



United Nations  
Educational, Scientific and  
Cultural Organization



# Groundwater for Emergency Situations (GWES): Orissa Pilot Project



## Inception Workshop

KIIT University, Bhubaneswar, ORISSA

10-12 May 2010



## The context:

The Orissa state has a total area of about 0.16 million sq.km with a coastline of 480 km. The coastline traverses six coastal districts of Orissa, viz. Balasore (80 km.), Bhadrak (50 km.), Kendrapara (68 km.), Jagatsinghpur (67 km.), Puri (155 km.) and Ganjam (60 km.). The state has aquifer system varying from Pre-Cambrian to the recent deposits.

The average annual rainfall is 1482 mm and is quite erratic in its behaviour. The droughts are quite common; therefore the area suffers from acute scarcity of water both for drinking and irrigation.

The coastal areas mostly located in the Mahanadi delta are prone to cyclonic storms and associated floods. The state of Orissa was hit by century's worst cyclone of catastrophic intensity on 29<sup>th</sup> October 1999. The devastation wrought by the super cyclone caused utter disbelief and untold miseries to nearly 13 million people in the state. Along with devastation by the high wind speed, miseries of the mass increased manifold by sea water inundation and flooding of the coastal area. These cyclones ruin infrastructure, including water distribution lines, landscape, salinisation of groundwater besides loss of human and livestock life. 12 districts of the state named Puri, Cuttack, Kendrapara, Nayagarh, Khurda, Bhadrak, Keonjhar, Dhenkanal, Jagatsinghpur, Jajpur, Balasore and Mayurbhanj were severely affected by the cyclone. The past cyclone in 1999 affected the water supply but the aquifers already identified were exploited to make potable water supply possible.

Use of groundwater for drinking water supplies during and after cyclonic and associated floods events in disaster-prone areas is of high priority, because groundwater is usually better naturally protected than surface water. However, during cyclonic disasters, even groundwater, especially water supply facilities located in shallow aquifers in coastal areas, may be threatened due to infiltration of seawater surges and by pollution. To eliminate dependence of the population on vulnerable water supplies deeper, low vulnerable aquifers protected by geological and environment features, with groundwater long residence time and the necessary infrastructure make rescue activities during and after natural disasters more rapid and effective. However, the feasibility of using such groundwater resources depends on their identification, investigation, mapping, assessment and development and their risk management when emergency situations occur.

During hazard events, impacts will be different depending on the vulnerabilities of exposed communities and households. These groups will also typically have different means to access freshwater resources under normal circumstances and will have different capacities to cope with the temporary or permanent destruction of their sources of freshwater supplies. In order to support all impacted communities or household in the immediate aftermath of an event and in the longer term thereafter, it is important to characterize the extent of dependency towards and access to freshwater resources before and after a hazard event.



## Scope of the Pilot Study:

GWES project methodology developed within the first phase of the, GWES project (IHP VI, 2002 – 2007) will be implemented in Orissa State pilot study.

The scope of the study is to contribute to the

- risk assessment of the cyclonic storms and associated floods on drinking water supplies and population based on evaluation of historical and present records;
- identification, investigation, mapping, assessment and development of groundwater resources resistant to disaster events;
- development of the contingency plan and groundwater risk management and protection policy in disaster-prone areas;
- formulation of emergency water supply governance policy and proposal on building and /or improvements of existing emergency institutional and technical capacities;
- identification and mapping of vulnerable groups when it comes access to freshwater resources and their dependence on said resources; and
- organization of workshop to support scientific and technical knowledge of local human resources responsible for disaster risk assessment, vulnerability of communities and households, and water resources risk management in emergency situations.

## Inception Workshop

An Inception Workshop for three days is proposed to be organized in Bhubaneswar by involving different institutions dealing with ground water assessment and development and the disaster management institutions like Department of Science & Technology (Govt. of India), CGWB (Bhubaneswar), National Disaster Management Authority (NDMA), Orissa State Disaster Management Authority (OSDMA), NGOs, NGRI, IAEA & UNESCO and others.

The present project being the first of such project under the GWES programme in India, it is essential to involve different organizations working on the water resources assessment, development & distribution, disaster management institutions under the state and Central Government etc. The workshop will help in disseminating the knowledge gained over the years in dealing with disaster events using groundwater resources. The workshop will also help in scheduling the various activities related to objectives of the project & identification of the stakeholders and partners.

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