BREAKING THE VICIOUS CYCLE:
PLANNING WATER SECURITY IN LOW-INCOME URBAN NEIGHBOURHOODS THROUGH CO-CREATION

ARA MICRO GRANT PROJECT (JANUARY-APRIL 2022)

Knowledge. Voice. Democracy.
PRIA

in partnership with

Shehri Mahila
Kamgar Union

Sushant University
Birla Global University Bhubaneswar

School of Art & Architecture

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This report outlines the activities undertaken through the Adaptation Research Alliance (ARA) Micro Grant between January 2022 to April 2022.

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Short description of the project

Our project showcases community based participatory methods that are very useful in systematising lived knowledge and localised data sets. Through such systematisation and generation of local data we hope to influence impact-driven research and policy-making. This counters the current 'top-down' approach to knowledge generation, focused on global/national concerns and data sets.

We focused on the issue of water – the lack of availability, poor quality of water, and water hazards like flooding – that urban poor communities face in their everyday lives. Inter-generational participatory methods were used to systematise knowledge around an urban poor community's daily struggles to access water, and help them build understanding of the impact that lack of quality water has on their lives, and the continued shortage due to climate change. Arts-based methods with adolescents generated their perspectives on use (or misuse) of water resources and basic understanding of climate change. Dialogue, as a process of co-learning, was facilitated, in which community members begin to understand what is climate change, and 'experts' learn what it means to live without access to quality water.

Written and audio-visual documentation of the participatory processes, and sharing back with the community the analysis of the data collected and the edited audio-visual material, is an important part of the co-creation process we have used in this project.

Emergent discoveries on the burning issue

Global temperature increase disrupts the delicately balanced water cycle – accelerated evaporation of surface water increases amount of precipitation, leading to unpredictable rain and waterlogging (urban floods). Scarcity of water in informal settlements in Indian cities (largely reliant on surface and ground water for domestic needs) is a recognised climate-induced stressor. Increasing demand for water and excessive groundwater extraction deplete water tables, leaching harmful minerals into the soil. Water scarcity might enhance human heavy metal exposure owing to low dilution and increased uptake secondary to higher retention under low flow. Informal settlements do not have adequate rainwater drainage and sanitation (solid and liquid waste) systems; excess precipitation results in uncontrolled run-off water. Climate change induced uncertainty (too much or too less) of water availability has consequences on sustainable livelihoods and well-being, especially gender and health impacts (rising malaria, dengue, jaundice) in informal settlements.

As researchers, we began with this scientific understanding of the impact of climate change on water availability, water quality and health hazards.

A community's knowledge based on their lived experiences is as relevant in highlighting the emergent issues of deteriorating water availability and water quality being caused by climate change. Through the co-creation process, we tried to understand an urban poor community's experience, expressed in their own language (which does not necessarily reflect the "scientific language"). We conducted participatory community based research methods to gain these insights in two urban poor settlements – Gautampuri, a resettlement colony in East Delhi, and Ghata village, an urban village in Gurugram.

Insights from Gautampuri

"*Water scarcity is something that we have adapted ourselves with"*

In Gautampuri settlement, community members have been facing the issue of water scarcity since they first settled in this location more than 20 years ago; however, they do not relate the continuing shortage as an impact of climate change – they accept it as part of their lives, a deprivation which they have to struggle with.

"There have been days when there has been no water in the community, and we had to stay up all night to check if the water supply was started"

Supply of municipal water is erratic, there is no timetable for when the supply will start. They recognised that the dramatic increase in the number of residents living in the settlement has also put pressure on the demand for water.

"*The drains begin to overflow if they are not cleaned, especially on rainy days which causes waterlogging…During heavy rains, we are not able to walk on the streets, water enters our houses, children are unable to go to school. There have been cases where children have fallen into the potholes."*

Heavy rains in the monsoon create a major challenge in the community. On deeper reflection, the community agreed that waterlogging and stagnant water in the drains was because of the dumping of waste and non-collection of household waste by the municipal service.

Inadequate water supply, lack of sanitation services by the municipality, waterlogging, and contamination of water has led to cases of diarrhea, dengue and malaria in the community.

Insights from Ghata

"Even though Gurugram has dry weather, the winters used to be longer than it was before. Now winters are short. There is no green cover anymore. Trees have been felled to construct high-rise buildings."

The landscape in Ghata village, that once enjoyed the benefits of a sprawling green cover, owing to the abundance of water resources fed by the streams from Aravalli ranges, now lies in a state of depletion and degeneration. The community attributes it to two reasons: declining rainfall and expansion of the city. The drains that supply water to the village lake are now blocked due to unplanned growth. Over the years, the lake site has become a dumping ground for waste.

The lake in Ghata which was spread over 370 acres, today barely covers 2 acres

The older generation of men living in Ghata were privy to sustainability. For them, the infertile land and decreasing avenues for irrigation have been reasons enough to abandon agriculture on an already unproductive soil profile that is highly saline, making farming unsustainable as a source of livelihood.

"*Our needs for water are met in this settlement and not a day goes by when we don't get water."*

The women in Ghata do not need to struggle with water shortage. Water in taps comes when the motor (motorised pumps) is switched on. These pumps that extract groundwater to provide water have been installed by landlords for the tenants who rent the houses that are built to accommodate an ever-growing migrant population. The high salinity of the soil caused due to the high rate of groundwater extraction, exacerbated by the use of motors, does not concern these women, for whom availability of water on demand is a luxury in their busy lives.

Infertility of agricultural lands, drying up of traditional water bodies, disappearance of streams and rivulets flowing from mountains and the pollution of groundwater all owe its genesis to the phenomenon of climate change. While the community in Ghata admits that their lived environment has suffered considerable strain due to urban expansion, groundwater extraction, rising temperature and erratic rainfall, the residents were unable to link these changes that they observed to climate change.

"It is now for the youth to act on making our village more livable."

"We have learnt about climate change in school. I know that the biggest impact will be on water resources since lakes and rivers are drying up."

It is the adolescents in Ghata who are going to take the lead in a community that, while unconcerned about water shortage today, needs to adopt sustainable practices to continue to enjoy continuous supply of water tomorrow.

Click on the image below to watch a video highlighting these insights on lack of availability and poor quality of water:

The co-creation process

The co-creation process began with informal discussions with the community during a transect walk through the settlements. Introduction of the researchers into the settlements was facilitated by the project partner, Shaheri Gharelu Kamgar Union (City Domestic Workers Union). This helped to gain trust with the community, especially the women, many of whom work as domestic workers.

Focused inter-generational discussions brought a shared understanding of the historical trajectory of water availability in the settlements as well as the daily usage, storage, and collection patterns.

Architecture and urban design master's students from the university partner, Sushant University, visited the settlements to map the blue and green spaces, and document the housing quality, design and materials being used for construction.

Community interaction in Gautampuri

Students from Sushant University interacting with community youth in Ghata

Arts based discussions with the youth (high school students) helped demystify what is climate change, and how it can impact the availability and quality of water, as well as the health impacts. In the discussion, the participants were asked to do a quick search on the Internet and read about climate change. In groups, they were then asked to draw, on chart paper, what they had understood, and present to the others. Based on their understanding of climate change, they were asked to share their learning with at least two other community members – within their family, peers in their school, or with community elders.

Adolescents from Ghata creatively express their understanding of climate change

A resource mapping exercise with the community mapped the water geography of the village. As part of settlement mapping, the adolescents were asked to draw an outline of the community they resided in. Adolescents used locally available material like chalk powder, stones, potted plants and bricks to show places of common interest in their community. They used different colours to depict their village, like rows of houses, toilets, shops, gates and green spaces. Subsequently, the community set the water points in the village, marked in blue.

Community mapping and sharing exercise

The adolescents chose to communicate the reality of their lives – how water is stored, problems encountered during the monsoon, the problem of poor sanitation and drainage and how it affects water quality and their health – through the photo voice method. Adolescents in the community who already had access to smartphones clicked photos and made short videos on the theme of "Water In Our Everyday Life". They documented the travails of women who collect water from common sources and carry them to their homes, the piling mounds of garbage that percolates into the ground, and the sewage intruding into the pipelines that carry water to homes making the water supplied unfit for consumption.

A community-university interaction session titled "Community engagement: Tagging blue and green in the environment" was organized to facilitate interaction of community members with the faculty and Master's students of Sushant University. The interaction triggered important discussions around key issues of co-creation – ways in which academic experts can demystify macro urban planning of settlements for the community, and how the lived realities of communities can be incorporated into the planning solutions created by experts.

Community-university interaction between students of Sushant University and youth from Ghata and Gautampuri

Click on the image below to watch a video of the co-creation process undertaken in Ghata and Gautampuri

Our scientific research partner NIREH supported the project in demystifying climate change. The open source IEC materials, written in the local language (Hindi), communicate the science of climate change, the insights on the issue of water availability and quality, and its impact on health in an easy-to-understand graphic illustrative format.

These posters will be printed and distributed in the community, allowing them to decide where to display the posters in public spaces. They can also be used as educational materials to generate discussions on the issue of climate change, with community youth and in schools.

These open source posters can be downloaded from the PRIA website.

Story of Water

Impact of climate change on water

Water issues in Ghata

Water issues in Gautampuri

Successes and contribution to local climate change adaptation

The biggest successes have been:

- Use of participatory, community based methods to systematize and generate local knowledge, along with demystification of science of climate change and linking it to community knowledge. This has begun the process of identifying community-based issues for future action-research.
- In the few weeks of the co-creation process, we have seen an energy among the adolescents from the community and students from the university to take action. Specifically, engagement with marginalised adolescents/youth has contributed to locally-led climate adaptation actions. Adolescent girls in particular have been at the forefront of learning ways in which they can band together to take action to conserve and preserve water. The Master's students from Sushant University, who were exposed for the first time to the realities of community life, saw first-hand how planning decisions taken in closed rooms affect the lives of the very people in whose name those decisions are taken. During the interaction with community youth, they formed a connection.
- Knowledge and innovation brokering has brought communities and experts together, in a co-learning space – leading to the realization by both the community and the experts that they can help each other to solve what appears to be a common issue.
- Strengthening linkages with partners – the partnerships between scientific experts, university faculty and students, community-based partner, and PRIA as the knowledge intermediary have been strengthened to continue to work together in the future on this burning issue.

The primary factor contributing to these successes has been the trust shown by the community in participating in this co-creation process. Linkage with a community-based partner was crucial in initiating such trust, which would otherwise not have been possible in the short period of the micro grant.

We hope by systematising lived knowledge of urban poor communities we have highlighted how vulnerable and marginalised communities are disproportionately suffering climate hazards, and the resulting impacts on health, well being and sustainable livelihoods. Going forward, we want to use these community-based insights to support the urban poor to become part of bottom-up, local action-research to influence governance and policy programme processes.

The biggest opportunity for impact in the future is to find a way to harness, organise and collectivise youth (adolescents) for action. The young people who participated in this short co-creation process developed a spontaneous energy to take action. The videos they took became a starting point to generate discussions among themselves. Several of them took the lead to educate community members to save water (for example, in Ghata, young girls started switching off the motors as soon as they saw the overhead tanks were overflowing, or closed a community tap to avoid wastage of a scarce resource).

Strategies and approaches that supported the co-creation process with stakeholders

Several strategies can support the co-creation process with multiple stakeholders

- Use of community based participatory methods in systematising lived knowledge
- Knowledge and innovation brokers like PRIA bring communities and experts together, in a co-learning space. By adopting a multi-knowledge perspective in generating new knowledge, students of architecture, urban design, planning, and environmental health researchers have demystified the meaning of climate hazards and climate change to the community, and by listening to community experiences the experts have broadened their understanding of the impact of climate change in everyday life.
- Communication materials that combine scientific knowledge and derived community insights in easy-to-understand materials (posters, audio-visuals) in local language that can be used by the community to generate further discussion
- Existing connections with a community based organization. The rapport our community partner Shaheri Gharelu Kamgar Union (City Domestic Workers Union) had in the community was instrumental in giving access to the community, which would otherwise not have been possible in the very short timeframe of the ARA micro grant period.

The co-creation process came with its own set of challenges. The very limited time frame of the micro grant (6 weeks) constrained all the activities that were proposed. Perhaps we were too ambitious in planning the number of activities? The Omicron wave in January 2022 further limited the time available, as we could not go to the field sites for interaction with the community. The participatory methods that were to be undertaken could not have been done in online mode.

Key lessons in undertaking a successful co-creation process

The starting point for success in a co-creation process is trust with the community. Researchers often have good linkages with other academic/scientific/policy experts, which can be leveraged quickly. Investing in relationships with community based organisations and knowledge intermediaries (to help generate and systematise community knowledge) is also essential.

Take care that the co-production process does not become an extractive exercise. Co-production of knowledge brings with it the responsibility of how the knowledge being generated is shared, especially with the community, and for what purpose that knowledge is used. Knowledge should not be used solely for the benefit of the academic researcher; it should also be systematised in a way that the community can use it to bring change in their lives.

Looking ahead

We want to continue to work on the burning issue of water in urban informal settlements. Climate adaptive city-level planning that address the water needs of urban poor communities must be based on dialogue between local governance institutions (decision makers) and the marginalised communities that are most impacted by climate change.

Going forward, we would like to narrow down our focus on one or two specific issues related to water availability, which have been identified by the community. We would like to directly link planning priorities already set by the municipality with priorities identified by the community to build a symbiotic relationship between urban poor communities and governance institutions for sustainable actions.

By sharing its experiences, and learning from others, PRIA hopes to build meaningful, equitable connections between community and governance institutions for long-term adaptation. For example, as we are interested in working with urban poor communities, we can learn from the processes and methods used by other micro grantees working in urban informal settings.

The limited time in this micro grant did not give time for the sharing of the new knowledge and insights at the local level, to influence programs being designed by local governance institutions. Support from donors for activities that use and share the knowledge created by this co-creation process at the local level, with local stakeholders, will be beneficial. Sharing of research insights needs human resource investment (in attending others' events, creating attractive knowledge products, etc). Support is also necessary for systematising the diversity in the processes undertaken in the different project sites, to document the processes and methods used, thereby contributing to enhanced learning.

Selected Readings

Once 370 acres, Ghata lake is now 2 acres

Protecting Ghata bundh could have saved Gurgaon: Environment activists

Gurugram water table falls 3 metres in 5 years, extraction at 308%

The forgotten clusters of South Delhi

Urbanisation and Climate Change

Urbanisation, climate change and its impact on water quality and economic risks in a water scarce and rapidly urbanising catchment: Case study of the Berg River Catchment

Climate and Urban Development

Climate change dilemma driven by urbanisation

Health Effects of Climate Change related to Water

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