



**Stakeholder consultation workshop proceedings**  
**Developing gender-sensitive heat action plan**  
**Surat**



**Date: 10<sup>th</sup> October 2022**

**Venue: Centre for Social Studies, Surat**

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This document is an outcome of the Stakeholder Consultancy jointly organised by Integrated Research and Action for Development (IRADe) & Urban Health and Climate Resilience Centre of Excellence (UHCRCE), Surat at Centre for Social Studies, Surat for **Developing Gender-Sensitive Heat Action Plan for Surat**, 10<sup>th</sup> October 2022.

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# 1. Gender-Sensitive Heat Action Plan. Surat

## 1.1 Background

South Asia is a hotspot for Heatwave-related incidences. Between 1979 and 2017 the extreme combinations of heat and humidity doubled in much of India, Bangladesh and Pakistan. In some parts, summer temperatures are projected to increase by 3°C–6°C by 2100. Around 800 million South Asians live in heat “hotspots” that will face worse heat waves in the future. However, there is a lack of a focused strategy to develop heat adaptation plans that local administrations can implement. To minimize heat stress impact on health, work productivity and livelihoods of the economically and socially marginalized population, especially women, there is an urgent need to design and implement Heat Action Plans focus on vulnerable groups.

Integrated Research for Action and Development (IRADe) in collaboration with the International Centre of Climate Change and Development (ICCCAD), Bangladesh and SLYCAN Trust in Sri Lanka as part of APN supported project is working on the development of spatially differentiated and gender-sensitive heat stress action plans in the South-Asian cities of Colombo, Rajshahi, Surat in association with their Municipal Corporations.

The objective of the proposed project is to disseminate knowledge on heat stress management strategies including the development of spatially differentiated and gender-sensitive Heat Adaptation Plans (HAP) in the South Asian countries of Sri Lanka and Bangladesh. HAPs developed through the initiative will serve to support South Asia’s medium-term development planning especially in prioritizing and integrating adaptive resilience within the agenda of climate-resilient smart cities. The purpose of this project is to:

- Knowledge dissemination of spatially differentiated Heat Adaptation Plan that is gender sensitive and easy to replicate in South Asian Cities.
- Build the capacities of the key stakeholders, especially at the local level that will ensure better institutionalisation and adoption of the newly developed strategies.
- Develop an effective communication strategy to ensure wider outreach and dissemination among different levels of stakeholders viz; people, CBO, NGOs, local institutions such as ULBs, and the various levels of government.

This research seeks to influence the appropriate adaptation plan and bring about positive changes in the associated policies horizontally and vertically. This will improve resilience and

reduce the vulnerability of heat-related risks and improve resilience and reduce the vulnerability of people in the selected areas.

## 2. Stakeholder Consultation Workshop, Surat

IRADe in partnership with Surat Municipal Corporation (SMC) organised a Stakeholder Consultation workshop on “Developing Gender- Sensitive Heat Action Plan for Surat, Gujarat. The workshop was coordinated by the Urban Health and Climate Resilience Centre of Excellence (UHCRCE), Surat under the Asia Pacific Network for Global Change Research (APN) Project under the Asia Pacific Network for Global Change Research (APN) Project.

### 2.1 Workshop Objective

The objective of the workshop is as follows:

1. Engage with the stakeholders and share the current repository of knowledge on the heat wave in Surat city under the project.
2. Share vulnerability assessment of household survey results
3. Mapping of stakeholders and their responsibilities

## 3. Workshop proceedings

### 3.1 Inaugural Remarks



**Dr. Vikas Desai**  
*Technical Director, UHCRCE,  
Surat*

**Dr. Vikas Desai, Hon. Technical Director, UHCRCE** welcomed the esteemed guests Dr Ashish Naik, Dy. Com. Health and Hospital Surat Municipal Corporation (SMC), & Honorary Secretary UHCRC and Dr P H Umrigar, Medical Officer of Health, SMC. Highlighting the importance of the Heat Action Plans, she mentioned that HAP must be inclusive and consider the city-level vulnerabilities, especially of the women, children, elders and people with co-morbidities.



**Dr. Ashish Naik**  
*Dy. Com. Health and Hospital,  
Surat Municipal Corporation  
(SMC)*

**Dr Ashish Naik, Dy. Com. Health and Hospital Surat Municipal Corporation (SMC)** shared measures taken up by the SMC to manage heat stress which include an early warning system, the use of social media for communication etc. Explaining it further, he shared that Surat was the first coastal city to start Heat Action Plan (HAP). SMC collaborated with the India Meteorological Department, IMD for providing heat alerts and publicized it on the website. The Public Health Department (PHD) utilises special media to

inform the citizens and share the heat alert just like the water level rise during the rainy season. He emphasized that there is a need to plan for the ward-wise heat as the temperature varies across the city. Also, the actual temperature and the feel like the temperature is different due to variations in humidity levels. He concluded by welcoming the initiative to develop a gender-sensitive Surat HAP, which will help the city develop a comprehensive heat stress management and implementation strategy.

### 3.2 Heat- Health Action Plan: Surat City



**Dr. Vikas Desai**  
*Technical Director, UHCRCE,  
Surat*

**Dr Desai** provided insights about the **Heat Health Action Plan** developed by Surat during 2013-2016. The plan was evidence-based and the minute details were considered to design the same. Dr Desai explained the city-level temporal trends of temperature, humidity, heat index, all-cause mortality, intra-city variation, intra-domestic heat comfort, outdoor-indoor temperature difference, comparison of the slum-housing parameters etc. However, the Heat – health conditions are dynamic and need to be updated and reviewed periodically to incorporate the

required changes and add new findings. While elaborating on the 4P (Private –Public- People-Participation) in the participatory city planning process emphasized by the Indian Prime Minister Mr Modi. She emphasised that departments in Municipal Corporations need to be aware that health is an integral part of city Planning and Management. Apart from developing and updating the Action Plan, it

is equally important that Heat Action Plan need to be implemented by the Urban Local Bodies. She emphasised on 4E model of action for developing a robust action plan focusing on Engineering, Enforcement, Education and Engagement for the development and execution of the heat action plan.



**Mr. Rohit Magotra**  
*Deputy Director, IRADe  
Delhi*

**Mr Rohit Magotra, Deputy Director IRADe** provided an overview of the project on Developing Gender Sensitive Heat Action Plans for selected cities in South Asia supported by Asia Pacific Adaptation Network (APN), Japan. He briefed about the current global condition of increasing heat Waves causing the rise in heat-related mortality & morbidity, maternal health risks and negative impacts on the economic productivity and efficiency of the working population. He stressed developing heat indexes for the cities for developing

effective heat stress thresholds. Current heat thresholds in India are developed based on temperature and do not factor in humidity. Heat Action Plans need to be gender sensitive and focus on vulnerable urban poor who are most vulnerable to the negative impacts of heat stress. In conclusion, he added that Surat and other cities across South Asia need to develop Climate Adaptive Heat Resilience Action Plans to enhance their preparedness to prevent and manage the negative impacts of heat stress.

### 3.3 People's Participation in Heat and Health Action

#### 3.3.1 Lessons from Surat Municipal Corporation (SMC) and UHCRCE Experience



**Mr. Anuj Ghanekar,**  
*Consultant, UHCRCE  
Surat*

**Mr Anuj Ghanekar, Consultant, UHCRCE** shared lessons learnt from SMC-UHCRCE experience on community engagement and participation in heat and health action. It is important to orient the participants with possible pathways through which the community could engage in the policy. First, it was established that the urban community is not homogenous. A total of five specific processes were derived from the lessons. The first process was evidence generation at

the community level. The evidence can be mapped through rapid surveys, traditional knowledge repositories and participatory urban appraisal techniques like seasonality or impact-

factor analysis. The second process was creative communication and dialogue through forming health dialogue forums for various stakeholders. The third process emphasised peer education models by involving children as active citizens. The need for creative communication beyond posters and pamphlets was highlighted. The fourth process shared approaches to link the system with the community. Some examples were community participation in disease surveillance and Surat's first children's charter of demands. The last process was experimenting with innovative models like urban agriculture, life skills education and providing city-level cross-learning platforms.

### 3.4 The Urban Heat Islands in Surat City



**Ms. Ananya Bhatia,**  
*Senior Research Associate, IRADe*

Urban Heat Island maps prepared for Surat city were shared with the participants. Land Surface Temperature maps were developed using imagery collected for the summer months through LANDSAT 8.

Such ward-level maps will help in identifying heat hotspots in Surat and will help in prioritising actions for a Heat Action Plan. A detailed area-wise heat action planning will further help develop coping capacity at

the micro-level to deal with heat stress.

### 3.5 Impact of Heat Stress on the city: Heat Stress Primary Survey Results



**Dr. Nimisha Jha,**  
*Senior Research Analyst, IRADe*

Sharing the process of development of these plans, it was highlighted that identification of vulnerable areas and communities is very important. The survey methodology and survey techniques were shared with the participants. The surveys were conducted in the vulnerable parts of the city in six locations at the Household level. It analysed the HH level impact, livelihood productivity, heat-health issues and awareness of citizens and covered sectors of water, electricity and sanitation.

The survey identified the city-specific heat-associated issues and challenges faced by the citizens and understood their key adaptation strategies. It showed that most of the HH bear the brunt of the heat stress impacts, and it gets worse due to poor housing material, ventilation and lack of green cover in the area. About 62 per cent of the vulnerable groups are migrant workers, and crowding is also observed in the HH, with an average of 5 persons per HH.

Access to services of water supply and electricity becomes scarce during the peak summer period. About 20 per cent of the HH report water scarcity and about 25 per cent of the HH depend on neighbours and private players for the supply of water in case of any water supply scarcity. During the summer season the electricity consumption increases and has a bearing on the HH level monthly expenses and compromises on other priorities.

It also has an impact on the respondent's livelihood and productivity. The health impacts due to heat stress often result in absenteeism for up to 2 days in a month and spending more than INR 500 towards medical expenses towards the treatment of illness due to heat stress. It is important to highlight here that most of the HH have to travel up to 78% of the HH have to travel up to 2.5 km for treatment at the public health care facility.

The level of awareness of the availability of medical facility hospitals nearby is low among females. The female members of the HH reported that their home care facility increases in the high heat period and 33% of female feel that household friction increase and do happen during this period.

The HH have very limited information on heat stress. The survey shows that HH has limited knowledge about the precautions that may be taken to protect against heat waves. Even community-level initiatives are missing.

These insights will feed into the process of developing of Heat Action plan for the city that is sensitive to articulations from the communities and its stakeholders. The primary results show that the city faces high vulnerabilities due to heat stress and households are bearing the brunt of heat stress regarding health impacts, livelihood, and productivity.

### 3.6 Perspectives from Field Survey

Field Researcher **Ms Khusbhu Chauhan**, shared her experiences from the field surveys through two human stories as follows:



**Ms. Khusbhu Chauhan,**  
*Field Researcher, UHCRCE  
Surat*

**Mrs Saroj Singh, 45 years old**, shared that her husband and son have to go outside for work, and she usually worries about them as the temperature of Surat city has increased tremendously in the last 5 years. She has to work on these hotter days. There's no space between the house and no window available in her home, making it poorly ventilated and suffocating insides. This is more so when the temperature rises during the day. She finds it very difficult while cook as she feels more heat, and it gets very difficult to cook during summer.

**Mrs Lataben Salukhe, a 56-year-old housemaid**, shared that heat has risen significantly in the last ten years, and for overcrowded houses like hers, it is a significant problem. She further added that they live in unsanitary conditions and get unclean water. There is no ventilation available in the house. During the summer season, it isn't easy to sleep or get any rest during the day. Even nights are not comfortable. She always remains in tension thinking about all this.

Field experiences indicate that migrant workers are facing negative impacts on their productivity as well as health impacts due to heat stress.

## 4. Stakeholder inputs on the Design of Gender-Sensitive HAP

The participants shared that people with low-income groups, people living on footpaths, outdoor workers such as street hawkers, Delivery people, co-morbid people, elderly, pregnant women, agricultural labourers, industrial workers and migrants are most vulnerable to the impacts of heat stress.



The participants also shared their insights on the locations such as urban slums and areas with poor availability of services and poorly ventilated houses being vulnerable to heat stress. All communications must reach them to ensure that these communities take informed actions to combat heat stress. Some of the insights from the discussion follow:

### 4.1 Routine Surveillance

1. The Health Departments/ Health Centres across the city need to conduct regular surveys and monitor/ record the vulnerable community (women, children, elderly, likewise) and enlist the same. This should be part of the outreach activity of the SMC. The data/ information collected needs to be uploaded on common platforms which can be utilized by other departments of the Urban Local Body (SMC) and the Health Centres.

## **4.2 Vulnerability/ Heat Risk Mapping**

1. Need to map the vulnerable areas and the population who are the risk of heat waves/ heat stress. The slum population number also needs to be documented along with the newly migrated individuals/ households residing in slum-like locations/ scattered settlements, as they are among the most vulnerable section.
2. These individuals or groups can be provided with free/ no cost health services and other required supplies like portable water, glucose, and ORS likewise, during the heat wave period.

## **4.3 City Planning**

1. City Planning/ Master Plans needs to increase the area allotted for vegetation and green cover. The unavailability of land can be compensated with vertical gardening provisions. The Gujarat Comprehensive Development Control Regulations (GDC) includes the provision of 2 floors of vertical gardening for G+25 building structures.
2. Native plants with thick canopies and longer roots need to be planted in public spaces which will provide shade.

## **4.4 Housing / Infrastructure**

1. Development Control Regulations (DCR) need to be amended to provide better housing structures to urban poor - larger windows for cross ventilation, and larger floor areas, likewise.
2. Rainwater harvesting needs to be made compulsory (building bye-laws) for new building construction, along with cool roofing solutions like white paints, building materials likewise
3. Indoor facilities can be specially designed by the urban designer/ architects to increase the thermal comfort of the individuals and that can be incorporated in policies/ building by-laws in city and hospital infrastructure. Increasing indoor thermal comfort with AC installation needs to be considered.
4. Need to provide more spaces in the primary/ secondary/ tertiary and maternity health care centres to treat more people during the peak heat wave period. (overcrowding during ANC days can be reduced)

## **4.5 Applied Training**

1. The need to provide training, joint training for all urban practitioners including the urban local bodies officials (from all departments), medical practitioners, ASHA workers, and medical frontline workers, with specialised groups on heat mitigation. This may include hands-on training on the use of medical facilities like icing, and providing ORS. SOPs on Dos and Don'ts need to be developed for managing and mitigating heat stress, which will aid in sensitising people on a large scale.
2. Departmental integration and conversation are required at every stage.

## **4.6 Community Awareness**

1. Defining the role of the individuals and the various department is a key step towards heat mitigation and developing resilience. Social media and other communication mediums need to be used to issue heat alerts and advisories to the local people. Door-to-door campaigns at the slum level need to be initiated, along with the cluster of new migrants.
2. Educating school children and teachers needs to be encouraged.
3. Working hours of the construction workers, street sweepers and casual labourers who work directly under the scorching sun need to be made flexible. OPD hours also need to be adjusted.
4. Gender-sensitive, especially women-oriented planning and awareness is important.

The meeting ended with a Vote of Thanks and also requested the members to be part of the community of practice for furthering the agenda of design and development of HAP.

# Annexure

## Agenda

### Stakeholder Consultation Workshop

#### On Developing Gender Sensitive Heat Action Plan for Surat, Gujarat

**Date: 10<sup>th</sup> October 2022, Time: 10.30 am to 3.30 pm.**

**Venue: Centre for Social Studies, Surat**

S. No.	Subject	Time	Speaker
1	Registration & Welcome Tea	10.30-10.45	UHCRCE & Health SMC
2	Self-Introduction	10.45-11.20	
3	Welcome, Introduction and Inauguration	11.20 – 11.40	SMC & IRADe
4	Aims and Objectives of the consultation	11.40-12.00	IRADe
5	Heat Adaptation Plan Components Q&A	12.00 – 12.20	IRADe
6	Climatology of the Surat and Heat & Health Action Plan experience	12.20-12.40	UHCRCE
7	Community participation model Surat, Heat & Health Action Plan experience	12.40-1.00	UHCRCE
8	Lunch break	1.00-1.30	Health SMC & UHCRCE
9	Impact of Heat Stress on the city: Heat Stress Primary Survey Results	1.30 – 2.00	IRADe
10	Stakeholder Mapping for designing and implementing heat action Plan Discussions	2.00-3.00	IRADe & UHCRCE
11	Feedback and concluding	3.0-3.30	IRADe & UHCRCE

## Session Photos



## Attendance List

Workshop  
Developing Gender Sensitive Heat Action Plan for Surat  
Date 10-10-2022

Sr.No.	Name	Name of SMC Department/ organization	Phone No.	Signature
1	ROHIT MAHOTRA	IRADE		
2	Dr. Khushbu Patel	Health. SMC		
3	Dr. Kanhaiya Das	Health, SMC		
4	Dr. Farid Patel	Health, SMC		
5	Hakim Gadhvi	Gen. & Gen. SMC		
6	Jesal Nani	Env. SMC / Envca		
7	Hiral R. Mehta	Garden		
8	Khanna D. Patel	Garden		
9	Dr. J.K. KOSAMBIYA	Postmaster HOD PSM SMC SUM-		
10	Bharsat Chandhary	Hydraulic, SMC		
11	Shazad I. Kukulatar	Hydraulic Dept		

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Workshop  
Developing Gender Sensitive Heat Action Plan for Surat  
Date 10-10-2022

Sr.No.	Name	Name of SMC Department/ organisation	Phone No.	Signature
12	Harin N. Fulecha	Smart city		
13	Bramkshen N. Patel	Smart city		
14	Dr. Jayash M. Patel	Sr. RMO SUMMER		
15	Dr. Nalash N. Rana	Jr. RMO SUMMER		
15	JOGESH M. DATEL	Department of Affordable housing		
17	yash kishore fule	"		
18	Dr. J.H. Radhant.	Sr. S.O. & H-Cell T.M.C. SUMMER		
19	Dr. Ketan Y. Patel	Dept. Community Medicine SUMMER		
20	Ankikumar V. Mehta.	Town Planning dept. SMC		
21	Dharmesh. D. Patel.	Dr. Town Planner Town Planning Dept. SMC		
22	Dr. Chetan K. Desai.	Dr. M.O. (SMC) Health Dept.		

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Workshop  
Developing Gender Sensitive Heat Action Plan for Surat  
Date 10-10-2022

Sr.No.	Name	Name of SMC Department/ Organisation
23	SATYAKAM JOSHI	Officializing Street Computer for smart cities SUMMER
24	Bhama Vimalak	SECT. Architecty IDPF, Surat RMO, Sr. Civil Hospital, SUAT
25	Dr. Ketan Naik	
26	Dr. Ashish Naik	Health dept
27	Dr. Pradip Umrigar	Health dept -
28	Dr. Shushant Patel	Town, PSM SUMMER
29	Mr. Anuj Ghanchar	UHCRC
30	Chauhan Jhushal	UHCRC

31. Dr. Vikas K. Desai UHCRC

32. Dr. Nimisha Jha IRADE

33. Ms. Ananya Bhavia IRADE

## **About IRADe**

Integrated Research and Action for Development (IRADe) is an autonomous advanced research institute. Its research covers many areas including energy and power systems, urban development, climate change and environment, poverty alleviation and gender, food security and agriculture, and the policies that affect these areas.

Since its inception, IRADe has been working on addressing these with a focus on the components of socio-economic and health vulnerability of people, using a variety of data and methodologies which include vulnerability assessment by observing indicators, sustainable livelihood approaches as well as using state-of-the-art advanced technologies such as remote sensing and GIS for different projects. Since 2008, it is a Centre of Excellence (CoE), Urban Development and Climate Change of the Ministry of Housing and Urban Affairs. We have worked with 32 cities spread over 20 states in India. For more details visit [www.irade.org](http://www.irade.org)

## **About UHCRCE**

UHCRCE trust is a Public Private Partnership registered trust settled by Municipal Commissioner (2017). Trust activities include research, Training, Piloting, Networking, and Advocacy in any city in India. Trust is administered by the health department of SMC.

UHCRCE is an institutionalisation outcome of project UHCRC under the Asian City Climate Change Resilience Network (ACCCRN) of the Rockefeller foundation. (2013-2016). For more details, visit [www.uhcrce.com](http://www.uhcrce.com)

## **About the APN Project**

The project “Integrating Gender-Sensitive Heat Adaptation Plans in the climate policy and guidelines of selected cities in South Asia” is funded by Asia-Pacific Network for Global Change Research (APN). Integrated Research and Action for Development (IRADe), supported by International Development Research Centre, worked with three cities viz. Rajkot, Bhubaneswar and New Delhi Municipal Corporation (Delhi) in India to design and develop climate-adaptive heat action plans. The project also led to the setting up of the South Asian Heat Health Information Network (SAHHIN), which has been accredited by the World Health Organization (WHO) and Global Heat Health Information Network (GHHIN).

This project aims to further support South Asia’s medium-term development planning, especially in prioritizing and integrating adaptive resilience within the agenda of climate-resilient smart cities. It will disseminate knowledge on heat stress management strategies, including the development of spatially differentiated and gender-sensitive Heat Adaptation Plans (HAP) in the South Asian countries of Sri Lanka (Colombo), India (Surat) and Bangladesh (Rajshahi). For more details, visit

<https://www.apn-gcr.org/project/integrating-heat-action-plans-in-the-climate-policy-and-guidelines-for-evolving-gender-sensitive-heat-adaptation-plan-in-cities-in-south-asia/>

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