

User Manual

Mobile Application



National Database for Emergency Management

Geo-Portal for Emergency Management

NDEM Version 3.0

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1.1 Background

National Database for Emergency Management (NDEM) is a GIS database consisting of core, hazard specific and non-spatial data for addressing emergency management in the country. The NDEM Version 3.0 consists of multi-scale database of geospatial database for entire India at 1:50,000 scale, multi-hazard prone districts at 1:10,000 scale, and mega cities at 1:2,000 scale. The database is integrated into a uniform framework with set of customised Decision Support Tools. Further, set of Mobile Apps are customised for relief management using NDEM Version 3.0. These applications are explained in great detail in next section.

1.2 Mobile Apps

Use of mobile and GPS technologies in disaster management should be seen as a new era to aid better management of disaster relief operations. The use of mobile applications in disaster management and emergencies has greatly improved due to the leading advances in telecommunication and remote sensing techniques.

NDEM has developed four types of mobile applications namely,

- ❖ Incident Reporting
- ❖ Relief Management
- ❖ Geo-tagging of Emergency Facilities using Online Maps
- ❖ Geo-Spatial Data Collection of Emergency Facilities




1.2.1 Incident Reporting

Any relief & rescue operations start from the incident reporting followed by the communication to the respective authorities, analysis of the magnitude of the event etc. Incident can be reported by State / NDRF official through mobile application or NDEM portal.

The purpose of the incident report is to intimate the geo-location of the incident along with other details of incident such as time, place of occurrence, etc., to the authorized

officials for taking immediate actions. Once incident is reported, SMS would be delivered to concerned Battalion head and to Headquarters. The received incident appears in Blue color. Battalion has to forward the incident to Headquarter for further approval. After receiving forwarded incident, Headquarter can visualize the incident details in NDEM geoportal. Incident Visualization is explained in NDEM User Manual. The forwarded incident appears in Green color. Once the incident is approved, the Incident icon color changes to Red.

Color coding of various stages of Incident:

-  Received Incident
-  Forwarded Incident
-  Approved Incident

1.2.2 Relief Management

Relief management is an application developed on Android platform to support various relief activities during emergency situations. For example, during disaster time, Relief manager would like to have real time information from the incident location along with field photographs. The application contains four different modules customized for various calls.

- Distress Call: It is similar to SOS where user can send the disaster location information with time stamp in a single click.
- Emergency Call: In addition to the location information, user can send short message for seeking specific help like, 'need medical help'.
- First Information Report: This module allows the user to send information on ground reality along with field photographs.
- Summary Report: This module helps the user to sum up the disaster situation with quantitative details like people affected, damage statistics etc., along with relevant photographs.

The user can report the situation through mobile app and it gets saved in a centralized database. The application uses GPS technology to grab the location coordinates automatically along with time stamp. The details can then be visualized on the web portal with an authorized login. This real time field information will be of immense help to the District Commissioner/ Relief Manager not only to assess the situation, but also to track the incident in a fair manner. Detailed results will be explained in consecutive chapters.

(Note: List of the parameters can be modified as per user requirement)

1.2.3 Geospatial data collection

Geospatial information on various emergency facilities like hospitals, relief shelters are not widespread. This module enables to collect and transmit information of emergency facilities along with photographs to the central server. The organization and visualization of this information is being done at server end on web portal. Information about various categories of facilities can be sent from the mobile devices such as medical facilities, relief shelters, fire stations, railway stations, police stations, airports, dams, godowns etc.

(Note: List of the parameters can be modified as per user requirement)

1.2.4 Geo-tagging of Emergency Facilities

Geotagging of emergency facilities app provides the user to tag emergency facilities on any online maps available in mobile device. This information is sent to the centralized server. This application is very much useful for collection of emergency facilities by utilizing the current cellular technology and using public networks like (GPRS).

(Note: List of the parameters can be modified as per user requirement)

1.3 Purpose of the document

The main purpose of this document is to provide stepwise operational procedure for using NDEM mobile applications. The notable features of mobile applications are incident reporting, attribute collection, geo-tagging of emergency facilities.

1.4 Mobile Device specification Requirement

NDEM Mobile applications work on Android Platform. The following table gives the device specifications required for proper functioning of mobile application.

Operating System	Display	Internet Connectivity	Memory	Camera	GPS
Android 2.3 and above	4.8" or above HD super AMOLED display	GPRS / WIFI	SD card support / High Internal Memory	High Resolution camera	GPS required

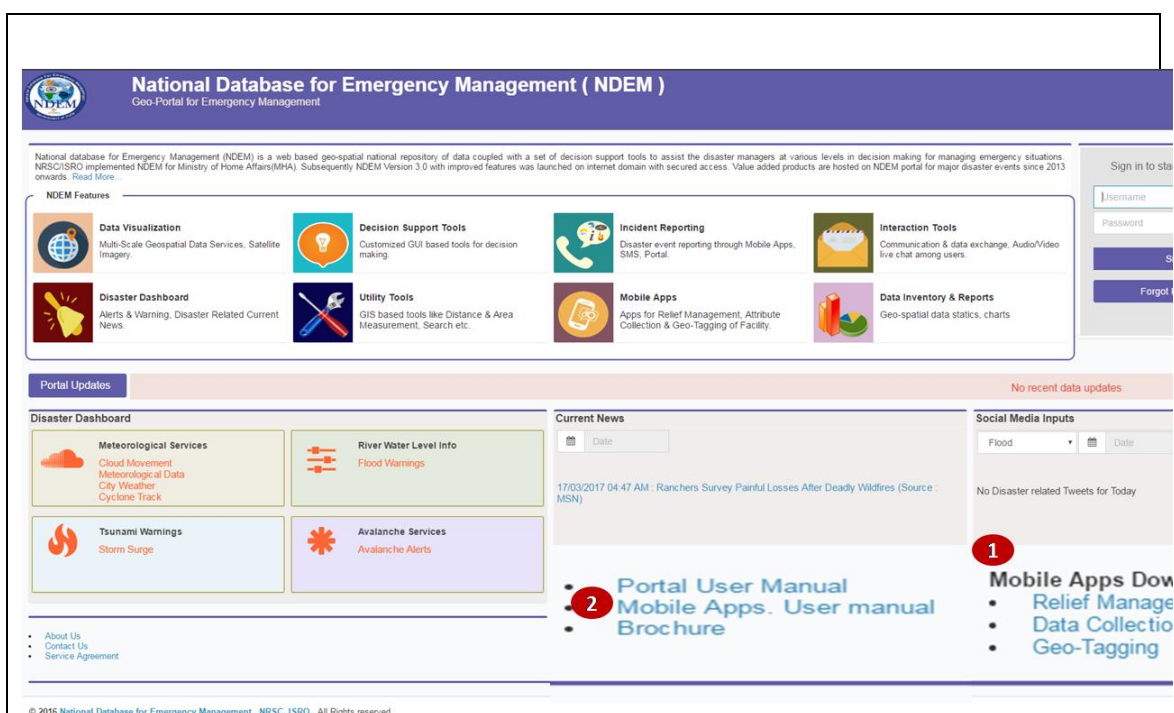
Table 1.1: Mobile Device specifications

2.1 How to download Mobile Apps?

Mobile Apps customised for Relief Management, Attribute Collection and Geo-tagging of emergency facilities are available on NDEM geo-portal. In the home page of NDEM geo-portal, the Apps are downloadable in Mobile Apps Download link.



- We can download the applications from NDEM geo-portal.
- NDEM V3.0 can be accessed on all modern browsers with active Internet Connectivity.
- To access the portal, open the Web Browser and type the URL :
<http://ndem.nrsc.gov.in> (Figure2.1)



1. Download Mobile Application

2. Download Mobile User Manual

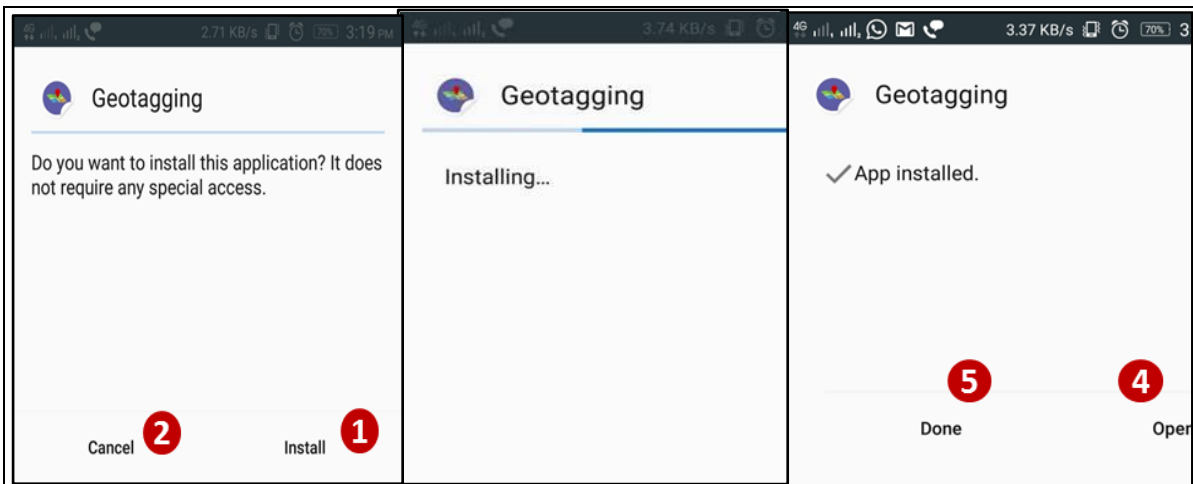
Figure 2.1 Mobile Apps download from NDEM Geo-portal

2.2 Installing Mobile Apps

As mentioned above, user can download NDEM Mobile applications from NDEM Geo-portal. As part of this section, operational procedure to install NDEM mobile applications (say Geo-tagging) is explained here.



- After downloading NDEM application, click on the downloaded APK and then click on Install as shown in figure 2.2.



1. Install button to install the application on mobile

2. Cancel button to cancel the installation

3. Progress bar to show the application installation

4. Done button to complete the installation.

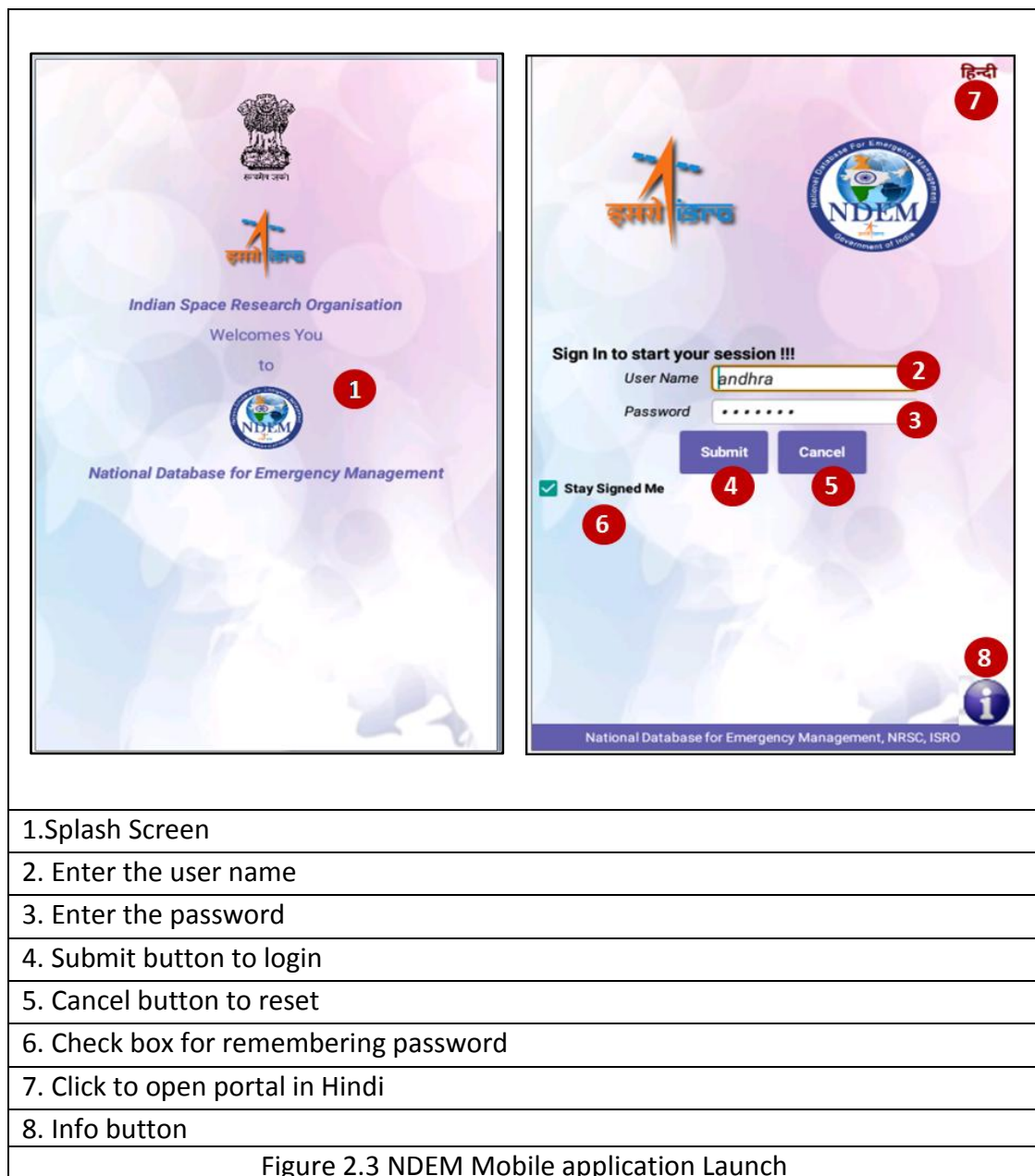
5. Open button to open the installed application

Figure 2.2 Installing Mobile Applications

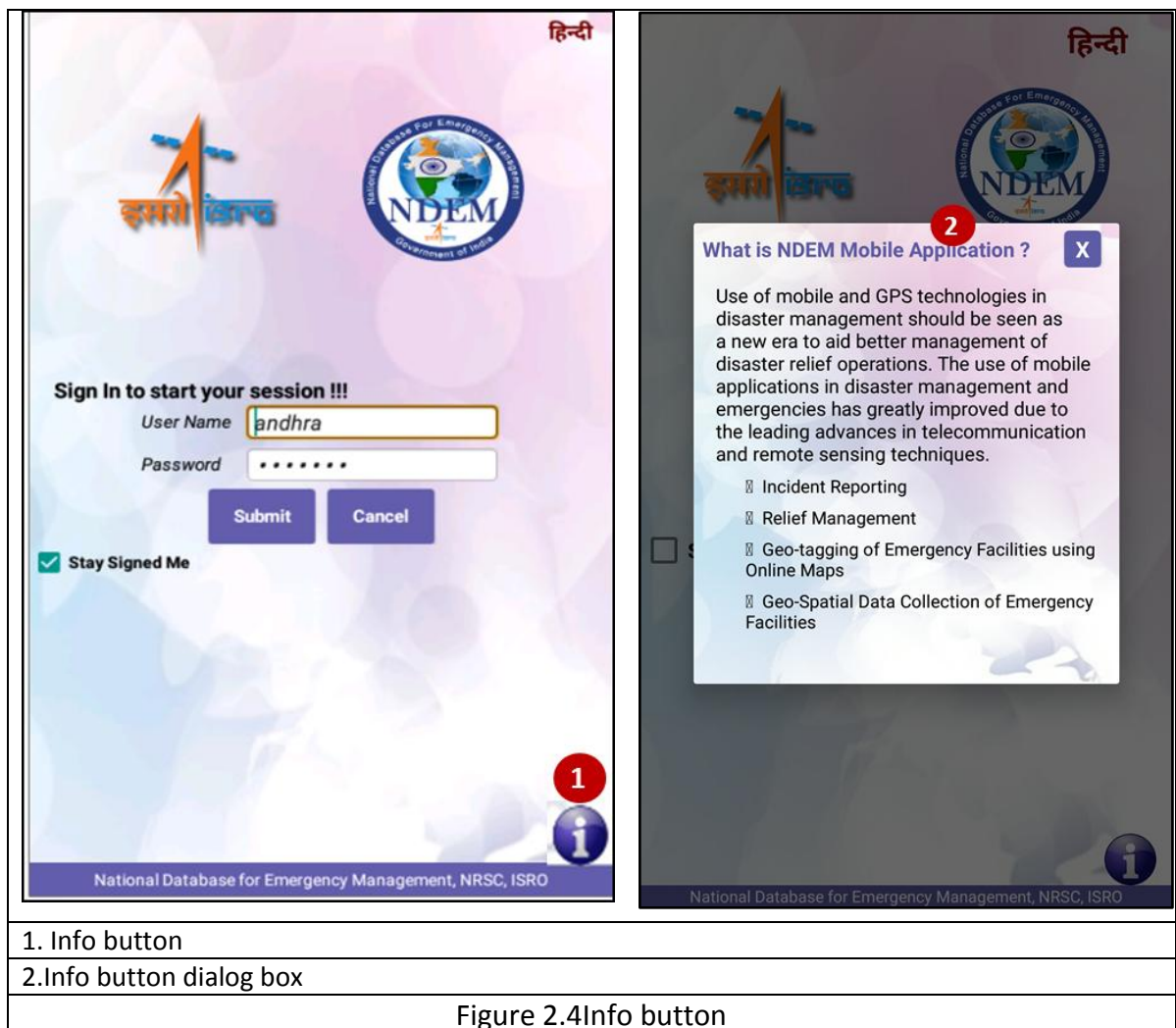


- After proper installation of Geo-tagging application, Geotagging icon appears as part of applications menu. Click on it to launch the app.
- Successfully launching an application opens Login screen as shown in figure 2.3.
- Enter valid user credentials to login to the application. Credentials for NDEM geo-portal and web application are same.

! In case, you are not able to login, kindly check your credentials or contact NDEM admin for help for password recovery! Before that, make sure you have proper internet connectivity!!



- Click on 'i' (info) button. Information button describes the functionality and usage of that module. Info button is present for all modules in the application (figure 2.3)



- NDEM Mobile applications are available in bi-lingual mode. Click on ‘हिन्दी’ to access the portal in Hindi.

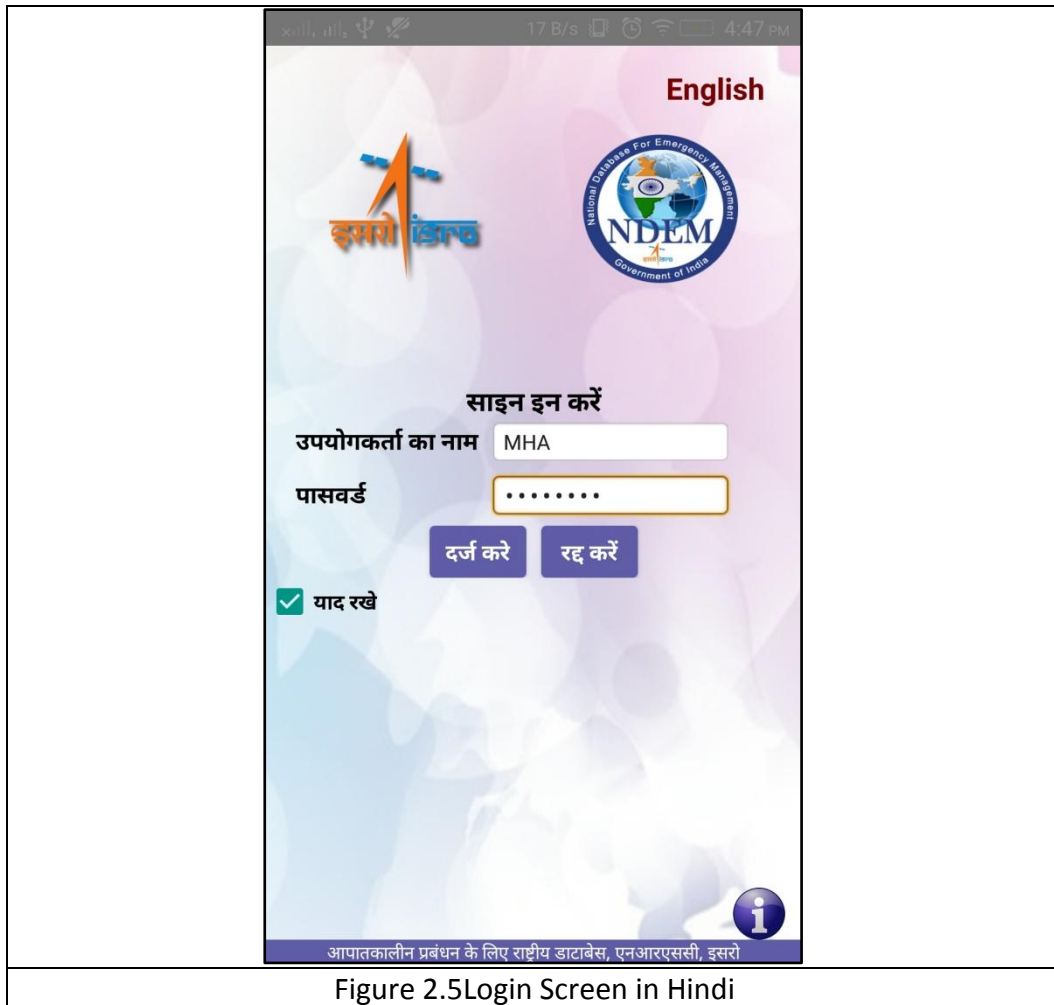


Figure 2.5 Login Screen in Hindi



- Successful Authentication of user credentials leads us to home page of specific applications. Detailed operational procedure for each application is explained in following sections.



3.1 Incident Reporting

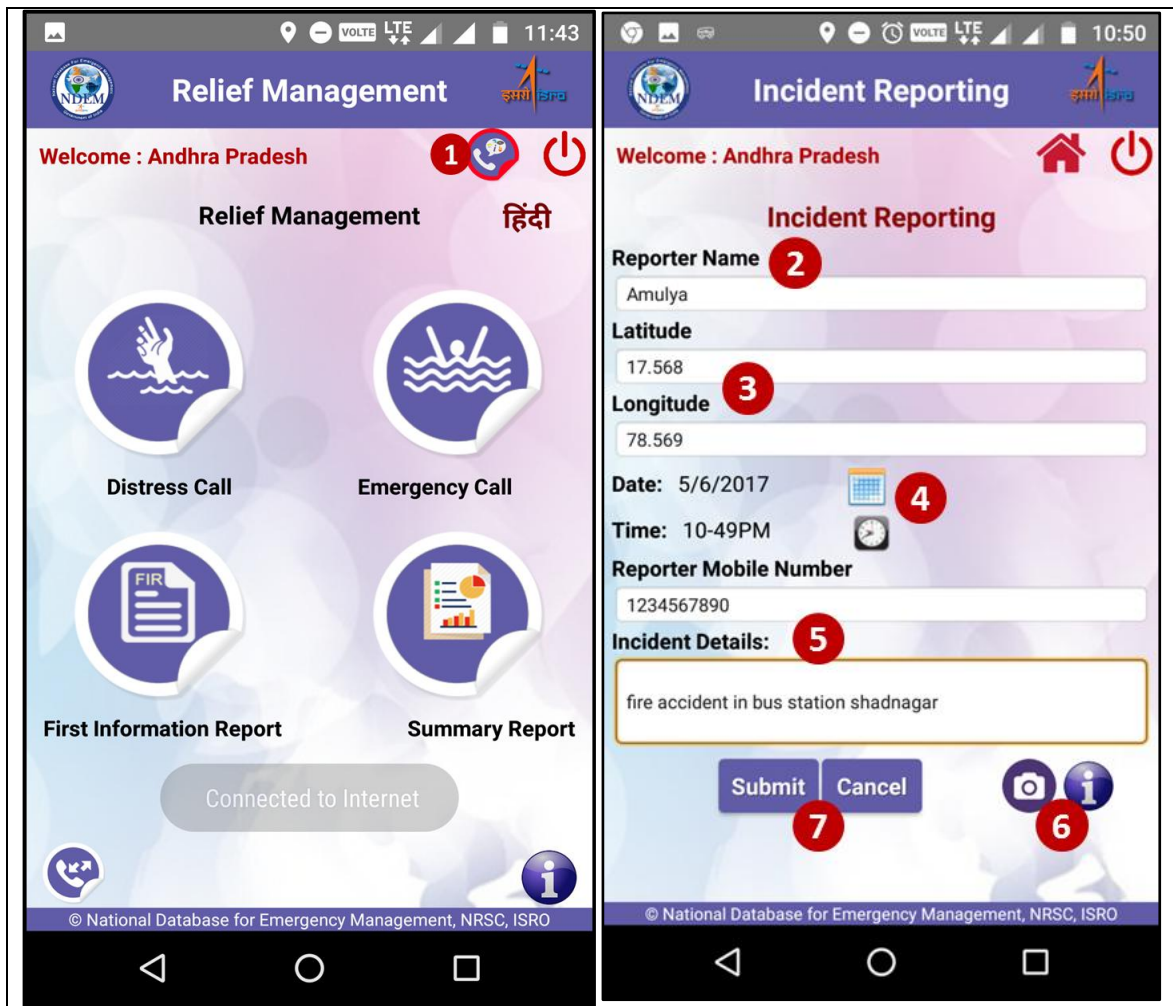
3.1.1 Reporting of Incident

Incident reporting has been given a generic module in all the apps for easily reporting to the control room which will further enable the disaster manager for quick planning of disaster event. The purpose of the incident report is to intimate the geo-location of the incident along with other details of incident such as time, place of occurrence, etc., to the authorized officials for taking immediate actions. User can report incident from mobile applications, or via SMS or through portal. In this section, we will learn, how to report incident through mobile Apps.



- Incident Reporting module is available in all three mobile applications.
- Incident can be reported by clicking on 'Incident Reporting' icon, entering details of incident (location coordinates, date, time, details of reporter etc.) and by clicking "Submit" button. 'Incident reporting' module from Relief Management Application is shown in following figure (figure 3.1)
- Location coordinates can either be entered manually or will be auto-fetched if GPS is enabled.
- User can send photographs of Incident by clicking on camera button.

! All the three mobile applications have Incident Reporting Module. All the modules are available in bi-lingual mode. Info button in Incident Reporting gives brief description about the module.



1. Incident Reporting button

2. Enter reporter name

3. Enter geo-coordinates of incident location (If GPS enabled, coordinates will be auto-filled.)

4. Select time and date.

5. Enter reporter number and brief description about the incident. (Ex: Fire accident in Gangtok at 18th Jan 2017, 10:35 am)

6. Camera and Info buttons

7. Submit and Cancel buttons

Figure 3.1 Incident reporting



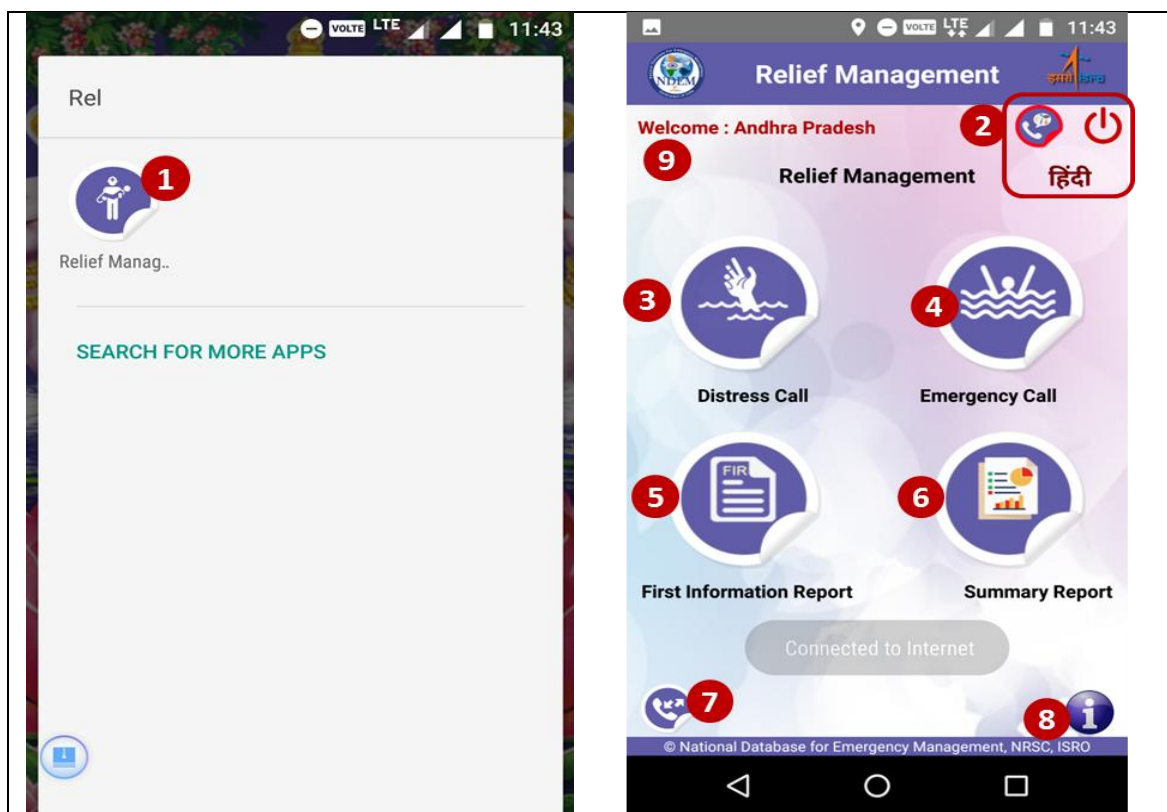
3.2 Relief Management

3.2.1 Relief Management Home Screen

Relief Management application is used by field officials to send calls or quick information about the disaster during disaster response activities. The information that can be sent from the mobile device is organized into the following four modules.



- Click on “Relief Management” Application Icon.
- User can visualize five different modules namely, Distress Call, Emergency Call, First Information Report, Summary Report and Call Summary (figure 3.2) along with Incident Reporting module.



1. Click on Relief Management application from Apps Menu

2. Incident Reporting, Home and Hindi Buttons

3. Distress call

4. Emergency call

5. First information report button

6. Summary report button

7. Call summary button


8. Info button

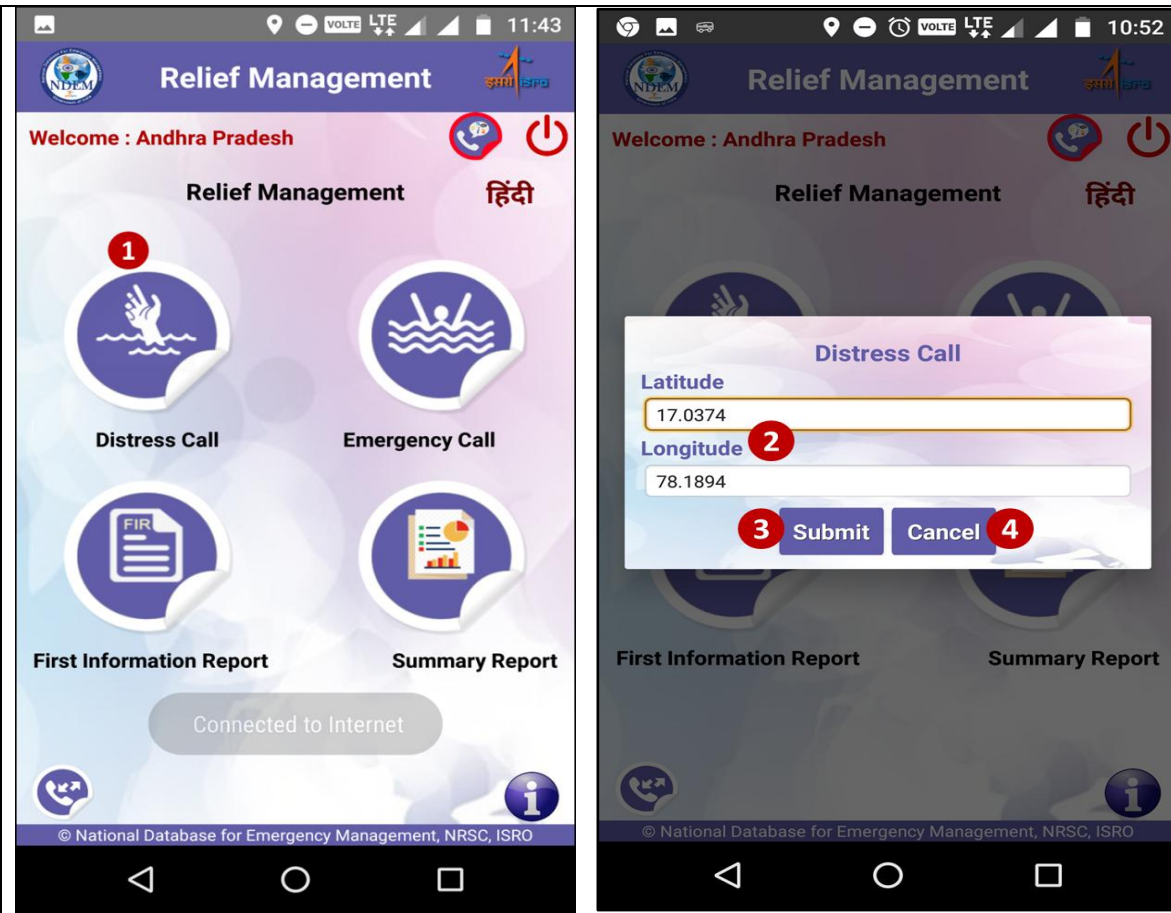
Figure 3.2 Relief Management Application

3.2.2 Distress Call

It is like a SOS (Short Information System) message. The module sends a pre-defined short message along with location coordinates and mobile ID with time stamp.

To send Distress Call,

- 
- Click on “Distress Call” button.
 - If GPS/location is enabled, geo-coordinates are fetched automatically. Distress call is sent by clicking on “Submit Call” button (figure 3.3).




- | |
|--|
| 1. Distress call button |
| 2. Enter the geo-coordinates of disaster location (latitude must be in numbers only for ex: 17.0712 and 78.2949) |
| 3. Submit call button to send the information |
| 4.Cancel button |

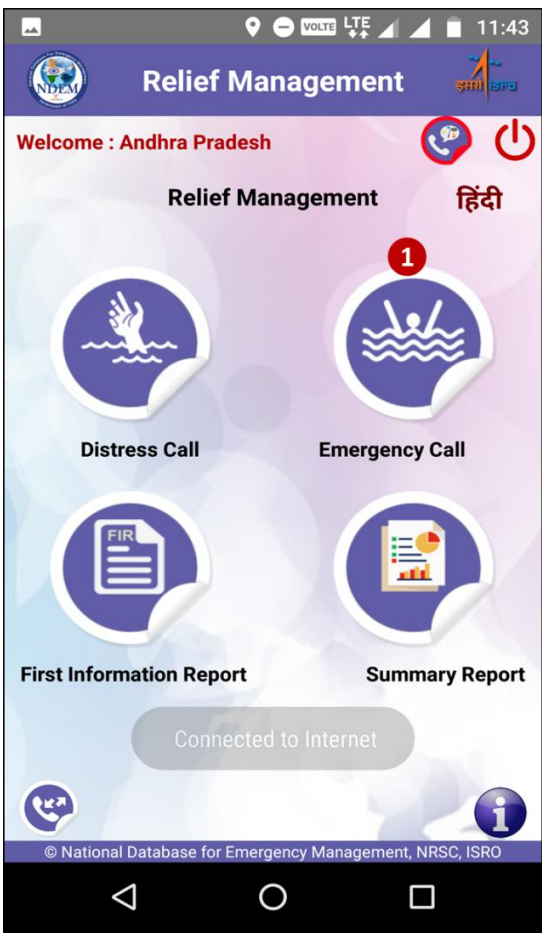
Figure 3.3 Distress Call

3.2.3 Emergency Call

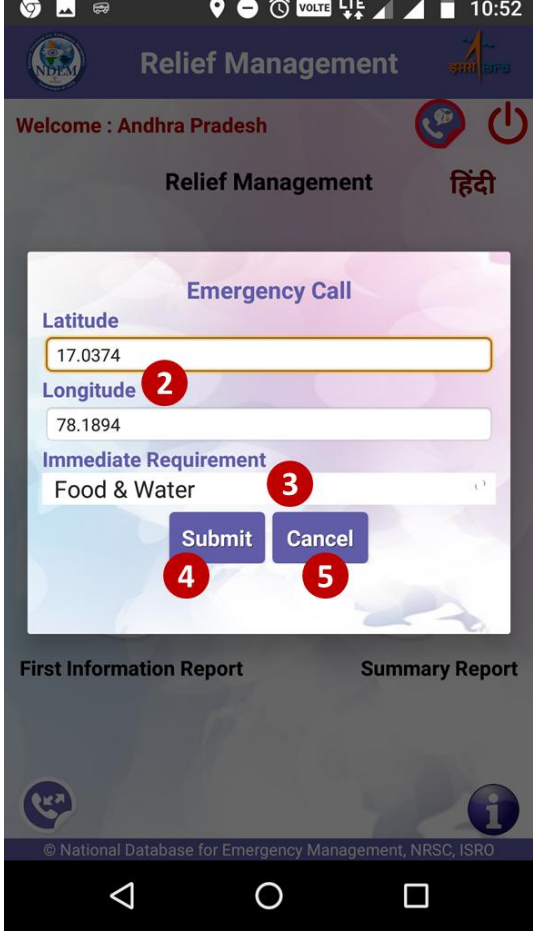
It is used for sending a short message from the disaster site requesting specific help / support such as “send water bottles”, “send medical kits” etc. To send Emergency call,



- Click on “Emergency Call” button.
- If GPS/location is enabled, geo-coordinates are fetched automatically.
- Select Immediate Requirement from the drop down menu. New requirement can be dynamically added by clicking on ‘Others’. Then, click on “Submit Call” to send emergency call (figure 3.4).



The home screen of the Relief Management app shows a welcome message for Andhra Pradesh. It features four main buttons: Distress Call, Emergency Call (marked with a red '1'), First Information Report, and Summary Report. A 'Connected to Internet' status is shown at the bottom.



The Emergency Call form is displayed, showing fields for Latitude (17.0374) and Longitude (78.1894) (marked with a red '2'). Below these is a dropdown menu for Immediate Requirement, currently set to 'Food & Water' (marked with a red '3'). At the bottom are 'Submit' (marked with a red '4') and 'Cancel' (marked with a red '5') buttons.

1. Emergency call button.

2. Enter the geo-coordinates of disaster location (latitude must be in numbers only for ex: **17.0712** and **78.2949**)

3. Select the Immediate Requirement option (Ex: Food & Water)

4. Submit call button to send emergency call

5. Cancel button

Figure 3.4 Emergency Call

3.2.4 FIR (First Information Report)

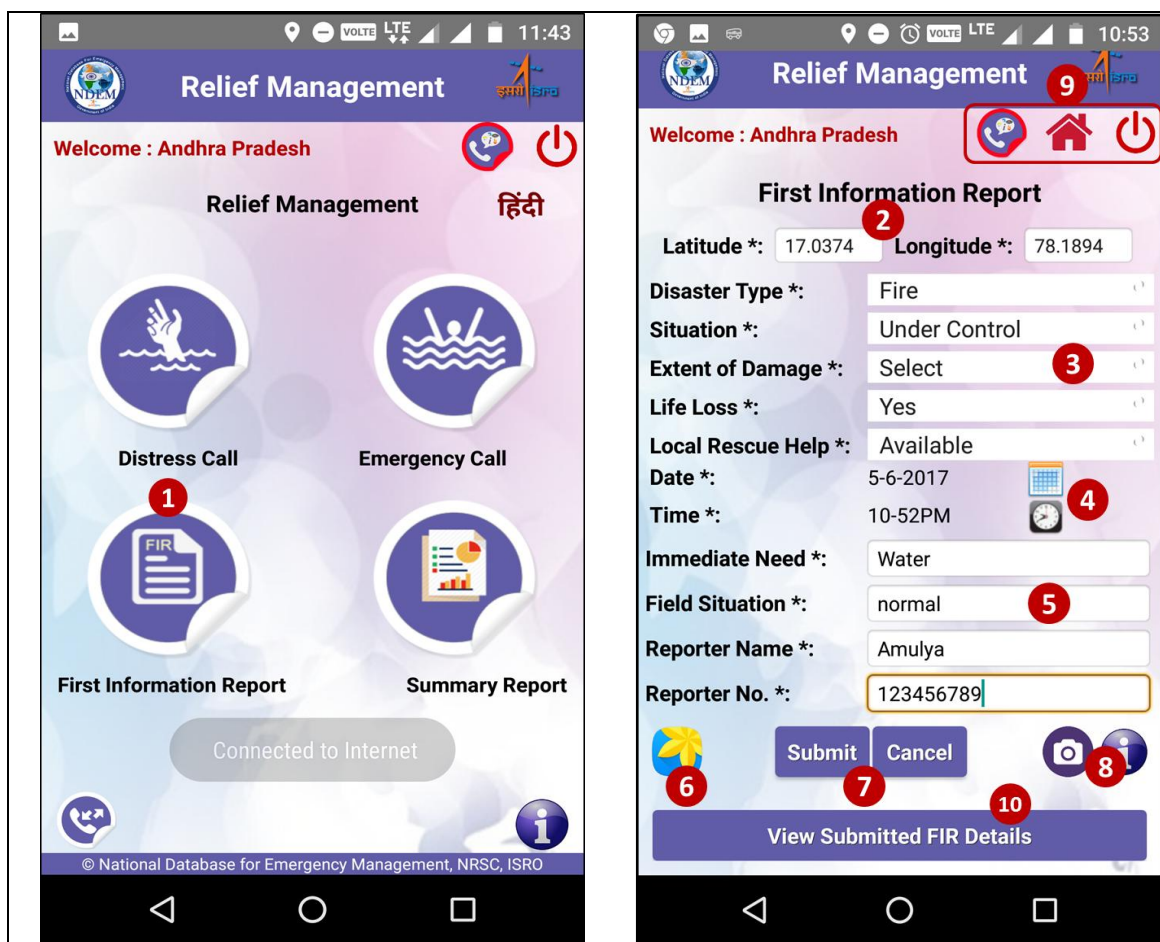
First Information Report is used to send qualitative report of the disaster situation along with field photographs and location coordinates in a specified format.

3.2.4.1 Sending FIR Report

To send FIR Report,



- Click on “First Information Report” button.
- If GPS/location is enabled, geo-coordinates are fetched automatically.
- Select details like type of disaster, extent of damage, overall situation, etc and enter details such as immediate need, organization name etc. Click on “Submit” button to send FIR report (figure 3.5).
- Field photographs can be sent by clicking on camera button. User can send multiple images from Gallery as well.



1. FIR button.

2. Enter the geo-coordinates of disaster location (latitude must be in numbers only for ex: **17.0712 and 78.2949**)

3. Select Disaster situation details such as type of disaster, situation, extent of damage, life loss etc.

4. Select date and time.

5. Enter details like immediate need, reporter name and number.

6. Button to select multiple images from mobile gallery

7. Send and cancel buttons.

8. Camera and Info buttons

9. Incident Report, Home and logout buttons

10. View Submitted FIR Details button

Figure 3.5 FIR Call

3.2.4.2 Selecting Multiple Images from Gallery



- Click on “First Information Report” button.
- Click on Multiple images button (as shown in figure 3.5) and select photographs from gallery by clicking on Select Pictures button.
- Click on upload button to upload photographs to server (figure 3.6).



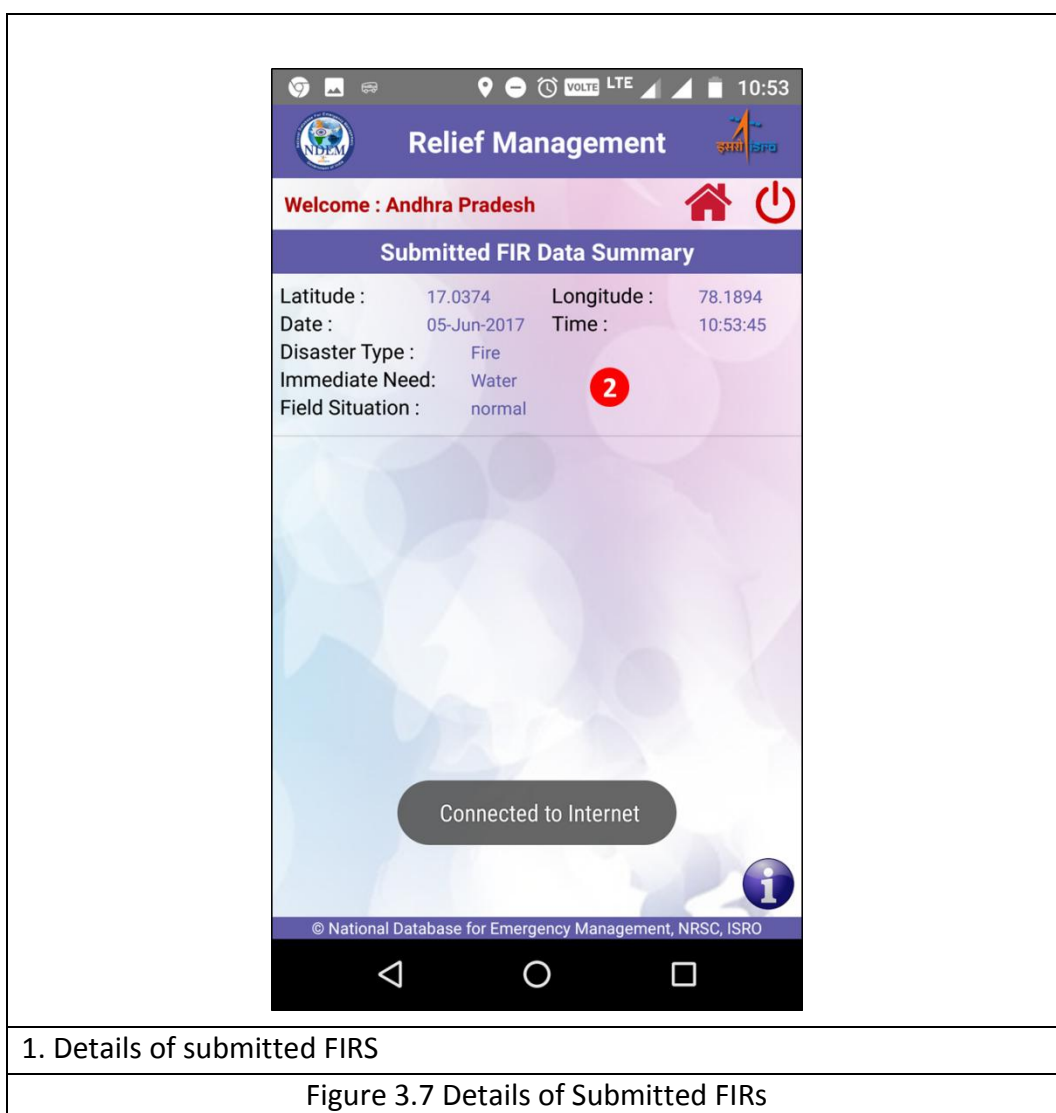
1. "Select Pictures" button to open gallery
2. Select Images from Gallery by clicking on required images
3. Upload button to confirm selection
4. Upload button to upload the images to Server
5. Cancel and Info buttons

Figure 3.6 Selecting Multiple Images from Gallery

3.2.4.3 View Submitted FIRs



- Select 'View Submitted FIRs' button to visualize the FIR reports sent from the device with particular username (figure 3.7)



3.2.5 Summary Report

Summary report is used to send quantitative report of the disaster situation along with field photographs and location coordinates in a specified format.

3.2.5.1 Sending Summary Report

To send Summary Report,



- Click on “Summary Report” button.
- If GPS/location is enabled, geo-coordinates are fetched automatically.
- Enter details such Number of people in relief camps, people affected, people yet to be rescued etc., and click on “Submit” button to send summary report (figure 3.8).
- Field photographs can be sent by clicking on camera button. User can send multiple images from Gallery as well.

0. Summary report button.
1. Enter the latitude & longitude of the disaster location (latitude and longitude must be in numbers only for ex: **17.8978** and **78.4578**)
2. Select type of disaster, date and time.
3. Enter details such as people affected, injured, died and about people in relief camps.
4. Enter details of distributed items.
5. Enter Reporter details such as name and mobile number.
6. Send and Cancel buttons
7. Button to select multiple images from gallery.
8. Camera and Info buttons

Figure 3.8 Summary Report

3.2.5.2 View Submitted Summary Reports



- Select 'View Submitted Summary Reports' button to visualize the Summary report sent from the device with that username (figure 3.9).



1. Details of submitted Summary Reports is displayed

Figure 3.9 Details of Submitted Summary Reports

3.2.6 Offline Functionality

Offline functionality support for mobile applications can be thought of as the ability for the application to react gracefully to the lack of stability of the network connection. Hence, user can send the data in the absence of network connectivity. Data would be sent automatically when network is available (figure 3.10).

1. Send the mobile internally saved file to central server.

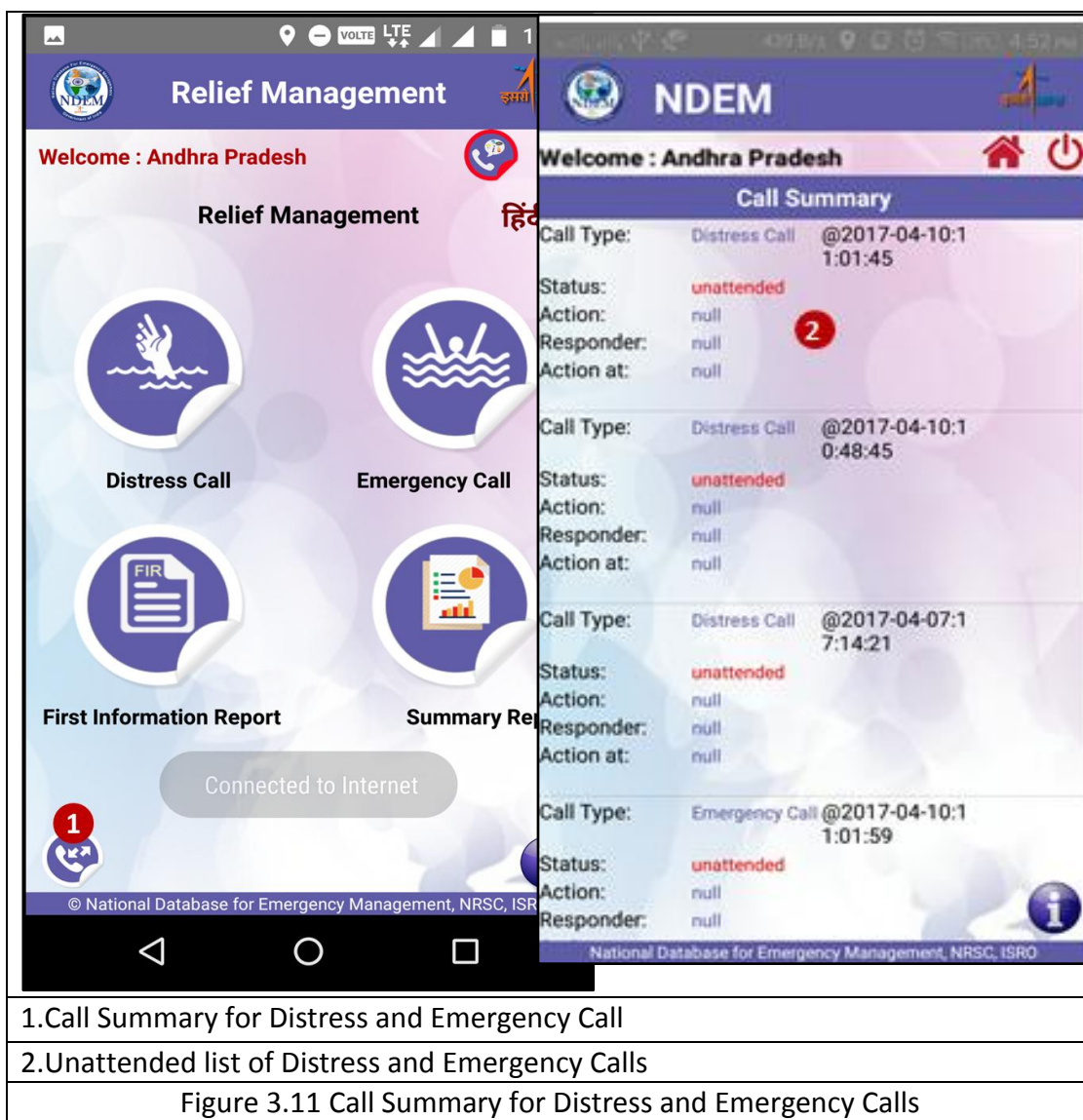
Note : (2) SFiles, shows number of files stored in mobile internal memory

Figure 3.10 Offline screen

3.2.6 Call Summary



- Click on “Call Summary for Distress and Emergency Call” button.
- List of unattended distress and emergency calls are displayed (figure 3.11).





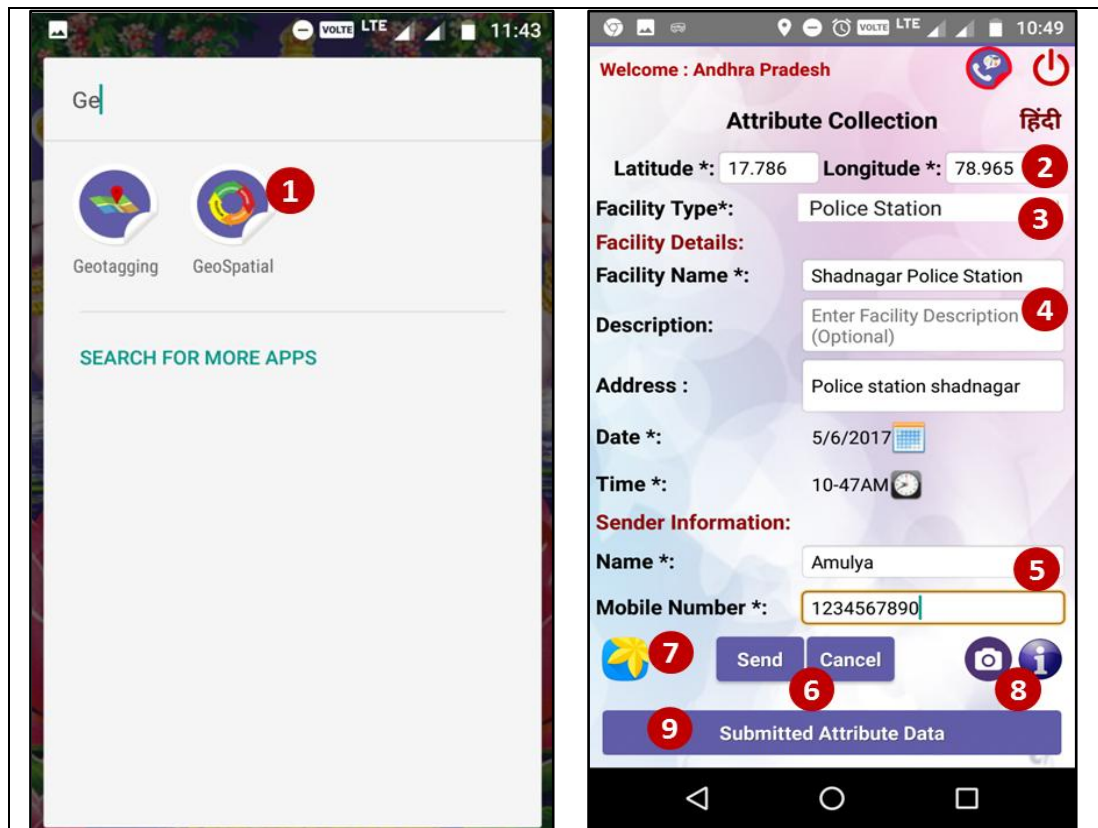
3.3 Geospatial Data Collection

3.3.1 Collection of facilities' information

Using this application, one can collect the field level geo spatial data of emergency facilities in real/near-real time with photographs and send to server. Information on category can be sent from the mobile devices. To collect details of respective facility (say Hospital)






- Click on “Geo-spatial Data Collection” Mobile Application.
- User can visualize ‘Attribute Collection’ Form.
- If GPS/location is enabled, geo-coordinates are fetched automatically.
- User has to select required Facility from the ‘Select Facility Type’ dropdown. User can dynamically add required facility type by selecting ‘Others’ from the dropdown menu (figure 3.13).
- Enter details such team name, location etc., and click on “Submit” button to send facility details (figure 3.12).
- Field photographs can be sent by clicking on camera button. User can send multiple images from Gallery as well.



1. Click on Geo-Spatial app icon to launch the application
2. Enter the latitude & longitude of the disaster location (latitude and longitude must be in numbers only for ex: **17.8978**and **78.4578**))
3. Select Facility Type
4. Enter Facility details such facility name, address etc.
5. Enter reporter information such as name and mobile number
6. Send and Cancel buttons
7. Button to select multiple photos from gallery
8. Camera and Info buttons
9. Submitted Attribute Data button

Figure 3.12 Attribute Collection Form

Welcome : Andhra Pradesh		हिंदी
Attribute Collection		
Latitude *:	17.256	Longitude *:
Longitude *:	78.564	
Facility Type*:	Others	1
	Telephone exchange	2
Facility Details:		
Facility Name *:	Shadnagar TelephoneExchange	
Description:	Enter Facility Description (Optional)	
Address :	Shadnagar	
Date *:	29/6/2017	
Time *:	11-30AM	
Sender Information:		
Name *:	Amulya	
Mobile Number *:	1234564789	
<div>  <div> <div>Send</div> <div>Cancel</div> </div> <div>   </div> </div>		
Submitted Attribute Data		

1. User can add facility type dynamically by clicking on Others

2. Enter New Facility Type


Figure 3.13 Adding New Facility Type - Attribute Collection Form



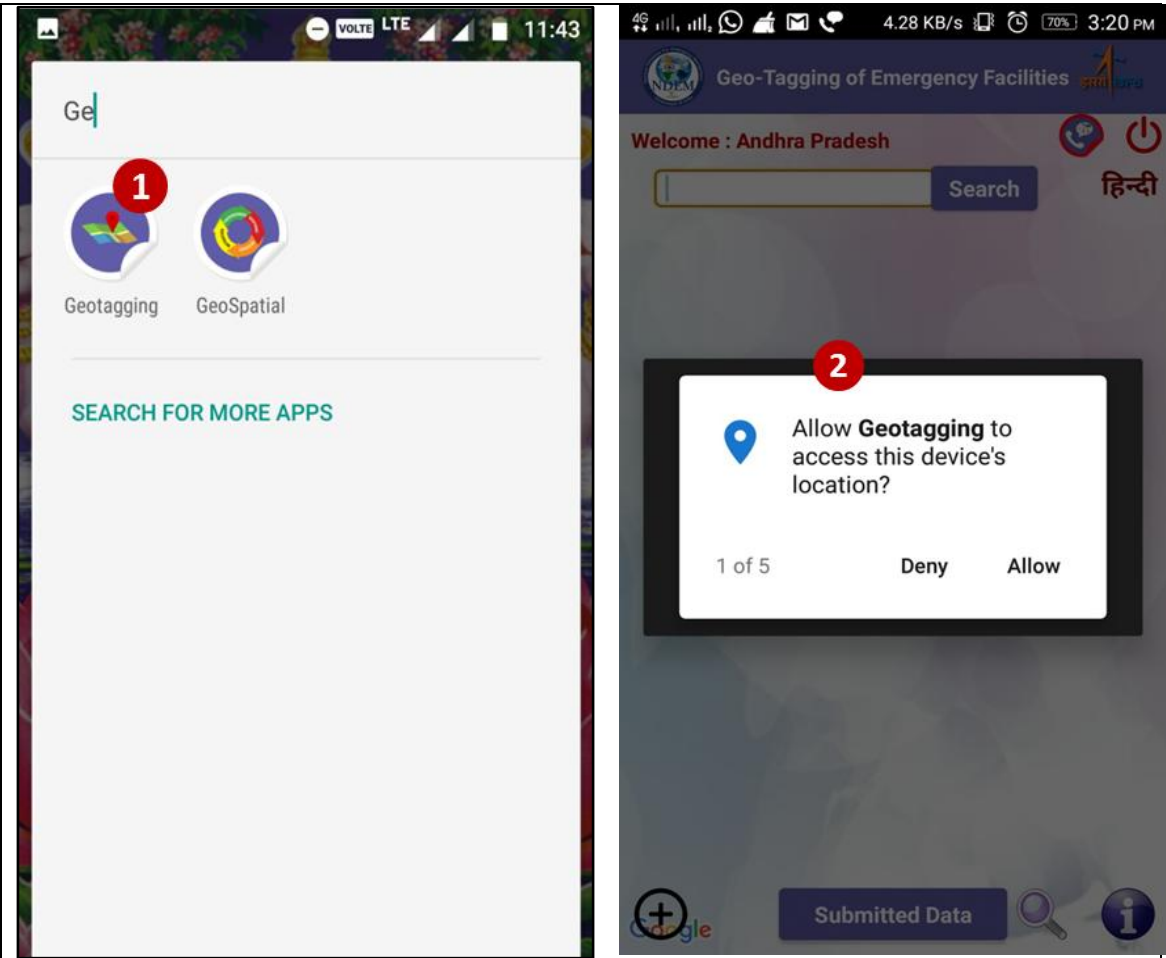
3.4 Geo-tagging of Emergency facilities

3.4.1 Geo-tagging of Emergency facilities using online Maps

Geo tagging of emergency facilities using online maps is a mobile application developed on android platform to collect emergency facilities on mobile device.



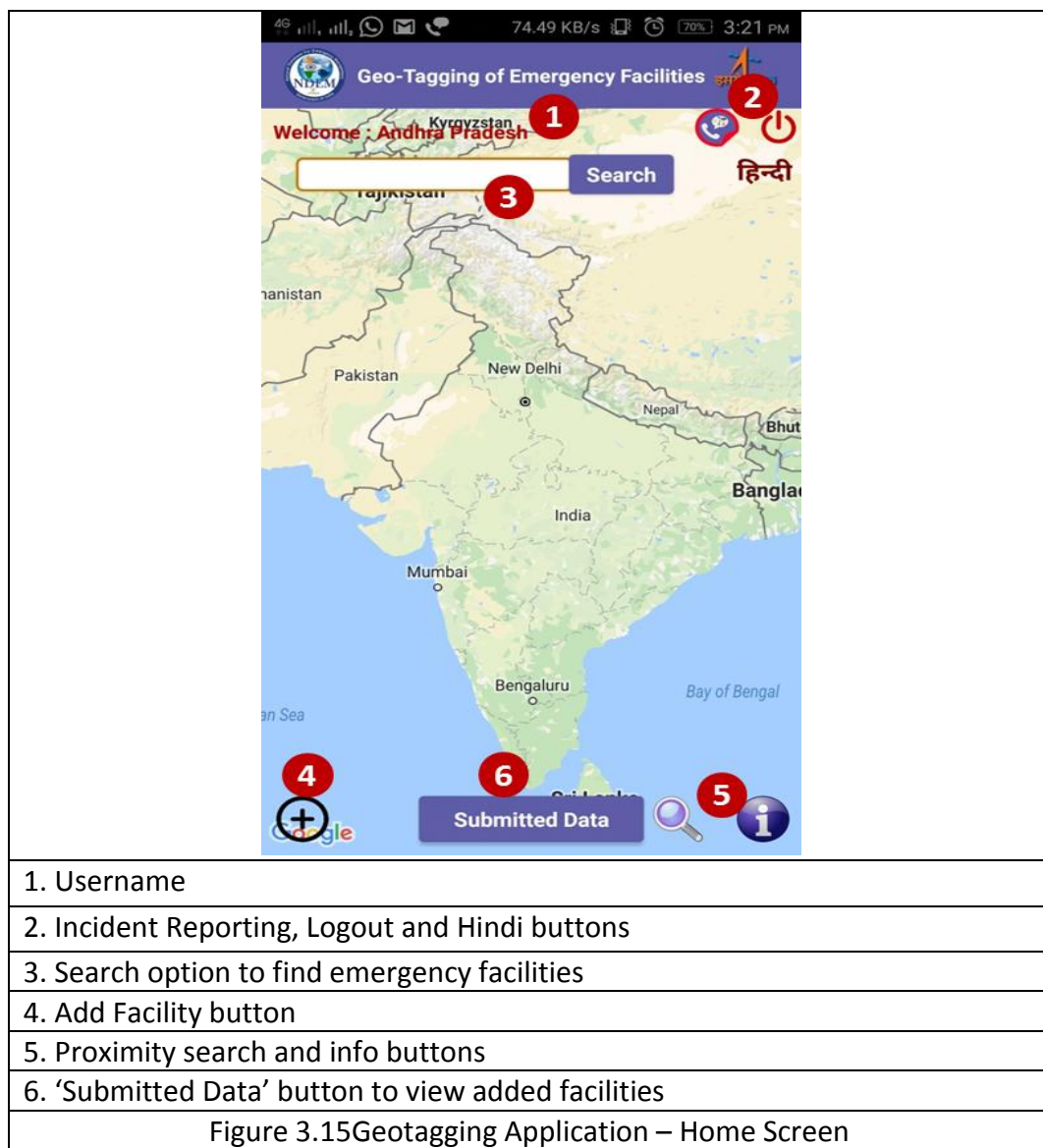
- Click on “Geo-tagging” Mobile application.
- User can visualize online map pointing to India (figure 3.14).



1. Click on Geo-tagging icon from Apps Menu
2. Click on 'Allow' button to allow the application to use GPS and other required options

Figure 3.14 Geo-tagging Application

3.4.2 Geo-tagging Home Screen



3.4.3 Adding new facility

To geo-tag facility,



- Tap on the required location on map where we wish to add new facility. Geo-coordinates of tapped location gets saved automatically.
- Then, click on “+” (ADD) on screen to enter details of emergency facility.
- Choose Facility Type from the dropdown menu. User can dynamically enter new Facility Type by selecting ‘Others’ and entering required facility type (figure 3.16).
- Enter facility name, reporter name, reporter number and Click on “Send” button to geo-tag the facility (figure 3.16).
- User can send photographs of facility by clicking camera button.

1. Select Facility Type and Enter Facility Name
2. Select the facility (for ex. Hospital or Shelter and etc...)
3. Geo-coordinates of required location which user has tapped earlier gets fetched automatically.
4. Camera button
5. Send and Cancel buttons
Figure 3.16 Adding Facility

3.4.3 Geo spatial search

User can locate required geo-tagged facility with the help of this search. To search location,



- Enter the facility name in search box and click on Search button.
- Facilities with the provided name get marked on map (figure 3.17). By clicking on facility icon, user can visualize its details.

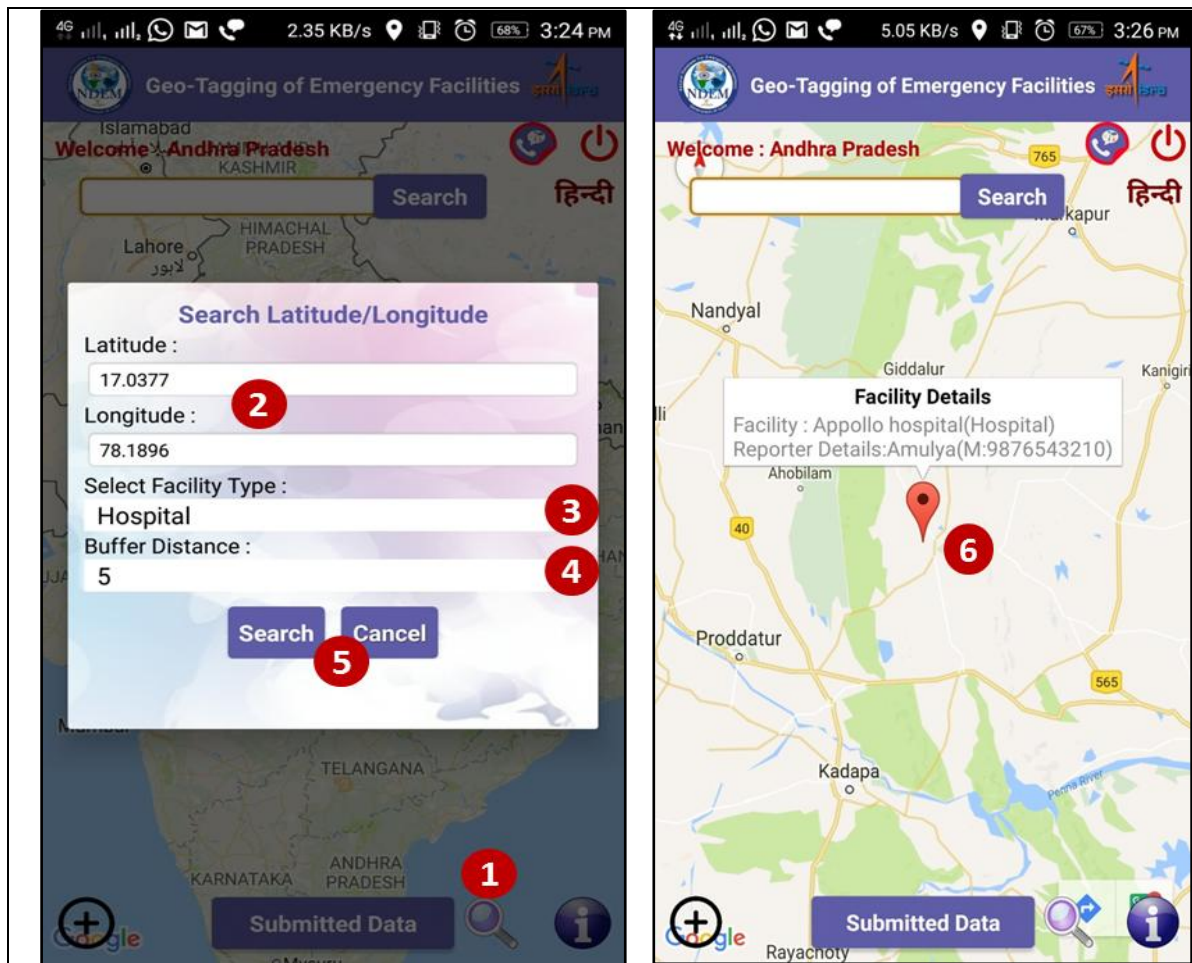


3.4.4 Search

It provides optimal search for emergency facilities such as hospitals, shelters, rail/bus stations etc. within the user defined buffer distance.



- User can tap on map to grab the location coordinates. Then, click on search icon and select facility type and buffer distance.
- Facilities with the provided type get marked on map (figure 3.29). By clicking on respective icon, user can visualize its details.



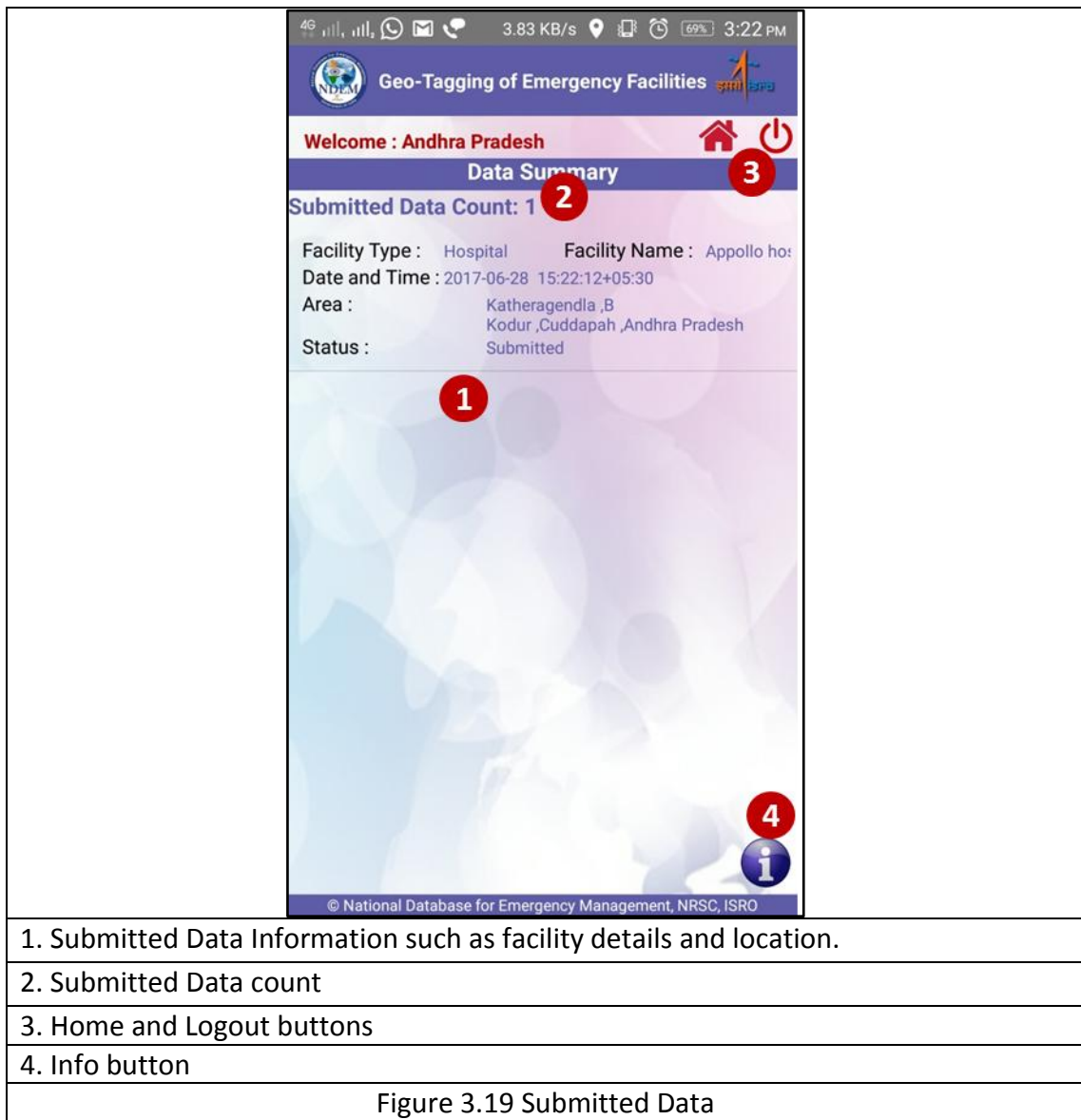
1. Proximity Search Button
2. Geo-coordinates of location
3. Select Facility Type
4. Select Buffer Distance
5. Send and Cancel buttons
6. Facilities within buffer distance get displayed. Facility details can be obtained by clicking on the marker

Figure 3.18 Proximity Search

3.4.5 View Submitted Data



- Select 'Submitted Data' button to visualize the Facilities that are added from the device with particular username (figure 3.18).



Visualization of Mobile App Datasets on NDEM Geo-portal

4.1 Incident report

Once an Incident is reported, SMS alert would be sent to the concerned state officials and they can visualize the incident on NDEM geo-portal.



- To visualize the incident, open the browser with active internet connection and type the following URL as shown in figure 4.1.

<http://ndem.nrsc.gov.in/>

National Database for Emergency Management
Geo-Portal for Emergency Management

National database for Emergency Management (NDEM) is a web based geo-spatial national repository of data coupled with a set of decision support tools to assist the disaster managers at various levels in decision making for managing emergency situations. NRSC/ISRO implemented NDEM for Ministry of Home Affairs(MHA). Subsequently NDEM Version 3.0 with improved features was launched on internet domain with secured access. Value added products are hosted on NDEM portal for major disaster events since 2013 onwards. [Read More...](#)

NDEM Features

- Data Visualization**
Multi-Scale Geospatial Data Services, Satellite Imagery.
- Decision Support Tools**
Customized GUI based tools for decision making.
- Incident Reporting**
Disaster event reporting through Mobile Apps, SMS, Portal.
- Interaction Tools**
Communication & data exchange, Audio/Video live chat among users.
- Disaster Dashboard**
Alerts & Warning, Disaster Related Current News.
- Utility Tools**
GIS based tools like Distance & Area Measurement, Search etc.
- Mobile Apps**
Apps for Relief Management, Attribute Collection & Geo-Tagging of Facility.
- Data Inventory & Reports**
Geo-spatial data statics, charts

Sign in to start your session!!!

Username 1

Password

Sign In 2

Forgot Password ?

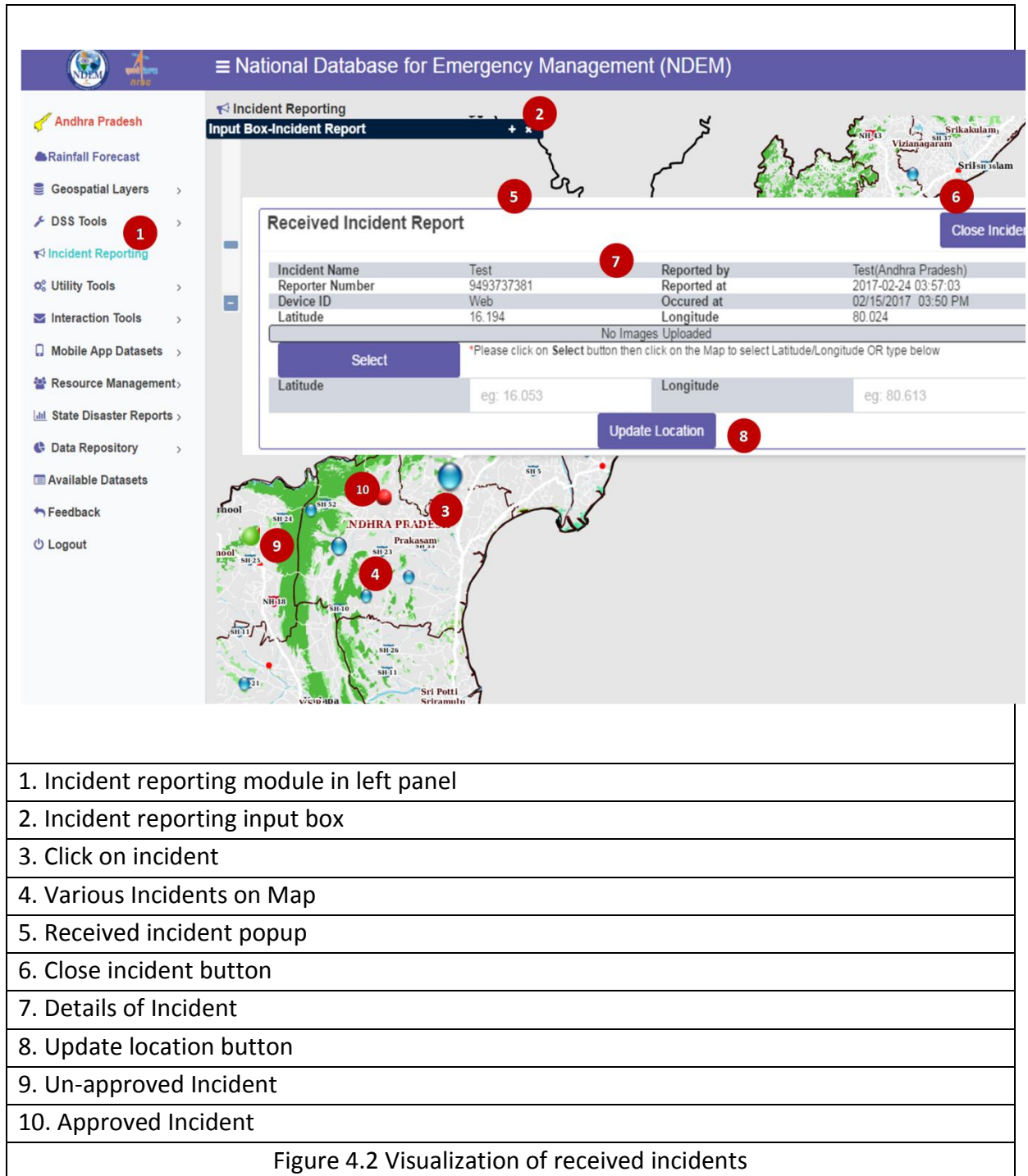
1. Enter your user name and password (Same as mobile user credentials)

2. Login

Figure 4.1 NDEM Version 3.0 Portal Home Page



- Enter valid user credentials in login panel to visualize the incident.
- Click on Incident Reporting from Table of Contents.
- User can visualize reported incidents on map (figure 4.2).



4.2 Relief Management App Datasets

4.2.1 Distress call

Distress call which is sent from mobile application can be visualized on NDEM geoportal.



- After successful login, click on Relief Management from Mobile App Datasets.
- User can see Relief Management input box on the screen.
- By selecting Distress call option, user can visualize all the distress calls sent through mobile application (figure 4.3).

The screenshot displays the NDEM portal interface. On the left, a sidebar menu lists various options, with 'Mobile App Datasets' (1) and 'Relief Management' (2) highlighted. The main content area shows the 'Relief Management' section with an 'Input box-Relief management' (3) containing four options: 'Distress Call', 'Emergency Call', 'First Information Report(FIR)', and 'Summary Report'. A map of Andhra Pradesh is visible in the background, showing various districts and towns.

1. Mobile App Datasets in Left Menu

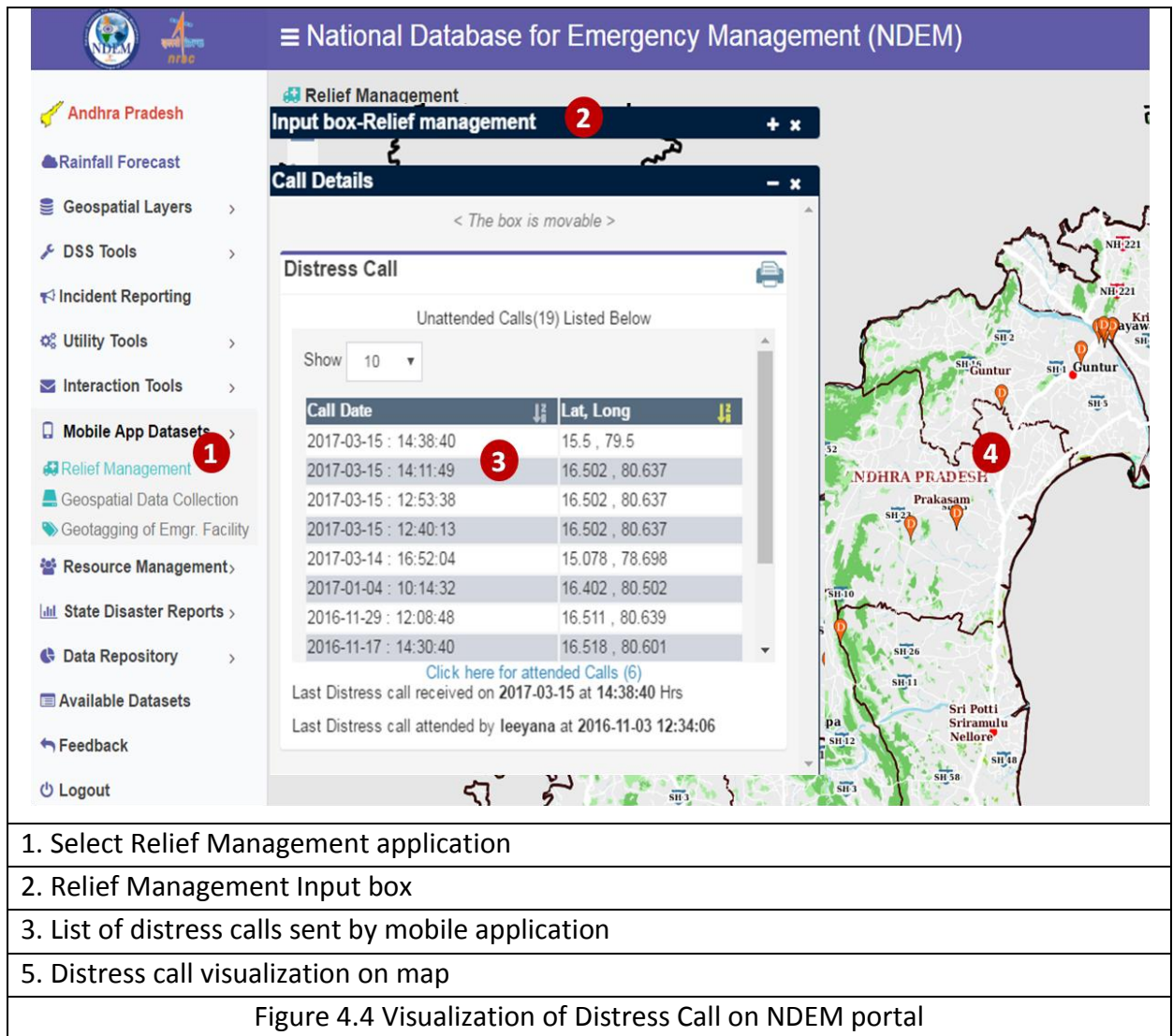
2. Relief Management in Mobile App Datasets

3. Relief Management- Input box - Click on check box to view distress call

Figure 4.3 Visualization of Distress Call on NDEM portal



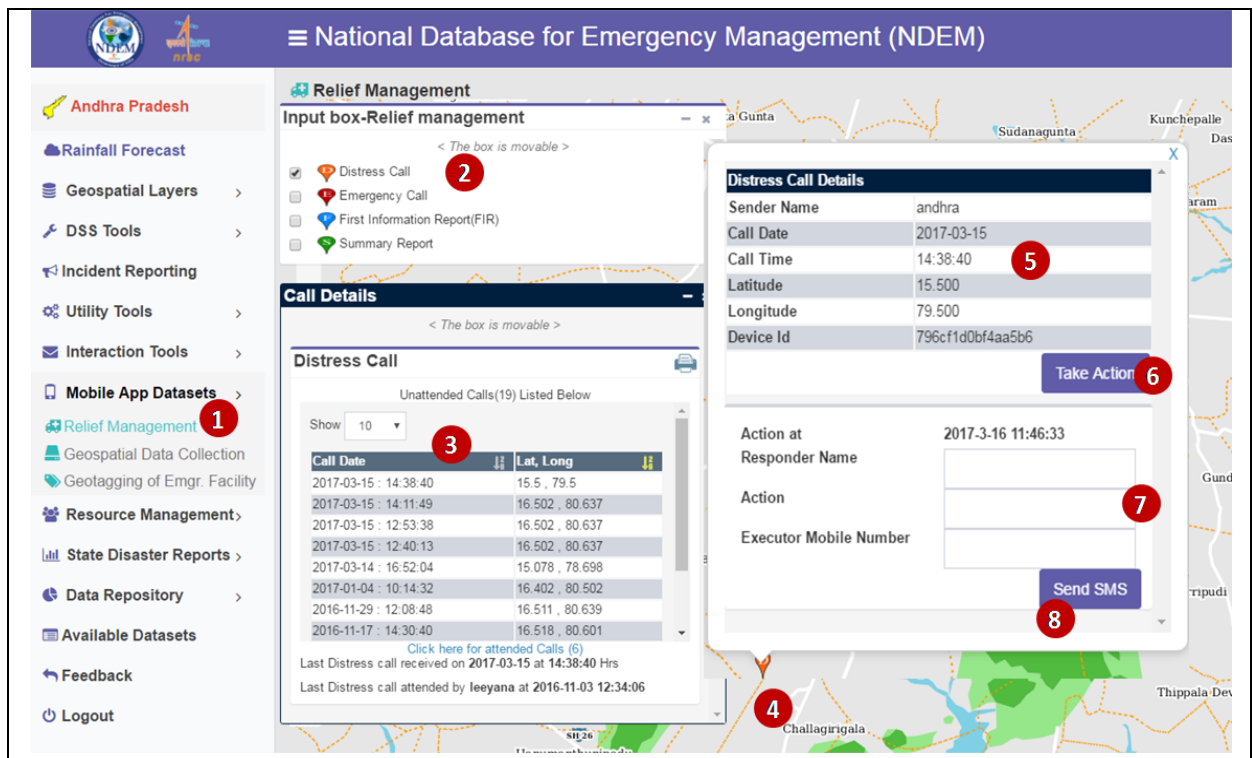
- By selecting Distress call option, user can visualize a printable list of distress calls. Distress calls are also visualized on map.
- Details of specific distress call can be obtained by clicking on icon on map or from the list (figure 4.4).



4.2.2 Take Action on Distress Call



- State official can take action on Distress call by clicking on “Take Action” button.
- While attending the call, official can send executor name and other details through SMS to the executor (figure 4.5).

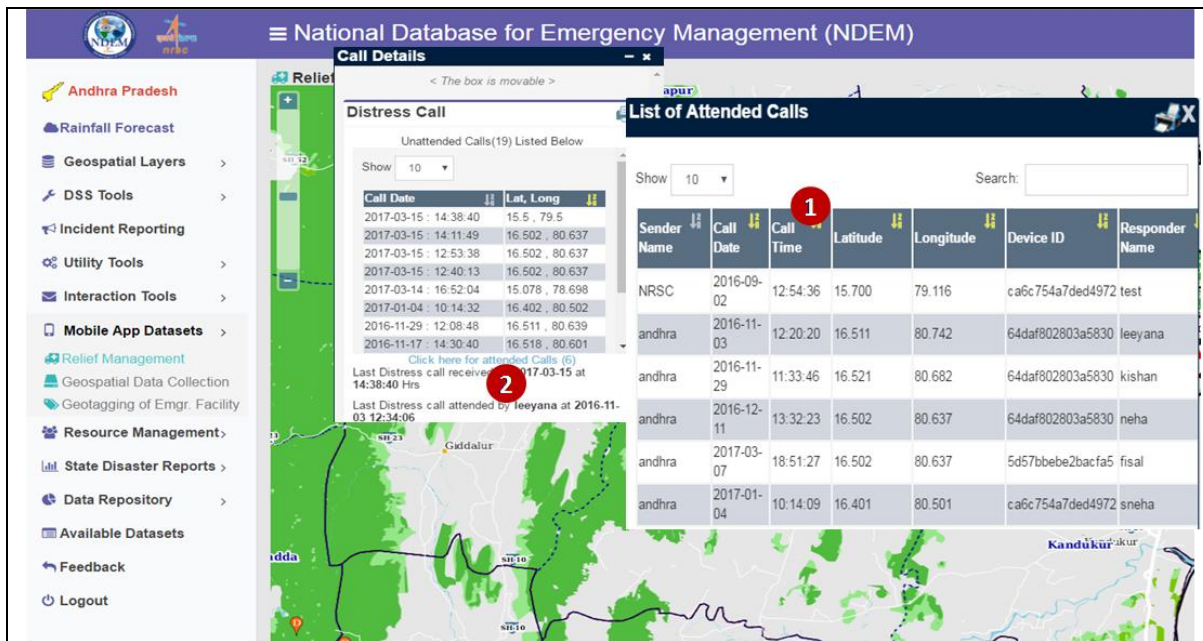


1. Tab to select mobile application (For ex: Relief Management)
2. Action bar to visualize the different types of calls
3. List of distress calls sent by mobile application
4. Distress call visualization on map
5. An alert point shows the location of distress call on viewer and giving the crisp information.
6. Take Action button
7. Name of responder, action taken etc to be filled by responder
8. Send SMS button

Figure 4.5 Take Action button in Distress Call



- The call would be tagged as “Attended”, once the official responds via take action form.
- Attended calls are not visible on map. Details of attended calls are available in tabular format. Click on “Click here for Attended calls” to visualize list of attended calls (figure 4.6).



1. History of attended distress calls

2. Details of Last Received Call and Last Attended Call

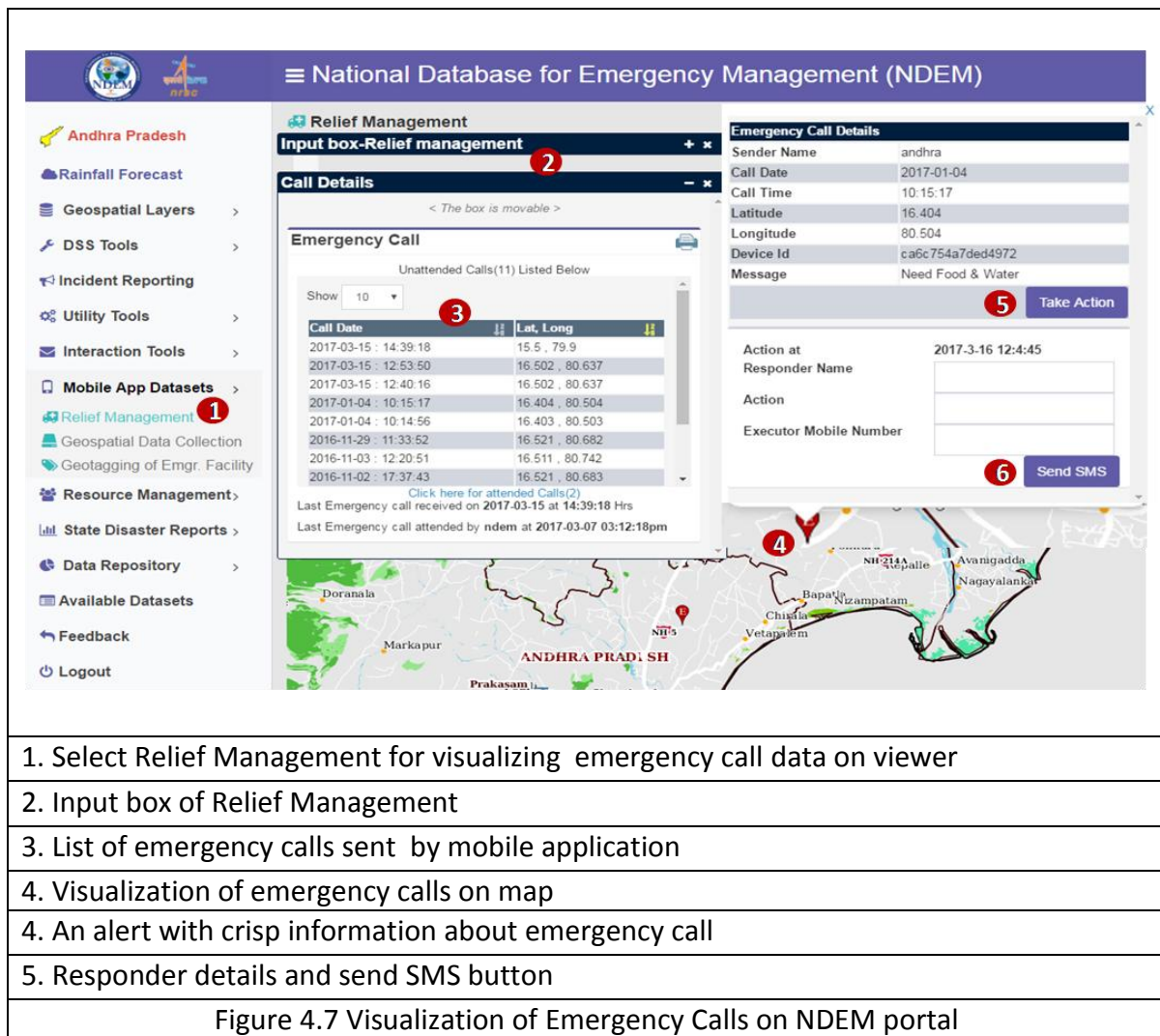
Figure 4.6 Distress Call – Attended Calls

4.2.2 Emergency Call

Emergency call which is sent from mobile application can be visualized on NDEM geoportal.



- Select Emergency call option from Relief Management input box, user can visualize a printable list of emergency calls. Calls are also visualized on map.
- Details of specific Emergency call can be obtained by clicking on icon on map or from the list (figure 4.7).

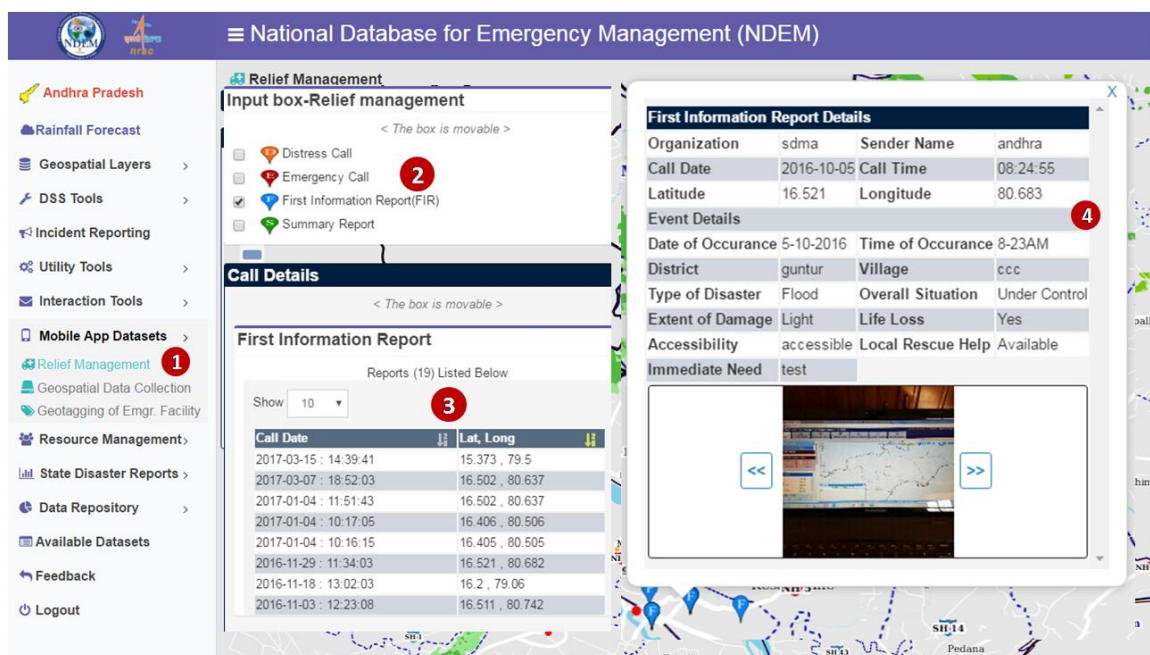


4.2.3 First Information Report

First Information Report which is sent from mobile application can be visualized on NDEM geoportal.



- Select FIR option from Relief Management input box, user can visualize a printable list of FIR reports. Calls are also visualized on map.
- Details of specific First Information Report can be obtained by clicking on icon on map or from the list (figure 4.8).



1. Select Relief Management module from Mobile App Datasets
2. Select First Information Report to visualize FIR calls in viewer
3. List of FIR calls sent by mobile application
4. An alert of FIR report along with field level photographs(multiple photographs)

Figure 4.8 Visualization of FIR Report in NDEM portal

4.2.4 Summary report

Summary Report which is sent from mobile application can be visualized on NDEM geoportal.



- Select Summary Report option from Relief Management input box, user can visualize a printable list of summary reports. Calls are also visualized on map.
- Details of specific Summary Report can be obtained by clicking on icon on map or from the list (figure 4.9).

1. Select Relief Management module from Mobile App Datasets

2. Select Summary Report

3. Click any summary report to see the detailed report

4. Date and time of the summary report received, authenticated user, place, organization name, number of people effected details

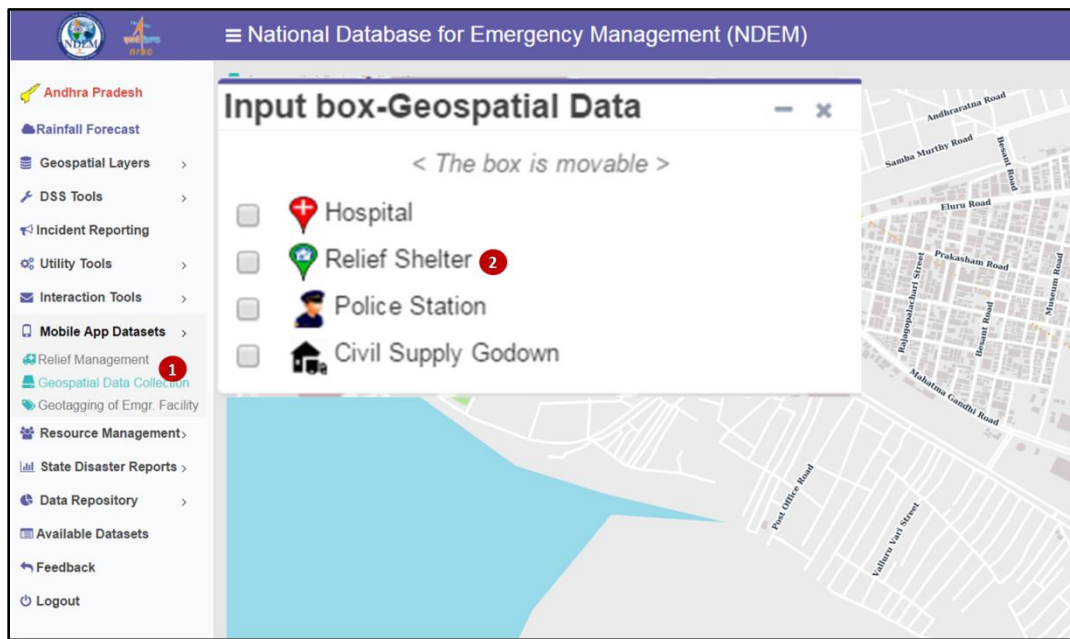
Figure 4.9 Visualization of Summary Report in NDEM Geo-portal

4.3 Geo-Spatial data

Geospatial Data which is sent from mobile application can be visualized on NDEM geoportal.



- Select Geospatial Data Collection from Mobile App Datasets.
- User can select required geospatial data facility from input box for visualization (figure 4.10).

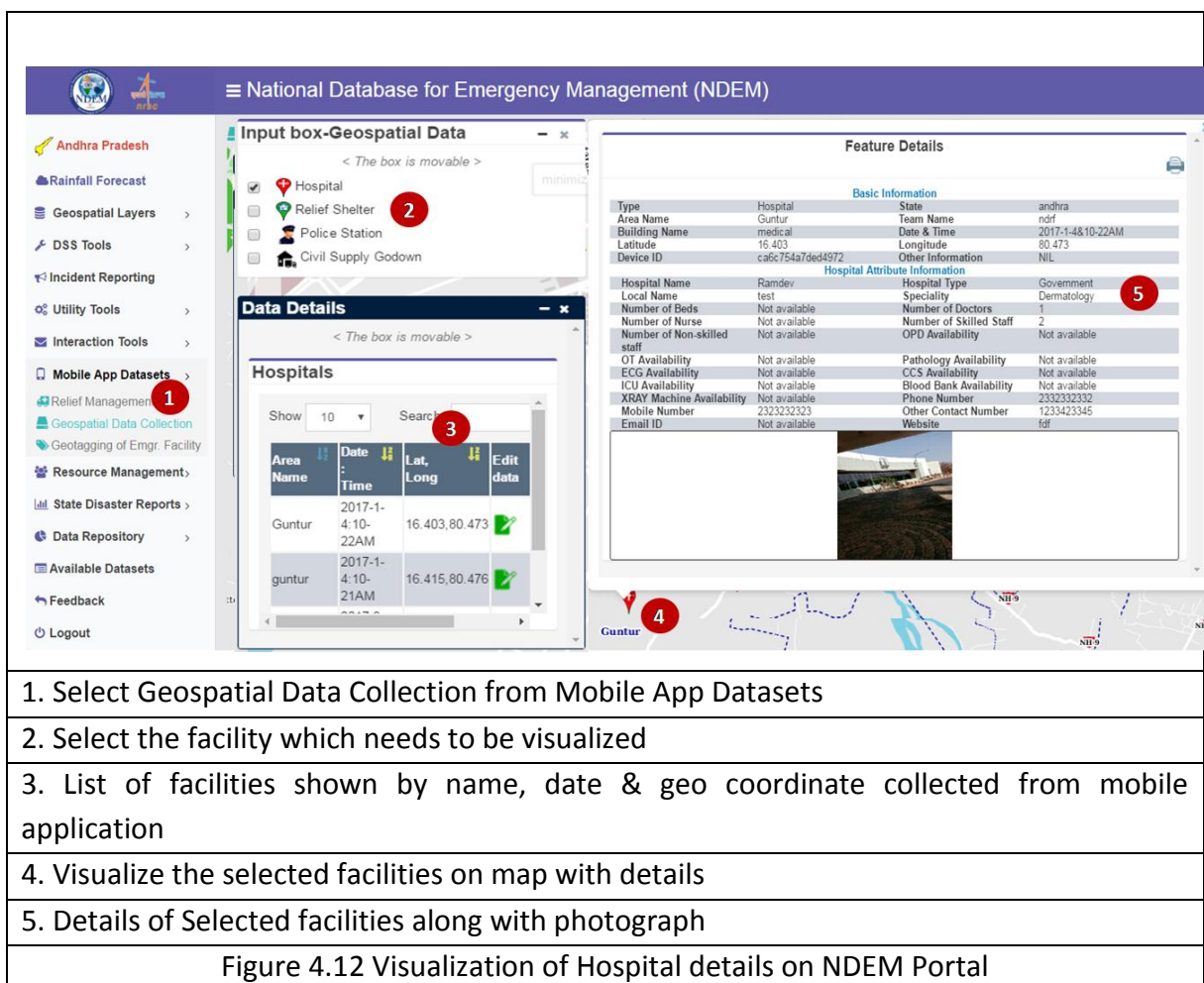


1. Select Geospatial data collection icon
2. List of available facilities for visualization

Figure 4.10 Visualization of Available Facilities on Portal



- Select Hospital option from Geospatial data collection input box. User can then visualize a printable list of facility details. Facility icons are also visualized on map.
- Details of specific facility can be obtained by clicking on icon on map or from the list (figure 4.11 and figure 4.12).



4.3.1 Attribute updation of Facility

Attributes of facilities can be updated from NDEM portal. To update facility,

- Click on “Edit Data” icon of respective facility.
- Attribute information form appears as popup. By entering all the details in the form and clicking on “Update Form”, user can update attributes of facilities (figure 4.13).

The screenshot displays the NDEM web application interface. On the left is a sidebar menu with options like 'Andhra Pradesh', 'Rainfall Forecast', 'Geospatial Layers', 'DSS Tools', 'Incident Reporting', 'Utility Tools', 'Interaction Tools', 'Mobile App Datasets', 'Relief Management', 'Geospatial Data Collection', 'Geotagging of Emgr. Facility', 'Resource Management', 'State Disaster Reports', 'Data Repository', 'Available Datasets', 'Feedback', and 'Logout'. The main content area is divided into two panels. The left panel, titled 'Geospatial Data Collection', contains an 'Input box-Geospatial Data' and a 'Data Details' table. The table has columns for 'Area Name', 'Date : Time', 'Lat, Long', and 'Edit data'. It lists three entries for 'Guntur' with dates and coordinates. A red circle with the number '1' highlights the 'Edit data' link for the second entry. The right panel, titled 'Hospital Attribute Details', shows a form for entering hospital information. It includes a 'Basic Information' section with fields for State, Team Name, Date, and Other Information. Below this is the 'Hospital Attribute Information Form' with sections for Hospital Services (Hospital Name, Local Name, Number of beds, etc.), Availability of Services (OPD, Theatre, etc.), and Contact Information (Phone number, Email ID, etc.). A red circle with the number '2' highlights the 'Hospital Name' field. At the bottom of the right panel is an 'Update Attribute' button. The background of the interface shows a map of Andhra Pradesh with green shaded regions.

1. Select any facilities and click add attribute link

2. Enter the details which needs to be added for the facilities

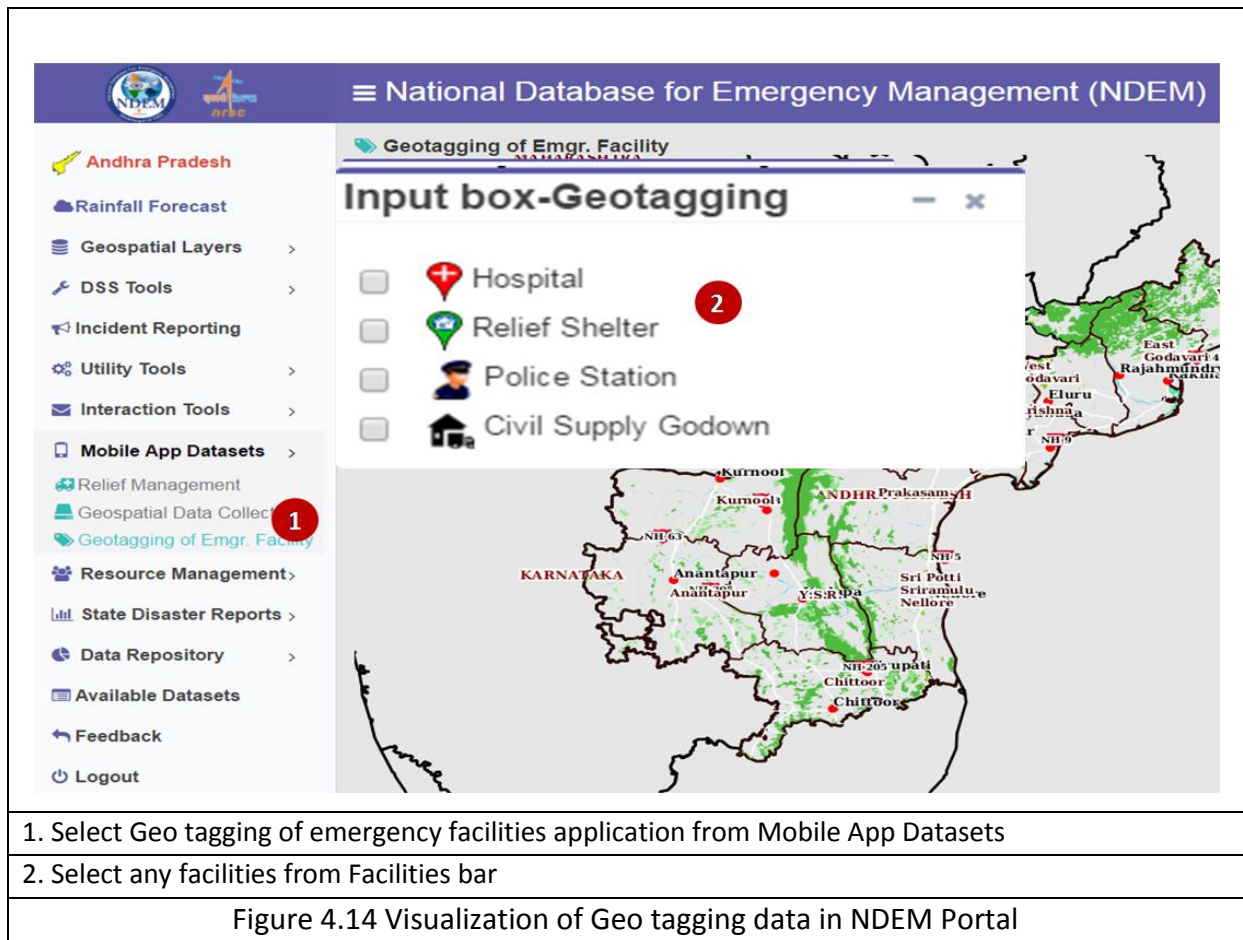
Figure 4.13 Attribute Information Form

4.4 Geo tagged facilities

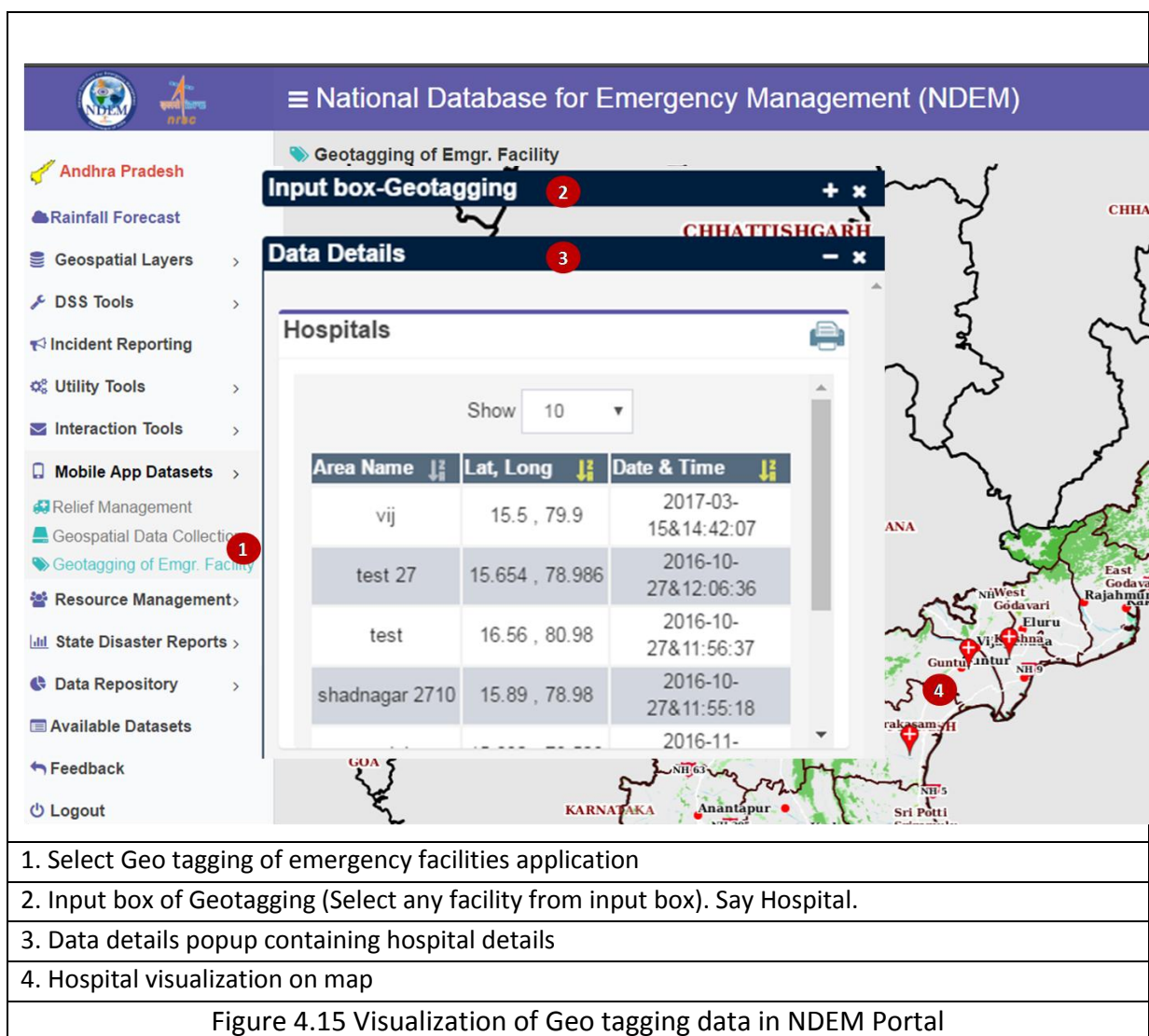
Facilities which are geo-tagged through mobile application can be visualized on NDEM geoportal.



- Select “Geotagging of Emgr Facility” from Mobile App Datasets.
- Select the required facility from Geotagging Input box (figure 4.14).



- List of Geo-tagged data would be displayed in printable format and displayed on map as well (figure 4.15).
- To fetch the details of respective facility, either click on respective facility from the list or click on icon on map (figure 4.16).



National Database for Emergency Management (NDEM)

Geotagging of Emgr. Facility

Input box-Geotagging

< The box is movable >

- ☒ Hospital
- ☐ Relief Shelter
- ☐ Police Station
- ☐ Civil Supply Godown

Data Details

< The box is movable >

Hospitals

Show 10

Area Name	Lat, Long	Date & Time
vij	15.5 , 79.9	2017-03-15&14:42:07
test 27	15.654 , 78.986	2016-10-27&12:06:36
test	16.56 , 80.98	2016-10-27&11:56:37
shadnagar 2710	15.89 , 78.98	2016-10-27&11:55:18
medak	15.632 , 78.523	2016-11-25&10:39:53
guntur	16.44 , 80.54	2017-01-04&10:25:15

1 to 6 of 6

Feature Details

Type	Hospital
Area Name	guntur
Date	2017-01-04
Time	10:25:15
Latitude	16.44
Longitude	80.54

Figure 4.16 Visualization of Geo tagging data in NDEM Portal

Conclusion

The proliferation of mobile phones has provided us with vibrant communication channel to strengthen our NDEM framework. Its vast functional and structural properties with upcoming advancements have become a great help during relief operations. Emergency management needs real time data collection from the incident location and monitoring of the events at regular intervals.

NDEM framework has been effectively customised for sending field information to control room using mobile apps. Relief management app has been customised to collect and transmit field information along with field photograph from disaster site in near/real time. All these calls/events/reports are visualised in geospatial viewer for visualisation and mobilisation of resources for decision making. Incident reporting has been given a generic module in all the apps for easily reporting to the control room which will be further enables the disaster manager for quick planning of disaster event.

Also the mobile app has been customised to collect emergency facilities such as hospital, shelters, schools, warehouses etc. for strengthening of NDEM database. Similarly, Geotagging app has been designed to collect the facilities using online maps available on internet domain.

National Database for Emergency Management
National Remote Sensing Centre
Indian Space Research Organization
Department of Space, Government of India