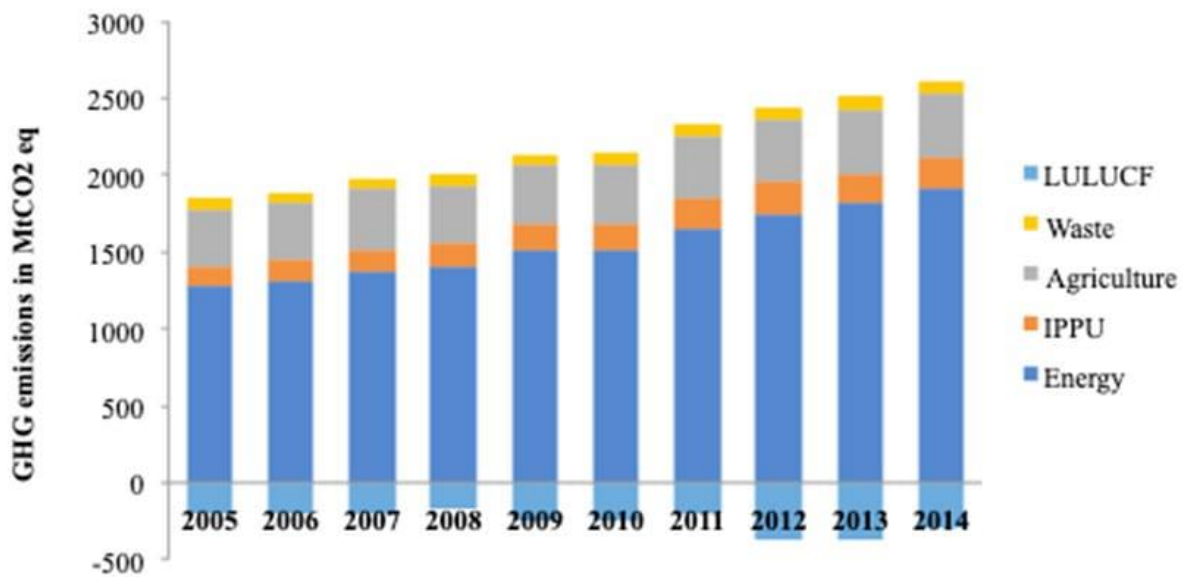


Carbon Foot Print Of India In Recent Years



The bar graph show India's greenhouse gas emissions (GHG) measured in Million tonnes of CO₂ equivalent (MtCO₂e).

It covers the years **2005 to 2014**.

Each horizontal bar is divided into **sectors that contribute to emissions**:

Sectors (color-coded)

- **Blue** – Energy
- **Orange** – IPPU (Industrial Processes & Product Use)
- **Grey** – Agriculture
- **Yellow** – Waste
- **Light Blue** – LULUCF (Land Use, Land Use Change & Forestry)
 - Note: LULUCF is sometimes *negative* because forests absorb CO₂.

Trend Summary (2005–2014)

1. Total Emissions are Increasing

From 2005 to 2014, India's total GHG emissions **steadily rise**.

- 2005 → around **1,300 MtCO₂e**
- 2010 → around **1,700 MtCO₂e**
- 2014 → around **2,000+ MtCO₂e**

This shows **consistent growth** in emissions over the decade.

2. Energy Sector is the Largest Contributor

The **blue section** dominates all bars.

This means:

- Electricity generation
 - Vehicle fuel
 - Industrial energy use
- These are India's biggest pollution sources.

Energy is responsible for **over 60% of all emissions** each year.

3. Agriculture is the Second Largest Contributor

The **grey section** remains stable across years.

Agriculture contributes:

- Methane (from rice fields, livestock)
- Nitrous oxide (from fertilizers)

This contributes **15–20%** of total emissions.

4. IPPU and Waste contribute less

- **IPPU (orange)**: small, but slowly increasing
 - **Waste (yellow)**: very small and stable
- These make up **less than 10%** combined.

5. LULUCF gives a slight negative offset

- Shown in **light blue**
- Represents forests absorbing CO₂
- The value remains almost constant
- Slight negative contribution means forests help lower net emissions

Data Model

- **User** (id, email, password_hash, nickname, created_at)
- **Vehicle** (id, user_id, nickname, fuel_type, mileage_kmpl, registration_number, created_at)
- **Trip** (id, user_id, vehicle_id, distance_km, fuel_used_l, emission_kg, start_time, end_time, source)
- **Settings** (user_id, preferred_units, reminder_time)

Core Algorithms

Emission calculation

- If distance & mileage known:
 - $\text{fuel_used} = \text{distance_km} / \text{mileage_kmpl}$
 - $\text{emission_kg} = \text{fuel_used} * \text{emission_factor}[\text{fuel_type}]$
- If OBD reports fuel used directly, use that value.
- Emission factors example (kg CO₂ / litre): petrol=2.31, diesel=2.68, cng=2.69

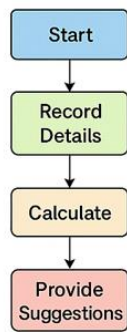
Classification thresholds (monthly totals)

- Low: 0–100 kg CO₂/month
- Moderate: 100–240 kg CO₂/month
- High: 240–450 kg CO₂/month
- Very High: >450 kg CO₂/month

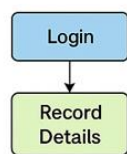
These are configurable values in the rules table.

EcoTrack Workflow

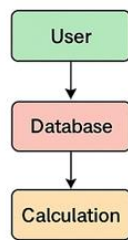
Conceptual Flow



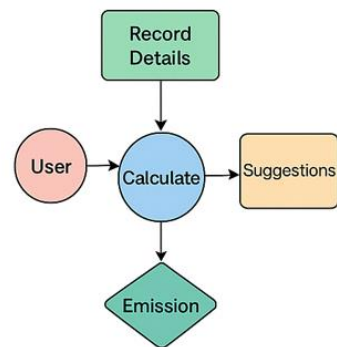
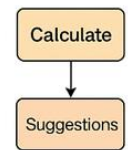
User Flow



Data Flow



Calculation Logic



Web of Flow

Architecture Diagram

