# **Urban Ease – Detailed Features Overview**

Urban Ease is a **web-based platform** that provides city-level environmental insights and encourages **community engagement** to promote sustainable urban planning. The website is divided into **two main sections**:

## **1️⃣ Landing Page**

The **initial entry point** for users:

* **City Search**
  + Users can enter a city name to view detailed environmental data.
  + On search, the user is navigated to the **Dashboard** for the selected city.
* **Community Navigation**
  + Access **Community Reports**: View all submitted citizen reports.
  + **Submit a Report**: Users can contribute their own environmental observations.
* **Quick Info / Navigation Cards**
  + Clean, intuitive UI with cards/buttons guiding users to the main sections.
  + Mobile-friendly and fully responsive.

## **2️⃣ Dashboard**

Once a user selects a city, they are navigated to the **Dashboard**, which provides **comprehensive city-level environmental data**.

### **Structure & Tabs:**

The dashboard is divided into **6 interactive tabs**, plus a data download section:

1. **Overview Tab**
   * Interactive city map (Leaflet.js)
   * City population, growth statistics, and other general metrics.
   * Map allows toggling of data layers:  
     + Air Quality
     + Temperature
     + Vegetation
     + Water
2. **Heat & Air Quality Tab**
   * Displays **PM2.5 & PM10 levels**.
   * Heat Vulnerability Index.
   * Visualized using interactive charts.
   * NASA Earth Observation links for air quality and temperature.
3. **Water & Soil Tab**
   * Groundwater level monitoring.
   * River discharge over time.
   * Soil moisture assessment.
   * Relevant NASA Earth Data links for water observation.
4. **Land Cover Tab**
   * Percentage coverage of vegetation, water bodies, and built-up areas.
   * Interactive charts showing distribution across the city.
   * Useful for urban planning insights.
5. **Greenspace Tab**
   * Detailed breakdown of city green spaces.
   * Tree canopy, parks, and biodiversity corridors.
   * Visualization of restoration opportunities and priority planting zones.
6. **Historical Tab**
   * Displays **historical trends over time** for:  
     + Air Quality
     + Temperature
     + Green Space
     + Water Quality
   * Interactive slider to select year (2000–2025).
   * Charts show trends over time with clear visual insights.
   * Each metric includes **direct NASA Earth Observation links** for further exploration.
7. **Download Data Tab**
   * Users can **export city-specific environmental data as a PDF report**.
   * Useful for research, planning, or personal records.

### **Dashboard Features & Interactivity**

* **Interactive Map Layers**
  + Toggleable layers: Air Quality, Temperature, Vegetation, Water.
  + Marker shows city info: name, country, population.
* **Metrics Cards**
  + Cards for Air Quality, Temperature, Vegetation, Water Quality.
  + Trend indicators (Good / Moderate / Poor / High / Low).
  + Direct links to NASA datasets for each metric.
* **Charts & Graphs**
  + Recharts used for bar and line charts.
  + Responsive, interactive, and visually appealing.
* **Animations & UI**
  + Framer Motion for smooth transitions.
  + Tailwind CSS + shadcn/ui for modern and clean design.

## **3️⃣ Community Engagement**

The **community section** allows citizen participation in urban monitoring and sustainability initiatives:

### **Community Reports Page**

* Displays **all submitted reports** in a clean, searchable layout.
* Users can filter reports by city, topic, or date.
* View report details, including submitted images and descriptions.

### **Submit a Report Page**

* Allows users to **submit new reports** about environmental issues or observations.
* Input fields for:  
  + Report Title
  + Description
  + Location (auto or manual)
  + Upload images (optional)
* Reports are added in real-time to the **Community Reports Page**.
* Encourages citizen science and engagement.

## **4️⃣ User Flow Summary**

1. **Landing Page** → Search for city or navigate to community section.
2. **If city selected** → Redirect to **Dashboard**.
3. **Dashboard Tabs** → Explore Overview, Heat & Air, Water & Soil, Land Cover, Greenspace, Historical trends, or download reports.
4. **Community Section** → View reports or submit new ones.

## **5️⃣ Technology Stack**

* **Frontend**: React, Tailwind CSS, shadcn/ui, Framer Motion
* **Charts & Data Visualization**: Recharts
* **Mapping**: Leaflet.js
* **Data Sources**: OpenStreetMap, Open Meteo API, NASA Earth Observation
* **Interactivity**: Real-time updates for maps, layers, and community reports

This structure organizes your website in a **clear, user-centric way**, emphasizing both **dashboard insights** and **community participation**.