

City level water forums: exploring innovations to address ‘too much and too little water’ in Dharan, an urbanising city of Nepal

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Abstract

Cities are facing water scarcity due to uncertainties on biophysical as well as social factors. The paper examines a “water forum” as a social learning platform in case study of Dharan, city of Nepal, which helped to bring stakeholders together through a common platform. This was done in order to derive suitable climate adaptive water policies and programs by drawing from local experience and scientific evidences. It is replicable to other similar cities to assist decision-makers in framing policies and interventions.

Keywords: *Urbanisation, Water scarcity, Social learning, Stakeholder engagement, Nepal*

Introduction

Many cities are facing pressure on their water resources due to uncertainties posed by climate change, increased populations and complexities due to weak governance and planning (Yang and Zhu, 2017). The challenge of water issues in urban areas can be summarised as “*too little, too much, too dirty*” (Hoekstra et al., 2018). A recent global study shows that 1 in 4 cities is already water stressed, and climate change and urbanisation will aggravate the risk for water shortages - particularly in peri-urban river basins (McDonald et al., 2014). For such vulnerable areas, climate change adaptation planning is crucial to cope with the impact of weather extremes (Hughes, 2015). Climate change adaptation needs a social learning mechanism or a stakeholder engagement to build new knowledge, relationships, and practices in response to complex environmental challenges (Ensor and Harvey, 2015). Koepfel has identified flexible forums for communication, discussion, decision-making, and improving learning capacity to increase adaptive capacity within water governance regimes (Honkonen, 2017). Social learning amongst stakeholder is required for achieving sustainable or resilient cities (Herk et al., 2011; Rijke et al., 2013). The Organisation for Economic Co-operation and

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Development (OECD, 2015) has also focused on promoting stakeholder engagement for informed and outcome-oriented contributions to water policy design and implementation.

The paper examines the mechanism of a ‘water forum’ in the case study of Dharan town of Nepal, which helped to bring stakeholders in a common platform to derive suitable climate adaptive policy and programs in water issues. It contributes as empirical evidence of how the engagement of stakeholders can be useful for devising strategies and policy for natural resource management, such as water resources.

The forum was devised as an innovative platform to foster *science - policymakers-society* interaction for decision making, by exploring solutions to water-related issues through dialogue and deliberation with key stakeholders supported by evidences of environmentally sustainable and more resilient policies and practices. Traditionally, in the case of water-related problems, instrumental interventions or engineering works have been considered as solutions; however, the forum recognises that for the management and good governance of water resources, stakeholders’ opinions and socio-economic factors are as important as the biophysical indicators. The paradigm of ‘consulting’ local communities has been shifted to ‘engaging’ them for transparent decision-making processes and ensuring the needs and views of stakeholders in policy decisions are included. The emphasis has been given to the partnership of local government with academic institutions to foster an evidence-based decision making process. Nevertheless, it has not failed to recognise that stakeholders’ engagement is equally important in dealing with resources for concerted action. Nepal is transitioning to the federal structure and local government has been exercising decision making power; however, with limited thematic expertise. Therefore, the water forum provides the unique opportunity to discuss water issues and help the city to be water secure. This is replicable nationwide to assist decision-makers in framing policies and interventions.

Methodology

The experiential evidences were generated from engaging identified stakeholders in the case study city, Dharan, while facilitating water forums. Five of such forums were reviewed. Dharan is a rapidly urbanising town in eastern Nepal characterised by acute shortage of drinking water and events of extreme rainfall at the same time. Self-reflection of authors from water forums and systemic co-inquiry embedded in water forums were the mode of data generation. Apart from these forums, informal meetings with stakeholders and expert consultation, as well as a secondary literature review were made during the period.

The Dharan Water Forum, locally known as “*Dharan Pani Chautari*”, was formed as an informal and open deliberative platform of multi-stakholder engagement for sharing research findings and deliberating on climate adaptive water management plans and strategies. Diverse stakeholders participated, including the Mayor, Deputy Mayor, Municipal officials, other government officials, local citizens, representatives from academic institutions, journalists,

private sector groups and women groups, amongst others. These meetings were usually of two hours duration and were organised in the interval of three months, or as needed. In the first 30 minutes of the forum, research findings were put forward as an issue. Most of the issues either touched on problems being faced by local people, best practices that can be replicated, or policies that need to be revised. Open discussion was facilitated so as to promote the discussion among stakeholders, which later was streamlined as solution-oriented conclusive action points. Discussions were made on different options for prioritizing the actions that need to be taken by municipality and other stakeholders. Finally, agendas were set for review and discussion for upcoming meetings.

Results

Collective learning and development of the shared view

The water forum helped to understand needs of stakeholders and identify prioritized adaptation options, based on local experience and scientific evidence to make a water secure city. To build a common vision for adaptation strategies, consensus on implementation activities was built through discussion. In the first water forum, 55 stakeholders discussed and prioritized declining groundwater as an important issue. Stakeholders expressed their commitment to contribute and cooperate. In the following forum, around 60 people gathered and identified effective ways to implement groundwater recharge policy. Constructing recharge pits, combined with rainwater harvesting structures already installed in 13,000 households in the city, was proposed and finalised. Recharge pits not only recharge groundwater, but reduce volume of stormwater.

Engagement promotes leadership, ownership and leverage resources

The process of engagement with stakeholders is continuous, localized and reflective, boosts co-learning and co-creates knowledge, hence provides better decisions with local ownership. It also strengthens the capacity of city governments to plan and implement adaptive actions that help ensure future water supplies of the town. The pilot action of constructing recharge pits was planned to scale out for which the resources have been allocated by city local government.

Develop conducive policies

Understanding a situation can lead to appropriate policy and practice. This forum gave local government an opportunity to interact with relevant stakeholders to develop local adaptation practices and mainstream it within policies. Local government endorsed groundwater recharge policy as mandatory while building new houses through municipal council in 2018.

Designers, municipal engineers and construction workers were invited to another water forum in order to orient them about construction and regular monitoring of recharge pits.

The brief process of the water forum series in Dharan, the emergence and development of stakeholder engagement and social learning and its impact has been shown in **Figure 1**.

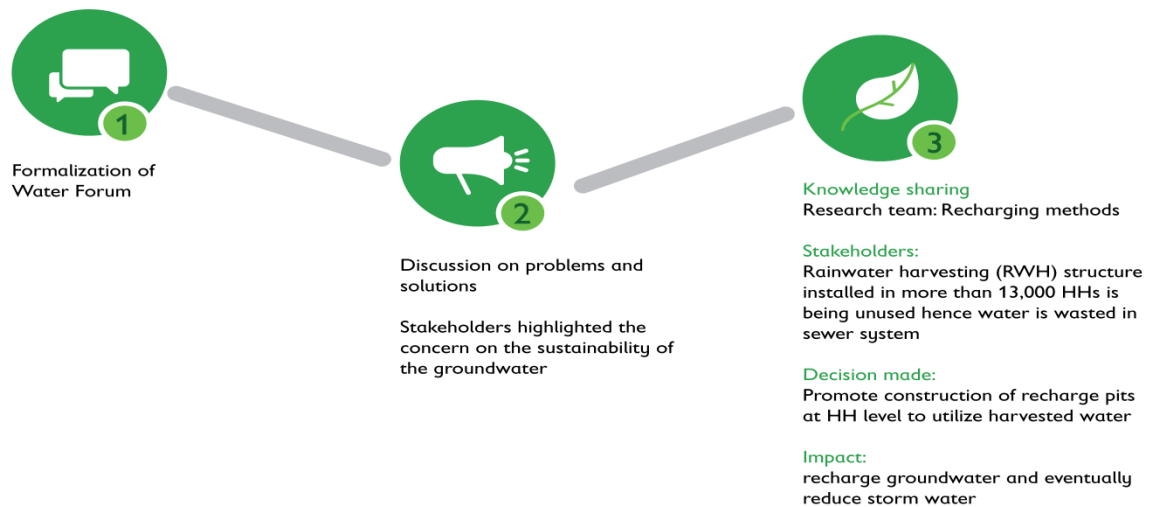


Figure 1: Process of internalisation of the problem (1), uptake of research (2) and outcome of engagement in the water forums (3)(Source: Authors own)

Conclusion

City level water forums are an effective tool which serves the multiple benefits of co-creating knowledge between community and scholars and ultimately supports the development of conducive policies and programs, with full local ownership and sustainability. It is replicable to other similar cities to assist decision-makers in framing policies and interventions.

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