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**Emani Kumar**  
*Deputy Secretary General, ICLEI &  
Executive Director, ICLEI South Asia*

*Greetings from ICLEI South Asia!*

We are delighted to bring out the first newsletter for our International Development Research Centre funded project 'Integrated Rural Urban Water Management for Climate Based Adaptations in Indian Cities (IAdapt)'. The project, which is being implemented in Solapur and Vijayawada, has made some significant progress since it began in January 2017.

The project is an initiative to build resource efficient cities that will minimise the use of natural resources, and are productive, competitive and sustainable. The genesis of IAdapt project lies in the recommendations and learnings of European Union (EU) funded project 'Adopting Integrated Urban Water Management (AdoptIUWM)' that brought forth the need for institutional mechanisms to extend IUWM beyond city boundaries and undertake reforms in water management through Integrated Water Resource Management principles and improve the rural-urban interactions on water resources.

Under this project, one micro catchments has been delineated in each project city, to implement project activities. This newsletter will familiarize you with activities carried out in the last one and a half years of the project like selection of micro-catchments in Solapur and Vijayawada; FGDs and Quadrat analysis; review of IUWM Toolkits, hydrological and climate modeling, among others. It also talks about the IAdapt Framework that has been developed to formulate a catchment management plan for water resources integrating rural and urban issues. Moreover, a RURBAN platform has been created in each city under the project to facilitate scientific and collective decision making on water priorities and implement practical measures to protect water resources that are common to urban and rural areas.

Read on to know more!



Integrated Rural Urban Water Management for Climate Based Adaptations in Indian Cities (IAdapt) is a three year project supported by International Development Research Centre (IDRC), Canada. It is being implemented by ICLEI - Local Governments for Sustainability, South Asia, in partnership with Athena Infonomics LLC, International Water Management Institute (IWMI) and Indian Institute of Technology Madras (IITM).

The project focuses on empowering cities to transition from traditional approaches of water management (which considers water supply, wastewater and storm water as separate entities to be planned, implemented and operated in silos) to an 'Integrated Approach' based on the principles of Integrated Water Resource Management (IWRM) and Integrated Urban Water Management (IUWM).

## Project Inception Meeting

An inception workshop was organized to kickstart the projects selected under 'Cities and Climate Change' call by International Development Research Centre (IDRC) in Dhulikhel, Nepal from 4-6 May, 2016. The workshop helped to develop a cohesive understanding of the project among its partners in relation to project objectives, implementation arrangements, deliverables, and team responsibilities. It deepened the understanding of how the different projects can best contribute to city scale planning and governance in the face of climatic uncertainties and rapid socioeconomic change. The workshop helped outline the logical framework of the project and develop an overall action plan.

## First Project Partners Meeting 2017

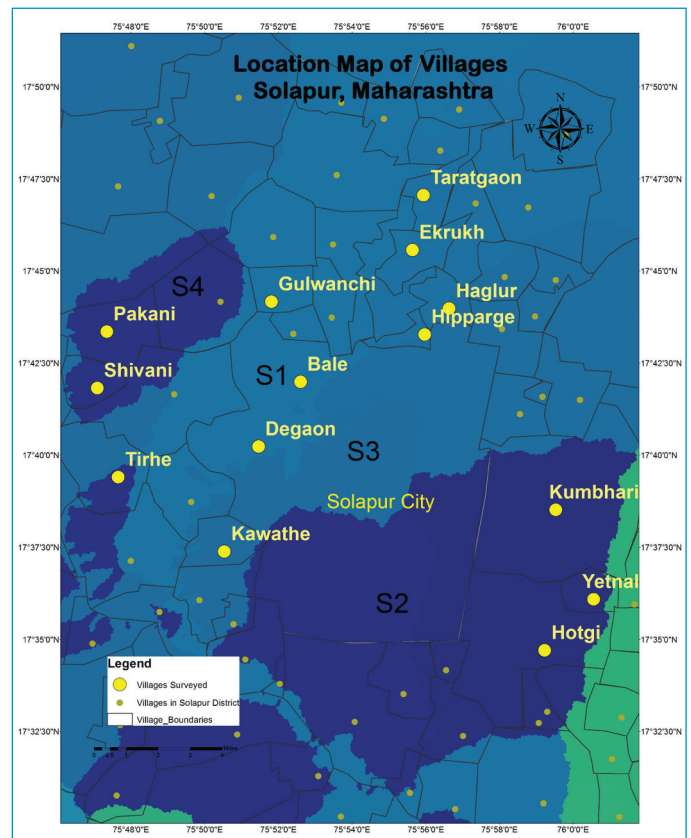
The first project partners meeting was conducted on 21-22 April, 2017 in Chennai. The partners, ICLEI, Athena, IWMI and IIT Madras, discussed project milestones and planned the project activities. A detailed work plan was prepared to achieve the project milestones.



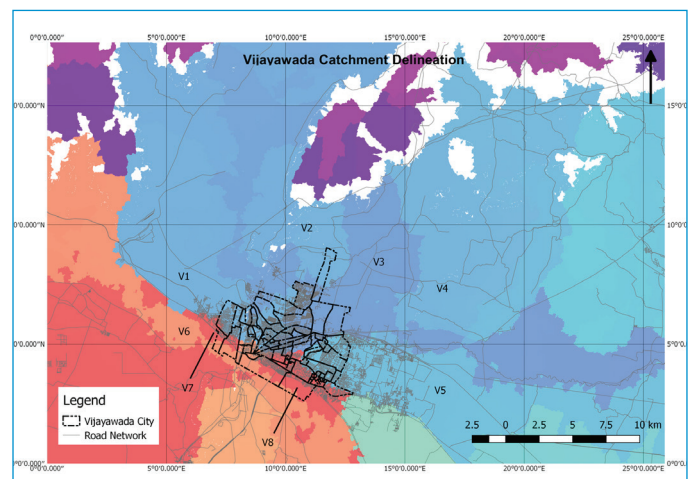
First partners meeting at Chennai

## Delineation of Micro-catchments in Solapur and Vijayawada

Micro-catchment areas were delineated in Bhima River basin for Solapur city and Krishna River basin for Vijayawada. Digital Elevation Model (DEM) and hydrological models were created to study the flow accumulation, drainage direction, slope etc., of the study areas. The interaction of



Micro-catchment delineation of Solapur



Micro-catchment delineation of Vijayawada

water resources between urban and rural areas were also highlighted. A basin map, containing unique identifiers for each watershed basin within the study area was developed. In Vijayawada, several micro-catchments were identified, but only four included both urban and rural areas. In Solapur, four micro-catchments were identified.

## Selection of Micro-catchment: FGDs, Quadrat Analysis

Focus Group Discussions (FGDs) and site visits were conducted in each delineated micro-catchment to collect information on the socio economic profiles, livelihood opportunities, land-





FGDs at Vijayawada

use pattern, water management and consumption pattern in rural and urban areas along with climatic hazard history in villages and city. Six FGDs were conducted in Solapur covering seven villages, while in Vijayawada, 12 FGDs were conducted covering rural and urban areas. Discussions were carried out with administrative heads in the villages to get information about available water resources, infrastructure and changes experienced by villagers in climate and ecosystem.

The floral diversity was assessed through quadrat sampling of trees, shrubs and herbs in the different villages of the micro-catchments. The information was used to assess the species diversity index and richness in each micro-catchment.



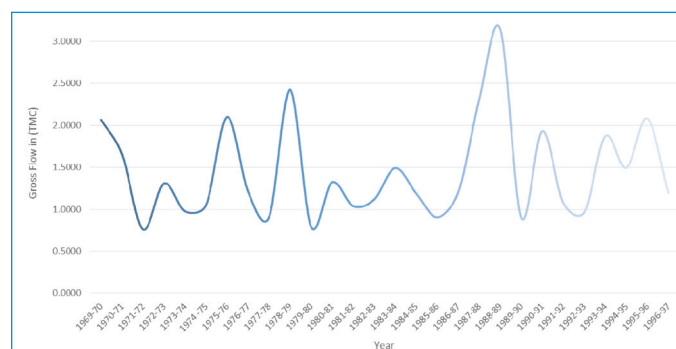
Quadrat sampling at Vijayawada

A SWOT Analysis for each delineated micro-catchments was conducted to assess their strengths, weaknesses, opportunities and threats on the basis of collected data from the FGDs, the stakeholder discussions and the quadrat studies. This helped to prioritize and select one micro-catchment for implementation of the project.

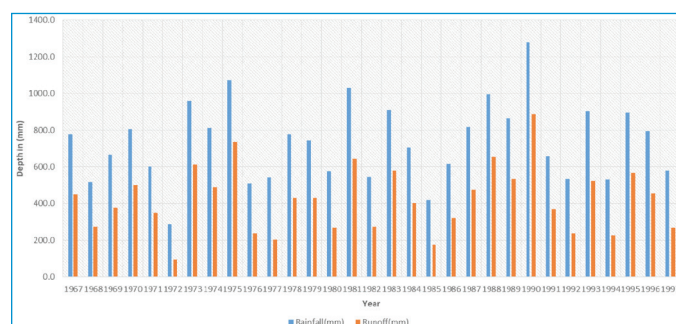
### Hydrological and Climate Modeling of the Selected Micro-catchments

Hydrological modeling for each selected micro-catchment areas in Solapur and Vijayawada have shown the potential impacts of climate change on water resources and the linkages

therein. The study, conducted by Indian Institute of Technology Madras, used HEC-HMS models for simulation of runoff for the Vijayawada basin of Krishna Watershed while for Solapur city, empirical method was used for calculating runoff.



Year wise runoff using HEC-HMS model for Vijayawada basin



Year wise rainfall-runoff using Inglis and Desouza Formula for Solapur basin

### RURBAN Platform

Multi-stakeholder core teams have been formulated in both project cities (Solapur and Vijayawada) to support the IAdapt Process by providing information through stakeholder consultations. The core teams include Mayors, Commissioners, Public Health and Engineering Department, heads of village level authorities (*Gram Panchayats*), representation from the district government like water resources department, agriculture department, ground water boards, major industrial groups, NGOs and local institutes. A nodal person was also identified at the district collectorate office and at the Municipal Corporation level as the focal points for communication.

Each city has developed a RURBAN platform consisting of representatives from the decision makers and leaders of the municipal corporations, District Collectors, state government agencies such as from the Pollution Control Board and Ground Water Boards, state government departments such as Urban Development and Water Resources Departments, as well as politically influential individuals such as Members of Legislative Assembly and Member of Parliament. The multi-stakeholder RURBAN platform is designed to bring together rural and urban stakeholders, to enable greater exchange of information, promote collaborative actions, and formulate and design plans for improved water management in the micro-catchment.

## Visit to Ekrukh Micro-catchment by Solapur IAdapt Core Team Members

On 6 April 2018, officials of Public Health and Engineering Department, Solapur Municipal Corporation and Principal of local Agricultural Institute visited Ekrukh micro-catchment near Solapur city to understand the issues and climate based



Core Team visit to Ekrukh micro-catchment, Solapur



Community engagement meeting, Solapur

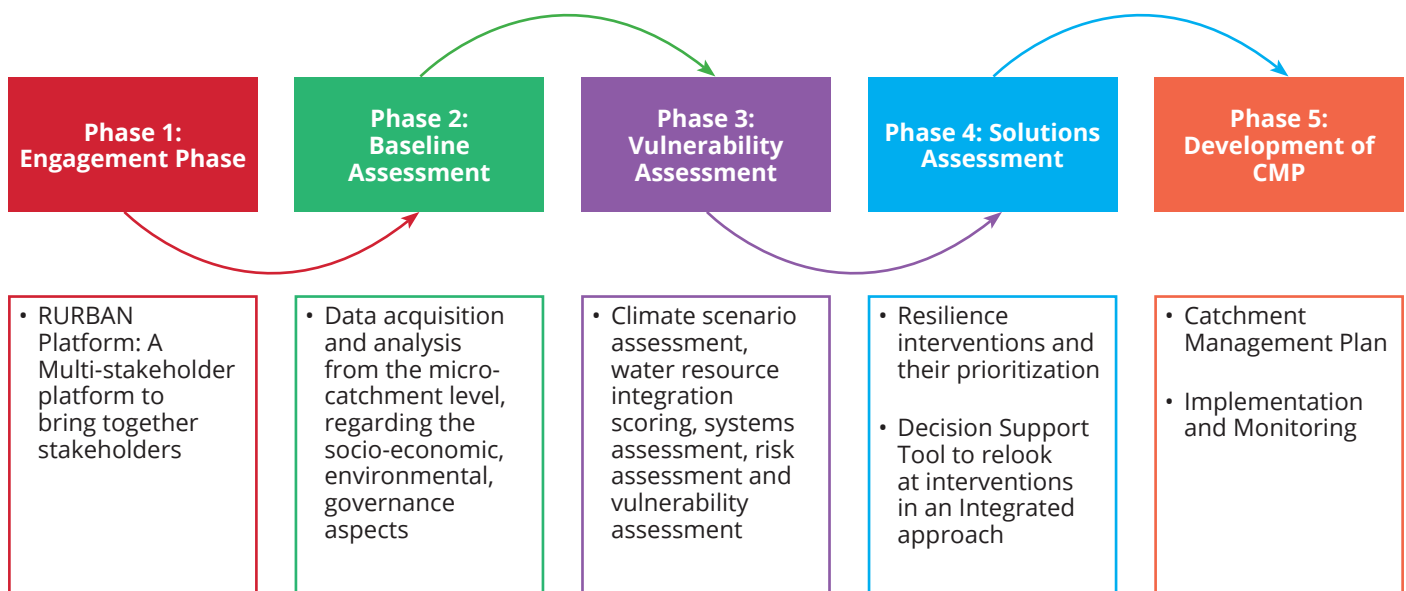
adaptations in the selected micro-catchment area of Ekrukh (Hipparga) lake. The team visited Ekrukh lake, Haglur and Tale Hipparga villages and interacted with village political heads and farmers to know about existing water levels, quality of water, water supply schemes, and sanitation and farming practices. The visit was crucial to strengthen the collaborative efforts from Rural-Urban stakeholders and partnership for integrated water resource management initiatives. A community engagement meeting was conducted to inform local communities about water cycle, principles of integrated water management and rural and urban ecosystem based services and water interactions.

## Development of IAdapt Framework

An integrated framework has been developed under the IAdapt project to formulate a Catchment Management Plan (CMP) for water resources integrating rural and urban issues. The framework helps to develop a baseline profile of the micro-catchment, conduct climate change and socio economic vulnerability assessment, carry out a water balancing assessment, identify fragile systems linked to the water resources and develop resilient strategies promoting climate adaptive, integrated water resource management approaches. The Framework consists of five phases and uses various tools that can be implemented by the local authorities. This integrated CMP based on informed decision-making and community participation, can assess and reconcile water needs in the context of a changing climate and set the priorities for effective water management accordingly.

## State of Art Review of Five Integrated Urban Water Management Toolkits

International Water Management Institute conducted a review of different IUWM toolkits used to devise integrated urban water management solutions. The study aims



IAdapt Framework for developing catchment plan



to understand the methodologies applied to tackle the complexity of urban water systems caused by the constant changes due to demographics, urban renewal, infrastructure aging and replacement etc. The toolkits reviewed include are Commonwealth Scientific and Industrial Research Organization (CSIRO) and the Water Research Foundation (WRF), The Global Water Partnership, the toolkit prepared by the EU funded SWITCH project and ADOPTUWM Toolkit by ICLEI South Asia and the IRAP.

### Visit to Solapur Micro-catchment by IDRC Representative

In February 2018, Dr. Melanie Robertson, Senior Program Officer from IDRC, conducted a review of the project followed by a two day site visit to Ekrukh micro-catchment in Solapur. During her visit she met with Mrs. Shobha Banshetty, Mayor of Solapur and Mr. Laxman Chalwadi, City Engineer and the nodal officer for the project in the city. At Solapur District Collectorate office, she met with Mr. Ravindra Mane, Agriculture Officer and Information Officer for Integrated Watershed Management Program to discuss the project objectives and possible collaboration with the district government. She also met the government officials in Ekrukh village and Tale Hipparga village and interacted with the local residents and farmers to understand the water issues of the region.



*Visit of Dr. Melanie Robertson, IDRC to Ekrukh micro-catchment*

### Second Annual Partners Meeting 2018

The Second Annual Partners Meeting for the IAdapt Project was conducted on 16-17 April 2018 at New Delhi. The meeting was attended by representatives of the different project partners, including ICLEI South Asia, Athena Infonomics, IIT Madras, in person with representatives from IWMI, joining in online. Partners discussed project milestones and achievements of previous year. A detailed work plan was prepared for next year activities.



*Second partners meeting at New Delhi*

### Shared Learning Dialogues with RURBAN Stakeholders in Solapur

The first RURBAN Shared Learning Dialogue in Solapur under the IAdapt project was conducted on 15 May 2018. The meeting was chaired by the Commissioner, Solapur Municipal Corporation (SMC) and was attended by officials from Public Health Engineering Department, Town Planning Department, City Health Department, Municipal City Engineer, Development Officers of Ekrukh, Haglur and Tale Hipparga villages and elected public representatives of two villages. Officials from Water Resources Department, Maharashtra Jeevan Pradhikaran (Rural Water Supply) and Agriculture Department along with NGOs working in the selected micro-catchment were also present.



*RURBAN shared learning dialogue at Solapur*

The RURBAN stakeholders were introduced to the IAdapt Framework and the results of baseline assessments, water balance analysis and hydrological and climate modeling results was shared with them. During the meeting the IAdapt tools were implemented in consultation with the local stakeholders to conduct climate vulnerability assessment and identify climate risks for the fragile systems of water, waste water, solid waste, agriculture and food systems, storm water and health.



## First State Level RURBAN Meeting in Vijayawada

The first RURBAN platform meeting was successfully conducted in Vijayawada under the chairmanship of the Krishna District Collector at his camp office on 22 May 2018. The multi-stakeholder RURBAN platform meeting had around 35 participants which included catchment managers from both urban and rural regions and representatives of water users. During the meeting, stakeholders were apprised the project activities and how the IAdapt project hopes to bring in participatory water resource management through the RURBAN platform. Appreciating the project, the District Collector and the Additional Commissioner (on behalf of the Commissioner) representing the rural and urban catchment managers respectively has assured support to the project.



*RURBAN state-level meeting at Vijayawada*

## Exposure Visit for Solapur Rural Core Team

An exposure visit was conducted in Solapur on 6 June 2018 for administrative and elected representatives of TaleHipparga, Ekrukha and Haglur villages and the Agriculture Officer for Integrated Watershed Management Program from the District Collectorate. The participants visited BibiDarfal



*Exposure visit, Solapur*

and Wadala village to understand the contribution of people's participation for rural water conservation projects. Lokmangal Foundation - a local NGO, conducted awareness campaign and provided financial support to villagers for water conservation activities. Nallah (storm water stream) widening, desiltation, plantation, compartment bunding, weir construction, ground water recharge were some of the projects explained by Mr. Vishal Deshmukh, the expert who was involved in most of the works. He had motivated villages for Shramdan (voluntary physical labour contribution). Wadala village conducted sanitation and water conservation projects through participatory involvement in planning and implementation, developing a Wadala pattern for water conservation works. Mr. Baliram Sathe, a leader of Wadala village, motivated each and every house for their involvement and participation in water conservation activities for more than 40 days for 3-4 hours. Villagers also constructed soak pits for gray water and aiming for gutter free village in country. Mr. Baliram Sathe shared his experience of motivating each villager and problems faced during his journey with participants.

## Contact

### **ICLEI - Local Governments for Sustainability, South Asia**

C-3, Lower Ground Floor, Green Park Extension, New Delhi - 110016, India

Tel: +91 - 11 - 4974 7200; Fax: +91 - 11 - 4974 7201

Email: [iclei-southasia@iclei.org](mailto:iclei-southasia@iclei.org); Web: <http://southasia.iclei.org/>

### **Athena Infonomics Pvt. Ltd.**

15 Arcot Street, T. Nagar, Chennai, Tamil Nadu - 600 017, India

Tel: +91 44 - 423 271 12 / 423 271 13; Web: <https://www.athenainfonomics.in/>

### **International Water Management Institute - IWMI**

127 Sunil Mawatha, Pelawatte, Battaramulla, Colombo, Sri Lanka

Tel: +94 - 11 - 2880000; Fax: +94 - 11 - 2786854; Web: <http://www.iwmi.cgiar.org/>

### **Indian Institute of Technology Madras**

Sardar Patel Road, Opposite to C, L.R.I, Adyar, Chennai, Tamil Nadu 600036

Tel: +91 - 44 2257 8101; Web: <https://www.iitm.ac.in/>