

# *mKisan Portal - Mobile Based Services for Farmers*



सत्यमेव जयते

MINISTRY OF AGRICULTURE  
GOVERNMENT OF INDIA

## mKisan Portal – Mobile Based Services for Farmers

### Brief Overview

1. Pervasive and extensive use of the ICT is an important tool of agricultural extension. Under the National e-Governance Plan – Agriculture (NeGP-A), various modes of delivery of e-enabled services have been envisaged. These include internet, touch screen kiosks, agri-clinics, private kiosks, mass media, Common Service Centres, Kisan Call Centres, and integrated platforms in the departmental offices coupled with physical outreach of extension personnel equipped with pico-projectors and hand held devices. However, mobile telephony (with or without internet) is the most potent and omnipresent tool of agricultural extension. The project conceptualized, designed and developed in-house within the Department of Agriculture & Cooperation has widened the outreach of scientists, experts and Government officers posted down to the Block level to disseminate information, give advisories and to provide advisories to farmers through their mobile telephones. **SMS Portal was inaugurated by the Hon'ble President of India on July 16, 2013 and since its inception nearly 50 crore messages or more than 152 crore SMSs have been sent to farmers throughout the length and breadth of the country.** These messages are specific to farmers' specific needs & relevance at a particular point of time. These messages generate heavy inflow of calls in the Kisan Call Centres where people call up to get supplementary information.



2. SMS Portal for Farmers has empowered all Central and State Government Organizations in Agriculture & Allied sectors (including State Agriculture Universities, Krishi Vigyan Kendras, Agromet Forecasts Units of India Meteorological Department, ICAR Institutes, Organization in Animal Husbandry, Dairying & Fisheries etc.) to give information/services/advisories to farmers by SMS in their language, preference of agricultural practices and locations. **To put it succinctly, almost every Government Department, Office and Organisation from the Ministry Headquarters down to the level of Block having anything to do with agriculture and allied sectors in every nook and corner of the country has been authorised to use this Portal to provide information to farmers on vast gamut of issues.**

3. USSD (Unstructured Supplementary Service Data), IVRS (Interactive Voice Response System) and Pull SMS are value added services which have enabled farmers and other stakeholders not only to receive broadcast messages but also to get web based services on their mobile without having internet. Semi-literate and illiterate farmers are also targeted to be reached by voice messages.

### Genesis of the requirement

3. Extension services in India have gone through vicissitudes since the Green Revolution (from monologues & speeches to personal outreach to farmer to farmer extension to bulk use of non-P2P methods) when targeted approach centred around specific crops in irrigated areas of North India became the major focus. Before modified Agriculture Technology Management Agency (ATMA) scheme was launched in the year 2010, there was no dedicated manpower for extension in agriculture and allied sectors. The Government officials and specialists were also burdened with multifarious duties of implementation of projects, scheme and programmes besides participating in various meetings. Thus a large number of villages remain deprived of interactive methods direct training which were launched after Training & Visit Programme lost its relevance due to sheer disproportionate numbers (farmer population : extension workers) in the rain-fed area that was being focussed upon. Due to vast size, huge population and difficult topography of the country, dissemination of information in timely manner was a major

challenge. Electronic media also had its own constraints due to limitation in time slot available and vast area & subjects to be covered in variegated scenario of Indian Agriculture.

4. Despite major improvement in the state of affairs on extension front, the divergent need of the farmers could not be fully addressed. Specific requirements of the farmers based on their crops and agro climatic situation also could not be addressed on a large scale. Therefore, during the XII Plan, a National Mission on Agricultural Extension & Technologies was formulated encompassing not only Extension & ICT but also Seeds & Planting Material, Mechanisation and Plant Protection. SMS Portal has been conceptualised to give a quantum leap in coverage of farmers and geographical area in a timely, specific, holistic and need based knowledge dissemination among the farmers by leveraging the power of mobile telephony in such a way that all sectors use this platform to not only reach out to the farmers but also to address their concerns and queries.

## The Objectives of the Project

5. A centralised knowledge base was first created purely from the farmers' perspective and was termed Farmers' Portal ([www.farmer.gov.in](http://www.farmer.gov.in)) (in Beta version as it is currently only in Hindi and English). While over 800 websites of various departments





and organisations related to Agriculture & allied sectors in the Central and State Governments and 80 applications/portals of the Department pertained to agriculture & allied sectors from organisational and schematic view-point, not even one portal existed for the farmers and that was the genesis of the Farmers' Portal: of which SMS Portal was an integral part. Considering popularity of the portal as reflected from tens of thousands of hits being received by SMS Portal everyday by the user department / organisations as well as farmers & other stakeholders, a new third level domain has now been created for all mobile based services for farmers on a Unified Portal [www.mkisan.gov.in](http://www.mkisan.gov.in).

**Objectives of the Portal include:**

- To make SMS and other mobile based services as a tool of 2 way agricultural extension in which not only information/advisory services are provided to farmers as per his/her need in a broadcast mode (in keeping with selection of crop / agricultural practice, requirements and location) but they can also raise specific queries through Pull SMS or USSD.
- **Making use of huge spread of mobile telephony in the rural areas to cover every farm household in the country to overcome the major impediment in bringing level playing field for small and marginal farmers.** Presently, there are about 38 crore mobile telephones in rural areas as against nearly 9 crore farm households.
- Centralized system wherein different modes of information flow are channelized and spread to the farmers in their own language.
- Integrated Portal to ensure proper storage in previous advisories/messages and also effective monitoring at various levels.
- Integration of database of farmers from the State Governments, Universities, KVKs web based registration, Kisan Call Centres etc.
- **Since effective internet penetration in the rural areas is about 5% only, text messaging in the language of the farmer transcends the barriers of digital divide.**

- Provision of web based services through SMS or USSD is thus the fulcrum of the whole Project.
- Integration with other farmer-centric services such as Kisan Call Centres, Common Service Centres, Web Portals for extracting relevant information and also for feeding data from remote locations where Internet is not available or is unreliable.

## Unique features of mKisan

6. The SMS Portal has unique features like database to sift farmers down to Block level & to select specific agricultural commodities/animal/bird/fish, rating/correction of messages by the supervisory officers, searchable database of previous advisories, phone number-wise status report on a dashboard, drillable & graphical dashboard, query review interface with email piping etc. Some of the key features are explained in succeeding paragraphs.

The screenshot displays the 'Send SMS' interface of the mKisan portal. It includes a form for user details (Name: Dr. ANANDARAJA, Designation: DEE, General, Level: State Agriculture University, Location: TRAU, TAMIL NADU) and options to choose the mode of sending SMS (Enter Mobile No. or Farmers' Database) and the nature of the SMS (Entire Sector(s) or Selected Entity (ies)). The 'Choose Level' section allows selection of State, Zone, District, Sub-Division, and Block. Below this, there are dropdown menus for selecting up to 5 types of entities, including Sector (AGRICULTURE), Category (Cereals, Fiber Crops), and Type of Message. There are also text input fields for Tamil and Hindi typing tools, and a 'Number of Farmer:' field.

7. Nearly 3000 officers and experts from the Government of India (DAC, ICAR, DAHDF, IMD, CWC) and State Governments & its organisations down to Block level, SAUs, KVKs and AMFUs have been activated and are using the Portal in 12 different

languages by using easy phonetic typing. More than thousand more such officers & experts have recently applied to get activated.

8. About 70 lac farmers have already opted to receive advisories & services on their mobile phones. The farmers have been grouped based on the State, District, Block and the Crops/Activities selected by respective farmers.
9. Messages are sent based on technical literature prepared by the authorities, Government orders, websites and, most importantly, Farmers' Portal (Beta Version) of which SMS Portal is a part.
10. Now, nearly 20 web based services across the country have already been integrated with the SMS Portal and many more are in the queue. Some of these include Buyer-Seller Interface, choice of machine & dealer, Kisan Call Centre, market prices, agromet advisories, NeGP-A roll-out, farm-mechanisation, micro-irrigation, animal-husbandry, fertilizer testing etc.

11. **The Portal also has following useful concepts:**

- Concept of approval request protected by mobile and email verification and further safe-guarded by physical cross-check by Activation Authority. This is necessary as messages have monetary value and Portal should not get inadvertently in to the hands of unauthorised persons.
- **Rating and monitoring of messages (including supersession of an earlier message)**
- Draggable dashboard down to the level of every message.
- Automatic reminder by SMS and email to Activation Authority in case of delay in approval.
- Blocking and Unblocking wrong and mischievous users.
- Concept of Guest User for testing of the interface till the stage of composing message (but not sending the same).
- Auto-signatures in language selected.
- Deregistration in case of transfer, retirement etc.
- SMS Delivery Report for every mobile number along with reasons for failure, if any.
- Integrated Feedback and Query option

- Uploading of Database
- Search by topic, location, administrative unit, location and keyword among previous messages.

### **Governance Practices Involved:**

- ❖ Registration of experts has been simplified and made more broad based reaching out to every nook and corner of the country in every aspect of agriculture and allied sectors in terms of personnel and gamut of issues. The software captures relevant credentials of the expert / officer followed by verification through email and mobile. As a third level safeguard, persons registering for sending SMS to farmers have also to be approved by an administrator before being able to send the message.
- ❖ Apart from advisories and information, a number of government services have been integrated with the portal viz. e-Payment, Licensing of Dealers (Seeds, Fertilizers and Pesticides), Soil Testing and Soil Health Cards, Commodity Price Alerts etc.
- ❖ **Monitoring of advisories sent by the experts at different levels is also an inbuilt process wherein a senior officer can view the advisories sent by his subordinates and also rate the same.** Wherever needed, these advisories can be revised and resent to the farmers in supersession to the earlier ones.
- ❖ **The Dashboard of the portal provides a transparent view of the SMSs sent by experts, which can be drilled down from National to Grass-roots (Block) level officers presenting the messages sent by individual experts at respective levels.**
- ❖ Instead of generic advisories & information, area and crop specific information and technical inputs are provided.



## Technological Aspects

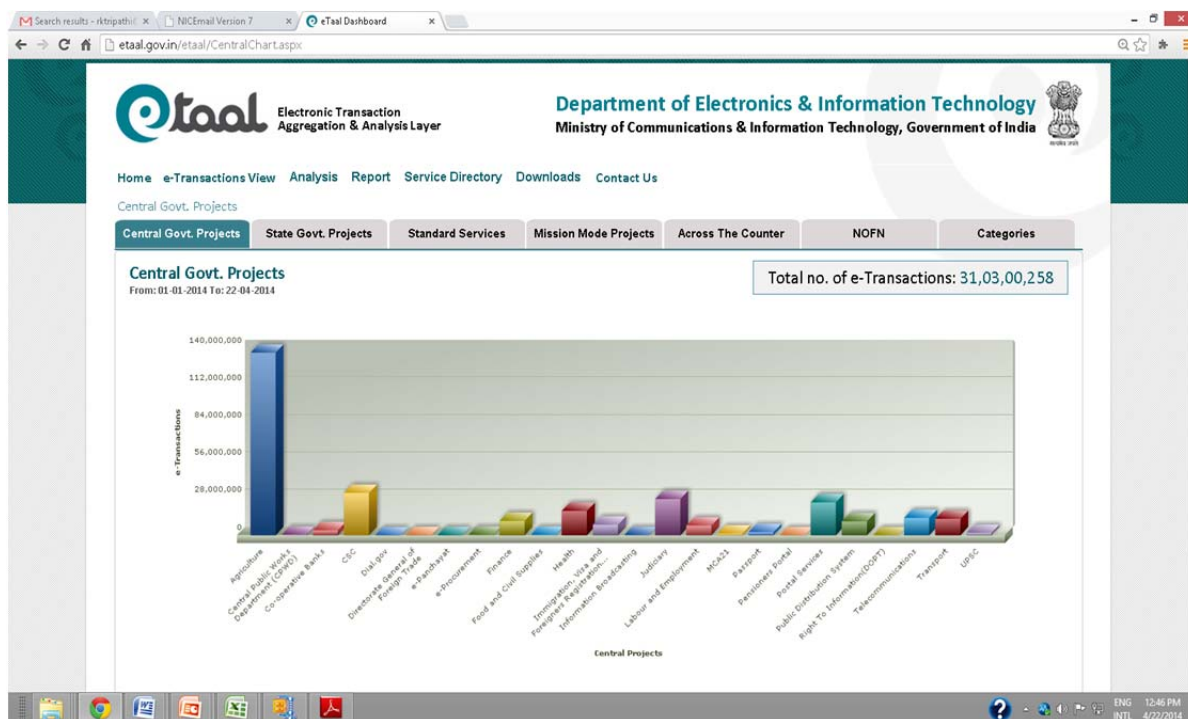
12. Data Centre created for DACNET Projects and now for NeGP-A is being used for providing these services. No additional hardware/software tools have been procured especially for this project. Thousands of officers who have been sending these messages to farmers have been using hardware already available in their office. .NET Framework with C# and SQL Server 2012 have been used for this project under NeGP-A implementing agency is HP India Sales Pvt. Ltd. which is supplying its own branded hardware.
13. Messages from SMS Portal can be sent to the farmers in in the language of their choice at the time of registration for the service. This is being achieved with the help of easy phonetic typing in 12 different languages. Google, Microsoft and CDAC APIs are being used for this. There has been overwhelming adoption of local languages by the experts as easy phonetic typing is very simple & intuitive to use. Through the use of Email piping all replies given by users/experts from any platform are converged on the dashboard irrespective of the device or interface from which the responses are sent.
14. SMS Portal has been designed and developed in a modular concept. Different modules include Users Registration/Management, SMS Creation and sending, Dashboard, Feedback and Monitoring and Database Search. All modules are re-usable and scalable in true sense. Registration and feedback modules have been used in many applications by different development teams of NIC and other departments. New features and upgrades are being added regularly, based on constructive feedback from the users.
15. For immediate integration of web based services for farmers in various parts of the country with the SMS Portal standard scripts have been written in .NET and Java so as to avoid duplication of efforts and expedite & enlarge delivery of services through SMS Portal.

## 16. **Cyber Security Safeguards:**

- Salting and Hashing of Password to ensure web security.
- Maintaining Audit Trail to maintain log of users' activities.
- Folder Segregation so that public pages can be kept in a different folder than password protected pages.
- Disabling Browser Cache so that after signing out, no one can access the account by just clicking Back button.
- Putting captcha on registration pages to ensure authenticity of user.
- Preventing SQL Injection to avoid database hampering threat.
- Checking all links of the portal so that no broken link is present.
- Input Output Validation All input parameters should be validated for their format and range correctness. For example:- Telephone no should contain ten numeric characters
- Use of Customized error messages - Customized error pages should be displayed for different error codes instead of server thrown error pages because server thrown error pages reveals field name and table names from the data base which causes information leakage and attackers could plan attack based on these information
- Potential File Upload – All documents should be uploaded in a directory having Write Read permission. All permissible formats like .doc,.docx,.xls,.xlsx,.pdf etc. should be checked for their extension and size. Files must be checked for their content type also.
- Cross Site Scripting (XSS)- Any attacker can insert malicious scripts in to the applications which may cause defacement of site, unsolicited re direction and stealing of IDs. XSS can be attempted through feedback or query forms. XSS can be resolved by enforcing input validations.

## Success Story so far .....

17. Since its launch by the President of India, more than 152 crore SMS messages (largest transactions on e-Taal) have already been sent to the farmers.



## Future Road Map on Coverage, Up Gradation/Integration

18. SMS portal has created a platform wherein user departments or applications need not worry about the back-end integration. In case of SMS based services, they are just required to register and plug in a short code in their applications and rest all activities are taken care of by SMS portal. Depending upon the numbers, both SMS Gateways are utilised as per a dynamic load distribution. Also, users from Agriculture, Horticulture, Animal Husbandry, Fisheries, States (up to block level) ICAR, Agriculture universities and Met Departments can select target beneficiary farmers with the help of multiple selectable drop downs for sending messages. Specific commodity/produce can be selected as per farmer preference. Experts and officials from different fields/departments can choose their subjects easily from the lists which has been made possible by complex

back end categorization of subjects and topics. Easily comprehensible dashboard provides complete information to each individual user about the status of his/her messages as well as number of farmers benefited.

- Keeping in view the increasing awareness of farmers towards SMS based services it is planned to include more services under the SMS Portal. Mechanisms for registration of farmers are being simplified by involving common service centers/ Kisan Call Centres more pro-actively so as to get large number of farmers included in this service. Looking into literacy concerns in the farming community and limitations in receiving and interpreting text based messages efforts are underway to send voice based advisories to those of the farmers who opt for it. **Work is also going on for software tools in collaboration with IIT Chennai (through DeitY) to provide for an accurate conversion of text into voice based advisories so that the same message can go in the form of a text/voice advisory as per farmers' preference and that too without internet. Foot-print of the software will be of various sizes so that this tool can be installed even on the cheapest phone.**
- **Choice of appropriate machineries (including source of supply) by the farmers and data entry by Mandis using USSD has already started. More services through USSD platform are also proposed to be included. These new services will be primarily farmer centric to enable them to extract information from the web based portals without necessarily having Internet.**
- **Weekly / Daily stock availability with the dealers of Fertilisers and Seeds (which had hitherto been considered an extremely expensive and time consuming task – and hence unimplemented for many years now) is also being enabled on USSD which will cost only Rs. 5 per month per dealer.**
- **Android, Java, Windows Mobile and iOS based applications will also be rolled out shortly.** Modules have also been developed for obtaining the feedback of farmers on the SMS messages sent to them. Presently, rating of advisories is only by the supervisory officers.

- **Kisan Knowledge Management System (KKMS) has already been integrated with the Kisan Call Centres (with auto-escalation mechanism and monitoring in drill down shape) and more services are being brought within the purview of the Common Services Centres.**
- **Reminder modules for all data entry operations will be sent through SMS Portal only. IVRS and Outbound voice messages are on the verge of being rolled out.**
- **Delivery Reports for every activated user have been created but these will also be made available on mobile so that dysfunctional numbers can be deleted regularly.**
- **Farmers' and other stakeholders' feedback will be taken by Pull SMS or through an IVRS session.**


Edit Profile
Change Password
Profile Photo
Deregister
SMS Delivery Report
Queries Received

You can rate this message if it is OK or you can correct this message by checking the language option

<p><b>Inbox</b></p> <p><b>Monitored</b></p>	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 20%;"><b>UserName</b></td> <td>Mr. K.SRINIVASAN</td> </tr> <tr> <td><b>Designation</b></td> <td>Assistant Director</td> </tr> <tr> <td><b>Topic</b></td> <td>Agriculture Information, Print and Electronic Media - Agri</td> </tr> <tr> <td><input type="checkbox"/> <b>Tamil</b></td> <td> <div style="border: 1px solid #ccc; padding: 5px; font-size: small;">           வெண்ணத்தூர் வட்டார விவசாயிகளே! . . . .            உயிரியல் காரணிகளான சூடோமோனாஸ் புரோராசஸ்ஸ் மற்றும்            டிரைகோடெர்மா விரிடி ஆகியவை வெண்ணத்தூர் மற்றும்            அத்தனூர் வேளாண்மை விரிவாக்க மையத்தில் இருப்பு            வைக்கப்பட்டுள்ளன. உபயோகிக்க விலகலில் நமலம் பாவம்         </div> </td> </tr> <tr> <td><b>Rate this Message</b></td> <td> <input checked="" type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> </td> </tr> <tr> <td colspan="2" style="text-align: center;"> <input type="button" value="Edit and ReSend"/> <input type="button" value="Save Rating"/> </td> </tr> </table> <p style="color: red; font-weight: bold; font-size: small;">Tick the checkbox to Edit and Resend the Message.</p>	<b>UserName</b>	Mr. K.SRINIVASAN	<b>Designation</b>	Assistant Director	<b>Topic</b>	Agriculture Information, Print and Electronic Media - Agri	<input type="checkbox"/> <b>Tamil</b>	<div style="border: 1px solid #ccc; padding: 5px; font-size: small;">           வெண்ணத்தூர் வட்டார விவசாயிகளே! . . . .            உயிரியல் காரணிகளான சூடோமோனாஸ் புரோராசஸ்ஸ் மற்றும்            டிரைகோடெர்மா விரிடி ஆகியவை வெண்ணத்தூர் மற்றும்            அத்தனூர் வேளாண்மை விரிவாக்க மையத்தில் இருப்பு            வைக்கப்பட்டுள்ளன. உபயோகிக்க விலகலில் நமலம் பாவம்         </div>	<b>Rate this Message</b>	<input checked="" type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	<input type="button" value="Edit and ReSend"/> <input type="button" value="Save Rating"/>	
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- **Entire data of advisories and gist of KCC conversations will be put on the web so that objective criticism can be received.**
- SMS based advisories tailor made to suit individual farmers' priorities have proven to be a successful initiative. However, it needs to be further up-scaled to bring in the concept of voice recognition based messaging wherein the farmer can





further refine his query and get the information, which is close to his farming related issues. Voice recognition can also be used to update his / her field data collected initially by extension workers. SMS based advisories tailor made to suit individual farmers' priorities have proven to be a successful initiative. However, it needs to be further up-scaled to bring in the concept of voice recognition based messaging wherein the farmer can further refine his query and get the information, which is close to his farming issues. IVRS also can be fine-tuned further accordingly.

- **Farm crop Management System using a hand-held device already implemented in Tamil Nadu for millions of farmers will be replicated in the entire country during the year.** This initiative will be used in conjunction with this Portal.



# Farm Crop Management System

zha - 2013

Online Billing  
● தமிழ் ● English



**LOGIN**

Username:

Password:

[Login](#)

