

# ***eSagu*: An IT- based Personalized Agro-advisory System for Augmenting Livelihoods of Farmers**

## **Introduction**

Media Lab Asia has sponsored a project for development the *eSagu* system being by International Institute of Information Technology, (IIIT) Hyderabad. Media Lab Asia is a not-for-profit research organization ( Company under Section 25 of Indian Companies act 1956) set up by the Department of Communication and Information Technology, GoI to engage in research, refinement of innovations in technology and large-scale deployment through public-private partnerships. For further information, please visit website [www.medialabasia.in](http://www.medialabasia.in)

### ***What is eSagu?***

*eSagu* is a tool for IT-based personalized Agro-advisory system. ("*Sagu*" in Telegu language means cultivation). It aims to improve farm productivity by delivering high quality personalized (farm-specific), query-less advice in a timely manner to each farm at the door-step of the farmer. The advice is provided on a regular basis (typically once a week) from sowing to harvesting which reduces the cost of cultivation and increases the farm productivity as well as quality of agri-commodities. In *eSagu*, the developments in IT such as database, Internet, and digital photography are extended to improve the performance of agricultural extension services.

### ***How does it work?***

A team of agricultural experts work at the *eSagu* main lab (normally in a city), supported by an agricultural information system. One *eSagu* local center consists of a few computers and a computer operator and covers a group of about ten villages. Educated and experienced farmers work as coordinators. Depending on the crop, each coordinator is assigned a fixed number of farmers. He collects the registration details of the farms under him including soil data, water resources and capital availability and sends the information to the main *eSagu* system. Every day the coordinator visits a fixed number of farms and takes 4-5 photographs for each farm. A CD is prepared with the photographs and other information and transported to the main system by a regular courier service. The agricultural experts with diverse backgrounds (entomology, pathology, agronomy etc.) at the *eSagu* main lab analyze the crop situation with respect to soil, weather and other agronomic practices and prepare a farm specific advice. At the local *eSagu* center, the advice is downloaded electronically through a dial-up Internet connection. The coordinator collects the advice prints out and delivers it to the concerned farmer. In this way each farm gets the proactive advice at regular intervals starting from pre-sowing operations to post-harvest precautions.

## **Progress and Achievements**

The development of *eSagu* was started during Kharif season of 2004. The *eSagu* system was implemented by delivering advisory to 1051 cotton farms in three villages of Warangal district in Andhra Pradesh. The experiment was successful.

During 2005-06, as a scaled-up experiment, *eSagu* system was implemented for cotton, chili, rice, groundnut, castor, red-gram and other crops for 4894 farms in 35

villages spread over six districts in Andhra Pradesh. In addition, the *eSagu* system has evolved to deliver advisory service to fish-farmers. About 160 fish ponds were covered during the previous year. By the end of 2005-06, there were 8 *eSagu* local centers which had delivered 35,925 advices covering 30 crops and fishing rearing. About 2.6 lakh crop photographs and 8918 fish photographs were taken in the process. The average number of photographs taken per observation was five. As of now, the turnaround time for advice delivery is between 24 to 36 hours.

The farmers are happy with the expert advice as it is helping them to improve input efficiency through the use of integrated pest management (IPM), judicious use of pesticides and fertilizers etc. At the same time benefits accrue through higher yield. As per an impact assessment study carried out by social scientists, benefits accrued to farmers were as follows:

- a) for 2004: Rs. 3820/- per acre with cost benefit ratio of 1:3
- b) for 2005: Rs. 3874/- per acre with cost-benefit ration of 1:4.1

Fish farmers have also realized significant benefits. In some centers the farmers have paid the subscription fee for the services and they are satisfied with the same.

### **Recognition and Awards**

- *eSagu* has been recognized as one of the latest novel internet applications in the "Innovative Application Case study – 2006" of the Institute for Information Industry, Ministry of Economic Affairs, Taiwan.
- *eSagu* has been awarded the CSI Nihilent e-Governance Award for the year 2005-06.

### **Patents**

Patent filed.

### **Institutional Arrangements**

The ***main Center of eSagu*** is housed at the ***IIIT*** in Hyderabad. It consists of a team of about 20 agricultural experts and an Agricultural Information System comprising of crop photos, farm data base, weather data, etc. This project is sponsored and managed by Media Lab Asia. Media Lab Asia has been set up by ***DoIT***, Govt as a not-for-profit research organization under section 25 of the Companies Act. The project design is done by Media Lab Asia and ***IIIT Hyderabad*** together. The ***eSagu local Center*** is located at cluster level and is run by the project. The local centers are linked with the main center through internet, telephone and courier services. The farmers are linked to the local center through especially trained farmers called ***coordinators***.

The system has developed ***linkages*** with several institutions which have collaborated in the development and/or deployment of the service. These include National Institute for Smart Governance, Acharya N G Ranga Agricultural University (ANGARU), Byrraju Foundation, IL&FS, JANANI Foods Pvt Ltd., NASSCOM Foundation, CRIDA, MANAGE, Confederation of Kisan Organisations and many more.

For a mapping of the institutional arrangements see Figure 1. The choices made at different levels are shown in Table 1.

**Website:** [www.esagu.in](http://www.esagu.in)

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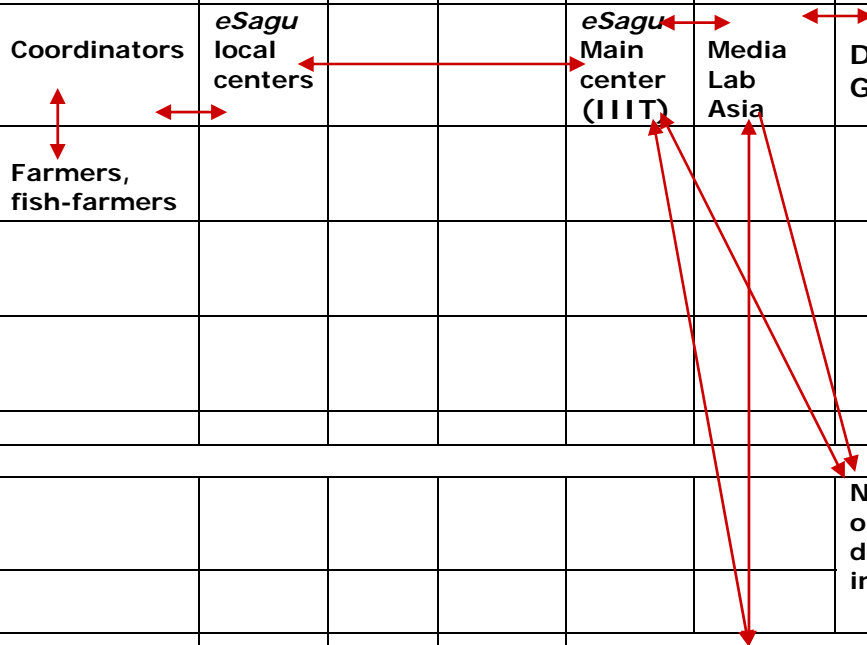
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**Figure 1**  
**Mapping of Institutional Arrangements**

Functions	Levels						Linkages with other institutions
	Village	Cluster	Block	District	State	National	
<b>Main</b>							
Employment							
Natural resource augmentation							
Input supply							
Credit supply							
Knowledge center	<b>Coordinators</b>	<b>eSagu local centers</b>			<b>eSagu Main center (IIIT)</b>	<b>Media Lab Asia</b>	<b>DIT, GoI</b>
Primary production	<b>Farmers, fish-farmers</b>						
Secondary production							
Marketing							
Others							
<b>Supportive</b>							
Creating awareness & mobilization							<b>NGOs, &amp; other delivery institutions</b>
Capacity building							
Research					<b>Research Institutes</b>		
Policy advocacy							
Developing infrastructure							
Creating Linkages							
Others							



**Table 1**  
**Choice of institutions at different levels**

<b>Institution</b>	<b>Level</b>	<b>Functions</b>	<b>Characteristics*</b>	<b>Legal Personality ¥</b>
<b>Coordinators</b>	Grass-roots	These substitute for institutions at the village level; They visit the farms, register farmers in the scheme, take pictures of crops, collect relevant information and forward the same through local centers; they also collect the advisories and take them back to the farmer	Not applicable	Not applicable
<i>Why was this form chosen:</i> It is cost effective to have such service providers			<i>What other forms were considered:</i> None	
<b>eSagu local center</b>	Cluster level	Acts as a conduit for information and photographs between farmers and main center	See IIIT below	Project centers and Other centers operated by NGOs and Private companies
<i>Why was this form chosen:</i> <ul style="list-style-type: none"> <li>• Project centers as test centers for evaluation</li> <li>• Other centers for replication by other organizations</li> </ul>			<i>What other forms were considered:</i> CSCs being established by the Government, NGO centers, e-Chaupal centers etc are being considered	
<b>eSagu main Center</b> (located at IIIT HYD)	State level	Houses the experts and the information database which makes it possible to provide the services to the farmer	<i>Integrated / Specialised</i> <i>Sectoral / Holistic</i> <i>Exclusive / Inclusive</i> <i>Formal / Informal</i> <i>Flexible / Rigid and Standardized</i> <i>Democratic / Non-democratic</i> <i>Collective / Non-collective</i> <i>Self managed / Professionally managed</i> <i>Ownership:</i>	Presently as part of the project owned by Media Lab Asia and IIIT

			<i>Self-owned/ Investor owned /Civil society owned / Govt owned /Private- CSR</i>	
<i>Why was this form chosen:</i> As part of the project, this is located at IIIT			<i>What other forms were considered:</i> Other forms would be used in the replication. These may be Agricultural universities, Independent centers	
<b>Media Lab Asia</b>	National level	Research and development for the service; Public-private partnerships to deploy the service; Providing financial support	<i>Integrated / Specialised Sectoral / Holistic Exclusive / Inclusive Formal / Informal Flexible / Rigid and Standardized Democratic /Non-democratic Collective / Non-collective Self managed / Professionally managed</i> <i>Ownership:</i> <i>Self-owned/ Investor owned /Civil society owned / Govt owned /Private- CSR</i>	Section 25 company
<i>Why was this form chosen:</i> It has a not-for-profit agenda.			<i>What other forms were considered:</i> Not known	
<b>DIT, Gol</b>	All levels	To promote the use of IT in a manner that leads to development with social inclusion	<i>Integrated / Specialised Sectoral / but also Holistic In approach Exclusive / Inclusive Formal / Informal Flexible / Rigid and Standardized Democratic /Non-democratic Collective / Non-collective Self managed / Professionally managed</i> <i>Ownership:</i> <i>Self-owned/ Investor owned /Civil society owned / Govt owned /Private- CSR</i>	Government Department
<i>Why was this form chosen:</i> It is part of the Ministry of Communication and Information Technology			<i>What other forms were considered:</i> Not relevant	