Requirements of the Development team

NOTE: The flow represented in this documentation is subject to modification and this document only serves as an initial guide to the design, processes and strategies.

Two apps are required.

1) Web app – created primarily for GIS specialists and Remote Sensing experts. it is recommended for the "Management" to download the mobile app. This will enable cohesion between understanding of the mobile app and web app.
2) Mobile app – designed to primarily be used by the farmers and policy makers.

❖ Proposed color theme: Greens with neutral colors of brown. The proposed colors are considering the fact that majority of agriculture is normally associated with green, and land associated with brown.

❖ The texts however should be in visible font styles i.e. font size, type. (Consider red-green color blindness).

❖ Proposed font type: Roboto.

❖ Terms and conditions of use of app should apply.

❖ By using or downloading the app users agree to the terms and conditions stipulated.

❖ A unique and simple logo is required for use in all the documents, mobile app and web app.

❖ Fast loading speeds for both apps are recommended. (However, in the case where slow speed is expected avoid the inclusion of loading spinners, consider progress bars, placeholders).

❖ A rating system should be available at the end of every session use. (This will help in boosting use of the app, since number of reviews hold more weight than zero reviews, during search processes). However, a rating should only be done if and only if the app has been used.

❖ Ensure the ability of feature that immediately pops up and flags down the project administrator when a user requests for help.

❖ Include a feature that allows users to personalize their display instead of the default outlook.

❖ Use visual weight to convey importance.

❖ Maintain consistency including but not limited to typefaces, buttons, labels, and functional i.e.
interactive elements should work similarly in all parts of the app, external consistency and web and mobile consistency.

❖ Keep interactive elements familiar and predictable for the users to feel in control.

❖ Ensure a good back button is present and give priority to simple design, fast loading time, ease of use, delightful interaction as well as simple navigation process.

❖ Display meaningful error messages – show what went wrong and why, as well as the next steps to be taken to solve the error.

❖ Design an accessible interface – pay attention to use of colours and consider colour blindness.

❖ Minimize cognitive load – avoid displaying too much information all at once.

- ❖ De-clutter – put only what's necessary.
- ❖ Set smart defaults to avoid data re-entry.
- ❖ Use the technique of progressive disclosure (as detailed in the flow) as well as familiar screens.
- ❖ Include smart features such as Autocomplete.
- ❖ Dynamically validate field values – correction of mistakes should be done immediately to avoid the need of users having to go back through multiple pages to correct errors.
- ❖ Customize the keyboard – numeric for numbers, including an "@" for emails (Implement this consistently through the apps)
- ❖ Ask only for relevant permissions. (Include location as one of the permissions needed).
- ❖ Load just enough content to fill the screen when a page opens. (Content continues loading in the background. Visual distractions such as skeleton screens are highly recommended as the user waits.
- ❖ Design primarily for touch and fingers (especially for the mobile application).
- ❖ Include a natural zone – just enough space between the buttons.
- ❖ Enable the app to allow sponsored content.
- ❖ Consider 3-Tier architecture for the Database Management System

Welcome stage

Small animation welcoming the user to the app.

Small indication of terms and conditions. *(Include a checkbox that has to be ticked before proceeding to the next stages. This will serve as a legally binding condition.)*

- Terms and conditions:
- Privacy policies
- EULA
- Disclaimer

Getting Started

The app user selects whether he/she is

- ✓ GIS/Remote Sensing Specialist
- ✓ Decision/Policy marker
- ✓ Farmer/Data collector

A) *GIS/Remote Sensing Specialist*

Introductory message

Welcome. In the next steps, you will be able to perform high level crop related functions and derive analysis based conclusions. Do you wish to proceed?

- *If Yes, the user clicks a "Yes" button.*
- *Include a "No" button which allows confirmation of the selection by allowing one to go "Back to Main Menu".*

Pre-selection stage

- *It is my 1ˢᵗ time using this app*

  #### *Redirection*

  Take a tour?

  - ✓ *Yes*

    The tour should involve how to navigate through the sections of the app, explains the purpose of the app and attracts the user to want to use the app. Promotes sharing of the app. Frequently asked questions
  - ✓ *No*

    The user is asked whether he/she wants to proceed to use the app and highlights that he/she can go back at any stage at their own free will.
    - ✓ *Back button should be present to return to the previous step*
    - ✓ *Home button should be present to return to main menu*

- *I have used this app before*

Redirection

Do you want to retake the tour?
- ✓ Yes
  - *Repeat the same process*
- ✓ No, Proceed to the next step

Upon agreement for proceeding:

<u>*Selection stage*</u>

I wish to -
- *Collect data*

  - ✓ *Basemaps should be available*
  - ✓ *Crop types should be available*
- *Perform crop statistics*
  - ✓ *Monitor crop health*
  - ✓ *Define crop type*
  - ✓ *Estimate yield area*
  - ✓ *Calculate crop coverage extent*
- *Manage data*
  - ✓ *Import data*
  - ✓ *Export data*
  - ✓ *Correct data*

<u>*Verification stage*</u>

Display: To continue, first verify your details;

- *1st time user*
  - ✓ *Create account: (requires input of)*

    - ✓ *Organization name*
    - ✓ *Organization e-mail address*
    - ✓ *Valid personal/work e-mail address*
    - ✓ *Password*
    - ✓ *Phone number*

    (Back button should be available at this stage)

- *I have used this app before*
  - ✓ *Log in: (requires input of)*
    - ✓ *Organization name*
    - ✓ *Organization e-mail address*
    - ✓ *Valid personal/work e-mail address*
    - ✓ *Password*

    (Back button should be available at this stage)

<u>*Redirection stage*</u>

Once verification is complete redirect to the personalized user interface.

B) <u>Decision/Policy maker</u>

<u>*Introductory message*</u>

in line with the second sustainable development goal (SDG-2) on 'zero hunger', there is an urgent need to promote and support sustainable agriculture to ensure food security (a pillar of the Big Four Agenda), equal access to land, technology and markets by small-scale farmers. Do you wish to proceed?

- *If Yes, the user clicks a "Yes" button.*
- *Include a "No" button which allows confirmation of the selection by allowing one to go "Back to Main Menu".*

Verification stage

{Display:} For security purposes please input the following:

- ✓ *ID Number*
- ✓ *First Name*
- ✓ *Last Name*
- ✓ *Valid Ministry/ Branch*
- ✓ *Valid email address*
- ✓ *Password*

The user cannot proceed without enabling location.

Pre-selection stage

- *It is my 1ˢᵗ time using this app*

Redirection

Take a tour?

- ✓ *Yes*

  The tour should involve how to navigate through the sections of the app, explains the purpose of the app and attracts the user to want to use the app. Promotes sharing of the app. Frequently asked questions
- ✓ *No*

  The user is asked whether he/she wants to proceed to use the app and highlights that he/she can go back at any stage at their own free will.
  - ✓ *Back button should be present to return to the previous step*
  - ✓ *Home button should be present to return to main menu*

- *I have used this app before*

Redirection

Do you want to retake the tour?

- ✓ *Yes*

  Repeat the same process
- ✓ *No, Proceed to the next step*

Upon agreement for proceeding:

Selection stage

I wish to -

- *Manage data*

  - ✓ *Import data*
  - ✓ *Export data*

- *View reports*
  - ✓ *View crop statistics*
  - ✓ *View productive land*
  - ✓ *View problem areas*
- *Manage general report*
  - ✓ *Upload report*
  - ✓ *Archive report*
  - ✓ *Request for collaboration*

C) Farmer/Data collector

Introductory message

Need to save time, energy and finances? How about controlling pest and disease infestation on your land? Make an informed plan as you farm, and get more produce. This app exists for your convenience. Join us, as we make the most, out of farming.

Pre-selection stage

- *It is my 1ˢᵗ time using this app*

  Redirection

  Take a tour?

  - ✓ *Yes*

    The tour should involve how to navigate through the sections of the app, explains the purpose of the app and attracts the user to want to use the app. Promotes sharing of the app. Frequently asked questions
  - ✓ *No*

    The user is asked whether he/she wants to proceed to use the app and highlights that he/she can go back at any stage at their own free will.
    - ✓ *Back button should be present to return to the previous step*
    - ✓ *Home button should be present to return to main menu*
- *I have used this app before*

  Redirection

  Do you want to retake the tour?
  - ✓ *Yes*

    Repeat the same process
  - ✓ *No, Proceed to the next step*

  Upon agreement for proceeding:

Selection stage

Choose one:

- *Available crop manuals*
- *Growth statistics*
- *Crop varieties*
- *Input climate conditions*
- *Input soil conditions*
- *Collect data*
- *See my records*
- *Common pests and diseases*
- *Report a problem*

Once each choice is complete, prompt the user whether they want to continue to another choice. If yes, re-display selection stage, if NO, proceed to the next step.

Verification stage

- *Have an account? Login*

  (requires input of)
  - ✓ *Valid e-mail address*
  - ✓ *Password*

    (Back button should be available at this stage)

- *Create account: (requires input of)*
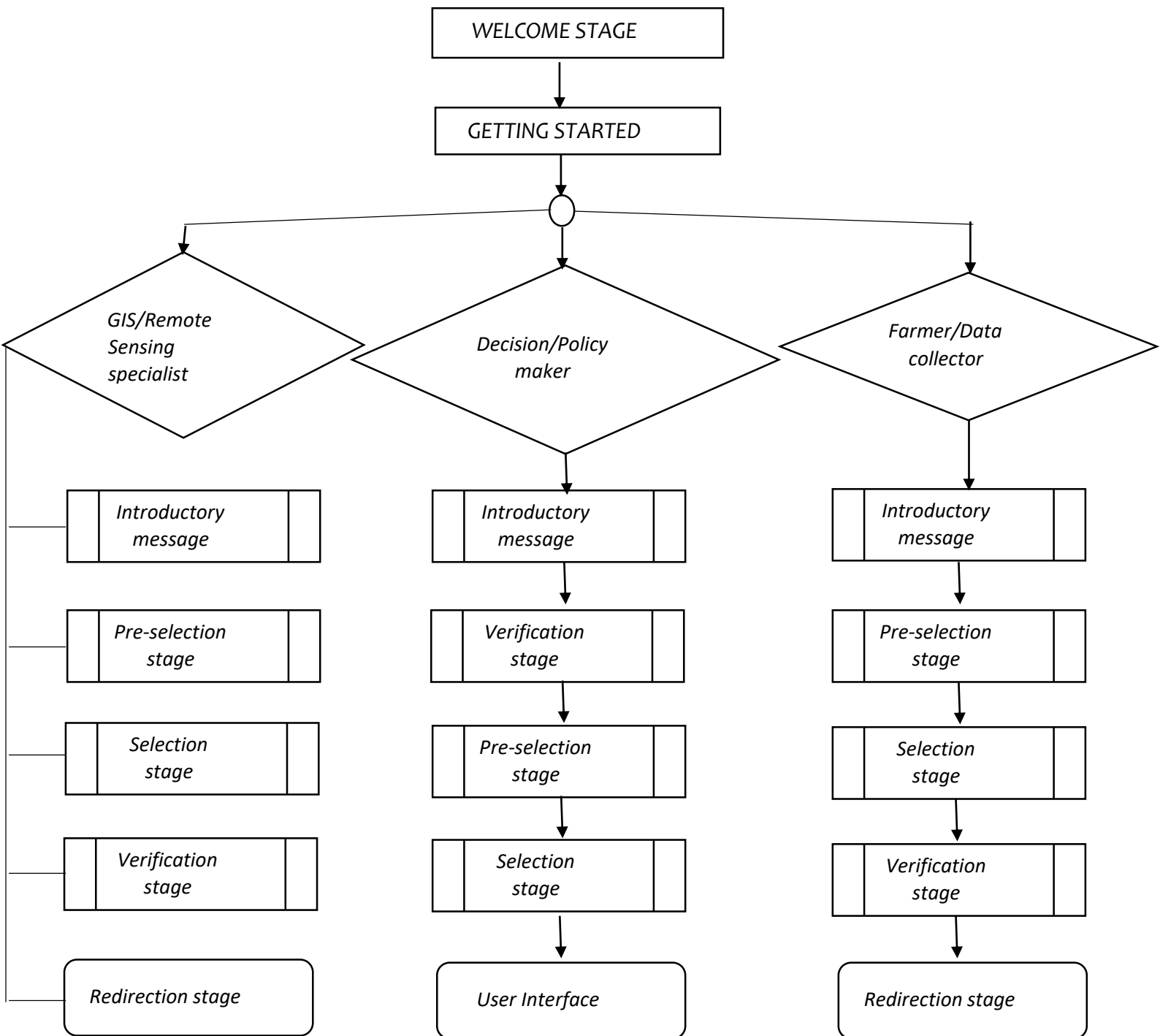
  - ✓ *Valid e-mail address*
  - ✓ *Password*

    (Back button should be available at this stage)

Redirection stage

Once verification is complete redirect to the personalized user interface.

ARCHITECTURE DIAGRAM

```
                    ┌─────────────────────┐
                    │   WELCOME STAGE     │
                    └─────────────────────┘
                              │
                              ▼
                    ┌─────────────────────┐
                    │   GETTING STARTED   │
                    └─────────────────────┘
                              │
                              ○
```

GIS/Remote Sensing specialist	Decision/Policy maker	Farmer/Data collector
Introductory message	Introductory message	Introductory message
Pre-selection stage	Verification stage	Pre-selection stage
Selection stage	Pre-selection stage	Selection stage
Verification stage	Selection stage	Verification stage
Redirection stage	User Interface	Redirection stage

Note:

- ✦ *Choose a system admin*
- ✦ *Decide on user admins*
- ✦ *Comprehensively design user interfaces*