

UNNAT BHARAT ABHIYAN



Prof. R. K. Panda

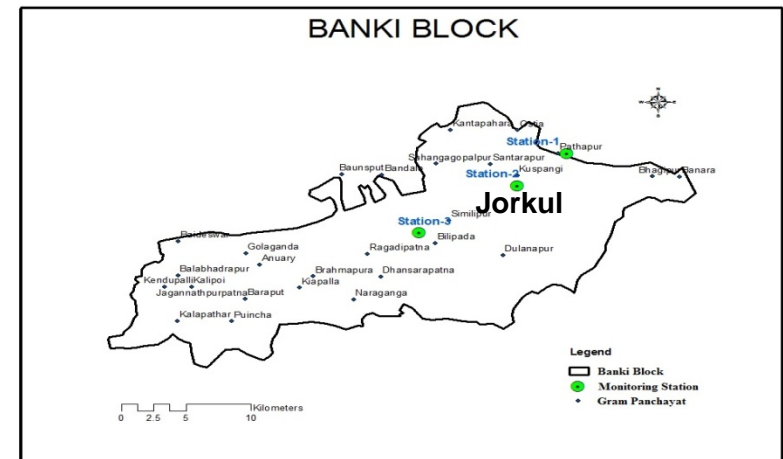
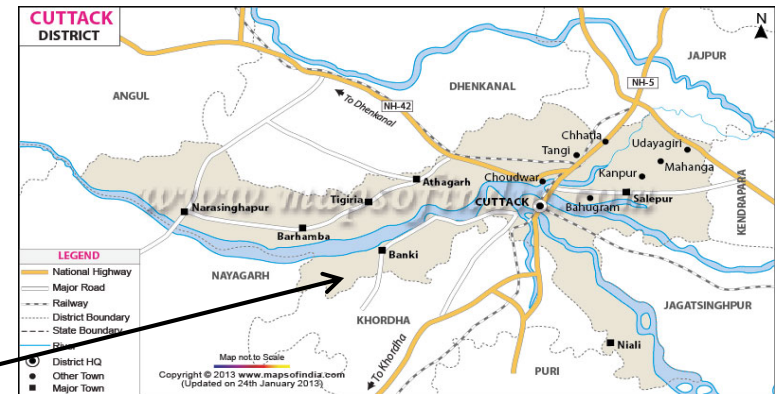
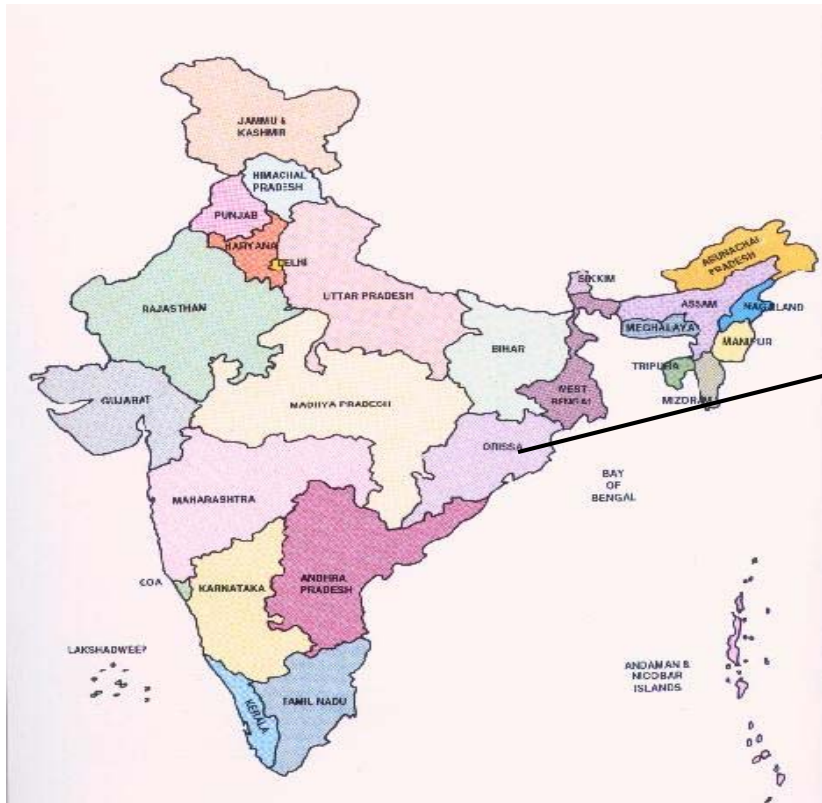
UBA Coordinator & Dean (R&D)

**INDIAN INSTITUTE OF TECHNOLOGY
BHUBANESWAR**

Adopted Villages under UBA

- 1. Jorkul (Block: Banki, Dist: Cuttack, Odisha)**
- 2. Argul (Tehsil: Jatni, Dist: Khurda, Odisha)
adjacent to the Institute Campus**

Location of Jorkul Village

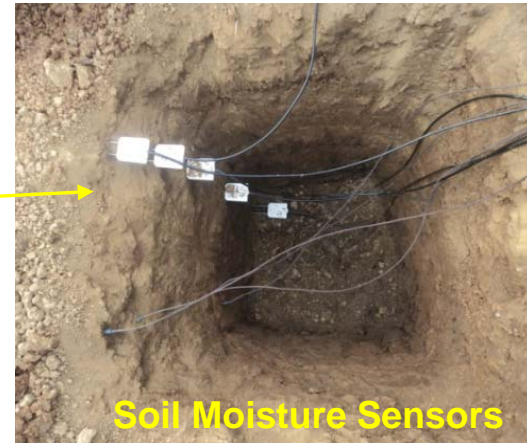


- **Jorkul is a hamlet of Harirajpur village with 1081 households and a population of 4443 (with 1646 farm labourers)**

On-going Activities in Jorkul Village

- **A sponsored research project entitled “Improving Groundwater Level and Quality through Enhanced Water Use Efficiency in Eastern Indian Agriculture” is being executed in the Jorkul village**
 - **Funding Agency:** Information Technology Research Academy (ITRA),
Ministry of IT, Government of India.
- **Baseline survey using household and village level questionnaire were carried out and the following problems are identified:**
 - Farmers of these villages are totally dependent on the rainfall; uncertainty and variability of rainfall force them to sometime skip the Kharif rice
 - Flood is also a big problem in the river Mahanadi; prolonged flood water logging damages the standing crop and causes degradation in soil quality
 - Declining ground water level and quality in the interest of rural community
 - Problems of cold storage and marketing of perishable products
 - Poor extension services
 - Marginal/fragmental land holding

Understanding the problems



Test-bed for monitoring meteorological and soil moisture dynamic in the Jorkul Village



Collection of soil sample

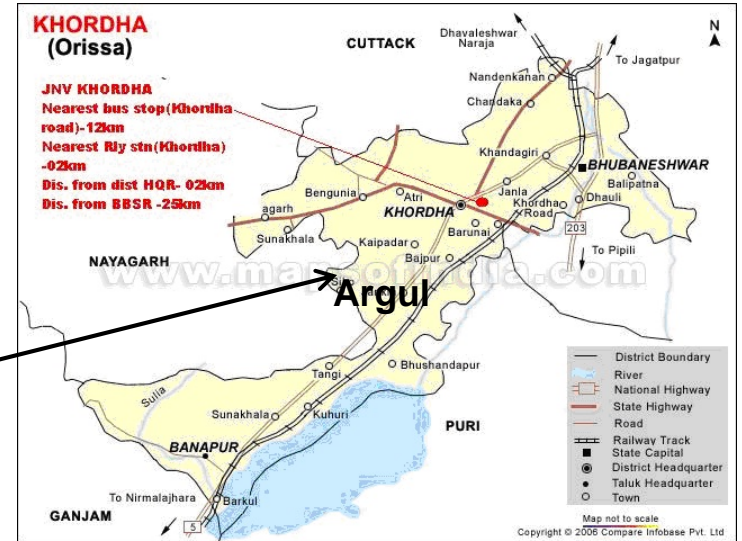
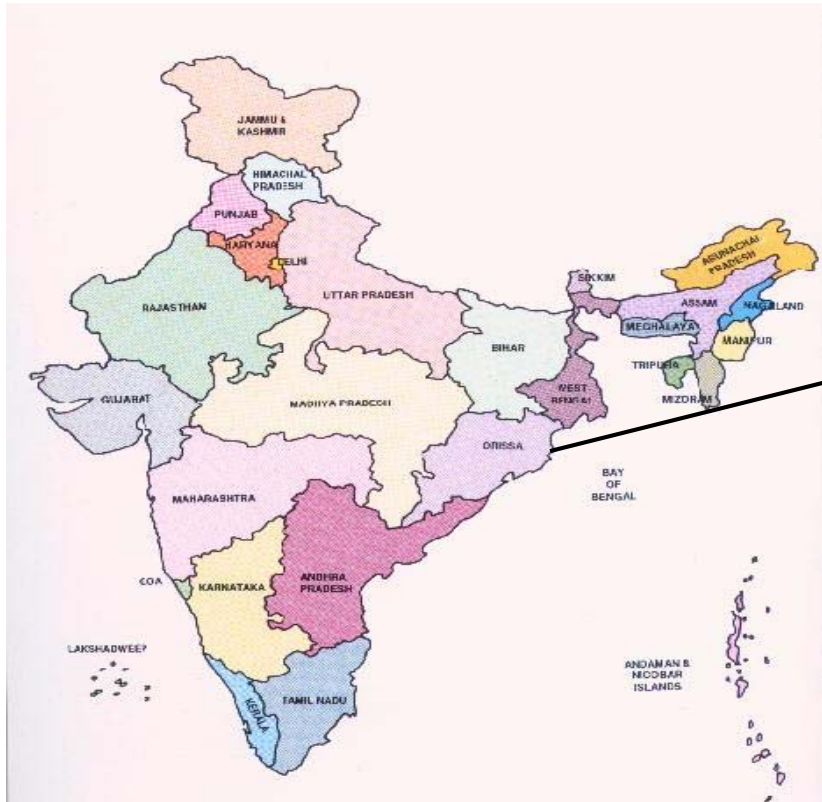


Training of farmers to use advanced technology

Possible Solutions

- Formulation of management strategy for enhancement of agriculture water use efficiency through conjunctive use of surface and ground water resources
- Use of innovative technology to address problems related to agricultural water management, recharge and other issues responsible for improper use of natural resources such as: **Soil and Water**
- Reversal of declining ground water level and quality
- Improvement of overall socio-economic condition of farmer/village using affordable low cost technology
- Employment generation by setting up of low cost post-harvest processing units for processing of perishable products (e.g. tomato ketchup), low cost refrigeration and cold storage, packaging etc.
- Training of farmers to use advanced technology

Location of Argul Villages



Activities at Argul

- Exhibiting the benefit of Solar power through installation of two solar street lights at the community centres
- Awareness programmes among the School Children
- Conducting household survey to collect the base line information
- Meeting with the village community to know their problems

Solar Lights at Community Centres



Rural Drinking Water and Sanitation System

Major Concerns

- **Inadequate or no infrastructure for providing safe drinking water and effective management of human wastes**
- **Limited options for managing household water and human wastewater**
- **Inadequate water, sanitation infrastructure, service delivery and unsafe behaviours are collectively responsible for water borne diseases, e.g., high diarrhoea incidence.**
- **Poor economy and lack of knowledge is the major driving force behind non-availability of safe drinking water and poor sanitation system.**

Rural Drinking Water and Sanitation System Contd..

Proposed Plan of Action

- **Need to emphasize more towards holistic and sustainable problem solving approach over technological innovations**
- **Adoption of low cost but robust technology**
- **Decentralized treatment technology with zero discharge concept**
- **Exploration of natural treatment concepts for maintaining the stability of nature**
- **Requirement of unskilled operation and maintenance**
- **Simple but safe and highly effective treatment system**
- **It must be mentally and spiritually acceptable by the community villagers**

Low Cost Housing for Rural Areas

- **Low cost housing technology is needed for the rural areas without compromising safety and quality**
- **It should also be earthquake resistant, cyclone resistant, fire resistant, thermally efficient, energy efficient and have environmental friendly credentials**
- **The structures should have low weight superstructure requiring appropriate foundation to reduce the cost as well as earthquake related damage**
- **Odisha has a large number of mineral based industries producing huge mass of wastes like slag, fly ash, red mud**
- **The utilization of these industrial wastes in housing project will be beneficial in making the buildings more economical and sustainable**

Rural Sanitation System

- **All domestic units must be connected with sanitary toilet and septic tank system for managing the black water**
- **The effluent from septic tank and grey water from kitchen and bathroom should pass through a low cost filter system**
- **This filter should be constructed with locally available materials with almost zero operational or maintenance cost**
- **Frequency of cleaning should be once in six months, by replacing the top layer with locally available materials**
- **The top soil after cleaning can safely be re-used as bio-organic fertilizers without any further treatment**
- **Almost a perpetual type of toilet, septic tank, and filter system for rural sanitation practices**

Solid Waste Management in Rural Area

- **Household level treatment of bio degradable waste**
 - **Composting**
 - **Vermi-composting**
 - **Biogas plant**
- **Reuse of non biodegradable waste at the household level**
- **Transportation of segregated waste at the household level to community collection centre by Self Help Groups (SHGs)**
- **Waste which cannot be composted, reused or recycled may be disposed at the landfill sites following appropriate procedure**
- **Non biodegradable waste to be further segregated and recycled**
 - **Recycle at village-level**
 - **To central recycling chain through scrap dealers**

Thank You