Outline
EmbankNetra
Actors of EmbankNetra
User
Local Authorities
Super Admin
Healthcard
Uniqueness Of EmbankNetra
Cluster and Heatmap view
Marker on Map according to Danger Level
Water Theft and Sand Theft
Complaint Tracking for User
Summary Of Review's
Why EmbankNetra??

EmbankNetra

Central Water Commission, Government of India, Ministry of Jal Shakti

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August 1, 2020

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5 Why EmbankNetra??
6 Technology Stack
7 Design
8 Site Visit

Problem Statement

CWC

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Why EmbankNetra??

- Description : The development of GIS application to analyse the existing river embankment network. The crowd sourced data with images, geo-location and time stamp can be used for the generation of health card of embankment and identifying the critical sections thereof for their preventive maintenance
- Organisation: Central Water Commission, Ministry of Jal Shakti
- Category : Software

Objectives

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Why EmbankNetra??

- To involve the crowd source in determining the condition of Embankments with the use of technology such as GIS.
- Use of social audit to prepare the health card of Embankment for determining the condition and report the same to the concerned authorities.
- It Reduces risk of flooding and conserve water
- To monitor the pro active measures taken by responsible authorities to mange,repair embankments on time.
- To utilised the MNREGA for restoring embankments.
- To prevent the water and sand theft from the water reserviors.

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What is Embanknetra?

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Why Embanknetra??

- A GIS Web-Application which will be completely based on Crowdsourced Data.
- User can give feedback of embankment/water reservoir.
- A Complete monitoring of all the water reservoir's is possible.
- Accurate Health card generation.

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Which actors does EmbankNetra Include?

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Why EmbankNetra??

- User
- Local Authorities (state to village level)
- Super Admin

User

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Why EmbankNetra??

- Review water reservoir.
- Add water reservoir.
- Upload images of the reservoirs.

Local Authorities

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Why EmbankNetra??

- Local authorities have access as per their designation. e.g. A District authority can only access the district elements and can add local authorities under his division.
- Can view and monitor all the feedback received from his division.
- Can view the Healthcard.
- Can Add water reservoir to the GIS
- Can remove the water reservoir.
- Remainder System for Complaint Processing.

Super Admin

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Why EmbankNetra??

- Super Admin will have all the control over the web-portal.
- Add Local Authorities
- Remove Local Authorities
- Add/Remove Water reservoir
- Can view all the feedback.
- Can view all healthcards.
- Can filter the water reservoir on the basis of river , city etc.

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Healthcard

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- Healthcard will be generated from the reviews received by the crowd.
- User can rate the particular water reservoir from scale of 1 to 10 with this parameters:
  1.Vegetation Growth
  2.Geometric Distortion
  3.Cracks
- Healthcard will also include the technical as well as non technical parameters.
- Dynamic generation of healthcard.
- A radar chart for most commonly rated parameter.

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Some extra points which make EmbankNetra Unique

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- Marker on Map According to Danger Level
- Water and Sand Theft
- Complaint Tracking for User
- Summary of reviews.

Cluster and Heatmap view

CWC

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Why EmbankNetra??

- EmbankNetra will provide cluster and heat map view to the admin.
- The number on a cluster indicates how many markers it contains. Notice that as you zoom into any of the cluster locations, the number on the cluster decreases, and you begin to see the individual markers on the map. Zooming out of the map consolidates the markers into clusters again.
- Cluster will show the exact number of water bodies as well as reviews obtained from crowd.
- Heat map will indicate the response of reviews and water reservoirs submitted from a particular area.

Marker on Map according to Danger Level

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Why EmbankNetra??

- EmbankNetra will showcase three different markers to all the authorities on the map.
- The three markers are:
  Green Marker:which indicates that the overall health of the water reservoir is good.
  Blue Marker : Indicates that the water reservoir health is average.
  Red Marker : Indicates that the water reservoir is in danger and needs immediate action.
- This kind of marking will help admin to take proper action.

Water and Sand Theft

CWC

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Complaint Tracking for User

Summary Of Review's

Why Em-bankNetra??

- Water theft is illegal tapping of water supply systems. In rural areas, the water theft is done by placing motors/borewell into the embankments/water reservoir. Water theft is so severe that in the worst situations, this can lead even to a lack of drinking water.
- Illegal sand mining leads to a widely unknown global example of natural and non-renewable resource depletion problem comparable in extent to global water scarcity. Any volume of sand exported from stream beds and coastal areas is a loss to the system. It is also a threat to bridges, river banks and nearby structures.
- EmbankNetra will also register a complaint regarding Water Sand Theft. The complaint will be sent to the local authorities and proper action will be taken by the authority.

Complaint Tracking for User

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Why EmbankNetra??

- The crowd is the main actor of EmbankNetra.
- The User must know about what is the status of his complaint.
- EmbankNetra will provide a unique complaint number to every user who submits a feedback of any water reservoir.
- User can track his status of feedback from the homepage.
- The status of feedback will be continuously updated by the concerned authority.
- This will help in User satisfaction.

Summary of Reviews

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Why EmbankNetra??

- The overall health of water reservoirs will be shown to the authorities at one glance.
- Water reservoir which is in danger will be shown at the top.
- It will sort from worst to best scenario.
- This kind of summary will help to identify the risk of health of water bodies.

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Why EmbankNetra??

- Simple User Interface
- Platform Independent
- Highly Secured as latest security standards and encryption methods like MD5 are considered in EmbankNetra
- A Disaster Recovery Mechanism.
- Dynamically generation of data which ensure less storage and avoids data redundancy.
- Embanknetra usages the minified script of requirement which makes site extremely lightweight yet efficient which results into very less response time.

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Technology Stack

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Why EmbankNetra??

- Frontend:
  HTML
  CSS
  Google Maps Api
- Backend:
  PHP
  JavaScript
  Google Maps Api
- Database:
  MySQL

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User Workflow

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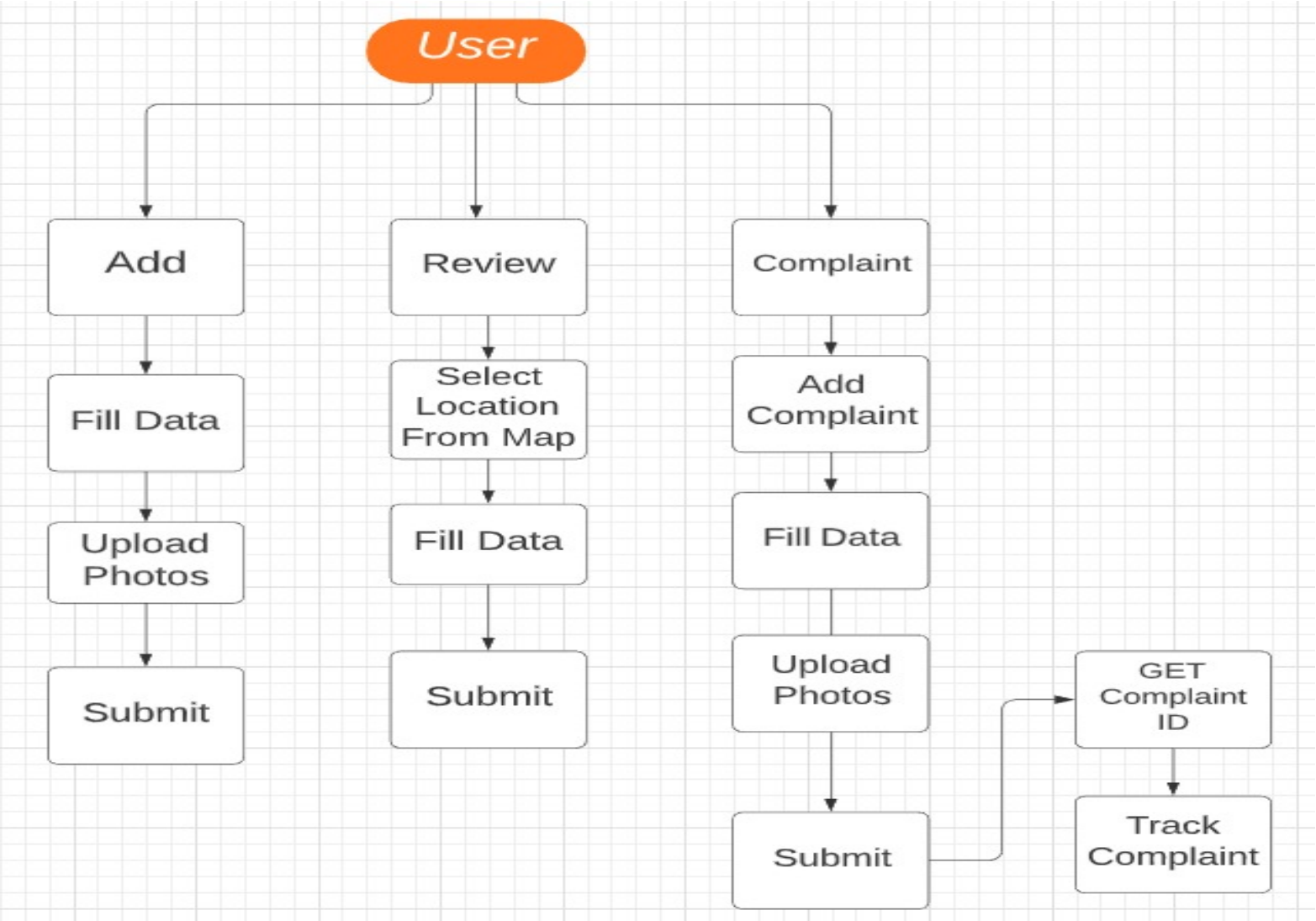

Use Cases

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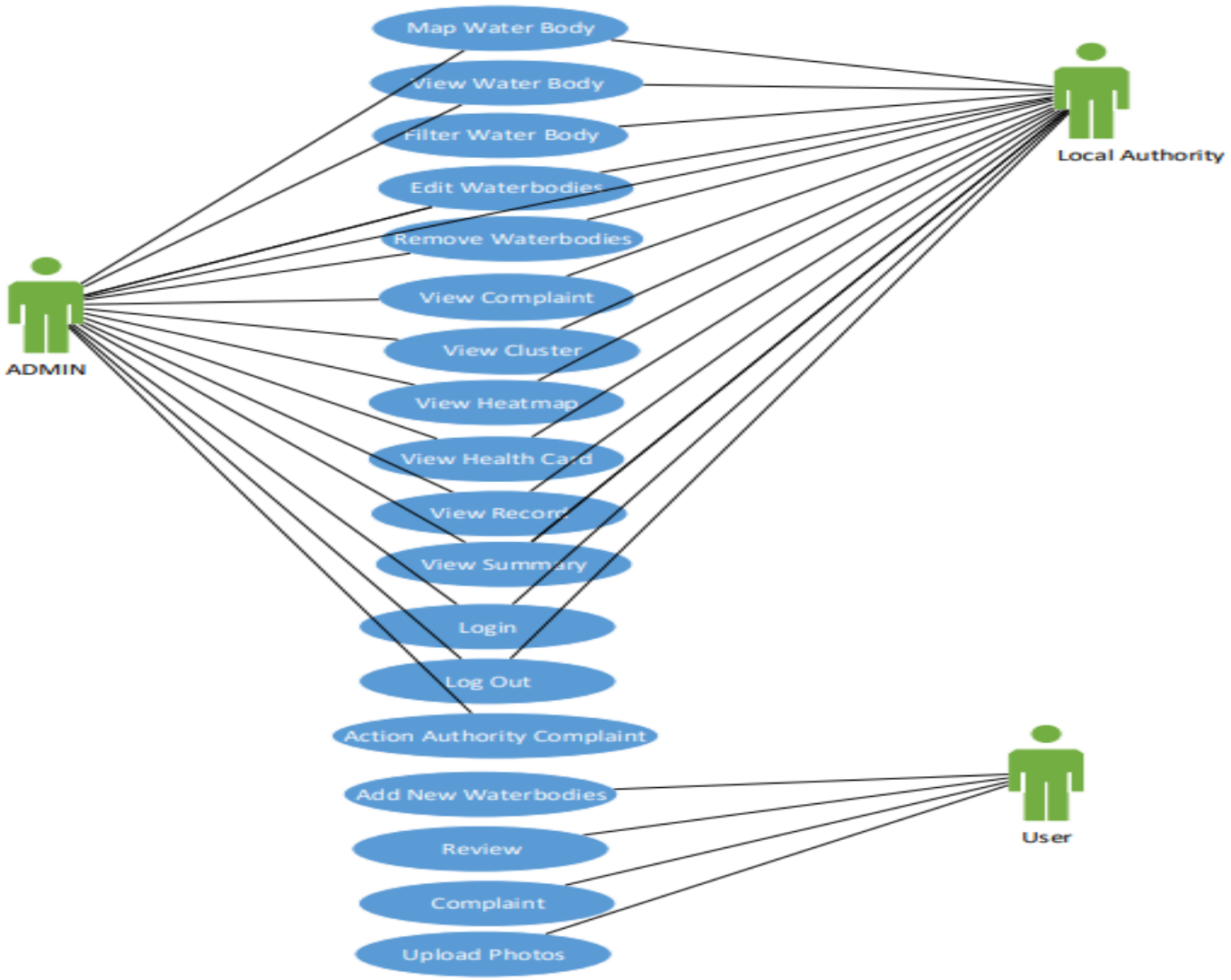

User GUI

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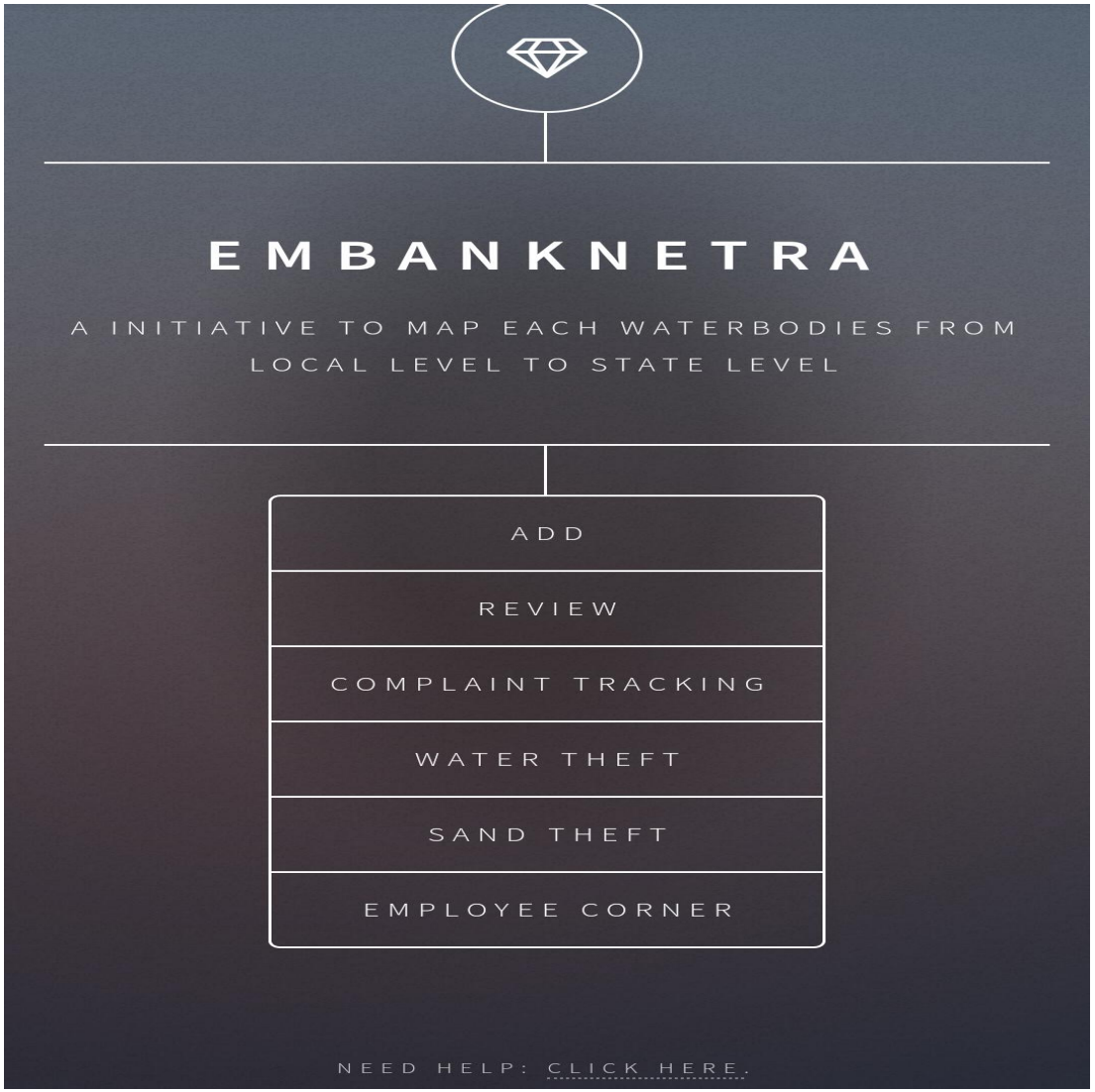

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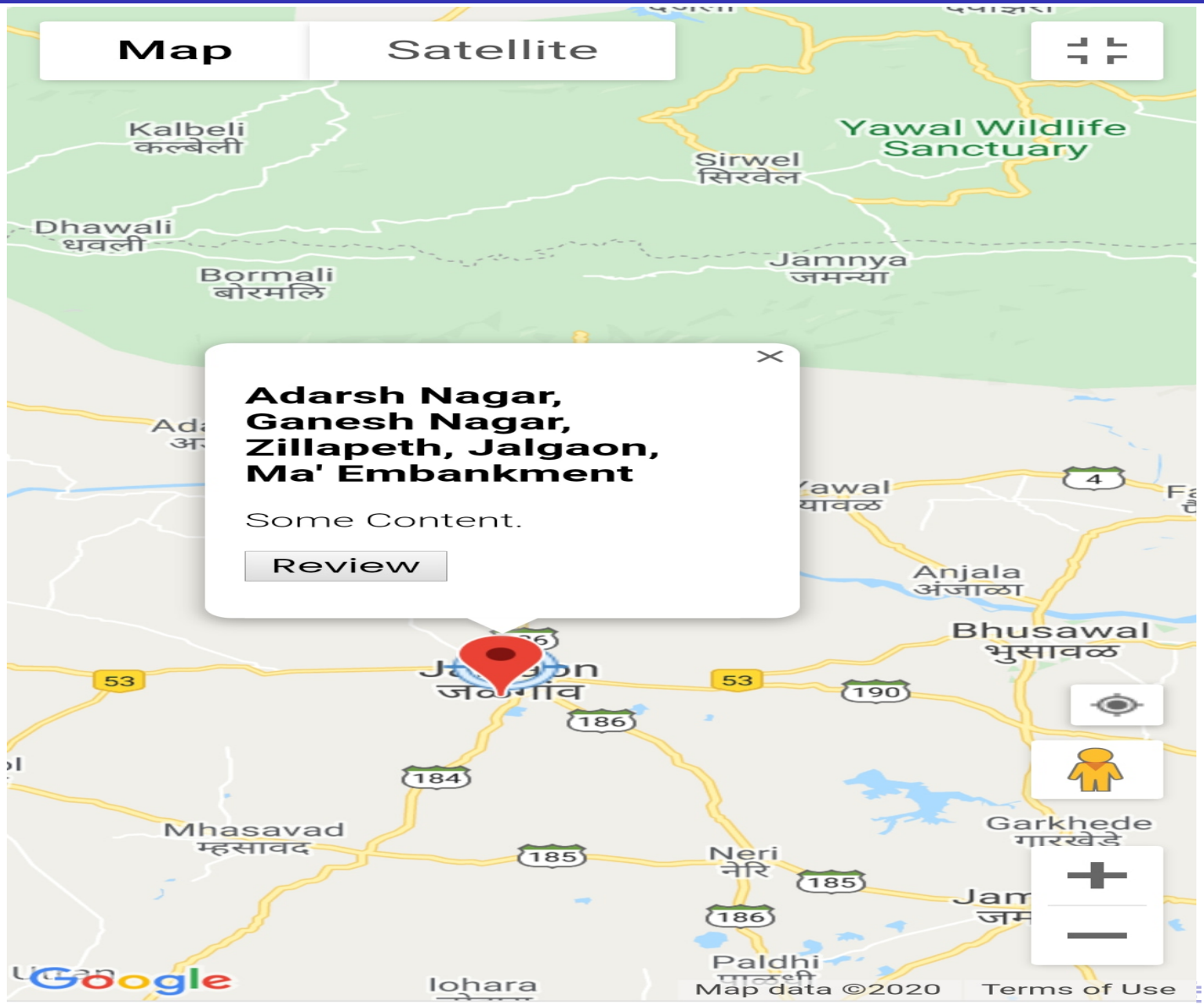

Local Authority GUI

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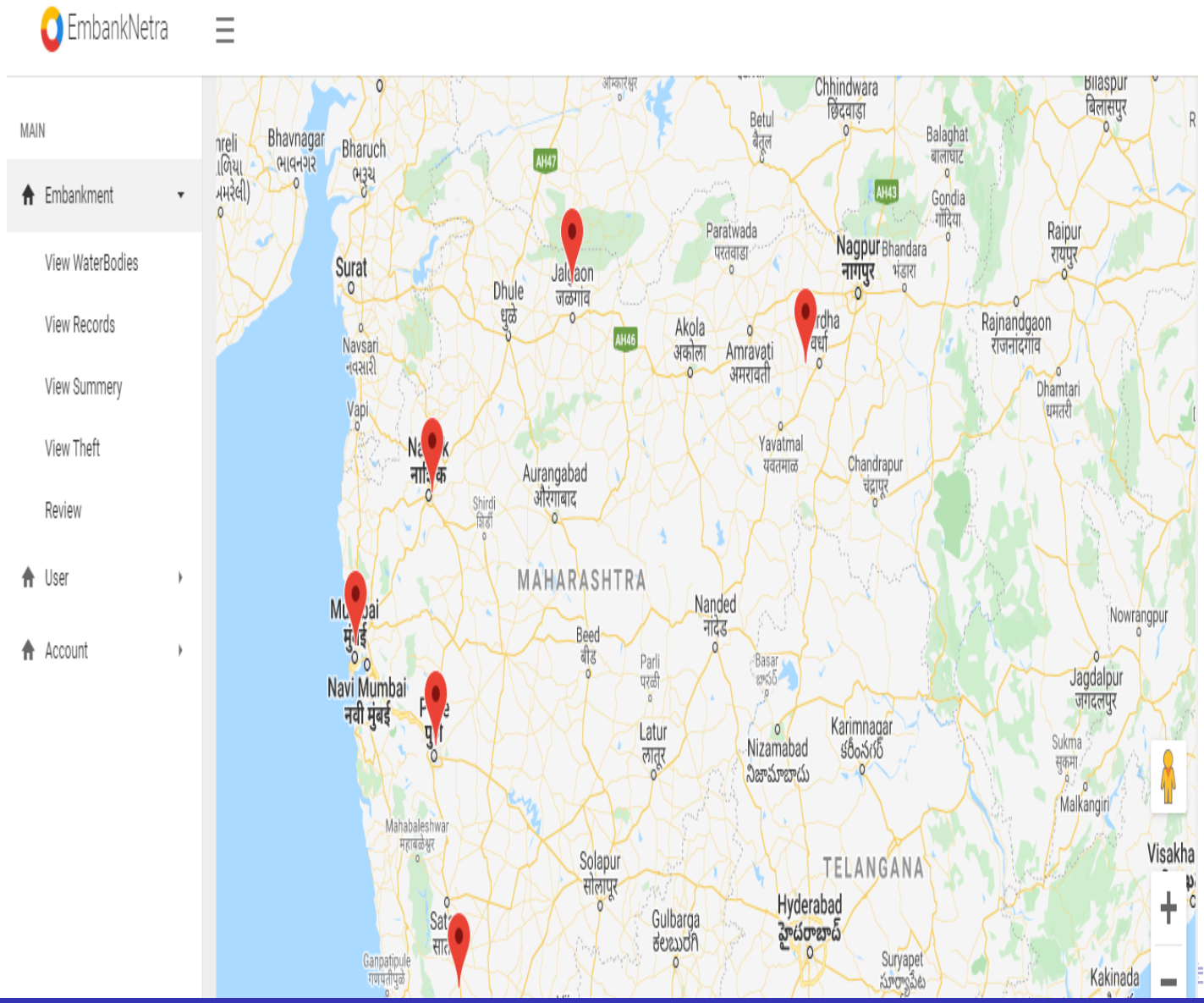

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EmbankNetra

MAIN

- Embankment
  - View WaterBodies
  - View Records
  - View Summery
  - View Theft
  - Review
- User
- Account

Name	State	District	Taluka	Village	Health	Details
Godavari	Maharashtra422006	Nashik	Malegaon	Kalwan	0	Details
Godavari River	Maharashtra415539	Chaugulemala	Chaugulemala	Chaugulemala	20	Details
Indrayani	Maharashtra411006	Pune	Pune	Aalandi	41.25	Details
Powai	Maharashtra400072	Mumbai	Andheri	Andheri	0	Details
Taapi Embankment	Maharashtra425302	Jalgaon	Yawal	Dambhurni	60	Details
Yashoda	Maharashtra442001	Bodad	Anandpur	Anandpur	7.5	Details
Name	State	District	Taluka	Village	Health	Details

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Admin GUI

CWC

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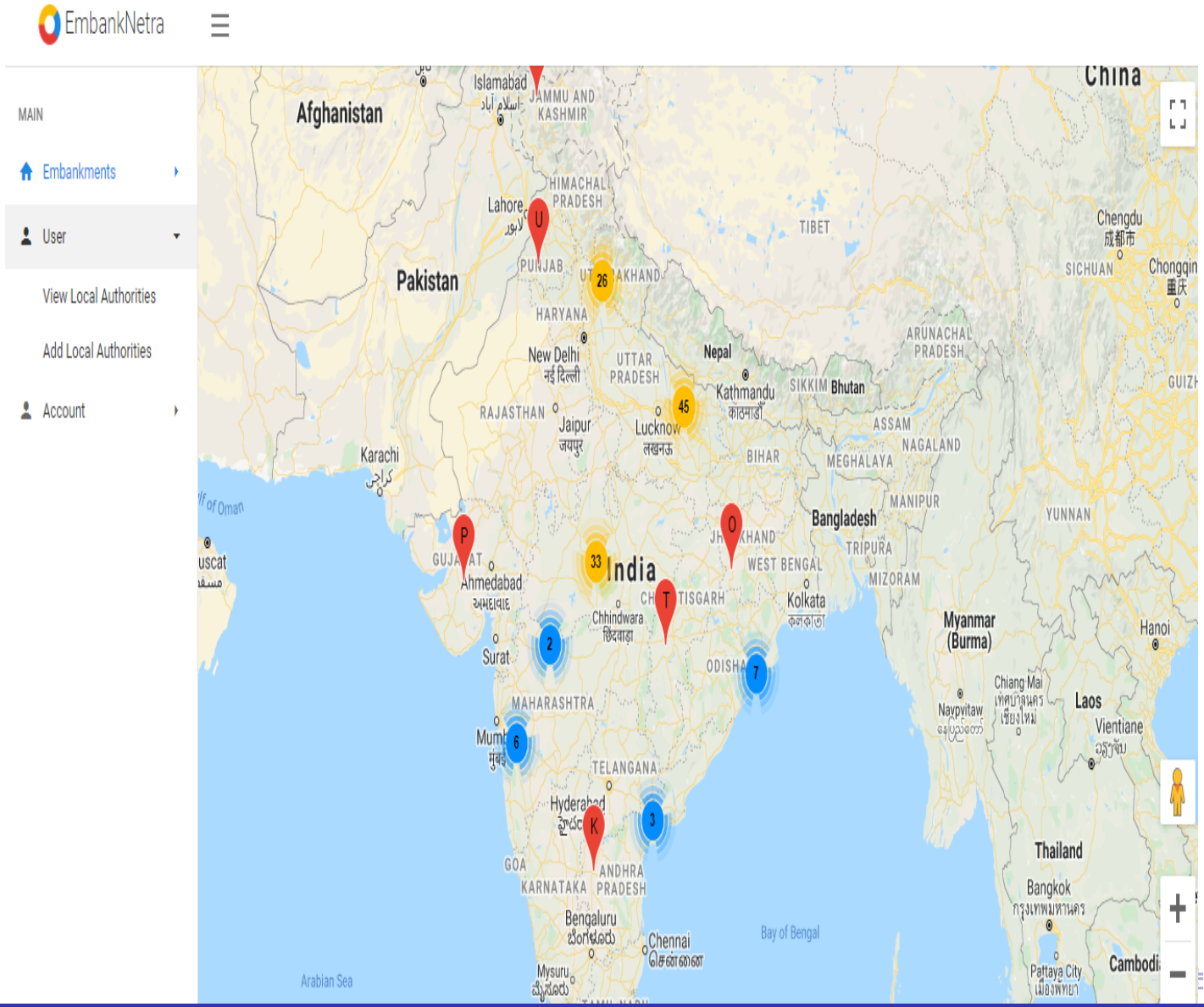

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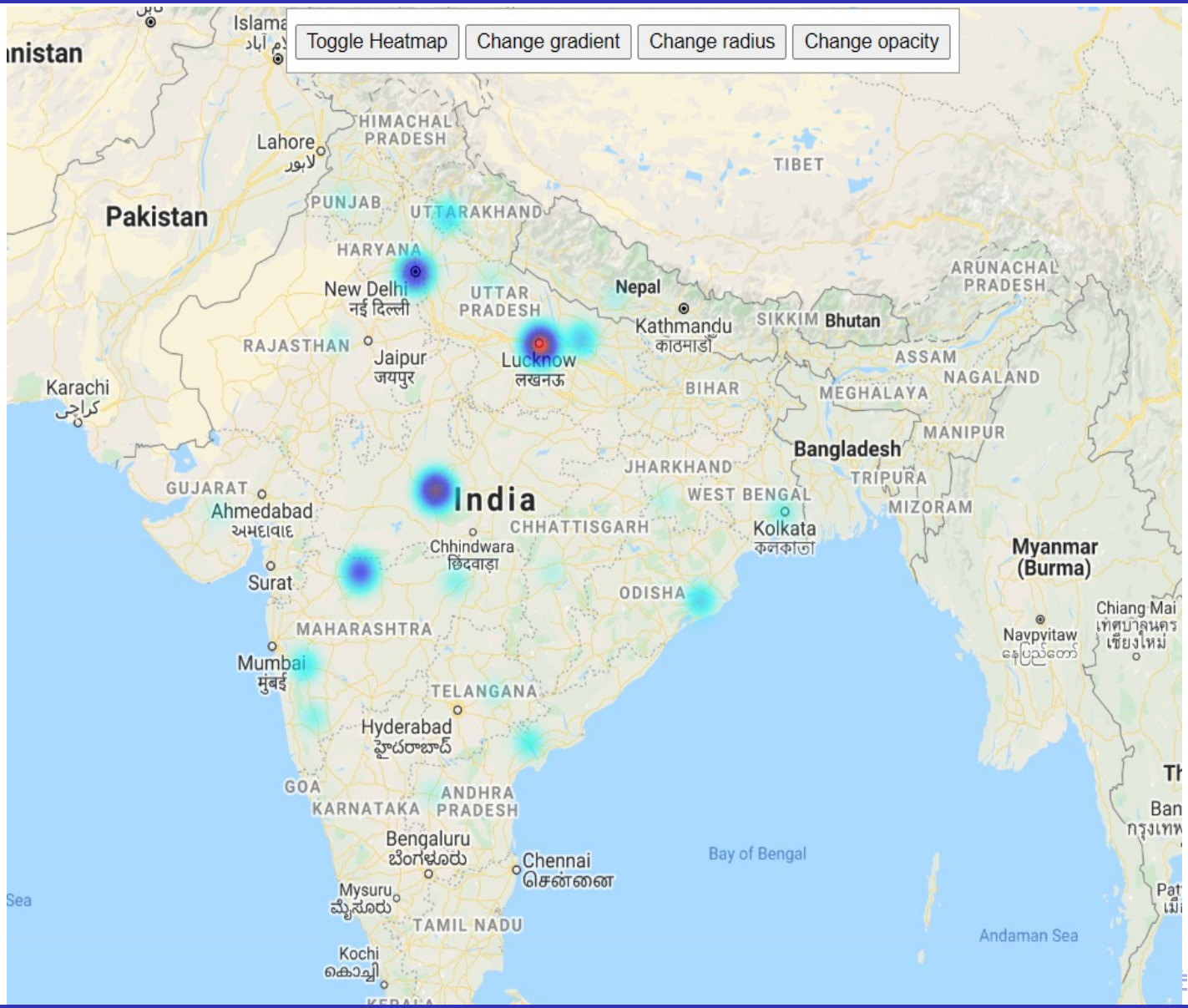

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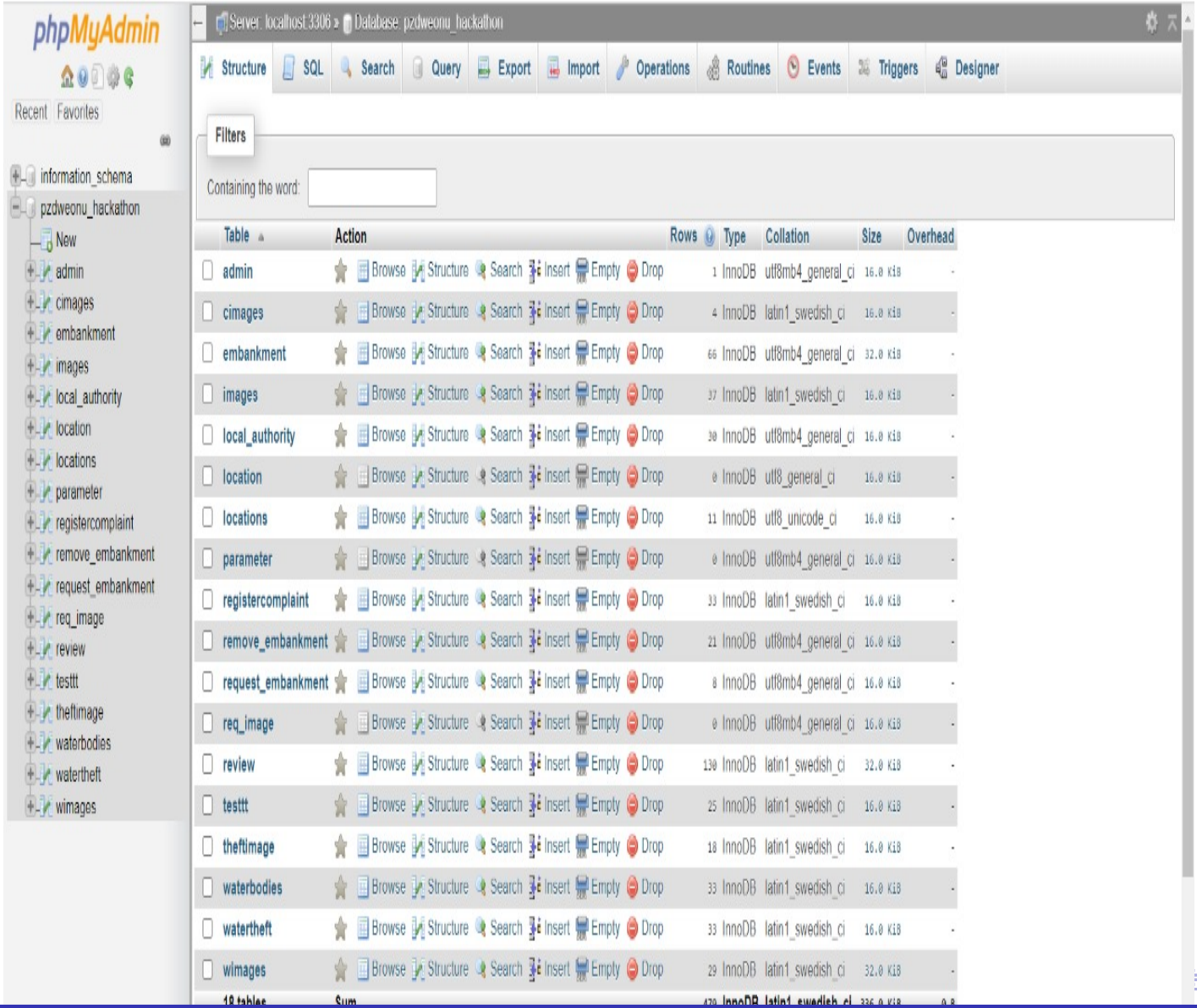

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Site Visits

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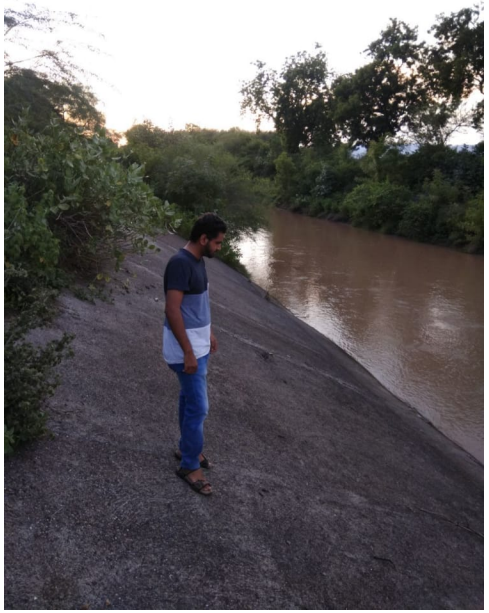

Figure: Site Visit at Embankment Line

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Thanks...