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Transmission of Warning to Local Levels

Enabling Communication for Adaptation and Livelihood Resilience

Information, Communication Systems, Early Warning: Building "Alive" Systems for Last Mile Communities

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presented at

LIRNEasia workshop - Sharing Knowledge on Disaster Warning:

Community -based Last-Mile Warning Systems

19th November 2007, New Delhi, India

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The Need for Communication

Early warning and weather forecast Information from

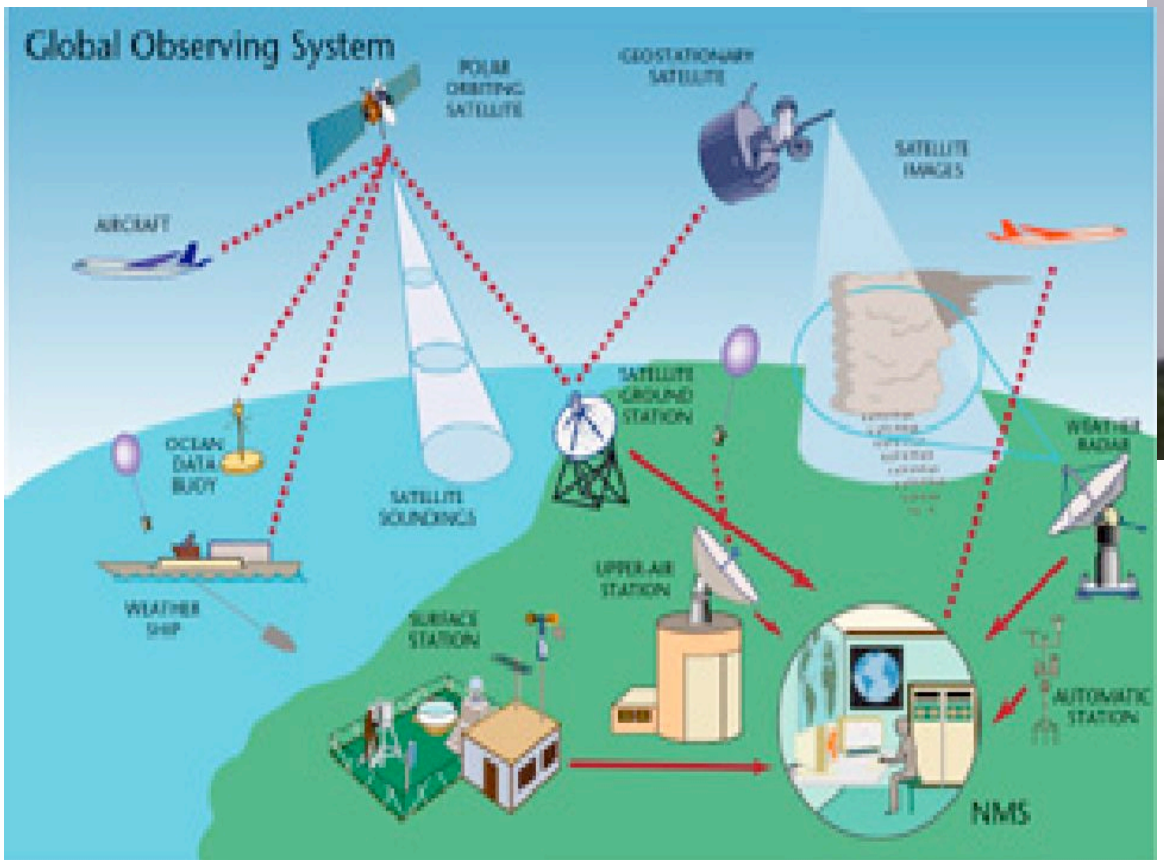
Meteorological Dept. and/or DMA

HOW ?

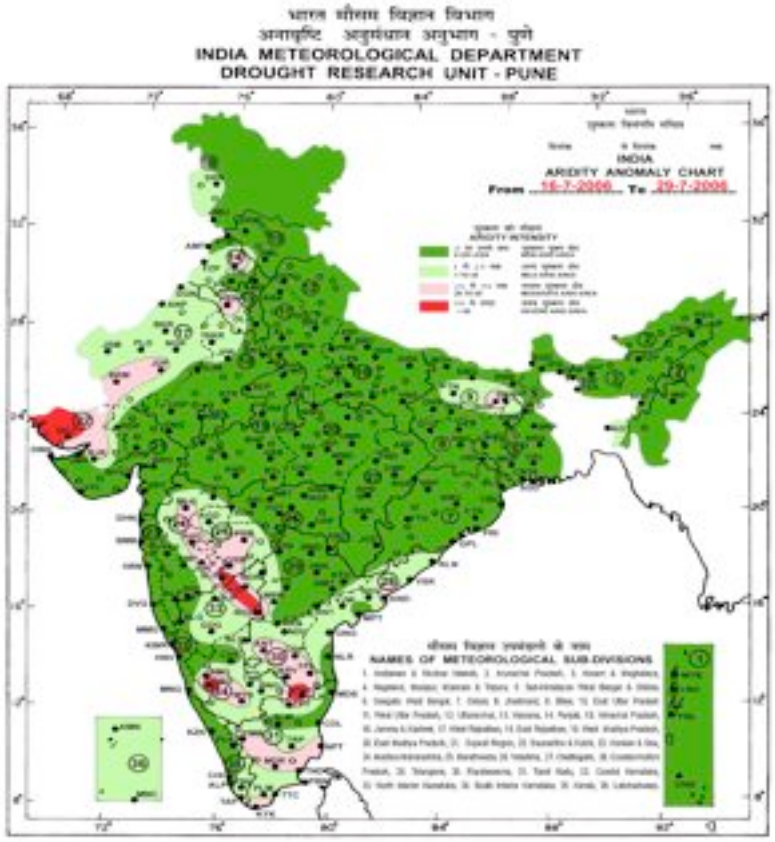
Communication systems

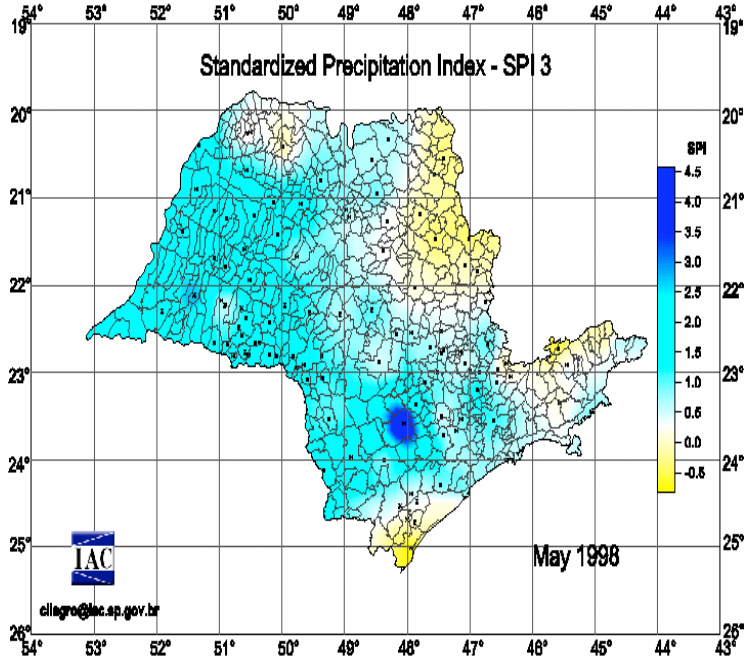
Should reach the people in the right time

- WorldSpace digital satellite radio
- Inmarsat satellite based systems (BGAN and D+)
- FM Radio based systems
- HF and VHF Radio networks
- Satellite based VSATs
- HAM Radios
- WLL & GSM based services (Mobile phone operators)
- Village Knowledge Centers, Village Information Centre and Community Information Centres
- Interactive Voice Response System (IVRS)

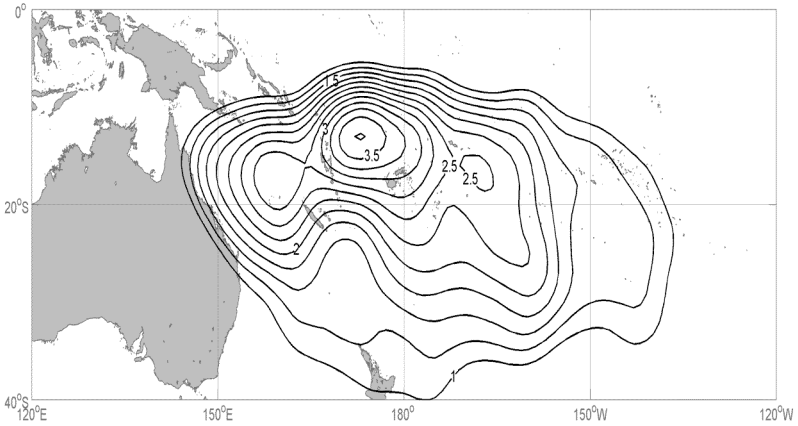


Relay of information through various communication systems





Information Generated is mostly coded and scientific



Interfaces for Communicating

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Information is the key

Communication systems is a broader term which includes mass medium such as radio, television, mobile phones to niche devices like HAM radios, satellite phones etc…

Each of these Communication systems not only play a major role in relaying information but also in other aspects of the disaster scenario, like

- Early Warning
- Preparedness and Adaptation
- Disaster mitigation &
- Disaster management

Given the importance of these systems, how do the **policies and acts** governing the telecommunication in India **enable** them to play their role in disaster communication and in some cases **disable** the same.

Understanding the communication policies in India…

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Information Access Policy Framework

- The Information Technology Act, 2000
- Register of Interconnect Agreements, 1999
- Community Radio Policy
- Amateur Radio Policy
- Communication Convergence Bill, 2001
- Broadcasting service regulation Bill, 2006

Disaster Management Act – With reference to Communication systems

- The Disaster Management Act, 2005
- The Gujarat State Disaster Management Act, 2003

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Information & Communications - Existing Stakeholder Institutions

- Indian Meteorological Department
- Indian Space Research Organisation - ISRO - SAC
- Central Water Commission
- Ministry of Home affairs – National Institute of Disaster Management
- Central Relief Commissioner (CRC)
- Ministry of Information & Broadcasting
- Ministry of Information Technology
- Ministry of Defence
- Telecom Regulatory Authority of India (TRAI)
- State Disaster Management Authority/Cell
- Department of Earth Sciences, Agriculture, Water Resources & S&T

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Possible Stakeholder Institutions

Increasing access of communication…

- Indian Railways
- Postal Department
- Telecom service providers (Govt controlled & private)
- National Public Service Broadcasters (AIR & Doordarshan)
- Private Radio stations
- Private Television channels
- Community Radio stations
- Wireless Service Operators (HAM radio/Marine radio)
- NGOs working on disaster management
- Organizations working towards disaster mitigation
- Village Information Centre - VKC, VRC, CIC etc.

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Mapping “Spectrums” of Communication Systems

- NIC - ERNET & NICNET
- Indian Railways - Communication system
- Telecom service providers (Govt controlled & private)
- National Public Service Broadcasters (AIR & Doordarshan)
- Private Radio stations
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Broadcasting Services Regulation Bill 2007 and Content Code (Self-Regulation Guidelines for the Broadcasting Sector, 2007) of India

To provide regulation in the carriage and content of broadcasting

1) The bill does not identify any role or give any direction to the broadcaster for actions during the time of disaster and before that
2) No reference on possible role of broadcasters in early warning
3) No reference on network sharing in the event of disaster for relief and rescue
4) No reference on possible role of broadcasters in adaptation, even when the bill speaks of mandatory sharing of broadcast of “sports” telecast of “national” importance.

Even though the bill does not directly give much scope for broadcaster’s role in climatic variability and adaptation debate, to understand the implication of various provisions as discussed above (and of those which are not there) in the proposed bill for community preparedness lets also analyse the draft "Content Code" to be provided to the broadcaster ‘s and see if any supportive role is suggested for the broadcasters.

The bill covers the following media:
i. Teleport / Hub / Earth Station
ii. Direct-to-Home (DTH) Broadcasting Network
iii. Multi-System Cable Television Network.
iv. Local Cable Television Network
v. Satellite Radio Broadcasting Network including community radios
vi. Such other Network Service as may be prescribed by the Central Government

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Review of existing Disaster management policies in context of Disaster Communication

- The Disaster Management Act, 2005

- The Gujarat State Disaster Management Act, 2003

The above two acts are sketched in context of Disaster and the clauses in these acts which pertain to communication, early warning, imparting necessary information are explained in the coming slides

Policies pertaining to disaster have vague clauses in the communication aspect

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The Disaster Management Act, 2005

An act to provide for the effective management of disaster and for matters connected therewith.

30.2.ii Implementation of national, state and district policy.
30.2.iii prevention measures for mitigation of disasters to be undertaken by the depts. Of Government.
30.2.v Directions to different authorities for the prevention of disaster
30.2.xiii. Facilitate community training and awareness programme
30.2.xiv Setting up mechanism for **early warning and dissemination of information**.
30.2.xvi. Coordinate response to any threatening disaster situation or disaster.
31.3.d.iv. Establishment of **communication links**
31.3.d.v. The **dissemination of information to the public.**

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The Disaster Management Act, 2005…cont

34.f. Establish **emergency communication systems.**
36.g.i providing **emergency communication in a vulnerable or affected area**.
38.h. **adequate warnings systems.**
39.a. capacity building in accordance with the guidelines.
39.b integrate development plans and projects
39.e. reviewing enactments of plans and policies
42.g. promote awareness among stakeholders.
42.h.organize conferences and lectures.
42.i.publication of journals, research papers and books.
54. **False alarm or warning – punishable offence**
67. Recommendation of any **authority or person in control of audio or audio-visual media to carry out the necessary warning.**
74. Immune from legal process in regard of warning of an impending disaster.

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The Gujarat State Disaster Management Act, 2003

An act to provide for effective management of disaster, for mitigation of effects of disaster, in the state of Gujarat and also establishing the Gujarat State Disaster Management Authority

Chapter IV: 5. Providing assistance to the authority, commissioner, the collector and the local authority in **setting up communication centers.**

14.b. Ensuring **establishment of communication links and setting up of emergency communication and early warning systems in the state**.

14.d. -ensuring establishment of **communication links** with disaster management agencies in India and other countries in India and other countries.

15.2.g.iii. Establishment of strategic communication links.

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The Gujarat State Disaster Management Act, 2003

The Gujarat State Disaster Management Act, 2003

16.1 promote **awareness** and preparedness to train community

23.xv. Disseminate **information to the public to deal with disaster.**

24.f. **facilitate community training, awareness programmes**

24.k. ensure **communication links** are in order

26.f.iv establishment of **strategic communication links.**

27.3.a. Ensuring that the **communication system is in order to be made available free of charge for transmission** in connection with the disaster.

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ekgaon's Climate and Weather Information Systems Unit

ekgaon's Climate and Weather Information Systems Unit (CWISU) has been looking into various aspects of climate change impacts and role that communication can play in building adaptive capacities of vulnerable communities and institutions in the disaster prone regions of South Asia and provisioning of climate and weather information to communities and identified sectors such as Aviation, Shipping, Terrestrial Transporters (Road & Rails), Tourism, Energy supplier, Mass Media, Event organisers, News papers and Websites, Telecom operators, Supply Chain Operators (Horticulture, Agriculture, etc.), Farmers, insurance companies. The main areas of CWISU work are:

Information and Products; identifying, analysing and developing climate/weather forecasting products and enhance there ability to provide early warning inputs under different climate change scenarios.

Communications Systems; identifying and developing technologies and systems, enabling there accessibility, developing there management framework. However communication systems are not a function of technology and access alone.

Research; on environment, system, policies and guidelines assess the existing global/national/regional/ state/village level communication policies and systems in general as well as specific focus towards their role in early warning, disasters and building adaptive capacities in South Asia and particular in India, Pakistan and Nepal.

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ekgaon's role - Multi purpose communication strategy

ekgaon is working in the following areas for understanding communication and disaster context and testing last mile communication strategies.

•Identifying and introducing additional channel of information (Early Warning System, Stakeholder forums and Communication Systems identified);
•Generation, localizing and contextualising of information
•Removal of constraints in access to information
•Linking communication channels and strategies
•Emergency communication systems

Pilot Project Areas - India

- Coastal areas of Tamil Nadu - Coastal, Cyclone, Flood and Drought Prone areas
- East Uttar Pradesh & Bihar – (Bagmati and Rohini Basins)
- Gujarat – Coastal, Cyclone, Flood and Drought Prone areas

Pilot Project Areas - Nepal

- Terai Region (Bagmati and Rohini Basins)

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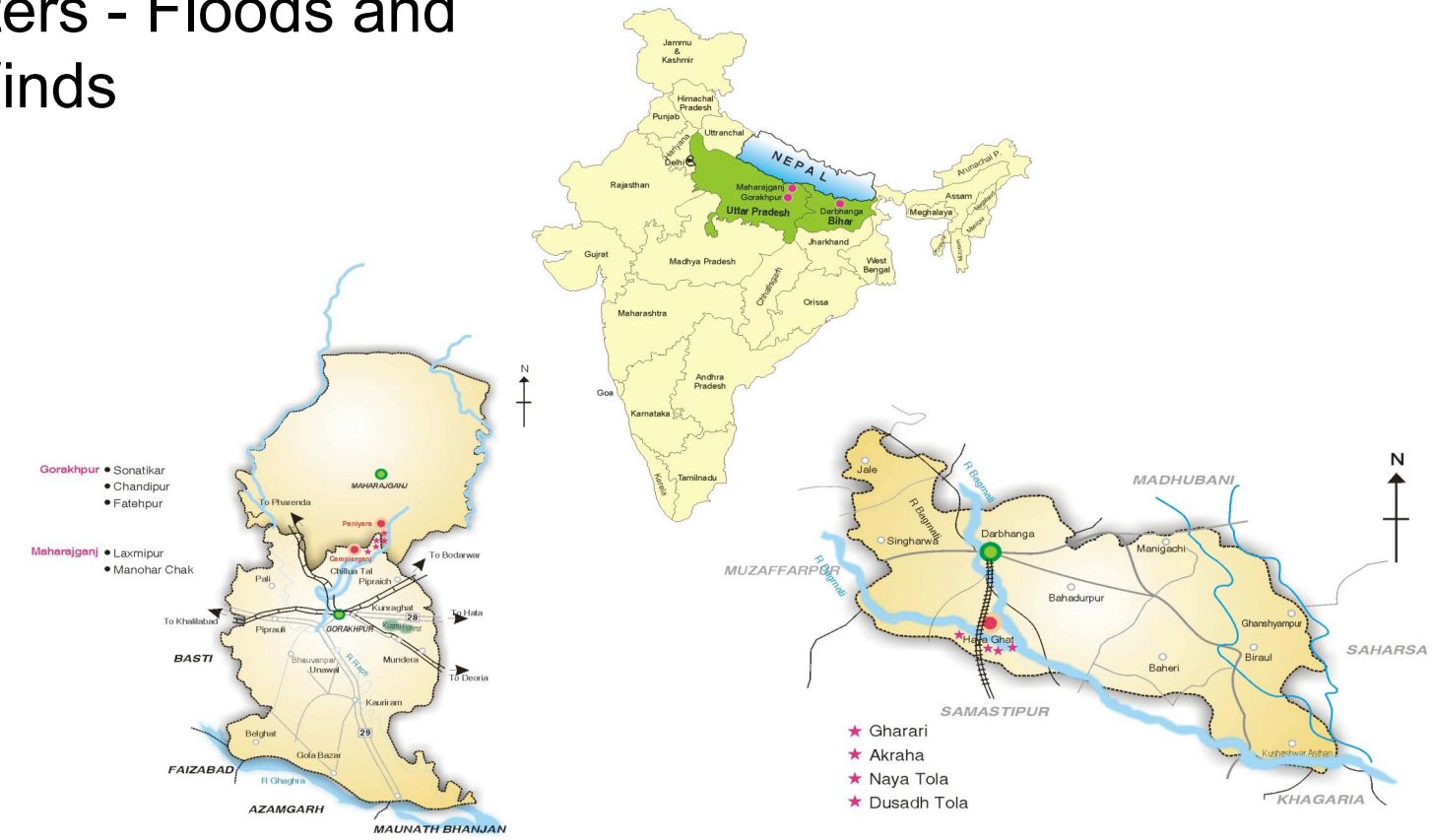
Project Area - East Uttar Pradesh & Bihar

Disasters - Floods and Hot Winds



Rohini (U.P.) Basin
Distt : Gorakhpur and Maharajganj
Block : Campierganj and Paniyara

Bagmati (Bihar) Basin
Distt : Darbhanga
Block : Haya Ghat

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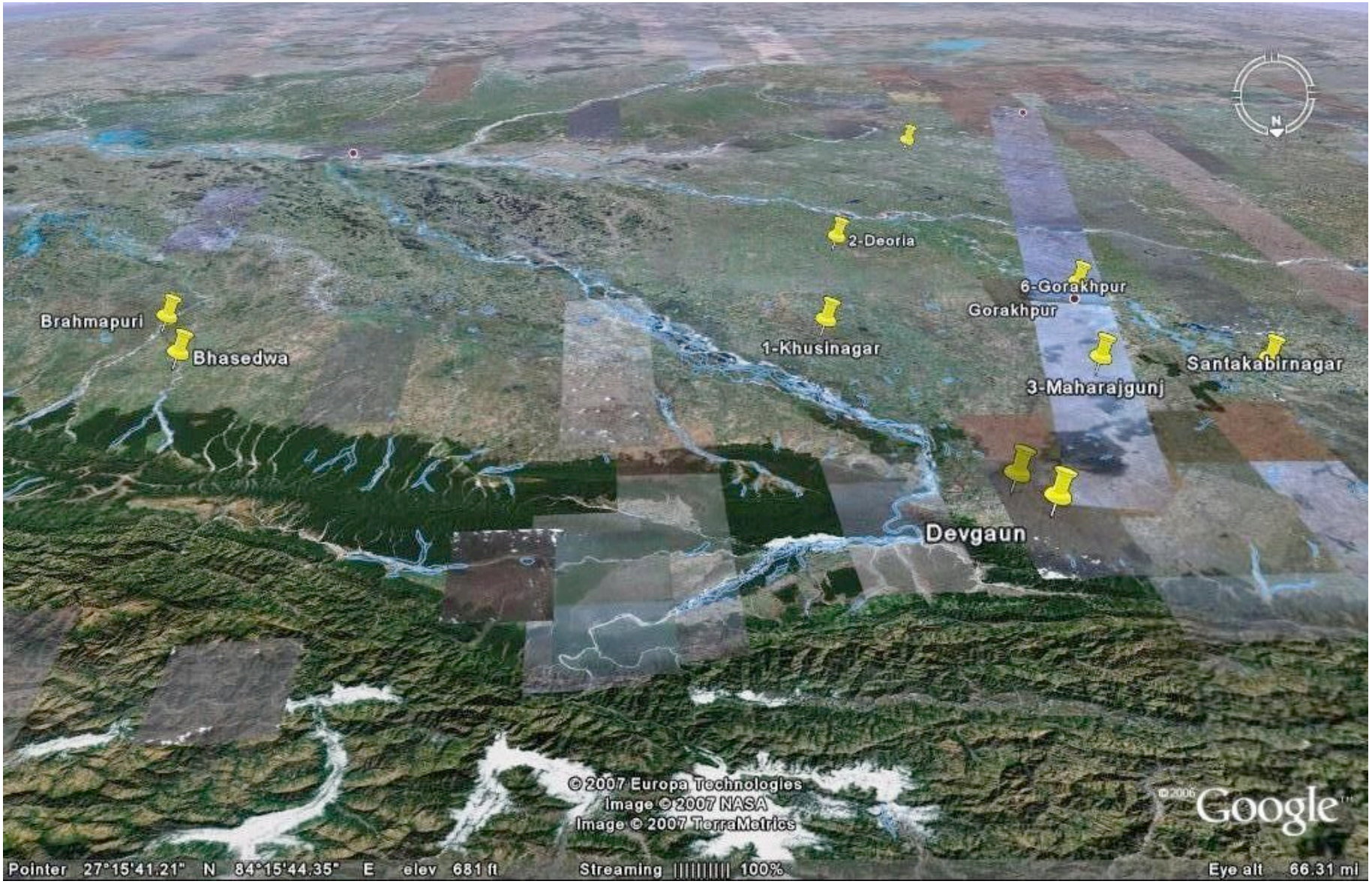

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Project Area - East Uttar Pradesh & Bihar

Bagmati and Rohini Basins

Villages of Campierganj, Sonatikar, Lal Barhara in Terai Belt

-1981, 1998, 2007 – Big floods, extensive damage
- The villages gets its flood from tributaries of Rohini river, traversing from the hilly regions of Nepal.
- There is no dam to collect the water from Nepal hills
- People get information from Radio, TV, newspapers, Hotline
- Access to telecommunication is weak in the region - PCO and Mobile access is limited and is available with less then 1% of the population
- Warnings are issued by the Revenue dept – District magistrate
- Traditional warning methods – methods which give:
  * Ants going up the wall
  * Goraiah, a native bird falling in dusted pits indicate heavy rainfall
- Revenue dept sets up flood posts in vulnerable areas and there are 3 police men in each flood post
- The Disaster management committee formed by the an NGO-CRS, have one sub-committees working on Information and warning
- Disaster Resource Centre was established in each village by the CRS and one person from the community called the Vikas Mitra (Development Friend) co-ordinates with the organization to
  o Collect and disseminate information
  o Link with various government departments
  o Get support from DMC

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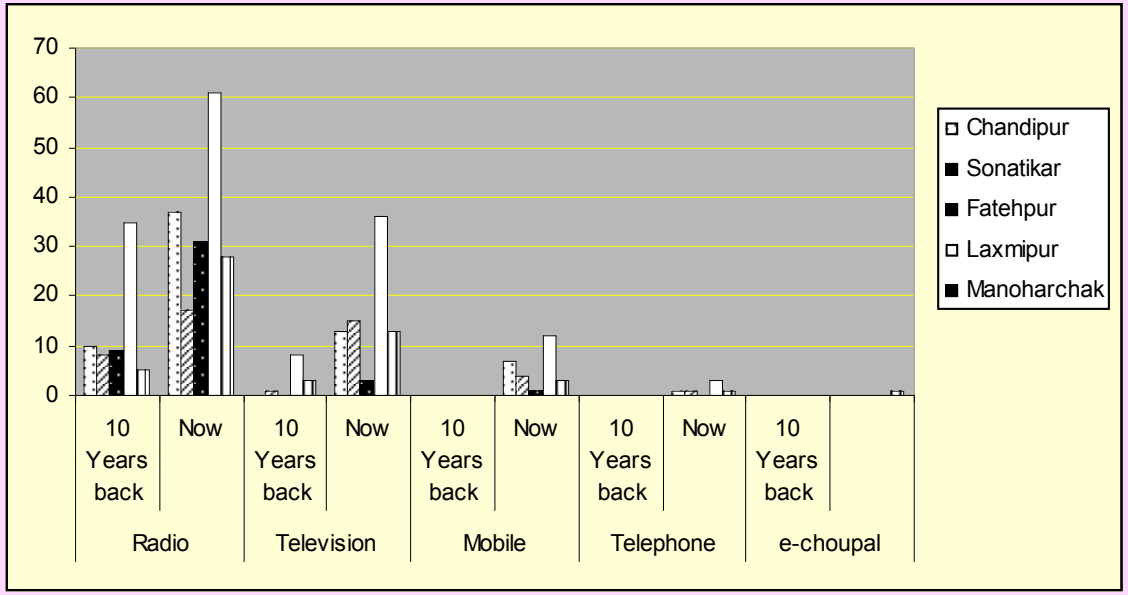
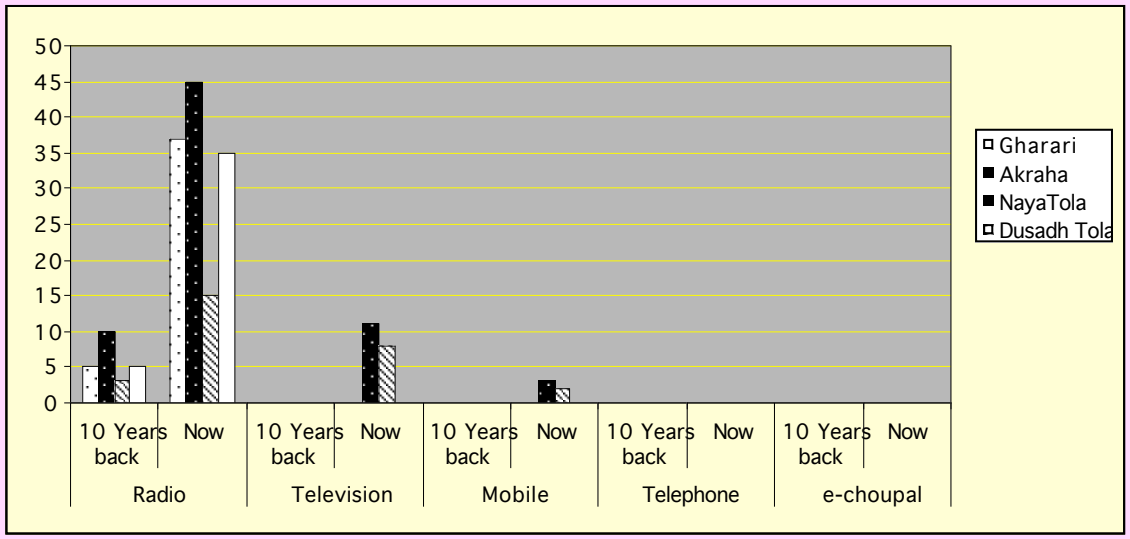
Project Area - East Uttar Pradesh & Bihar

Means of Communications in the villages and upcoming trends





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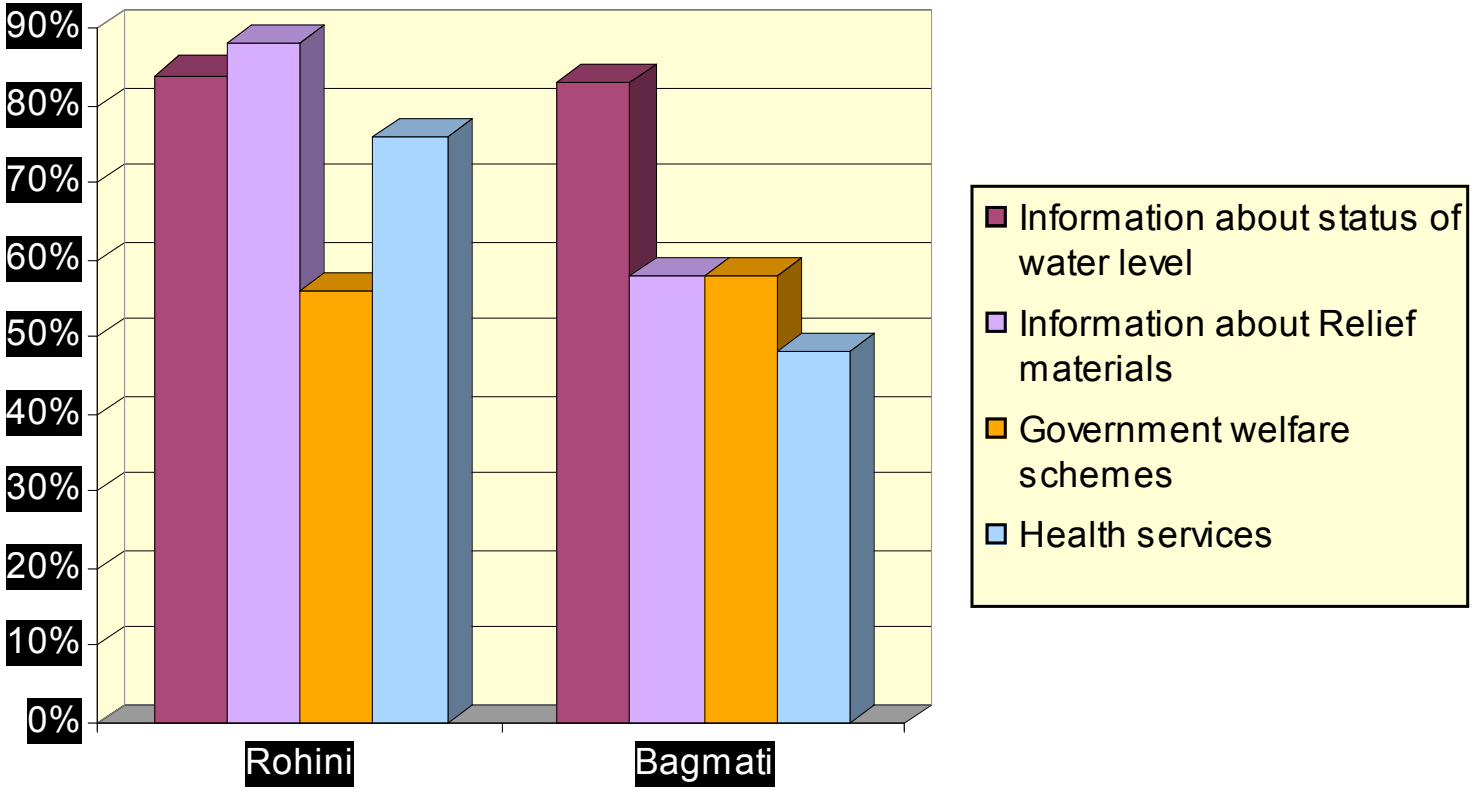
Project Area - East Uttar Pradesh & Bihar

Information Needs identified by village communities



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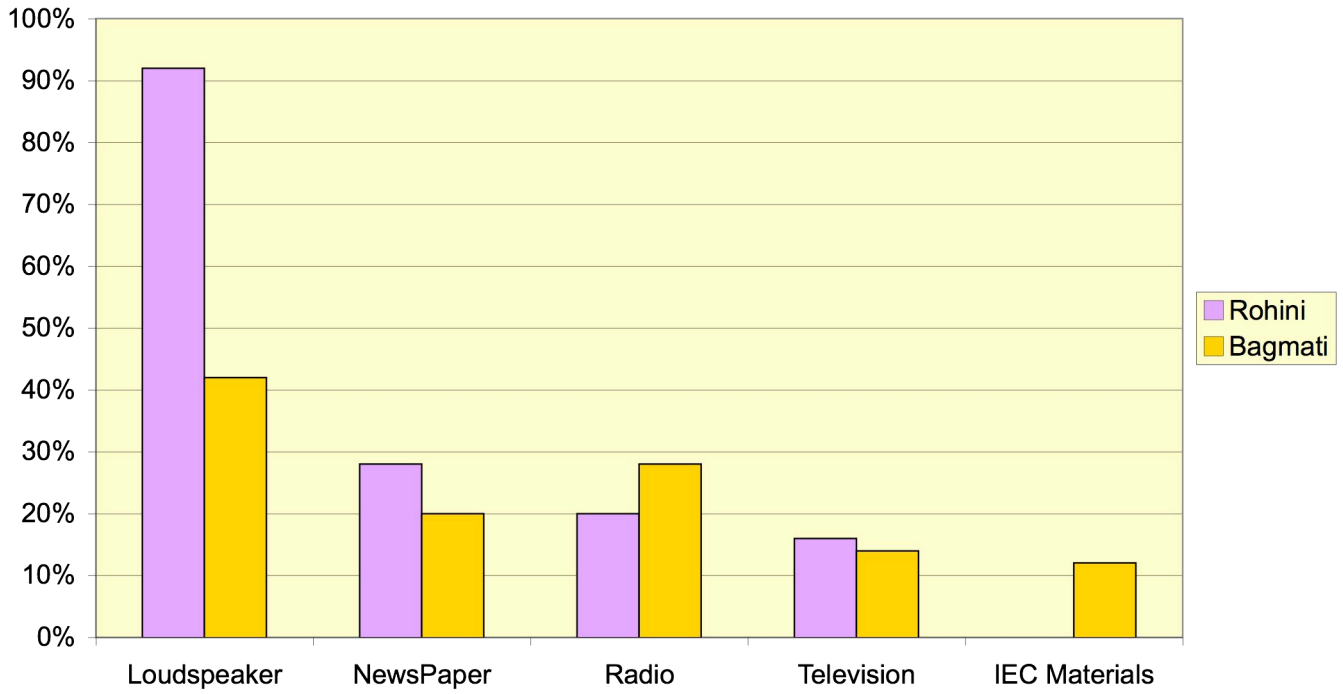
Project Area - East Uttar Pradesh & Bihar

Preferred means of Information dissemination identified by village communities



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Project Area - East Uttar Pradesh & Bihar

Identified Communication Issues

- Communicate how to save yourself?
- How to preserve oneself?
- Main message to farmers – how to protect crops?
- Updated (Weather) News bulletins
- Special Weather reports
- Special phone-in programmes during floods
- Radio programme - 100 KW transmitter for 10 districts in existence
- Timely warning relayed through public address system

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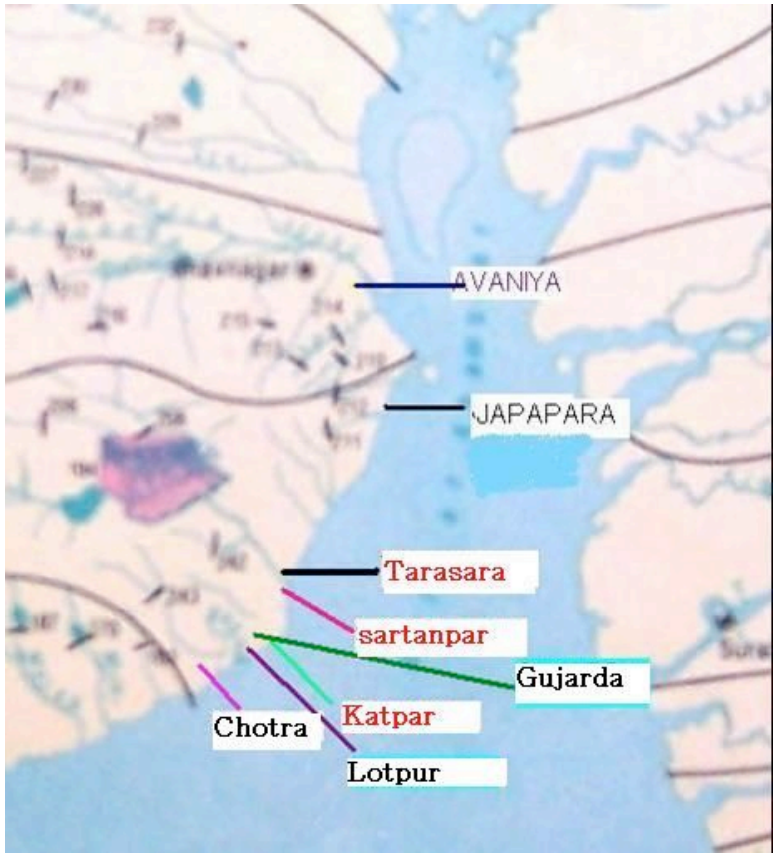
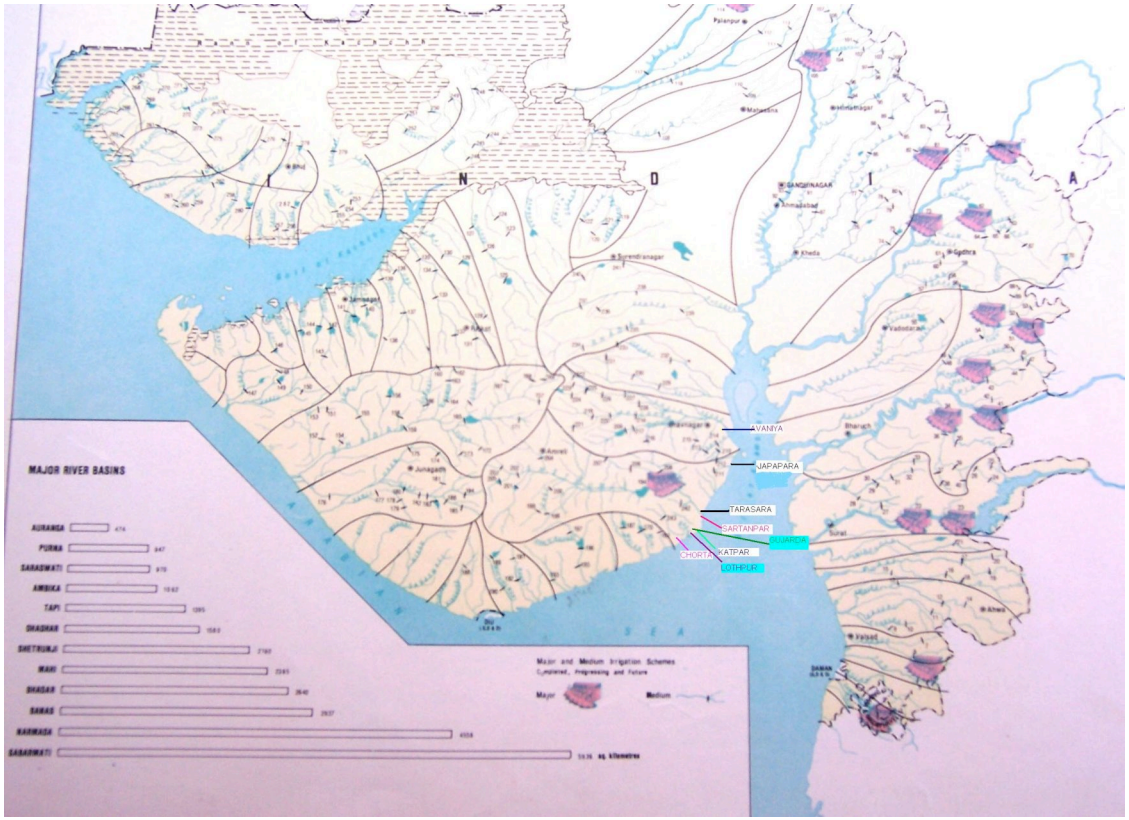
Project Area - Gujarat

Disasters - Coastal Tides, Cyclone, Flood and Drought Prone areas





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Project Area - Gujarat

Villages - Sartanpur, Lotahpur, Tarasara

- Relatively well off regions
- Means of communication includes TV, Radio, Mobiles and PCOs…. Covering almost 45% of the population
- High degree of Vulnerability to climate change
- Facing both slow onset disasters such as drought, salination as well as cylones and storms
- Security issues does not allow wider use of wireless communication devices such as Ham Radio. Even Community radio license is discouraged.

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Project Area - Gujarat

Identified Communication Issues

- Communicate how to save yourself?
- How to save ones livelihoods?
- Main message to fisherfolk – When to venture out?
- Updated (Weather) News bulletins
- Special Weather reports
- Special phone-in programmes during floods and cyclones
- Radio programme - on identified issues such as salinity and drought
- Timely warning relayed through public address system - accessible for some distance in the sea

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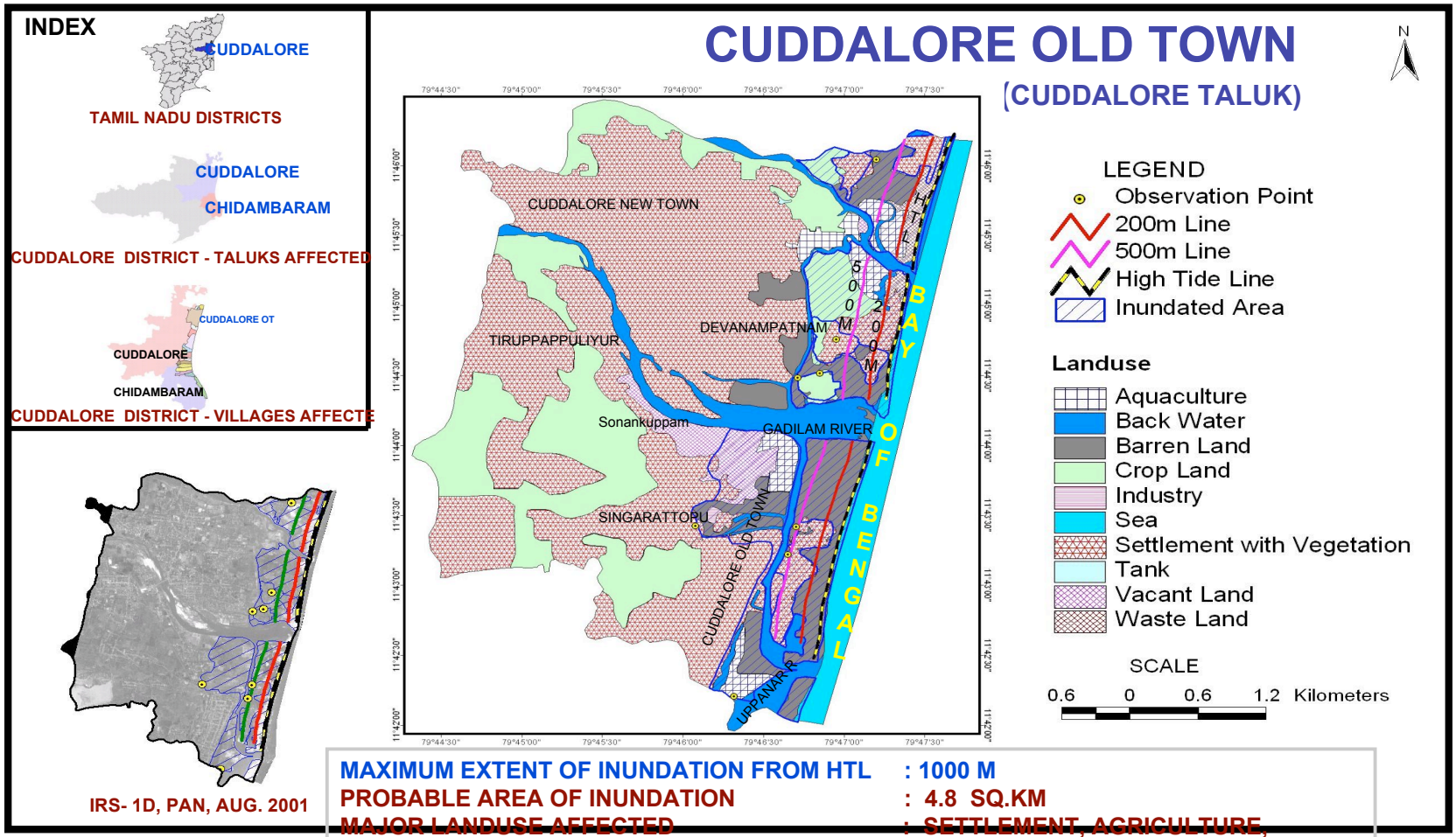
Project Area - Tamil Nadu

Tamil Nadu – Coastal, Cyclone, Flood and Drought Prone areas



Maximum extent of Inundation is based on field observation and area of inundation has been calculated using the field data and the landuse / landcover in the region derived from satellite data.

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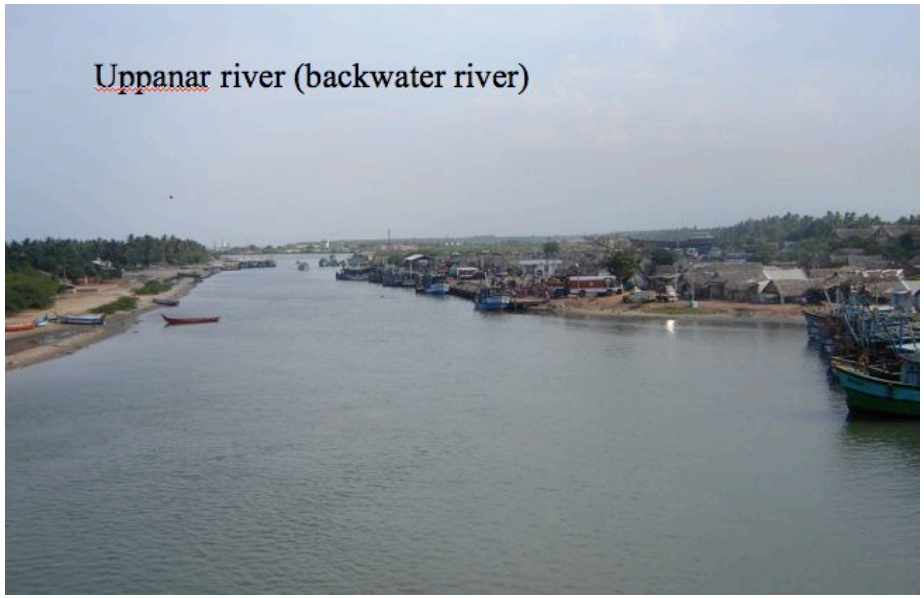
Project Area - Tamil Nadu

Villages - TS Pettai, Pitchavaram and Vanagiri

- Cyclones
- Tsunami
- Spells of drought - due to less rain fall as well as less water in the Cauvery river
- Besides coastal hazards, inundation occurs due to flooding in Cauvery river and several backwater (drainage canals) rivers resulting in long term damage to land and groundwater – causing severe salinity



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Building Alive Systems

* Convergence of system for effective synergy in a “Context” and within a “Framework of Action”

* Focus on “Software” rather then “Hardware”

* Understanding “Interfaces” for enabling information access to community

* Communication of Information for

Adaptation --> **Mitigation** --> Early Warning --> Relief --> **Rehabilitation (Rebuilding Livelihoods)**

* Guideline and Protocol for stakeholders - Imp. guideline for Mass Media

* Education - Content part of course curriculum to be redesigned to have Adaptation --> Mitigation --> Early Warning --> Relief --> Rehabilitation (Rebuilding Livelihoods)

And Guideline and Protocol

* Rely on Community Institutions to make the “System Alive”

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Consortium Partners

Institute for Social and Environmental Transition, International (ISET-USA)
Institute for Social and Environmental Transition, International (ISET-N)
Institute for Social and Environmental Transition, International (ISET-India)
Winrock international India (WII)
ekgaon technologies (ET)
Madras Institute of Development Studies (MIDS)
Gorakhpur Environmental Action Group (GEAG)
Nepal Water Conservation Foundation (NWCF)
Utthan (Gujarat)
IDRC, New Delhi
NOAA, USA

thank you

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