


Implemented by  
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On behalf of  
 Federal Ministry  
for the Environment, Nature Conservation  
and Nuclear Safety  
of the Federal Republic of Germany

  
सत्यमेव जयते  
Ministry of Housing and Urban Affairs  
Government of India

  
Smart City  
MISSION TRANSFORM-NATION

  
Climate Centre for Cities

# USER GUIDE FOR ClimateSMART CITIES Self Assessment Tool



Ministry of Housing & Urban Affairs  
2021



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## The Framework

The Ministry of Housing and Urban Affairs (MoHUA) launched "ClimateSmart Cities Assessment Framework" (CSCAF), to incentivize holistic, climate responsive development. The framework serves as a tool for cities to assess their present situation and provides a roadmap for cities to adopt and implement relevant climate actions. The objective is to enable cities to assess their preparedness to tackle climate change and help them with a roadmap to achieve sustainable climate actions on ground.

The CSCAF is first-of-its-kind city assessment framework on climate relevant parameters. It consists of 28 diverse indicators across 5 sectors namely:

- Energy and Green Buildings,
- Urban Planning, Green Cover and Biodiversity,
- Mobility and Air Quality,
- Water Management, and
- Waste Management.

The framework will help cities to improve their performance standards and in creating green, sustainable and resilient urban habitats.

## The Tool

The CSC – Self Assessment Tool is an emissions assessment tool that is based on the CSC Assessment Framework. It uses activity data, already being collated in the framework to estimate greenhouse gas emissions from activities mentioned under indicators across the five sectors. The tool follows the 'Global Protocol for Community-Scale Greenhouse Gas Emission Inventories' (GPC) to estimate indicator-wise GHG emissions and further provides mitigation potential for the interventions mentioned in the framework. The mitigation potential is estimated based on the progression levels mentioned in the framework, thereby providing cities with quantifiable, emission-based evidence to identify low-hanging fruits.

Based on the emission numbers, the tool gives cities focused actions to prioritise categories and indicators. Under the Urban Planning, Green Cover & Biodiversity category, the tool estimates the amount of carbon sequestration of green cover and the sequestration potential of increasing the existing green cover. Thus, the tool would help design and locate climate solutions within the Smart Cities Mission.

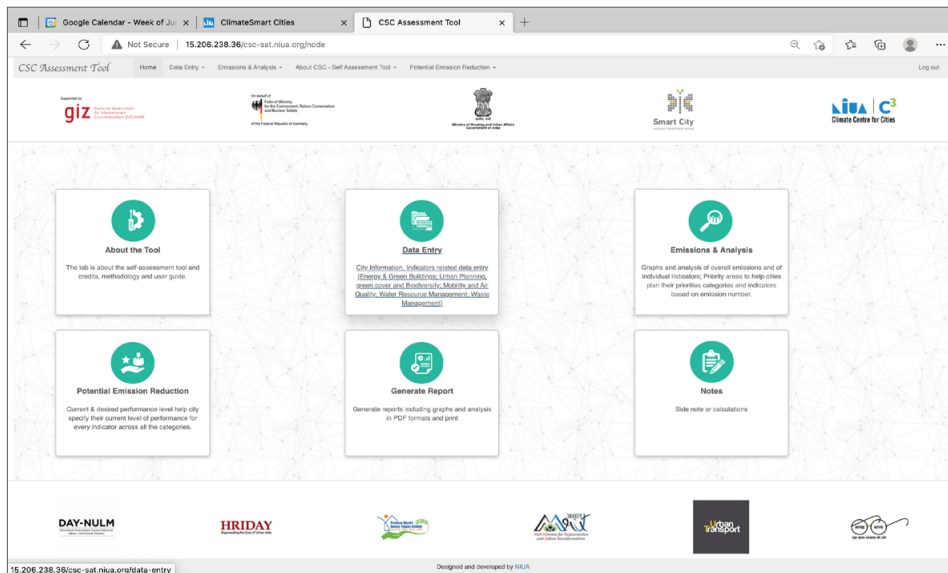
To access the tool one can simply login to the link:

<https://niua.org/c-cube/csc-sat>

By creating a username and password,  
one can easily access the dashboard.

# Steps for Using the Tool

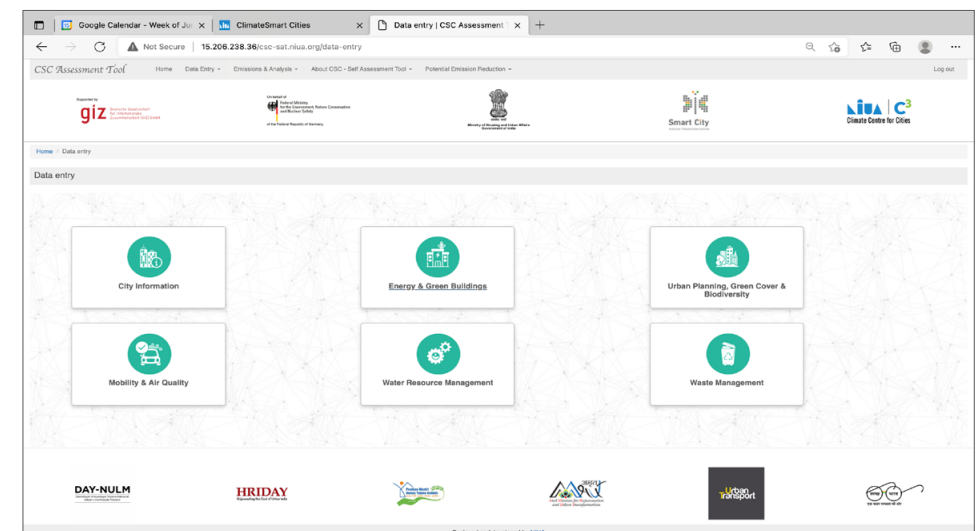
## 3.1. CSC Assessment Tool Dashboard



Once we login the tool using username and password the tool opens and the above 'Home Page' appears on the screen. This page has 6 function tabs include: About the Tool, Data Entry, Emission & Analysis, Potential Emission Reduction, Generate Report, Notes.

The users can logout anytime from the tool, with 'Log Out' Option given on right hand side.

## 3.2. Data Entry



The above page is visible on clicking the Data Entry button on the Home Page of the tool.

The data entry tab includes 6 thematic areas that are already being captured in the framework, along with some additional parameters to analyse emissions.

If the city do not have any information in any of the sectors, then they must enter '0' or just leave blank.

### 3.3. City Information

Click on the tab 'City Information' and enter appropriate information as indicated by the tool. The tool has pre-filled basic information about all cities in India and the users will be asked to enter additional details of the city.

Home / Data Entry / City Information

City Information

Edit Your Draft Submission for City- (AHMEDABAD)

Administrative information

Name of the City \*

State

Inventory Year

2021

Land Area

Area in Sq Km

City Statistics

City Population

GDP of economic Activity

In INR Crores

Type Of Economy

- None -

City Climate

Mean Annual Temperature

In °C

Mean Annual Rainfall

In mm

Upload City map in JPEG or PNG Format Only

Choose File | No file chosen

0/1000 characters

Publish  Send as draft

DAY-NULM HRIDAY ClimateSmart Cities URBAN REPORT

Designed and developed by NEUA

Map of the city is required to be uploaded in JPEG or PNG format only

### 3.4. Energy and Green Building

Under Energy and Green Buildings tab, the tool estimates emissions for Indicators 1, 2, 3, 4, 6.

Home / Data Entry / Energy and Green Buildings

Energy and Green Buildings

Name of the City

- None -

Indicator 1: Electricity Consumption in the City (Focused on Municipal Services)

Total Electricity Consumption for Municipal Services

kWh

Total Electricity Consumption for Public Park & Gardens

kWh

Total Electricity Consumption for community halls

kWh

Total Electricity Consumption for Municipal Buildings

kWh

Total Electricity Consumption for Municipal Schools

kWh

Total Electricity Consumption for community clinics & hospitals

kWh

Total Electricity Consumption for Municipal Fire Services

kWh

**Indicator 1** Energy and Green Building, the city is required to enter data related to 'Total electricity consumption in the City focussing on the Municipal Services (Total electricity consumption in Public Park & Gardens, Community Halls, Municipal Buildings, Municipal Schools, Community Clinics & Hospitals, Municipal Fire Services).

**Indicator 2** focuses on the 'Total Electrical Energy in City Derived from Renewable Sources.

**Indicator 3** focuses on Fossil Fuel Consumption in the City (focussed on Municipal Services) and city is required to enter consumption data related to diesel, petrol, LPG, CNG and PNG.

Indicator 2: Total electrical energy in city derived from renewable sources (Annual)

Total electrical energy generated from all grid connected renewable energy sources within the city

MU

Total electricity consumption in the city

MU

Total number of unit lost due to AT&C loss

MU

Note: 1MU = 1 Million Unit = 10,00,000 kWh

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Indicator 3: Fossil Fuel Consumption in the City (Focused on Municipal Services) (Annual)

Total diesel consumption

KL

Total petrol consumption

KL

Total LPG consumption

KL

Total CNG consumption

KL

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Indicator 4: Energy efficient street lighting in the city

Total number of street lights in the city

number

Total number of energy efficient street lights in the city

number

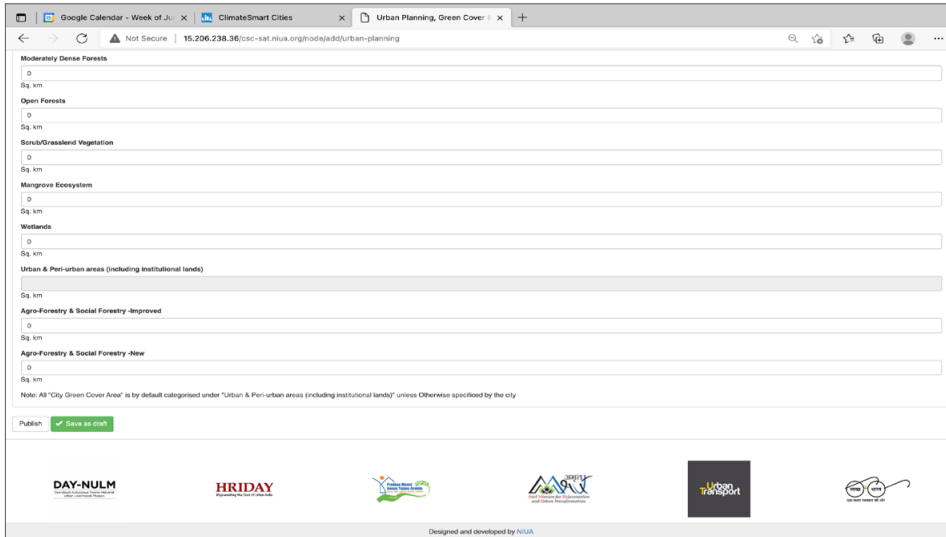
**For Indicator 4**, cities are required to enter data of Energy efficient street lighting in the city.

**Indicator 6** focuses on Green Building Adoption. The cities are required to add information of existing built-up area of green building, built up area of all buildings that are approved for occupancy for the assessment, Total electricity consumption of green buildings certified and total electricity consumption of all buildings

The data entered in the fields must be according to the units specified in the tool for a city.

### 3.5. Urban Planning, Green Cover and Biodiversity

Under Urban Planning, Green Cover & Biodiversity tab, cities are required to enter information for the Indicators 2 i.e. Proportion of Green Cover.



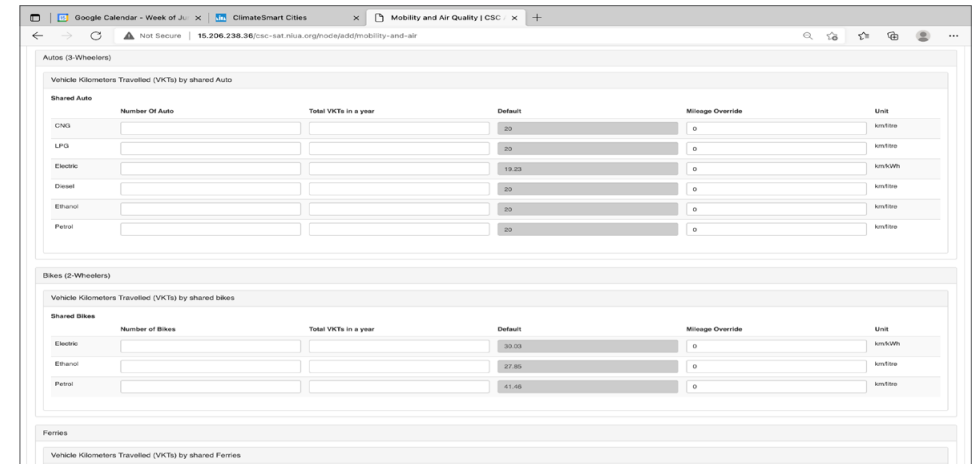
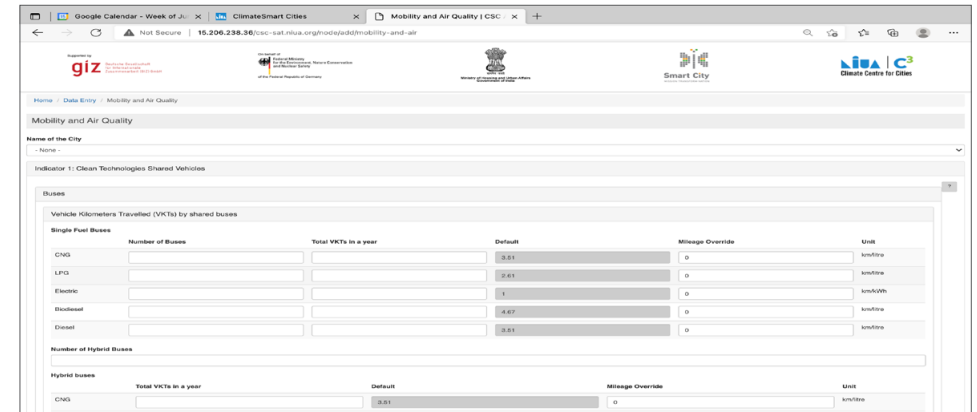
Firstly, enter the Total Green Cover Area of a city, which by default gets classified under the 'Urban & Peri-Urban Areas (including institutional lands)' subcategory. Further the data must be entered to the Green Cover Area classification that includes Moderately Dense Forests, Scrub/Grassland Vegetation, Mangrove Ecosystem, Wetlands.

For any help to understand detailed definitions of Green Cover Area Subcategories click (?) button.

The data entered in the fields must be according to the units specified in the tool for a city.

### 3.6. Mobility and Air Quality

Click on 'Mobility and Air Quality' tab to enter information for the Indicator-1 i.e. 'Clean Technologies Shared Vehicles'. The tool estimate emissions based on Vehicle Kilometers Travelled by shared bases, shared taxis (4-wheelers), shared auto (3- wheelers), shared bikes (2-wheelers) and shared ferries.



The tool estimates emissions based on the Activity, Share, Intensity, Fuel (ASIF) Framework, and Vehicle Kilometers Travelled (VKTs).

Enter VKTs for the following 5 vehicle types – Buses, 4, 3 and 2- wheelers, and ferries according to type of fuel that is being consumed.

Default Mileage for vehicles is specified for every fuel type. However, users can override city-specific mileage values for more accurate emission estimation



Electric:   km/kWh

Ethanol:   km/litre

Petrol:   km/litre

Shared Ferries	Number of Ferries	Total VKTs in a year	Default	Mileage override	Unit
CNG	<input type="text"/>	<input type="text"/>	0.041	<input type="text" value="0"/>	km/litre
LPG	<input type="text"/>	<input type="text"/>	0.03	<input type="text"/>	km/litre
Bio diesel	<input type="text"/>	<input type="text"/>	0.04	<input type="text"/>	km/litre
Diesel	<input type="text"/>	<input type="text"/>	0.04	<input type="text"/>	km/litre

Note 1: Please Enter Information on number of vehicles and VKTs for mobility needs of people, in accordance with CSC-AP  
 Note 2: Enter (0)zero if data for any of the above parameters is not applicable or available  
 Note 3: Enter city specific mileage to override default value

Publish  Save as draft

In case cities do not have information on VKTs for shared vehicles, the help button (?) mentions different methods to calculate annual VKTs.

The data entered in the fields must be according to the units specified in the tool for a city.

### 3.7. Water Management

Click on the Water Management tab to enter details for Indicators 2, 5 and 6 i.e., Extent of Non-Revenue Water, Energy Efficient Water Supply System, Energy Efficient Wastewater Management System of the City respectively.

Indicator 2 - Non-Revenue Water, electricity required to supply 1000 Litres of water by municipal authorities is assumed to be 2.33 kWh.

However, for more accurate estimation of emissions, users can enter city-specific information on electricity consumption for municipal water supply.

Cities should refer to their respective water audit reports to enter data for input parameters under Indicator 5 Energy Efficient Water Supply System in the City and Indicator 6 Energy Efficient Wastewater Management System in the City.

Name of the City:

Indicator 2: Extent of Non-Revenue Water

Total Water produced and put into the transmission and distribution system

Millions Litres Per Day:

Total Water Sold

Millions Litres Per Day:

Electricity required to supply 1000 litres of water by municipal authorities	Default	Override
<input type="text"/>	2.33	<input type="text" value="0"/>

Note: Default "Electricity Required" is used to estimate NPW emission. Enter city specific value to override default value

Indicator 5: Energy Efficient water supply system in the city

Reduction of energy consumed Per MLD

%:

Annual electricity consumption of water supply management

kWh:

Indicator 5: Energy Efficient water supply system in the city

Reduction of energy consumed Per MLD

%:

Annual electricity consumption of water supply management

kWh:

Total Water Supplied

Millions Litres Per Day:

Note: Refer to Water Audit Report to enter data for the parameters mentioned above

Indicator 6: Energy Efficient wastewater management system in the city

Reduction of energy consumed per MLD of wastewater generation and treatment

%:

Annual electricity consumption of wastewater management

kWh:

Total wastewater treated

Millions Litres Per Day:

Note: Refer to Water Audit Report to enter data for the parameters mentioned above

Publish  Save as draft

The data entered in the fields must be according to the units specified in the tool for a city.

### 3.8. Waste Management

Click on the 'Waste Management' tab to enter information regarding the city's waste management.

Waste emissions are estimated from Municipal Solid Waste (MSW) sent to Landfill/Dumpsites, Biologically Treated and Incinerated.

The tool estimates emissions for Indicator 4 where cities are required to fill the data related to total quantum of MSW sent to landfill/dumpsite, type of landfill, methane recovered at the landfill.

Click on the help (?) button for more information on the different types of landfills.

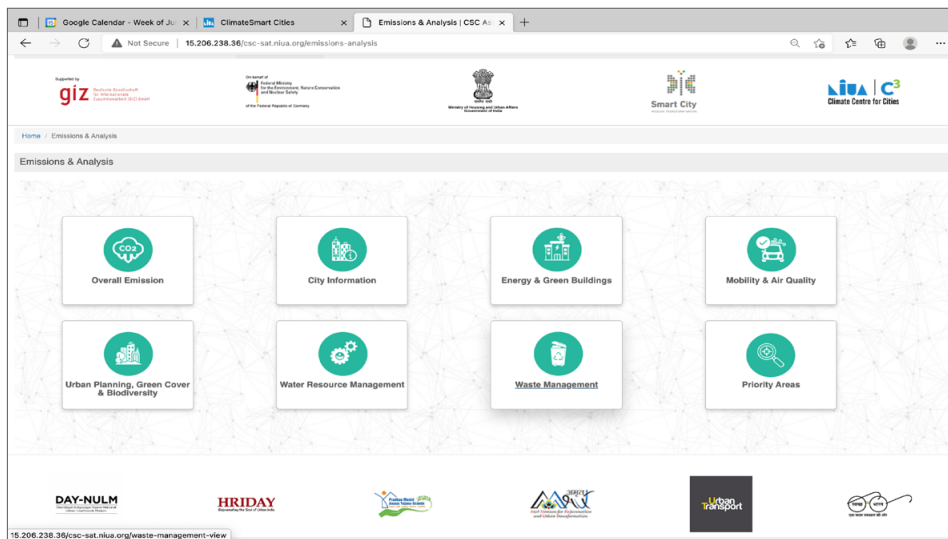
For MSW sent to landfill/dumpsite, waste composition must be entered in percentage by the user. Users are required to fill following categories of waste composition of the city i.e., 'Food Waste, Garden & Park Waste, Sanitary Waste, Paper & Cardboard, Rubber & Leather, Wood Waste, Textiles and Other Waste'.

For biological treatment of solid waste, user must provide data for Quantum of Waste Treated through Biological Processes like Composting - Bio-Methanisation in the unit 'tonnes per annum', 'Composting Amount', 'Dry waste Composition' and 'Wet Waste Composition' (in percentage). With regards to 'Anaerobic Digestion' the user is required to provide Digestion's Amount (in tonnes per annum) and Composition of Wet waste and dry waste in percentage.

It is suggested to write city-specific information for accurate emission estimation. For waste incineration, users must enter quantity, type of incineration premises and type of incineration technology.

The data entered in the fields must be according to the units specified in the tool for a city.

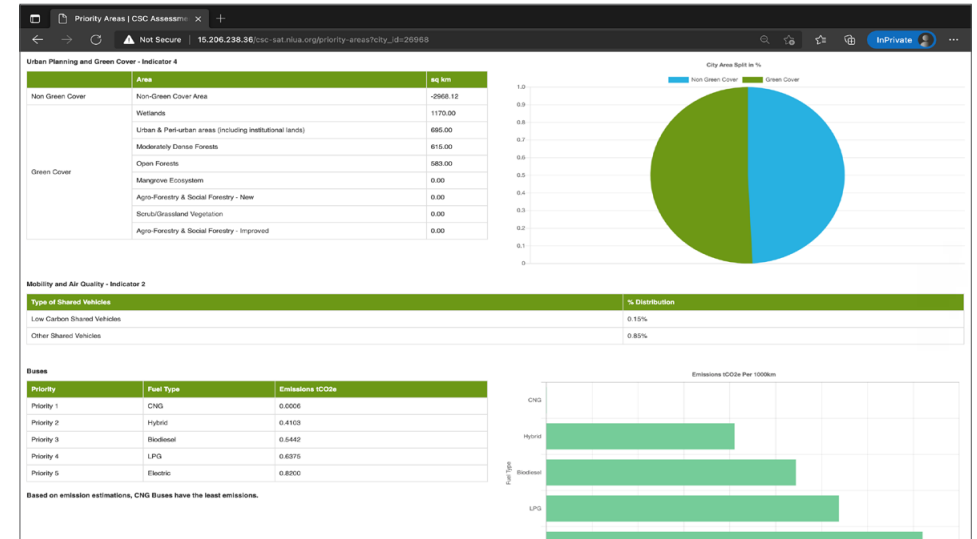
### 3.9. Emissions and Analysis View



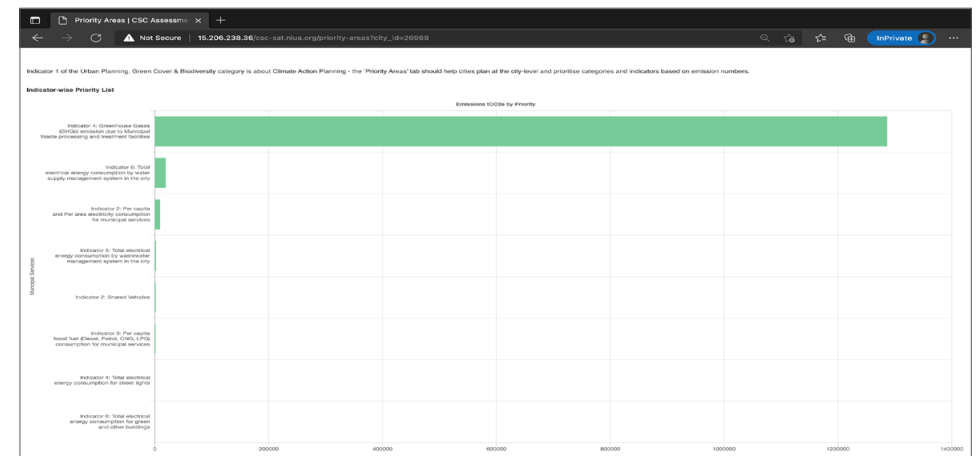
The above page is visible on clicking the Emissions and Analysis tab in the Home Page.

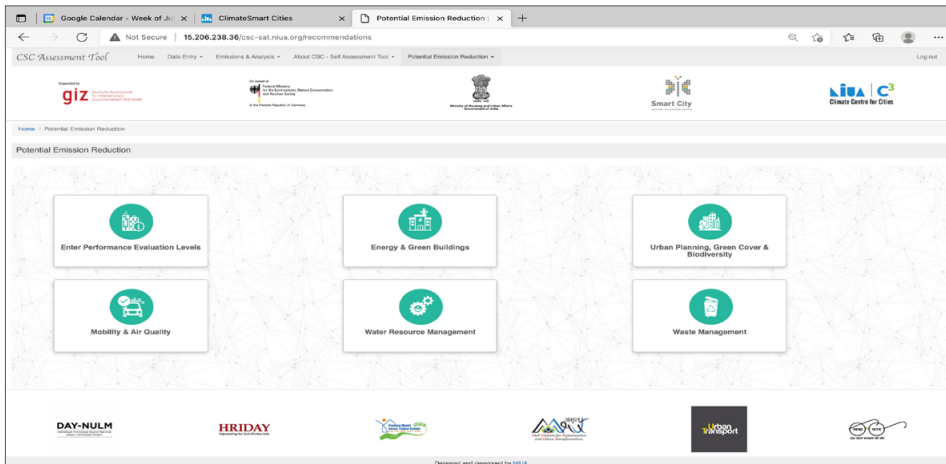
Based on information entered in the data entry tabs, the tool estimates emissions of the specified city and gives a detailed analysis of the emissions under every sector according to information filled earlier.

### 3.10. Priorities Areas



This tab helps to prioritize actions based on emissions estimated for all sectors and their individual indicators. It helps cities identify sectors and activities that cities should focus and initiate action on, based on the emission numbers. It helps the city to take immediate actions against the emissions that will pollute the environment.





For the Low Carbon Shared Vehicles indicator, the prioritization for the 5 different vehicle categories is done based on the emission estimations per 1000 km according to type of fuel. The calculation uses default mileage and emissions factors, however, on entering city-specific mileage values in the data entry tab, cities will be able to prioritize least emitting fuels for the given vehicle categories.

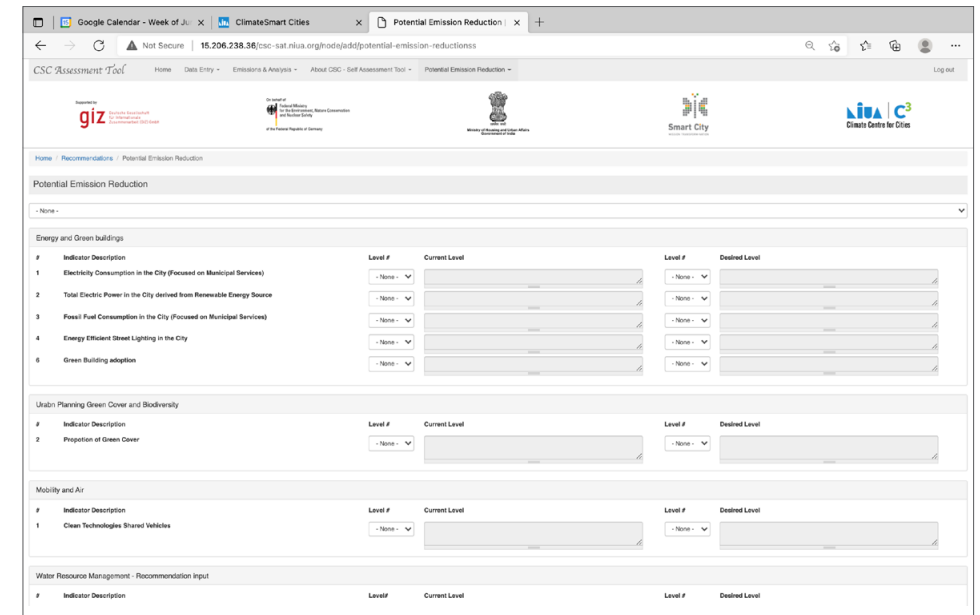
### 3.11. Potential Emission Reduction

The above page is visible in clicking 'Potential Emission Reduction' button on the Home page. This page is designed in line with indicator specific performance evaluation levels mentioned in the ClimateSmart Assessment Framework.

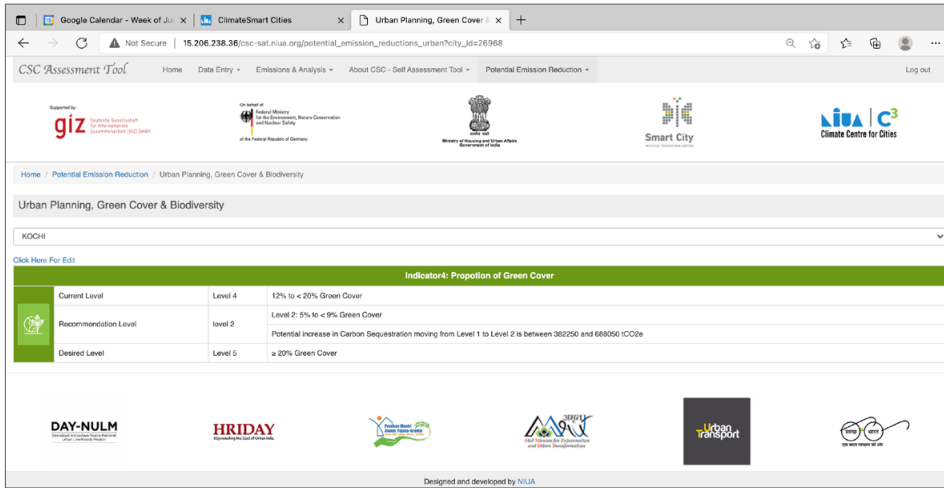
To enter Performance Evaluation Levels, users will have to refer to last assessment cycle city's diagnostic report on SmartNet.

For every indicator, cities would need to input their current performance evaluation levels, followed by the desired performance evaluation levels they want to attain.

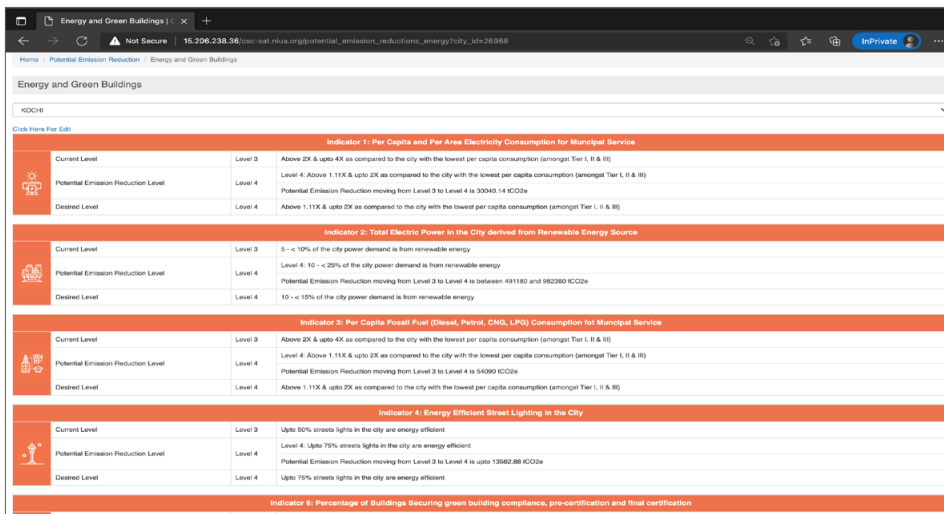
Based on performance evaluation levels of the selected city, the tool will estimate emission reduction potential for indicators being captured in the tool for all indicators based on the framework.



The above page is a view of the performance evaluation level tab. Current and Desired Performance Level tabs help users to specify the city's current level of performance for every indicator across all the categories. Default performance level is 1 for all the indicators. Users are expected to go through every sector and select appropriate performance levels between 1 to 5.

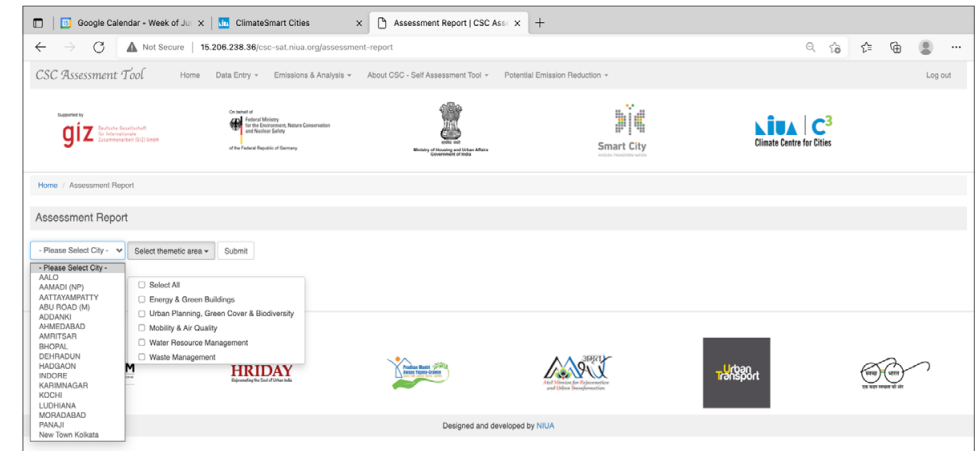
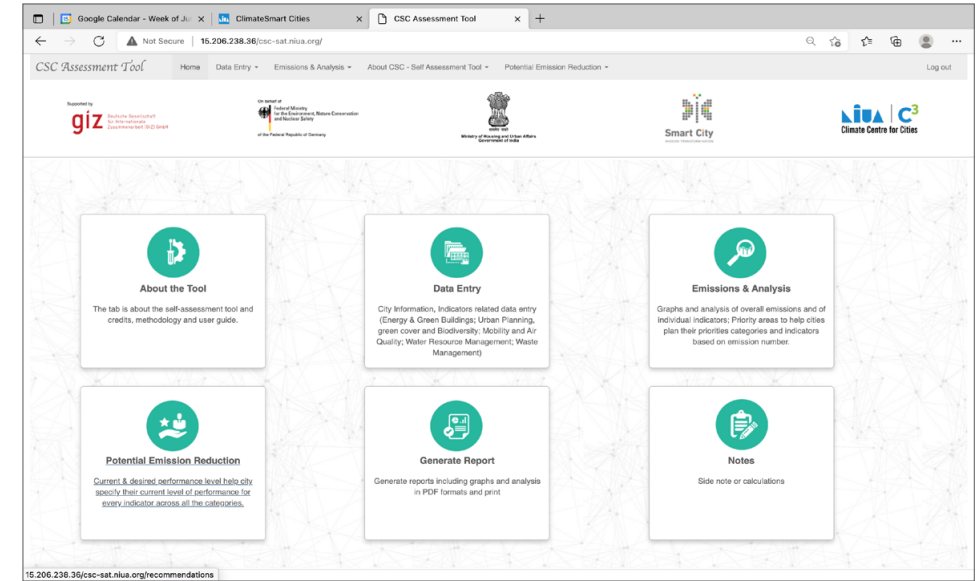


Current Level is based on city's current performance in the assessment framework and Desired levels in the performance level which the city is aiming to achieve. Description of each performance level for respective indicator is shown in the text box next to the indicator level (Above image).



Performance Evaluation levels are automatically generated as the user enters the data for all indicators. This will show details for 3 Levels – Current Level, Recommended Level, which is auto defined as the level after the current level.

### 3.12. Generate Report



'Generate Report' tab on Homepage creates a consolidated PDF report which includes:

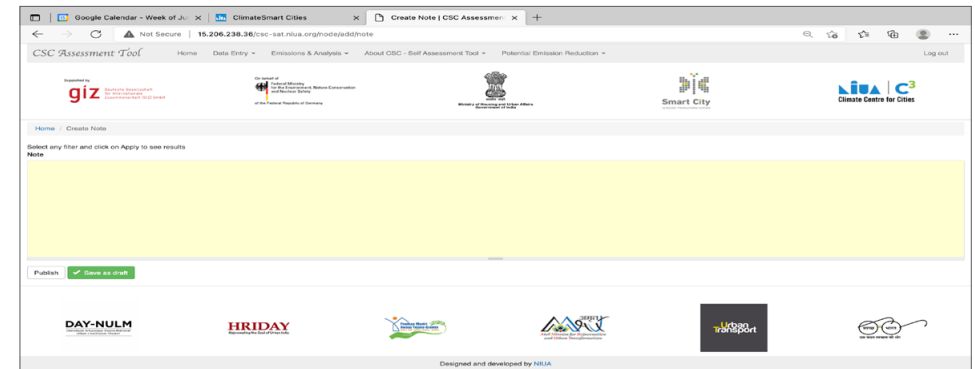
- Methodology
- Data
- Emissions and Analysis
- Priority Areas and
- Potential Emission Reduction

User should ensure all parameters has been filled before clicking on the Generate Report tab.

User can 'Download/Print' individual theme base assessment report, as well as compiled report from the tab. By clicking the button creates a PDF File names "ClimateSmart Cities Self-Assessment Report".

Kindly note: User should enable 'Print Backgrounds' setting option before saving the assessment report as PDF, or printing it.

## Notes



The Notes tab, in the image above should be used to enter any additional information or calculations that the tool does not capture, but might be helpful for a city to document or report.

## Limitation of CSC-Self Assessment Tool

The tool uses the Global Protocol for Community-scale Greenhouse Gas Emission Inventories to estimate emissions. It is important to note that the tool does not provide any city-level inventory, it only gives an estimation of emissions and emission reduction potential for activities mentioned in the framework that can be quantified in terms of GHG emissions. The emission reduction potential numbers are "potential" reduction numbers estimated using information existing in the tool and framework; for more accurate estimations, the tool would need to capture several additional parameters.

To contextualize and simplify calculations, the tool uses India-specific studies, reports and documents for the Non-Revenue Water, Low Carbon Shared Vehicles & Proportion of Green Cover indicators. Wherever possible, the tool uses India-specific emission factors, otherwise it uses global default factors to estimate emissions.

**Project Name :**  
Climate Smart Cities

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German Federal Ministry for the Environment,  
Nature Conservation, and Nuclear Safety (BMU)

**Partner Organisation:**  
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Government of India

**Lead Executive Agency:**  
Deutsche Gesellschaft für  
Internationale Zusammenarbeit (GIZ) GmbH

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National Institute of Urban Affairs