IRAP-JEEViKA
Climate Information Service, Adaptation, and the Rural Livelihoods:

Two Randomized Experiments in India

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Outline

- Expected Results
- Experimental Design
- Implementation Plan
- Timeline

Expected Results

1. **Estimated impacts of climate information service (CIS) on:**
   - ❖ Modernization of agriculture
   - ❖ Climate resilient agricultural practices
   - ❖ Sectoral allocation of labor
   - ❖ Livelihood diversification
   - ❖ Saving and investment
   - ❖ Long-term (behavioral) change
2. **Insights on efficient designs of CIS program**
3. **Insights from two agro-climatic zones: drought and flood-prone regions**
4. **Evidence-based, if we are successful, templates for the future programming of:**
   - ❖ CIS in other drought and flood prone regions of the world
   - ❖ Climate-resilient rural livelihoods (anti-poverty) programs

Study Area

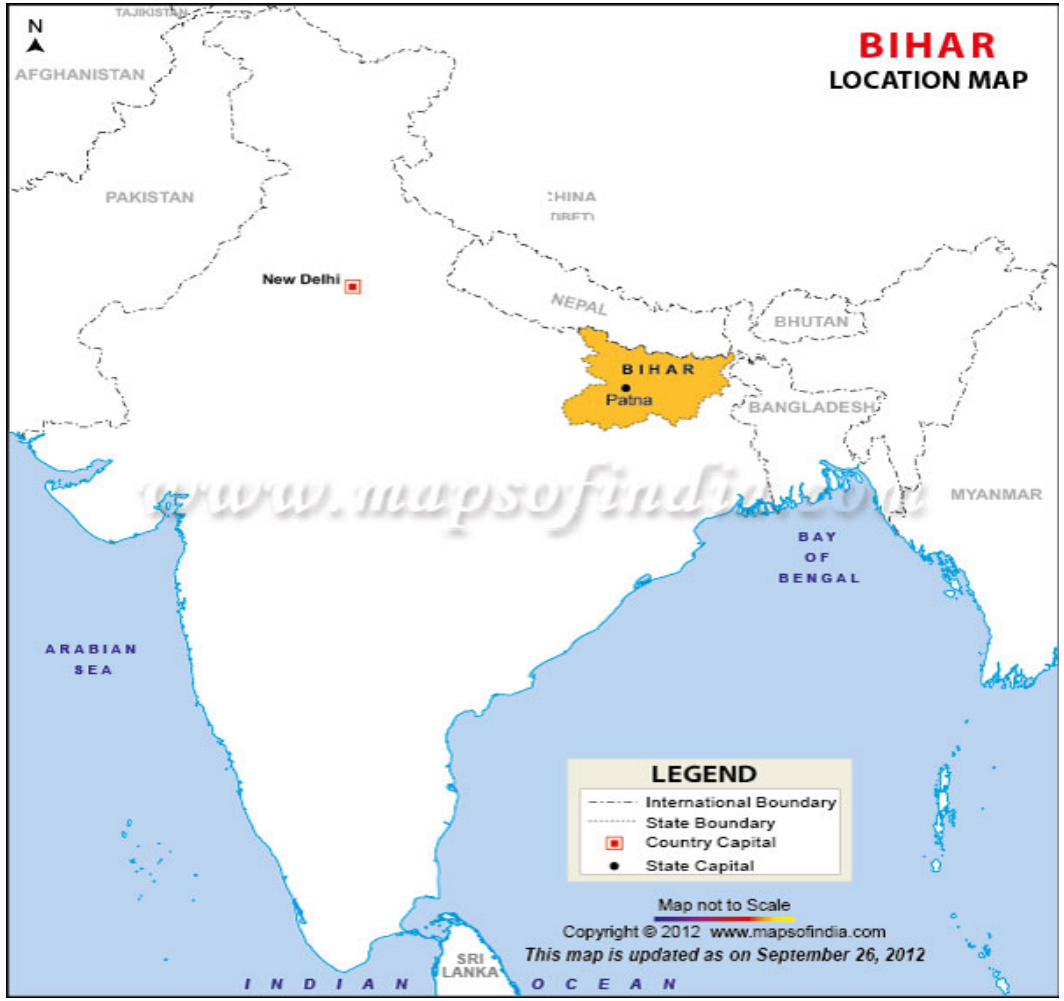
❖ **Administrative Structure of India**

India → States → Districts → Blocks → Panchayats → Villages

1. **Experiment 1: Drought-prone region**
   - ❖ 2 districts: Jehanabad and Nawada
   - ❖12 blocks, 132 villages

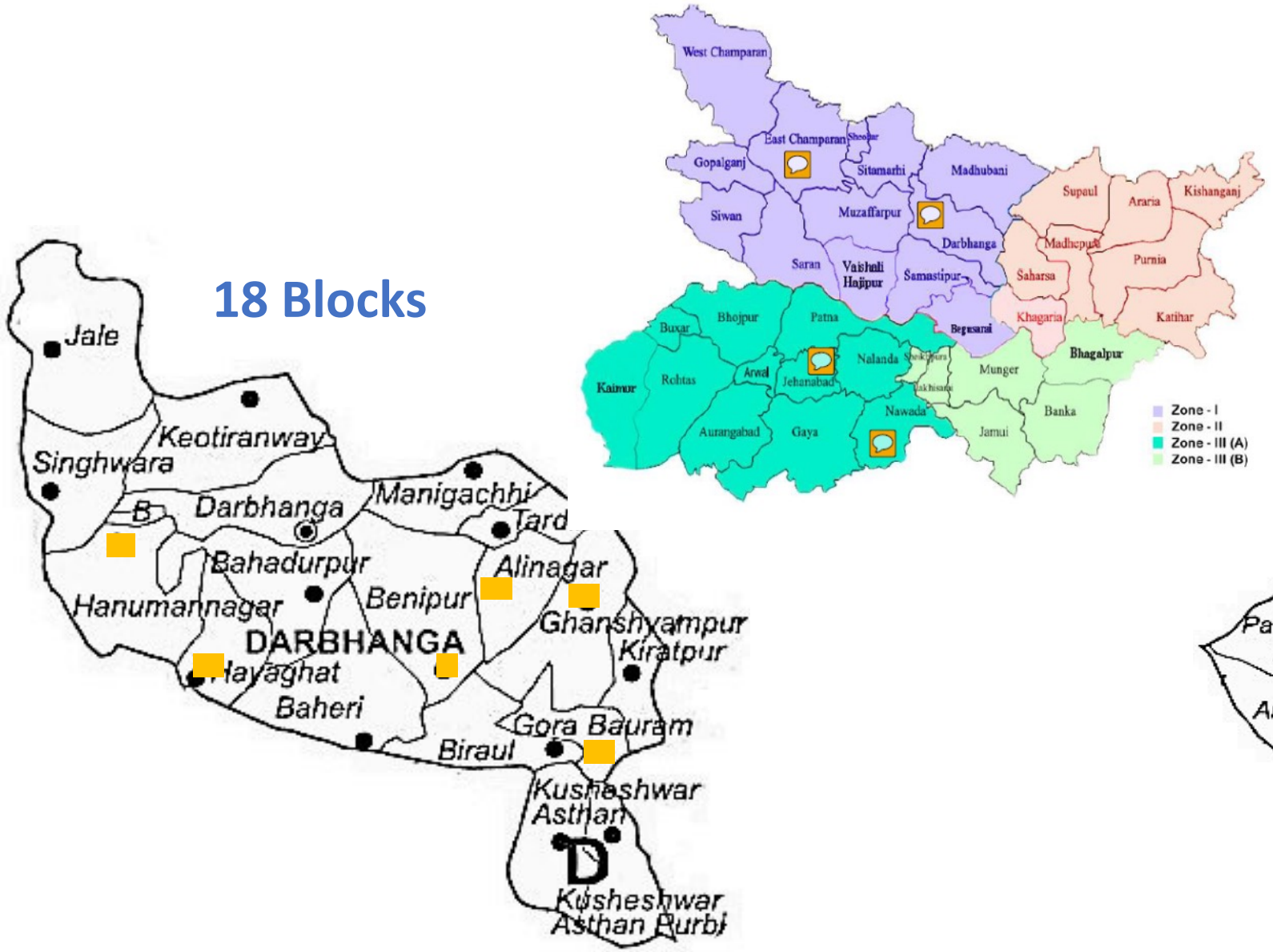
2. **Experiment 2: Flood-prone region**
   - ❖ 2 districts: Darbhanga and East Champaran
   - ❖12 blocks, 132 villages

Study Area


BIHAR
LOCATION MAP
N
AFGHANISTAN
PAKISTAN
New Delhi
NEPAL
BHUTAN
BIHAR
Patna
BANGLADESH
MYANMAR
BAY OF BENGAL
ARABIAN SEA
SRI LANKA
INDIAN OCEAN
LEGEND
International Boundary
State Boundary
Country Capital
State Capital
Map not to Scale
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This map is updated as on September 26, 2012


West Champaran
East Champaran
Sheohar
Gopalganj
Sitamarhi
Madhubani
Siwan
Muzaffarpur
Supaul
Araria
Kishanganj
Darbhanga
Madhepura
Saran
Vaishali
Hajipur
Samastipur
Saharsa
Purnia
Bhojpur
Patna
Khagaria
Katihar
Buxar
Begusarai
Nalanda
Sheikhpura
Munger
Bhagalpur
Kaimur
Rohtas
Arwal
Jehanabad
Lakhisarai
Nawada
Banka
Aurangabad
Gaya
Jamui
Zone - I
Zone - II
Zone - III (A)
Zone - III (B)

Study Area


18 Blocks
Jale
Keotiranway
Singhwara
Darbhanga
Manigachhi
Tard
Bahadurpur
Alinagar
Hanumannagar
Benipur
Ghanshyampur
DARBHANGA
Kiratpur
Hayaghat
Baheri
Gora Bauram
Biraul
Kusheshwar Asthan
Kusheshwar Asthan Purbi
West Champaran
East Champaran
Gopalganj
Sitamarhi
Madhubani
Siwan
Muzaffarpur
Supaul
Araria
Kishanganj
Darbhanga
Madhepura
Saran
Vaishali
Hajipur
Samastipur
Purnia
Saharsa
Bhojpur
Patna
Buxar
Begusarai
Khagaria
Katihar
Bhagalpur
Nalanda
Munger
Kaimur
Rohtas
Arwal
Jehanabad
Nawada
Banka
Aurangabad
Gaya
Jamui
Zone - I
Zone - II
Zone - III (A)
Zone - III (B)
27 Blocks
Raxaul
Adapur
Ramgarhwa
Narkatia
Bankatwa
Ghorasahan
Banjaria
Sugauli
Dhaka
PURBA CHAMPARAN
Paharpur
Turkaulia
(Motihari)
Chiraia
Harsidhi
Motihari
Piprakothi
Patahi
Areraj
Pakri Dayal
Kotwa
Chakia(Pipra)
Phenhara
Sangrampur
Madhuban
Kalyanpur
Tetaria
Kesaria
Mehsi

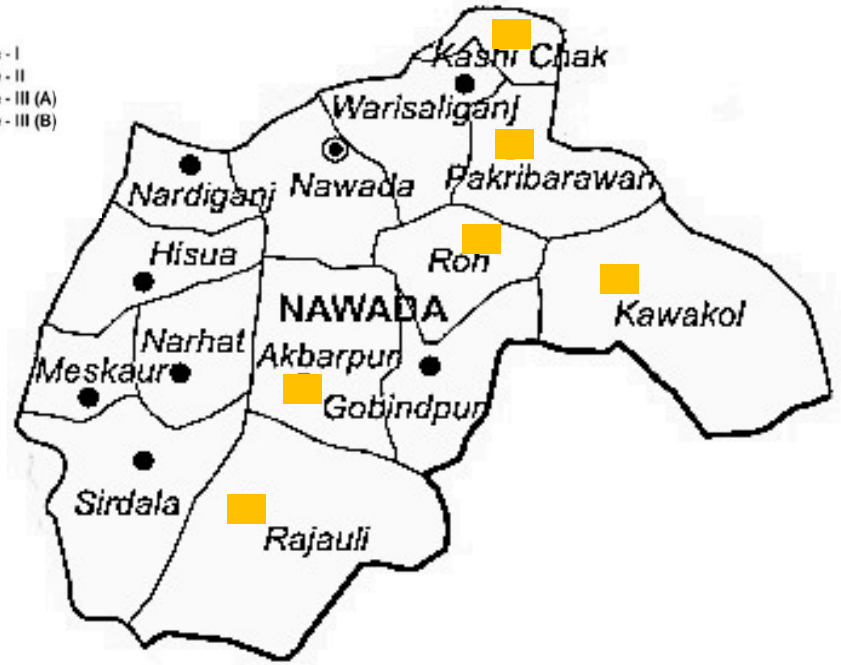
Study Area

7 Blocks





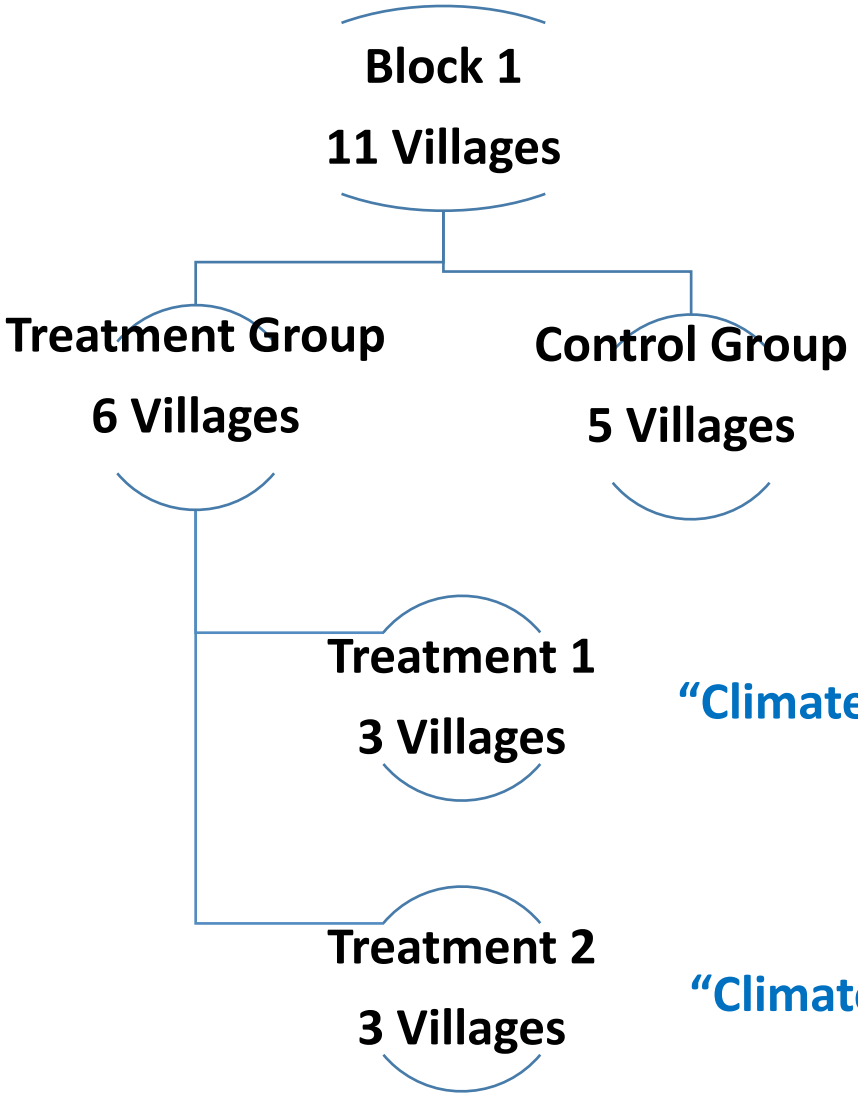
14 Blocks



Experimental Design

- Randomized controlled trial (RCT)
- Village-level randomization of the CIS
- Village-level randomization is stratified by Blocks. A block is an administrative unit that consists of 100-200 villages.
- 132 villages, from two districts, are spread across 12 blocks
  - 66 villages per district
  - 11 villages per block,
  - 11 villages from 11 panchayats from a block. 1 village per panchayat

Experimental Design



"Climate Literacy"

"Climate Literacy" + "Forecast Information"

Treatment Group - Control Group = Impact of CIS

Treatment 1- Control Group = Impact of "Climate Literacy"

Treatment 2 - Control Group = Impact of "Climate Literacy + Forecast Information"

Treatment 2 - Treatment 1= Value-added (marginal benefit) of Forecast Information

Implementation Plan

- The **point of entry** is a village.
- The **mode of entry** is a climate resource person (CRP). So 1 CRP per treatment village.
  The qualifications of a CRP:
  - College-educated. Could be a male or female. Comes from the same village. Resides in the same village.
  - S/he has to be very familiar with Jeevika programs.
  - For the duration of the project, the CRP's only responsibility is Jeevika-IRAP, with no other responsibilities, or responsibilities overlapping any two villages.
- CIS will be *disseminated* through CRPs. The project will train them to improve their "**climate literacy**" and will provide "**climate forecast information**"
- The **mediums** of information dissemination are:
  - "Climate Literacy" workshops
  - SMS messages for "Climate Forecast Information"

Implementation Plan

How will "Climate Literacy" be provided?

- Improve climate literacy of CRPs. Training will take place at Jeevika district offices
- Separate workshops for CRPs from **Treatment 1** and **Treatment 2** villages.
  - # of CRPs in the workshop for Treatment 1 **:** 3 per block*6 blocks= 18
  - # of CRPs in the workshop for Treatment 2 **:** 3 per block*6 blocks= 18
- Two workshop sessions for each treatment group of CRPs
  - Session 1 **:** Climate Literacy Curriculum
  - Session 2 **:** Approx. 1 month after Session 1
- 3 Days (per Session)*4 districts *2 (Sessions) = 24 Days + 6 Days (Travel) = **30 Days**

Implementation Plan

How will “Climate Forecast Information” be disseminated?

- Each CRP will be provided one SIM card/phone by Jeevika
- Hindi SMS messages
- Messages will be purely “climate” information. No agro advisories!
- Frequency, timing, and the related details of the messages will be recorded.
- How many CRPs will be receiving SMS messages?
  - 72 in flood-prone study
  - 72 in drought-prone study

Climate Information Treatment

Two Components

1. **Climate Literacy Curriculum**
   a. **Dictionary:** explain terms/jargons used in weather and climate forecast reporting. figures, colors, probabilities, confidence etc.
   b. **Historical patterns** of weather and climate variability and events, organized by blocks, districts (maproom), relative to Bihar/India patterns
   c. Synthesis of **adaptation responses** and **coping strategies** adopted by rural communities in **similar environments**
2. **Climate Forecast Information**
   - ❖ Tailored differently in flood-prone and drought-prone areas
     - Considerations of downside and upside risks, loss aversion, mental accounting, heuristics
   - ❖ Monsoon season and Non-Monsoon season

Timeline of Experimental Design

