

# Understanding engagement of private sector in urban water management

## Lessons from practice

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### Urban Water Insecurity and Private Sector

The world is facing continuous shortage of water supply which has become the most pressing challenge particularly to the urban centers - the residence of more than half of world's population. Besides, urban services are not able to keep pace with the growing demand of water exacerbated by deteriorating urban infrastructure, poor water governance and the impact of climate variability and extreme events. It is estimated that 27% of the urban dwellers in the developing world do not have access to piped water (UN, 2010).

Private sector is a part of the society which also bear the brunt of water related problems. The inadequate availability of clean water or any other water related risk has become one of the major threats to the survival of business. World Economic Forum, (2014) has also listed water related issues as one of the top five global risks to business. On the other hand, private sector is emerging as an important entity with potential of solving increasing water risks. The role of business and the finance community in achieving the global targets of Sustainable Development Goals (SDG)- 6, which aims to ensure availability and sustainable management of water and sanitation for all, is increasingly being recognized (UN-Water, 2018). Global Water Partnership (GWP) mentioned that the governments will need to engage with private partners as a response to water scarcity (GWP, 2014). An active engagement with all major water users particularly private sector defined as large, impactful and politically influential is required for sustainability of watershed (USAID and Winrock International, 2017). Hence, private sector engagement in water management has become crucial than ever in order to achieve urban water security.

Yet, in Nepal, the potential of private sector's contribution on urban water management is not widely understood, recognized or harnessed. This policy brief aims to shed light on how engagement with private sector can open new frontiers to achieve urban water security.

### What do we mean by 'private sector engagement' in water management?

In Nepal, the understanding of private sector engagement in the water sector has been primarily limited to (i) private companies managing and operating water utility in public-private-partnership model, (ii) private sector investment in hydropower and infrastructure development, (iii) private water suppliers (water bottling, jar water, tankers) and (iv) corporate social responsibility initiatives by companies.

In this policy brief, by 'private sector', we mean, both (a) 'private enterprises' that are generally motivated by profit (multinational to national companies, financial institutions and small/ medium enterprises) and (b) 'social enterprises' that run in a business model yet meet the social goals benefiting community at

### KEY MESSAGES

- Declining water supply in urban regions is affecting businesses which will aggravate further if not addressed timely.
- Sustainable water security is not possible only through the management of public sector. For this, private sector needs to be engaged in urban water management strategically.
- Large, medium and small private enterprises have the potential to implement water saving practices, invest in water efficient technologies and conservation of water resources.
- Water problems can be tapped as business opportunities by innovative social enterprises that not only make profit but also contribute in water conservation at large.
- Government needs to design innovative research- informed policies to promote the role of private sector for urban water security.

large. Hence, the 'private sector engagement' in water management entails either (i) "private enterprises" managing water/wastewater inside its premises or at catchment level or (ii) "social enterprises" that deal with water related issues by providing product and services.

In this brief, we explored multiple pathways of engaging private sector in water management beyond the present practice of corporate social responsibility by using following methods:

**Action 1:** *Identified issue of private enterprises regarding water scarcity and observation of best practices and policies*

**Action 2:** *Organized private sector focused Water Forum\* in Dhulikhel and Dharan*

**Action 3:** *Implemented behavioral nudge for wise use of water in hotels*

**Action 4:** *Organized startup bootcamp event focusing social enterprise that can solve water related problems*

\* *Water Forum= This is a deliberative discussion forum where diverse stakeholders, including all prominent water actors are invited to discuss water issues and challenges that they confront in the city and co-produce the knowledge on water related problems and explore solutions.*

The brief is based on the lessons learnt during implementation of a three year long (2016-2019) action research project entitled, "Climate Adaptive Water Management Practices in Cities of South Asia" in the two case study cities - Dharan and Dhulikhel of Nepal.

## Overview of water-intensive private enterprises in Dharan and Dhulikhel

Larger water users like, hotels<sup>1</sup>, industries and supermarkets in two case study cities are increasing (figure 1 & 2) and at the same time the demand of water for operating these businesses is also growing. Tourism is one of the major economic activities in both the cities. To run the tourism industry, water is one of the most significant resources. In addition, Dharan is one of the 11 industrial estates of Nepal with more than 30 industries (MoF, 2015) and is also popular as a business hub connecting hilly districts to bigger markets of plains and Nepal-India border.

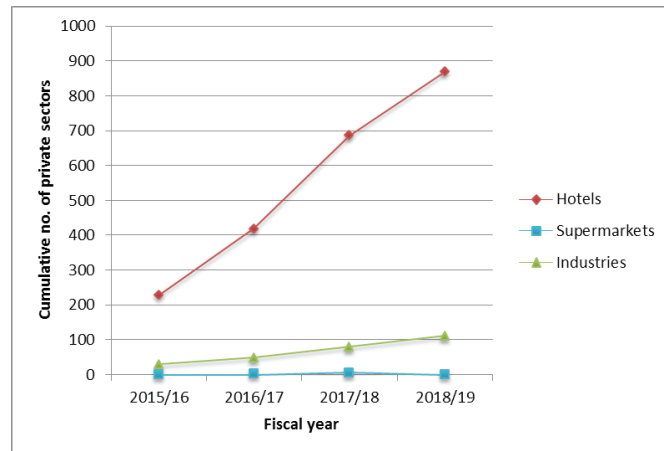


Figure 1: Cumulative increase in number of private sectors registered in Dharan Sub Metropolitan City (Source: Dharan Sub metropolitan city, 2019)

Near to Kathmandu Valley, Dhulikhel municipality, is the popular destination for domestic and international tourists and hence the number of hotels have increased significantly over the years.

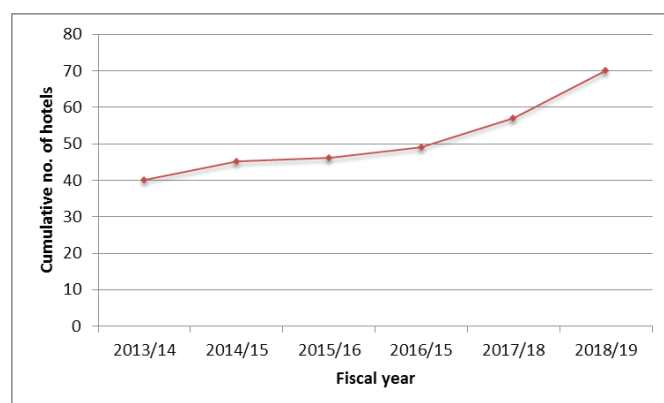


Figure 2: Cumulative increase in number of hotels and resorts registered in Dhulikhel Municipality (Source: Regional Hotel Association Dhulikhel, 2019)

Besides being a tourism hotspot and industrial estate, both municipalities are well known for education and health services. Due to the presence of such multiple facilities, population of these towns is increasing. Population growth coupled with increasing private enterprises and changing urban lifestyle has worsened water

scarcity problems in these municipalities creating risk not only for households but also for business viability.

The challenge of meeting the water requirements for private sector is growing day by day. Due to insufficiency of municipal water supply, in case of Dhulikhel, bore wells have been installed for private use mainly by hotels (Dhulikhel Municipality, 2019) and in Dharan four boring were registered alone in 2018 for *Catechu* powder industry. However, the implication of continuous extraction of groundwater has increased the risk of water scarcity of the area and is fuelling local level conflicts between communities and businesses. For example, in Dhulikhel, local communities protested against a popular resort that tried to install deep ground water borehole inside its premises eventually compelling them to run with limited water supply. This is just a tip of an iceberg which demonstrates how a business can be at physical as well as reputational risk (Ceres, 2012) in the absence of a reliable water supply and proper water management strategies.

## Barriers and solutions to sustainable water management

We selected tourism business as a case because it is water-intensive business relying upon high quality and regular water supply and is common at both municipalities. We surveyed hotels to analyze the perceived barriers in sustainable water management and water conserving behaviors of hotels. It was revealed that lack of knowledge, skills and technical know-how about sustainable water management options was the major factor that inhibited hoteliers from adopting water saving measures or taking decisions beyond business-as-usual for managing water sustainably. High cost associated with water conservation measures was also perceived as barriers by more than 60% of hoteliers for sustainable water management. Lack of government assistance in terms of finance and technical inputs (55%) was another major obstacle according to the hoteliers (Figure 3).

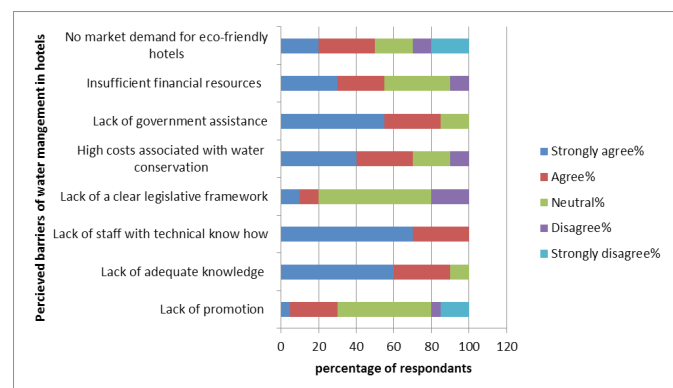


Figure 3: Perceived barriers in water management in hotels in Dharan and Dhulikhel municipalities (Source: Field survey, 2017)

We interacted with private enterprises in Dhulikhel and Dharan in ‘water forums.’ In Dhulikhel, a water forum was conducted with the objective of sensitizing private enterprises about the importance of water conservation and the potential contribution of the enterprises on sustainable water management. The perceived challenges and solutions for private enterprises regarding water management were also discussed. The major challenges the private enterprises faced were lack of hygiene due to water scarcity, increased financial burden for coping mechanisms, business loss due to lack of water

<sup>1</sup> In Dhulikhel, hotel data consists of hotels and/or guest houses only but in Dharan, it also includes tea shops.

and loss of time in water collection. The discussion also pointed out that the lack of awareness about the efficient technology and shrinking open space due to unplanned settlements has compounded the problem of water scarcity. To tackle these challenges, the probable solutions recommended were:

**Table 1: Prioritized solutions by private sector representatives**

Probable solutions	Linking with Private Sector Interest
Behavior change & awareness of economic use of water	<b>Mitigation of Business Risk:</b> Dissemination of technical information, public awareness programs by local and national government
Water conservation (source protection, conservation measures in upstream)	<b>Stewardship Opportunity:</b> Corporate social responsibilities (CSR) that increases competitive advantage by adding brand value
Technology (rain water harvesting, water recharge techniques, reserve ponds, recycling of water)	<b>As Business:</b> Profitable business of products and services related to water and sanitation <b>As Consumer:</b> Hotels and other commercial and public buildings can consume these products and services
<b>Policies in place</b>	<b>Conducive policies:</b> Formulation and implementation of effective policies that (i) enhance business related to water and sanitation and (ii) encourage private enterprise to be more water efficient
<b>Financial schemes</b>	<b>Investment:</b> Financial institutions can be interested to invest in water and sanitation related business or give loan for those private enterprises that are willing to decrease their water consumption by installing various technologies.

Source: Dhulikhel water forum, 2018

In Dharan, we collaborated with Hotel Association of Dharan and Dharan sub metropolitan city to inform and sensitize hotels about the impact of inefficient use of water by using bathroom wall stickers with a slogan “reduce water use”. Simple tools such as stickers were found useful as a nudge for hotel guests to use water responsibly.

### Innovative policies adopted by municipalities to engage private sector in water management

Dharan sub-metropolitan city has already been practicing few policies that incentivize buildings (private and public) that integrate water management practices as shown in table 2.

Apart from these policies, Dharan submetropolitan city introduced a mandatory policy of constructing Climate Adaptive Recharge Pit (CARP) for every new building as a solution to recharge rapidly extracting ground water. We conducted series of water forums, altogether 5, that (a) identified ground water depletion as the most prioritized issue, and (b) endorsed policy of recharge pit construction. In collaboration with Central Union of Painters, Plumbers, Electro and Construction Workers (CUPPEC), Dharan, local masonry entrepreneurs were trained on constructing recharge pits and a demo was constructed inside the premises of municipal

office. Thus, the policy of recharge pit construction created business opportunity for local entrepreneurs (builders and masons) as service providers to construct recharge pit.

**Table 2: Policy instruments by Dharan sub metropolitan city for promoting water management**

Green Homes Policy	<ul style="list-style-type: none"> <li>• One of the components: Conserving water</li> <li>• Provision of tax abatement in building permit fees</li> <li>• Training and orientations for plumbers, house owners, engineers, architects, etc.</li> <li>• Micro-entrepreneurs related to green building materials such as rain water harvesting would be exempted from business tax.</li> <li>• Top three plumbers connecting rain water harvesting honored</li> </ul>
Density Bonus Policy	<ul style="list-style-type: none"> <li>• For commercial and public buildings</li> <li>• If any 3 components of green homes are followed then ground coverage of the building can be changed to 60-70% from 50%</li> </ul>

Source: Dharan sub metropolitan city, 2018

Similarly, in case of Dhulikhel, after conducting the series of water forums with stakeholders, the municipality introduced a new incentive-based policy of providing a rebate of 10-15% business tax to the private enterprise which installs water efficient technologies or wastewater treatment facilities. Thus the policy incentivized private enterprises to decrease their water consumption at the operational level.

### Addressing water challenges through social enterprise

Social enterprise is a market based approach. It not only work for profit but benefit the community through delivering water related products and services in sustainable manner. To bring out innovative ideas that can provide solutions to water management, a business startup competition entitled ‘Techstars Startup Weekend: Water’ was organized focusing on water sector. Altogether, 31 innovative ideas of businesses that address issues of water pollution, scarcity, inaccessibility and the use of weather forecast data were pitched. Among them, top ten start up ideas were selected which included-build water booths at core urban areas, filter grey water using natural materials, zero energy water lifting pump, preserving natural water bodies through sport fishing, localised weather forecast service to private enterprises, groundwater recharge and rainwater harvesting system, community based solar water purification system, hand water pump using pendulum system, book with filtration papers and portable water filter for trekkers.

The event helped to gather young people to explore technological solution for water related problems into innovative start-up company with the guidance of mentors. After the event, one of the startup participants registered the company “Sara Designer and Engineering Consultancy Pvt. Ltd.” that aims to produce low cost water pumps that lifts water from river to high altitude terrains. Networks among investors, engineers, software developers, graphic designers, environmentalist, public health practitioners and business management experts were also established for example, Smart Paani, well-known water based company committed to continue mentoring ten best startup groups. Also, Environment & Public Health Organization (ENPHO), one of the lead organizations in WASH sector, has offered “Aqua cobs” team for research and

development of grey water treatment technology. Moreover, individual investors were interested to collaborate as a capital investor with *Sabailai Paani* (Water ATM) team.

## KEY LESSONS: PATHWAYS TO ENGAGE PRIVATE SECTOR FOR WATER MANAGEMENT

### Formulate incentive based regulatory approach:

The successful cases of policy changes in both Dharan and Dhulikhel municipalities are a testimony to the fact that if the relevant policies are in place, boosting private sector engagement for water management is definitely possible.

Mandatory policy endorsed by Dharan sub metropolitan city for constructing CARP in new buildings will increase the demand of recharge pits and increase the business of local service provider such as masons and builders. Similarly, new houses including commercial buildings will have to construct groundwater recharge compulsorily in their premises along with rainwater harvesting structure which will contribute to the groundwater replenishment.

Dhulikhel municipality adopted policy - to incentivize private companies that install water efficient technologies to reduce water use - is also expected to lessen the water consumption of businesses at operational level.

Hence, governments need to have regulatory strategies to incentivize private enterprises. Economic incentives such as subsidy and rebate, investment incentives, recognition of voluntary commitment to conserve water might be some of the regulatory strategies. Other advocatory incentives such as demonstrations, best practices guidelines, training and all other technical assistance should be in place.

### Keep informed:

Informative tools such as sticker campaigns targeting to change water use behaviors of tourists at hotel and water users at public place is effective for information dissemination and induce water saving behavior at private companies. Also, businesses should be informed through various media about water efficient technologies and services available.

### Boost social enterprise:

Water and sanitation based social enterprises have potential to solve water related problems. Innovative services and products related to water management are available but they need to be supported by government to be able to introduce it in the competitive market. Leveraging resources from investors, providing mentorship and seed money, support in research to design minimal viable product

(MVP) among others can be some of the ways for government to support new start-up water entrepreneurs. Business incubator and accelerator programs for potential startups can be helpful for capacity building and up scaling the enterprise.

### Facilitate finance mechanisms for increasing investments in water:

Access to finance is the most critical steps for speeding up ideas into actions. Either to set up water related new social businesses or to invest in the water efficient system such as aerated faucets and low-flush toilets, on site waste water treatment in the corporate buildings or industries or to upgrade the sanitary fixtures in the existing buildings, finance plays a key role. For such initiatives government should facilitate incentives mechanisms such as rebates, low interest loans, grants or leverage venture capital from investors for establishing social enterprises on water.

### References

- Ceres, 2012. <https://www.ceres.org/resources/reports/clearing-the-waters-a-review-of-corporate-water-riskdisclosure-in-sec-filings/view>
- Dhulikhel Municipality, 2019. Integrated urban development plan of Dhulikhel Municipality, Government of Nepal, (Consultation draft).
- GWP, 2014. GWP Strategy Towards 2020: A Water Secure World. Global Water Partnership, Stockholm, Sweden.
- Ministry of Finance, 2015. Economic Survey, Government of Nepal.
- UN, 2010. Water and Cities Facts and Figures, viewed 29.4.2019, <[https://www.un.org/waterforlifedecade/swm\\_cities\\_zaragoza\\_2010/pdf/facts\\_and\\_figures\\_long\\_final\\_eng.pdf](https://www.un.org/waterforlifedecade/swm_cities_zaragoza_2010/pdf/facts_and_figures_long_final_eng.pdf)>
- UN-Water, 2018. Sustainable Development Goal 6 Synthesis Report 2018 on Water and Sanitation. New York: United Nations.
- USAID and Winrock International, 2017. Private Sector Engagement in the Water Security Improvement Process.
- World Economic Forum, 2014. Global Risks 2014: Ninth Edition, (Insight report), Geneva, Switzerland.

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