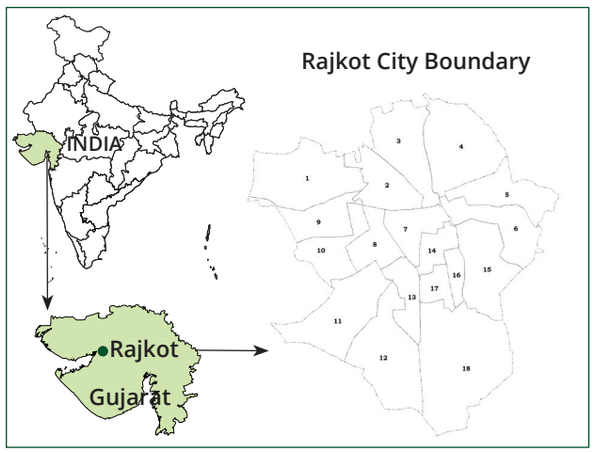
# City Climate Profile - Rajkot

Rajkot, an industrial town famous for its foundry and machine tools industry, is the fourth largest city in the state of Gujarat. It is located on the banks of the Aji and Nyari rivers at the center of peninsular Saurashtra region, in the central plains of Gujarat state.

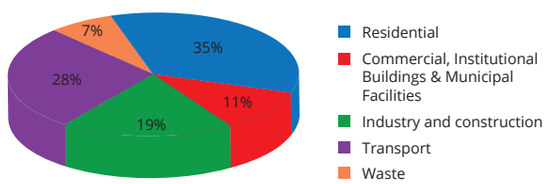
| | |
|---|---|
| **Population:** | 1,286,678 (2011 Census of India) |
| **Area:** | 129 sq. km. |
| **No of Wards:** | 18 wards |
| **Gender Ratio:** | 908/1000 males |
| **Literacy rate:** | 87.80% |




## Greenhouse Gas Emissions Inventory

The total GHG emissions by Rajkot City (2015-16) is 1.88 million tonnes of carbon dioxide equivalent ($tCO_2e$). This translates to an average per capita GHG emission of 1.33 tonnes of $CO_2e$, which is less than India's per capita GHG emission 1.56 $tCO_2e$ for the year 2010.

**Sector-wise Share of GHG Emission in Rajkot, 2015-16**




## Climate Risk / Vulnerability Assessment

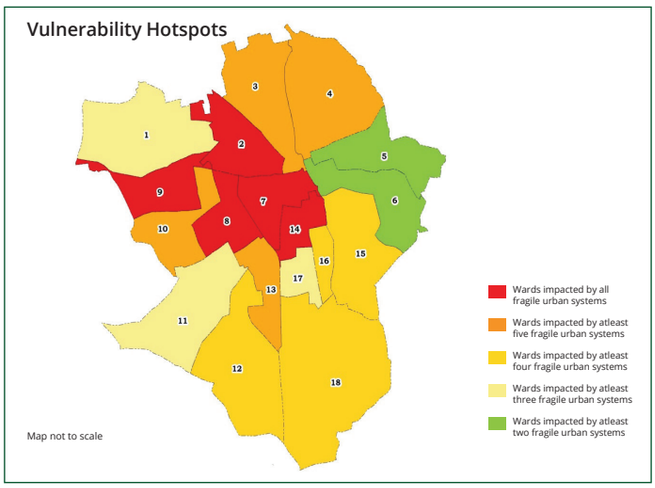
Shared Learning Dialogues (SLDs) were conducted to develop a climate risk and vulnerability assessment of the fragile urban systems in the city. A 69% rise in mean annual rainfall (2017-2100) from a baseline of 660 mm (1961-90) and rise in maximum temperature of 3.8°C during the period (2071-2100) from a 1960-90 baseline, is projected.

| Fragile Urban Systems | Climate Risks | Climate Fragility Statements | Risk* |
|---|---|---|---|
| (Health) | 🌡 ☁ | • Existing primary public health care infrastructure will be unable to address increasing health issues | High |
| | | • Preventive health measures will be rendered inadequate | Medium |
| (Water) | 🌡 | • Increased exposure of the community to poor quality ground water due to increase in demand for water | Medium |
| | ☁ | • Increased chances for potential contamination of surface water supply with untreated sewage | High |
| (Sewerage) | ☁ | • Sewage treatment systems may be rendered ineffective due to higher mixed sewer overflow | Medium |
| (Storm Water Drainage) | ☁ | • Increased instances of back-flow of sewage into households, posing a health risk due to contamination in the water supply network | Medium |
| (Solid Waste) | 🌡 | • Increase in decomposition rates and increased probability of landfill fires | Medium |
| | ☁ | • Increased instances clogging of storm water drains, leading to greater knock on impact on public health | Medium |
| (Transport) | 🌡 ☁ | • Already inadequate public transport services, already challenged by limted last mile connectivity, will be further stressed | Medium |
| | 🌡 | • Increased air pollution due to increased use of private vehicles | High |
| | ☁ | • Increased incidences of traffic congestion due to water logging | Medium |

*** Risk Score (likelihood x consequence) –** Low: 1-4; Medium: 5-10; High: 11-20; Extreme: 20-25

🌡 temperature increase; ☁ rainfall increase




# Low Carbon and Climate Resilient Solutions

Based on the climate risks and vulnerability assessment, the following initiatives have been undertaken. Some were implementation projects to showcase change (Quick-wins) while others were detailed studies that can lead to financially viable projects (Bankable).

## Quick-win Projects

### Buildings

- *Renewable Energy for Social Housing:* Rajkot Municipal Corporation (RMC) plans to construct 10000 affordable housing units by 2020. CapaCITIES has created a case for utilising renewable energy for all common utilities in all social housing projects, by deploying a pilot Solar PV system of 31.5 kWp in the Krantiveer Khudiram Bose Township, creating an annual saving of 30,296 units of electricity per year, contributing to a GHG emission reduction of 25 $tCO_2e$ per year. (Project cost: CHF 37'000)

### Energy

- *Installation of 145kWp Solar PV system in Aji Water Treatment Plant:* RMC under the CapaCITIES project has installed 145 kWp solar PV systems to power one of the five water treatment plants in Rajkot, contributing to over 50% of the allowed PV capacity at the plant. This is saving total 170,000 Units of electricity per year (~14% of existing electricity consumption is being fulfilled by solar installation), contributing to a GHG emission reduction of 174 $tCO_2e$ per year. (Project Cost: CHF 57'000)

### Urban Planning

- *Installation of Two Ambient Air Quality Monitoring Stations* for monitoring Particulate Matter (PM2.5, PM10) providing critical information for transport planning, health impacts and awareness and urban planning. (Project cost: CHF 6'700)

### Water

- *Area based groundwater recharge:* Rajkot lies in an arid zone and faces significant water stress during the summer months due to inadequate water supply. Area based groundwater recharge systems were implemented at 5 locations across the city. These recharge structures will not only ensure safe groundwater recharge from rainfall runoff, but will also address issues of urban flooding, resulting from inadequate storm water drainage systems. (Project Cost CHF 32'000)

## Bankable Projects

### Water & Waste Water

- *Assessing the potential for augmentation of local water resources:* Ground water levels and their quality were studied across the city. The potential for their augmentation was assessed based on a ground water/ aquifer recharge plan and development of catchment area, and also on identification of mechanisms for reuse of treated wastewater. Based on this assessment, detailed plans for ground water recharge structures were proposed for more than 15 locations across the city, both within the residential areas and also along the main roads. (Project cost: CHF 39'000)

### Transport

- *Assessment and plan for ensuring last-mile connectivity along the BRT stretch, including pre-feasibility of potential electrification of the corridor:* The study explored the feasibility of improving ridership and sustainability of the existing 10.7 km BRT corridor by improving its accessibility. (Project cost: CHF 47'000)

### Solid Waste Management

- *Preparation of an Integrated Solid Waste Management Action Plan for RMC for a 20 year planning horizon:* Baseline assessment and analysis was carried out to develop a comprehensive implementation/action plan which considers the impact of the choices of technology for waste management on GHG emissions from the waste sector, in order to ensure climate sensitive solid waste management in the City. (Project cost: CHF 19'500)

For more information, please contact:

**ICLEI- Local Governments for Sustainability, South Asia**
C-3 Lower Ground Floor, Green Park Extension, New Delhi 110 016, Tel: +91-11-4974 7200, Fax: +91-11-4974 7201
Email: iclei-southasia@iclei.org, Rajkot Contact: +91-9998342046

Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Swiss Agency for Development and Cooperation SDC

CapaCITIES
LOW CARBON • CLIMATE RESILIENT • CITY DEVELOPMENT

RAJKOT MUNICIPAL CORPORATION

south pole

ICLEI Local Governments for Sustainability SOUTH ASIA

econcept
Research / Consulting / Evaluation