Biomass Assessment

Combustion Gasification Propulsion Laboratory
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The Objective of the Assessment

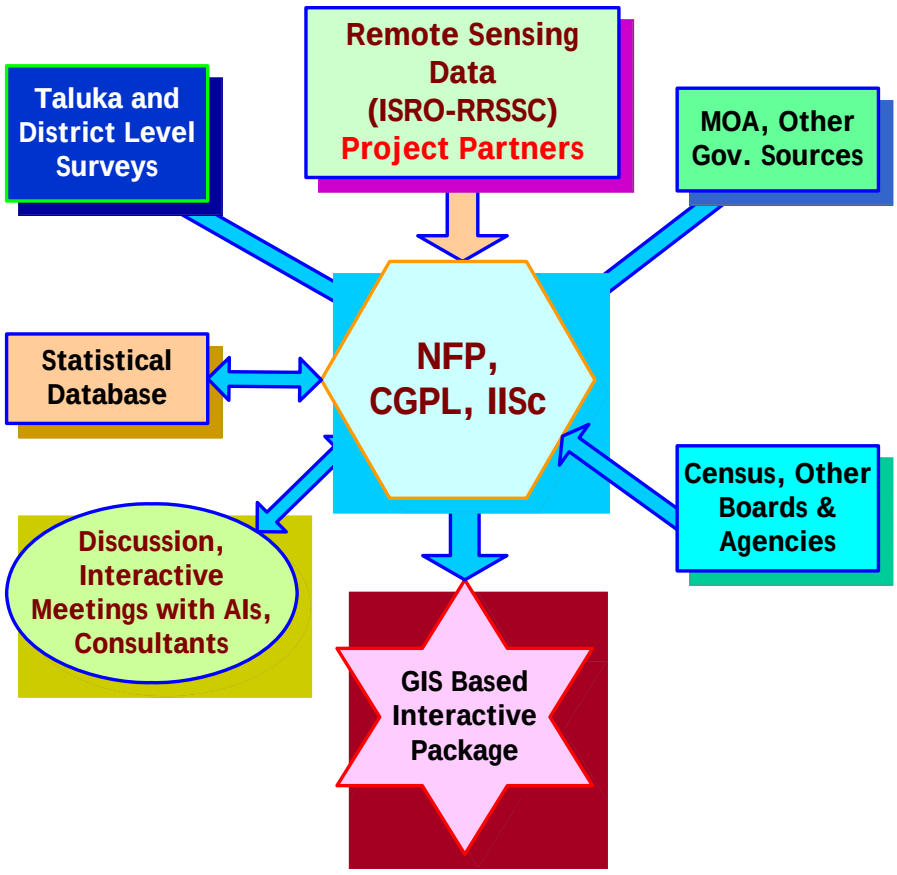
To develop an electronic atlas of India to assess excess biomass availability to visualize local power potential

Sources of Data:

- Ministry of Agriculture (MoA, GOI) for crop data
- RRSSC (Regional Remote Sensing Centers of ISRO) for land use maps
- Consultants and Apex Institutions appointed by MNES, GOI
- Other institutions like Coir Board, Agricultural Universities, etc

IISc – National Focal Point for acquiring, assessing and processing the data from various sources into digital maps on a GIS format to be used by industrialists, planners and others.

The Scheme of the Work



Logistics and Considerations for Biomass Assessment

- MNES has conceptualised an approach to generate the bioresidue map of India in 1997.

- Consultants were commissioned to generate data on biomass production, utilization, and therefore excess biomass for power generation.

- About 400 taluks were surveyed in four phases.

- In each segment there were internal reviews and with experts. The objectives took appropriate course corrections – there were improvements in the nature and quality of data acquisition and presentation.

- After analysing the Taluk survey reports it was found that district level data is more precisely available from various sources like MOA.

- District survey was further initiated by MNES to collect and consolidate the statistical data after a validation by Apex institutions.

- The integration of the crop data and Remote sense data provided by ISRO into a digital atlas developed by NFP.

- It is important to note that the assessment under consideration is to focus the potential of the biomass resources in any selected area based on the biomass essential uses .

- Also to provide a suggestive operational zone for biomass based power generation – rather than being looked upon as a Land Information System or as a territorial reference map

- It is more intended for complementing the physical field survey. It is not a replacement for direct field survey.

- In the above context Biomass productivity data, particularly the agricultural crops are annual and will change depending on the choice of crops, rainfall, etc.

- For the data to be useful, the changing productivity should be accounted annually or biannually.

- The Survey reports provide the necessary crop parameters to be used for spatial classification of agricultural lands according to the crops grown spatially during Kharif & Rabi seasons.

- Keeping these aspects in mind, it is intended to embed only essential GIS and other tools into the package that are required for a proper illustration of the information sought, optimizing the computer resource demand allowing for faster response on use.

- The package will have two operating versions. First, with an unhindered data and information flow for the user to arrive at the first-cut data, to be used in a desktop PC and distributed on CDs.

- Second, the same data is to be made available on the Internet with layers of information, for a quick scan and for a preliminary investigation on these issues, but with limited illustrations and queries in order to optimize the web-time requirement as well as to allow to work on a optimally configured web-server. This approach has the advantage of providing a wider accessibility allowing direct user interaction.

- Following are the snap shots from the digital atlas visualizing the biomass assessment to project the power potential.

Digital Atlas Features

- Navigation from State to Taluk level either with search or latitude & longitude.

- Biomass and power assessment either on the circle of interest or region selected.

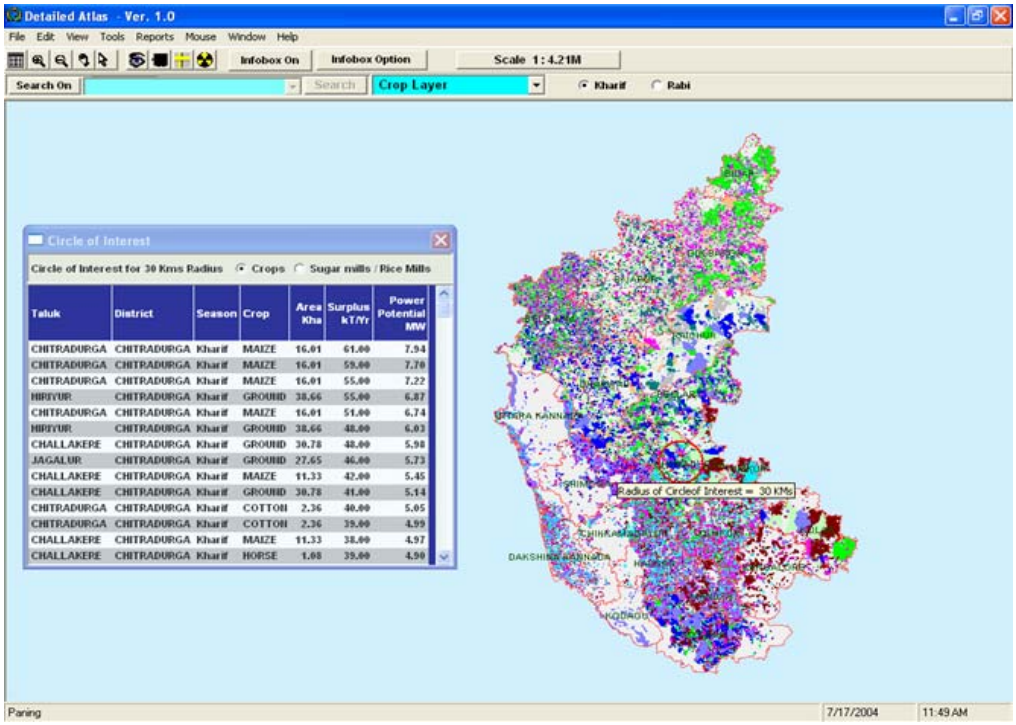
- Tool tip to show specific crop details with power spatially.

- Windows features of zooming, panning, help.

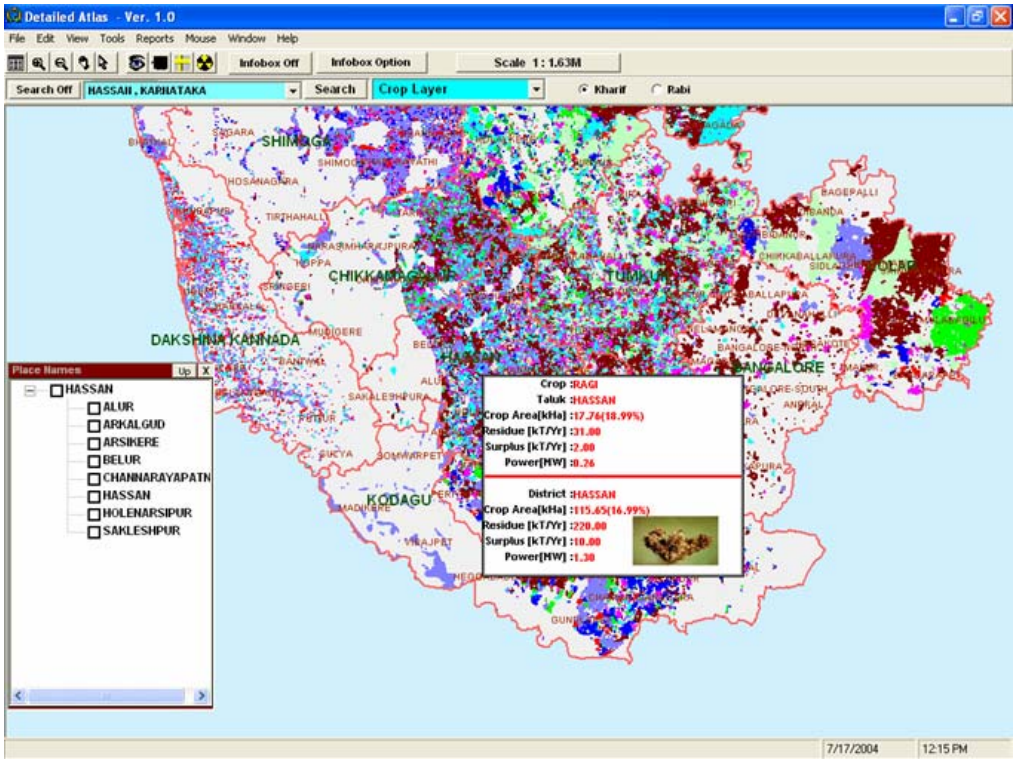
- Crow's fly Distance finding.

- Thematic view selection.

Digital Biomass Atlas - A snap shot showing Circle of Interest



Digital Biomass Atlas – Another screen shot with Tool tip



Concluding Remarks

- The user can now geo-graphically assess the Biomass specific to a place. The Analysis can be made based on the spatially distributed bio residues.

- By extracting the information from the statistical data and collaborating it with the Satellite data it is possible to assess the surplus available for power generation.

- The tools developed provide the feature to extend the analysis to any type of biomass generated on the land. Currently it has been covered for agricultural crop residues.