Chapter 2. Review of Literature

Internet and web have been growing by leaps and bounds in recent years accelerating the information explosion, a well known phenomenon known to all of us.

The World Wide Web has been growing explosively and becoming the most popular means for information dissemination and discovery through the internet (Lee et al., 1992). Publishing data through the web is of great interest to many organizations, because of the web’s ease to use interface and the internet as a cost-effective-communication infrastructure (Chen and Rishe, 1998).

Online databases become available within seconds of its creation and satisfy many different information needs of business people and home based computer users. Databases are updated likely, weekly, monthly and over quarterly. Some databases are offered on-line directly by the people who create them (Thriuvarasu, 1998).

Internet based resources and services are very valuable particularly to India since the print sources are not easily available. Internet services are being used affectively in various fields. Gone are the days, scientists, technologists visiting libraries regularly to search for literature on the desired topic of study. With the onset of internet related information sources, access to internet through personal computers and mobiles has revolutionized the search of desired information with the click of a button.

Milan and Pavel (2002) stated that soil survey, monitoring and inventarization programs are inevitable tools to define soil properties
for a given area (country), including the status of pollution. Such
programmes are conducted under the ministry of Agriculture and
ministry of Environment of the Czech Republic, basal soil monitoring
and register of contaminated sites. They are developed to the
national programmes serving the state administration and research
institutions with important data on the status and changes of soil
properties.

The European soil geographical database at scale 1:1,000,000
parts of the European Soil Information System (EUSIS) was
transferred in to the world ‘Soil’ and ‘Terrain’ (SOTER) program at
scale 1:5,000,000. Based on the SOTER criteria of landform
morphology and lithology, the EUSIS mapping units with identical
characteristics were aggregate to produce the SOTER terrain units
(Dominique et al., 2002).

Nelson et al (2003) stated that advances in IT have provided
tools for creating powerful user-friendly database-backed
applications. As the demand for biological databases grows,
bioinformatics with little or no database expertise could find
themselves in charge of large, complicated and high profile database
projects. However, in large organizations that have information
technology departments to implement and administer databases,
bioinformatics are often involved in the initial design of new
biological databases and should therefore understand the principles
and advantages of database design. Unfortunately, the scientific
literature provides little guidance for new comers to the biological
database design field.
Regional soil information systems of accuracy corresponding to the maps at the scale of 1:250,000 should serve as a main source of soil information for regions in the coming years. They will also be the source of data for spatial analysis and modeling phenomena and process concerning the soils and landscape (Biolausz et al., 2004).

The Australian Cotton Co-operative Research Centre (ACCRC), in conjunction with the cotton research and development co-operation has funded a number of soil inventory projects which have produced huge amount of soil data unprecedented of any rural industry in Australia. The data have been incorporated into a queriable database using customized Microsoft access form assistant. Specific Boolean logic operations built into the database assistant enable various query possibilities that would answer different soil quality questions that may be asked by researchers, farm managers, consultants and farms, retrieving appropriate soil data and information for a specific region or area and purpose. The assistant incorporating window-based graphic-user interphase is very user-friendly system (Inakwu et al., 2004).

Soil information in New Zealand comprises maps and database varying accuracy and platforms. A new database with the soil-information named ‘S-map’, a multilayer soil database with national coverage has been created. It is designed as a digital product. It will act as a platform for fusion with other environmental layers for spatial modeling; S-map contains the existing national spatial soil database (Lilburne et al., 2004).

The institute of Soil Science, Chinese Academy of Sciences, has successfully completed production of a 1:1,000,000 digital soil map of china, and is continuing its efforts to finish an associated soil
database. It is applicable to scientific research, modern education and national and regional agricultural production planning. Further, it is also a fundamental data for rational exploitation of land, water and forest resources, environmental protection and ecological restoration. Recently, a large number of institutions and units, abroad and at home, have inquired through letter, phone or email about progress of the building of the 1:1,000,000 soil database of China (Xuezheng et al., 2005).

SLC v 3.0 provides new soil information at a scale of 1:1 million for the major agricultural regions of Canada. Further, releases will provide similar updated information for the rest of the country. It maintains the linkage to the national ecological stratification system for Canada (www.sis.agr.gc.ca).

The European soil database v 2.0 consists of a number of databases. The Soil Geographical Database of Eurasia (SGDBE) at the scale of 1:1,000,000, which is a digitized Eurasian soil map and related attributes. The PTRDB (Pedo Transfer Rules Database) holds a number of Pedo transfer rules which can be applied to SGDBE. The Soil Profile Analytical Database of Europe (SPADBE) and Database of Hydraulic Properties of European soils (HYPRES) are other databases of European soil database (www.eusoilsjrc.it).

Today, there are number of websites across the globe that caters the needs of information managers in the field of sericulture or the silk industry. The related websites will immediately prop up with small tips on the contents and addresses of the websites. This is found to be very handy to scientists and researchers than physical visit to a library for reference book or manual (Magadum et al., 2005).
The need for larger application of IT for the development of silk industry, right from farm to processes and exports to make it more dynamic and viable in the upcoming free trade regime. It could be of great use in areas like E-chaupals for sericulturists, on line trading, futures trading, dissemination of information on latest cocoon and silk prices at the door steps of the sericulturists, quick spread of new technologies (Kololgi and Ramesha, 2005).

Central Sericulture Research Training Institute (CSRTI), Berhampore has initiated a novel plan by which sericultural farmers can send their questions to the institute by E-mail, Extension units like REC’s, RSRS’s etc., will help the farmers to formulate and send their questions by e-mail (Sarkar, 2005).

The internet portal is one important window to realize the spirit of Government online. It provides people with a single door (web interface) to the government. It allows for self-service, whether the citizen is looking for information, checking property assessments or paying a fee. Portals are available all the time, making them convenient and relatively hassle-free. The same portal can be used for several applications like filling, downloading, viewing of information uploaded (Gupta et al., 2005).

The Nucleic Acid Research online Molecular Biology Database collection is a public repository that lists more than 1000 databases. All databases included in this collection are freely available to the public. The 2008 update includes 1078 databases, updated links for more than 80 databases and 25 obsolete databases have been removed from the list. This collection of databases can itself be viewed as a curated database; each of its entries evaluated and deemed useful for the community (Galperin, 2007).
The Harmonized World Soil Database is a 30 arc-second raster database with over 15,000 different soil mapping units that combines existing regional and national updates of soil information worldwide (SOSTER, ESD, soil map of China, WISE) with the information contained within 1:5,000,000 scale FAO-UNESCO soil map of the world (FAO, 1971-1981). The resulting raster database consists of 21600 rows and 43200 columns, which are linked to HWSD. The use of a standardized structure allows for the linkage of the attribute data with raster map to display or query the composition in term of soil units and the characterization of selected soil parameters (Organic Carbon, pH, Water storage capacity, soil depth, Cation exchange capacity of the soil and the clay fraction, total exchangeable nutrients, lime and gypsum content, sodium exchange percentage, salinity, textural class and granulometry). Reliability of the information contained in the database is variable. The parts of the database that still make use of the soil map of the world such as North America, Australia, West Africa and South Asia are considered less reliable, while most of the areas covered by SOTER database are considered to have the highest reliability (www.iiasa.ac.at).

The BIOSAFOR project financed by the EU commission is working on improvement on agro forestry cropping systems for producing biomass on salt affected soils and reclaiming strongly saline or acidic soils. These systems should abide a completion with food production and should be economically and socially acceptable (Vashev et al., 2008)
The soil samples collected at the predetermined locations were analyzed for physico-chemical parameters for the generation of databases and generate the soil quality index (SQI) in and around Khandaleru catchments, Nellore district, Andhra Pradesh. Based on the results of the analysis, spatial distribution maps of selected soil quality parameters, namely bulk density, moisture content, organic matter, C%, pH, electrical conductivity, Ca, Mg, SO₄, nitrate, phosphorus, potassium and texture were prepared using curve-fitting method in GIS Software. The physico-chemical properties and computation of SQI are helpful in the grouping of soil samples into excellent, good, poor, very poor and unfit. The spatial distribution of SQI generate in the current study will be of use for planners in the management and monitoring of land resources (Asadi et al., 2008).

In recent days IT resolution has resulted in information explosions on the internet. The internet and web have been using as platform to address all kinds of problem and to communicate the possible solution on “mouse-click based approach”. With the onset of internet related information sources, access to the internet through personal computers and mobiles has revolutionized the search of desired information and this is found to be very handy for everyone. Keeping all these developments and importance of soil database in view the present study has been carried out.