

INDIRA GANDHI KRISHI VISHWAVIDYALAYA Raipur, 492012, C.G, India

### LEVERAGING INNOVATIONS IN AGRICULTURE

Knowledge and Technology Resource Centre, Raipur, Chhattisgarh, India





#### **KNOWLEDGE & TECHNOLOGY RESOURCE CENTRE**

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### LEVERAGING INNOVATIONS IN AGRICULTURE



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**Technology** is bringing **Change in** farming

# Smart Kisan

#### Summary

Project aims to provide an integrated and seamless interface to the farmers through ICT enabled multiple delivery channels such as internet, research stations, government offices, touch screen kiosks, Krishi Vigyan Kendras, mobile phones for ensuring timely access of agriculture related information for the farmers of the state. SMART KISAN offers a bunch of E-enabled services and activities for the benefit of farmers. Farmers' e-club offers farming advice, weather updates, latest market prices and free chat between club members.

'Ask Expert' provides the expert advise on mobile phone by taking prior appointment from the concern specialist for crop management throughout the crop cycle. Site-specific and farming situation based high income generating models can be obtained through SMS on mobile phones. 'Knowledge bank' provides the online knowledge related to Gene Bank, videos on crop production techniques and opportunity to select high yielding varieties of major crops. Web based platform which facilitates hiring of tractors and modern farm machinery for farmers in Chhattisgarh is free and connect Custom Hiring Centres (CHC) operated by tractors and equipment owners. The direct marketing platform "e-HAAT" provides opportunity for selling of farm produce and products on mobile eliminating the role of middle man.

Exclusively designed social media channel 'IGKV KISAN' provides the information of latest innovations, research outcome and good agriculture practices. Mobile based offline/online application *viz*, e-Krishi Panchang (agro-climate almanac), Crop Doctor, Vegetable Doctor, Pulse Doctor, Oilseed Doctor, Custom Hiring of farm implements and "e-HAAT" have been developed and made available on Google play store and NIC app store. These e-governance services aimed at increasing crop productivity, reducing crop damage due to weather and pests, improved livestock management, access to government schemes, better market rates for farm products, providing food security, conservation of bio-diversity, reducing use of chemicals, and access to better seed varieties and technology.

Mobiles apps are installed in smart phone distributed to farmers, women and college students under 'Sanchar Kranti Yojna' of government of Chhattisgarh for providing agri-based knowledge and services to farmers. The complete project has created a conducive environment for raising the farm productivity and income of especially small, marginal, medium, land less and women tribal farmers through these e-enabled services/activities.

## Our Aim

To provide an integrated and seamless interface to the farmers through ICT enabled multiple delivery channels and to ensure timely access to agriculture related information to Stakeholders.

to shrink the Space and time between the agricultural Need and Assistance through Technology

## Key Objectives



Improve access of farmers to timely and Relevant Information & Services throughout Crop-Cycle



Increasing effectiveness and impact of extension services



Bringing farmer centricity and service orientation to the program by providing location specific and up-to-date crop management related information



More effective management of programs through process redesign



Providing an integrated platform to promote value added services



Bringing new section of agrarian community under governance sphere



### HELLO !! SMART KISAN

### Beneficiary of the Project:

The project directly benefitting especially to the farmers, livestock breeders, herders, dairy workers, officers of Department of Agriculture, Traders, Input Dealers, Agriculture Scientists, Agriculture Students and NGO's working in the agriculture sector.

- Mobile Users 37 lakh mobile phone Users
- Agriculture Students 20261 agriculture Students .
- Farmers

27680 farmers registered in farmers club

- Input dealers 1520 Input dealers
- Scientists 644 agricultural scientist associated with project
- Social Media users
  256473 Social media Users



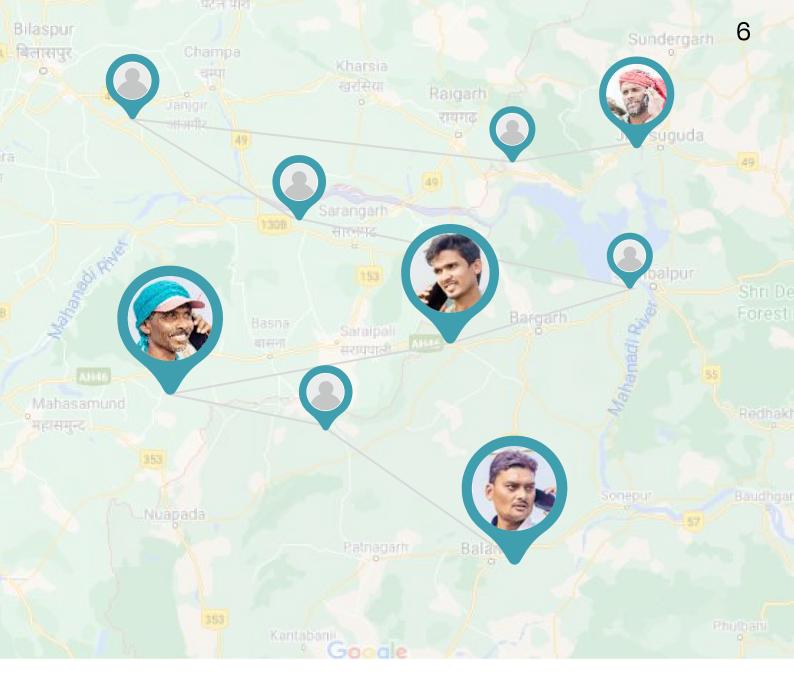
#### Learning Agriculture through ICT

There are a range of ICT enabled interventions developed in this project which are useful in delivering governance products and services which are of use to the agricultural community, including farmers, livestock breeders, herders, dairy workers, agriculture extension workers, traders, scientists, middlemen, and NGOs working in the agriculture sector for the agrarian community. ICT based interventions like Farmers' club, Expert advice for crop management throughout the crop cycle, advise on establishment of farming situation based high income generating agriculture model farms, custom hiring of farm implement, Direct marketing of agriculture produce, Social media channel for Good agriculture practices, mobile based offline/online application viz, e-Krishi Panchang (agro-climate almanac), crop doctor, vegetable doctor, pulse doctor, oilseed doctor, hiring of farm implements and direct marketing app e-HAAT have been developed under the project for providing integrated ICT based services to farmers. These product and services aimed at increasing crop productivity, reducing crop damage due to weather and pests, improved livestock management, access to government schemes, better market rates for farm products, providing food security, conservation of bio-diversity, reduce in use of chemicals, and access to better seed varieties and technology.

#### E-ENABLED FARMER CENTRIC SERVICES OF SMART KISAN







## 1. Farmer e–Club

Farmers' e- Club is an agricultural based value-added service. Farmers' e-Club is conceived as a product which improves the lives of farmers and increases their pride in the occupation. The package offers SMS and e-mail based services like location/situation specific farming advice, real time weather updates, real time market prices and free chats between

Farmers' Club members. After online registration and automatic profiling (based on location), the service offers agricultural tips for every month on the crop management in bi-lingual i.e., Hindi and English languages via SMS.

real time weather updates real time market prices and free chats between Farmer's Club members.



Weather Updates and Pre Alerts



Innovation & Technology Information



Online Product For Sale



Farm Machinery for Rent



**Success Stories** 

of Beneficiary

Market Price and Rates



## 2. e–Krishi Panchang

e-Krishi Panchang or Agro-climate almanac is a basic astronomical-agricultural web and mobile based calendar released annually, giving information on various aspects of agriculture and allied activities, basically suggesting region-wise, season-wise and crop-wise crop strategy truly based on meteorological predictions, giving auspicious time for undertaking/ avoiding various farm related operations, along with a list of performing religious rituals, festival, fasts and some non-astrological guidance, primarily useful for the farming communities and persons having interest in agricultural development. This e-Krishi Panchang, being meant for meeting agricultural purposes. Majority of its contents related to agricultural information. In addition to this, basic information such as annual date calendar, list of holidays, and auspicious days/moments of the coming year is given for the benefit of farming communities.

This e-calendar is available in the android mobiles distributed to farmers, students and others stakeholder related to agrarian community under the SKY yojana by CG state government.

#### **Online Market price Update:**

The members of Farmers' e-club are also getting real time updates of market price. It helps in deciding the prices of various commodities to be sold through e-HAAT mobile application.

#### **Government Schemes :**

The ministries of the Government of Chhattisgarh have come up with various useful schemes like subsidy on digging of bore-wells, ponds etc. related agrarian community from time to time. These schemes could be either central, state specific or joint collaboration between the centre and the states. The information of these schemes is provided to the members of Farmers'e-Club through web and mobile application e-Krishi Panchang. Farmers are geting benefits of these.

#### **Online link to Knowledge Centres:**

Indira Gandhi Krishi Vishwavidyala (IGKV) is currently operating in all Krishi Vigyan Kendra (KVK) is almost all parts of Chhattisgarh. These centres serve as the ultimate link between the Scientist and farmers, and aim to apply agricultural research in a practical, localized setting. Farmers can get the location of the nearest centre through SMART KISAN web application and can easily get the advice of agriculture related operation.



(RALLAS, MAN





Speaking Mobile Application for Less Educated Farmers

Giving information on various aspects of agriculture

and allied activities

LEVERAGING INNOVATIONS Find Scientist/Specialist across University by experience & availability and KVK by location.

## 3. "ASK EXPERT"

Ask Expert is a unified web application bringing all services under one umbrella. Ask Expert web is only one stop destination for all crop care. IGKV being Chhattisgarh's only agriculture university offers farmers and stakeholders to access of wide range of agriculture based services. The main feature are Book online Appointment with Scientist/ Specialist with ease, Find Scientist/Specialist across University by experience & availability and KVK by location.

Helping Farmers Book online Appointment with Scientist/ Specialist with ease



Online consultation With Scientists - Peer to Peer Communication Help Farmer to get Direct information through experts



Farmers get The nearest location and contact details of Experts to meet and understand the remedial



Farmers easily gets the remedy to their problem via phone call from experts, this also shrink the time and space within them



Farmers can easily Book Appointment through application

### 4. Knowledge Bank

Knowledge bank provide the online knowledge related to Gene Bank, videos on different crops from sowing to harvesting and also gives the opportunity to select high yielding varieties of major crops. Farmers can get information through SMS and e-mail.

#### **Crop Variety**

Farmer Can Select Crop Varieties From Knowledge Bank and the Same Can Be Obtained on Farmer's Mobile via SMS and Mail

#### **Crop Protection**

Farmers can Protect their crop by using crop Doctor Mobile Application

#### **Crop Production**

Farmers can watch Different videos developed from sowing to harvesting and the same can be obtained on farmer's mobile via SMS and Mail

> LEVERAGING INNOVATIONS IN AGRICULTURE

### 5. Model Agri–Farms:



This unique feature of SMART KISAN is to provide online advise for establishment of high income generation agriculture farm based on location, farming situation and availability of resources like irrigation, soil type etc. While registration, Farmer provide the information about the field condition, soil type, land type and other details and based on the details SMART KISAN provide the suitable model for his farm, which can increase the income of the farmer. A message containing all advise sent to his mobile. Farmer can also get advise through e-mail.



## 6. Crop Doctor

Crop based information system is accessible from all KVK's and Research Station and provides the remedies for Diseases, Insects and Nutrient deficiency/Excess for most dominant Crops. Earlier the technology was being demonstrated by distributing Pamphlets, Banner, and Lectures. Now research information is being disseminated in digital form. Crop based decision support system increased the efficiencies is transferring the technology to the farmers of Chhattisgarh. The effectiveness of outcome has also been increased. Android Mobile App "Crop Doctor" which can be downloaded from Google Play store & NIC play store has now reached to

every corner including most Remote places and Naxal affected areas of Chhattisgarh. The most unique feature is that it can work offline that is without internet facility. The farmer can see problems related to agriculture at his field itself. This has enhanced the efficiency of the farmer a lot. The immediate solution of the Crop Doctor in the prescription form increased the effectiveness of the outcomes. Farmers need not to rush the KVK and other agriculture agency which save the cost of the travel also.





Purely Image Based System



Diagnose of Pest/ diseases/ Nutrition's Disorder



Available in Hindi & English



Work without Internet at farmers field



With Immediate Solutions Crop Doctor increases the Effectiveness of crop Outcomes



### 7. Custom hiring

A web based aggregator platform which facilitates hiring of tractors and modern farm machinery for farmers in Chhattisgarh, is free and connects Custom Hiring Centres (CHC) operated by tractors and equipment owners. This application facilitates fair and transparent rental process while focusing on quality, dependability and timely delivery. This service by SMART KISAN fostered digital empowerment of farmers while creating a breed of new rural entrepreneurs and significant job opportunities.

- App based Aggregator Platform for Hiring Morden Farm Machinery.
- Fair and transparent rental process focusing timely delivery
- Fostered Digital Empowerment by creating a breed of New Rural
- Entrepreneurs and Significant Job Opportunity



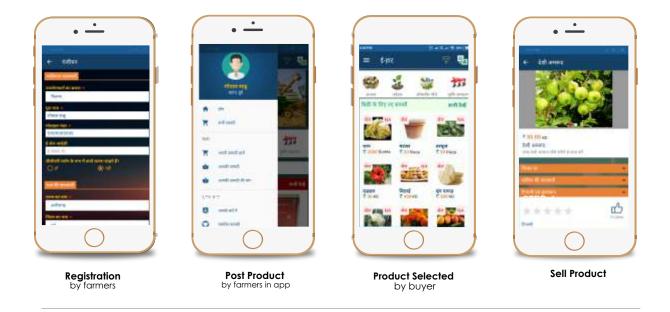


Helping the farmers sell their products in a timely manner.

### 8. e—HAAT an online platform for Direct Marketing

A buy/sell platform with information about commodity, prices, produce information and a map based view of available farm products has the ability of connecting to a required farmer via web and mobile application. It aims to solve the problems of marketing and help the farmers to sell their products in a timely manner. When they register with the site, it captures all of their produce and location details and updates its database. Farmers can know of average demand, peak/low demand season, in and off season needs, rare items and their prices and can plan their farms accordingly For a buyer – it gets easier as he/she gets a complete list, which can be filtered geographically, produce type, location, availability, yield etc. This process eliminates the role of middle men and increase in the income of the farmer.

- Direct Marketing Platform for selling farm produce specially perishable in nature.
- Eliminates the role of middlemen
- Now Every farmer's home is a Shop
- Path breaking Initiative



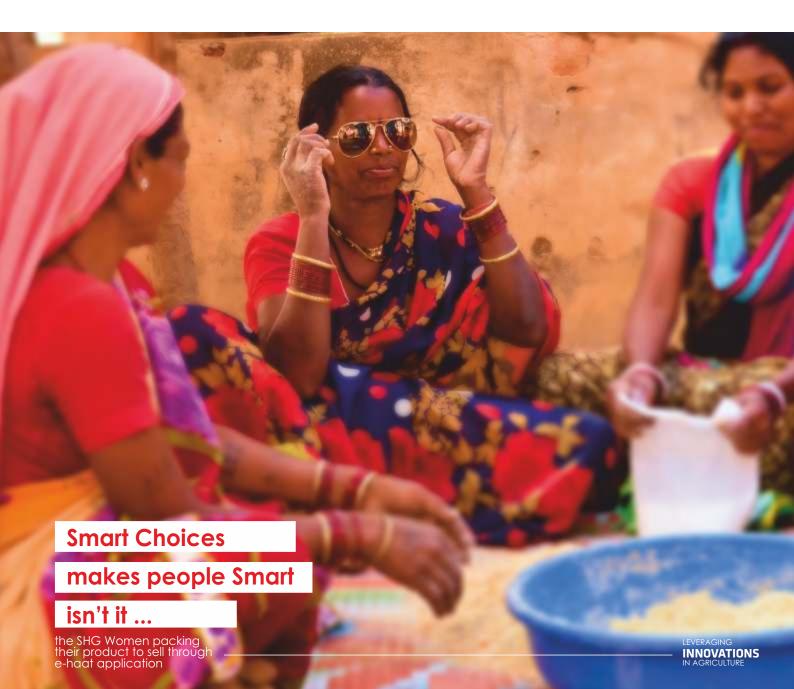
e-HAAT is the online Agri-Market where farmers can buy/ sell or advertise fruits & vegetables, agriculture produce or any agriculture machinery, Tools or Tractors etc by fulfilling the dream-

#### "Tol Mol Nahi - Sabko Milega Sahi Mol".

The major goal of this mobile app is to act as a catalyst by providing a web based marketing platform to the farmer's especially small, marginal, medium and land less to directly sell to the buyers. Now farmers (Kisan) can sell their produce directly to end consumer i.e. customer or any other group buyers on e-HAAT. e-HAAT mobile app is 100% free for farmers and no charge or anything from farmers. Buyer can search product based on categories and distance. As and when any farmers/seller uploads the product the product for sell, app gives the notification of the same. In this, the role of middlemen is eliminated and farmers are getting good price of their product. Also, e-HAAT is catering to almost all the needs of the agriculture fraternity where they will find all commodities/ items ranging from Tractors, Pump Sets, Farm Implements, Seeds, Cattle feed, Grain storage bins, Water Tankers, Wheel Barrows, Trolleys, Tree Guards, Gardening tools and many more.

### 9. Social Media Channel

With the advent of internet, it is our experience that social media is turning out to be a very easy method for extension officer to be always in touch with farmers. Under SMART KISAN platform exclusive channel "IGKV KISAN" have been created on Youtube, facebook and Twitter to provide latest updates such as latest weather condition information which is all the more important with the recent climate change phenomena, adversely affecting agriculture. Apart from this university's latest innovation, success stories of various crops are being updated regularly. These initiatives also serve as a two-way communication, wherein farmers can post their problems and extension officer can offer solutions. This social media channel will play a very important role in delivering agriculture and allied extension services in days to come



### Benefits to Farmers/Citizen



Information of Govt. Scheme for Subsidies latest Updates of Weather



Monthly Information on Agriculture Activities to be Undertaken. Updated market price.



Latest news of Innovation and research Undertaken by the Scientist. Timely advise on crop management to Farmers residing Specially in remote and Naxal affected areas.



Timely Availability of farm implement in low cost. Direct Selling of farm produce and non farm product through mobile.



Less Interference of middle man. Getting Good Quality of seed & Fertilizer. Selection of high yielding varieties through system.

### Benefits to Orgnization



Technology dissemination is now possible in remote and Naxal affected areas



Information on farmers activities on real time basis.



Availability of location and implements wise database for enhancing mechanization of agriculture activities



Availability of crop wise, location wise, farmer's database



Availability of report, data for the administration and other authorities.



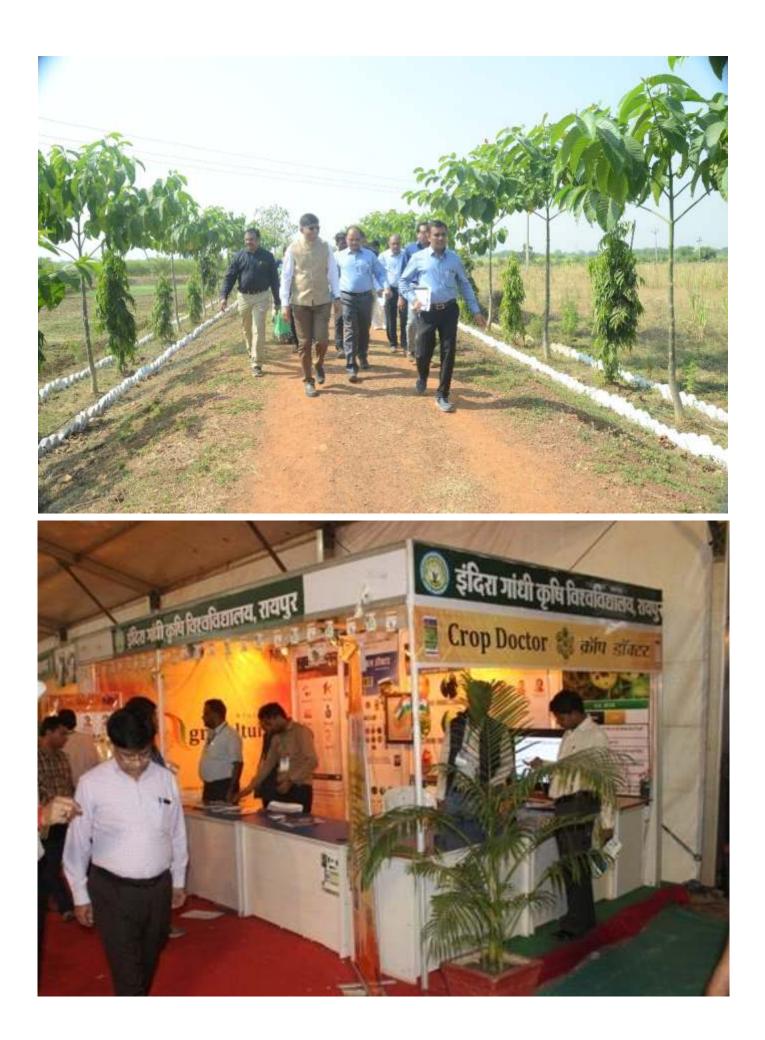
Information of the farmers activities to the nearby KVKs.

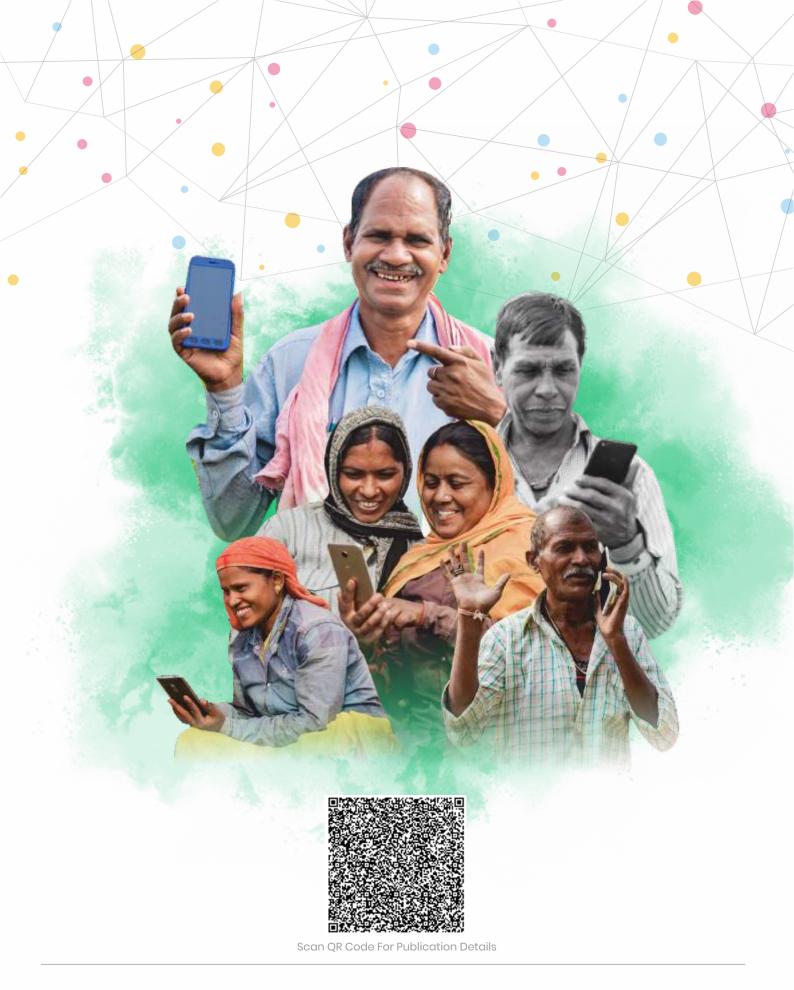
### Demonstration



### Demonstration









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