

Water supply in slums of Dehradun City, Uttarakhand

Chandra, Reena

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Abstract

Housing implies much more than a roof. It includes access, not only to road and sunlight but also toilets, drainage, sewerage, water supply, electricity, maintenance, protection from diseases and low cost transport facilities to one's place of work. The sub-standard housing is inevitably correlated with inadequate basic civic amenities. In urban slums, not only the housing space is found to be very inadequate, denying minimum norms of privacy but there is also found extreme shortage of essential amenities like water and sanitation. In addition to this, stagnant pool of water and open drains as regular phenomena, degenerate the whole urban environmental let-up and create pollution. Improper disposal of garbage in the locality makes the already unhealthy living worst. In most of the slums too many people share one water tap which leads to frequent quarrel among ladies. Common toilets are shared by hundreds

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For correspondence:



Department of Education, D.A.V.(P.G.) College,
Dehradun, India

of families. These common toilets are also not properly maintained. A long queue is seen in morning and evening waiting their turn for water and toilet facilities. This characteristic feature is not only visible in the slums but also in congested localities of all the mega cities.

Introduction

The layout of Dehradun is shaped by the course of the river Bindal and Rispana and these rivers has determined the patterns of its over-all growth. The crescent nature and character of the bank of rivers provides one of the location of not only in Uttarakhand but in Himalayan region. The town occupies a guitar typed shape of the interfluves of the seasonal torrent of Bindal and Rispana which become border in south and north-west along Hardwar and Saharanpur Road. Dehradun enjoys a commanding position on the triangular shaped between River Rispana and Bindal. Dehradun is located at 30⁰ 17' North latitude and 78⁰ 0' East longitude. It is one of the most important and ancient historic city located almost in the middle of the Doon Valley. The city is situated at an important point of the road and rail systems since long back. The National Highways passes through

the city proper along which a large number of unplanned settlements have developed.

The city is 560 metre above the sea level. The highest level is found in the northern part over the area known as the Rajpur Road with a height of 620 metres, above the sea level. So thus there is very little possibility of the expansion of Dehradun on the Rajpur Road. Further, this abnormality in the physiography of the city poses many problems in planning and development of the city particularly in regard to water supply and drainage system.

Objective and Methodology

A rapid increase in population has been recorded since 1931, in Dehradun city, because the fear of epidemics like plague, cholera etc. had been wiped out by advanced medical facilities. Besides a significant increase in the trade and commerce by developed means of science and technology added further increase in population. The rural migration from the countryside in search of jobs is the most important reason of population growth in the city. In the closing year of this decade the Second World War had started which has also encouraged migration of population to the city. During the period 1941 to 2001, the city showed a rapid increase of population. If we compare the growth of population of Dehradun with other cities of Uttarakhand, the growth rate of Dehradun was higher than other cities of Uttarakhand.

The slums of Dehradun are also invariably lacking of sewer and water facilities to a greater extent. Few of them are lucky by having a few water taps in their locality. In the present study, the crisis of water supply has been evaluated in slums and squatter settlements of the city. Besides it has also been analyzed that up to what

extent people are living in unhealthy environmental conditions.

Result and Discussion

Water is the prime necessity of life. Adequate supply of safe drinking water is very essential for human survival. In absence of proper water supply, sanitary condition of the city is highly affected. According to an estimate about 70 percent of the Indian population drinks polluted water from lakes, wells and streams. Besides, there is no city or towns which is maintaining its water supply round the clock. In fact, lack of chlorinated water to all urbanites cripples almost the whole urban India. Owing to increasing population, the demand of water supply has also increased tremendously. In addition, due to discharge of polluted water from domestic, as well as industrial sources in water bodies, it has become difficult to supply required volume of water to the urban population. As a result, the sources of water are either exhausted or become contaminated. Even a relatively better serviced city like Delhi, has now to reach as far as 180 km to the river Ram Ganga for augmentation of water supply. Bangalore which is located on the top of a plateau, pumps water from far away with a lift of about 700 metres. It is being realised that this very fast growing city has now reached a point of crisis regarding water supply. Most of the settlements in Allepey and Quilon districts of Kerala, which receive over 500 cm of rainfall every year, had faced acute water shortage in the year 1986-87. Many small towns have no perennial sources of water supply at all and are dependent on individual tubewells, open wells or even rivers.

The recommendation of World Health Organization (WHO) regarding amount of

water required per capita, per day is 210 litres. Against this, the volume of water available in India varies from 55 to 65 litres in urban areas. Thus the overall shortage is being more than 70 percent of the required water supply per capita, per day. Perhaps, keeping in view the crisis of water, the decade 1980-90 has been declared as 'International Drinking Water Supply and Sanitation decade' by United Nations Development Programme (UNDP) with a slogan "the good water for good health to everybody by 1990." This is because of the fact that 80 percent of the incidence of diseases in the world are water borne and most of the population suffer from such diseases because they do not have access to safe water. The consumption of water varies from one place to another depending upon the availability and supply of water. In Dehradun, since the inception of water supply scheme since origin of the city, different canal has remained the main source of water supply. Both, surface as well as ground water is being supplied in Dehradun city. The total volume of water supply in Dehradun is 250 MLD. Out of this about 45 percent is received from ground water sources and the remaining from surface water sources.

Surface Water: The major source of surface water supply is the river Song. Its minimum discharge is 273 cusecs. The raw water pumping station is located at Rajpur on the left bank of the river Song.

Ground Water: It supplements the total requirement of the city. From the health point of view, ground water is considered more safe than the surface water as the former has chances of less contamination with toxic pollutants. There are many tube well as the sources of ground

water in Dehradun city which one dealt here in sequel.

Tube wells: To cope the poor water supply, deep bore tube wells recently added in water supply system of the city. This system consists of 28 tube-wells scattered in different parts of the city. Water is directly supplied to the nearby population. It provides water supply to about half of the total population of Dehradun. The total supply from tube well in Dehradun city is 115 MLD.

Hand Pumps: Hand pumps are also under the use in the city. It has been found that in recently developed residential areas, it is the main source of water supply. Most of the hand-pumps are bored to a depth of 100 feet. Sometimes leakage of sewer water pollutes ground water storage and cause outbreak of gastroenteritis, diarrhea etc. diseases.

Regarding water supply, the worst affected areas are slums and squatter settlements where only a few public water connections serve the entire locality. To know the availability of water to the inhabitants of slums and squatter settlements an intensive survey has been conducted. For this purpose, data has been collected from the Jal Sansthan, Dehradun and from personal spot survey through questionnaires. From each identified categories of slums four localities has been selected and inadequacy of water supply has been assessed. Table 1.1 shows the availability of water from different sources in the four categories of slum. Table 1.1 clearly indicates that in category I slums, most of the houses have taps although the supply is not round the clock. During the survey it has been observed that on account of limited water supply, people store water for drinking purposes. In category II and III, 60 and

Source	I	II	III	IV	Total
Municipal taps	76	60	53	–	47.25
Hand pumps	7	10	12	-	7.25
None	17	30	35	100	45.50
Total	100	100	100	100	100

Source : Based on sample survey

Table 1.1 : Source of water supply in slums (in %)

Condition	Slum Categories			
	I	II	III	IV
1. Families which do not have water tap	19	30	35	100
2. Families having one or more water tap	8	9	5	-
3. Families sharing a water tap with another family	14	14	10	-
4. Families sharing a water tap with other families	27	21	16	–
5. Families sharing a water tap with three or more families	32	26	34	–
Total	100	100	100	100

Source: based on sample survey

Table 1.2: Availability of water tap (in %)

53 percent of the dwellings respectively have been provided with municipal taps while in category IV not a single dwelling has water tap. It is because of temporary nature of settlement in category I, about 17 percent of the houses do not have any source of water supply. This percentage is higher (30, 35 and 100) in slums of category II, III and IV respectively. In slums of Category IV, the dwellers are solely depended on nearby public taps/band pumps. In absence of piped water supply, Abadies and temporary hutments face acute crisis of potable water. For every 100 families there are 20 taps in category I, 14 in category II, 8 in category III and 3 in category IV. The main problem lies with the limited water supply and unhygienic environment, around the municipal taps.

To know the state of crisis of drinking water in slum pockets of Dehradun, door to door survey has been conducted in selected localities of the city. Table 1.2 shows state of availability of water tap in slums of different categories.

It is evinced from the table 1.2 that in the slum localities of category I, most of the houses are provided with water taps. Only 17 percent of the families do not have water taps and they share with other families. It has been found that in category I houses are one to two storeyed and 4.5 families live in a house. The residents of the upper floors do not get regular water supply and thus they fulfil their daily requirement from taps of ground floor and store it for day to day consumption.

In slums of category-II about 30 percent of the families do not have water taps. This percentage has further increased in category III and IV type of slums. Here mostly dwellers get water from public taps. The situation is more pathetic when one looks towards the supply/availability of water. Against the requirement of 250 liters per capita per day, the supply is only 150 liter per capita per day (Dehradun Jal Sansthan). The slum dwellers on an average receive only 60 liters/capita/day. Sometimes it is only 10 liters.

Thus on account of improper and inadequate water supply, slum dwellers are bound to live in insanitary conditions.

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