Plastic ponds brought economic empowerment in Lele

Plastic laminated pond, Photo: Prajwol Shrestha/UEMS

Background

Lele is a Village Development Committee (VDC) located in Lalitpur district spread in an area of 24.08 sq. km. It is the second biggest VDC in Lalitpur district in terms of geographical area. Lele VDC, located 14 km south to the Lalitpur Sub-Metropolitan City, is divided into nine wards. Lele VDC has a population of 8,411 living in 1,822 households (Census, 2011).

Ward no. 7 is one of remote and least developed ward in Lele VDC (Baseline Survey, UEMS 2011). The water, sanitation and hygiene situation in ward no. 7 was quite appalling. The ward inhabited by Nagarkotis (Janajatis), Brahmins and Chhetries was gripped with shortage of safe drinking water due to insufficient reservoir tank, leakage from pipes and haphazard connections in the water supply system. Similarly, majority of the people used to practice open defecation. A total of 110 out of 296 households in ward no. 7 did not have improved toilets (65 households had no toilet at all) until Urban Environment Management Society (UEMS) intervened and launched integrated Water, Sanitation and Hygiene (WASH) Project in ward no. 7 of Lele VDC. Now, all the households in ward no. 7 have toilets and the ward has attained open defecation free (ODF) status as well. Similarly, the ward denizens now enjoy safe and adequate water supply from water supply systems constructed and rehabilitated with financial and technical support from UEMS and WaterAid Nepal. The project not only delivered water, sanitation and hygiene services to the people of Lele-7, it also linked WASH to sustainable livelihoods with training sessions on crops, agro forestry and drip irrigation. As a part of the project, 24 plastic laminated ponds were constructed and seeds as well as 50 sprinkles were distributed to the community.

Summary of plastic laminated ponds in Lele-7		
Total no. of plastic laminated ponds		24
Total volume of plastic		208 Cubic Metre
Total land area irrigated		45 ropanis
Total household benefitted		40
Total population benefitted		224
Total Cost	Project	Rs. 138,000
	Community contribution	Rs. 80,000

Size of pond (base)	Required size of plastic	Storage capacity	Labor (Man days)	Total Cost (including labor, plastic and fittings)
6m*6m	10m *10m	36 cum.	35	Rs. 35,000
6m * 8m	10m * 12m	48 cum.	45	Rs. 45,000
Note: The above sizes were used in ward no. 7 of Lele Village Development Committee. Other sizes can also be used according to need. Cost of 200 GSM SILPAULIN plastic costs Rs. 146 per Sq. m. (Price of FY 2013/14)				

Usha Pradhan, 33, shared her story of constructing a plastic laminated pond, which has supported to uplift her social and economic status in the community.

Usha Pradhan standing near the plastic pond

Usha says, "I live in Lele-7 with my six year old son. My husband works in Saudi Arabia as a security guard. Before I started agriculture business, I was completely dependent on the remittance money sent back by my husband. It was difficult for me to run the household—pay expenses, pay for my son's education and cover medical costs when needed—with what little my husband could spare. When integrated WASH project was implemented in Lele-7, I partnered with five others and set up an agriculture business with joint investment of Rs. 800,000. We started with commercial tomato farming and then added cauliflower, cabbage, coriander and green leafy vegetables. Without the encouragement and support we got from the project, we would not have dared to start this business.

Usha with her partners

Usha showing the ripe tomatoes

Usha adds, "The agri-business is set up on 10 ropanis of land. We were supplied with plastic by the project to construct 30,000 litre laminated pond and we contributed labor for the construction. If there was no plastic pond, we would not have been able to start commercial agriculture business as it requires lot of water to irrigate 10 ropanis of land and water was scarce in this part of village. We require around 3,000 litres of water for irrigating field once a week. The pond is fed with rainwater and wastewater from two household taps distributed from Lamidanda Kafaldanda Water Supply System and the water is mainly used for micro irrigation using sprinklers supported by the project as well. We earn a good income from selling vegetables even during dry season due to water stored in plastic pond for irrigation. We make income of Rs. 25,000 on an average every month. We are planning to start mushroom farming next year, which will further increase our income.

Sprinkles

Er. Rashil Maharjan, Team Leader, Lele Integrated Water, Sanitation and Hygiene Project said, "Plastic laminated ponds store water for irrigation more efficiently than traditional earthen ponds which lose much water to seepage. The ponds are dug out and the sides and bottom of the pond were lined with sieved soil followed by plastic sheet, which is anchored by stones and soil. The main maintenance activity in plastic pond is to prevent livestock and people from entering the pond to avoid damaging the sheet. The pond should not be allowed to dry up as this would let rats damage the sheet. The sediment that accumulates in the pond should be removed once a year carefully by hand only as the use of agricultural tools could puncture the sheet.

Sharing about the introduction of plastic laminated ponds in Lele VDC, Mr. Maharjan said, "The main occupation in Lele is agriculture. Despite of abundant water sources in Lele, the water supply schemes are designed for daily use of water and not for irrigation purposes. Irrigation requires plenty water supply and dispute arises when drinking water is used for irrigation purposes. Construction of plastic laminated pond help store rainwater, grey water and overflow water from taps and tanks as well. Construction of plastic laminated pond was easy as it didn't require skilled labor and unskilled labors were readily available for the construction. Now, I see the plastic pond owners very elated and find them thanking UEMS for supporting to construct plastic laminated ponds without which they could not have prospered in their agricultural business. I believe that projects integrated with such livelihood activities will contribute for the holistic development of the country.

Uses and importance of plastic laminated ponds:

- Can reuse waste water from kitchen, grey water etc.
- Can store and irrigate land during dry season
- Can be used for fishery (but requires coating of mud or lime or brick to save the plastic from fishes tearing the plastic)
- Used for irrigation purposes
- Very useful where there is scarcity of water
- Rainwater, overflow water from tanks could be stored and used.

How to construct plastic laminated pond?

1. Measure the area to be irrigated and estimate the size of the pond
2. Measure and mark out the pond
3. Dig out the soil to the pre-determined depth
4. Remove stones and roots
5. Compacting and smoothing the sides and bottom of the pond
6. Line the sides and bottom of the pond with sieved soil
7. Anchor the edges of the sheet at the rim of the pond with stones and soil
8. Lay out the plastic sheets without any folds over the pond
9. Overlay thick fine soil on the plastic sheet

Things to remember while constructing plastic laminated ponds:

1. Plastic laminated ponds are made in trapezoidal shapes. Head of the pond must be 0.5 meter wider than the base in each side.
2. The pond depth must not be more than 0.9 m considering safety.
3. About 15 cm mud plaster (containing no stone) needs to be plastered at the wall and base of the pond.
4. The thickness of plastic needs to be between 200 GSM to 250 GSM. Dark blue plastics must be used.
5. Inlet and outlet pipe of required size with fittings needs to be fitted.
6. 15 cm deep ditch is made for overflow water above the head.
7. Securing the plastic pond is required through use of barbed wire considering safety. (As incidents like drowning, children swimming in the pond, falling in the pond may occur).

For additional information

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