

Working mechanism of proposed biogas plant in Sano Khokana



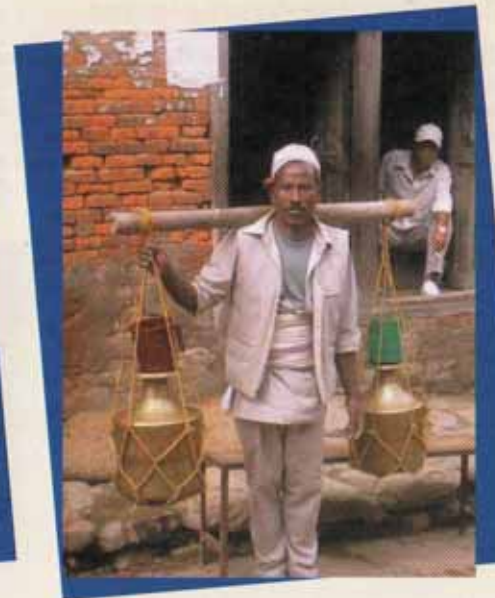
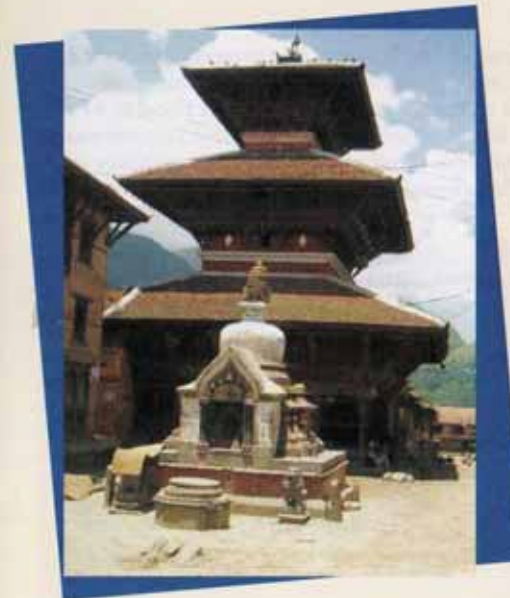
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# KHOKANA

Integrated Approach to Improved Water and Sanitation and Agricultural Productivity



## Project Area

Khokana is located 7 km south of Patan city and is well-known for the production of mustard oil from traditional mills. The settlement of the village is mainly concentrated in wards 1 to 8 known as Thulo Khokana. There is a separate cluster known as Sano Khokana in ward 9. There are altogether 692 households with a population of 4152 dominated by the indigenous community of ethnic Newars. Agriculture is the main occupation of the people but not more than 10% have food sufficiency for 12 months. Even the earlier main source of income from the sale of traditionally produced mustard oil has been eroded due to the availability of different kinds of factory produced and cheaper oils in the market.

Water, wastes and environmental sanitation have remained as unsolved problems of Khokana as in many other peri-urban areas of Kathmandu Valley. Lumanti has been working in the village in local partnership and with financial support from WaterAid Nepal since 2004 to address the WATSAN issues. Similarly, ENPHO has constructed 65 Eco-san toilets in local partnership of Khokana Janakalyan Sangh.

Currently, UN-Habitat under 'Water for Asian Cities Programme' is supporting new efforts to increase agro-productivity by improving water and sanitation situation in Khokana.

## Collaborative Arrangement

UN-Habitat provides financial support and Lumanti implements the programme activities in selected communities. Khokana Learning Center, a local community group mobilizes community and seeks support from other local authorities. It also helps in the day to day implementation and monitoring of activities. For the larger context of the improvement and development of the village settlement, Lumanti aims to attract other agencies such as World Vision, UNESCO, ENPHO and the government agencies for housing and physical planning in the coming years.

### आयोजनाको नाम: खोकना वातावरणीय सुधार तथा पूर्वाधार विकास आयोजना

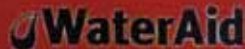
#### Programme Name:

Integrated Approach to Improve water and sanitation system and Increase Agricultural productivity in khokana.

#### सिचाई कुलो तर्फको लागत विवरण:

(१) UN-HABITAT (लुमन्ति मार्फत) रु. 10,61,130/-

(२) समुदायको तर्फबाट रु. 14,70,000/-



## Activities to improve water and sanitation situation

### Rehabilitation of traditional water sources

There are 20 dug wells, 1 spring, 3 stone spouts and 7 ponds in the village. In various stages of disrepair and poor maintenance, these sources yield water of poor quality. The local culture of cleaning water bodies and sources once a year during *Sithi Nakha* is a good practice but not enough for availing good quality water throughout the year. These sources will be rehabilitated for better supply in terms of quality and quantity.



### Pond recharge by construction of branch irrigation canal

Five ponds of high cultural value existing in the project area are in the verge of extinction due to lack of water and eutrofication. These ponds will be rehabilitated and recharged. A main irrigation canal existing nearby since 50 years will be connected to the ponds via new branch canals. The overflow from the ponds would be led back to irrigate nearby fields.



### Environmental sanitation activities

- o Flat-stone pavement on courtyard of health post
- o Flat-stone pavement to pathways leading to building of Khokana Learning Center
- o Flat-stone pavement in courtyard of school building
- o Flat-stone pavement and surface drain in poor community of ward no. 6 called as 'Baline'
- o Paved walkways, drains, and small sewers will be constructed in selected locations to improve the living environment.



### Sewage management by biogas plant and construction of wastewater treatment

Thirty seven households of Sano Khokana have been identified to have their sewage pipes from their latrines to be connected to a biogas digester plant. Kitchen and animal waste will be added to the digester. Excess black and grey water from the digester will flow to a Reed Bed Wastewater Treatment System. The emerging treated water will flow to irrigation fields. Digested product from the digester will be used as fertilizer and biogas will be used as energy by some households.