

# **Integrated Climate Action Planning (ICLAP) 2050 Tool for the Asia-Pacific Cities**



**Proceedings of the Stakeholder Workshop in New Delhi  
on 10 September 2021**



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**Indian Society for Applied Research & Development  
New Delhi**

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## Secretary

Indian Society for Applied Research & Development  
Joshi Sadan, M-90, Jagat Ram Park, Laxmi Nagar, New Delhi 110092, India  
Website: <https://isardorg.in/home> Tel: +91 9868 381756 E-mail: [isardorg@gmail.com](mailto:isardorg@gmail.com)

## Project Leader

Integrated Climate Action Planning (ICLAP) 2050 Tool for the Asia-Pacific Cities  
Research Centre, Indian Society for Applied Research & Development  
Joshi Sadan, M-90, Jagat Ram Park, Laxmi Nagar, New Delhi, Delhi 110092, India  
Webpage: <https://isardorg.in/research> Tel: +91 9811 090564 E-mail: [ms.isard@gmail.com](mailto:ms.isard@gmail.com)

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## Introduction

The climate change phenomenon has global GHG contributions and implications; yet there is a growing and unequivocal consensus that the 2 degC global warming challenge can be dealt with concerted local actions. At the same time, local governments in Asia-Pacific cities face triple challenge of addressing local economic development goals to improving standards of living, abatement of air-pollution and GHG emissions and protecting their citizens from extreme climate events. There are some crucial knowledge gaps that impede and delay local action, notably non-availability of reliable empirical information on: (a) Short, mid & long-term climate vulnerability scenarios at sub-national level, (b) How variedly do different societies contribute to climate change- their GHG structures, and (c) What useful climate actions are local governments taking, across the globe.

In order to address this challenge, this project aims to create a collaborative research network of experts in preparing an Integrated Climate Action Planning (ICLAP) decision-making tool for settlements with 5 million+ population in the Asia Pacific region that enables them in taking evidence based climate actions. ICLAP tool adopts an advanced methodology of integrating 3 different knowledge domains/ analytics: (a) Spatial: Downscaling global/ regional climate scenarios to forecast local climate variability for 2030 & 2050, (b) Statistical: Meta-analysis of 49 five million-plus cities in Asia to forecast demographics, economy, energy & GHGs, and (c) Bibliometric: Systematic review of climate interventions- mitigation and adaptation from city case studies world-wide (from Web of Science/ APSIS database).

The ICLAP tool is innovative for 3 main reasons:

- 1) It combines data/information for climate mitigation (energy, GHGs) and adaptation (temperature and rainfall anomalies) downscaled to city-scale for all the 41 five-million cities in Asia Pacific.
- 2) Evidence based- bibliometric and meta-analysis analyze a database of 20,000+ global case studies that can advise on effective local climate action.
- 3) The first of its kind tool integrates database, evaluation (2020) & simulation (2030, 2050) modelling features.

The preparation and implementation of ICLAP tool would be carried out through systematic execution of several technical and managerial activities, including group meetings; deployment of staff, equipment, work packages; creation of database data analysis & modelling, ICLAP preparation, testing & training; and dissemination activities (as per steps described in the project methodology). In addition to meeting research

objectives of team experts (collaborators), their respective institutions, this proposal directly responds to APN Research Agenda's goals No. 1-3 (APN 2015). Thematically, ICLAP tool promotes APN's Research Agendas 3.1 (Climate Variability & Risk Reduction), 3.3 (Science-Policy Agenda) and 3.4 (Communication & Outreach).

## **Aim and Purpose of Workshop**

The main objective of this expert workshop is to enable a sufficient amount of dialogue between scientists and policy-makers in order to discuss about key development trajectories and issues, data structures of urban, environmental, economic, social, climate aspects, data availability and integration in Delhi for contribution towards preparing the ICLAP 2050 tool.

It is important to have a holistic understanding of the expert's opinions on ICLAP as in what are the most important barriers to the development of ICLAP in Delhi? and What measures can be implemented to overcome these barriers? The workshop would introduce the project details with different stakeholders to incite their opinions and suggestions to pave a way forward.

## **Invited Stakeholders**

The following key stakeholders- institutions and experts were identified and invited for the workshop:

- Dr. Mohd Arif, Ministry of Environment Forest and Climate Change, Govt of India
- Ms Chanchal Yadav, New Delhi Municipal Corporation
- Prof. Dr Meenakshi Dhote, School of Planning & Architecture, Delhi
- Prof. Shovan K. Saha, Ex-Director, SPA-V, India
- Prof. S. Mohapatra, IGNOU New Delhi
- Dr. Rohit Azad, Jawaharlal Nehru University, Delhi
- Dr. Shilpi Mittal, GD Goenka University, Gurgaon
- Dr. A.K. Sen Gupta, Consultant, WHO, ADB
- Mr. Kanagaraj Ganesan, Environmental Consultant, Delhi
- Dr. S.D. Tiwari, Environment Expert, Delhi-NCR
- Research scholars and students from universities in Delhi

## Workshop Program

**9:30-10:00 am: Registration and Tea**

**10:00-10:05 am: Welcome Note**

**10:05-10:10 am: Inauguration by the Organizers**

**10:10-10:45 am: Integrated Climate Action Planning in Asia Pacific Cities**

- Introductory to the ICLAP 2050 Project: Dr. M. Sethi

**10:45-11:30 am: WG-I International Experiences (Chair: Prof. S. Mohapatra)**

- Urban climate research in Chinese cities: Dr. Li-jing Liu
- Geo-spatial techniques in spatio-temporal assessments in Asia-Pacific cities: Dr. R. Avtar

**11:30 – 11:45 am: Tea Break**

**11:45-12:30 pm: WG-II Data Integration in Indian Cities (Chair: Prof. S.K. Saha)**

- Data availability in Indian Megacities (15 min): Dr. S. Mittal
- Data challenges in NCT-Delhi (15 min): Prof. M. Dhote
- Q & As (15 min)

**12:30 -13:00 pm: WG-III Collective discussion on particular issues (Chair: Dr Mahendra Sethi)**

**13:00-13:05 pm: Vote of thanks**

**13:05-14:00 pm: LUNCH**



## Speakers and Moderators

**Dr. Mahendra Sethi** is an urban environment expert exploring the role of cities at the interface of GEC with a focus on developing countries. A recipient of Alexander von Humboldt Fellowship at the Technical University Berlin, Germany and the United Nations University (UNU-IAS) PhD Fellowship and Visiting Scholar at Kyoto University in Japan. Earlier in career, involved in research studies, development consultancy, appraisals and formulation of spatial-environmental plans for governments, private sector and international organizations like World Bank & WWF. Bears interest in global sustainability, policy and governance, environmental planning, megacities, sustainable transport, optimization models, green technologies and eco-development in mountainous areas. Offered Govt of India's GATE Scholarship (2005-07), Liverpool University Scholarship (2005) and currently guiding key research activities at ISARD. As Principal Investigator, he is currently leading a collaborative research project on ICLAP 2050 in Asia-Pacific Cities for the APN.



**Prof. Dr. Meenakshi Dhote** is currently Head of Environmental Planning Department at School of Planning and Architecture, New Delhi and Co-ordinator Environmental Information Center on Human Settlements (sponsored by MoEFCC). She has 30 years of professional, research; teaching experience in the fields of Environmental Planning. Her areas of special interest are conservation of biodiversity in urbanized environment and hill



area development. She has been engaged in many national projects addressing aspects of Planning in Eco-Sensitive Zones Mount Abu in Rajasthan and Taj Trapezium Zone, Environmental Impact Assessments of Townships, Carrying Capacity Assessments, Toolkit for Urban Wetland Management etc. She has been and is an expert member of many national and state Level Committees; such as State Environmental Assessment Committee of NCT Delhi, Sub-Committee on Sustainable Habitat Parameters for Urban Planning under National Mission on Climate Change, TCPO, Member, Study Group on Formulation of Guidelines for Buffer Areas around Solid Waste Disposal Sites, CPCB; Study group on Sustainable Development of Andaman & Nicobar Islands and member convener of Committee for architecture and planning framework for Hill Areas, NITI Aayog and Member, Delhi Urban Heritage Foundation and Biodiversity Foundation, NCT Delhi. She has supervised doctoral research in low carbon cities and ecological planning for urban storm water management, and has publications on urban biodiversity conservation.

**Prof. Dr. Shovan K. Saha**, is associated with the School of Architecture and Planning (SAP) and School of Art, Design and Mass Communication Studies (SADMS), Sharda University, Greater Noida. He has over 40 years professional, academic and research experience till date. He joined SPA New Delhi as faculty in 1980 in the Department of Urban Planning. Worked as Research Fellow in United Nations Centre for Regional development (UNCRD), Nagoya (1988-90, 1992) and also obtained Dr. Engg. from Kyoto University (1992) Japan. Has been Advisor to NTNU, Trondheim, Norway, Visiting Professor in Aichi Gakuin University, Japan, Institute of Engineering, Kathmandu. Presented and published papers in various national and international journals. While holding academic and research positions, worked on various prestigious professional projects in India and abroad.



**Dr. Ram Avtar** is working as an Associate Professor at the Faculty of Environmental Earth Science, Hokkaido University, Japan. He got his Ph.D. in Civil Engineering from the University of Tokyo, Japan. He has worked at United Nations University, Institute for the Advanced Study of Sustainability (UNU-IAS) as a research fellow for four years. He developed methods for forest mapping using multi-sensor remote sensing techniques and scenario analysis for sustainable forest management. His research interest lies in applications of Geospatial techniques to monitor terrestrial ecosystems including forest, agriculture, urban and disasters and disseminating the results to policy-makers. He is a recipient of the prestigious Green Talents Award by the Federal Ministry of Education and Research (BMBF), Germany. He led different research projects as a Principal Investigator (PI) as well as a team member such as Asia-Pacific Network for Global Change Research (APN-GCR), Grants-in-Aid for Scientific Research (KAKENHI), Belmont Forum etc.



**Dr Li-Jing Liu** is a postdoctoral fellow at the Center for Energy & Environmental Policy Research (CEEP), Beijing Institute of Technology (BIT), China. She is graduated from Guangxi University majoring in Environmental Engineering with a bachelor's degree in engineering in 2015. She received her PhD degree in Beijing Institute of Technology in June 2020, majoring in Management Science and Engineering, Energy Economic and Climate Policy, with a doctorate in management. From September 2018 to September 2019, she studied at Technical University of Berlin as a joint PhD student. Her research interests include environmental economics, climate change economics, and co-benefits modelling.



**Prof. Dr. Subhakanta Mohapatra** is presently working as Professor in Geography at Indira Gandhi National Open University (IGNOU), New Delhi. He did his Ph.D. in Geography with a specialization on Regional Development and Planning from Utkal University, Bhubaneswar, Odisha in 2001. He has been working for the last 28 years in the field of research and teaching at National Council for Education Research and Training (NCERT), New Delhi, National Institute of Open



Schooling (NIOS), NOIDA, Government of Chandigarh and IGNOU, New Delhi. His areas of research interests are Population, Environment and Health Geography and presently involved in research on disaster and climate change with a special focus on vulnerability, adaptation, resilience and livelihood. In the year 2008, he was selected as a young researcher for a workshop conducted by International Human Dimensions Programme on Global Environmental Change (IHDP) Bonn, Germany on "Global Climate Change and Urban Health". He was also selected for Ten Days START Advanced Training Workshop on Climate Change and Health organized by National Cheng Kung University Tainan, Taiwan in 2009. He has published 25 research papers in national and international journals and 35 Book Chapters. He has also guided three research scholars for Ph. D and seven scholars for M. Phil.

**Dr. Shilpi Mittal** is a practicing architect, planner with specialization in human habitat. She has obtained PhD from the G.D. Goenka University in Quality of Life in Diverse Residential Neighbourhoods- A case of South Delhi. In the past, she has been active in consulting and real estate portfolios in the private sector, serving organizations like IL&FS Property Management and Service Limited and Ansals API. Shilpi has been a qualified GATE scholar in Architecture and Planning (2005-07).



## Inaugural Address

### **Welcome Note by Dr Ajeet Prasad Secretary and Chief Executive, ISARD India**

Dear Participants

It is my immense pleasure to welcome you to today's workshop on Integrated Climate Action Planning (ICLAP) Tool for Asia-Pacific Cities, hosted by the Indian Society for Applied Research and Development– ISARD.



ISARD has come a long way since its establishment in 2002. It is an interdisciplinary group of experts from economics, health, education, social sciences, environment and planning background. We are committed to sustainable environment and socio-economic development of the people, especially at the grass root level through applied research and capacity building. Today's event is one such sustainability initiative led by Dr. Mahendra Sethi and generously supported by the Asia-Pacific Network for Global Change Research.

As we all know, climate change poses a huge challenge to both governments and societies in functioning effectively. Urban centres are under stress to not just be productive, but also offer clean and healthy environment. In this context, this workshop would discuss how Indian cities can deal with the climate problem, and how they fare-up against other Asia-Pacific cities.

We have a packed program this morning. The first session hosts presentations from the network coordinators introducing the ICLAP project. The second session will focus on "Data Challenges in Indian Cities". Finally, the third session would be an open house, inviting a discussion on technical issues.

I welcome all the participants, especially speakers and moderators who committed at a short notice. I formally open today's event and look forward to your thoughtful contributions. Thank You.

## Introduction to the ICLAP 2050 Project

Dr. Mahendra Sethi

The Project Leader, Dr. Mahendra Sethi welcomed all the stakeholders and project experts. He introduced the project, its background followed by explanation of its premise and significance in the current context. He emphasized how six years since 2015 have been the warmest, with 2011-2020 the warmest decade on record (WMO 2021). While GHG contributions and their impacts

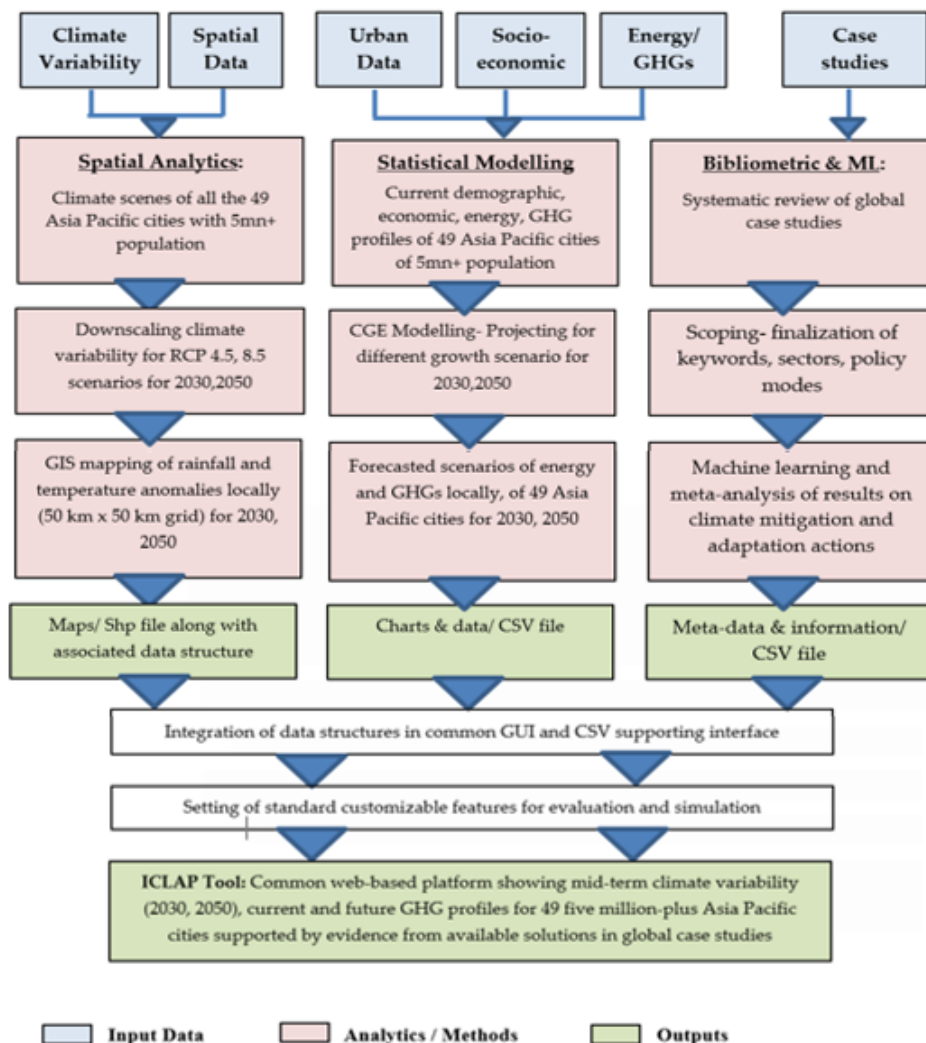


perpetuate globally; there is a growing and unequivocal consensus that the 2°C global warming challenge can be dealt with concerted local actions (IPCC 2014, UN 2015, UNFCCC 2015). Dr. Sethi then discussed the agenda of the day i.e. to focus on the available information and policies in the Asia-Pacific cities, its limitations, gaps and scope for current research. This underscored the relevance of collaborative research- inviting ideas for climate action planning, devising analytics for a robust and integrated platform that facilitates a simulative decision-making tool under the ICLAP project. Dr Sethi discussed the spatial, statistical, case study approaches evident in urban climate technical models and policy tools. Based on earlier discussions with experts and iterative research, he shared information, features and expected outcomes from a climate action decision making tool and the necessary analytics for creating such an application.

**The ICLAP Model:** The ICLAP project adopts an advanced methodology of synthesizing three different knowledge domains/ analytics (see Figure below), building on specific and accepted research methods in the respective domains of climate adaptation, mitigation and data science, as elaborated:

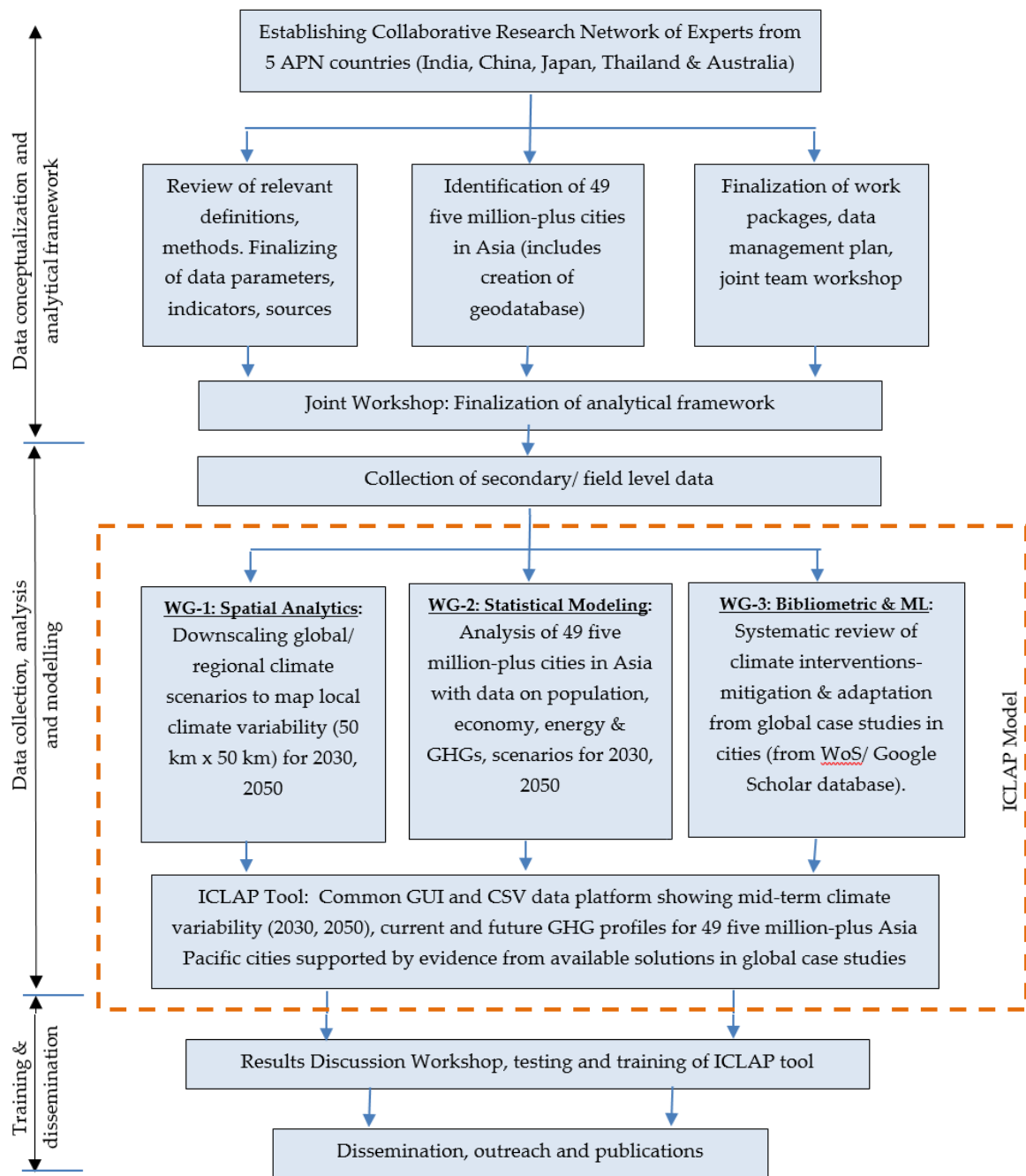
1. Spatial- Downscaling climate scenarios & GIS mapping of variability: In order to project climate variabilities at the sub-national/ urban level, it would downscale temperature and rainfall anomalies from global/ regional MRI-CGCM3 and MICRO5 (RCPs 4.5 & 8.5 scenario) to a scale of 50 km x 50 km for 2030, 2050 (Saraswat et al. 2016).
2. Statistical- Trend analysis of urban indicators and GHG forecasts: The potential climate mitigation analysis would be supported by bottom-up projections of city data profiles, considering demography, economic structures, energy consumption- buildings, waste, transport, and GHGs using CGE equilibrium modelling for 2030, 2050 (Fujimori et al. 2014).

3. Bibliometric- Meta-analysis of evidence from case studies: Data science and machine learning methods would be used for systematic review of global case studies in local climate action. It employs Web of Science/ Google Scholar like database to conduct bibliometric analysis followed by meta-analysis of key policy solutions (Sethi et al. 2020, Lamb et al. 2018, Lamb et al. 2019) while coding for diverse GHG sectors (energy, industry, transport, LULUCF, waste, etc.), ex-post policy solutions, their relative efficiency and most importantly governance modes (UN-Habitat 2011) like regulations, enabling mechanisms, economic instruments and voluntary measures.



### Plan for collaborative implementation

The collaborative preparation and implementation of ICLAP tool is to be carried out through systematic operationalization of several technical and managerial tasks by a team of research experts- academic and practicing from five countries in the Asia-Pacific, namely China, India, Japan, Australia and Thailand. The project implementation (Figure below) includes the following sequence of activities: group meetings; deployment of staff, equipment, work packages; creation of database, analysis & modelling, tool preparation, testing & training; and dissemination.



It brings together specializations and close-coordinated skills from different disciplines, institutions and collaborators, that have prior experience of working in the Asia-Pacific region (Farzaneh 2017. APN 2017, Kumar 2020). The collaborators team-up in three specialized working groups (WG), i.e. systematic reviews (WG-I), GIS analysis on climate variability and impacts (WG-II) and statistical analysis and GHG modelling (WG-III). In addition, all collaborators work towards preparing a case study on two five million-plus population cities in their country/region that would involve data collection on study parameters, trend analysis, stakeholder needs assessment, policy evaluation, comparison with modelling results and reporting in the form of presentations and research papers. The collaborators are to conduct 4 regional/ country workshops to

train researchers, policy makers and stakeholders on the concept of integrated climate action planning and how this tool can be utilized for more climate responsive development and governance in Asia-Pacific countries. In order to apply the ICLAP model and its main features amongst the wider academic and professional community, a designated portal would be developed. It would host a toolkit and post-training platform/ forum for open access and free learning of the web-based and smartphone friendly ICLAP online tool, interact with the project team, give feedback on using ICLAP and clarify their doubts. The portal would be made globally accessible so that external agencies, academia and scholars from other countries can study possible outcomes and implications of ICLAP beyond the 49 Asia-Pacific cities too.

Upon introducing the key workshop objective and expected inputs for the day, the workshop opened for comprehensive presentations and discussions on the three key WG themes i.e. International Experiences, Data Integration in Indian Cities, Collective discussion on particular issues. Each theme pertained to specific discussions on topical issues by experts under moderation by an experienced chair.

**WG-I : International Experiences**  
**Chair: Prof. Subhakanta Mohapatra**

**Urban climate in Chinese cities**

Dr. Li-jing Liu

Dr. Li-jing Liu from Beijing Institute of Technology gave a detailed presentation on the Chinese cities, focusing on three key aspects- data availability, policies and gaps therein. The presentation covered five Chinese cities namely Beijing, Tianjin, Shanghai, Guangzhou and Shenzhen. She elaborated on the multiple sources of data



□ **Data availability**

□ **Policies**

□ **Gaps**

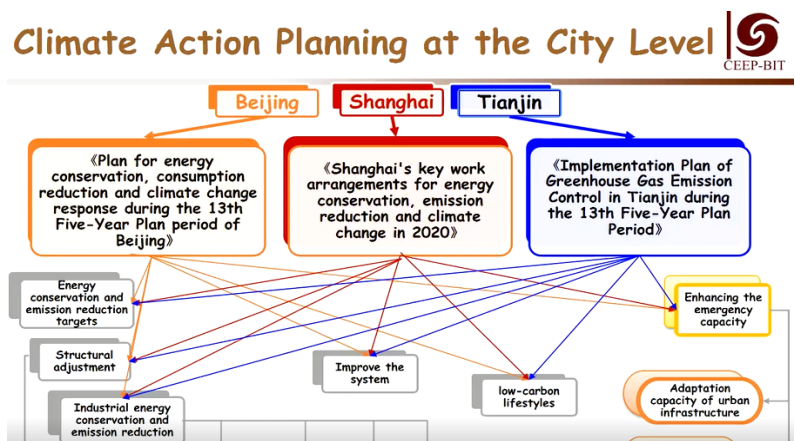


and information available for population, socio-economic data, energy and GHG indicators relevant to these cities. Dr. Liu underscored that for GHG emissions data, there are no statistics or accounting inventory for each city. China has launched provincial guidelines for GHG emissions, thus GHG inventories for Beijing, Shanghai and



Tianjin are available. These assist climate action planning at the city-level including energy conservation, consumption reduction, and climate change response during the 13<sup>th</sup> five-year plan period i.e. 2020. The strategies therein span energy, industry, building, public institutions, transportation, low-carbon lifestyles and enhancing the emergency capacity in these cities. The Central government formulated the Action Plan for Urban Adaptation to Climate Change, which incorporated indicators related to adaptation to climate change into the urban and rural planning system. This was followed by review of main urban climate oriented policies, spanning Central to city level planning.

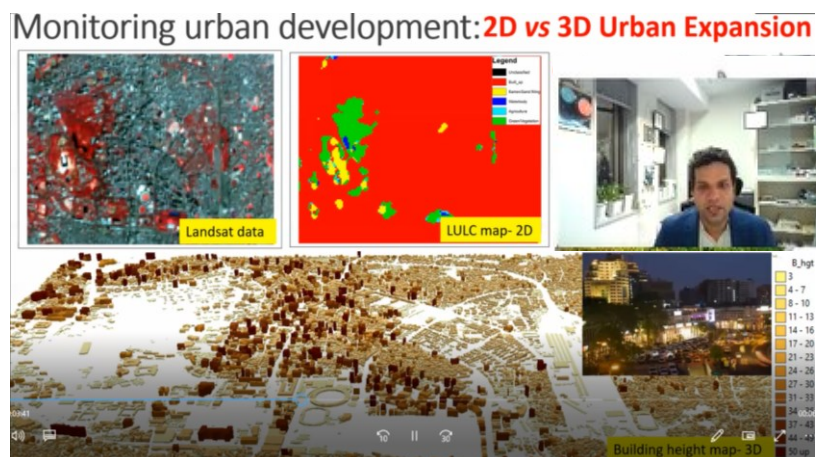
Dr Liu stressed on the need of further internalizing adaptation strategies into city-level climate planning. The presentation concluded by highlighting key gaps in urban climate planning, (a) lack of urban carbon emissions inventories for all cities, (b) lack of forecasts of future carbon emissions trends, (c) lack of adaptive indicators in adaptation planning, and (d) lack of medium and long-term adaptive planning, that collectively inform the particular information and features expected from the ICLAP model.



## Monitoring spatio-temporal urban expansion using geo-spatial in Asia-Pacific cities

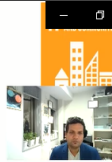
Dr. Ram Avtar

Dr. Ram Avtar from Hokkaido University began by acknowledging the prevailing knowledge on the state of urbanization, emphasizing how it is a global phenomenon though most rapidly proliferating in the Asia-Pacific region. Dr Avtar then introduced how

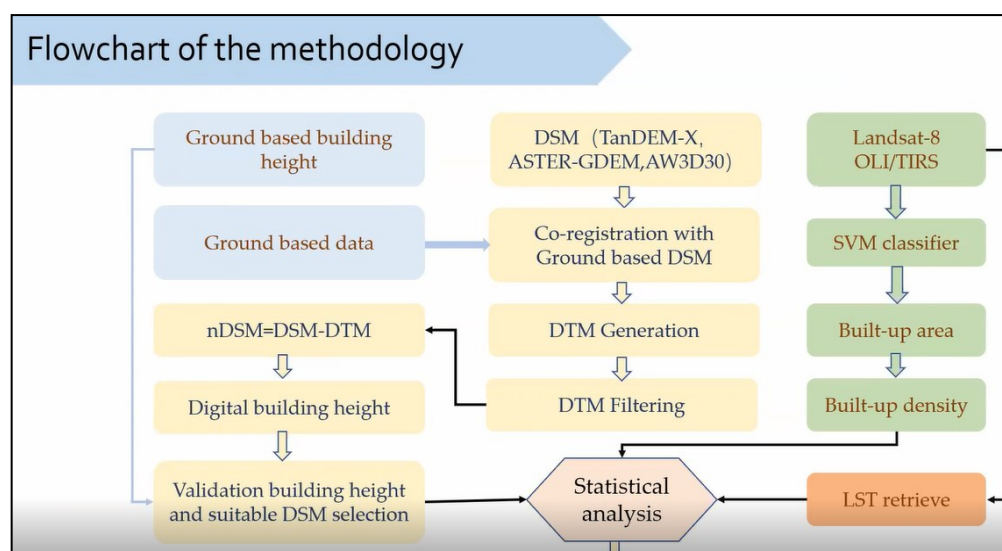


remote sensing and geographic information systems are being used to study urbanization and urban climate. He emphasized how most studies in this field till now have researched on horizontal urban expansion using 2D geospatial datasets that have in-built tendency in leading to inappropriate or limited evaluation of urbanization associated with vertical expansion of cities. This gap can be circumvented through the approach of using 3D geospatial information mainly from light detection and ranging (Lidar) and radar and high resolution digital elevation model data that offer height estimation in urban settlements. This helps better evaluation of urban form, landuse, building volume, its energy consumption, emission estimation, climate hazards and urban heat islands. Most of these have not been applied in developing countries owing to data inaccessibility. And thus Dr Avtar demonstrated how building height information can be extracted and used for megacities of Delhi and Dhaka. He further expanded on some open source digital geospatial datasets for GIS modelling, suggesting their application in the rest of Asia-Pacific cities identified for ICLAP model.

## Use of 3-D information to understand



- i. Emissions and heat island footprint (Behera et al 2011, Guttikunda et al, 2014)
  - Residential area - Open waste burning, Winter requirements, Construction dust
  - Commercial area - Diesel electricity generator, Coal/firewood in restaurants
  - Industrial area - Chimney emissions, Others
- ii. Loss estimation in hazard maps (IPCC AR5)
- iii. Energy consumption and utility planning
- iv. Transportation infrastructure (Jensen & Cowen 1999)
- v. Urban form and compactness evaluation (Borrego, et al. 2012)



## WG-II : Data Integration in Indian Cities

Chair: Prof. S.K. Saha

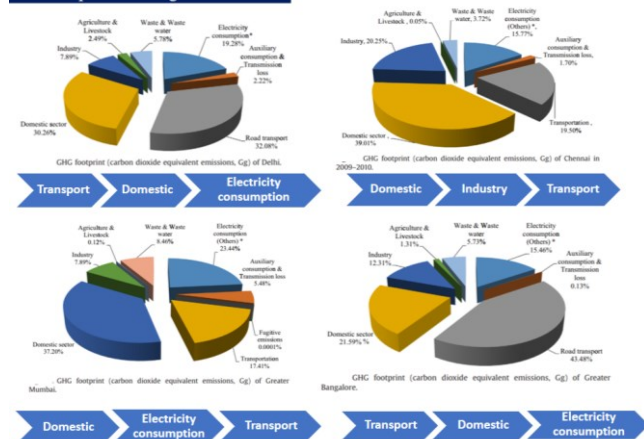
### Data availability in Indian Megacities

Dr. Shilpi Mittal

Dr. Shilpi Mittal from ISARD started the presentation with an overview of nine Indian cities covered within the 49 sample cities in the ICLAP project. Shilpi underscored the diversity of population, socio-economic data, GHGs, climate action plans in these cities within a multi-tiered and complex planning and governance framework. Upon discussing the data availability matrix, she focused on the case of Mumbai, New Delhi and Bengaluru and the gaps thereof. This was followed by an exhaustive understanding of GHG structures of case studies of India's major cities. The policy evaluation of Indian cities included review of city level climate action plans of New Delhi, Kolkata and Mumbai, their scope, data variabilities and comparability for feeding into an integrated model.



GHG footprint of 5 Megacities of India



Source: Ramachandra, T. V., Aithal, Bharath H., Sreejith, K., GHG footprint of major cities in India, 2015

### Data challenges in NCT Delhi

Prof. (Dr.) Meenakshi Dhote

The presentation began by introducing the key climate policies of the Government of India, essentially the National Action Plan on Climate Change (NAPCC) initiated in June 2008. According to the NAPCC, the states were called upon to prepare State Action Plans

**Data challenges in Indian cities – NCT Delhi**

**Structure of presentation**

- Indian scenario
- Existing datasets
- NCT DELHI

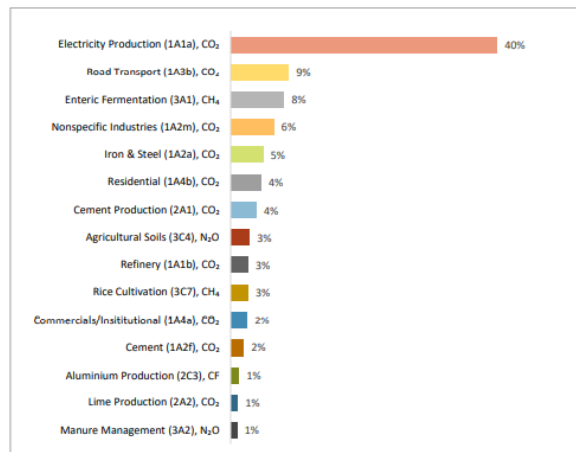


Prof. Dr. Meenakshi Dhote  
Head, Department of Environmental Planning  
School of Planning and Architecture, New Delhi

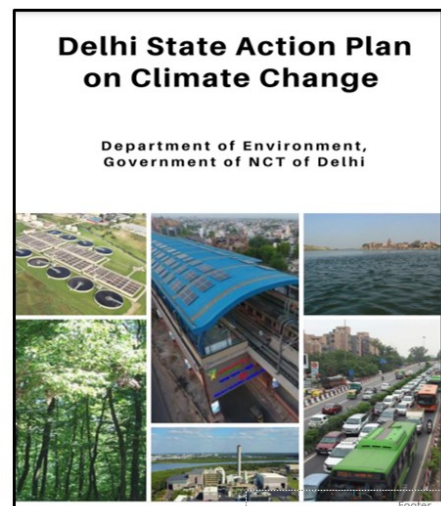
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on Climate Change (SAPCC) which should be parallel to the strategy outlined in NAPCC and translate national policies into action, especially at the sub regional level. At the same time, she underscored how decentralizing the NAPCC objectives into local context is the greatest challenge. Prof. Dhote then expounded on the GHG emission scenario in India. Referring to India’s Third Biennial Update Report to the United Nations Framework Convention on Climate Change, she explained the major emissions associated with urban settlements.

In 2016, top 15 emission categories in terms of CO<sub>2</sub> equivalent represented in below figure.



Greenhouse gas emissions by category, GgCO<sub>2</sub>e, 2016.



(a)

(b)

Source: (a) MoEFCC. (2021). India: Third Biennial Update Report to the United Nations Framework Convention on Climate Change. Ministry of Environment, Forest and Climate Change, Government of India .and (b) NCT Delhi (2019). Delhi State Action Plan on Climate Change, Department of Environment, Government of NCT Delhi, New Delhi

Focusing on the National Capital Territory (NCT) of Delhi, Prof. Dhote introduced the State Action Plan on Climate Change. The data for two data points were analyzed to formulate plans in 2008 and 2019. The plan explained that Delhi falls in the areas of greatest climatic variability, maximum vulnerability and lowest adaptive capacity. The water resources in the State are scarce and have a highly uneven distribution both temporally and spatially. A threat such as climate change thus calls for timely and coherent response and actions that will help reduce vulnerability and build resilience of the State to the likely climate impacts. The SAPCC focusses on GHG mitigation sectors including transport, energy. urban planning, buildings, adaptation aspects like water, forest and biodiversity, agriculture and horticulture, health, along with generating strategic knowledge on climate change sectors. The presentation underlined the need for datasets to be based on actions outlined in the Delhi’s SAPCC, for e.g. augmentation of public transport (CNG buses), congestion tax to check growth in usage of private vehicles, monitoring of all industrial units for clean air, use of CFL for enhanced energy efficiency in buildings, and treatment facility for electronic, industrial and hazardous waste.

### **WG-III : Collective discussion on particular issues**

**Chair: Dr Mahendra Sethi**

In the final session, the stakeholders assessed the current state of the data availability and structures of the ICLAP project. They further discussed the data gaps and considering their limitations how to integrate different datasets for a common analytical framework under the ICLAP modeling framework. Some of the key comments and suggestions pertained to the following aspects:

- a) Maintaining consistency of data collection in terms of indicators, physical units, sources and most importantly temporally/ year.
- b) Ensuring data comparability between cities with different administrative status or boundaries (i.e. municipal corporations, city or development authority, metropolitan region, etc.) across different contexts/ countries.
- c) Reviewing further features of different urban climate tools/ models used in practice, their scope, methodologies, and datasets to underscore the gaps and drawing lessons for modeling ICLAP framework.
- d) Exploring how the stakeholders net could be expanded into formulation and utilization of the ICLAP model, both in academia and the profession.



In addition, there was a strong consensus amongst most participants that the ICLAP project should identify a few megacities, approximately 10-15 in number for which data collection, integration and modelling process should be prioritized.

The stakeholders and project collaborators agreed to take forward the deliberations and partnership for further research and networking both for the project and related activities in urban climate planning. The expert workshop culminated with a vote of thanks by the Project Leader, followed by lunch.

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## List of Participants

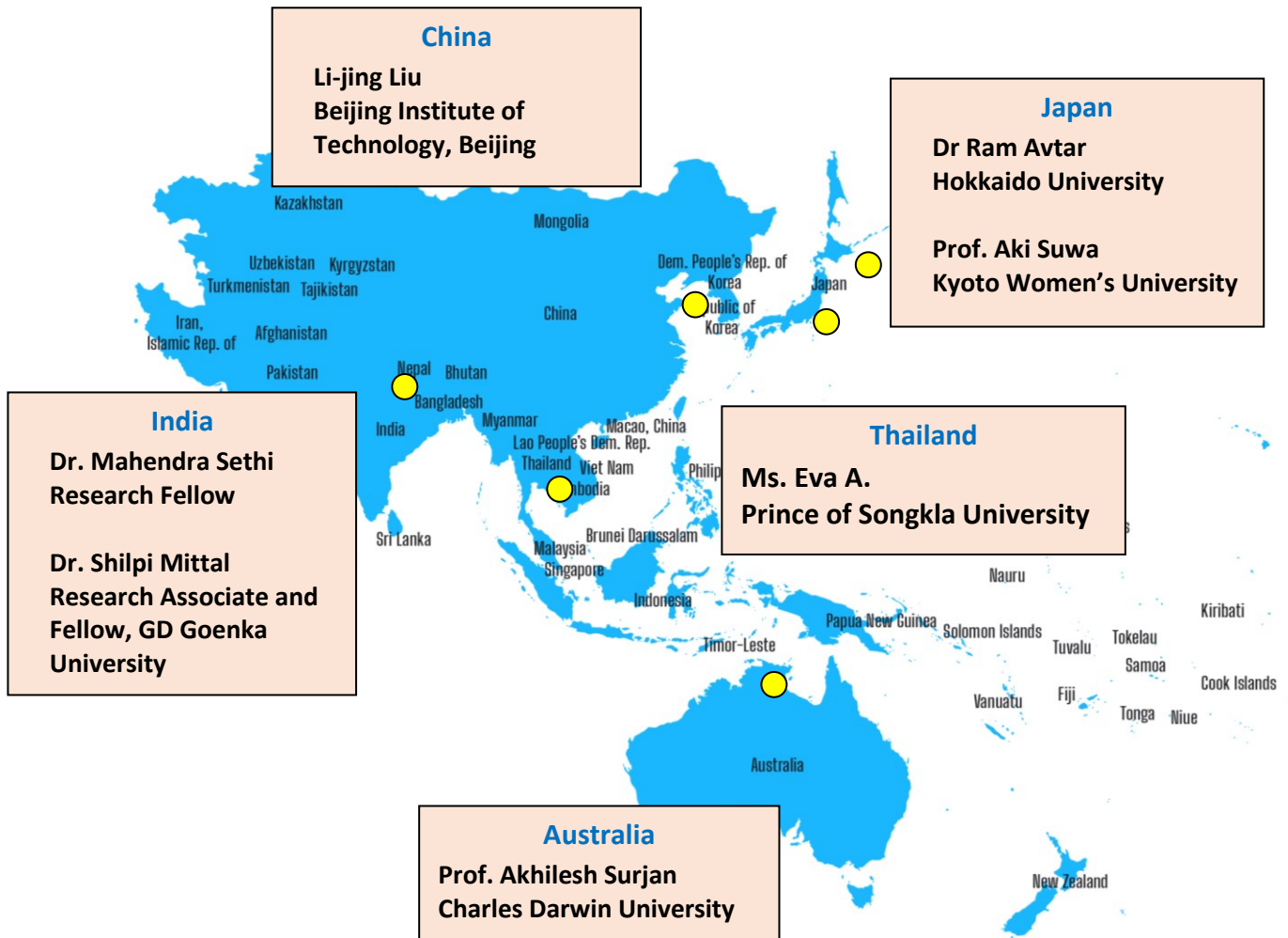
Name	Organization	Email & Phone/ Mobile	Signature
M. RAJAGOPAL	ISARD	9625671923 rajagopal@isard.com	
Dr. S. D. Triwan	—  —	9756170382	
Ananya Lakhina	ISARD	9625671923 ananyalakhina@gmail.com	
Varinder Kumar	Govt Spg'w (Retired)	813 00 97 995	
Nitin	Nitin Communications	9910557553	
Shilpi	ISARD	8587859181	
Dr. Ajay Prasad	ISARD	986838756	
Dr. Mahendra Jethi	ISARD	9811090564	

Name	Organization	Email & Phone/ Mobile	Signature
Dr. Nishant Kumar	INSEED (P) LTD	801147527 Dr. Nishant Kumar@gmail.com	
Prof. S. Mohapatra	IGNOU	8802045646 Subhakar@ignou.ac.in	
Rahul Hans	SPA, Delhi	sm25480@gmail.com	
Usha Bhatte	SPA, Delhi	908818600 P Usha2909hatte.ik@gmail.com	
Akshay Ajith	SPA, Delhi	9567381581 architectakshayajith@gmail.com	
JESWIN SUNNY V.	SPA DELHI	jeswinsunny@gmail.com 7982830956	
A. K. SENGUPTA	Inst of Environment.	F-13, Sec ak_sengupta10@gmail.com 9910850020	
Shovan K. SAHA	SAA	shovankonha@gmail.com 91810249320	

### Participants joining remotely/ virtually

- Prof. Dr. Meenakshi Dhote, School of Planning and Architecture Delhi, India
- Dr. Ram Avtar, Faculty of Environmental Earth Science, Hokkaido University, Japan
- Dr Li-Jing Liu, Beijing Institute of Technology (BIT), China

## ICLAP Network



### Organizers

Dr. Ajeet Prasad, Secretary, ISARD India

Mr M. Rajagopal, ISARD India

### Coordinators

Dr. Mahendra Sethi, ISARD India

Dr. Shilpi Mittal, ISARD India and GD Goenka University





## **Indian Society for Applied Research & Development**

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**Joshi Sadan, M-90, Jagat Ram Park,  
Laxmi Nagar, New Delhi 110092, India  
Tel: +91 9868 381756 E-mail: [isardorg@gmail.com](mailto:isardorg@gmail.com)  
Website: <https://isardorg.in/home>**