I. Background:

The Indian agricultural sector is dependent on vagaries of weather – particularly rain-fed areas which constitute more than 60% of the total sown areas. Large scale damage to crops for various reasons including weather is very common and the farming communities, whose sole livelihood depends on crops, bear the brunt of this. Due to the high element of risk involved in farming because of unfavourable weather, it becomes all the more important to protect the farmers from the losses that can occur due to large scale destruction of crops.

Crop insurance is purchased by agricultural producers, including farmers and others to protect themselves against either the loss of their crops due to natural disasters, such as hail, drought, and floods, or the loss of revenue due to declines in the prices of agricultural commodities. For this purpose, the Government of India introduced 4 crop insurance schemes in the country as follows:

1. National Agricultural Insurance Scheme (NAIS).
3. Weather Based Crop Insurance Scheme (WBCIS).
4. Coconut Palm Insurance Scheme (CPIS).

First scheme is being run only by the Agricultural Insurance Corporation and is most wide spread throughout the country (nearly 450 districts). Further details can be seen in the Credit Division at http://www.agricoop.nic.in/divisions.html.
II. **Current Process:**

Prior to the commencement of each cropping season, preferably in the beginning of March for Kharif and in the beginning of September for Rabi season, meeting of SLCCI (State Level Coordination Committee on Crop Insurance) is convened for selecting companies for MNAIS and WBCIS. Thereafter, the State Government/UT ensures issuance of the notification and its circulation to all concerned agencies/departments and institutions.

1. **Notification of crops and areas:**

   State Government/UT notifies Crops and Defined Areas covered during the season in accordance with decision taken in the meeting of SLCCI. State/UT Government notify the area as an Insurance Unit. For instance, in case of MNAIS, Village/Village Panchayat or any other equivalent unit is taken as an Insurance Unit for major crops. For other crops, it is a unit of size in between Village Panchayat and Taluka/Block, as decided by State/UT Government.

2. **Notification of Indemnity Level:**

   In case of MNAIS, indemnity level is also notified. Two level of Indemnity, viz., 90% or 80% corresponding to risk level of the areas are available for all crops.

   SLCCI based on proposals submitted by Insurance Companies approves the indemnity levels for notified crops and areas at sub-district or district level.
3. Selection of Insurance Company:

For NAIS, Insurance provider will always be Agriculture Insurance Company (AIC) and for other schemes, MNAIS and WBCIS, insurance Provider(s) are selected on the basis of experience, relevance of the insurance product and the overall benefits of the product, premium rate, existence of infrastructure and quality of services like coverage of farmers & area, payout in terms of quantum etc.

State Government invites all the empanelled insurance companies to submit the premium rates at the level indicates, along with Threshold Yields, Sum Insured etc. for the season.

Such products are evaluated and allocation of notified crops/areas are made to companies on the basis of merit.

Limitation in the current process is that the period between date of issuance of notification and cutoff date is hardly 15 days which is definitely insufficient period for farmers to know about and opt for it.

Secondly, there is no fixed standard of notification. Every state issues the notification in its own way which again hampers the process of broadcasting this information to farmers who are located remotely.

Thus, in order to streamline the process and to automate administrative functions, a web-based, integrated IT solution is being proposed which will open a window of opportunity to remote and economically-weak farmers to benefit from crop insurance services. In the current scenario, not even officials
of the State Government also do not know about insurance products for different crops and locations – what to say of farmers

III. Web-based, Integrated IT solution

The idea behind developing a web-based, integrated IT solution is to speed up service delivery, unify fragmented databases, achieve a single view of data, eliminate manual processes and thus provide insurance services to farmers faster than before.

The solution has users at two levels:

1. State Government/UT
2. Insurance Providers

1. Role of State Government/UT:

   a. Entering such administrative units which do not appear in the data provided by the AIC. (one time exercise with minor updations when there is an addition to the list).

   b. Entering the notified areas and crops (Insurance Units). (Once in a Cropping Season but it is likely to remain same across years for the same crop and season. However, an Edit facility is needed for minor changes)

   c. Entering Cutoff Dates for loanee and non loanee farmers for various crops. (Same as above but at a much more macro level viz. State / District)

   d. Approval of premium rates, sum insured and other factors entered by Insurance providers.

   e. Allocation of notified locations and crops to Insurance Providers in such a way that data entry is minimised. Since allocation is normally done at a higher administrative level than the notified unit, this process is going to be much faster.
2. **Role of Insurance Providers:**

   (a) **Phase-I:**
   Entering the sum insured, premium, indemnity ratio etc. for allocated notified locations and crops. (companies will see only such Units as are allotted to it). This is also one time activity for one season. **The Insurance Calculator already developed for the Farmers’ Portal will be refined further to include various kinds of coverages under different schemes.**

   (b) **Phase-II:**
   Progress of data entry by the Insurance Companies about coverage of farmers and amount paid. There will also be an online linkage between Banks and Insurance Companies. These reports will also be published on the web.

3. **Output Reports and Online Queries:**
   The following reports will be displayed after login:
   (a) Progress of data entry in the States with respect to items (a) to (e) in point no. 1 above.
   (b) Cross-check of progress of data entry by the Insurance Companies after allocation by the States.
   (c) Weather data from e-Agromet Software.
   (d) Comparative statements of insurance offers between one State / District to another.
   (e) USSD and Web Based queries regarding availability of insurance available for a crop at different places along with premium rates and actual amount to be paid as premium.
   (f) Linkage of database with Farmers’ Portal down to the Block / Village level and depiction in a graphical manner at various levels.
   (g) Open database of insurance offerings to be accessible to the banks also in case of loanee farmers.
(h) Automatic generation of gazettes (in English and, in languages of
the State, if standardized text is provided and international
numerals are used) once the entries done by the Insurance
Companies is done by the States.

(i) Insurance company-wise farm households or farm holdings allotted
within a State and across the whole country.
Additional reports and queries will be generated once farmer-wise
coverage is entered in the database to be prepared as part of Phase-II.

**Crop Insurance Login**

- **State**
  - **Password**
  - **Cut off Date entry**
    - **Select Year, Season, Scheme,**
    - **Enter COD for Loanee Non Loanee, Loaning**
    - **Select applicable unit i.e. District or Block Level etc.**
    - **Save**
  - **Approval of Entry Done by Companies**

- **Company**
  - **Mobile**
    - **Password**
  - **Sum Insured/ Premium Rate etc. details**
    - **Select Year, Season, Scheme, State, Crops**
    - **Enter Sum Insured (Normal & Extended), Premium Rate, Govt.**
    - **Only Allocated Units will be shown for Data**
    - **Can Edit Until Approved**

- **Allocation of Notified Units to Insurance**
  - **Save**

- **Notification Units**
  - **Select Year, Season, Scheme, Crops**
  - **Select applicable unit i.e. District or Block Level**
  - **Save**

- **Values of Sum Insured, Premium Rate etc. as entered by Insurance**
  - **If Approved**
    - **Yes**
    - **Displayed on web & SMS containing details of company, premium rate etc. is sent to farmer based on his/her location**
    - **Reason for rejection**
    - **No**
    - **Email & SMS sent to Insurance Company**

- **State**
  - **Company**
5. Step by Step Work Flow:

i. The State Government/UT logs into the software with State name as the user id and a default password, which they can change after first login.

ii. Cutoff Date and Notified Units for various crops are then entered for a particular season.

iii. After selection of Insurance Providers (offline after a bidding process in case of MNAIS and WBCIS), allocation of notified units to the insurance providers.

iv. Insurance providers login into the software through the registered mobile number and default password which they can change after first login.

v. Each Insurance provider will see the list of those notified units only which are allocated to the provider.

vi. They will enter the sum insured, premium rate, (farmer share/government share), indemnity level etc. for each of the notified units.

vii. After submission from Insurance Providers, State government/UT approves/rejects the entered values.

viii. On successful approval, the values get locked into the system and on rejection, a mail and SMS goes to the registered email id of Insurance Provider thereby stating the reason of rejection.

ix. **Once approved values are stored into the system, system automatically sends SMS (containing required details like contact details, premium rate etc.) to the farmers who are registered with mKisan.**
x. **System automatically senses the location of the farmer from the database and sends him the details of his/her nearby Insurance Providers only.**

xi. Gazettes are generated automatically.

6. **Process Re-engineering and Change Management:**

(a) The biggest problem in getting the information across to the farmers about insurance products was the time sheer volume of data and extremely short time available between the final decision of SLCCCI, notification process and final dissemination to the farmers. In most cases, the cut off date used to get over by the time, notification became known to the farmers for whom the scheme was intended. This led to sporadic coverage and consequently high premium as number per allocated unit were very high and perceived risk went up considerably.

(b) Therefore, the State Governments have to move away from manual process completely and carry out basic data entry of units and cut off dates even before competitive bids are invited. This process may take some time for the first time but subsequently only minor additions and modifications may be needed.

(c) Instead of issuing paper notifications, e-notifications will be issued (which can also be printed) as soon as data entered by the Insurance Companies is vetted.

(d) Insurance Companies will all use this Portal instead of entering data in Excel Sheet as has been the case so far.

(e) Databases of Insurance Companies will be shared with Banks and vice-versa through web service (insurance data from one side to another and coverage data in the reverse flow).

(f) Weather data as observed in the pasta and weather forecast will be integrated with the Insurance Module using the data being created by e-Agromet software.
(g) Large scale trainings will need to be done in a hierarchical manner wherein Master Trainers will be developed both in the Government as well as the Insurance Companies.

(h) Awareness among farmers will be generated through press ads, electronic media and mKisan Portal.

(i) Farmers’ Inputs will be taken through the Feedback Module on Farmers’ Portal to ascertain the reasons for their reluctance, if any, in taking insurance products.

IV. Screenshots of Web based Solution:

i. Login Screen:
Common Login Screen for State Government/ UT and Insurance Providers. State Government / UT selects the option State and enters into the software after entering the valid credentials. Similarly, Insurance Providers select the option Company and enter valid credentials to login into the software.
ii. **Data Entry of Administrative Units not Available in AIC Database:**

Database given by the Agriculture Insurance Corporation relates to only the units which have been allotted to it so far. There are many more units which are notified or can be notified in future under various schemes. These units are non-standard in the sense that these vary from one State to another (e.g. Hobli, Sub-Mandal, Revenue Circle, Patwar Circle etc.). These are not available in any standard databases like Census, Rural Development etc. Hence, the first step is to get the entire data entry done for the administrative units prevalent so far in the State. Different levels of units (e.g. Mandal, Sub-Mandal, Panchayat and Village in case of Andhra Pradesh) are to be entered by the States as the first step immediately. Newly added units should be shown separately along with counts to expedite and simplify data entry.
### iii. Entry of Notified Unit & Crops:

This is a screen where State government/UT enters the notified areas and crops. One has to select Year, Season, Scheme and Crop from the drop down menu and click on Load Data button, as shown in the figure below:

Clicking on Load Data shows all the levels of that state – District, Block, Sub Block, Gram Panchayat, Village etc. Simple selection of level names are to be done and Add button is to be clicked. All entered values can be seen in a grid, as shown in figure below and can be deleted if any wrong entry is being made.
Village is taken as the lowest level. States can define the Notification Unit up to the Village Level through the software. Each state is having its own hierarchy. So, that hierarchy is very well maintained in the software. State gets only those levels which are applicable to it.

iv. Entry of Cutoff Date:
Cutoff Date varies from scheme to scheme and crop to crop. Thus, year, season, scheme and crop are to be selected as shown in the figure below and Load Data button is to be clicked. Cutoff Date can be same for multiple/all crops in a particular scheme, so there is a provision to selecting multiple/all crops under one scheme and common cutoff date can be entered for all those crops.
Clicking on Load Data button gives the option of entering cutoff date for loanee & non loanee farmers and loaning period.

Cutoff Date can be at any of the hierarchy levels in the state. Thus, an option is given in the software to define cutoff date at any of the levels – district, block, gram panchayat, village etc. Added values can be seen in the grid and can be deleted, if any wrong entry is being made.

v. **Allocation of notified units to Insurance Providers:**

After the selection process of Insurance Providers, state government/UT allocates the notified units to Insurance Providers through software. Allocation is made on the basis of scheme, crop and type of farmer (loanee/non loanee).
After selecting the parameters shown above, notified unit can be allocated. In one state itself, one level (district, block, village etc.) and one crop can be given to one Insurance Provider and same level with different crop can be given to other Insurance Provider. This provision is kept open in the software, as can be seen in the figure below:

Insurance Provider details with allocated unit, crop and farmer type is shown in the grid along with Delete option so as to enable the deletion of wrong entries, if made inadvertently.

vi. **Entry of Sum Insured, Premium Rates, Indemnity Level etc. by Insurance Providers:**

Insurance Providers login into the software and can see only those units which are allocated to them. They can select the allocated notified unit and enter the values like Sum Insured, Premium Rates
and Indemnity Level etc. for each of the notified units. As shown below, parameters like year, season, scheme, crop and farmer type are to be selected from the drop down list and Load Data button is to be clicked.

Values like Normal Sum Insured for loanee and non loanee farmers, Extended Sum Insued for loanee and non loanee farmers, Premium Rate, Government Share in the Premium Rate etc. are to be filled as shown in the figure below and notified units can be selected for entered values.
These entered values (Sum Insured, Premium rate etc.) may vary from level to level, so a provision has been kept in the software that one/all/selected units of any level can be selected and added.
A grid is being displayed at the end which contains all the entered values. This has facility of edit and delete. One can edit or delete the details as and when needed.

vii. Final Verification by State:
Data entered by insurance providers is shown to the state government dashboard for final verification by state. If correct information is entered, Approve button is to be clicked and in case of incorrect information, Reject button can be clicked. An SMS and email is being sent to the registered email id and mobile number of the Insurance Provider.

viii. Display of information on web and transmission through SMS:
Once information is approved by the State Government/UT, it is locked into the system and displayed on web. SMS containing details about contact details of Insurance providers, premium rates, sum insured etc. is also sent to the registered farmers. System knows the
location of registered farmer and thus details of only nearby insurance providers is sent to the farmer.

V. **Key Features:**

1. **Uniform Structure:**

   Each state is having its own hierarchy. The table given below gives the clear picture.
   - **Level1:** Country, **Level2:** State, **Level3:** District and **Level7:** Village (barring a few cases)

   These four levels are same in all states but combination of level 4, level 5 and level 6 differ in each state.

<table>
<thead>
<tr>
<th><strong>STATE</strong></th>
<th><strong>LEVEL 4</strong></th>
<th><strong>LEVEL 5</strong></th>
<th><strong>LEVEL 6</strong></th>
<th><strong>LEVEL 7</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>ASSAM</td>
<td>Sub Divison</td>
<td>RCIRBLCK</td>
<td>Gram Panchayat</td>
<td>Village</td>
</tr>
<tr>
<td>A &amp; N ISLANDS</td>
<td>Tehsil</td>
<td>Gram Panchayat</td>
<td>Village</td>
<td></td>
</tr>
<tr>
<td>ANDHRA PRADESH</td>
<td>Mandal</td>
<td>SUB Mandal</td>
<td>Panchayat</td>
<td>Village</td>
</tr>
<tr>
<td>BIHAR</td>
<td>Sub Divison</td>
<td>CIRCLE</td>
<td>Gram Panchayat</td>
<td>Village</td>
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<tr>
<td>CHATTISGARH</td>
<td>TALUK</td>
<td>RCRCLE</td>
<td>PTHLKA</td>
<td>Village</td>
</tr>
<tr>
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<td>RCRCLE</td>
<td>Gram Panchayat</td>
<td>Village</td>
</tr>
<tr>
<td>GUJARAT</td>
<td>TALUK</td>
<td>RCRCLE</td>
<td>Gram Panchayat</td>
<td>Village</td>
</tr>
<tr>
<td>HIMACHAL PRADESH</td>
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<td>SBTHKNC</td>
<td>PTCRCL</td>
<td>Village</td>
</tr>
<tr>
<td>HARYANA</td>
<td>Block</td>
<td>Sub Block</td>
<td>Gram Panchayat</td>
<td>Village</td>
</tr>
<tr>
<td>JHARKHAND</td>
<td>Block</td>
<td>Gram Panchayat</td>
<td>PWARD</td>
<td>Village</td>
</tr>
<tr>
<td>JAMMU &amp; KASHMIR</td>
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<td>Tehsil</td>
<td>Panchayat</td>
<td>Village</td>
</tr>
<tr>
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<td>TALUK</td>
<td>HOBLI</td>
<td>Gram Panchayat</td>
<td>Village</td>
</tr>
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<td>TALKA</td>
<td>Block</td>
<td>ZONE</td>
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<td>CRDBL</td>
<td>VillageCN</td>
<td>Village</td>
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<tr>
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<td>TALUK</td>
<td>RCRCLE</td>
<td>TASAGram</td>
<td>Village</td>
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<tr>
<td>State</td>
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<td>----------------------------</td>
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</tr>
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<td>PTHLKA</td>
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<td>Gram Panchayat</td>
<td></td>
</tr>
<tr>
<td>RAJASTHAN</td>
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<td>RCRCLE</td>
<td>PTCRCL</td>
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</tr>
<tr>
<td>SIKKIM</td>
<td>Sub Division</td>
<td>Block</td>
<td>Gram Panchayat</td>
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</tr>
<tr>
<td>TAMIL NADU</td>
<td>Block</td>
<td>PHIRKA</td>
<td>Gram Panchayat</td>
<td></td>
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<td>TRIPURA</td>
<td>Sub Division</td>
<td>Block</td>
<td>Gram Panchayat</td>
<td></td>
</tr>
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<td>TELANGANA</td>
<td>Mandal</td>
<td>SUBMandal</td>
<td>Panchayat</td>
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<tr>
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<td>Block Tehsil</td>
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<td>Gram Panchayat</td>
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<tr>
<td>UTTAR PRADESH</td>
<td>Block</td>
<td>Naya Panchayat</td>
<td>Gram Panchayat</td>
<td></td>
</tr>
</tbody>
</table>

Thus, to bring all states to a unified solution was a time consuming task. It has been done now by the use of Hierarchy tables, where we can easily get the ascendant and descendant of any node.

2. **SMS and Email Alerts:**

   Every level of the work flow is integrated with SMS and Email alert so that timely information can be conveyed. And information to farmers is also getting disseminated in the form of SMS.

3. **Integrated Ecosystem:**

   A stable, secure and seamlessly integrated ecosystem created with a comprehensive view of data in a secure environment. NeGP-A Data Centre at Shastri Park will be used for this purpose.
4. **Fast Delivery of Services:**

An interactive online portal which the farmers and other stakeholders such as banks, co-operatives and micro-insurance agents can use to choose from a range of crop insurance e-services. This user-friendly portal enables farmers and other stakeholders to easily access crop insurance services, no matter where they are.

5. **Location Master:**

Building location master from state to village level for all states is a difficult task because for some states, it is Block -> Gram Panchayat and in some other state it is Hobli -> Gram Panchayat or Block -> Zone. Thus, it is difficult to get data for each and every level. Initial database is taken from AIC but AIC database is incomplete as they are having only notified units with them. So, in order to get the complete database, a data entry module has been developed for the States to complete all units other than the ones which have been already entered in the database. This is a one-time activity for all states.

6. **URL of web-based Solution:**

www.farmer.gov.in/insurance