

Cyclone – Prevention & Mitigation

Group II

- Objective: Creating and operating a cyclone resilient Railway on the East Coast of India

Prevention

Setting up the core team

- Civil Engineering Design
- Vehicle Design
- OHE Design
- Construction
- Engineering Audit

Role: Creating infrastructure that is resilient to cyclones

CRZ regulations

Hydrological Maps

Watershed based design

Train design for safety

Capable of running on inundated tracks

OHE Design capable of taking sustained winds

Team to ensure

Relevant rules and codes are followed

The Created infra is cyclone resilient

DRR – Structural Measures

- Identify cyclone proneness of the different geographical areas the Railway passes through
 - Use hazard maps
 - Use historical Data
 - Define the limiting parameters
- Build to those parameters – go for third party certification wherever possible
- Communication infrastructure
- Design refuges
- Do not leave grey areas

DRR- Non structural Measures

- DRR to become part of Project Proposal
- Financing for cyclone resilient infrastructure
- Financing for third party audits of structures
- Training of engineers for building cyclone-resilient infrastructure
- Evacuation plans and strategies to be created from the very beginning
- Communication protocols
- Dealing with cyclones as per alert levels

Mitigation Measures

- Core Team
 - Railway Operations
 - Civil Engineering Maintenance
 - Mechanical Engineering Maintenance
 - Disaster Recovery
 - Electrical Engineering
 - S&T
 - RPF
 - Railway Healthcare

Mitigation Measures

- Pre- cyclone season preventive measures
 - Summer precautions
 - Monsoon precautions
 - Bridge inspections
 - Track inspections
 - Culverts cleaning
 - BCM runs
 - Building checks
 - Cyclone resilience check
- Mock drills before onset of cyclone season

Mitigation Measures

- Map out District Rescue and Relief Facilities
- SDRF
- Readiness to coordinate with SDRF teams to rescue any passengers of stuck up trains
- Communication systems between Railway Control and SDRC/ SDRF

Mitigation Measures

- Secure all loose fittings, advertisements
- Regulate, stop train operations as required based on alert levels
- Announcements for passengers
- Arrange for adequate food and water at stations and storm shelters
- Activate emergency control
- Manning and fuelling of DG Sets
- Keep water pumps ready
- Stationing engineering, electrical, mechanical, medical teams at vulnerable locations
- Person wise responsibilities