

IBIN - A Web Portal for Biodiversity Conservation, Utilization and Sustainability

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ndia is one of the mega-diversity countries and in order to inventory, analyze, prospect and conserve Lthe vast Indian bioresources, a large number of organizations are generating enormous datasets. Thus, it was realized that these datasets from diverse thematic specialties and from different geographic areas need to be networked in such a manner that the large variety of databases can be seamlessly made accessible and at the same time will be available for any rational query. The developments in the information and communication technology have made it possible to bring such information systems in one portal. Thus, Indian Bioresource Information Network (IBIN) was conceived as the single national portal on Indian bioresources where all the databases and information systems on the bioresouces and biodiversity elements are brought together in a easily compatible and accessible format. The portal also aims at offering these datasets in different languages. Presently, the IBIN has two nodes - The Spatial Node at NRSC and Species node at UAS, Banglore. We describe here about the Spatial Database node developed at NRSC.

The Spatial Database

The nation-wide project 'Biodiversity Characterisation at Landscape Level using satellite remote sensing and Geographic Information System' is an important initiative of Department of Biotechnology and Department of Space (ISRO) to develop baseline database for the Indian landscapes. The studies have been taken up to cover the entire country in three different phases. Phase-I and Phase-II of the project have been completed and covered a total geographical area of 20.15 lakh km² comprising 82% of country's forest cover in North-Eastern Region, Western Himalayas, Western Ghats and Andaman and Nicobar Islands, West Bengal, Central India, Eastern Ghats and East Coast. Phase-III of the project has been taken up for Himalayan cold deserts, North India, North-West India, Deccan Peninsular region and Lakshadweep Islands and likely to be completed by March 2010. IRS P6 LISS-III data has been used to prepare spatially explicit vegetation type map at 1:50,000 scale using fragmentation maps, Disturbance Index maps and Biological Richness maps are derived. The locations of high disturbance and areas under very high biological richness are of prime concern for biodiversity conservation planners and may prove to be useful for future management strategies and formulating action plans.

As part of the project, important species level database has been generated and nearly 12,500 species have been identified from about 10,000 GPS tagged field plots in 6 bio-geographic regions of India (as per the first two phases). These include 762 endemic plant species, 265 RET species and 3534 economically important plant species. The entire database is organized in the form of web enabled Information System. The species database has been linked with spatial details derived from satellite images and ancillary data. NRSC has developed a mechanism to share this information in public domain as part of NBDB's Indian Bioresources Information Network at www.ibin.co.in where the field sample plant species data is also linked and made available with spatial data for further querying and downloading.

The use of the web enabled information system





Fig. 1: The IBIN page showing the Arunachal state vegetation map prepared from satell ite overlaid with 3.75' x 3.75'. The green coloured grids show the inventoried grids and provide the species list for the same grid

in particular has helped resource scientist, managers and ecologist in being informed about what species and ecosystems should be targeted for protection, where these occur, and how we should protect and manage these resources, and the areas that sustain them, for the benefit of present and future generations. The spatial outputs of DOS-DBT Project are now available under spatial node of Indian Bioresource Information Network (IBIN). The spatial data is available here in GIS format after certain generalizations in map quality and generalization of species database as per policy and guidelines. The species point location is converted into grid location of 3.75×3.75 min spatial grid. One can query on spatial grid and view the species distribution and other related information. The spatial data is available for download on 1:1M scale. The Maps are available in four basic layers i.e. Vegetation type map (Fig.1), fragmentation, Disturbance Index and Biological Richness.

The expansion of the IBIN which shall also link and integrate the related databases on biodiversity in terms of both spatial and non spatial data sets in collaboration with several core partner institutions is under serious consideration by the Department of Biotechnology, Govt. of India.

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