Geotagging and Monitoring of MGNREGA Assets

using Bhuvan

(Bhuvan – GeoMGNREGA)

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Abstract (with Keywords):

This document is a user manual elaborates the procedures of accessing the Bhuvan Geo-Platform, user registration, authorization, moderation of geotagged MGNREGA assets through web & tabular view and report generation.

Keywords: Bhuvan, Geo-Platform, Geotagging, Monitoring

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Geotagging and Monitoring of MGNREGA Assets using Bhuvan

(Bhuvan – GeoMGNREGA)

1. Introduction

Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) aims at livelihood security of people in rural areas by guaranteeing hundred days of wage-employment in a financial year to a rural household whose adult members volunteer to do unskilled labour work. The Mahatma Gandhi NREGA sponsors various schemes for helping rural people below the poverty-line for creation of wage employment and productive assets. As per the information available with NREGASoft, around 30 lakh assets are created annually during a financial year under Mahatma Gandhi NREGA. Ministry of Rural Development proposes to use GIS solutions to visualize, analyze and explore such asset related data and also manage them more effectively along with better understanding of their impact/outcome.

As a follow up of ISRO National meet held on 07 Sep 2015, decision has been taken at Secretary Level to use Bhuvan as the platform for the porposed GIS solution by MoRD. The Mahatma Gandhi NREGA GIS Solution intends to provide a single and integrated view of asset information system pan rural India. GIS enabled portal (e-Governance) will act as a gateway to facilitate and coordinate the exchange and sharing of geospatial data between stakeholders from various jurisdictional levels in the spatial data community. Towards this MoU between NRSC/ISRO and MoRD has been signed on 24 June 2016 with Roles and Responsibilities of NRSC as follows

1. An exclusive Bhuvan–MGNREGA Geo-portal for DoRD will be developed and deployed, with geotagged assets data and report generating tools.
2. A customized Android Mobile App for geo-tagging of completed assets will be developed and provided for field level usage.
3. Standard Operating Procedure (SOP) will be provided by Bhuvan, in consultation with NIC-DoRD and DoRD for Moderation/ Validation of Geotagged content on the Bhuvan platform
4. Work towards realization of an operational interface for exchange of data / services with NIC-DoRD with regard to the MGNREGA and 14 th Finance Commission requirements.

5. Preparation of User Manuals and imparting training for TOT participants.

To address the roles and responsibilities, an exclusive Bhuvan-GeoMGNREGA application has been developed. This document is a user manual describing the detailed procedural steps for Geotagging and Monitoring of MGNREGA Assets using Bhuvan. This user manual elaborates the procedures of accessing the Bhuvan Geo-Platform, user registration, authorization, moderation of geotagged assets through web & tabular view and report generation

2. Authorising MGNREGA Users

URL - http://bhuvan.nrsc.gov.in/governance/nrega/register

Following are the user levels and their corresponding roles-

User level	Role	Role Name	Jurisdiction	Access Details
Level 1	Data Collection	Spatial Enumerator (MSE) i.e Gram Rozgar Sahayak (GRS)/ Technical Assistant (TA)	Panchayat	Provision to download the respective area asset details
Level 2	Moderation	GIS Asset Supervisor (GAS) i.e Programme Officer (PO)	Block	Moderate mandal level details and statistics of data collection details
Coordination level 1	Coordination	District GIS Nodal Officer (DGNO)	District	Summary of mandal level assets and moderation status
Coordination level 2	Coordination	State GIS Nodal Officer (SGNO)	State	Summary of district level collection and moderation

				status
Central Level	Monitoring	Central Team	Country	Summary of state wise collection and moderation

Various user privileges are summarized as below -

Central Level Users:

Central Level Users can

1. Approve SGNO

2. Delete SGNO

3. View List of all DGNO users

4. View List of all GAS users

5. View List of all MSE users

6. Statewise Statistics

7. Statistics of Asset Flow

State Level (SGNO) users:

SGNO users can

1. Approve DGNO/GAS user belongs to their state

2. Reject DGNO/GAS user belongs to their state

3. Districtwise Statistics belongs to their state

District Level (DGNO) users:

DGNO users can

1. View list of GAS users belongs to their district

2. View list of MSE users belongs to their district

3. Request for assigning to multiple districts as DGNO & View status of requests

4. Blockwise Statistics

Block Level (GAS) Users:

GAS users can

1. Approve MSE users belongs to their block

2. Reject MSE users belongs to their block

3. Request for assigning to multiple blocks as GAS

4. View status of requests

5. Panchayatwise Statistics

6. Assigning the multiple panchayats to same MSE

Prerequisites for approval is Central, SGNO, DGNO, GAS users should have BHUVAN user account.

2.1   MGNREGA user account activation process

2.1.1 Central Level users approval

Central Level users are approved by NRSC.

2.1.2 SGNO approval by Central Level

a) Login to http://bhuvan.nrsc.gov.in/governance/nrega/register

b). Login with BHUVAN username and password.

c). User will see Welcome screen.

d) Click on Register SGNO button. Pop up will open.
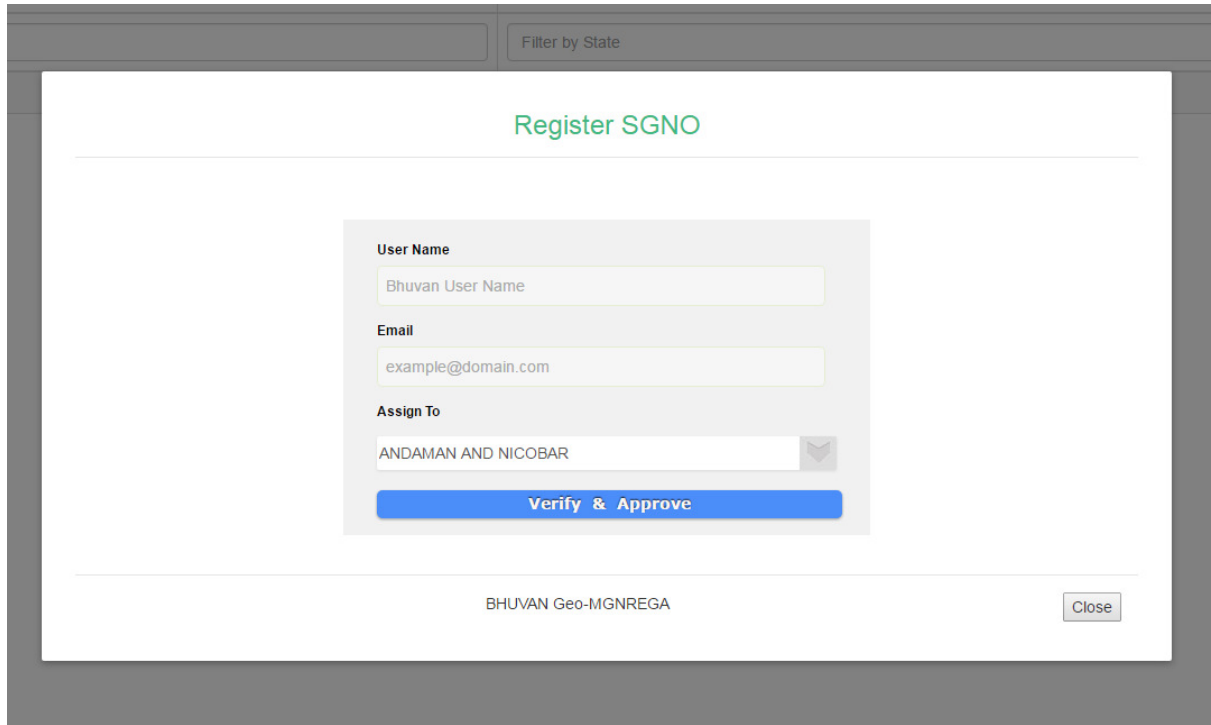
e) Enter SGNO bhuvan user name and email id and select the state to which the user belongs, and click on verify and approve button.

f) If username and email id matches with bhuvan user account and user registration successful then success message will appear.

g) If user name does not match with Bhuvan username.

h) If email id does not match with email id registered

i) If you try to register any user, who is already registered.

2.1.3 Process for Registration of DGNO /GAS

a) Login to http://bhuvan.nrsc.gov.in/governance/nrega/register

b) Enter Bhuvan username and email and click on Login button

c) Following screen will appear to select your role, financial year, state and district and block (if you are GAS user) to which you are nominated by your state

d) Select the details and click on Request for Approval and Download Registration form.

e) If request is submitted successfully , a pdf will be downloaded and your status and respective SGNO details will be shown (If available)
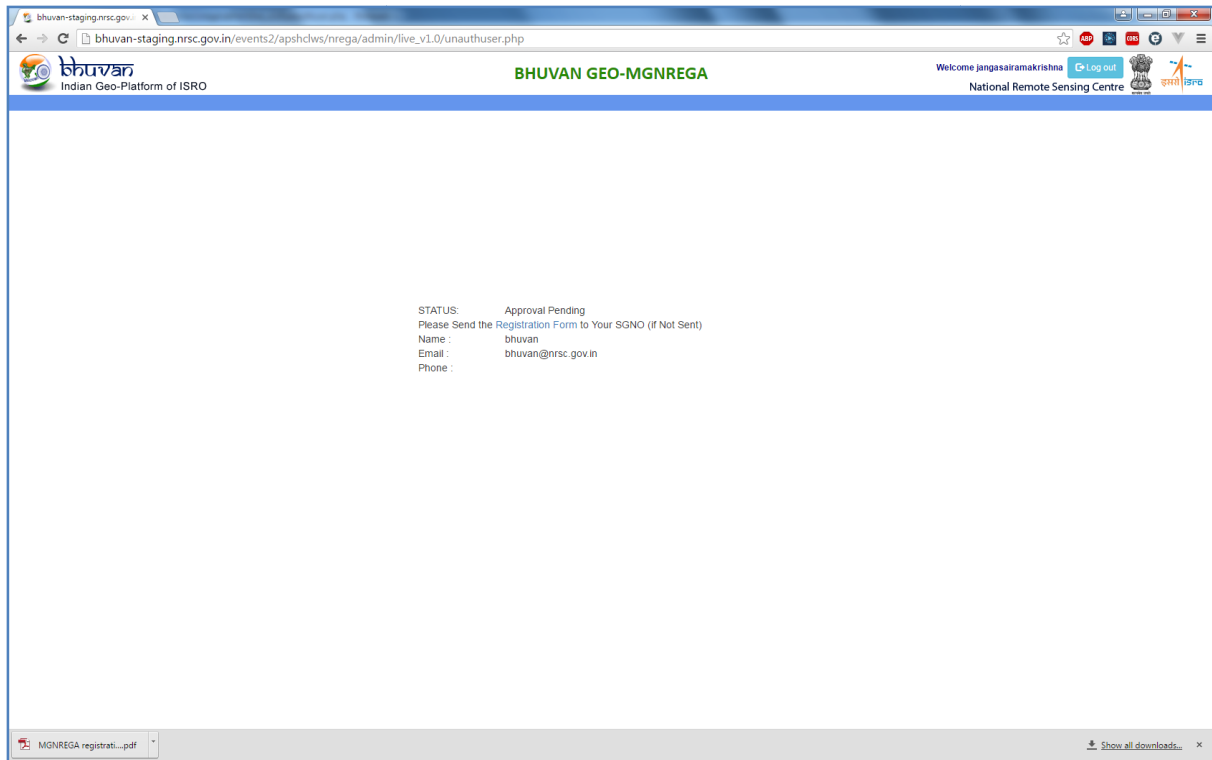
f) Downloaded Registration form will contain Information about the request.
Send this pdf to concerned state SGNO for approval.

Dear Sir,

Subject - NREGA user authorization : Reg

Kindly authorize me as NREGA user. Following are the details -

      Bhuvan username:jangasairamakrishna
      Email id :krishna1736@gmail.com
      Financial Year :2016-2017
      Role :GAS
      State :CHANDIGARH
      District :DemoDistrictCHANDIGARH
      Block :DemoBlockCHANDIGARH

Thanks and Regards

Please take a printout and send it to your NREGA Administrator.
Bhuvan: ISRO/NRSC,2016

2.1.4 Process for approval of DGNO/GAS by SGNO

a) Login to http://bhuvan.nrsc.gov.in/governance/nrega/register

b) Login by entering Bhuvan user name password.

c) Welcome screen will appear.

d) Select Approve DGNO/GAS from options available.

e) Select Financial Year from options available.

f) List of DGNO/GAS users for that financial year will be displayed for approval or rejection.

g) Click on Approve icon (right tick mark in green) to approve (If user is nominated by respective state and SGNO have received pdf from respective GAS/DGNO)

h) Reject, if user is not nominated by respective state using reject option (red circle with cross mark)

2.2   MGNREGA user Privileges

2.2.1 Central Level Users

Central Level Users can

1. Approve SGNO

2. Delete SGNO

3. View List of all DGNO users

4. View List of all GAS users

5. View List of all MSE users

6. Statewise Statistics

7. Statistics of Asset Flow

1. Approve SGNO

This process is explained in section 2.1.2.

2. Delete SGNO

Select Delete SGNO, list of SGNO users' data will be listed. To delete just click on red color cross mark icon in respective row.

3. View List of all DGNO users

Select List of DGNO users' option

By selecting financial year, list of DGNO users belongs to particular financial year will be listed.

4. View List of all GAS users

Select List of GAS users' option

By selecting financial year, list of GAS users belongs to particular financial year will be listed and can be viewed.

5. View List of all MSE users

Select List of MSE users' option

By selecting financial year, list of MSE users belongs to particular financial year can be viewed.

Note: Filters available like state, district, and block can be used to see only respective users' data and count.

6. Statewise Statistics

Select the "Statistics" option from the dropdown and state wise statistics will be displayed as shown below.

7. Statistics of Asset Flow

Select the "Statistics of Asset Flow "option from the dropdown. It will show the state wise assets received by the NRSC. User can filter using the start date and end date.

State	Asset Master Count	Asset Details Count	Geo Taggable Assets
Filter by State	Filter by Asset Master Count	Filter by Asset Details Count	Filter by Geo Taggable Assets
ANDAMAN AND NICOBAR	0	0	0
ANDHRA PRADESH	0	0	0
ARUNACHAL PRADESH	1	0	0
ASSAM	570	0	0
BIHAR	559	0	0
CHANDIGHARH	0	0	0
CHHATTISGARH	954	816	816
DADRA & NAGAR HAVELI	0	0	0
DAMAN & DIU	0	0	0
GOA	0	0	0

35 Records

All the above tabular views can be exported as CSV using 'Export' option available in bottom of the page. This is available only in central level log in.

2.2.2 State Level (SGNO) users

SGNO users can

1. Approve DGNO/GAS user belongs to their state

2. Reject DGNO/GAS user belongs to their state

3. Districtwise Statistics of their state

These processes are explained in section 2.1.4.

2.2.3 District Level (DGNO) users

DGNO users can

1. View list of GAS users belongs to their district

2. View list of MSE users belongs to their district

3. Request for assigning to multiple districts as DGNO & View status of requests

4. Blockwise statistics of corresponding district

1. View list of GAS users belongs to their district

Select List of GAS users' option and financial year to see list of GAS users belongs to that financial year.

2. View list of MSE users belongs to their district

Select List of MSE users' option and financial year to see list of MSE users belongs to that financial year.

3. Request for assigning to multiple districts as DGNO & View status of requests

Click on profile, following screen will appear with status of all requests.

To request for another district as DGNO please click on Register for Another district button. Following pop up will appear to select financial year and district to which users are nominated as DGNO. Select the details and click on Request for Approval and Download Registration form. If request submitted successfully, pdf will be downloaded.

4.DGNO can monitor the performance of blocks using the statistics option. Block wise Geotagged Status, Total assets available for geotagging can be visualized as shown below

2.2.4 Block Level (GAS) Users

GAS users can

1. Approve MSE users belongs to their block

2. Reject MSE users belongs to their block

3. Delete MSE users belongs to their block

4. View list of rejected users and approve if required

5. Request for assigning to multiple blocks as GAS & View status of requests

6.Panchayatwise Statistics

7.Assigning the multiple panchayats to the same MSE.

1. Approve MSE users belongs to their block

2. Reject MSE users belongs to their block

3. Delete MSE users belongs to their block

The above 3 processes are similar like the processes explained in previous sections 2.1.4, 2.2.1.

4. View list of rejected users and approve if required

Select the rejected users option and financial year to see list of users rejected for that financial year. If at all account needs to be approved, it can be accomplished by clicking on right tick mark icon in green.

5. Request for assigning to multiple blocks as GAS & View status of requests

Click on profile button and following page with list of requests and status will appear.

If users want to request for another block as GAS please click on register for Another Block button. Pop up will appear to select financial year and block to

which users want to request.

Click on Request for Approval & Download Registration form, if request submitted successfully, pdf will be downloaded and status will be shown as pending, if required can download pdf again by click on Registration form link available.

6.GAS can monitor the performance the panchayats using the statistics option.

7.GAS can assign mutilple panchayats for the same MSE. Click on "Approved MSE" and the list of approved MSE's of corresponding block will be populated in the screen. Click on "assign to another panchayat" and popup window will be populated. Select the panchayat and click on "Approve".
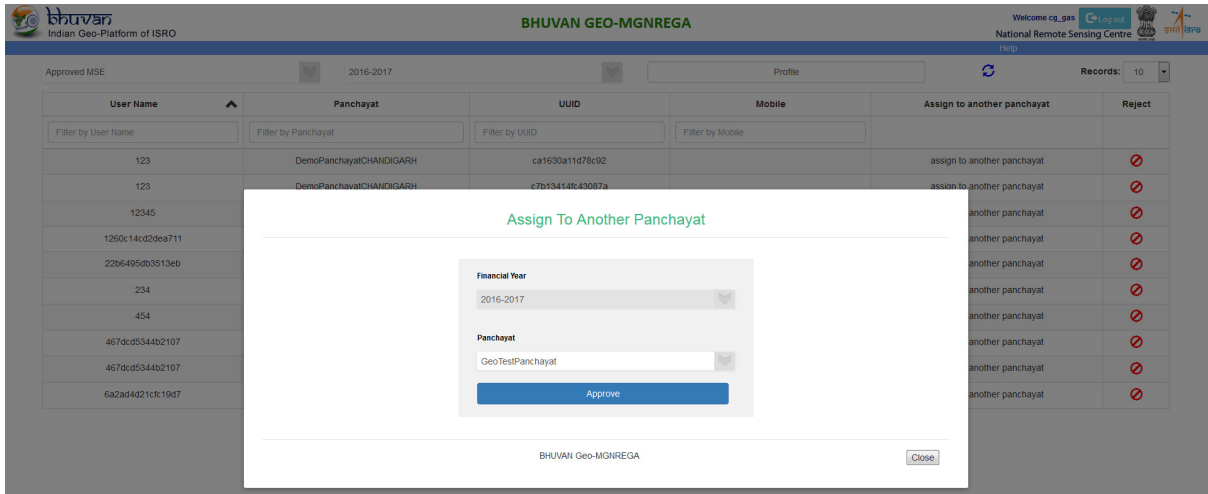
2.3   Creating Bhuvan User Account

A prerequisite for approval is 'Central, SGNO, DGNO, GAS users should have BHUVAN user account'.

1. User can register by clicking on the New user link of the Login screen. This Login screen is common to all Bhuvan applications.
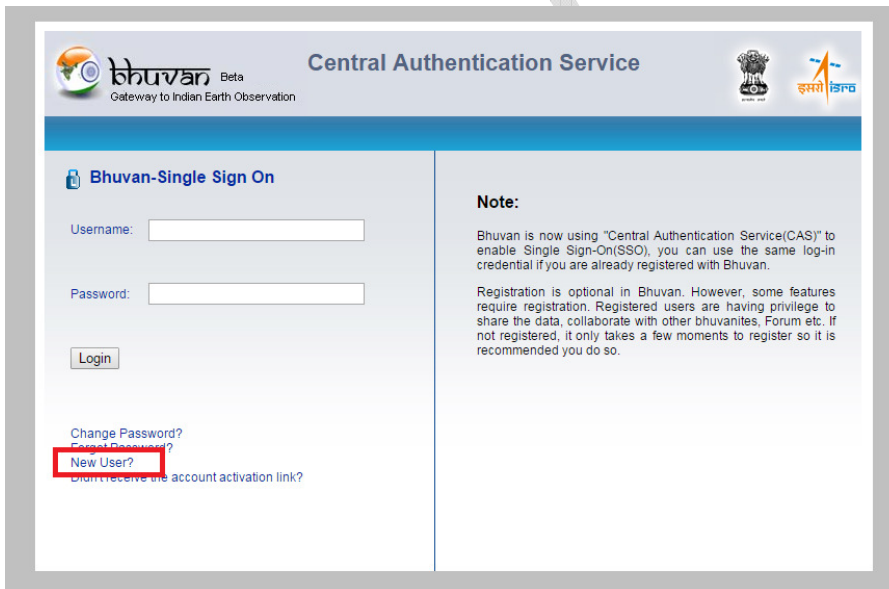
2. On click of New user following screen appears where user has to give his username, Email id, Country and organization details. Filling other details is optional.

Note: For username only alphabets, numbers, period (.), hyphen (-) and underscore (_) are allowed.

3. Once the form is submitted. Following message appears. After that check your email id for activation link.

4. Following is the snapshot of mail which will be received at your email-id. Click on the link highlighted below.

5. Following window appears where you can give your password, to complete registration process.

6. After successfully submitting the form the following screen appears. Now you can use your username and password for Sign- in to any bhuvan application.
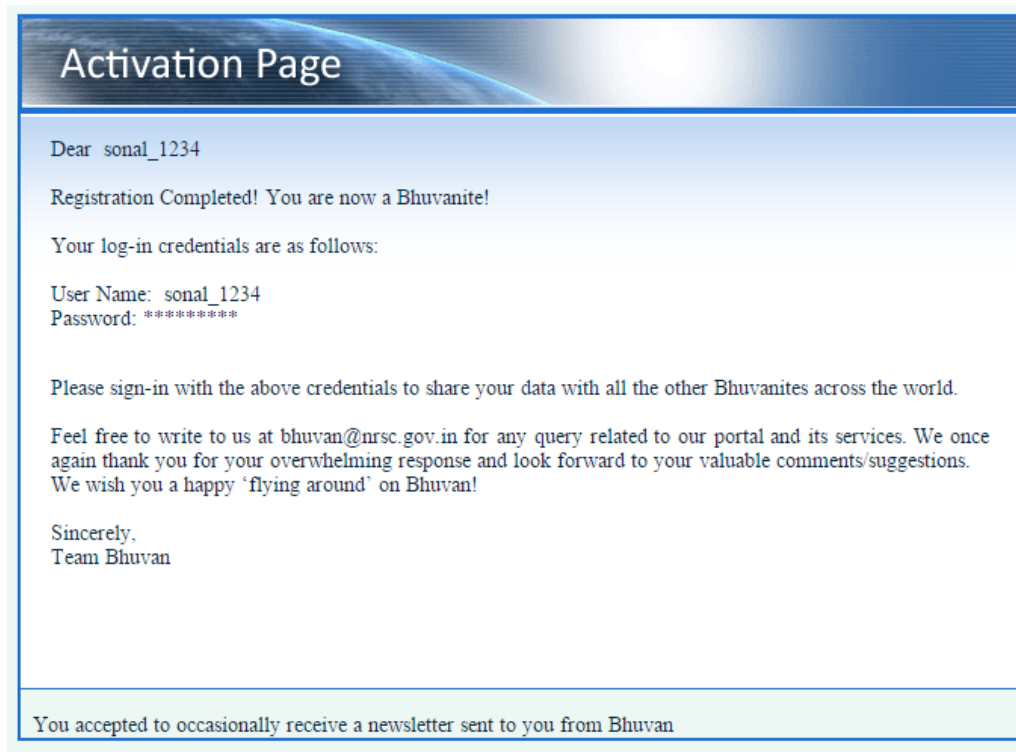
Other Steps - Account Reactivation

7. In case you do not receive activation link - It is likely that you have entered wrong/different email id during registration. Please verify the same by clicking on - ' Didn't receive the account activation link?' of the login screen.

8. On clicking of the link mentioned in step 7. Following screen appears, enter your email id and submit. It will give the status of your registered email id. In case account not-activated, it will re-send the activation link.
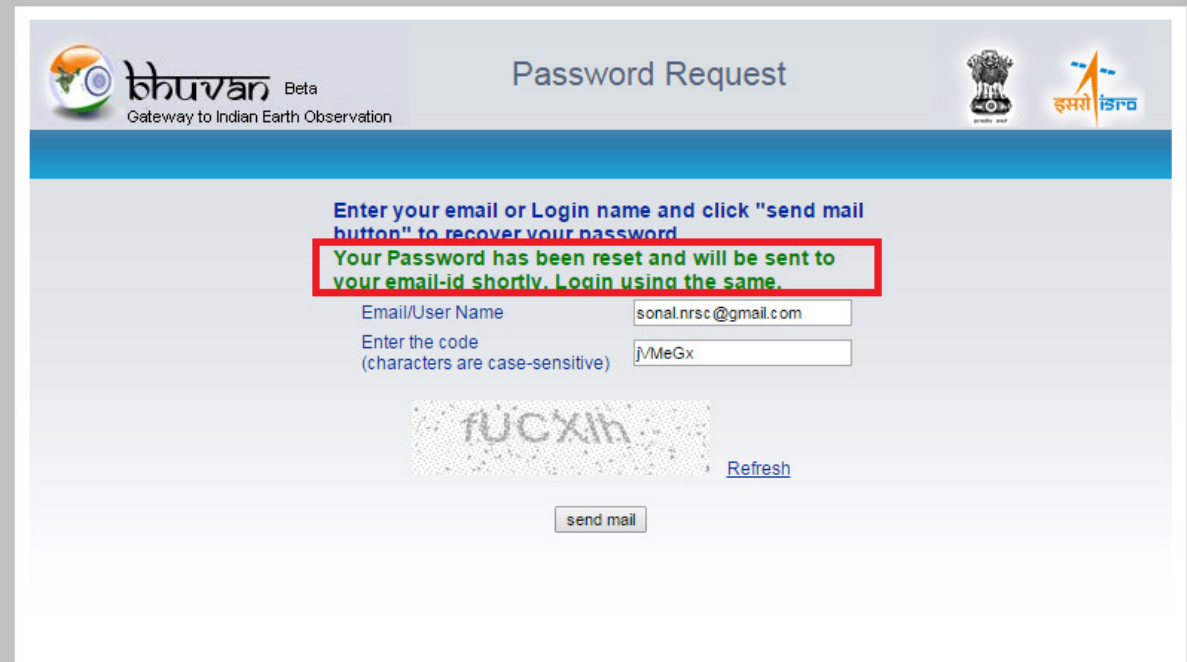
Other Steps - Forgot Password

9. In case you forgot your password click on the "Forgot Password" link to get a new password.

10. By clicking the above link, following screen appears where users can give user name or email id for placing the password reset request. On entering valid username/email-id, an email will be sent to registered mail id. It may take few minutes to receive the mail. So need not submit the request multiple times.

11. Following is the snapshot of email received for "forgot password" request. The same can be used for sign-in to Bhuvan. It is recommended that the user changes password from the default system-generated one.

Note - Do not add extra space while entering the password in log-in form. It is suggested to explicitly type the password in the form provided (login screen) instead of using copy-paste of the password from mail.
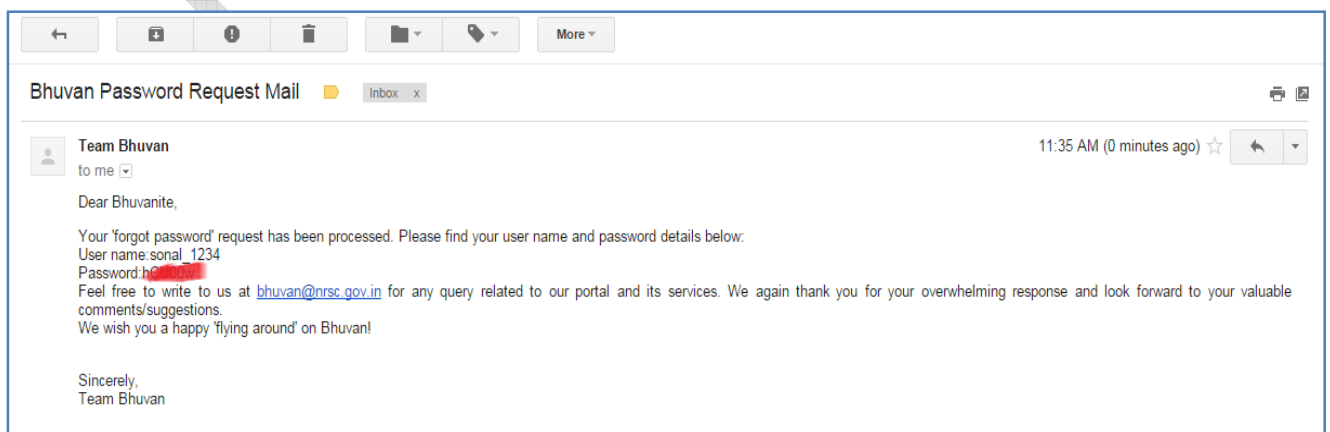
Other Steps - Change Password

12. In order to change password, click on "change password" link of the login screen as below and by entering the existing username and password, the password can be changed successfully.

3. MGNREGA Assets Visualisation, Moderation and Report Generation

This web-based application allows users to visualize the geo-tagged locations. And it also allows authorized users to moderate (Map and Tabular view) the collected geo-tagged points before it is made visible to the public and get the summary and detailed of the points geo-tagged in their respective jurisdiction.
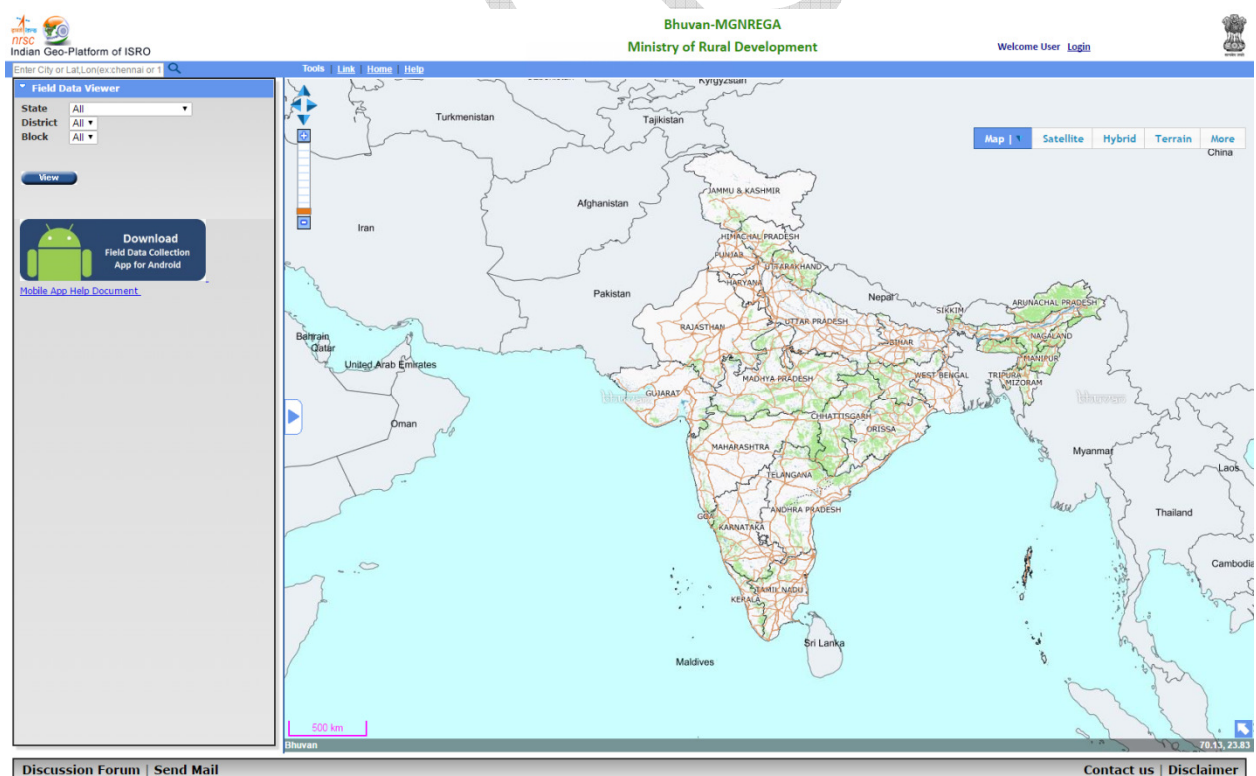
3.1 Visualisation

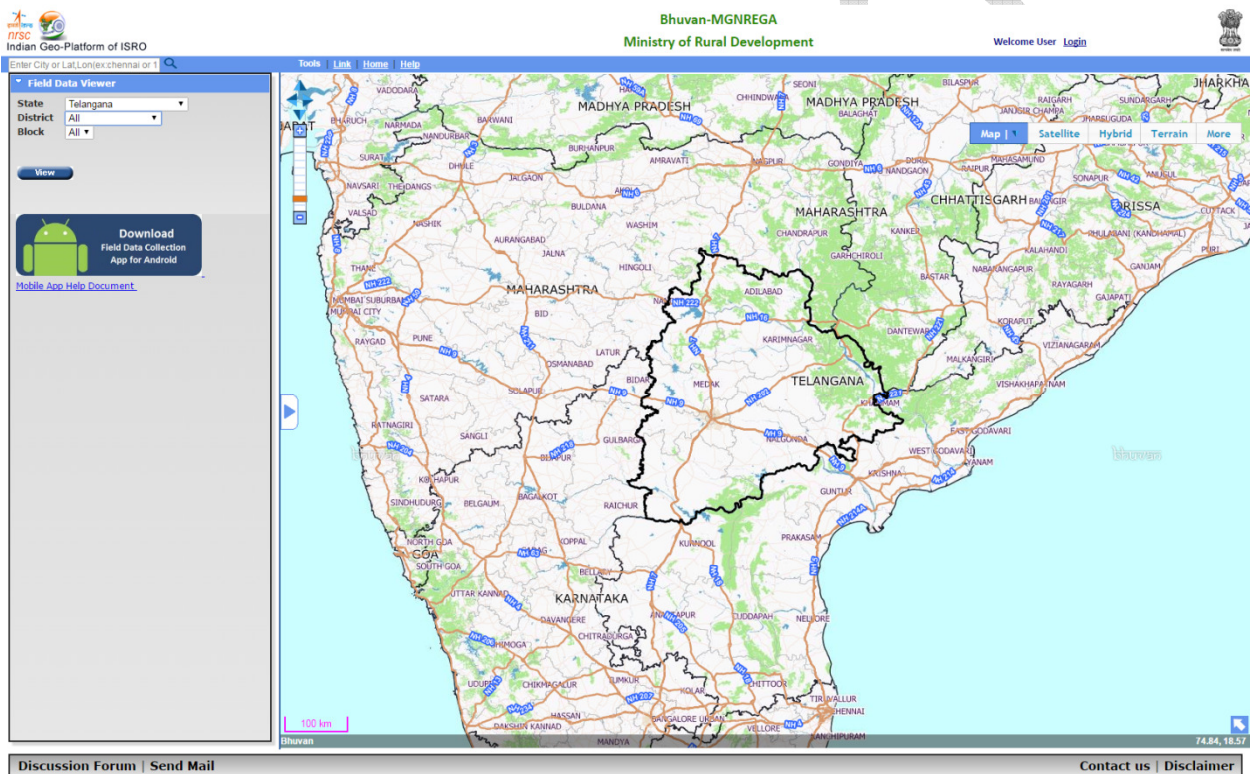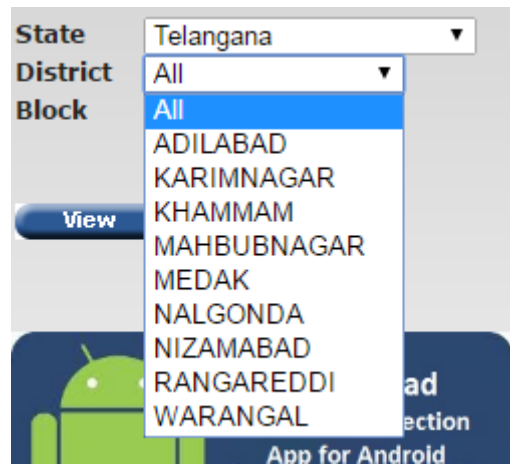Following are the steps to access this web application -

STEP: 1

Visit the URL for Bhuvan - MGNREGA application -

http://bhuvan.nrsc.gov.in/governance/mgnrega

Select the state from drop down. eg: [State Telangana ▼]

The map will be zoomed to Telangana state. Users can also select District and block-wise view.

After selecting the state click on view button, it will display the total number of geo-tagged points in that state. Only points accepted by the moderators will be shown to the public. Thus in below snapshot it shows 21 points.
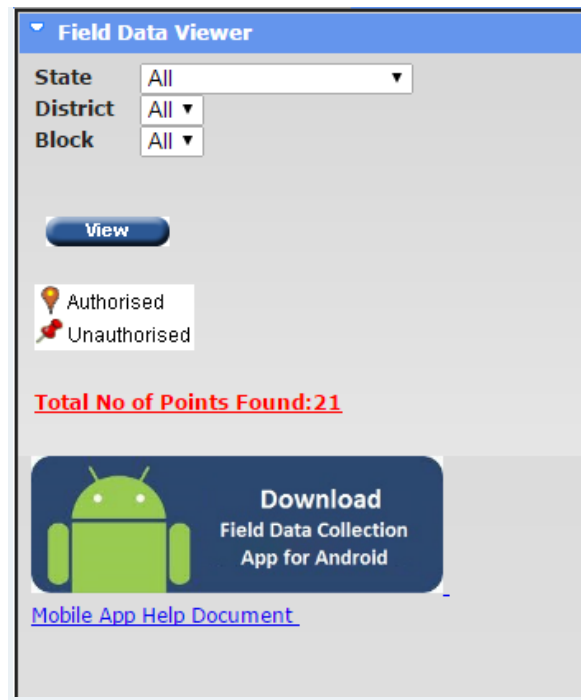
STEP:2

To see all the data, authorized user should login. There are different types of logins - Central, State, District and Block.

Moderation privileges are given only to the Block level.

Below procedure is explained for user with central login id.

STEP: 3 (Central User)

The central user will be able to see the state-wise statistics.

Statistics

GeoTagging Status for the country
Geotagged information last updated on :2016-10-21 15:27:39

Total NREGA Assets Geotagged:148636
Yet to be Moderated :21197
Moderated :122732
Accepted :111390
Rejected :11342
Flagged :4707

Performance of Country:

State Name	Total	Yet to be Moderated	Moderated	Accepted	Rejected	Flagge
ARUNACHAL PRADESH	801	41	752	637	115	8
ASSAM	352	13	339	252	87	0
BIHAR	3464	227	3126	2980	146	111
CHANDIGHARH	9566	5596	435	375	60	3535

Statistics

PUNJAB	59	0	59	50	9	0
RAJASTHAN	4863	1097	3733	3422	311	33
SIKKIM	189	70	119	92	27	0
TAMIL NADU	9811	1003	8805	8452	353	3
TELANGANA	20981	1378	19532	17998	1534	71
TRIPURA	70	7	63	55	8	0
UTTAR PRADESH	1080	177	885	750	135	18
UTTARAKHAND	737	154	580	466	114	3
WEST BENGAL	12405	1551	10848	9449	1399	6

User Registration Status

Total SGNO users - 34
Total DGNO users - 199
Total GAS users - 1395
MSE

Total	Approved	Pending	Deleted
34823	16642	12166	6015

STEP:4 (State User)

The state user will be able to see the district-wise statistics for the state. Also user will be able to have option for authorizing District and Block level users for the concerned state.

STEP:5 (District User)

The district users will be able to see the district -wise statistics for their district.

Statistics

GeoTagging Status for District :
Geotagged information last updated on
:2016-07-21 18:41:54

Total NREGA Assets Geotagged:2
Moderated :1
Accepted :0
Rejected :1

Performance of Districts:

Block Name	Total	Moderated	Accepted	Rejected
MAYONG	2	1	0	1

STEP:6 (Block User)

The block users will be able to see the statistics of their block/s. Also will be able to have option for authorizing Panchayat level users for the concerned block. Moderation privileges are also given to this user.

Field Data Viewer

State   All
District All
Block   All

Enable Moderation

Authorize Panchayat-level Surveyors

Statistics

View

Statistics will be seen as below -

3.2 Moderation

Moderation privilege is given to Block (GAS) level users only. This can be done in 2 levels i.e. i) Map view and ii) Tabular view

3.2.1 Map view

After login, user will get a new button named 'Enable Moderation'.

STEP: 1

To perform moderation operation click on 'Enable Moderation' icon to moderate the points.

Select any point by clicking on it. After selecting the point a pop up will display the information of geotagged points along with the photos.

User has an option to accept, edit or reject any point.

1. To check the Distance between Photo locations and Geo-tagged location, user can click on 'Analyse' link. If no information is displayed, this implies the Photo location is not captured properly. Please note - Latitude Longitude values are rounded-off to 2 decimal places only for display.
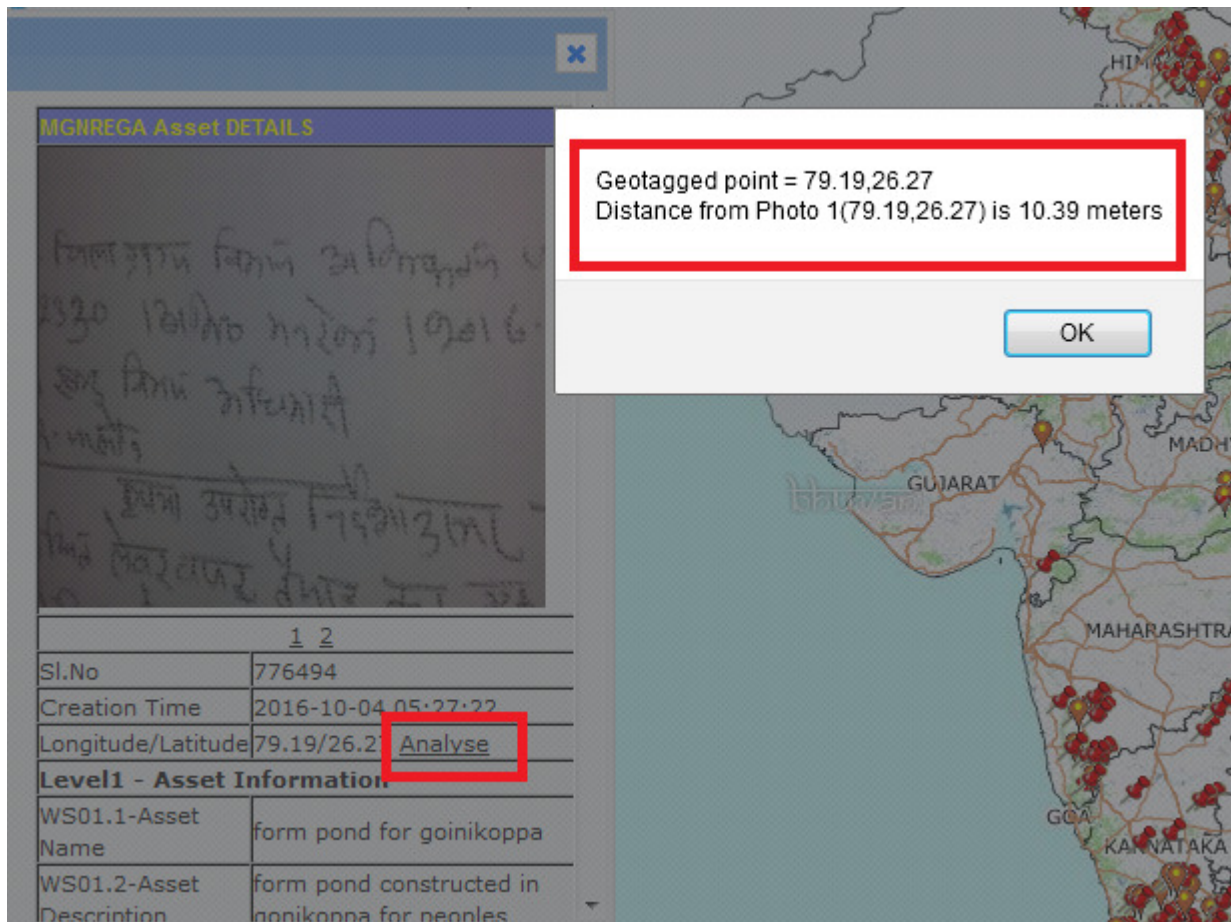
2. To reject the geo-tagged MGNREGA Assets click on reject button on bottom of pop up. After clicking on reject button a new box will open i.e 'Reason for reject'. Enter the reason for rejection and select the reject button. Point will be rejected successfully.

3. To accept the geo-tagged point, click on accept button on bottom of pop up. Another pop up will open. Click ok button to accept the point. Click cancel button if not. If user clicks on ok button, the point is accepted. Another pop up will open and gives the message like accepted successfully. And the point will disappear from the map for further moderation.

4. To Flag a work code for anomalies, user can select "Flag work" option and then give reason for flagging.

3.2.2 Tabular view

Table View for moderation is available to the user by clicking on the "Tabular View Moderation" link on the Web Portal.
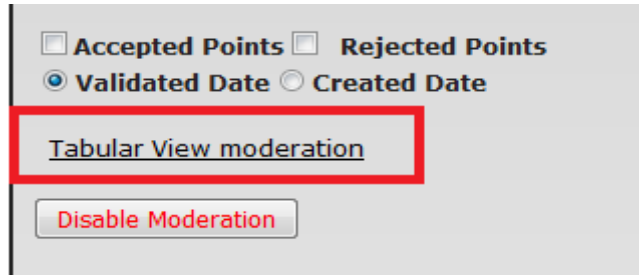
On click of 'Tabular view Moderation' option, user will get following screen having details of

1. Asset id

2. Work code

3. GPS Accuracy

4. MSE user name

5. Panchayat in which asset is present

6. Time at which geo-tagging happened

7. Link to view in the map

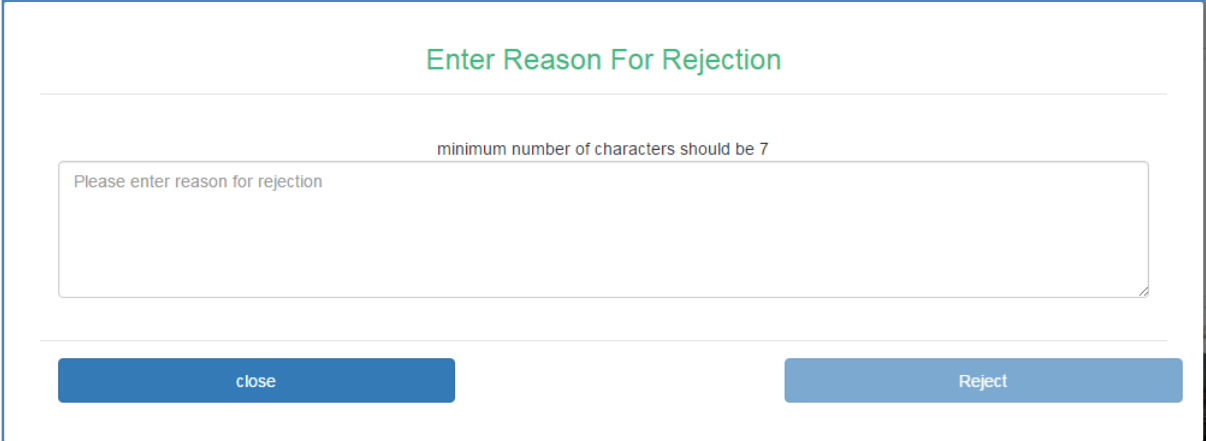8. Two geo-tagged photos if available

Along with Accept, reject and flag options.
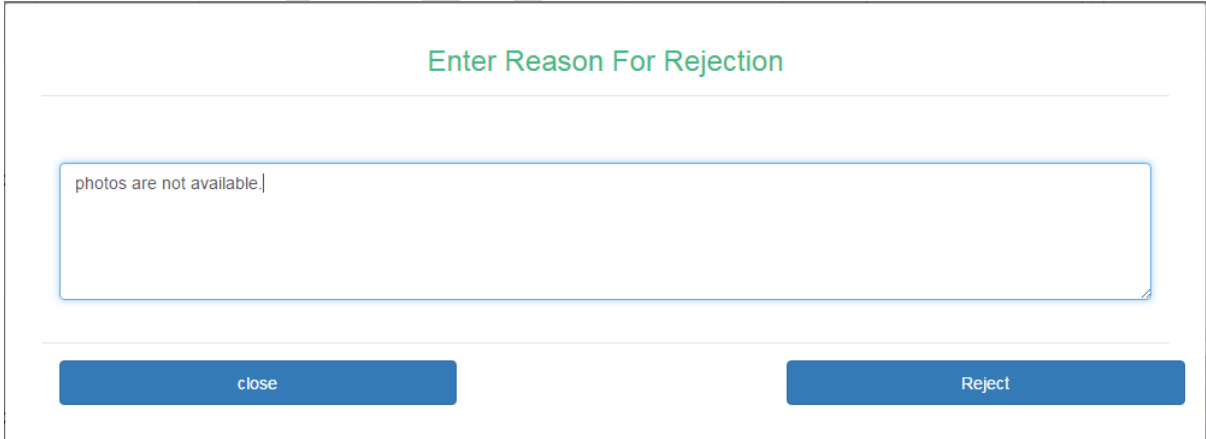
1. Accept the geo tagged photos

To accept geo tagged photos click on accept icon . If the action is successful, List will be refreshed with list of assets pending for moderation.

2. Reject the geo tagged photos

To reject geo tagged photos click on reject icon . Pop up will open to enter reason for rejection.
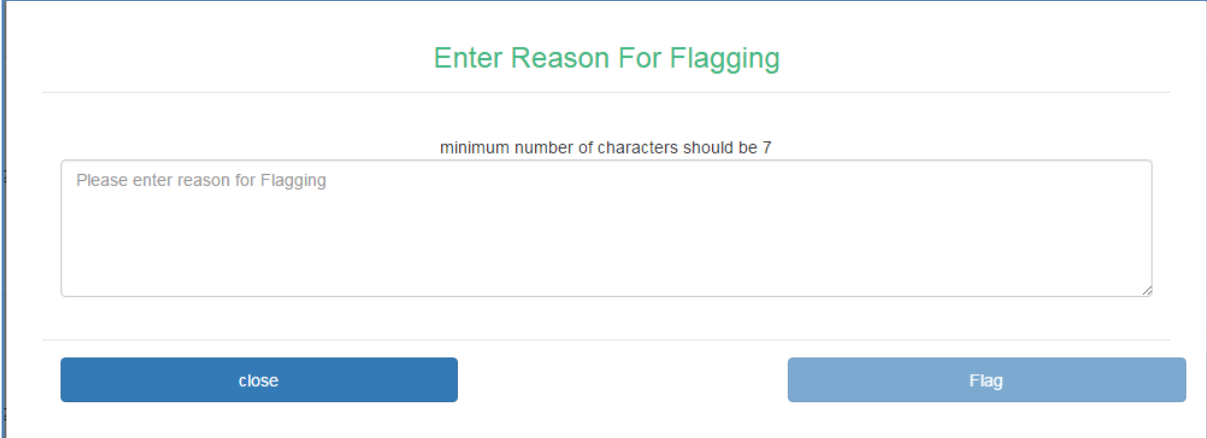
If action is successful List is refreshed with list of assets pending for moderation.

3. Flag the asset (asset id and work code)

To flag an asset , click on flag icon , pop up will open to enter reason for flagging.
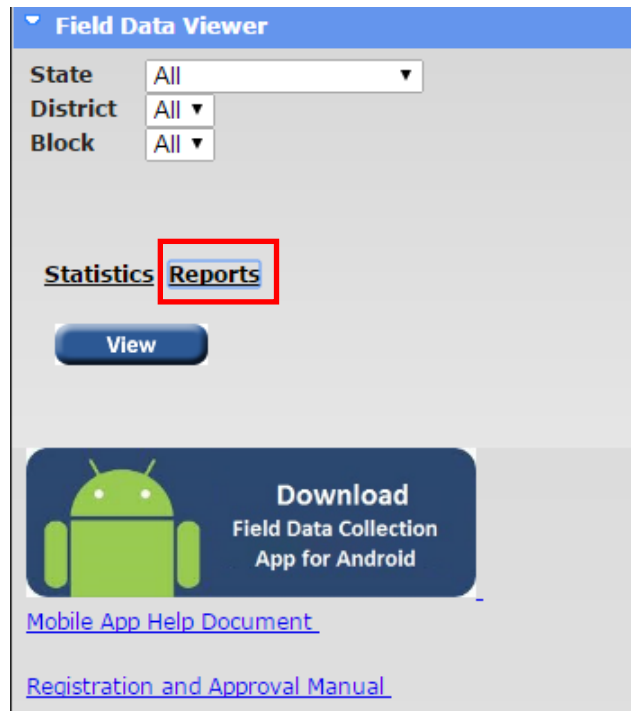

Please enter the reason and click Flag.

If action is successfully performed, List will be refreshed with list of assets pending for moderation.

3.3   Report generation

As explained in section 3.1, summary/ statistics is provided in all user levels. In order to have the detailed report to download, report module is in place along with statistics option as shown below.

On click of the report, popup will open with various options like state, dist and block selection for central users, dist and block selection for state users and block selection for block users.

When the report is drilled down till block level, panchayat level summary will be downloaded as excel as shown below, otherwise the summary will be downloaded as dist and state.