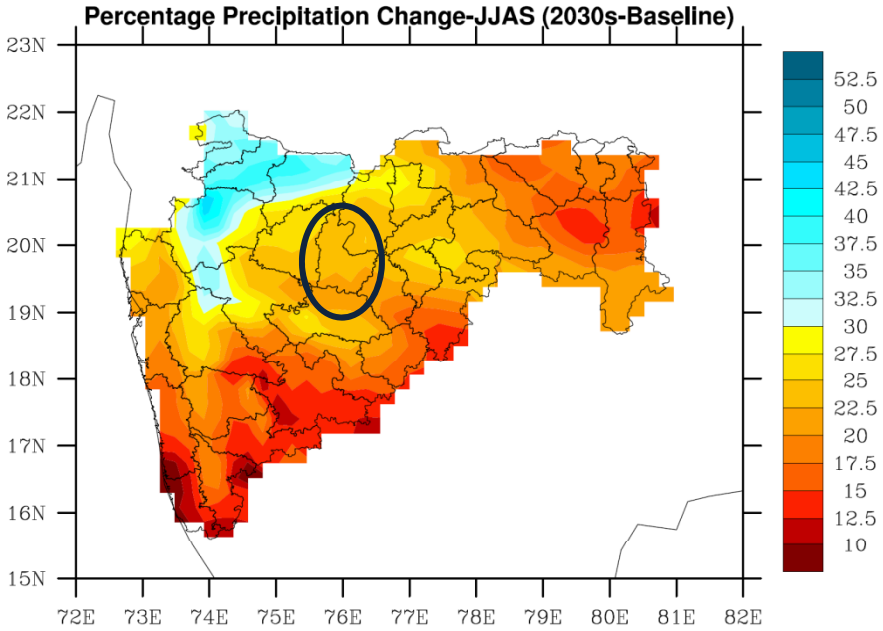
Project Structure

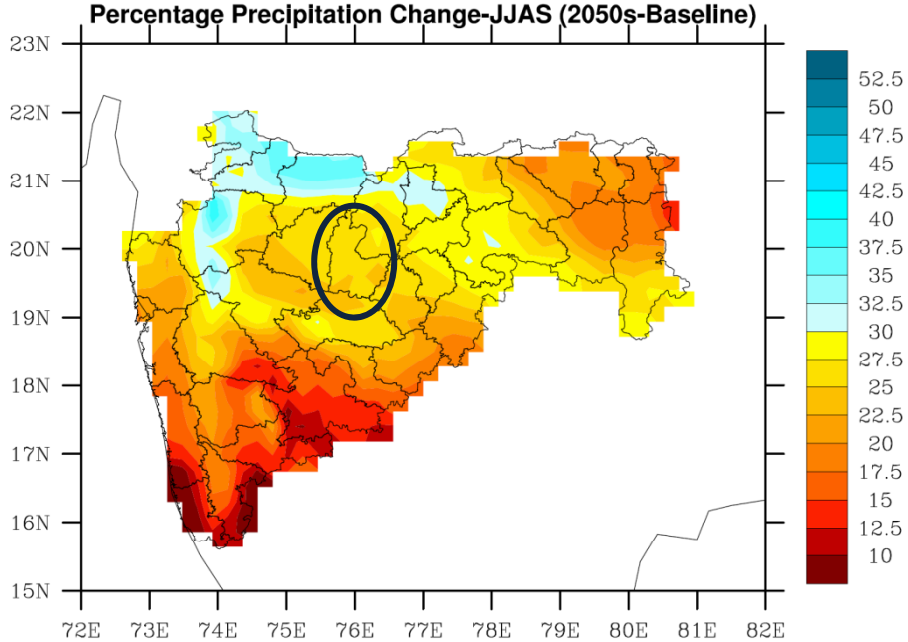


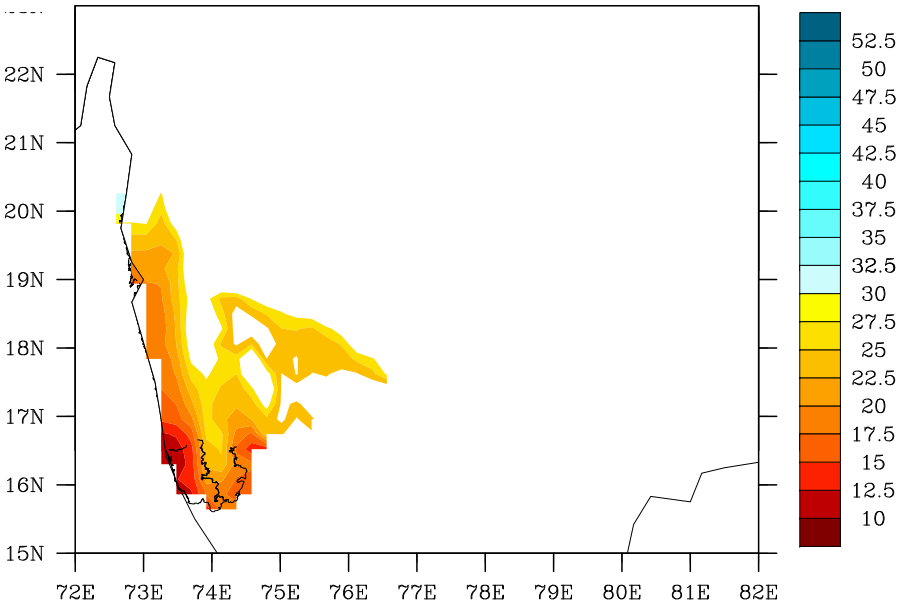
WP1: Trends in extreme rainfall



Percentage increase in rainfall in 2030s, 2050s and 2070s with respect to baseline (1970-2000)







Rainfall projections for Jalna: increase, higher variability

2030s: 20% increase

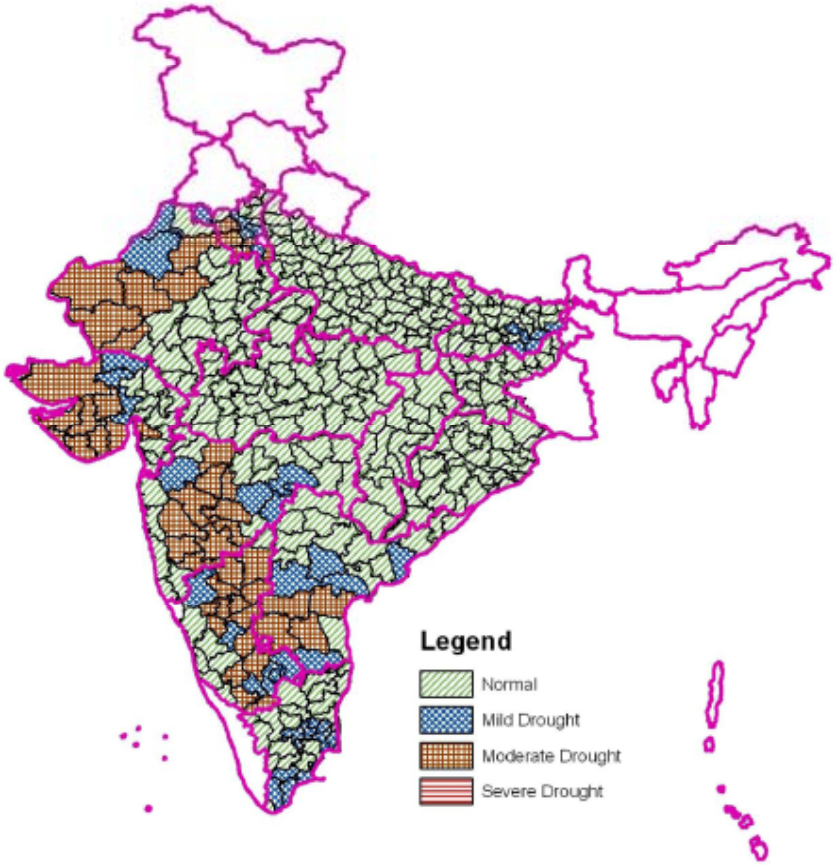
2050s: 25% increase

2080s: 30% increase

Sharing of climate projections + discussiong “what if” scenarios (WP4)

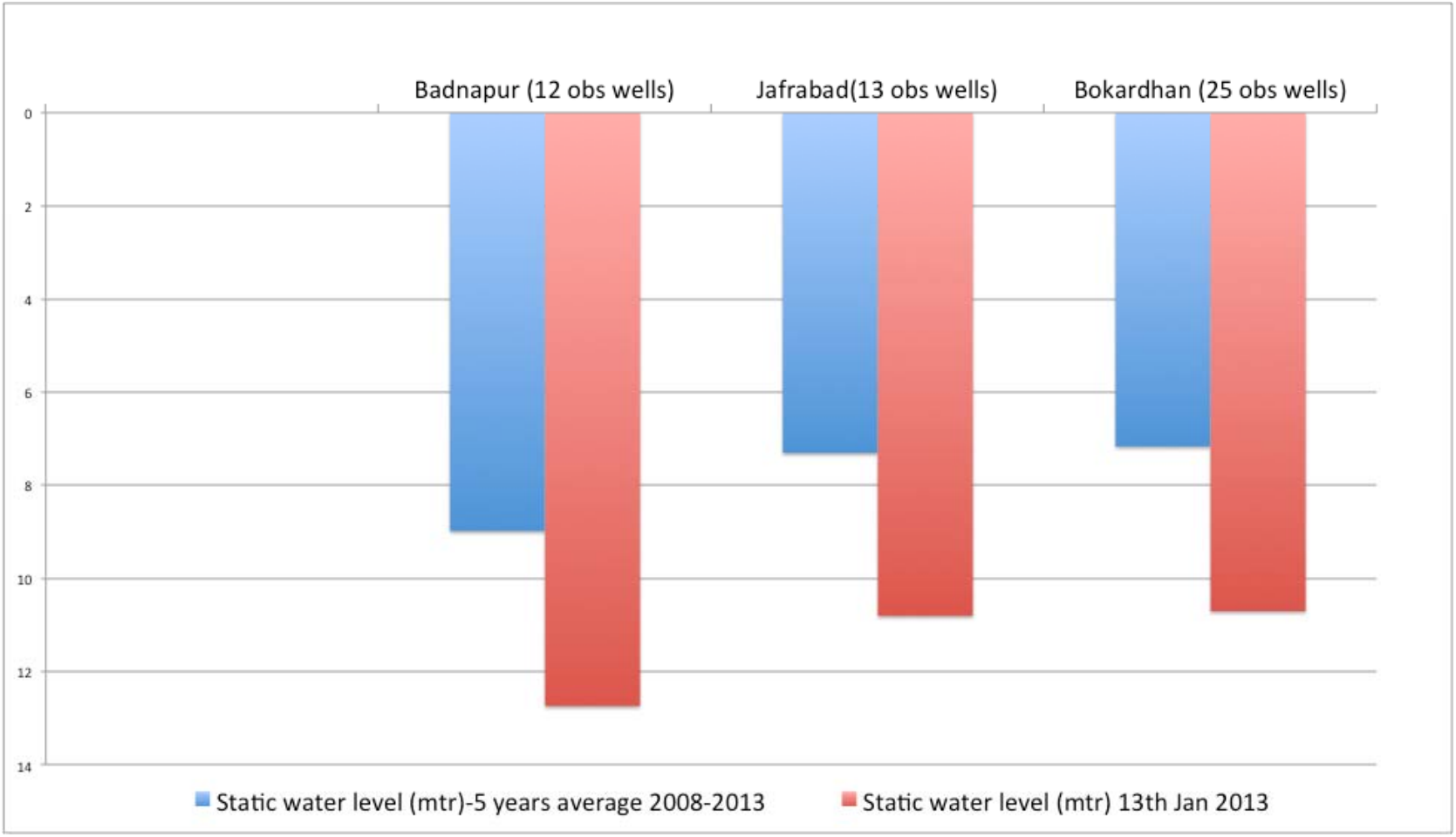
WP2: Resources, drought impacts, mapping

Participatory mapping + Secondary data



Agricultural drought assessment data from NADAMS (here: Oct 2012)

Lower groundwater levels during drought - secondary well observation data

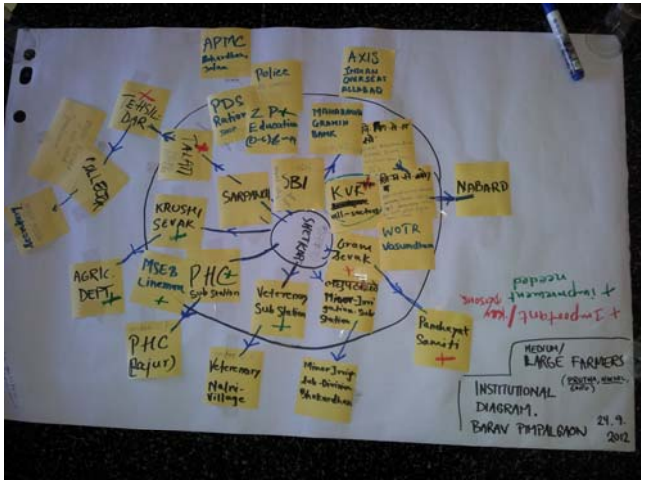


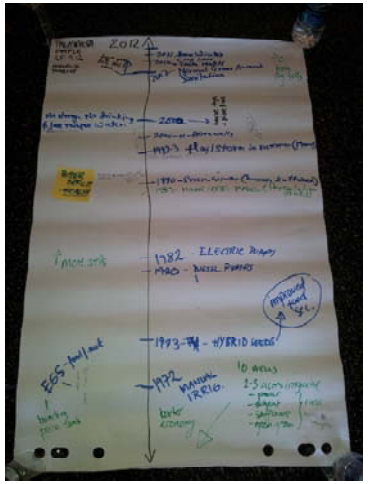
Depth to water level

WP3: Social vulnerability, access, conflict, and governance

- Vulnerability and adaptive capacity
- Social/caste inequality, access, water/land conflicts and political agency
- Governance, policy and institutions

Participatory approaches
- co-creation of knowledge





Impacts of drought: ”all depends on water”

- Severe impacts (2012) – no drinking water, crop failure, no fodder, livestock sold, food insecurity
- Impacts vary greatly – hypotheses:
  - depend on poverty, degree of exclusion from services, location, access to water and land, cropping patterns, farm management etc.
- Social status and access
    - high-income vs. low-income
    - large farmers vs. small farmers vs. landless
    - high caste vs. low caste
    - men vs. women
    - old vs. young farmers

Politics and governance of water

- Policies, politics, discourses, governance
  - Diverse ideas about development & water resources management
    - Large dams vs. small dams & watershed development
    - Large farmers vs. small/poor farmers etc
  - Agricultural and water/watershed policies
- Institutions/governance to resolve conflicts
    - Conflict over uses & between users
- ***Will climate change further co-management or conflict?***

WP4: Adaptation options

- Identification of adaptation options
- Prioritization of options with stakeholders
- Evaluation of adaptation options

Some adaptation options

- Monsoon forecasting and EWS
- Farmers' index insurance & micro credit
- Watershed development & policy
  - Ridge to valley; address distributional issues
  - Short duration crops
  - Timely planting
  - Bunding, mulching, soil & water conservation
- Agricultural & irrigation policies
  - Sprinkler irrigation, drip irrigation, farm ponds
- Property rights to water
  - water a fluid and common pool resource

Interactions of state non-state actors & stakeholders

- Large and small farmers; farmers' unions + landless/low caste labourers
- GOI, Maharashtra state and regional government
- Agribusiness (input & marketing of produce)
- NGOs – local, national, international
- Rural banks
- Small and large construction companies
  - Watershed treatments from ridge to valley with dams, boulders, ponds, bunding
- Upstream hydro-power companies
- Urban consumers – elites vs. low-income

Thank you !