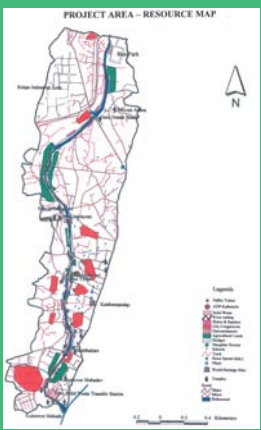


# ENVIRONMENTAL CONDITION OF BISHNUMATI RIVER CORRIDOR

## THE CORRIDOR



Map of the Bishnumati Corridor

Community Led Environmental Action Network (CLEAN-Nepal) has demarcated Bishnumati River Corridor as 500 meters on each side of Bishnumati River from Teku dovan to Balaju Bridge. Total estimated land in this area is 548.67 hectors comprising of 70 percent residential, 10 percent commercial, nine percent agricultural and remaining 11 percent as industrial, hospital and wasteland areas.<sup>1</sup>

Bishnumati River coridder is considered as the holiest place for Hindus and Buddist . A numourous famous temples like Panchali, Kankeshwori, Maipi, Indrayani, Shova Bhagawati and Bijeswori including Ghats and other cultural places are situated within the Corridor. A famous buddhist temple Swambhoo is also located near by the corridor.

In the corridor, Majority of the population (73 %) are from Newar ethnic group. It is quite interesting that out of total, 33 percent are still illiterate. Out of total, 95% people live in their own house and remaining 5% live in rented houses.<sup>1</sup>

## WAYS OF RIVER WATER CONTAIMINATION AT THE CORRIDOR

Main source of water in Bishnumati corridor is surface water of Bishnumati and its tributaries, springs and ground water. Environmental Baseline study of the Bishnumati Corridor conducted in 2002 concluded that the main causes for surface water quality degradation are sewage disposal, industrial waste, agricultural runoff, solid waste disposal, open defecation and some religious activities

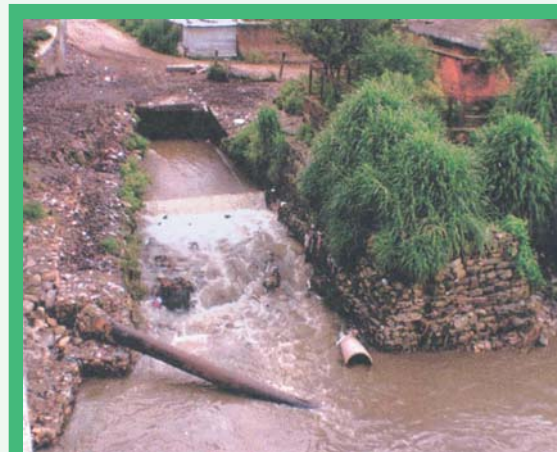
At least 5 mg/litre dissolved oxygen (DO) in river water is essential for aquatic life but survey conducted in 2002 by WVIN found that there was almost zero (0) dissolved oxygen during dry months and less than 5mg/liter in wet months.

ENPHO in 1999 exposed that in shallow aquifers (dug wells and shallow hand pump) bacterial and chemical contamination level is very high due to percolation of polluted river water. The estimated 20 million litres sewerage generated in the corridor per day is disposed into Bishnumati River without any prior treatment.<sup>1</sup>

Similarly, the most of the Industries in Balaju districts dispose their wastewater into Bishnumati River without prior treatment.

Approximately 9000 peoples are staying in 47 squatter settlements in public land of which about 38% of the people are practicing open defecation along the bank of the river due to lack of toilets in squatters and slums.<sup>1</sup>

The waste generated from temples, religious activities and ash remains of the human body cremation disposed into the river. In addition, washing raw wool, buffaloes and dumping of wastes from Slaughter houses and vegetable markets lubricants, grease, mobiles from the motor workshop and garage further degrade the river water quality.



Sewage Disposal in Bishnumati River

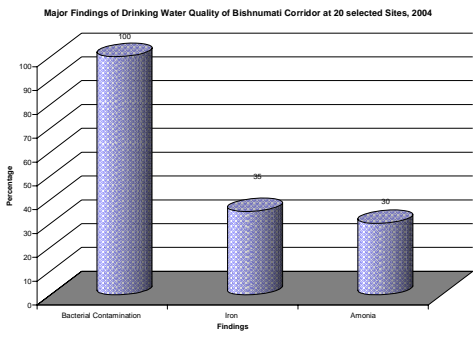
## DRINKING WATER = DRINKING BACTERIA

Main source for drinking water- Metropolis Water Supply System is inadequate, unreliable and unsafe. A study conducted by SAGUN in 2001 at ward number 19 and 20 revealed that all drinking water sources are heavily contaminated with Coli form bacteria (that is found in human faeces which indicates water

contaminated with human excreta.)

A campaign of human stool test carried out by the Nepal Zoonoses and Food Hygiene Research Centre in 2001 showed that 40% of the total samples were positive for parasites such as round worms, threadworms, etc.

CLEAN Nepal in conjunction with Water Analysis Laboratory monitored the drinking water quality in 2004 at 20 selected sites of the Bishnumati Corridor especially in Ward No12,13,14, 15,16, 17,18,19 and 20 of Kathmandu metropolis. The study revealed that all the tested samples were contaminated with bacteria; some of them with high Iron and Amonia (See graph) . Sample collected



(Source : Drinking Water Quality Monitoring , 2004)<sup>2</sup>

sites were New Bus Park, Siddhartha Banasthali, Tarun High School, Maipi, Kushibu, Dhalko, Chamati, Bijeshewari, Lakha Tirtha and Dallu. Similarly, samples were also collected from Kankaeshwari Temple, Bhurungkhel, Shanti Nikunja High School, Paropkar premises, Bhimsenthan, Tankeshwori, Tahachal, Tansfer marg Kalimati, Nakyo galli, Kalimati Chock and Bhimkoteshwor.

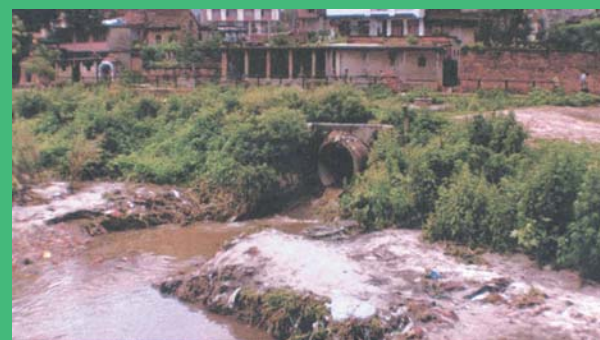
Drinking Water should not contain any form of bacteria in general. Amonia in water denotes recent possible bacterial, sewage and waste pollution. Iron generally found in ground water which discolours clothes and incrustation in water mains.

A majority of people (60%) in the corridor view that drinking water quality is sub- standard but a section of people (8 %) expressed their ignorance in regards to quality.<sup>3</sup>

## TOILETS ARE CONNECTED TO BISHNUMATI RIVER STRAIGHTWAY

Only 28 % of the total households have improved water sealed latrines; 62% have local type latrines; 4% do not have private latrine; 2% use the public toilets; 4% use either the bank of the river or open space for defecation.

Most of the sewer lines from latrines are discharged into municipal sewer line (72%) which has been direct discharged into the Bishnumati River without prior treatment; 14%



Metropolish Sewerlin into the Bishnumati River

discharge into private safety tank, 10% into watercourses and 4% discharge through the roadside drains.<sup>3</sup>

## GARBAGE : A MAJOR CHALLENGE

Interestingly, 18 percent of the respondents have never cleaned their surroundings<sup>3</sup>

Almost 60 metric ton per day of solid waste is generated every day within the study area and metropolis collects only half of this to dispose in safe places. The remaining 30 metric ton is dumped on the river banks and open spaces<sup>1</sup>



Garbage at Bishnumati Riverside: Let's Clean

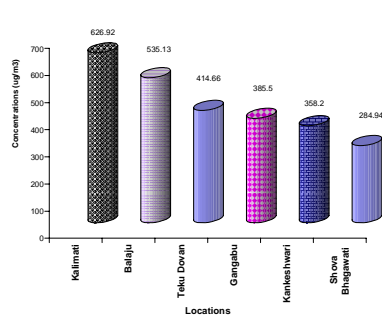
Surprisingly, 78% of the households in the study area do not have separated the waste as biodegradable and non-degradable and 63% of the respondents are not familiar with the '4R' (Refuse, Reduce, Reuse, Recycle) principle of the waste management<sup>1</sup>

## KNOWN FACT to Aall is Poor Air QUALITY

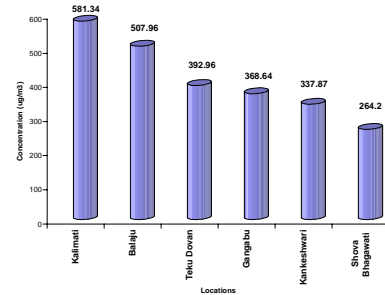
A majority (76%) of the respondent felt that the quality of air in this locality is substandard; 93.5% of the total respondent felt that the air quality is not safe from the health point of view.<sup>3</sup>

Air Quality Monitoring along Bishnumati Corridor in 2003-2004 revealed that the major problem of air

Annual Average of TSP at Different Locations, 2003/4



Annual Average of PM<sub>10</sub> at Different Locations, 2003/4



(Source: Air Quality Monitoring, 2004<sup>1</sup>)

pollutants are Total suspended particulates (TSP) and particulates matters of size less than 10 micron (PM<sub>10</sub>).<sup>1</sup> Annual average of the TSP and PM<sub>10</sub> concentration was varied by location as the highest concentration was found at Kalimati bridge area. Both the concentrations are higher than the WHO standard (WHO standard for PM<sub>10</sub> is 70 microgram per cubic and for TSP is 120 microgram per cubic millimetre)<sup>1</sup>

A research done by Environment Sector Programme Support in 2001 revealed that major sources for TSP and PM<sub>10</sub> are vehicular emissions, Brick kilns, Refuse Burnings and dirt from the roads.

## IMPACTS OF THE ENVIRONMENTAL POLLUTION

The poor air quality has direct impact on human health that has been reflected as increasing numbers of acute respiratory tract infections in the corridor.

Largely felt problem of the corridor is bad smell especially during dry season coming from the polluted water making the dwellers and others including tourists difficult to live and walk around.

Scenic beauty has totally been lost in the corridor due to the eutrophication of river water with algal growth and haphazard dumping of solid wastes. A very less number of tourists visit at the corridor. Pilgrims from different parts of the country as well as from other countries visits less frequently to the corridor. As a result, there is negative impact on economy of the corridor. A majority (61 percent) of the people in corridor realised that their economy has been declined and 36 percent of them worried on deterioration of religious and cultural heritage.<sup>1</sup>

There is no aquatic life due to unavailability of the normal level of dissolved oxygen in the river water. Similarly, burden of water born diseases like typhoid fever, hepatitis, diarrhoea, dysentery and worms is high in the corridor.

Pure water for the daily rituals and religious activities is scarce .

## WORLD VISION INTERNATIONAL NEPAL

World Vision started in 1950 is an International Humanitarian Relief and Development Organization working with the children, poor and oppressed sector of the population to promote human transformation and to seek justice, regardless of race, religion, or political affiliation, and on a non-profit basis.

World Vision, now, operates in more than 110 countries across six continents through community development, emergency relief, advocacy and public awareness programs, has established a national office in Nepal since 2002 even if its involvement in Nepal dates back to 1982-83.

So far, World Vision International – Nepal (WVIN) has been



Come ! Join hand in hand, keep up our city clean



*Lets work together for bright future*

working in ten districts of Nepal namely Kailali, Rupandehi, Kaski, Lamjung, Kathmandu, Lalitpur, Bhaktapur and Sunsari, Morang and Jumla

WVIN works in Kathmandu, as in other districts, through specialized Area Development Programs (ADPs).

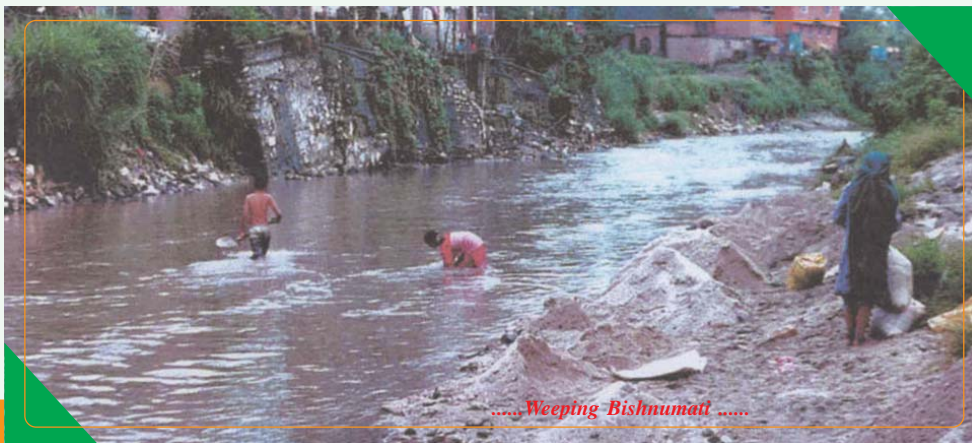
WVIN, Kathmandu ADP, in 2002, had initiated a Community Led Environmental Action Network (CLEAN Nepal) in Bishnumati Corridor with the aims of documenting the environmental situation of Kathmandu Valley and to generate awareness among citizens, decision makers and other stakeholders.

CLEAN Nepal program mobilises and empowers a network of schools and communities action groups to tackle environmental problems involving school children as prime motivators and catalysts for the community participation in environmental management and nurturing a sense of responsible citizenship among the people of Bishnumati Corridor.

Presently, CLEAN Nepal focuses on building capacity of schools, communities, NGOs and CBOs for implementing environmental management initiatives by establishing strong network among key stakeholders and also continues environmental assessment, awareness and action oriented activities.

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3. WVIN Nepal. 2002. *Knowledge Attitude and practice Study Report*. WVIN/CLEAN Nepal
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## FOR FURTHER INFORMATION

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