

## The Partner: UMES

The Urban Environment Management Society (UEMS) was established in 2002 by a team of dedicated youth in Lalitpur in order to improve traditional water resources so that poor and marginalised people would have better access to safe drinking water. One of its major activities is rehabilitating and constructing community wells. In addition, it provides technical assistance in evaluating water treatment and purification options and conducts various activities to improve neighbourhood environments.



### Urban Environment Management Society (UEMS)

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## Milestones

**REVIVING TRADITIONAL AND SOCIAL ASPECTS OF WATER** — When the municipality installed piped water distribution networks, it ignored traditional water sources and the social aspect of water distribution. Establishing a water bottling system which taps into a traditional water source and involving the community in doing so has, in contrast, restored the original value of water.

**COMMUNITY PARTICIPATION AND OWNERSHIP** — The timely completion and success of the GLDWS was possible because the local community participated actively. The collaborative approach helped locals develop a sense of ownership and accountability.

**WOMEN'S PARTICIPATION** — The fact that there are three woman members of the user committee has created a platform for women's voices. In fact, under the instigation of these three and other women, the committee has launched a solid waste management and social awareness campaign.

**ADOPTION OF APPROPRIATE TECHNOLOGY** — The system uses low-cost yet efficient and locally available water treatment technology. The GLDWS demonstrates that neither expensive nor imported water purifiers are required.

## The Voice of Local Women



**Sangita Awale**, 35, expresses the sentiments of all those women who suffered silently before the GLDWS was established. She recalls difficult days when she struggled to fetch water during the dry season. "There was no water to get had from private taps and even the stone spouts ran dry. I had to walk a couple of kilometres every day and it took me about half an hour to fetch water for my family. By the time I returned home I would feel exhausted and be unable to do the household chores."

The dry season no longer scares her. She explains, "As a member of the GLDWS, I now get adequate water for drinking and cooking with little effort and for little money. Before this, we had to purify water at home, a process burdening our already tight monthly budget. The system's water also tastes good. I prefer to come home to quench my thirst than to consume water elsewhere."

## project budget (in USD)

**15,000** UN-Habitat

**5,400** Local community and Partner

**750** Sansad Bikas Kosh (Members of Parliament Development Fund)

## Community Based Safe and Treated Drinking Water Bottling Plant in Chyasal



# Safe Drinking Water for Urban Thirst

Kuber Basnet, 22, has been living in Patan for a year, pursuing higher education and looking for employment opportunities. "Water shortage is a major problem in Khapinchhe, the small neighbourhood where I live. People rely on stone spouts and dug wells to meet their daily needs for water for all purposes, including drinking. Since I did not find these sources reliable in terms of quantity or quality, I was forced to buy mineral water, which is very expensive," Kumar recalls.

He is thankful to the people of Chyasal, a small neighbourhood abutting Khapinchhe, for taking the initiative to establish a water bottling system which provides safe drinking water to the community at minimal cost. He now buys jerry cans of water from this plant and is saving the money he used to spend on mineral water. "The water from the plant does not need to be treated before consumption and it is cheaper and tastier than mineral water," he observes. Kumar is so happy with his new water supply that he has encouraged his neighbours to buy it too.

Kumar's account is one of many positive responses to the successful establishment of a drinking water bottling plant by the local community of Chyasal with financial and technical assistance from UN-HABITAT's Water for Asian Cities Programme. The commitment and active participation of the community ensured the success of the plant.



The water provided from the Plant is good; it is cheaper and tastier than mineral water and I don't have to filter it before I use it."

Kuber Basnet

## in brief ...

**319** HH in Chyasal area

**1953** Population

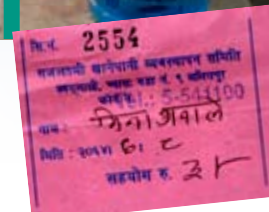
**132** HH contributing in kind /cash

**250** member households who have deposited cash for jerry-can

**6000-l** Daily distribution capacity

**3000-l** Storage capacity





Receipt for sold water

## The Background: Water Crisis: Not a Drop to Drink

Lalitpur Sub-metropolitan City, the second biggest city in Kathmandu Valley, is home to 162,991 residents, most of whom belong to the indigenous Newar community. For the people who live in the core settlements of what is fondly known as the “City of Fine Arts,” securing a reliable supply of water is a major problem. Most houses do not have private connections to water supply networks and even those which do not receive a regular supply of water. Community taps, too, are dry for most of the year. As a result, the majority of residents in the city core collect water from traditional water sources like stone spouts and dug wells, which are fed by the vast network of springs and ponds in the Valley. These sources, however, have come under threat by rapid urban growth and building construction, which have caused many to dry up and contaminating others with pollutants.

The approximately 1,500 residents of Chyasal, a poor neighbourhood in the core settlement of Lalitpur, used to depend upon three local stone spouts—Chyasal Hiti, Manga Hiti and Narayan Hiti—to meet their daily water needs. The supply, however, was not nearly enough, especially during the dry season. In desperation, hoping for some relief, the locals dug a well nearby. Unfortunately, the water from the dug well turned out to be unusable due to its high turbidity and high iron concentration. With no alternative in sight, the community approached the Urban Environment Management Society (UEMS) for help in finding a sustainable and safe water source.

The visit of the Chyasal residents was an opportunity for UEMS staff to test what they had learned about community-based water bottling systems from their visit to Byrraju Foundation in India, a visit organised with the support of UN-HABITAT in pursuance of the UN millennium development goal of providing safe drinking water to the poorest sections of society. With technical and financial support from UN-HABITAT, the UEMS initiated a model demonstration project: it established an innovative safe drinking water bottling and distribution system in Chyasal.

## The Project: Treating and Bottling Well Water

The system the UEMS helped set up, named the Gaja Laxmi Drinking Water System (GLDWS) by the community, is the first and only water bottling system in the country designed to provide safe drinking water to the urban poor. The system collects contaminated water from the dug well, treats it and distributes it to those who contributed to the system’s construction for the minimal cost of Rs. 3 (USD 0.047) for 20 litres and to others for Rs. 5 (USD 0.078) for 20 litres. The system has the capacity to produce 6 cubic metres of treated water per day. It currently serves around 250 households.

The main source of water for bottling system is the dug well constructed by the community. During the rainy season, rainwater is harvested for recharging the water level of the dug well. The capacity of dug well is about 14 cubic metres per day in the dry season.

Water from the dug well is pumped to a 5,000-litre sedimentation tank, where it is left overnight for the iron flocs to settle. Then the water is pumped into two bio-sand filter tanks, each with a capacity of 1,000

litres and a flow rate of 300 litres per hour. The bio-sand filters reduce turbidity and remove iron and microorganisms from the water. The filtered water is then collected in a 3,000-litre tank, where it is chlorinated before being poured into 20-litre jerry cans for distribution. One jerry can meets the drinking and cooking requirements of a household for a day or two, depending upon its size and rate of consumption.

To ensure that the implementation of the project would be effective, several preparatory activities were conducted. A survey was conducted to acquire information on the socio-economic situation of the community and to identify the demand and the willingness to pay for water. Conducting a series of community consultations helped to disseminate the concept of the system to the locals, gaining their consent to initiate the project and fostering their commitment and involvement during implementation and post-project operation and maintenance. Awareness campaigns mobilised the community for implementation.

A six-member steering committee with representatives from the community, Lalitpur Sub-metropolitan City, UN-HABITAT and other related NGOs was formed to advise, support, monitor and evaluate the system. In addition, a nine-member user committee, including three women, was formed to oversee implementation and to operate and maintain the system.

## Sustainability

The GLDWS was completed in a year and inaugurated and handed over to the user committee on 20 April, 2007. In just six months of operation, it has initiated two new enterprises in addition to the sale of water in 20-litre jerry cans: the sale of 20-litre commercial jars at the rate of Rs. 8 (USD 0.125) each and a home delivery system.

The system has already drawn the interest of other poor urban communities, which would like to see it replicated in their own neighbourhoods. UN-HABITAT has conducted a detailed assessment of the possibility of establishing similar bottling systems elsewhere in the Valley. Lessons from the GLDWS and the findings of this study have been shared with key stakeholders, including the Low Income Consumer’s Support Unit of the Kathmandu Valley Water Utility Operator, to encourage scale up. In addition, UN-HABITAT, in partnership with the Nepal Water Supply Corporation and Public Private Partnership for Urban Environment/UNDP, is establishing another water bottling system in Kathmandu.

To ensure that the system will be effectively and sustainably operated and maintained, the GLDWS user committee has developed various documents, including a business plan; a pricing, distribution and selling mechanism, an operation and maintenance strategy and a water quality control manual. It has employed two people to oversee distribution and manage the office. Although, revenue at present just covers the cost of operation, successful implementation of the GLDWS’s business plan would generate an annual profit of USD1,714 after deducting the annual expenses of USD3,375. Besides this cost-recovery mechanism, the fact that the system was a demand-driven initiative and that the community has a strong sense of and ownership of and responsibility for it should guarantee the system’s sustainability of the system.

<b>\$0.047</b>	for 20-l to contributors
<b>\$0.78</b>	for 20-l to others
<b>\$0.125</b>	for 20-l commercial jar
<b>\$2.50</b>	cash deposit for 20-l jerry can
<b>\$4.30</b>	cash deposit for 20-l com. jar
<b>\$5,089</b>	estimated annual income
<b>\$3,375</b>	estimated annual expenses
<b>\$1,714</b>	estimated annual surplus

\* exchange rate USD 1 = NPR 64

\$ = USD

