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UNITED NATIONS DEVELOPMENT PROGRAMME

INTERREGIONAL PROJECT INT/81/047

DEVELOPMENT AND IMPLEMENTATION OF LOW-COST SANITATION AND INVESTMENT PROJECTS

REPORT ON MISSION TO NEPAL

January 28 - February 8, 1983

By

R.S. Singh

April 1983

KD 4192

List of Acronyms

DWSS	Department of Water Supply and Sewerage
GRP	Glass-Fiber Reinforced Plastic
MWR	Ministry of Water Resources
TAG	Technology Advisory Group established under UNDP Interregional Project INT/81/047
UNICEF	United Nations Children's Fund
UNDP	United Nations Development Programme
WHO	World Health Organization
WSSB	Water Supply and Sewerage Board

INTRODUCTION

1. In accordance with the terms of reference dated December 29, 1982 from the Project Manager, UNDP Interregional Project INT/81/047, a single member mission (Singh, Sanitary Engineer Adviser, TAG-Delhi) visited Nepal January 28 to February 8, 1983. The objectives of the mission were to:

(a) review the progress made by the Department of Water Supply and Sewerage (DWSS), Kathmandu, Nepal in preparing the feasibility studies of sanitation in eight towns and the installation of demonstration units in those towns, their utilization and effect:

(b) review the action taken on reports made earlier on INT/81/047 missions.

2. A list of the persons met is attached as Annex I. The offices of the Resident Representatives, United Nations Development Programme (UNDP), The World Bank, UNICEF and WHO were kept fully briefed on the mission activities. An aide memoire (Annex II) was prepared on the mission's activities on return to Delhi and sent to the Chief Engineer, DWSS.

BACKGROUND INFORMATION

3. His Majesty's Government of Nepal in its Sixth and Seventh National Plans, which cover the Decade up to 1990, aims at a target of 35 percent sanitation coverage by the year 1990. With a view to fulfilling the Decade objectives, HMG requested the UNDP Global Project on low-cost water supply and sanitation (GLO/78/006) in 1979 for assistance in the preparation of the feasibility report on low-cost sanitation for eight small and medium towns. The objectives of the project are:

(a) Long term objectives:

To provide low-cost sanitary latrines in the towns and villages in the country covering its entire population, so as to eliminate the health hazards created by the use of bucket latrines and open-air defecation.

(b) Immediate objectives:

(i) to prepare a feasibility study and preliminary engineering and master plan report on eight small and medium towns for providing low-cost pour flush water-seal latrines to every household, which could be replicated in other towns;

(ii) to construct about 1600 demonstration units of such latrines in eight towns, to train DWSS staff and local panchayat authorities in constructing and maintaining such latrines and make use of the feedback in finalizing the feasibility report.

4. Installation of demonstration units has already started in one of the project towns (Kirtipur) and is in hand in the remaining seven towns, for which money, men and material have already been arranged by DWSS.

5. DWSS agreed to take immediate steps for the installation of more demonstration units, collection of household and municipal data, soil analysis of the project towns and monitoring of water quality of Kirtipur, where sufficient demonstration units have already been installed, to study the effect of leaching pits on the piped water supply.

6. DWSS has taken a number of follow up actions since the last TAG mission in November 1982:

(a) Application forms (Annex III) for a household to have a latrine together with sheets (Annex IV) for household survey were finalized and sent to all the eight Project towns.

(b) About 300 demonstration units in Kirtipur, 20 in Illam, 10 in Pokhara and one unit in Mahendranagar have already been built. DWSS has arranged to send 20 more units of pans and traps to each of the seven project towns (Illam, Janakpur, Pokhara, Bhairawa, Doti, Birendranagar and Mahendranagar).

(c) Allocation of funds for the construction of demonstration units in different project towns has already been made, and a target for the construction of units fixed as indicated below. More information about the construction schedule of demonstration units in the eight Project towns is given in Annex II. The allocation of funds indicated in column (2) for the construction of demonstration units was tentative; a fresh allocation will now be made in the light of targets fixed by the Chief Engineer, DWSS.

TABLE 1

Name of Town	Planned funds (NRs)	Targets fixed for construction of units during the current fiscal year	Funds already given to the Superintending Engineers for construction NRs.
(1)	(2)	(3)	(4)
Kirtipur]	329,450	500	25,000
Janakpur]		175	
Illam	100,825	50	20,000
Pokhara]	329,450	175	20,000
Bhairawa]		175	20,000
Birendranagar	100,825	50	20,000
Mahendranagar]	329,450	125	25,000
Doti]		50	20,000
TOTAL	1,190,000	1,300	150,000

(d) The sanitation cell at the headquarters has received 300 more applications from individual householders through the Pradhan Panch of Kirtipur Village Panchayat. These applications are being scrutinized by the headquarters cell, and further construction will be taken up from the first week of March on receipt of the squatting pans and traps. In the other seven project towns as well, applications have been sent to the Pradhan Panchas of the respective towns for distribution amongst the residents; the construction will be taken up on receipt of the applications.

(e) Tenders were invited by DWSS for supply of the squatting pans and traps from different manufacturers in India and Nepal. Four tenders were received from Indian firms and two from Nepali firms. Tenders have been finalized and a contract awarded to a Nepali firm whose rates were found to be the lowest. A total of 2500 units will be supplied, 500 each month from February through June 1983.

The next steps to be taken by the DWSS are:

(a) Collection of household and municipal data.

7. The formats for collection of household data (Annex IV) have been printed and circulated amongst the concerned Superintending Engineers. The mission, accompanied by Dr. Hikmat Bista, TAG Sociologist, visited Pokhara and explained to the Superintending Engineer and the Divisional Engineers the process for the collection of the household data, as well as the municipal data (Annex V).

8. The TAG Social Scientist and the Divisional Engineer in charge of the sanitation Cell will visit other Project towns for follow up action on the household, municipal data collection and installation of the demonstration units.

(b) Installation of Demonstration Units:

9. One hundred and forty pans and traps have been sent by the Sanitation Cell to the remaining seven Project towns. Construction of one demonstration unit was started during the mission's visit to Pokhara. The mission explained the method of construction to the DWSS staff posted at Pokhara. It also advised that a few units in each town be constructed in the presence of the Divisional Engineer, when the Assistant Engineers, Overseers and the masons would be provided in-service training, with particular emphasis on pit lining, construction of the covering slab and the installation of the pans and traps. In the past, 10 low-cost water-seal units were installed in Pokhara, through the town Panchayat. One of the units installed was visited. It appeared that the pit constructed is not honey-combed, but is in solid masonry, and open at the bottom. It was explained to the engineers that after some time, when the bottom of the pit gets choked up, the pits are likely to overflow. It would, therefore, be desirable to make holes in the walls of the pit which is not in use at present. Similar holes should be made in the walls of the pit already in use after diverting the excreta to the one not currently in use. So far in Kirtipur applications for the construction of latrines were directly entertained by DWSS from the beneficiaries. But with a view to greater involvement of local Panchayats in the program, DWSS has now decided that the applications will be sent to the Pradhans Panch of the Nagar Panchayats, who after proper scrutiny will forward them to the Divisional Engineer, DWSS, for construction. This process would help in the promotion of the program, where as would be evident from the Kirtipur program, 300 more applications have been received by DWSS through the local panchayat.

10. The funds available within DWSS during the current fiscal year i.e., up to July 1983, would make it possible to construct 1300 units in the eight Project towns. A construction schedule (Annex II) was prepared by the mission in consultation with the Sanitation Cell, in which monthly targets have been fixed for each town.

11. The Divisional Engineer in charge of the Sanitation Cell has prepared bills of quantities for 5, 10 and 15 users' latrines with brick and stone lining, and sent them to all the Divisional Engineers of the eight Project towns for preparing the cost estimates of the units, keeping in view the prevailing labour and material cost. The construction costs of a unit in Birendranagar, Mahendranagar and Doti are likely to be higher than in other towns, because these three towns are not easily accessible. On account of the high transportation cost of cement and its scarcity, the use of lime mortar was suggested by the mission.

12. In Kirtipur as well as other places, drains have been locally constructed to connect the inspection chamber to the pits; these are generally costlier than non-pressure AC pipes. Whenever feasible and economical, 80mm dia. non-pressure AC pipes should be used; they are not only economical but also easy to install.

(c) Soil Analysis

13. To assess the suitability of the area for proper functioning of the leaching pits and also to assess the potential problem of ground-water pollution arising out of leaching pits, study of soil characteristics, including the permeability, is very important. The issue was discussed again with the Chief Engineer, DWSS, who informed the mission that the Department of Soils in the Agriculture Ministry is conducting a soil survey all over the country. The mission took the opportunity of discussing the problem with Mr. Dhruva Joshi, Soil Scientist in the Ministry of Agriculture, who reported that the results available with the organization pertain to the agricultural fields and not to towns. He, however, assured the mission that soil sampling of the town could also be undertaken by his department suiting the requirement of DWSS, provided there is a request from them. Accordingly, a request was made by the Department of Water Supply and Sewerage to the Department of Agriculture for carrying out soil analysis: in particular, the grain size distribution, uniformity coefficient, effective grain size and permeability. Twelve samples in four different places at 1, 2 and 3m depths in each town if tested would give an initial indication about the structure of soil of the town.

(d) Monitoring of Quality of Water

14. The September mission suggested to DWSS to start the monitoring of the bacterial quality of water in Kirtipur, where about 300 low-cost water-seal latrines had already been installed and been in use for 6 to 9 months. The monitoring, particularly of the bacterial quality of the source, of water at the taps (standposts) and also of a few springs should be carried out over a period of 9 to 12 months. This work has been entrusted to the Water and Sewerage Board by the Chief Engineer, DWSS (who is the Chairman of the Board). The Project Engineer in charge of WSSB agreed to take the work in hand from February 1983.

(e) Orientation and Training

15. With a view to promoting the program extensively in all the 8 Project towns, a two-day orientation course for the Pradhans and Up-Pradhans of the Project towns in Kathmandu is necessary. A field trip to Kirtipur should also be arranged to provide demonstration of actual construction and functioning of the units. Similarly, a short term training course should be arranged for the engineers and overseers of DWSS assigned with the project, in Kathmandu or any of the Project towns where these units have been constructed in large numbers.

(f) Legal Study

16. The TAG Social Scientist attached to DWSS was requested to obtain the latest Village and Town Panchayat Acts, Rules, Rent Control Acts and by-laws of the town Panchayat, in particular those relating to sanitation, and study their adequacies and inadequacies and to find remedial measures to be taken so that laws and rules are conducive to the implementation of the low-cost sanitation program in the country.

(g) UNICEF Assistance

17. UNICEF participation in low-cost sanitation was also discussed with Mr. Colin Glennie and Ms. Vanessa Tobin. They expressed their willingness to participate in the program. The matter will be further discussed by them with the Chief Engineer, DWSS.

PERSONS MET

Ministry of Water Resources	
1. D.B. Rayamajhi	Chief Engineer, DWSS.
2. P.M.S. Pradhan	Deputy Chief Engineer, DWSS
3. Poshan Nath Nepal	Duperintending Engineer, DWSS, Pokhara.
4. Ram Man Shrestha	Acting Divisional Engineer, Pokhara.
5. M.L. Choudhury	Acting Divisional Engineer, Sanitation Cell.
Ministry of Agriculture	
6. B.K. Thapa	Joint Secretary
7. Dhruva Joshi	Soil Scientist
Pokhara Town	
8. Uttam Puri	Pradhan Nagar Panchayat, Pokhara
WHO	
9. Q.K. Khoshchashm	WHO Sanitary Engineer
10. A.P. Hirano	WHO Sanitary Engineer
UNICEF	
11. Colin Glennie	Project Officer, Water Supply Section.
12. Vanessa Tobin	Project Officer-Sanitation
UNDP	
13. R.S. Mahat	Programme Officer
UNDP RAS/81/001	
14. Jerri Romm	Consultant
TAG	
15. Hikmat Bista	TAG Social Scientist
WORLD BANK	
16. Kedar Methema	Program Officer

AIDE-MEMOIRE

1. In accordance with the terms of reference dated December 29, 1982, from the Project Manager, INT/81/047, a single member mission (Singh, Sanitary Engineer Adviser of the TAG Group) visited Nepal from January 28 to February 8, 1983. The terms of reference were:

(a) To review the progress made by the Department of Water Supply and Sewerage in preparing the feasibility studies of sanitation in eight towns and the installation of demonstration units in those towns, their utilization and effect.

(b) To review the action taken on recommendations in earlier INT/81/047 reports.

Action taken by the Department of Water Supply and Sewerage

2. Following actions have been taken by the DWSS:

(a) Finalization and printing of adequate number of application forms for construction of the demonstration units in eight Project towns.

(b) Finalization and printing of household survey data sheets.

(c) Distribution of funds by the Chief Engineer, DWSS, to the respective Superintending Engineers for the construction of demonstration units in seven Project towns.

(d) Placement of field staff for collection of survey data and installation of demonstration units.

(e) Finalization of contract for the supply of squatting pans and traps.

(f) So far about 300 units have been installed in Kirtipur, 20 in Illam, 10 units in Pokhara and one unit in Mahendranagar.

Future action to be taken by the DWSS

3. Following actions are to be taken by DWSS:

(a) Collection of household and municipal data including its checking by senior engineers of DWSS.

(b) Soil analysis: This work will be done by the soil department of Ministry of Agriculture. Follow up action would be taken by DWSS and the TAG Social Scientist.

(c) Monitoring of Water Quality in Kirtipur: Bacteriological testing of water at source, standpipes, tap water and springs will be carried out by the Water and Sewerage Board, Kathmandu, Nepal. Follow up action would be taken up by DWSS and the TAG Social Scientist.

(d) Construction of Demonstration Units: Monthwise targets for the construction of demonstration units in different Project towns have been fixed by the sanitation cell (Attachment 1). A few units in each towns should be constructed in the presence of Divisional Engineers to provide in service training to the Assistant Engineers, overseers, contractors and masons. Follow up action will be taken by the TAG Social Scientist and the Divisional Engineer of the Sanitation Cell.

(e) Legal Study: TAG Social Scientist will obtain latest Nagar and Village Panchayat Act, Rules, Town By-laws, Rent Control Act and the sanitation part translated into English for study of their adequacies and inadequacies with regard to the implementation of the low-cost latrine program in the country.

(f) Procurement of squatting pans and traps: With a view to fulfilling the proposed targets, efforts should be made to obtain maximum quantity of pans and traps during February 1983. The mission took the opportunity of visiting Kayo Fiberglass Udyog Pvt. Ltd. The squatting pans are not satisfactory, as the manufacturer in Kathmandu is providing only one layer of fiber-glass of 450 gms density. On enquiry, the manufacturer informed the mission that DWSS wants squatting pans of 600 grams weight. Even if two layers of 300 gms density were to be provided, the weight of the squatting pan alone would be about 700 grams. It was suggested to the manufacturer and DWSS that the fiber-glass reinforced plastic pans should have at least two layers of 300 grams density, coated with PVC resin. Therefore, necessary amendment should be made to the specifications drafted by DWSS. The manufacturer was further asked to provide polyurethene coating on the interior surface of the pan. As far as traps are concerned the interior surface is not smooth, with the result that it would need more water for flushing. Since it is difficult to manufacture GRP traps with a smooth interior surface, it may be desirable to go in for the HDPE traps, which are smoother and need less water for flushing.

Field visit

The mission took the opportunity of visiting Pokhara, a Project town. Some 10 units of low-cost waterseal latrines have been constructed by the local Panchayat. The pits constructed are open at the bottom, but the side walls have been constructed in solid masonry with plaster on it. The unit will function for some times, until the bottom gets sealed and will then start overflowing. The suggestion was made to the overseer and engineers that some holes be made in the side wall, to avoid overflowing. During the visit DWSS started construction of a demonstration unit in the office premises. Since stones are available in plenty in Pokhara, dry stone pitching up to inlet level was suggested. However, above the inlet pipe (up to 30 cm) the stone masonry should be done in 1:6 cement mortar.

CONSTRUCTION OF SCHEDULE OF THE DEMONSTRATION UNITS IN THE 8 TOWNS

Month	Kirtipur	Illam	Janakpur	Pokhara	Bhairawa	Birendranagar	Mahendernagar	Doti
Feb.	-	-	10	20	10	-	-	-
March	80	15	40	60	30	10	10	-
April	100	15	50	60	40	15	20	20
May	150	15	50	35	50	15	40	20
June	170	5	25	-	45	10	55	10
Total	500	50	175	175	175	50	125	50

Application for latrine construction

(To be filled by applicant)

1. Name of Head of Family _____ Address _____
2. Do you own the house/or not
3. No. of persons in the household:
   a) Male b) Female c) Children
4. Literate:
   a) Male b) Female c) Children
5. Family monthly expenditure
6. Profession
7. Do you have tenents in the house, if yes how many?
8. Do you have electricity?
9. Source of drinking water: Private/public/H.P./well/pond/others
10. Distance of source in metres
11. Quantity of water used per day in litres.
12. Have you got a latrine in the house or not, if not where do you go for defecation.
13. Material used for anal cleaning.
    a) Male b) Female
14. Are you going to construct latrine inside the house.
    14.1 Do you have 3'x3' space for construction of latrine cubicle, if yes where it is?
    14.2 Do you have 10'x6' space inside or outside house.
15. If the latrine is outside:
    15.1 outside the house do you have 10'x10' space/if yes where?
16. Cement/steel/pans and traps will be provided by the Deptt. Are you prepared to pay for the cost other materials such as bricks, stone, sand stone, chips and labour. Yes/No
17. If I do not construct the latrine, the materials taken from the Deptt. will be returned

Applicant

Name:

Signature:

(To be filled by local panchayat)

1. Application date
2. Recommendation of Panchayat
3. Name of recommending authority Position

   Signature:

   Date:

.../

Inspection Record

1. Site plan:

a) Name of the supervisor_____Signature_____Position_____
b) Head of family_____Signature_____
c) Sanctioning Authority_____Signature_____Position_____

2. Leaching pit construction.

2.1 Contribution of beneficiary: Yes/No
2.2 Leaching pit Length Width/ Dia Depth
2.3 Deptt. contribution

a) Cement: bags

Date	Signature	House owner signature	Remarks

b) Steel: kg.

3. Pan & trap

3.1 Installation of pan and trap Yes/No
3.2 Connection of latrine and pit Yes/No

4. Final inspection
5. First date of use of latrine
6. Date of inspection after the use
7. Certified by:
8. Remarks:

Date:

Annex.- IV
Page 1

Sl. No.
Date:
Surveyed by:
Position:

HOUSEHOLD SURVEY-QUESTIONNAIRE

1. Project: Latrine Construction
   1.1 District
   1.2 Panchayat
   1.3 Ward
   1.4 Householder's name:
   1.5 Caste Family name:

2. Household No. (taking food from the same kitchen)

Sl. No.	Name	Relationship with the households	Age	Education	Profession	Place of wor
1.						
2.						
3.						
4.						
5.						
6.						
7.						
8.						
9.						
10.						
11.						
12.						
13.						
14.						
15.						
16.						
17.						
18.						
19.						
20.						

..../-

3. What are the main source of income to your family?

Sl. No.	Source of Income	Annual income
1.	Agriculture	
2.	Livestock	
3.	Cottage Industry	
4.	Bussiness	
5.	Wages, mason, carpenter etc.	
6.	Service	
7.	Income received from outside country	
8.	Pension	
9.	Other sources	
	Total	

3.1 Annual Expenditure

Sl. No.	Description	Annual Expenditure
1.	Fooding	
2.	Clothing	
3.	Education	
4.	Medicine	
5.	Festivals & other events	
6.	Transports	
7.	Water-electricity,fuel	
8.	Cow herd/employee	
9.	Land tax	
10.	Expenditure on agricultural,tools, equipment etc.	
11.	Others	
	Total:	

.../-

4. Do you own this house? Yes___ No ____
5. Do you have electricity? Yes____ No ____
   5.1 If yes, how much do you pay monthly? Rs.
6. Do you own a radio? Yes____ No ____
7. Is you house pucca or kutbha?
8. From where do you get your drinking water
   a) Private tap
   b) public stand post
   c) well
   d) pond
   e) any other means

8.1 Do you have separate container for storage of water?
8.2 How xr far is the water source? in meters
8.3 who bring water in the family?
   a) only male
   b) only female
   c) only boys
   d) obly girls
   e) all members of the family

8.4 How much water is used per day? in litres

8.5 Where goes the waste water of the house?
8.6 Source of water for cattle.
8.7 other water usage Interval in days

   a) Cloth washing
   b) Utensil washing
   c) Bathing: Interval in days

      i) Male
      ii) Female
      iii) Children

.../-

9. Do you have a latrine your house? Yes_____ No _____
   9.1 If no, where do you go for defecation?
   a) Male
   b) Female
   c) Children

10. Do you want to construct a private latrine? Yes_____ No _____
   10.1 Do you have a space for private latrine? Yes ___ No ___
   10.2 If yes:
      a) Where do you want to instal it?
      b) Where do you want to put the pan?
      c) Where do you want to have the pits?
   10.3 Do they use water for anal have cleansing?
      a) Male Yes ____ No ____
      b) Female Yes ____ No ____
      c) Children Yes ____ No ____

11. Once you put in a latrine who will clean the latrine cubicle?
   a) Family member (self)
   b) Outside labour

12. Who will empty the pit after it is filled?
13. Has anyone been sick in your family within a year? Yes ____ No ____
14. If yes, what was the cause of sickness?
15. Has anyone died ~~a~~ in the family within a year? Yes____ No____
16. 15.1 If yes, who died?
   15.2 What was the cause of death?
17. Is anyone sick at present?
18. What causes dirrhoea,chalera or typhoid do you know Yes___ No ____
19. Can you get sick by drinking polluted water ? Yes ____ No _____
20. Does files carry disease? Yes _____ No _____
21. Is it harmful if one defecates near the house? Yes____ No _____
22. Do you think latrine will reduce people's habit of open defecation?
23. Can you think of any other advantage of a latrine?
24. Any other suggestion?

UNDP GLOBAL PROJECT ON LOW COST WATER SUPPLY AND SANITATION INT/81/047

WATER LEVEL IN DIFFERENT SEASONS

Town _____ Observations taken by _____

Location of well	Date of observation / Depth of water level in one well from ground level (in metres)	Depth of water level in the well from ground level during summer when it is lowest (in metres)	Depth of water level in the well from the ground level during rainy season when it is highest (in metres)	Date of observation _____ Depth of water level in the well from ground level during summer when it is lowest (in metres)	Date of observation _____ Depth of water level in the well from the ground level during rainy season when it is highest (in metres)
1	2	3	4	5	6
North of Town	1.				
	2.				
South of Town	1.				
	2.				
West of Town	1.				
	2.				
East of Town	1.				
	2.				
Middle of Town	1.				
	2.				

UNDP GLOBAL PROJECT ON WATER SUPPLY AND SANITATION INT/31/047

Guidelines for providing informations regarding water level in the town

1. Two wells in each direction of the town (North, South, East and West) as well as two in the middle of the town may be selected for taking observations on water levels.

2. In column 1, the location of each well may be given (wells may preferably marked on the Plans of the town).

3. In column 2, in the heading, the date when the water level in the wells is measured may be given. The depth at which the water level in the wells is below ground level may be actually measured in metres and indicated in column 2 for each well.

4. Water level in the wells usually goes down during the summer and rises during monsoon season. By making enquiries locally from the residents who use well water, the depth of water level below ground level in summer when it is lowest and is rainy season when it is highest should be recorded in columns 3 and 4 in metres.

5. During summer just before starting of the rainy season water level in the above selected 10 wells below ground level be actually measured. This information be recorded along with the data of observation in column 5.

6. Immediately after the rainy season water level in the above selected 10 wells below ground level be again measured. This information along with the date of observation be recorded in column No. 6.

4. Garbage:

a) Approximate daily garbage volume (in m^3): _____

b) Method of garbage transport: (i) Manual _____ (ii) Wheel barrow/ cart _____ (iii) Truck _____

c) Is garbage transported with nightsoil (Yes/No): _____

d) Method of garbage disposal: (i) On low-lying area _____ (ii) Composting _____ (iii) Sanitary land-fill _____

e) Annual municipal expenditure for garbage collection and disposal: _____

f) If not included in night soil revenue state annual income from sale of garbage: _____

11. Agency responsible for maintenance:

12. Agency responsible for collection of water tax, charges:

II ELECTRICITY

a) Average monthly residential consumption _____KWH
b) Average monthly residential charges N Rs. _____

III WASTE DISPOSAL (SEWERAGE DRAINAGE NIGHTSOIL, GARBAGE)

1. Sewerage

a) Percentage of area having sanitary sewerage:
b) Number of households served:
c) Sewerage charge (amount and basis):

2. Drainage:

a) Percentage area covered by: 1. Pucca _____ 2. Kutcha _____
3. No drain _____

b) How and where is sullage (kitchen and bathroom wastes) disposed of:

c) Is sullage used for irrigation? _____ If yes, what is the revenue to the Municipality? _____

d) Annual maintenance expenditure for sullage drains?_____

3. Nightsoil

a) Whether servicing of latrine and removal of nightsoil is done by: (i) private scavenger _____ (ii) Municipal scavenger _____

b) Monthly income of: (i) private scavenger _____ (ii) municipal scavenger _____

c) Number of latrines cleaned by each scavenger per day _____

d) Monthly household payment to scavenger _____

e) Method of nightsoil transport: (i) Manual _____ (ii) Wheel barrow/ cart _____ (iii) Truck _____

f) Method of nightsoil disposal: 1. On low-lying areas:_____
(ii) Composting _____ (iii) Direct use on farms: _____

g) Annual municipal income from nightsoil disposal:

H) If nightsoil is composted, indicate: 1. Composted with garbage? (yes/no) _____ (ii) Composted alone (yes/no):_____

i) Approximate daily compost volume (in m^3): _____

j) Is there any chemical analysis of the compost? (Yes/No) _____ If yes, attach copy.

k) Annual municipal expenditure for nightsoil collection and disposal: _____

.../-

UNCP GLOBAL PROJECT ON LOW COST WATER SUPPLY AND SANITATION (INT/81/047)

DATA SHEET FOR _____ PANCHAYAT

PIPED WATER SUPPLY, ELECTRICITY AND WASTE DISPOSAL

I. PIPED WATER SUPPLY

1. Percentage area served by piped water supply: _____
2. For areas not served by piped water supply indicate percentage of area served by hand pumps (H), open well (W), river (R), spring (S) if other specify: _____
3. Source of pipe water: a) groundwater _____ (b) Surface water _____
4. Total quantity of water supplied _____ million litres/day
5. Daily water supplied per capita _____ litre/day
6. Duration of Supply _____ hrs/day
7. Number of house connections:
   a) Metered: _____
   b) Unmetered: _____
8. No. of stand posts: _____
9. Water tariff:

	Domestic	Non-domestic
a) Rate as part of property tax		
b) Annual rental value exempted from water tax		
c) Minimum annual rental value for house connection		
d) Water charge for metered connection (per 1000 l)		
e) Monthly minimum water charges (excluding meter rent)		
f) Free allowance for minimum water charge (litres), if any		
g) Monthly meter rent		
1. ½" meter		
2. ¾" meter		
3. 1" and above		
h) Monthly charge for unmetered connection. Indicate basis (ferrule size, no. of taps).		

10. Annual Income and Expenditure

Year	Demand (in N Rs 1000)	Income	Expenditure	Profit/Loss (-)
1978-79				
1979-80				
1980-81				

.../-

A. Revenue Catagory	Year 1970-71	1978-79	1979-80	1980-8
4. Govt. loans				
5. Govt. grants and subsidies				
Total loans, grants and subsidies				
6. Total Revenues (Items 1,2,4 & 5)				
B. EXPENDITURE CATEGORY (in N Rs. 1,000)				
1. Capital expenditure from own revenue				
1.1 Sanitary works (excluding water & drainage) (specify)				
1.2 Other works (specify)				
Total capital expenditure from revenue				
2. Capital expenditure from grants/ subsidaries				
2.1 Water Supply				
2.2.Sanitary works				
2.3 Other (specify)				
Total capital expenditure from grants/subsidies				
Total capital expenditure from revenues, grants/subsidies				
3. Maintenance and establishment expenditure:				
3.1 Drainage				
3.2 Other Sanitary (garbage disposal etc.)				
3.3 Street cleaning				
3.4 Other (specify)				
Total maintenance and establishment				
Total expenditure (items 1, 2 & 3)				
C. METHOD OF EXPENDITURE (In N Rs. lakhs)				
1. By staff				
2. By contract				

UNDP GLOBAL PROJECT ON LOW COST WATER SUPPLY AND SANITATION (INT/81/047)

DATA SHEET FOR PANCHAYAT

STAFFING, REVENUES AND EXPENDITURES

I. STAFFING

Staff Category	No. of post Sanctioned	No. of post filled	Salary and Allowances (per month)
A. Engineering:			
1. Engineer			
2. Assistant Engineer			
3. Overseer			
4. Other technical staff (specify)			
B. Public Health:			
1. Sanitary Supervisors			
2. Other Sanitary Workers:			
2.1 Scavenger/Sweeper for night soil only			
2.2 Scavenger/Sweeper for drains/sullage only			
2.3 Scavenger/Sweeper for garbage only			
2.4 Scavenger/Sweepers for night soil and other use			

II REVENUES AND EXPENDITURES (In N Rs. 1000)

A. Revenue Category	Year 1970-71	1978-79	1979-80	1980-81
1. Octroi income ( )				
2. Other tax income (specify)				
Total-tax income				
3. Total non-tax income (Registration fees etc.)				
Total tax & non-tax incomes				

.../-