Gramya Vikas

Distributed Collaboration Model for Rural Development Planning - A Prototype

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Issues / Challenges in rural sector

- Poor Network
- Digital divide
- Applications of ICT
- More real-time applications
- Large Rural Extension Community
-Duplication of data
- Poor Metadata Services
- Distributed Collaboration

_Distributed collaboration technology allow people to move across organizational boundaries and to collaborate with others (within/between organizations and communities)._
**Executive Approach (Top-down)**

- **Prescriptive planning**

  - **Client**: Decision-maker at district/sub-district level *(Rural Extension Community)*
GIS based rural development planning at district/sub-district level

An R&D Project from the Ministry of Rural Development, Government of India, under the Department of Land Resources Scheme: Technology Development, Extension & Training (TDET)
Needs Assessment
(Workshop on 2005 November, 11)

Purpose
To understand the data needs/gaps, and generate the system / tool / software to suit the requirement of the User Organizations

User Departments received the Pre-Workshop Questionnaire
Agriculture, District Rural Development Agency, District Water Management Authority, Groundwater, Forests (Social), Forests (Territorial), Irrigation, Panchayat Raj, Planning, Rural Water Supply, Survey & Land Records

Pre-Workshop Questionnaire Format
1. Name of the Department and contact details of the Head of the Department
2. Major policies/objectives of the Department
3. Rural development planning / programmes and procedures presently carried out by Department
4. The data (spatial/non-spatial) / information currently used by the Department for various rural planning programmes
5. Data and new procedures that would be required by the Department for the modified specifications
6. Modifications the Department would like to introduce in the procedures, given the GIS system
7. Availability of hardware/software in the department for various rural development programmes (particularly on Remote Sensing and GIS)
8. Capacity of the Department to handle the computers/software (on Remote Sensing and GIS)
9. Your expectation from this Research Project
10. Any other suggestions for improving the informatics culture in the district
Observations

- Only a few Departments are equipped with software/hardware to handle digital / GIS / online data
- Many departments do not have RS and GIS software
- Duplication of data in many cases
- Interdependency of departments on various programmes
- Unavailability of Basic Spatial (Not GIS) Layers / Maps
- Essentiality of Distributed Collaboration
- Many Departments are interested in having GIS / Online system for RD planning
Expectations from the Users

- User-friendly GIS / Online system
- GIS based action plans / DSS to improve efficiency of different departments
- Effective linkages of different departments on data sharing
- Development of System/tool with user interaction
- Weather report at grass root level
- Solving instant Filed-level problems
- Monitoring of pests & deceases
- Training in RS and GIS
- Wireless LAN for remote retrieval of water levels/rainfall data
- Monitoring of soil & water conservation structures
Why Distributed Collaboration?
(In the context of Indian rural development planning)

- Allows to share spatial and non-spatial data from different user agencies (data dependency)
- Avoids data duplication
- Assists in implementing mutual schemes
- Allows to incorporate local knowledge-bases from different stakeholders for effective rural development planning
- Expected to allow flexibility/interconnectivity/coordination
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- Evolved from the needs analysis
- An ICT-based system, which is secure, reliable and fast for distributed collaboration among the Rural Extension Community in the districts (local-level e-governance)
- Working on localhost
- Based on open-source platform, called Plone
- Useful in:
  1. online data sharing;
  2. for intra/ Inter departmental communication;
  3. for making simple queries on non-spatial data to assist in rural development planning decisions
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Components

- digital database (to store/share/retrieve)
- communication (blog/departmental communication/chat)
- learning repository (leaning material on various developmental issues and cutting edge technologies)
- feedback (a liaison between user and the developer)
- database (non-spatial) query (for identifying candidate villages for various rural development schemes)
Welcome to this Web portal

It is a part of our efforts in Research & Development in Geo-Spatial Technology in Rural Extension Activity, and particularly under the ongoing activity "GIS based rural development planning at district/sub-district level", sponsored by the Department of Land Resources of the Ministry of Rural Development under its Technology Development, Extension & Training (TDET) scheme.

This portal is intended to assist the policy maker / district or sub-district officer (client/user) concerned with rural development programmes, particularly in their own existing decision making process. This project portal is a platform where users can utilize/share (their own) data/idea for effective decision-making in rural development. The system has discussion forum, online chatting along with the project details. This Web portal is still at experimental stage, and the resulting system also contains a separate module for analysing the spatial/non-spatial data for decentralized planning at district/sub-district level.

Notes: Mahabubnagar district of Andhra Pradesh is chosen to test and validate the concepts of Model, named "Gramya Vikas".

Developed @ Agro-Informatics Lab, Centre of Studies in Resources Engineering (CSRE), Indian Institute of Technology-Bombay (IITB)

For more information please contact Dr. J. Adinarayana or Web manager.

Created by admin
Last modified 2006-01-15 00:32
This component is only for *Gramya Vikas* Members (secured)
- Uploading and retrieval of spatial and non-spatial digital data
- Data privileges (for accessing data by different users)
- Data can also be shared for a defined period
Digital Database

- Spatial Data
- Non-Spatial data
Departmental Communication

- Real time chat/communication for inter/intra departmental activities
- To share ideas, plans, issues, methodologies, problems, etc. involved in the rural development schemes
- Communication regarding data sharing, data transfer and other aspects
Departmental Communication

This is a space for enter departmental communication and sharing of ideas, information and knowledge resource.

admin

| 21:14:56 | admin | Same to you.....Wish you and Your Family a very Happy and Prosperous New Year...
| 21:14:23 | gopesh | Thanks......and Happy New Year also...
| 21:13:47 | admin | OK, Mr.Gopesh...Give me little time...I'll do this job done ...
| 21:13:10 | gopesh | Please put it and provide privilege to me...for accessing...
| 21:12:40 | gopesh | Can you please put the village map of Dhanwada Mandal..Online...
| 21:11:47 | gopesh | Hello...
| 21:11:47 | gopesh | Hello...
| 11:01:53 | admin | Test Message from Administrator.....

My message

Type-in your message and click "Ok" to post it to the chat.

Ok

Departmental Communication
Blog

- Discussion forum on any rural development issues / topics
digital divide
submitted by admin on 2005-09-16 21:22.

IT WAS an idea born in those far-off days of the internet bubble: the worry that as people in the rich world embraced new computing and communications technologies, people in the poor world would be left stranded on the wrong side of a “digital divide”. Five years after the technology bubble burst, many ideas from the time—that “eyeballs” matter more than profits or that internet traffic was doubling every 100 days—have been sensibly shelved. But the idea of the digital divide persists. On March 14th, after years of debate, the United Nations will launch a “Digital Solidarity Fund” to finance projects that address “the uneven distribution and use of new information and communication technologies” and “enable excluded people and countries to enter the new era of the information society”. Yet the debate over the digital divide is founded on a myth—that plugging poor countries into the internet will help them to become rich rapidly.
Learning Repository

- Learning material for transfer of information and knowledge
- Contains e-books and documents on various rural developmental issues
- Documents on cutting edge technologies for policy makers
- Policy documents
Learning Repository

It’s a repository, where you can get learning materials on Agriculture, Remote Sensing and GIS Technologies, Information Technology, Precision Farming, Soil Water Conservation technology and other materials on Rural and Agricultural development.

- **Agriculture**
  In this folder, you will get materials on Agricultural Use.

- **Information Technology and Development**
  Here you will get resources on use of Information Technology for Rural and Agricultural Development.

- **Remote Sensing and GIS Technology**
  It’s a folder, where you will get materials on Remote Sensing and GIS Technology and Application for Development.

- **Soil and Water Conservation**
  Here you will get material on Soil and Water Conservation mechanics.

- **Others**
  This folder contains various learning materials on Rural and Agricultural Development.
The Query Component

- Working with MS Access non-spatial (example: census) database
- Developed with Java Server Pages (JSP) and runs on Tomcat Apache Web Server
- Useful to identify candidate villages/entities for various mandated schemes
Database Query

Non-Spatial Database Query

Presently we have non-spatial database query system in our Proto-Type "Gramya Vikas". Later, the query will be for both spatial and non-spatial databases.

For going to query module .... please CLICK HERE >>>>>>>>

Created by admin
Last modified 2006-01-19 01:25
### Table:

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>village</td>
<td>select NAME, MANDAL from village where SC_POPUL &gt; 500</td>
</tr>
</tbody>
</table>

### Fields:

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>SC_POPUL</td>
<td>M_MARGINAL, F_MARGINAL, M_NON_WORK, F_NON_WORK, PADDY_IRRI, PADDY_TOTAL, GNUT_IRRI, GNUT_UNIRRI, GNUT_TOTAL, BARN_UNCAL_LAND, NON_AGR_LAND, NET_SOWN_AREA, POSTOFFICE, SCHOOLS_PRI, PRI_AGRICREDIT_SOCIETY, POPU_TOTAL, SC_POPUL, ST_POPUL, AGRI_LBR_M, AGRI_LBR_F, FOREST</td>
</tr>
</tbody>
</table>
SC_POPUL
Your query is:

```sql
SELECT NAME, MANDAL FROM village WHERE SC_POPUL > 500
```

<table>
<thead>
<tr>
<th>NAME</th>
<th>MANDAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>KISTAPUR</td>
<td>DHANWADA</td>
</tr>
<tr>
<td>DHANWADA</td>
<td>DHANWADA</td>
</tr>
<tr>
<td>THIRUMALAPUR</td>
<td>NARAYANPET</td>
</tr>
<tr>
<td>PEDDAJATRAM</td>
<td>UTKOOR</td>
</tr>
<tr>
<td>KOLLAMPALLE</td>
<td>NARAYANPET</td>
</tr>
<tr>
<td>KISTAPUR</td>
<td>DHANWADA</td>
</tr>
<tr>
<td>MARIKAL</td>
<td>DHANWADA</td>
</tr>
<tr>
<td>BIJWAR</td>
<td>UTKOOR</td>
</tr>
</tbody>
</table>
### Table:

<table>
<thead>
<tr>
<th>Fields</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>BARN, UNCAL, LAND</td>
<td></td>
</tr>
<tr>
<td>M, MARGINAL</td>
<td></td>
</tr>
<tr>
<td>F, MARGINAL</td>
<td></td>
</tr>
<tr>
<td>M, NON, WORK</td>
<td></td>
</tr>
<tr>
<td>F, NON, WORK</td>
<td></td>
</tr>
<tr>
<td>PADDY, TIRI</td>
<td></td>
</tr>
<tr>
<td>PADDY, TOTAL</td>
<td></td>
</tr>
<tr>
<td>GUNT, IRRI</td>
<td></td>
</tr>
<tr>
<td>GUNT, UNIRRI</td>
<td></td>
</tr>
<tr>
<td>GUNT, TOTAL</td>
<td></td>
</tr>
<tr>
<td>BARN, UNCAL, LAND</td>
<td></td>
</tr>
<tr>
<td>NON, AGRI, LAND</td>
<td></td>
</tr>
<tr>
<td>NET, SDOWN, AREA</td>
<td></td>
</tr>
<tr>
<td>POSTOFFICE</td>
<td></td>
</tr>
<tr>
<td>SCHOOLS, PRI</td>
<td></td>
</tr>
<tr>
<td>PRI, AGRI, CRDT, SOCIETY</td>
<td></td>
</tr>
<tr>
<td>POPU, TOTAL</td>
<td></td>
</tr>
<tr>
<td>SC, POPUL</td>
<td></td>
</tr>
<tr>
<td>ST, POPUL</td>
<td></td>
</tr>
<tr>
<td>AGRI, LBR, M</td>
<td></td>
</tr>
</tbody>
</table>

### Enter Conditional Query

```sql
SELECT NAME, MANDAL, DUANE FROM village
WHERE SC_POPUL > 500 AND NET_SDOWN_AREA > 100
AND FOREST > 500 AND BARN_UNCAL_LAND > 400
```
Your query is:

```
select NAME, MANDAL, DNAME from village where SC_POPUL>500 and NET_SOWN_AREA>1000 and FOREST>=500 and BARN_UNCAL_LAND>=400
```
Feedback

- A liaison between the user and the developer
- Users can communicate their comments, ideas about the system/data to the administrator
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Feedback form

Name
Enter a value for Name

E-mail
Enter a value for E-mail

Homepage
Enter a value for Homepage

Message
Enter a value for Message

Save
Future Gramya Vikas

An Internet-based GIS to assist the rural extension community for both spatial and non-spatial data analysis to take decisions on rural development planning *(local-level e-governance for rural development)*
Conclusions on Prototype Gramya Vikas

- A system evolved from the Needs Analysis
- A suitable ICT tool for rural extension community in the districts for distributed collaboration
- A system which may give increased flexibility / autonomy in decision-making; interconnectivity; new coordination / interaction styles between people/organizations
Thank you
In the context of rural India, planning mainly consists of the distribution of resources (infrastructure, subsidies, assistance) according to various ‘schemes’ that are mandated by Central or State governments. These schemes are fostered by different line departments represented by various ministries.
User Interaction Workshop
Needs Assessment for the Development of Rural-Informatics in Decision Making at District/Sub-District Level

Date: 11 November, 2005 (Friday)
Time: 11.00 am – 5.30 pm
Venue: Revenue Meeting Hall
        District Collector Office
        Mahabubnagar

http://www.iitb.ac.in/conference/uiws/rural-informatics-workshop.htm
“Gramya Vikas” Query from Web-browser (JSP page)

Client Machine (http://localhost)

Query to Server

Apache Tomcat Server (contains .jsp pages and .mdb database)

Response to Query

Gramya Vikas Query Module System
Conclusions on Prototype Gramya Vikas

- A system evolved from the Needs Analysis
- A suitable ICT tool for rural extension community in the districts for distributed collaboration
- A system which may give increased flexibility, interconnectivity, and autonomy as well as new coordination and interaction styles for collaboration between people/organizations

- A secured system in which data can be shared, retrieved & analyzed (in future by online GIS) for rural development planning decisions
- A good medium for online communication on rural development planning
- A tool for discussion on various developmental issues
- A knowledge acquiring system that updates on cutting edge technologies on rural development
- User can identify the candidate villages for rural development schemes