

NEC project ***“Remote Sensing and GIS based Identification of Hazardous Industries and Development of Emergency Planning and Response System”*** at total project cost of Rs. 277.95 lakhs. Rs.100.00 Lakhs as a first Installment released to the Department of Industries.

SUMMARY of the NEC project under Factories & Boilers Cell

“Remote Sensing and GIS based identification of Hazardous Industries and Development of Emergency Planning and Response System”

For socio-economic development of Arunachal Pradesh, a strong Industrial base is desirable. The natural resources need to be developed and utilized both as input to industrial production and as direct products for the social well being of the citizenry. To achieve the desired result, Government had, for the past two and half decades, focused in its industrial policy mainly on the promotion and establishment industries.

On the other hand, still today there is no comprehensive policy document on the industrial hazards, their types, diversifications and drafting out of an effective mitigation strategy to combat the risk associated with the fire incidences, land degradation, environmental pollution, hazardous releases etc. Emanating from industrial units in the state. Henceforth, Department of Industries (Factories and Boilers Cell); Govt. of Arunachal Pradesh feels the necessity to develop a comprehensive policy document with the name of **“Remote Sensing and GIS based identification of Hazardous Industries and Development of Emergency Planning and Response System”** to review the scenario of industrialization, as well as to plan out a proper vision plan for the further growth and development of industries here vis-à-vis to suggest emergency response measures to mitigate industrial hazards, in case of occurrences. **The project was considered by North Eastern Council (NEC), Govt. of India, Shillong, for funding during CFY 2015-16.** This project will help various group like policy makers, Administrators, Department of Industry, Environment & Forest, Agriculture & Horticulture, Planning & Statistics etc. Departments of State and Centre, Financial institutions, Academic Institutions and Researchers.

Front-end software will be supported by data on Industrial unit, first responders (fire, police, hospitals, etc.) sensitive areas, chemical accident scenarios, Fire vulnerability spatial data (detailed digitized maps with data in ‘layers’), Response Information Data Sheets or RIDS packed in a database all under a single banner. Locations of industries, responders and sensitive areas as recorded by GPS or satellite image analysis will be shown on these maps. For any accident scenario, one can perform logical queries on the digital maps created. Such GIS database can greatly assist response agencies at the local level during both pre-emergency state for planning and rehearsing and also during actual emergency situation.

In the state the major industrial units either concentrates processing of timber or agro-products or chemicals which has got several aspects of vulnerability or hazard potential bestowed with them. At this phase it is highly discernable to check the level of vulnerability of the existing industrial units as well as to draft a comprehensive policy document on efforts to mitigate the industrial hazards for the existing as well as to draft new vision document for the newly coming up industrial plazas or production centres keeping in mind the increasing wave of eco-based production units, human rights phenomena etc.

This particular project will on one hand provide us with a detailed inference on the sites where industries can be located and of what type including simulation of the production potential for such units for the next two decades using Decision Support System and Database Management System including Geo-Statistics on hand as well as will identify the hazardous industrial outlets on other and will estimate their hazard potential and vulnerability to the society for all the existing 83 industrial units. As well as it will develop a Cellular Automata Model to provide the the sensitivity analysis of the industrial hazard if taken place and proper measures that can be taken out to combat such evils using Remote Sensing & GIS & henceforth this project is out mostly essential for the Government of Arunachal Pradesh to be implemented as this project deals with GDP development on one hand while on other life of at least one lakh population.

Some evidences on how industrial hazards can be focused though satellite technology is zotted down below:-

“Anyone who has worked in the mining industry is aware of the many potential environmental or physical hazards associated with operational, closed, or abandoned mines. Increasingly, the public and governments are also becoming aware and are putting considerable pressure on mining companies and operators to address all known or potential hazards when planning a mine closure and rehabilitation of surrounding lands. At the forefront of the technological curve for abandoned mine monitoring is high-resolution Earth-observation (EO) satellite imagery. This technology only recently became available to the commercial user as a result of changes in government and military restrictions on the application of optical satellites, and this article provides a brief overview of the technology and the benefits derived from using high-resolution satellite imagery. Traditional on-site or aerial methods of monitoring and assessing mine hazards can be costly and inefficient. Mine are often far removed from civilized and populated areas and the logistics of on-site or aerial surveillance can be onerous. In comparison, high-resolution Earth-observation satellite data is cost-effective (e.g. large areas can be monitored remotely avoiding high logistics costs), easily interpreted, and suitable for long-term monitoring. Moreover, mine sites can be monitored on either an ad hoc or a regular basis to meet security and operational needs. And, considering mine rehabilitation is an activity that can last decades, mine operators will be able to use routine satellite monitoring to assure government agencies and the public that the mine rehabilitation programs and plans are being implemented to meet regulatory and environmental mandates. Environmental compliance is without a doubt the most important social benefit. Mining companies and operators are increasingly aware of the influence that environmental and community groups have made on government policy. In response, socially-conscious mining companies are developing long-term plans for the rehabilitation or restoration of mine sites to comply with

government community requirements. High-resolution mine monitoring complements the on-site efforts of mine operators to improve environmental conditions at their mine sites.

Another benefit of mine monitoring with high-resolution satellite imagery is the information utility value of the data. The information can be introduced into a variety of geographic, mining, and government system in the form of maps, GIS data layers, reports, images, and presentation. As the data can be collected quickly, routinely, and reliably, mining companies and all groups interested in their activities are able to apply the information in a form that has real meaning to end users. Finally, high-resolution imagery of mine sites can be used for internal business and operational decision and due diligence activities requiring confidentiality and discretion. The results of remedial efforts are clearly visible in the imagery to the specialist and non-specialist alike. The cliché that a "picture is worth a thousand words" appropriately summarizes the value of high-resolution imagery to all stakeholders.