Goverment Of India

MANUAL

GEO-TAGGING OF PRADHAN MANTRI KRISHI SINCHAYEE YOJANA-PER DROP MORE CROP (PMKSY-PDMC) ASSETS USING GEOSPATIAL TECHNOLOGIES

ISRO's location based services to geo-tag Assets of   PMKSY-PDMC Component
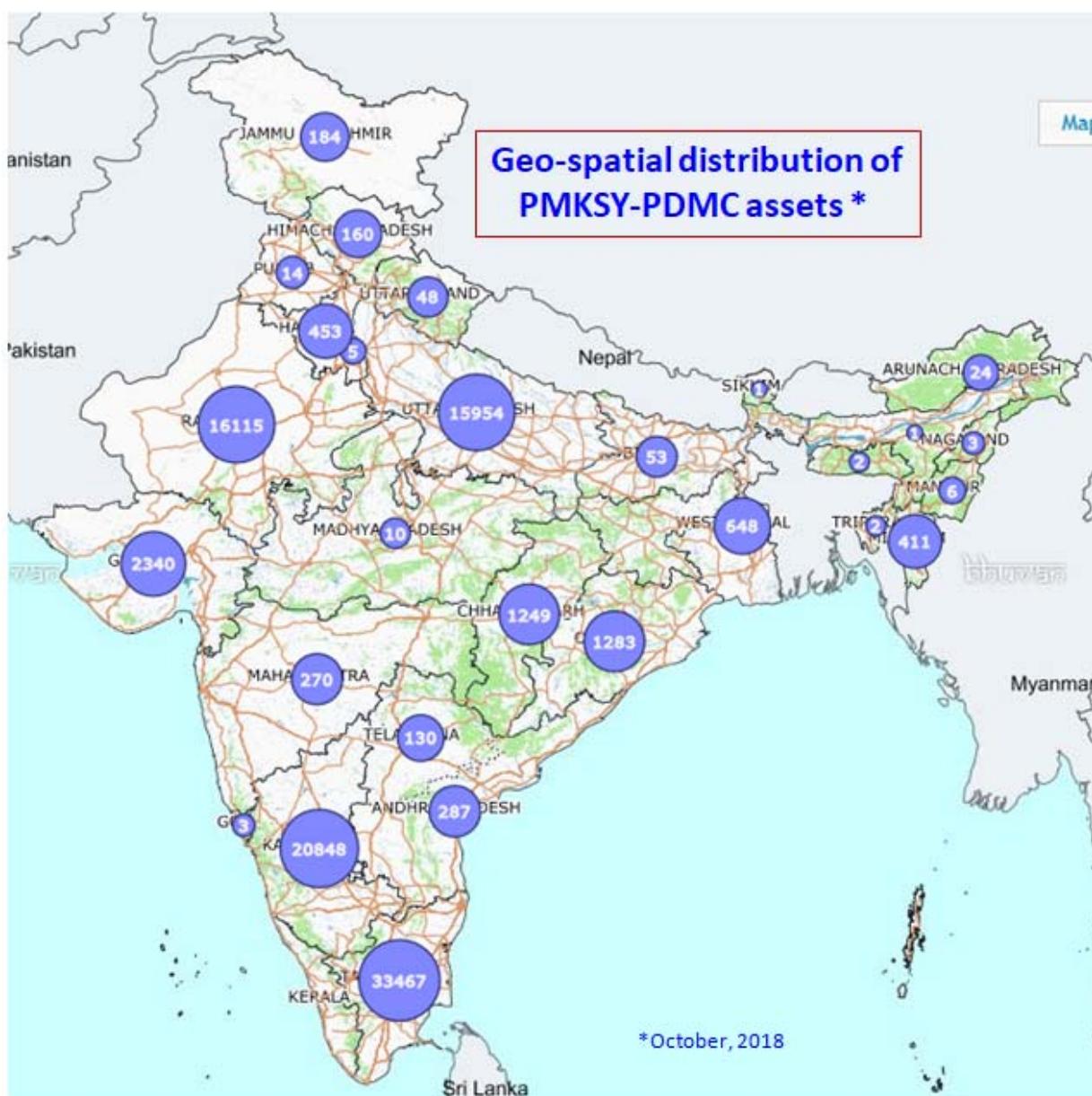
Remote Sensing Applications Area
**National Remote Sensing Centre
Indian Space Research Organization**

**Rainfed Farming Systems Division
Ministry of Agriculture &
Farmers Welfare**

**NOVEMBER
2018**

Geo-spatial distribution of PMKSY-PDMC assets *

*October, 2018

NATIONAL REMOTE SENSING CENTRE

DOCUMENT CONTROL SHEET

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13.	**Abstract (with Keywords)**	"Geo-Tagging of Pradhan Mantri Krishi Sinchayee Yojana-Per Drop More Crop (PMKSY-PDMC) Assets using Geospatial Technologies" for the Ministry of Agriculture, Govt of India is being facilitated using the Bhuvan-PDMC Android App designed exclusively for the Field Data Collection under the project . This App developed by the National Remote Sensing Centre, ISRO, Dept. of Space, Govt of India, is a tool for field data capture of the assets created under the PDMC Scheme and includes a facility to upload photos on to the Bhuvan PDMC Web Portal. The Manual also includes a Frequently Asked Questions (FAQ's) section. Keywords:, Geo-tagging, PDMC App, Bhuvan, Field Data Collection			

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1 Introduction

Water being the most critical input for agriculture, its judicious use is important to ensure sustainable agricultural development and food security. There is a need for adopting optimum cropping pattern and efficient water application that utilises available water resources in an efficient manner. The saving of water will not only help in improving soil health, enhancing productivity and providing environmental advantage, but also in supporting irrigation with extended coverage for a longer duration from the same source of water.

The water use efficiency of protective irrigation source through small water harvesting structures in rainfed areas can be enhanced by integrating them to micro-irrigation systems, and provide live saving irrigation to the standing crop. Micro irrigation techniques not only help in water saving, but also in reducing fertilizer usage, labour expenses, and other inputs and input costs, besides sustaining soil health. Micro-irrigation systems deliver water savings of upto 40 per cent over conventional flood irrigation methods, along with appreciable crop productivity and income enhancement.

The Pradhan Mantri Krishi Sinchayee Yojana (PMKSY) was launched on 1st July, 2015 with the objective to achieve convergence of investments in irrigation sector at field level. The scheme aims at providing end-to-end solutions in irrigation supply chain, viz., water resources, distribution network, farm level applications and improving water use efficiency. PMKSY not only focuses on creating sources for assured irrigation, but also creating protective irrigation by harnessing rain water at micro level through 'Jal Sanchay' and 'Jal Sinchan'. Micro irrigation (MI) is an integral component of PMKSY to maximise water use efficiency at field level and ensuring 'Per Drop-More Crop' (PMKSY-PDMC).

Government of India is committed to accord high priority to water conservation and its management. To this effect Pradhan Mantri Krishi Sinchayee Yojana (PMKSY) has been formulated with the vision of extending the coverage of irrigation **'Har Khet ko pani'** and improving water use efficiency **'More crop per drop'** in a focused manner with end to end solution on source creation, distribution, management, field application and extension activities.

The major objective of PMKSY is to achieve convergence of investments in irrigation at the field level, expand cultivable area under assured irrigation, improve on-farm water use efficiency to reduce wastage of water, enhance the adoption of precision-irrigation and other water saving technologies **(More crop per drop)**, enhance recharge of aquifers and introduce sustainable water conservation practices by exploring the feasibility of reusing treated municipal waste water for peri-urban agriculture and attract greater private investment in precision irrigation system.

PMKSY has four component schemes: Accelerated Irrigation Benefit Programme (AIBP), Har Khet Ko Pani (HKKP), Per Drop More Crop (PDMC) and Integrated Watershed Management Programme (IWMP). PDMC is implemented by RFS Division of DAC & FW. It has two sub components: Micro-irrigation and Other Interventions (SWMA). Various activities adopted under PDMC component are: promoting efficient water conveyance and precision water application devices like drips, sprinklers, pivots, rain guns in the farm; construction of micro level storage structures including tube wells and dug wells; secondary storage structures at tail end of canal system to store water; water lifting devices like diesel/electric/solar pump sets etc.

The Per Drop More Crop component of PMKSY aims at micro level storage structures, efficient water conveyance and application, precision irrigation systems, topping up of input cost beyond MGNREGA permissible limits, secondary storage, water lifting devices, extension activities, coordination and management. The remarkable developments in space technology currently with high spatial and temporal resolution satellite data and GIS could be effectively used for project management and monitoring activities. Spatial data related to project interventions could be of immense help in tracking the implementation, midcourse corrections and for assessing long-term effectiveness of the program implemented. The synergy of GIS and Web Technology allows access to dynamic geospatial project area information without burdening the users with complicated and expensive software. Advancements in various technological, scientific, modeling, communication and data dissemination fronts should be integrated on to a seamless platform to serve the user for effective project management. In this regard Bhuvan services could play an important role in the visualization of PDMC assets.

Geo-tagging for monitoring of assets is already progressing in Ministry of Rural Development for MGNREGA and Department of Land Resources for monitoring of watershed activities in the states. Postal department has also geo-tagged the post offices in the country using NRSC Bhuvan Platform.

National Remote Sensing Centre (NRSC), ISRO at Hyderabad has a software platform, Bhuvan that allows users to explore a 2D/3D representation of the surface of the Earth. It also acts as a platform for hosting government data. Bhuvan Application Services that are diversified and relevant for many ministries were released.

The assets created under PDMC coule be mapped and monitored by geo-tagging them using ISRO-BHUVAN, a geo-platform of National Remote Sensing Centre (NRSC) of ISRO, Hyderabad. In future, the location of the infrastructure created and distances from each other could also be utilised for arriving at distribution of assets and optimum number of that particular asset required in a district or state. The process involves development of a mobile app for mapping the assets through photographs and Geo-tagging (providing geo co-ordinates) before hosting on to DAC-PDMC platform on Bhuvan portal that would be specially created for PDMC monitoring.

2. Scientific Rationale

The Department of Agriculture Co-operation and Farmers welfare (DAC&FW) strongly advocates the use of Remote Sensing and GIS technologies for monitoring and evaluation of project activities. The division is interested in putting the project interventions on Bhuvan geo-portal of National Remote Sensing Centre.

The DAC & FW emphasizes need to implement PMKSY-PDMC program in the Indo-Gangetic Plain, Eastern and North-Eastern regions for improving the agricultural out–put and Farmers in these states are encouraged by the subsidy available under the Scheme. With the operationalization of PDMC program, it is expected that the States which are lagging behind, would also be encouraged to promote micro irrigation/Other interventions on a larger scale in the line of better performing states.

The PMKSY-PDMC Project was started from FY 2014-15 in the categories of Agriculture, Horticulture and Natural resources management sectors with Micro-irrigation and Other interventions as sectors.

The Task Force on Micro Irrigation had estimated a potential of 69.5 m ha under micro irrigation, whereas the area covered so far (2017-18) is only about 10 mha (14%). Considering the importance of efficient water management, the Group of Secretaries, 2017, emphasized on target of 10 million ha under micro irrigation over the period of 5 years (2017-18 to 2021-22), which would require an additional annual coverage of about one million ha compared to the present pace of implementation. This can be accomplished by effective utilization of the resources of both PMKSY- PDMC and MIF. It is expected that MIF would not only facilitate States in incentivising and mobilizing resources for achieving the target envisaged under PMKSY-PDMC but also in bringing additional coverage through special and innovative initiatives by State Governments.

There is also a need to cover more area with micro irrigation in irrigation commands to improve water use efficiency for bringing additional area under assured irrigation and enable water availability to tail end farmers and thus doubling meeting objective of doubling the farmers Income.

3. Importance of geo-tagging

Several assets are created in the states under various schemes of the Ministry of Agriculture. Under RKVY program of DAC&FW, states have been utilising substantial amount of funds for creations of infrastructure/assets in agriculture and allied sectors such as soil testing labs, pesticide testing labs, bio fertiliser setting units, custom hiring centres, vaccine production units, veterinary diagnosis labs, dispensaries, milk collection centres, fish production units, godowns, cold storage shade nets, pandals for vegetable cultivation etc. Monitoring of such wide spread activities is of paramount importance to states and Government of India to understand flow of funds, inventorying the assets, bringing in transparency, planning of assets for future, and finally informing the farmers about the facilities available. Hon'ble PM on several occasions emphasised on use of technology for reporting of assets created through geo-tagging.

Proposal for geo-tagging of infrastructure/assets created under PDMC

Therefore, it is proposed to prepare inventory of the assets created in the last three years say from 2015-16 under PDMC through Geo-tagging technique. National Remote Sensing Centre (NRSC), wing of Indian Space Research Organisation is providing technical support to PDMC division and has come up with a detailed procedure for the same. The institute is involved in preparation of the required app, capacity building to the officers from the states etc., The

trained officers at the field level will take the photographs (with details of latitude, longitude, year of creation etc.) of the assets and upload on to the Bhuvan-PDMC platform of NRSC.

So far NRSC has developed PDMC app. and a Training manual. It also imparted training to 3 states regarding use of the app. The organisation will provide technical support till the Geo-tagging exercise is completed.

The details of sub-sectors have been given in PDMC app manual available in Bhuvan PDMC Portal

The assets generated under PDMC program has been grouped into **Movable and Non-movable assets.**

The geo-graphic location of Non-movable assets like infrastructure should be taken up on priority basis to access the first cut information of such assets created during the past several years using funds from PDMC program.

Several states have geo-tagged **movable assets also** generated using funds from PDMC program and the following pictures depicts the   Pumpsets, power tillers, generators , implements etc.,

The Joint secretary RFS Division has visited NRSC in the month of May, 2018 and held discussions with NRSC Scientists (Agriculture, RDWMD, Bhuvan and Application Software) and based on the these discussions, has led to formation of the project proposal. NRSC Scientists highlighted the potential of Bhuvan portal as well as shown the ongoing projects of IWMP, RKVY and MNREGA to these visiting officials

User Request / Communication/ Project initiation discussions

- Joint Secretary RFS Division had interactions with NRSC/ISRO scientists during the last one year.
- NRSC scientists   made presentation on geo-tagging and it's possible application in asset mapping of infrastructure created under Rashtriya Krishi Vikas Yojana (PDMC) and suggested that a web-based PDMC asset mapping system using android based smart phone and ISRO Bhuvan web portal could be developed and deployed.
- Based on this inputs, Joint secretary, RFS division has prepared a note on Geo-tagging of PDMC assets covering entire country in all 29 states and 7 UT's.

- The Approach involves direct geo-tagging of the assets created under each project funded by RFS for each state. As of now, no web based Geo-portal service is available for details of assets of PDMC.
- Continuous discussions with RFS officials has led to the formation of this project.

4.0   Objectives

The major goal of the project is to develop a ISRO-Bhuvan web application system for hosting geo-tagged assets/resources of PDMC projects in the country. These assets are classified as Movable and Non-movable assets from its sanctioned location.

The specific objectives of the project are as follows:

A. Development of Web based geo-portal on Bhuvan for PDMC assets
B. Development of Android based mobile app for capturing PDMC assets at Block/Tehsil/Mandal/District levels
C. Capacity building and Training of Trainers (TOTs) of PDMC at centre and state levels towards geo-tagging of assets.
D. To enable online visualization of PDMC assets on Bhuvan
E. Analysis and generating reports of the uploaded PDMC assets

5.0   End Benefit to User

The geo-tagging helps in transparency in PDMC program, location of Non-movable assets and helpful for planning of new PDMC assets in future. The potential users of this Bhuvan geo-portal are PMKSY officials of DAC&FW, Ministry of Agriculture & Farmers welfare and state departments and allied sectors.

The Bhuvan PDMC portal facilitate the DAC& FW and state officials in the visualization of the resources created in the fields of Micro Irrigation and other interventions and thus to encourage farmers to install micro irrigation/other intervention systems.

6.0 Implementation mechanism of Geo-tagging

The NRSC/ISRO teams will impart training and capacity building to all states at regional workshops to be arranged by RFS Division of DAC&FW , for all state/district level officials of the regions Viz., Northern, Western, Central, Eastern and Southern regions.

The following components in the Per Drop More Crop (PDMC) scheme is sub-divided into Micro Irrigation (**MI**) and Other Interventions(**OI**), and the assets created are to be geo-tagged using Bhuvan-PDMC app (apk) and uploading to Bhuvan PDMC web portal being developed by National Remote Sensing Centre (NRSC) , ISRO, Hyderabad.

These assets are classified into:

➢ Promoting efficient water conveyance and precision water application devices like **drips, sprinklers(portable, Mini, Micro,semi-permanent) pivots, rain-guns in the fields**

➢ Assets created under MGNREGS for activities like **lining inlet, outlet, silt traps, distribution system etc.,**

➢ Construction of micro irrigation structures to supplement source creation activities including **check dam, farm pond, open wells, tube wells and dug wells.**

➢ **Secondary storage** structures at tail end of canal system to store water for use during dry periods through effective on-farm water management such as **connectivity lifting devices, percolation tanks**, ;

➢ **Water lifting devices** like **diesel/ electric/ solar pump sets** including water carriage pipes (Movable assets to be geo-tagged with Engine/chassis Number)

➢ **Improved/innovative distribution** system like **piped irrigation channels, pre-cast field channels, lifting devices and box outlet** systems etc.,

➢ **Extension** activities for promotion of **scientific moisture conservation** and **agronomic measures** (Current year)

➢ **Capacity building, training** for farmers and field staff as well as Awareness campaign, organisation of workshops, conferences etc., (Current year)

A Memorandum of Understanding (MOU) will be signed between NRSC/ISRO and RFS Division of DAC&FW. The following functionaries were identified for executing the MOU towards geo-tagging of PDMC assets and visualization and moderation of uploaded assets.

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These PDMC assets are to be geo-tagged by district/Tehsil/block/field level officials of the respective states using PDMC-app developed by NRSC/ISRO teams.

7.0 Mobile app of PDMC

The step-wise procedure is as given below

Direct Link for downloading and installing the PDMC V1.4 app

https://bhuvan-
web.nrsc.gov.in/mobile_app/bhuvan_mobile_app.php?proj_code=101

Or Open the following URL

Open Google.co.in

Type   https://bhuvan-app1.nrsc.gov.in/pdmc/

The page will be appearing
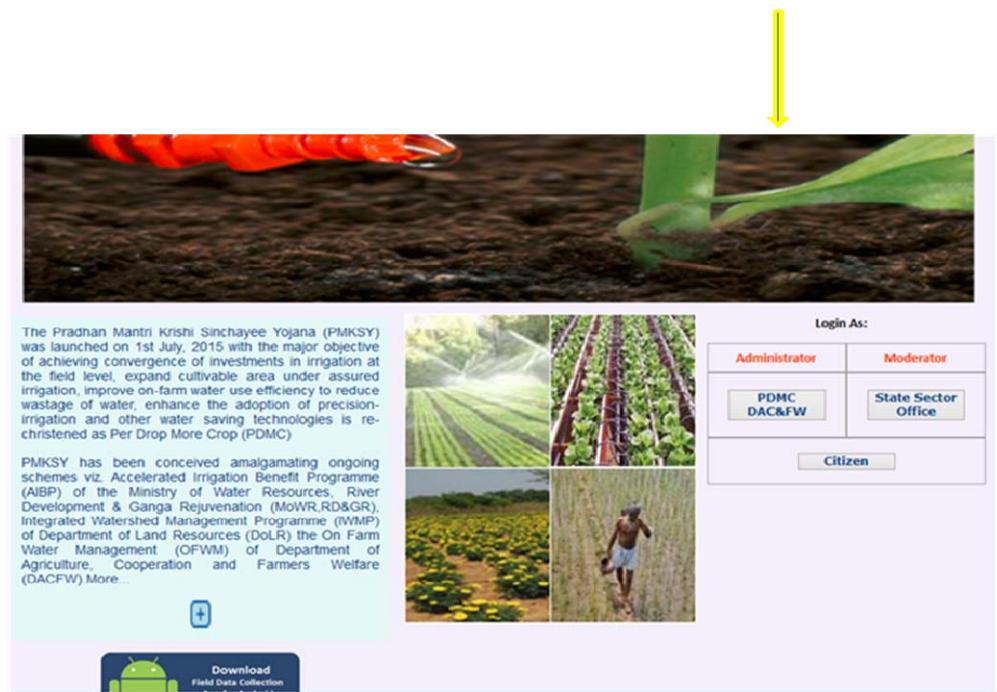
The PDMC appV1.4 shall be downloadable from the first page (Bottom left side hyperlink to app is available)

8.0 Instructions before opening Bhuvan PDMC app

1. Check ON for GPS in mobile

2. Camera aperture should not be more than 2 MP

3. Ensure space of 1 GB in mobile

4. Battery is full every time before going for Geo-tagging

STEP-1 One time Job
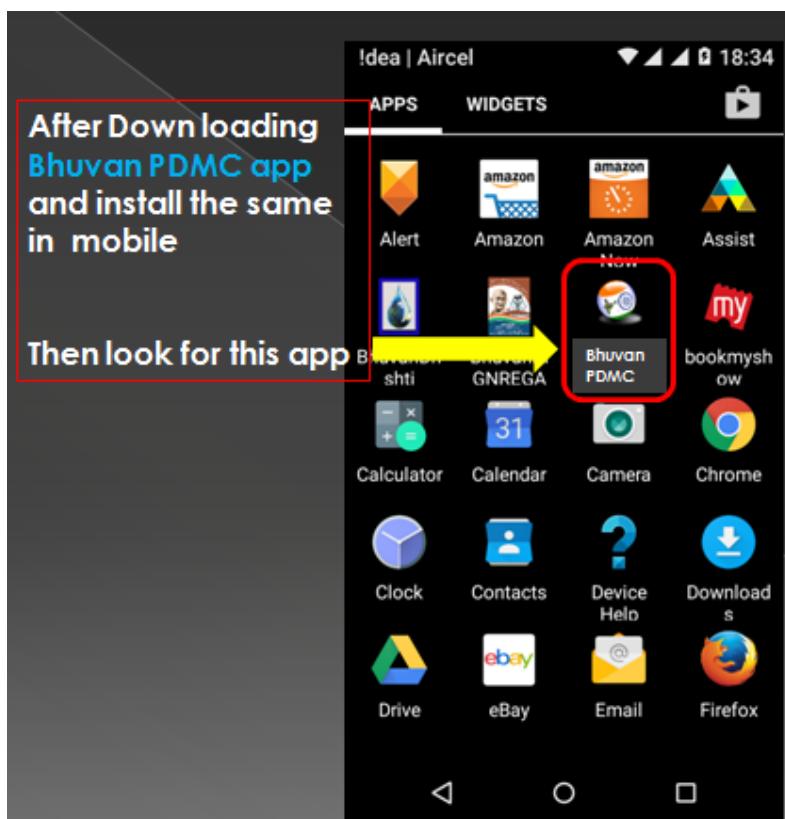
9.0 User profile

CLICK on the app symbol and create profile then save
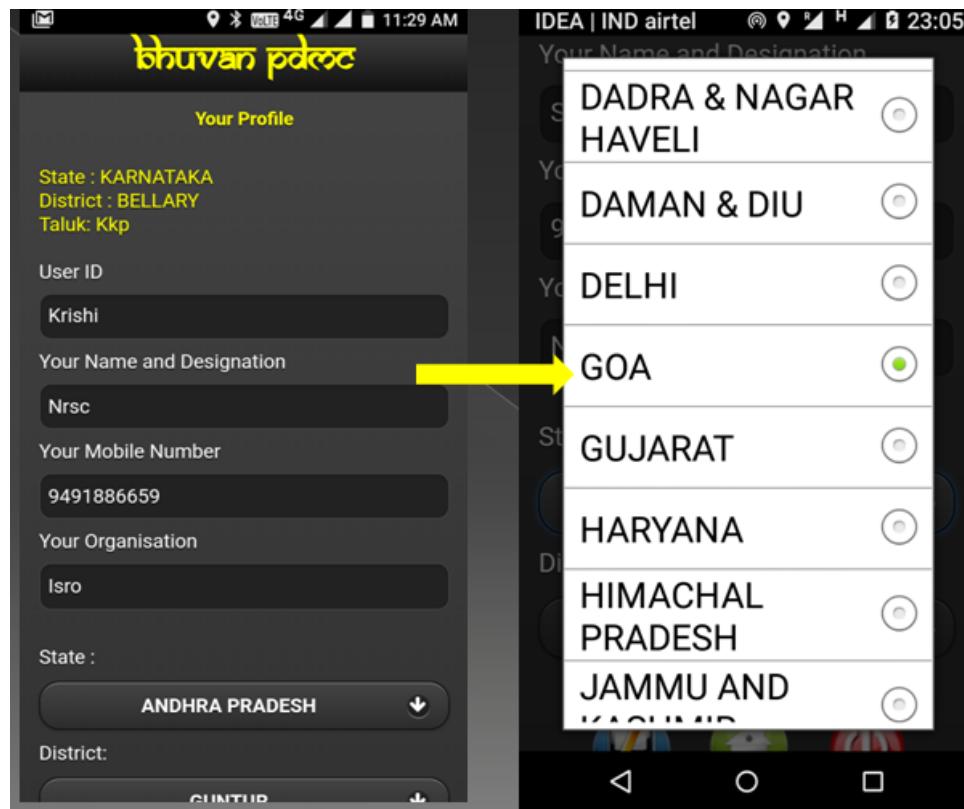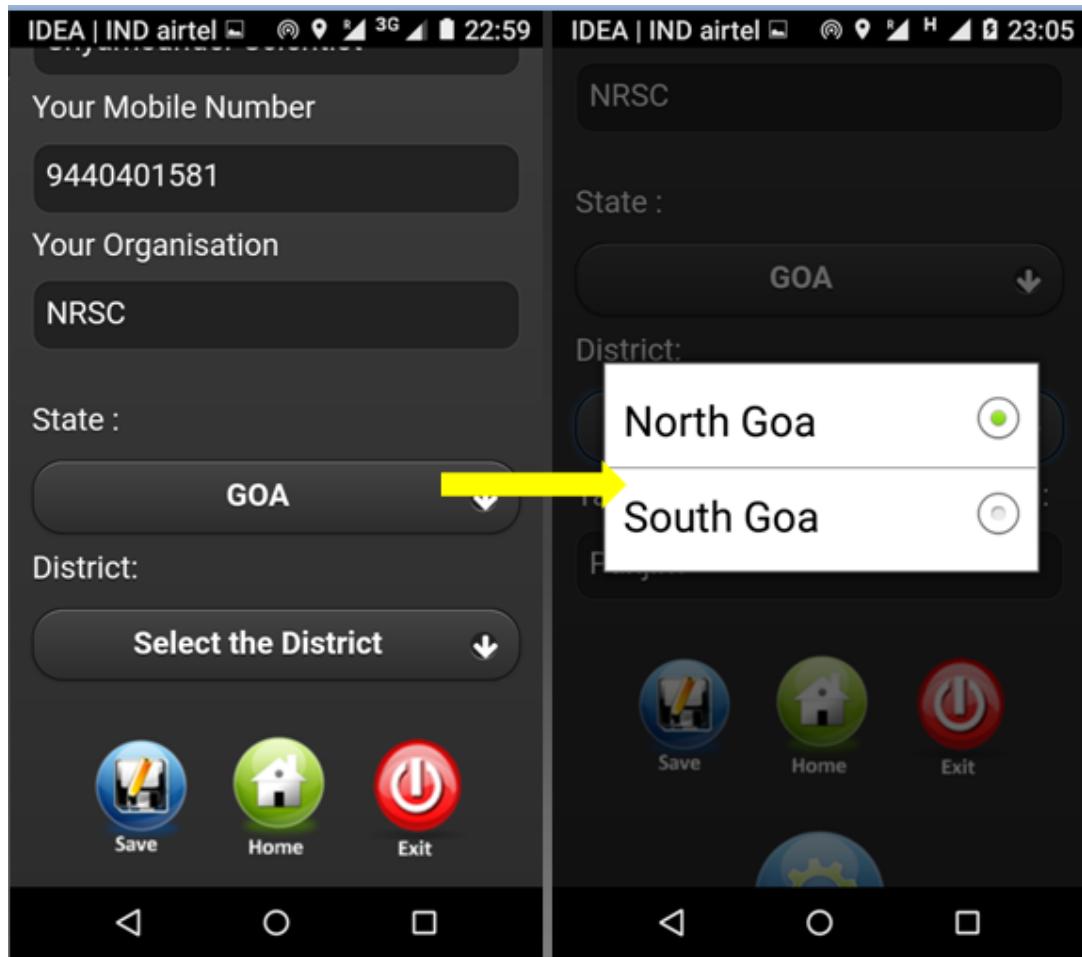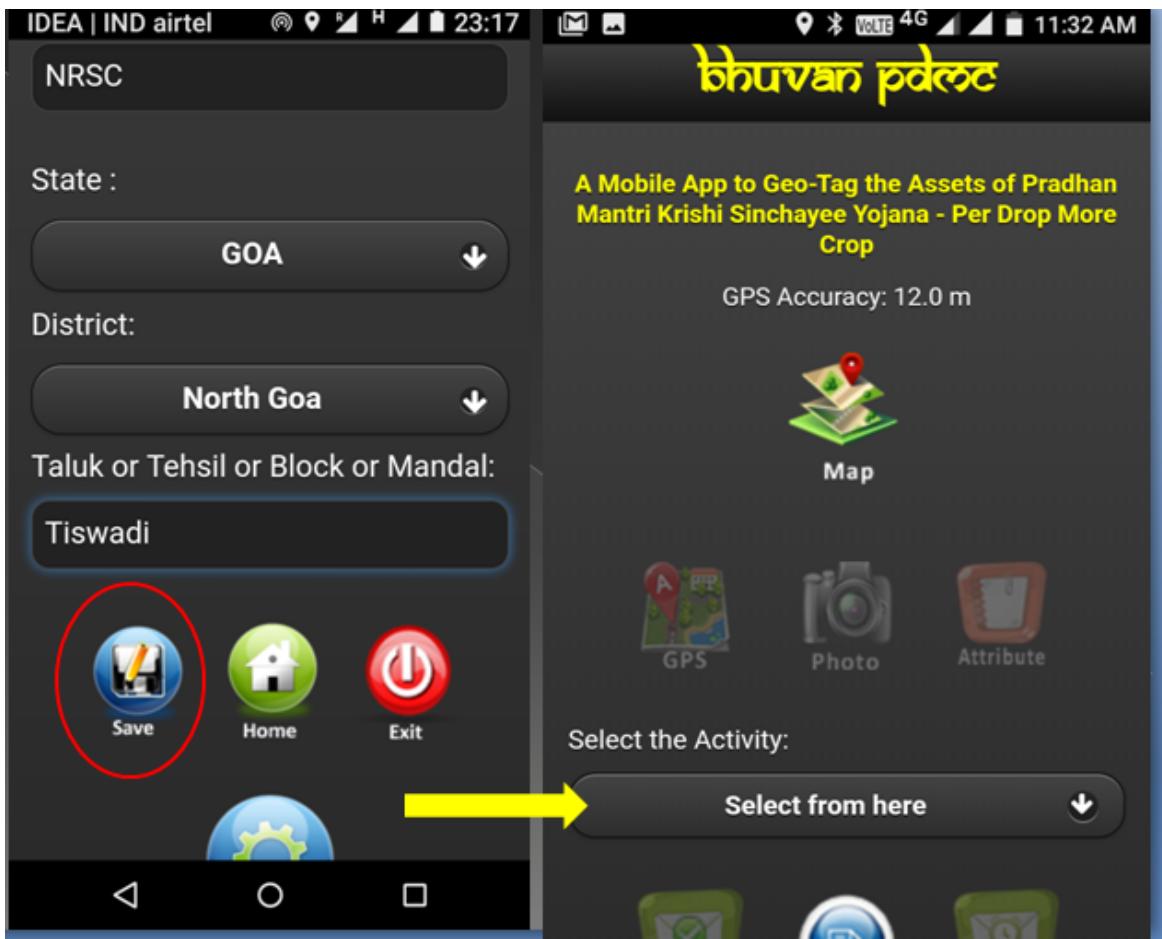
SELECT the State/district in which you are planning for Geo-tagging of PDMC assets

Click on SAVE option and the profile details shall be saved in the Bhuvan PDMC Portal

CAUTION: If you are transferred, then select the New district or Tehsil/Block/Mandal in the profile section

NOTE: INTERNET is required upto this STEP-1   and profile creation is one time job.

SWITCH ON GPS/LOCATION icon in Mobile Phone

All Profile details including mobile number has been saved in PDMC portal and an UUID will be generated. If any unwanted/offensive/unsolicited photos are uploaded, action will be initiated.

10.0 Geo-tagging Procedure

STEP-2
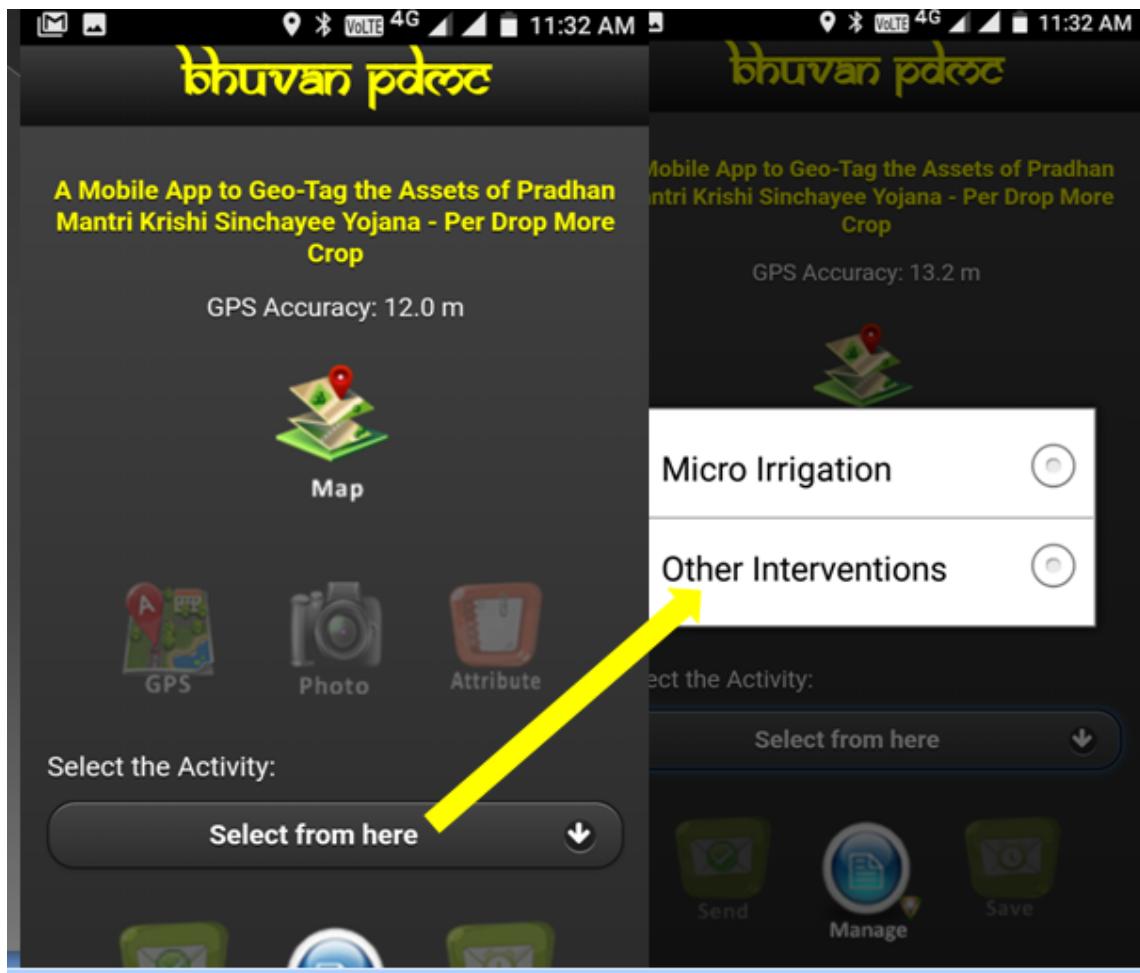
CLICK on App in Mobile and page will appear as above
SELECT the required sector as MI/OI

STEP-3
Afterwards, click on the GPS icon

Stand at the Asset location. The GPS accuracy should be about 20 meters
Normally in about 2-3 minutes, you will get a GPS accuracy of less than 10 meters

First time, it will take a little more time to get the desired accuracy.

Hold the mobile open to sky and ensure that there is no obstruction between mobile and GPS satellites

CLICK OK as shown below
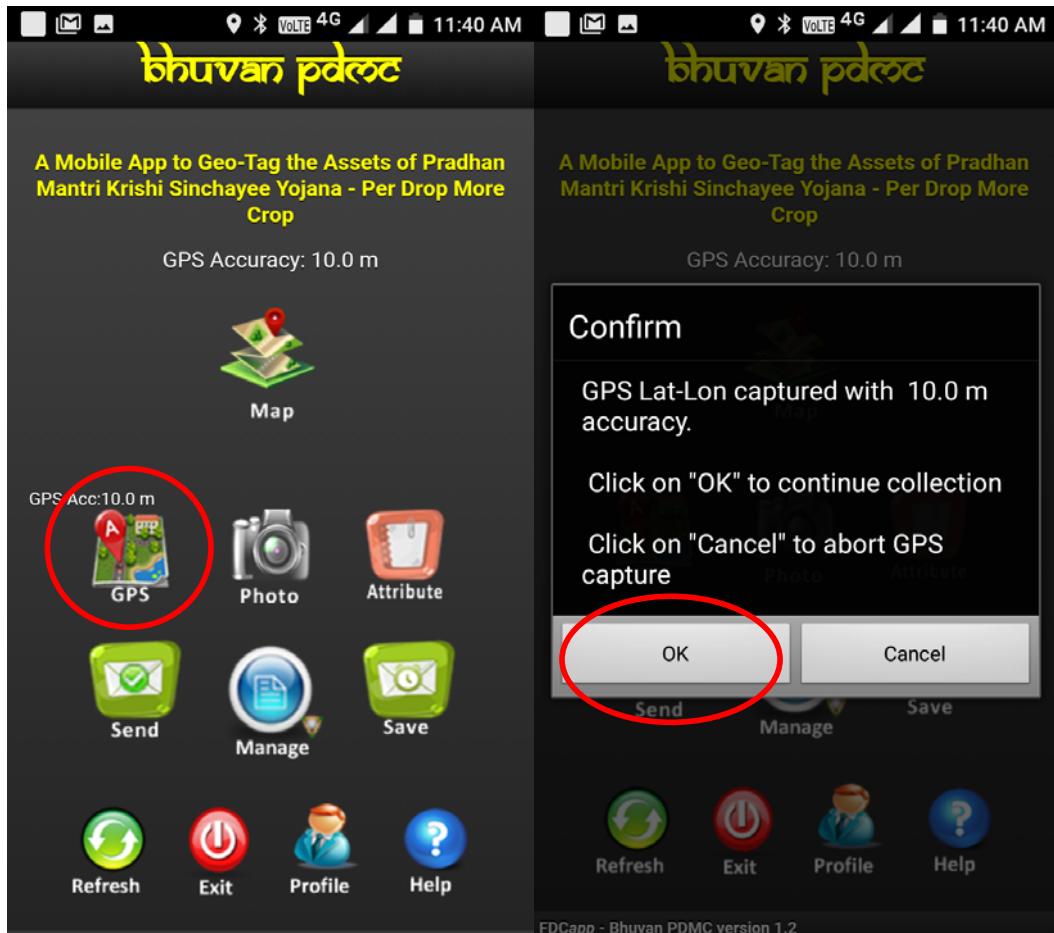
STEP-4
CLICK Photo icon twice as shown below
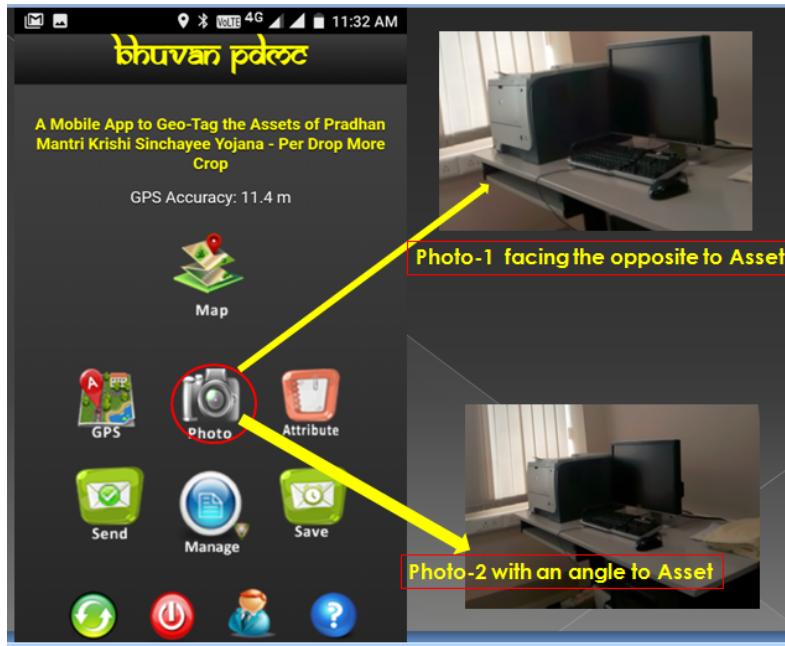
Save the photos as desired in Mobile specifications
GPS Accuracies shall be computed for each Asset
(No Internet is required)

STEP-5
CLICK on Attribute Icon

Enter all details as per design(if you are not knowing some details, leave it as blank)

However, mandatory details are to be entered as given below

1. Beneficiary name
2. Beneficiary Mobile No
3. Date of approval by SLSC (in format as MMYYYY: July 2017 can be written as 072017)
4. Date of completion in format as MMYYYY

Sub-sectors for Micro Irrigation(MI)*

*As per Guidelines of PMKSY-PDMC-2016

Select OTHERS if above options are not suitable and enter the correct name of the asset

Sub-sectors for Other Interventions(OI)*
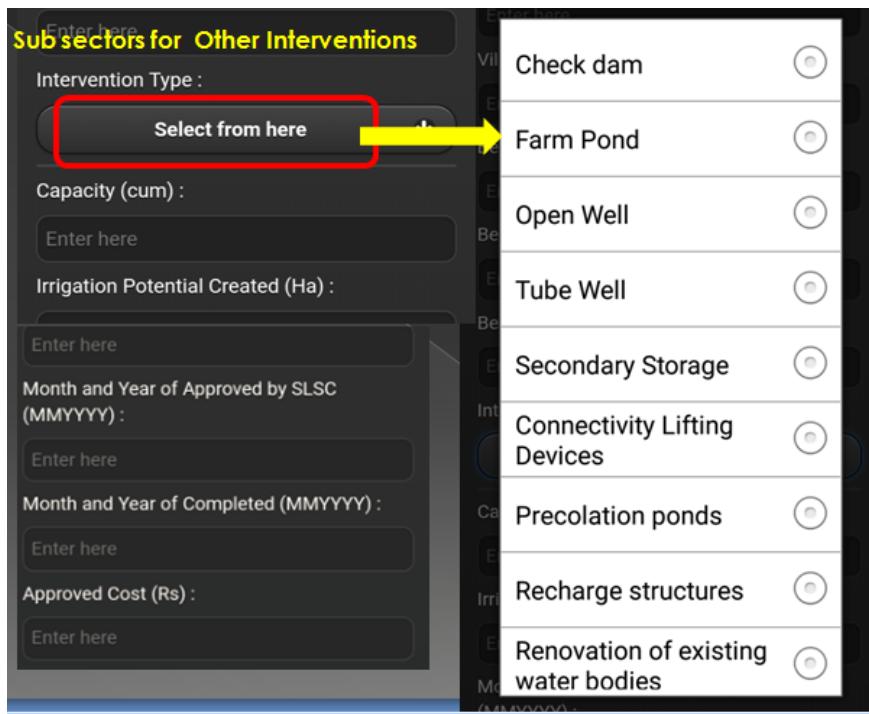
*As per Guidelines of PMKSY-PDMC-2016
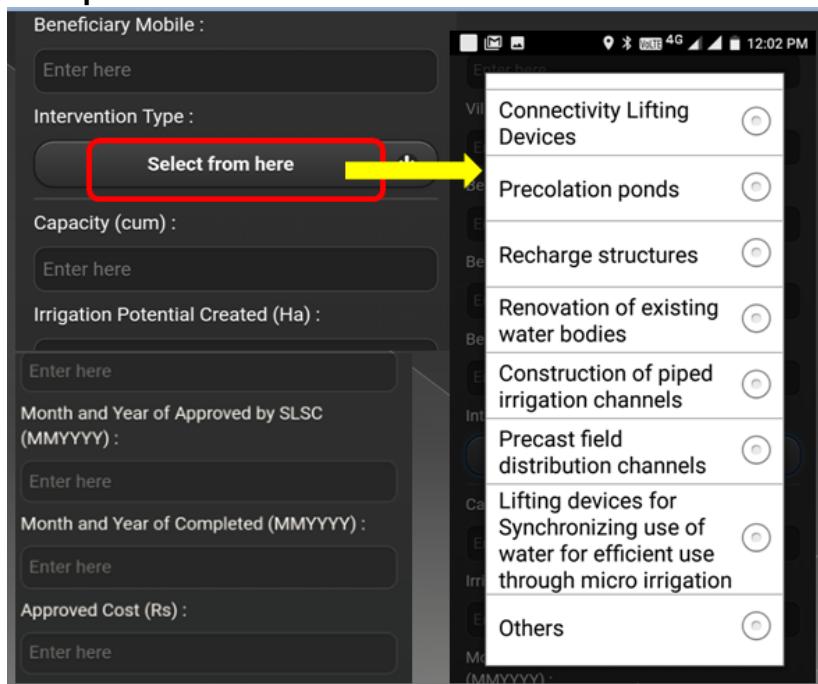
Note: After entering all mandatory fields, SAVE
the data onto mobile as explained in Step-6

STEP-6   SAVE data for sending later
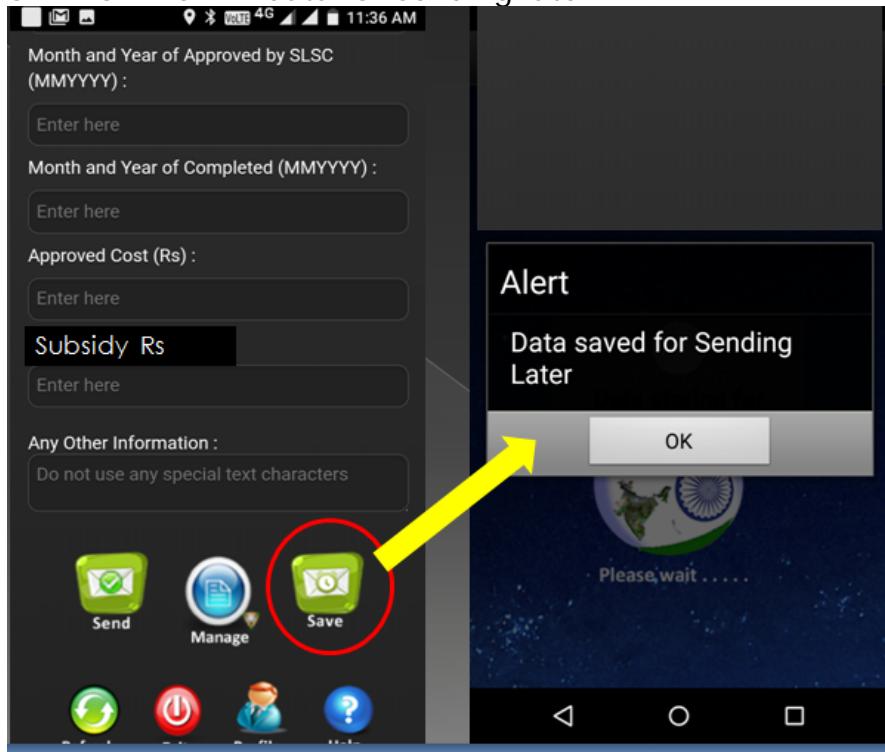
STEP-7 click on MANAGE Icon, then options will appear as shown below

Three options will appear as SEND LATER, SENT FAILED,VIEW SENT
Then click on SEND LATER Option, check whether the photo and
attribute information is saved or NOT

Complete the capturing of all assets in the procedure explained in STEP-2 to STEP-7

After returning to office, where Internet/Mobile data is accessible, then follow the STEP-8.

STEP-8

Open mobile PDMC app and select MANAGE followed by

SEND LATER

Click on O (observation collected) and select EDIT option
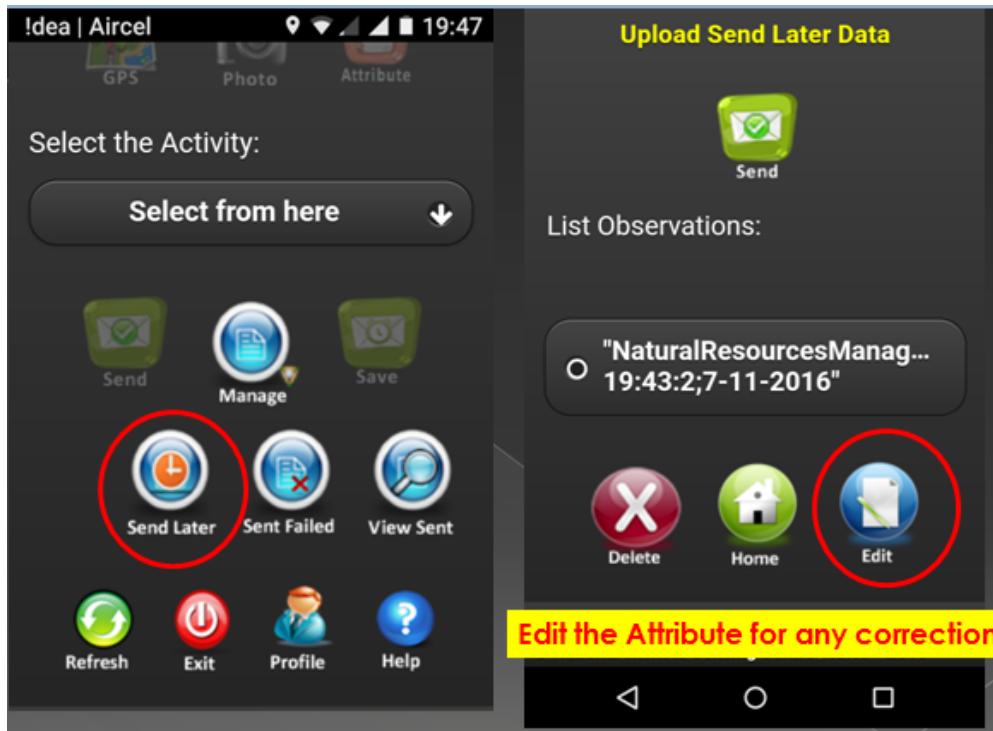
After editing/filling all the required information, then SAVE the asset and select SEND option

If Internet signal is good, it will take 1-2 minutes to send the asset to Bhuvan PDMC portal

Check in SENT VIEW icon, whether, the details are available

Send all the saved assets as explained above

After sending all assets in a given location, a report is to be sent to District/state MI/OI officials informing the date/time of sending assets.

The assets will be appearing on the Bhuvan PDMC portal after 5-10 minutes of sending the same.

Note:

1. DO Not delete any assets in the Mobile, till it is visualized on the portal
2. 1 GB space will be sufficient to store about 200 assets
3. Train as many officials as possible at Field level for easy geo-tagging

11.0 Changing Profile when an Officer is transferred
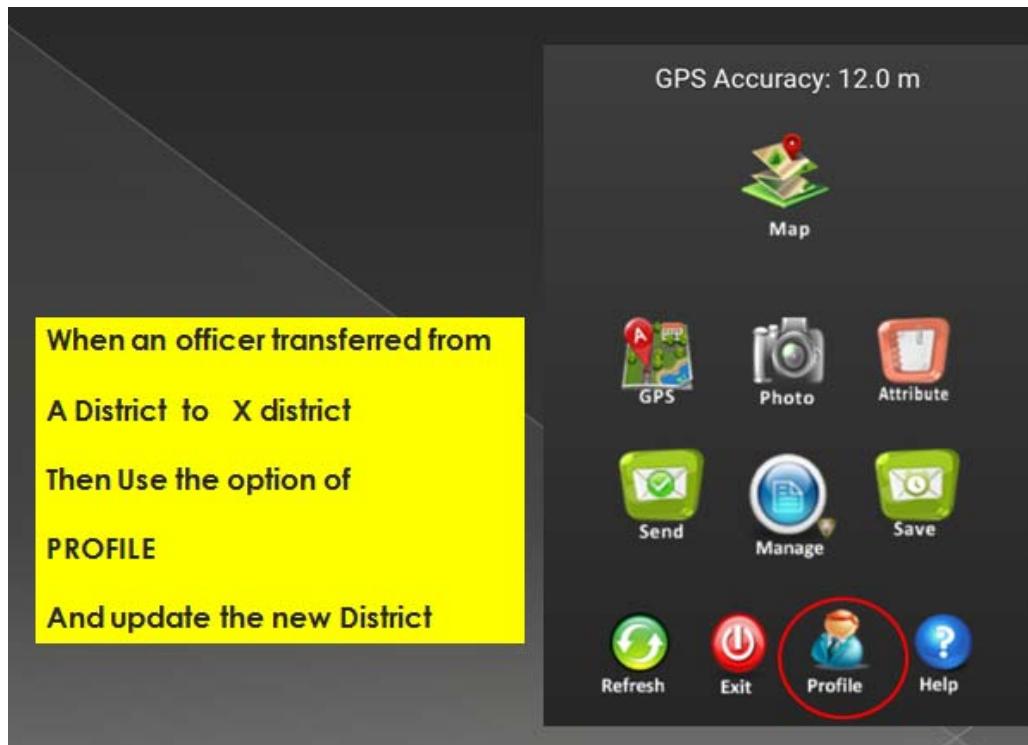
12.0 How to visualize the UUID
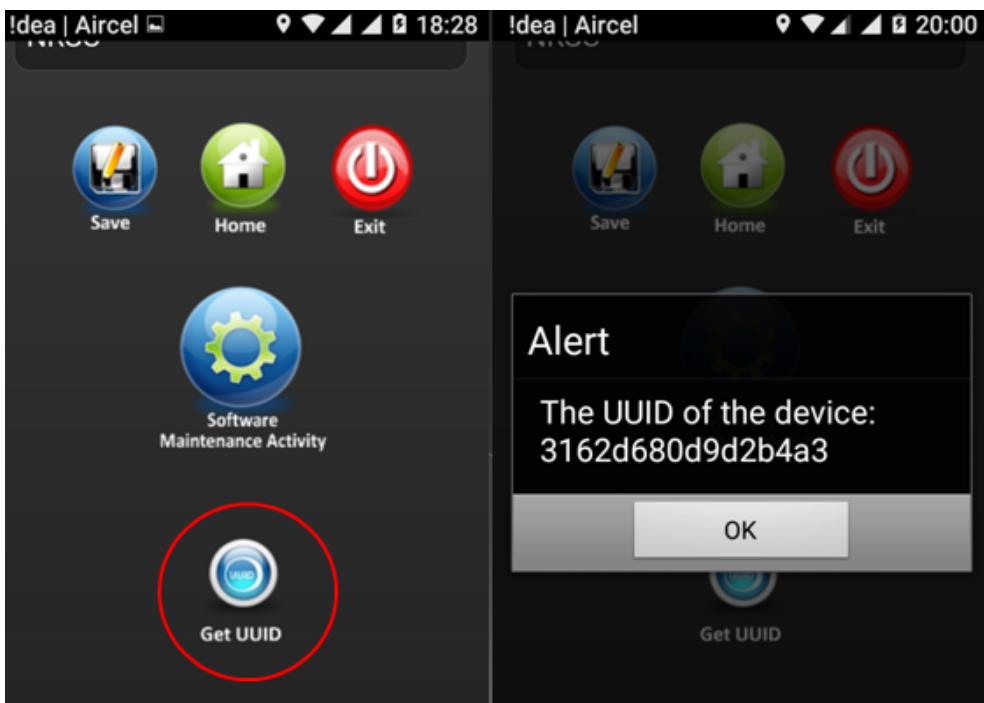
Mention correct Mobile Number as several messages will be send during the   Geo-tagging

13.0   Moderation Procedure for Geo-tagged Assets

Go to following URL

https://bhuvan-app1.nrsc.gov.in/pdmc

The page will appear as below
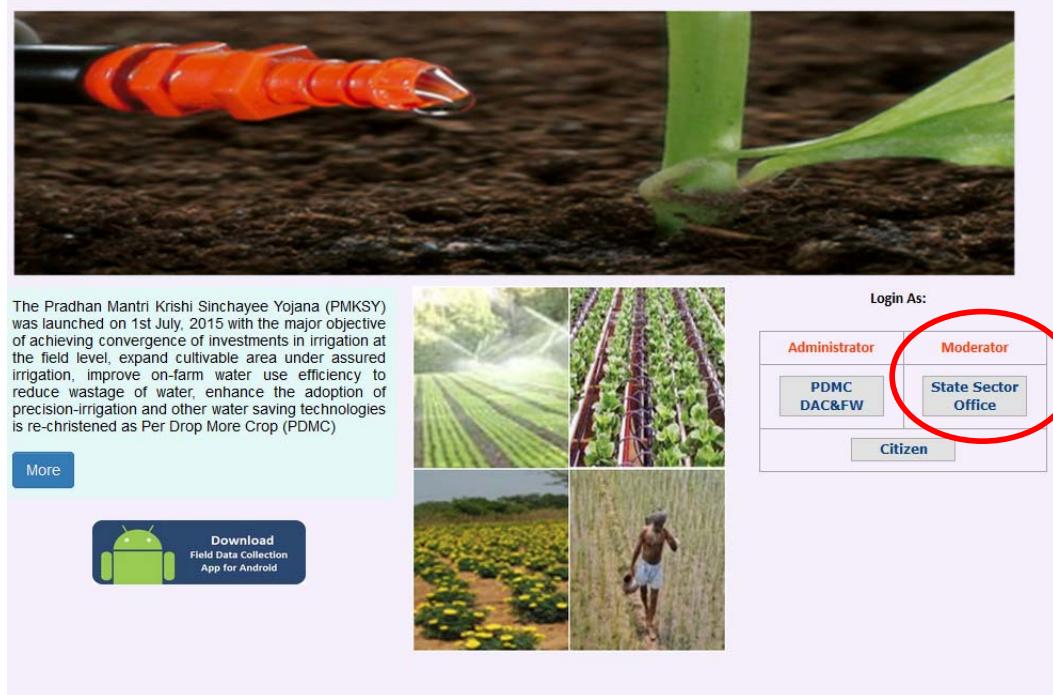
The geotagged assets can be moderated only by the State Sector officials and to moderate Click on State Sector Office under the Moderator Module

The user names and passwords for MI and OI sectors for all states will be given by RFS Division of DAC&FW and will be pre-generated by NRSC Team.

Note:
1. Never change any password
2. If any change/forgot password, you are advised to contact NRSC Team by sending a mail with Name of officer, mail id and mobile number
3. The NRSC team will verify details and send a New password with the approval of central PDMC officials.

Login using user name credentials

Use Username and Password given for each state

Once logged in as a particular State Sector, the number of geotagged assets will be seen for that particular state.

Zoom on the image near to No appearing in Blue colour

The falling balloons (in Orange) will be appearing, which are the PDMC assets uploaded

Zoom till this bar appears in middle portion

Click on small yelloe portion for opening asset photo and Attributes
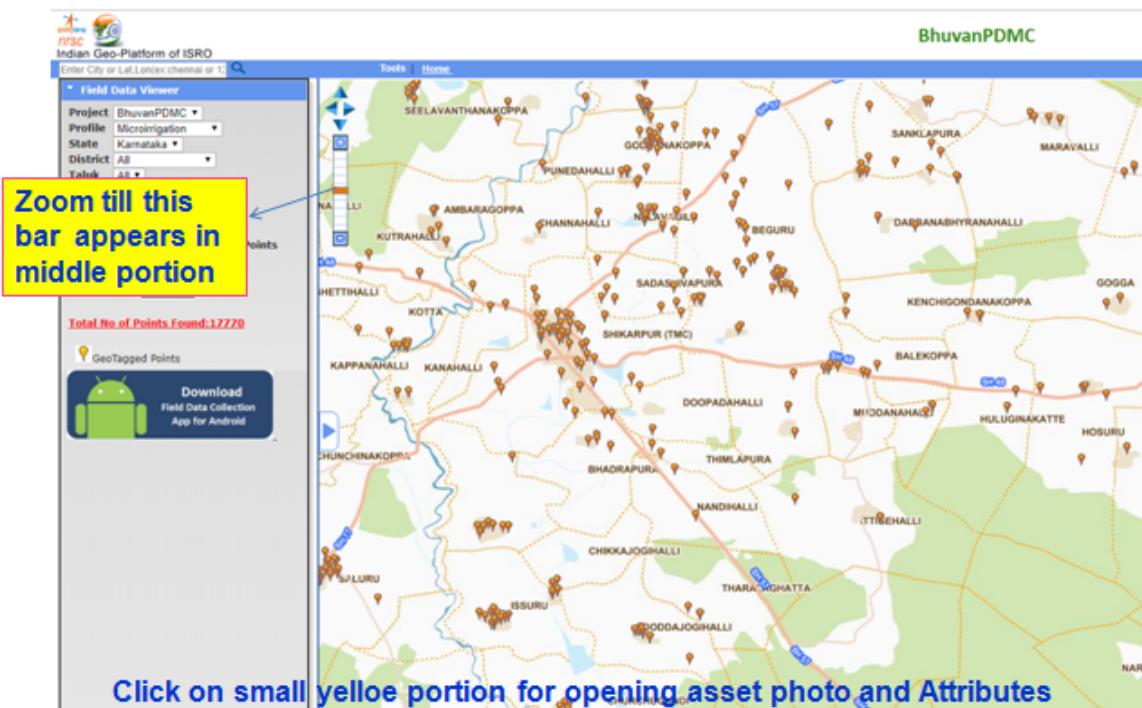
14.0 Attributes of Geo-tagged assets

Click on centre of Balloon and the asset details gets open as shown above

Scroll Down Bar

Three Options will be seen
1 Accept
2. Reject
3 Edit

Note: Never Reject any Asset- reason shall be discussed during Training

Approve _click , then asset is approved

Reject_ Then a pop up will appear and write the Reason for Rejection

Edit_ for editing attribute information entered by Field officer
        Check the correct/accurate information and say OK

        Then save link will appear for saving the changed information

The asset photos, observer name, sector –
not allowed for change/modification

The snapshot of Rejected asset – Reason to be mentioned

Reason for Reject

Data attributes NOT allowed for modification
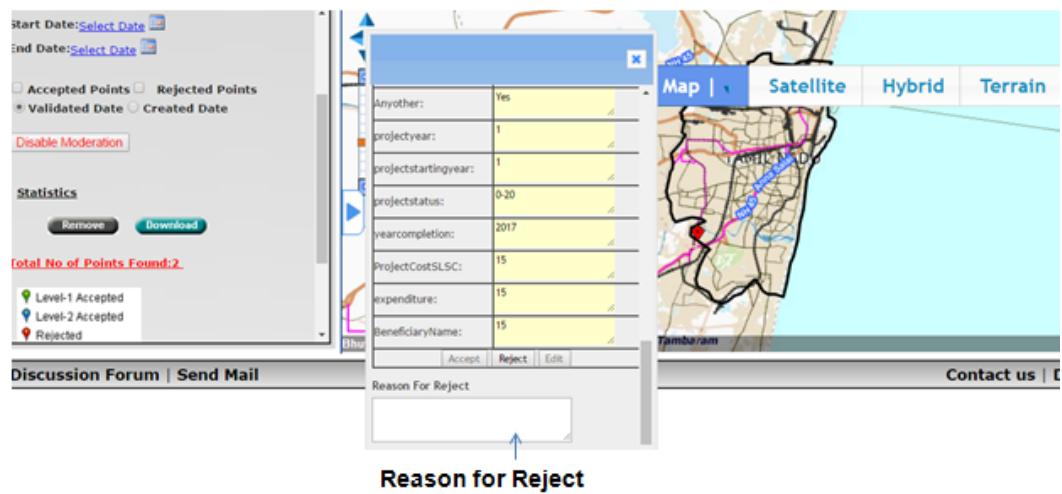
Sl.No	2457882
FDCprojectname:	BhuvanPDMC
profilename:	MicroIrrigation
observername:	Jaanpeer
org:	Department of agriculture
mobileno:	9538404601
creationtime:	2017-11-7 11:38:42
uuid:	8be7ee892fa00009
User ID:	8be7ee892fa00009
StateCode:	29

TulakName:	Shikaripura
Year:	2017
Village:	Kenchigondanakoppa
BeneficiaryName:	Malathesh
CropName:	Maize
SystemType:	Portable Sprinkler
AreaCovered:	3.23
MonthYearApproved:	062017
MonthYearCompleted:	092017
ApprovedCost:	21489
Expenditure:	16353

Accept Reject Save

Attribute data fields allowed for Modification

Finally after modification SAVE the same

15.0 Visualization of the Geotagged PDMC Assets:

To view or visualize the PDMC assets, an user name and password will be required for accessing the Bhuvan PDMC portal. This portal may be viewed on any web browser on a PC.

URL: https://bhuvan-app1.nrsc.gov.in/pdmc

Assets may be viewed either in the Administrator Module or in the Moderator Module.

The functionalities of the Modules are given below

Administrator

User Level	Role	Role Name	Jurisdiction	Access details	Remarks
PMKSY-PDMC DAC&FW	Central Chief Administrator	Central Team	Entire Country	Super user for entire country	Authority for approval of state sector officers while registering on Bhuvan Portal
				Visualization of all assets of country	Contact point in all matters with NRSC/ISRO
				summary of statistical table of state, district, sector wise assets for country/state/ combinations	NRSC may be contacting all PDMC officials with the knowledge of PDMC officials at New Delhi

On successful login, administrators will be able to see the geo-tagged locations of India or any particular state. Administrators can also use data filter to see the progress of particular state/sector/district/year**.**

Moderator

User Level	Role	Role Name	Jurisdiction	Access details	Remarks
State PDMC officer of MI and OI sectors	State Administrators for MI and OI	State Teams for MI and OI separately	Respective State	Super user for entire state	Responsibility for Geo-tagging of state assets uploaded sectorwise
				Visualization of all assets of states	Authority for moderation of the assets and approval of all assets of MI and OI separately
				statistical table of state, district, sector wise assets for state/combinations	

On successful login, Moderator will be able to see the geo-tagged locations of particular state for MI and OI sectors. Moderators can also use data filter to see the progress of particular state/sector/district/year.

Citizen Module

An option has been provided for any citizen to view the approved PDMC asset by simply logging in as CITIZEN as shown below

FREQUENTLY ASKED QUESTIONS

What is the Process of Geo-tagging and Geo-mapping

Geo-tagging is the process of adding geographical information like latitude and longitude to various media such as photo or Video. Geo-tagging can help users to find a wide variety of location-specific information from a device. It also provides users the location of content a given picture.
Geo-mapping is visual representation of the geo-graphical location geo-tagged assets layered on the top of map or satellite imagery. This is facilitated through web browsers either on a Mobile phone or on any Personal computer.

What is the difference between the Mobile App and the Mobile Website?

Mobile Apps are native Apps that can be downloaded and installed on your compatible mobile device, while the Mobile Website is a web portal that runs directly in the mobile browser on your smart phone or other mobile device. Both the native Apps and the Mobile Website allow you to access your account information, view news releases, report an outage, or contact NOVEC directly from your mobile device.

Is my phone supported?

PDMC Mobile Apps are supported on Android platforms only (Android 4.2 and above versions)

PDMC Website can be viewed on these web browsers 1. Google Chrome 2. Mozilla firefox

Is the Mobile App secure?

Yes! All critical information is encrypted and no personal information is stored on your mobile device. However, mobile devices do offer you the ability to store your login information for apps installed on the device.

What features does the Mobile App have?

The Mobile App and the Web give you the ability to access your account information, view the assets, view reports, and contact us via email or phone.

Once the App is installed, users can touch the MAP icon which is a feature that shows the satellite data of the location where one is standing. For this to be enabled, data connection/ internet is required on the phone.

Do I have to buy the Mobile App?

No. Bhuvan PDMC Mobile App is completely free to download and install. The app is placed in Bhuvan PDMC website only accessible to authorized officers of PDMC program.

I have multiple accounts. Can I see them all in the same Mobile App

No. Once you've logged in, you'll be asked to select the profile you wish to work and capture the assets under PDMC. If you are transferred to other Jurisdiction, you need to change the profile after opening the App.

How current is the account information I see in the Mobile App?

The information you see in the Mobile App is shown in real-time, so it's always accurate. However, if you keep the Mobile App for an extended period of time, you should refresh the page by selecting a new option in order to ensure the information is still current.

How do we ensure that photos are genuine?

The photographs captured with the mobile app are stored digitally in NRSC's Bhuvan server. They are to be moderated by authorized state officers to remove spurious photographs. Photos taken for training/practice could also be marked as test and hence will be removed during moderation.

Can I download the photographs?

Photographs taken from the Mobile App are stored internally in your mobile device till they are sent to Bhuvan server of NRSC. Once the 'Send' button is pressed and the transmission becomes a success, then all uploaded details will there in app. In effect, there is no way you can download the photographs, once uploaded.

Can I download the lat-longs of the photographic locations?

No. The latitude longitude of the location are internally stored along with the photo(s) and thus cannot be revealed.

How UUID is helpful

UUID number is allotted once you create a profile for the Jurisdiction of your posting. Once, transferred, you need to change the profile and accordingly New UUID will be generated. This UUID is helpful for identifying the authorised geo-tags.

Which option is better for uploading

1. Uploading instantly

2. Save and send later

Second option is better as scope exists for editing attributes and then uploading.

While downloading the Bhuvan PDMC app., process was stopped by my Mobile phone.

Check for any Google interfaces that are obstructing, hence remove these Google based apps temporarily and after Downloading and installation of Bhuvan PDMC app, you can re-instal/ down load the earlier app.'s

After Downloading PDMC app. an error message is appearing that the app's from Unknown sites are not allowed for installation

Go to settings-under the Security tab- then accept all downloads and installation from unknown website/sources and install the PDMC app. Once installation completed, reset the earlier settings to block the unknown websites.

What is the size of required camera aperture

The camera aperture size is to be adjusted to get a reasonably good picture of the asset under observation, say reduce to 1/3 of its original mega pixel say 8 MP to 2 MP or less.

Is there any option to download points of PDMC assets after moderation

Yes, option is provided for registered and approved users after login.

Access by any citizen/ netizen to see the PDMC assets and comment

ISRO Bhuvan protocol provides an option for any citizen to view the approved PDMC asset by simply logging in as CITIZEN and also write a comment on the asset, which will be helpful for PDMC team.