Digitized inventory of biological resources of India

India is blessed not only with rich biological diversity but also with the associated indigenous knowledge system of the same. The country is one of the twelve mega-diversity centres and harbours three of the 28 global hotspots. At the same time, its natural resources are subjected to the most severe anthropogenic pressures: Being the second largest populated country, a high proportion of Indians depend on bioresources for their livelihood security. For example, up to 90% of the raw materials for our herbal industry is still sourced from the wild. Obviously, conservation of our vast biological resources for future while continuing to utilize them to meet our present needs is truly a challenging task. This demands that we take stock of the country's resources status and their potential use in a highly systematic manner and on a comprehensive scale. This is also consistent in terms of our commitment to the CBD.

India is home to an estimated 89,450 described species accounting for about 7.3% of the global biodiversity. However, data on most of these is highly scattered and not easily accessible. Indeed, the lack of readily accessible information on *how much* of *what* bioresources occur *where*, has become a limiting factor in conservation planning and converting our biowealth into economic wealth. The National Bioresource Development Board, set up under the aegis of the Department of Biotechnology (DBT), New Delhi initiated a country-level programme to address this problem. The programme aimed at developing a digitized inventory of the biological resources of the country culled from published information.

The programme that began about four years ago, attempted to systematically compile and digitize the information on economically important plants (K. N. Ganeshaiah and R. Uma Shaanker at UAS, Bangalore and their team), medicinal plants (P. Pushpangadan, NBRI, Lucknow and his team), animal resources (J. R. B. Alfred, ZSI, Kolkata and his team), microbial resources (Tapan Chakrabarti, IMTECH, Chandigarh and his team) and marine resources (N. R. Menon, CUSAT, Kochi and his team). About 400 scientists from 150 organizations worked towards compiling secondary information on diverse groups of organisms. The information compiled ranges from scientific and common names of organisms, diagnostic features, images, distribution in the country, availability, cultivation and propagation techniques, economic uses, products and processes and market potentials along with the related literature. All these diverse data compiled for different groups (now available on 10 CDs) were brought together under one common output system called *Jeeva Sampada* (meaning wealth of bioresources) by Ganeshaiah and his team who coordinated the programme at UAS, Bangalore.

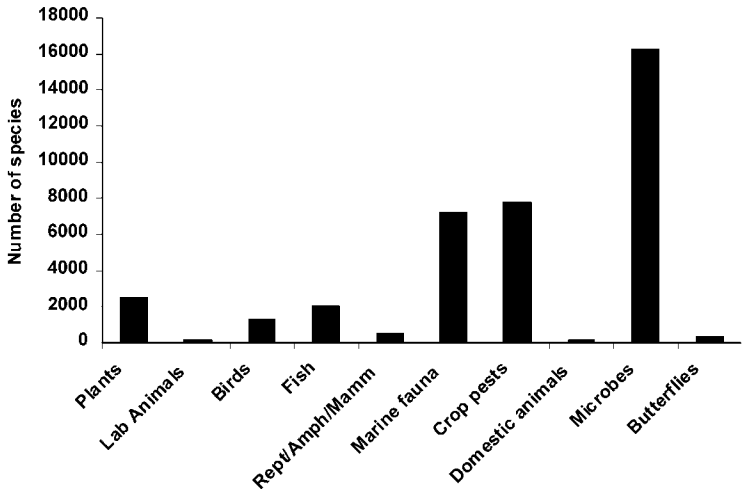

Figure 1. Number of species and different groups covered in *Jeeva Sampada*. Numbers for microbes refer to the combination of species and cultures maintained. Several other groups such as silkworms, predators and parasites of crop pests are not shown here.

The programme is unique in several respects. It is for the first time that the data on a large number of diverse groups of organisms were compiled on a completely indigenously developed, common software platform. Comprising of 8,200,000 records for over 39,000 species, *Jeeva Sampada* is easily the most exhaustive and largest bioresources database (about 7.0 GB; Figure 1) ever in the country. *Jeeva Sampada* was released by Kapil Sibal, Union Minister for Science & Technology and Earth Sciences, Government of India on 25 July 2006 in New Delhi. The data are also planned to be made available through a web-enabled portal, viz. Indian Bioresource Information Network (IBIN). The website of IBIN (www.ibin.co.in) was also released by Kapil Sibal. The IBIN attempts to combine the predominantly non-spatial databases being compiled and updated by the team led by Ganeshaiah at UAS Bangalore, with the spatial datasets being compiled and maintained through a collaborative effort of DBT and the Department of Space by P. S. Roy and his team at IIRS, Dehra Dun. Together, it is hoped that the two datasets complement one another in offering a wide array of value-added information on the biological resources of the country. Additionally, the exercise will also reveal gaps in our knowledge and the directions in which we need to concentrate further work. This is just the beginning and the task is by no means complete.

In summary, these recent efforts facilitate the use of the existing digital databases by diverse end-users, such as botanists, microbiologists, zoologists, bio-prospectors, students, scholars, forest managers and policy makers and, in fact, just everyone dealing with the bioresources of the country. These efforts also promote the interlinking of the diverse databases through a continuous interaction and support a co-evolutionary growth of the databases and their utility in conservation science and technology development.

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