

MOBILE BASED eEXTENSION SERVICES IN AGRICULTURAL: CASES

G. Bhaskar
Asst. Director (IT), MANAGE

Mobile based eExtension Services

- **Providing information directly to farmers**
- **Delivering location specific, time sensitive information and important alerts**
- **Ensuring that this service does not add cost to the farmers**
- **Providing leverage to the communication needs of farmers**
- **Converting their Mobiles into Dynamic Power Houses of Knowledge**

Overall Subscriber base and Teledensity (2012-13)

<u>Particulars</u>	<u>Wireless</u>	<u>Wireline</u>	<u>Total</u>
Total Subscribers (Millions)	867.80	30.21	898.02
Total Net Monthly Addition (Millions)	6.14	-0.15	6.00
Monthly Growth (%)	0.71%	-0.49%	0.67%
Urban Subscribers (Millions)	525.30	23.50	548.80
Urban Subscribers Net Monthly Addition (Millions)	4.02	-0.08	3.94
Monthly Growth (%)	0.77%	-0.32%	0.72%
Rural Subscribers (Millions)	342.50	6.71	349.22
Rural Subscribers Net Monthly Addition (Millions)	2.13	-0.07	2.06
Monthly Growth (%)	0.63%	-1.07%	0.59%
Share of Urban Subscribers	60.53%	77.78%	61.11%
Share of Rural Subscribers	39.47%	22.22%	38.89%

* TRAI Annual Report 2012-13

Concept of Short Message Service (SMS)

- ✓ Mobile Short Message Service (SMS) is a communication service available in GSM (Global System for Mobile communications) feature enabled mobile devices.
- ✓ It uses standardized communication protocols to communication text message between mobile phone devices.
- ✓ The standards set by GSM for sending messages of up to 160 characters (i.e. 160 bites of data) including blank spaces to the other mobiles.
- ✓ SMS service has been utilized by business organization to delivery content, entertainment, business information to the mobile users.
- ✓ The SMS gateway providers may be just act as sending messages to the mobile users, or it could be two-way exchange of SMS messages between the SMS gateway and mobile users.
- ✓ The first kind of service delivers the SMS message to mobile user without any request and the second type of service is based on the mobile user SMS request the gateway generates SMS and sends as a reply.
- ✓ SMS can also used to deliver the content to more than one mobile user at the same time. This feature is called bulk SMS. Web based bulk SMS Interface will enables to send SMS without a mobile phone in a very quick way.

- ✓ Today, the SMS business occupies more than 100 billion dollars in the world.
 - ✓ The mobile Short Message Service (SMS) is the ideal tool to deliver the agricultural advises to the farmers on various aspects of agriculture.
 - ✓ The reach of mobile in rural areas is quite improving and prices of mobile handsets are coming down drastically .
 - ✓ The short message of 160 characters of agricultural information provided on farmers mobile is highly helpful in their day-to-day farming.
- Agricultural Advise with SMS**
- ✓ The SMS service is a handy mechanism to deliver the agricultural advise to farmers on;
 - ✓ Weather forecasting
 - ✓ Mandi prices
 - ✓ Plant protection
 - ✓ Agricultural practices
 - ✓ Application of fertilizers and pesticides
 - ✓ Government schemes and Subsidies
 - ✓ The entire information has to be compiled within the limit of SMS i.e. 160 characters only and it should be understood by the farmer in order to practice in the field.
 - ✓ The agricultural advise should be crisp, understandable and adoptable information, to be sent as SMS message to farmers.
 - ✓ The scientists should expertise in converting agricultural information into agricultural knowledge.
 - ✓ **MahaAgri: SMS Service**
 - ✓ Minimum five progressive and active farmers from each village are selected as “Krishi Mitra”.
 - ✓ Total three lakhs farmers from forty thousand villages have registered in this project.
 - ✓ 43 major crops are identified for sending crop specific advisory.
 - ✓ Indian Agro Metrology Department delivers location specific Agro-met advisory.
 - ✓ The registered farmers on receiving the SMS pass on the message to the other farmers in the village.
 - ✓ Advisory dissemination for market intelligence and for price realization of farm produce through scientific storage facilities and Commodity markets for farmers is being integrated in this service in collaboration with state Marketing Board and State Warehousing Corporation



IFFCO Kisan Sanchar Limited

- A joint venture promoted by IFFCO, Airtel and Star Global Resources in 2007
- **Mission**
 - Empowerment of people living in rural India
 - Provide agriculture information and services through affordable mobile communications
 - Improve decision making ability of farmers
 - Work with like minded organizations for e-transformation of villages
- Value Added Services (VAS) of IKSL**
 - 5 Free Voice Messages every day (State, zone or community level messages)
 - Facility to relisten – on 53435
 - Rural Help-line (534351 from IKSL SIM Card 50PS/MT)
 - Phone – in Programmes (4 every month/Thursday)
 - Quiz -(4 – Monthly Prizes to 12 winners/Monday)

Message Planning

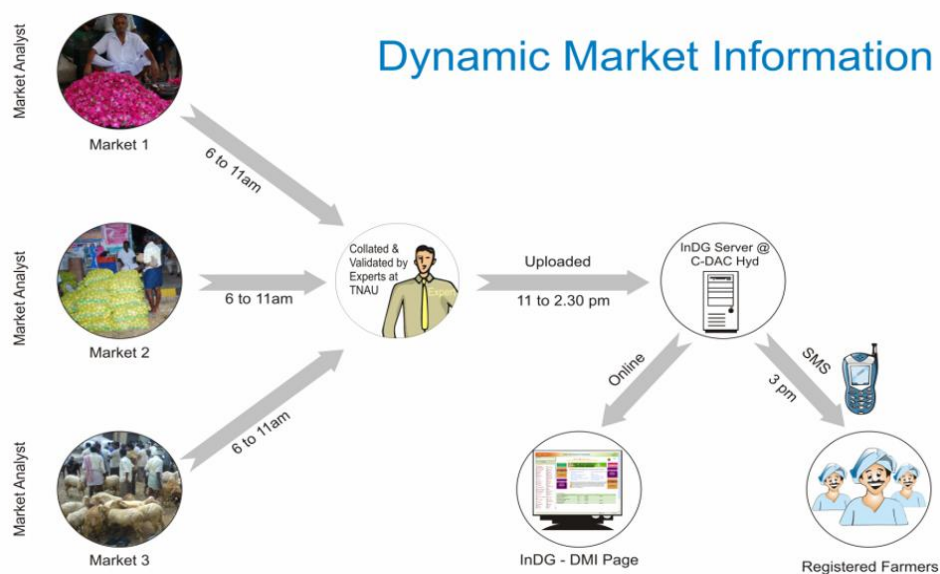
Crop Calendar v/s Information need for transplanted Paddy crop (Zero sowing date should be adjusted for different cultivation situation and maturity cycle of the variety/hybrid under cultivation)

Crop life (days)/Crop stage/Information need		
Pre-sowing (-30days)	Nursery raising (-5 to 0 days)	Nursery (0-25 days)
Soil testing Field preparation Soil amelioration(S/FYM/Green manuring) Hybrid/variety selection Inputs availability	Soil treatment/sanitation Seedbed preparation Seed treatment (Bacterial/Fungal) Application of fertilizers Seed rate, seeding method)	Weed control Water management Biotic-abiotic stresses (termites, hoppers, birds, b light)
Transplanting (25-35 days)	Preflowering (35-60 days)	Post flowering (60-80 days)
Puddling Basal nutrients application Seedlings treatment (pesticide/nutrient) Transplanting (spacing/seedling number)	Top dressing of urea Water management (alternate wetting/drainage, critical stages) Alerts &Management of Insects (hoppers, shoot borer, termites) and diseases (blight, blast)	Alerts & management of insects (hoppers, bugs, borers) and diseases (neck blast, smuts) Water management Rouging
Maturity/harvest (80-150 days)	Post harvest	
Water management Rouging Harvesting Field drying	Grain drying, Threshing, Winnowing Storage/fumigation Mandi rates/arrivals	

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Market Information through mobiles

- In association with TNAU, Coimbatore
- 13 secondary markets in 3 states
- 161 commodities
- 22,000 farmers enrolled so far



C-DAC, Hyderabad

MOBILE BASED AUTOMATED AGRO-ADVISORY SERVICES (MAAAS) ON PESTS AND DISEASES TO FARMERS MAAAS

Objective

- ✓ To develop an I.T. enabled service (ITeS) model to provide Mobile based Automated Agro-Advisory Services (MAAAS) on pest and diseases information to the farmers of on any crop using on-demand facility of Mobile SMS.
- ✓ The proposed model is to deliver the timely advise on pests and diseases of crops to farmers in order to prevent more damage to crop. To simplify and quick delivery of advise to the farmers on pest and diseases, an I.T. enabled service model named “Mobile based Automated Agro-Advisory Service (MAAAS)” to be developed, which will provide on demand service to the farmers query on pests and disease. The computer applications is being designed on the principle of SMS push and pull concept. In this, the farmer will send a query as SMS in prescribed format like crop name, pest or disease name with a seperator # symbol (ex. Paddy#Brown Spot). The SMS shall be received by mobile/GSM modem attached to computer, and application engine process the SMS query immediately, collects the suitable advise from the knowlegebase and sends as SMS reply.
- ✓ This I.T. service will serve most of the problems of farmers on pests and disease in a few minutes. The computer application will also provides facility to address the problems of unknow i.e. not available in the knowlegebase by sending an SMS to the extension officer/scientists on the problem reported by the farmer. The application also sends a reply SMS to farmer indicating the non-availability of advise with computer system and provides the expert name and contact numbers for further interaction on the problem.
- ✓ **MAAAS: Voice Search – IVR Based**
- ✓ The other way of using voice search is that the farmer speak can be detected by the software application and acts on it. In this, the farmer dials to the application, speaks to the application on the problem such as crop and pests/ disease in his own words and phrases.
- ✓ For example “I need advise on block spot disease of paddy crop” or it could be “blockspot disease on paddy crop”. The application process the speak query and

takes the confirmation on the search string from the farmer. Then it searches knowledgebase using keyword indexes and the result or advise will be read out to the farmer.

- ✓ The entire process of detecting speech, analyzing the spoken words and searching with the knowledgebase is similar to google speak search or the speech detecting technology used in smart phones. This technology can be impleted initially in English.
- ✓ *Since the proposed application needs to develop a structured knowledgebase to enable pests and disease advisory to farmers. To make the search efficient and quick, the database shall supported by subject indexes on keywords and the synonyms. So that any keyword or local name can generate query search for identifying the solution to the problem.*
- ✓ *The enhanced knowledgebase will be used with either two-way SMS facility or with voice search, and it can also be used to develop a search engine on pests and disease of crops. The search engine is similar to any other search engine but specific to pests and diseases of crops only.*
- ✓ *The user either farmer or extension personnel can enter the keywords or phrases of particular problem i.e. pests/disease with crop name. The application process the search string and geneartes the advise for which the user is looking for.*
- ✓ **MOBILE BASED eExtension Service**

Voice based Interactive System

An Intelligent system that is able to converse with a person. The query is personalized and based on the farmers registered profile already in the system.

- The only problem with one to one interaction is the availability (and costs) of experts. If the farmers could interact through voice in their regional language with computers linked to information systems stored in databases, a scalable solution is possible.
- The automated system will grow in intelligence as the central database gets populated and thereby reduce the need for human based responses
- The system would support voice-based authentication



Video based Extension services

- The Kisan Call Center (KCC) is providing live voice chat with farmers to provide the advisory services to farmers. The present operations of KCC can be improved by using the latest communication technology, which supports live video streaming from the farmer-end.

- The live video streaming can establish a better linkage between the farmer and subject matter specialist / scientist to address the agricultural and allied sector problems.
 - The project shall use the 3G communication technology for providing video chat between farmer and expert. This enables agricultural advisory service delivery to farmers in real time.
1. The study confines to Nalgonda district of Andhra Pradesh and covering 10 villages on a pilot basis.
 2. Establishing live video-conferencing facility between farmers and scientists sitting at KCC/DEE to provide a real time advisory on agricultural and allied sector.
 3. MANAGE and NIC, Hyderabad is working on a partnership to work on this project on a pilot basis.
 4. NIC is providing a software solution and will develop a comprehensive low cost solution for farmers using state of the art technologies and develop the farmer advisory database.
 5. The project is primarily based on high-speed 3G network connectivity to enable the clear live video-conferencing with experts by the farmers. 2G connectivity shall be used when 3G connectivity is not available.