

Rural Informatics in Decision Making

Rural Development



In the context of rural India, planning mainly consists of distribution of resources through various government sponsored watershed-based schemes, which are implemented by sectoral institutions in the district (prescriptive planning and top-down approach). To assist the rural extension community in their own decision making processes, the following tools/systems are developed :

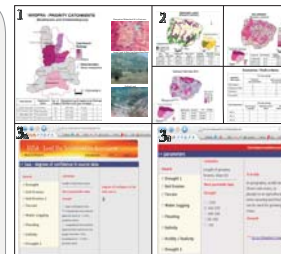
- SDSS/LUP (Spatial Decision Support System for Landuse Planning)
 - A stand-alone decision making tool for rural land use planning, with prototype web tools for land use sustainability assessment (LUSA) and land use planning (LUP)
- GramyaVikas a Distributed collaboration tool for rural development planning
 - An open-source tool for rural development planning
- GeoSense – GeoICT (Geographical Information Communication Technologies) and Wireless Sensor Network (WSN) based Decision Support System (DSS) for agriculture and environment assessment
 - An online open source tool for rural development planning

1. SDSS/LUP 2. GramyaVikas 3. GeoSense

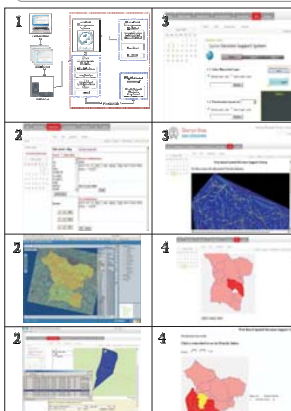
Spatial Decision Support System for Land Use Planning (SDSS/LUP) (UNDP/DST Project)

Decision support in:

- Area (Watershed/Sub-watershed) selection for schemes
 - Priority watersheds for interventions
 - Prioritization of sub-watersheds for preferential treatments
 - Critical sectors within sub-watershed
- Site selection for infrastructure
 - Conservation infrastructure
 - Water resources infrastructure
- Land evaluation for changes in landuse
 - Minor changes – Economic, Conservation and Management (implementable) options for the existing LUTs (land use types)
 - Major changes: New LUTs and infrastructure (radical options)
- Web-based prototypes:
 - Web-based suggestions and hazard warnings for land use sustainability by combining data from the existing sources (WebLUSA).
 - Web-based decision support system for rural land use planning (WebLUP) – a mock up for Ubiquitous accessibility for demonstration



1. NWDPPRA Priority Catchments
2. Rampatna Catchment – Environmental Threats and Priority Ratings/Scenarios
3A & 3B. Web Land Use Sustainability Assessment (WebLUSA)



GramyaVikas – a Distributed Collaborated Model for Rural Development Planning (MoRD Project)

- a Geo-ICT based secured cost-effective tool with open source platforms
 - Plone – content management system
 - PostgreSQL Data Base Management System
 - MapServer and p.mapper webGIS and mapping//querying capabilities
- Client – distributed district/sub-district rural extension community
- Modular and Query based system event/data/user management modules for decision making in interactive, integrated and coordinated manner for
 - Online data sharing / storing
 - Intra / inter departmental communication
 - Database (spatial/non-spatial) query to identify candidate villages / parcels for various rural development schemes
- SDSS for watershed delineation; site/watershed selection for schemes
- Advantages centralized control over data/model, educational platform; new coordination among the user community; and flexibility in decision making

More Details:

GramyaVikas A distributed collaboration model for rural development planning, J Adinarayana, G Tewari, S Azmi and D Sudharsan, Journal of Computers and Electronics in Agriculture (Elsevier), 62 (2): 128–140 (2008)

1. Basic Structure of GramyaVikas 2. Spatial/Non-spatial Query Upto Parcel Level
3. SDSS Module 4. Watershed delineation & APRLP Critical Watersheds

GeoSense: a Geo-ICT and Sensor Network Based DSS in Agricultural & Environment Assessment (Indo-Japan Collaborative Project)

- Bilateral (IITB and NARC/Tsukuba) initiative integrating open-source GeoICT tools with Wireless Sensor Network
 - GramyaVikas (CSRE, IITB)
 - AgriSens (Electrical Engineering Department, IITB)
 - FieldServer (NARC, Tsukuba) (web-server; web-camera; multi-sensors)
- Sensors : Soil moisture, humidity, temperature, leaf wetness, CO2 concentration
- Client : Rural extension community in Semi-Arid Tropics
- Web DSS: Irrigation scheduling; pest modelling/management; yield predictions; drought assessment with dynamic parameters (soil moisture, weather conditions, crop growth/health)
- Roadmap : Web services through village resource centre

More Details:

<http://www.csre.iitb.ac.in/geosense/>

1. GeoSense Website 2. FieldServer 3. Simulated FieldServer Deployment in a Rural Watershed
4. Online Sensor based Weather & Co, Concentration Data 5. GeoSense: Crop Information System
6. Irrigation Scheduling of Potato and Tomato Crops



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