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MINISTRY OF PANCHAYAT AND LOCAL DEVELOPMENT

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# A POLICY FOR MAINTENANCE

Report of the Conference  
held in Pokhara 6-11 October 1982

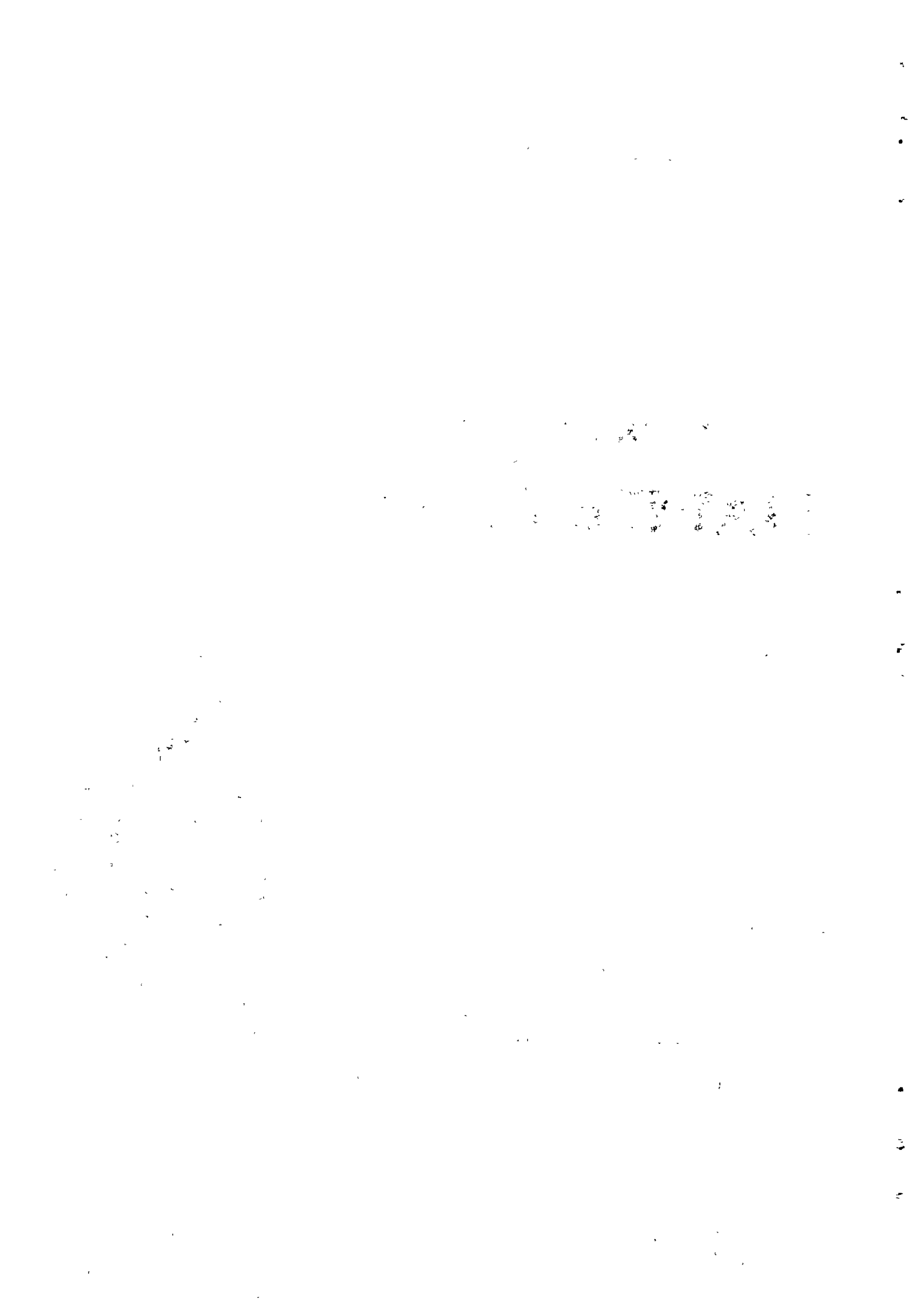


Report of the Conference  
held in Pokhara 6-11 October 1982

Sponsored by UNICEF

Kathmandu

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MINISTRY OF PANCHAYAT AND LOCAL DEVELOPMENT

A POLICY FOR  
THE MAINTENANCE AND REPAIR  
OF  
COMMUNITY WATER SUPPLY AND SANITATION  
SYSTEMS IN NEPAL

Prepared by the Centre  
for Community Water Supply

Report of the Conference held in Pokhara 6-11 October 1982

Part I : Maintenance

Sponsored by UNICEF

Kathmandu  
November 1982

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A Conference was held in Pokhara from 6-11 October attended by Senior Officials of the Ministry of Panchayat and Local Development, representatives of donor and volunteer agencies and other Government departments. The objectives of the Conference were to discuss and recommend policies for -

a) The Maintenance and Repair of Community Water Supply and Sanitation Systems

and b) Sanitation.

The policies recommended by the Conference are contained in two separate reports, Part I concerning Maintenance and Part II concerning Sanitation.



## FOREWORD

Ever since its creation, the Ministry of Panchayat and Local Development (MPLD), formerly the Local Development Department was involved in the improvement of the drinking water status of the rural masses. Although the number of schemes undertaken was low, it could be proudly said that it has appreciably achieved the targets with its limited resources and technical manpower. With the worldwide importance of rural drinking water supplies and the genuine activities of this organization, various International Agencies started showing their keen interest. And to-day UNICEF, WHO, SATA and several volunteer agencies are contributing in various ways for the execution of rural water supply schemes. According to the target of the International Water Supply and Sanitation Decade, MPLD has a major role to play for the 63% of the total population coverage.

So far, MPLD was engaged in the construction of such schemes only. However, maintenance aspects of the completed schemes was given less priority. According to some field studies it was found that most of the initial schemes were poor in quality and they were not functioning well due to the lack of proper maintenance. Since we will be constructing more projects in the future and the completed projects need proper maintenance, the importance of immediate launching of a maintenance programme is self-explanatory.

As a first step towards the formulation of an organized maintenance programme, a Conference on Maintenance of Rural Water Supply was conducted by MPLD with UNICEF assistance. This report is the outcome of that conference. It tries to propose the plans and policies required for the efficient maintenance of the schemes and defines the responsibilities of the units at different levels. I hope this report will bring fruitful results.

I take this opportunity to express my sincere thanks to UNICEF, WHO and various International Agencies, whose participation in the conference was highly appreciated. Last, but not the least, my thanks are due to our Engineers, Administrators and Volunteers whose dedication and hard work made the Conference successful.

Santa B. Rai  
Additional Secretary  
Ministry of Panchayat  
and Local Development





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## SECTION 1

### MAINTENANCE POLICY FOR RURAL WATER SUPPLY SYSTEMS

This policy defines specific maintenance functions and responsibilities at Village, District, Regional and Ministry levels and is in line with HMG's policy to decentralize responsibilities to the District level. It is envisaged that there will be a period of transition before the full implementation of this policy. This transitional period is described in Section 2.

#### 1. ALLOCATION OF RESPONSIBILITIES

##### 1.1 Village Level

1. Routine inspection, maintenance and operation of the system.
2. Maintenance and repair of tapstands. The boundary of responsibility shall be from and including the stopcock.
3. Provision of local materials and unskilled free labour for all maintenance and repair.

##### 1.2 District Level

1. Technical, material and financial support for all repairs as requested by the Village Maintenance and Sanitation Committee through the Village Panchayat. The District responsibility shall be from the tapstand stopcocks to the source.

##### 1.3 Regional Level

1. Major repairs and rehabilitation of systems as requested by the District Panchayat for which the estimate exceeds Rs. 25,000. However, this figure may be raised or lowered in exceptional cases based on the technical judgement and at the discretion of the Regional Directorate.

##### 1.4 Ministry Level

1. Supervision and support for the overall implementation of the maintenance programme.

#### 2. DESCRIPTION OF RESPONSIBILITIES

##### 2.1 Village Level

1. Forming a Village Maintenance and Sanitation Committee (VMSC) which shall be a sub-committee of the Village Panchayat.

The Village Maintenance and Sanitation Committee should consist of:

- a. One member from each tapstand user group.
- b. Ward-Chairmen of the area served by the water system.
- c. One representative from school and health post if appropriate.
- d. At least two members should be women

The Chairman of the VMSC shall be selected annually by the members and must be residing within the area served by the water system.

The Pradhan Panch may be an ex-officio member of the VMSC.

The tenure of office shall be decided by the committee subject to the approval of the Village Panchayat.

2. The Village Maintenance and Sanitation Committee shall be responsible for:

- a. Operating, maintaining and protecting the water supply system.
- b. Appointing and supervising the Village Maintenance and Sanitation Worker (VMSW), who should have been nominated and trained during the construction phase. In case no VMSW has been previously selected, the committee shall select a suitable villager.
- c. Ensuring that tools and spare parts left on site after construction are stored and used properly by VMSW and that replacements are obtained from the District Technical Office.
- d. Arranging for appropriate remuneration, either in cash or kind, for the VMSW. The VMSW's remuneration should be based on the number of tapstands, length of the system and the ability of the village to pay.
- e. Organising provision of local materials and unskilled voluntary labour.
- f. Resolving social disputes and preventing vandalism and misuse.
- g. Ensuring environmental protection of the source.

- h. Educating community in their responsibility for proper system use and maintenance.
  - i. Maintaining a project file and keeping records of repair work and minutes of meetings.
  - j. Requesting support for major maintenance through the District Panchayat.
  - k. Each tapstand user group's representative on the VMSC shall be responsible for ensuring:
    - Maintenance of tapstand and the surrounding area.
    - Collection of money, materials and voluntary labour for tapstand repairs.
  - l. Encouraging proper use and maintenance of latrines in schools, panchayat buildings, Health Post and other institutions, if any.
3. The water supply beneficiaries shall be responsible for:
- a. Forming the Village Maintenance and Sanitation Committee.
  - b. Contributing to the remuneration of the Village Maintenance and Sanitation Worker.
  - c. Providing local materials and voluntary labour as requested by the VMSC.
  - d. Notifying the VMSW or VMSC member of any fault or potential problem in the system.

## 2.2 District Level

1. Assuming overall responsibility for the maintenance of all water supply and sanitation systems constructed by the District Panchayat and Regional Directorate.
2. Allocating an adequate percentage of the development budget for maintenance of all village water supply and sanitation systems in the District.
3. Creating a Maintenance Unit in the District Technical Office consisting of at least one Overseer and two Technical Assistants.
4. Establishing a store for spare parts and other maintenance materials:
  - a. Establishing a system and budget to replenish stocks.

- b. Fixing the cost of tapstand repair items at a subsidized cost to be purchased by the villagers.
5. Implementing repair work for which the cost estimate does not exceed Rs.25,000/- per system including skilled labour, transportation and spare parts from the DTO store.
6. Regular inspection by maintenance unit staff of completed system, maintaining inspection records and preparing consolidated annual reports for forwarding to the Ministry through the Regional Directorate.
7. Assisting the Village Panchayat and VMSC in resolving social disputes.
8. Training VMSC's and VMSW's in the District with support from the Regional Directorate, if necessary.
9. Requesting Regional Directorate for major repairs and rehabilitation of systems with cost estimates over Rs.25,000/- per system.

### 2.3 Regional Level

1. Implementing major repairs over Rs.25,000/- within available annual budget.
2. Implementing rehabilitation of systems which should be treated as new projects.
3. Procuring or requesting the Ministry to procure materials as requested by the District to replenish stocks of spare parts and materials. Payment for procurement will be the responsibility of the District.
4. Training of relevant District officials.

### 2.4 Ministry Level

1. Formulating policies and guidelines.
2. Ensuring the allocation of annual budget and necessary manpower to the Regional and District levels.
3. Ensuring the inclusion of a maintenance component in each District Development Plan.
4. Procuring materials for District offices, if necessary, at the request of the Regional Directorate.
5. Maintaining records of the maintenance programme.

SECTION 2INTERIM MAINTENANCE POLICY DURING THE TRANSITION PERIOD

Until such time as the District level is sufficiently strengthened to assume responsibilities as defined in Section 1, the following policy is recommended:

1. VILLAGE LEVEL

Responsibilities as specified in Section 1.

2. DISTRICT LEVEL

1. Building the capacity to assume responsibilities as defined in Section 1.
2. Liaising with the Field Office and/or Regional Directorate in the development and implementation of the maintenance programme.
3. Assuming those responsibilities as listed in Section 1 which are within its capacity.
4. During the transition period the District shall:
  - a. assume the cost of skilled and semi-skilled labour and transportation of materials for repair work up to Rs.10,000 per system. This will apply only to those systems which have established formal maintenance programmes (i.e. formation of committee, signing of maintenance agreement etc.).
  - b. request the Regional Directorate for additional funds and materials to a further Rs.15,000 per system.
5. Requesting the Regional Directorate for major repairs and rehabilitation work for which the cost estimate exceeds Rs.25,000 per system.

3. FIELD OFFICE LEVEL

1. Forming a Maintenance Team of one Overseer per Field Office and one Maintenance Technician per District operating from the Field Office.
  - 1.1 The Maintenance Team shall initially establish maintenance programmes in selected systems which do not require major repairs. At a later stage, the Maintenance Team shall include systems requiring major repairs.
  - 1.2 The Maintenance Team shall undertake the following activities:
    - a. Conduct preliminary surveys to identify systems to be included in the initial stage.
    - b. Assist each selected village to form a Village Maintenance and Sanitation Committee.

- c. Assist the VMSC to select a Village Maintenance and Sanitation Worker.
  - d. Conduct detailed status surveys with the VMSC's and VMSW's.
  - e. On-site training of VMSC's and VMSW's.
  - f. Assist the village to carry out major repairs.
  - g. Conduct regular inspection of systems in the maintenance programme.
  - h. Maintain records.
  - i. Prepare District officials to assume programme management responsibilities.
2. Maintaining stocks of spare parts, tools, and materials in the Field Office.
  3. Ensuring that all systems which establish formal maintenance programmes are provided with and maintain adequate spare parts and tools as specified in Annex I.
  4. Providing replacement materials to tapstand user groups at a subsidized cost.
  5. Preparing and conducting training programmes for VMSC's, VMSW's and District officials with the assistance of the Regional Directorate.
  6. Reporting systems for major repairs and rehabilitation to District Panchayat for forwarding to the Regional Directorate.
4. REGIONAL LEVEL
1. In the absence of Field Office, the responsibilities described in Para 3 above shall be borne by the Regional Directorate.
  2. Implementing major repairs over Rs.25,000 per system within available annual budget.
  3. Implementing rehabilitation of systems which should be treated as new projects.
  4. Procuring, or requesting the Ministry to procure, materials as requested by the District to maintain stocks of spare parts and materials. Payment for procurement will be the responsibility of the District.



5. Training of relevant District Officials.
6. Establishing a Maintenance Section including a Maintenance Co-ordinator (Overseer or Volunteer) with one Overseer per Zone or Field Office and one Maintenance and Sanitation Technician per District.
7. Providing the District with funds and materials within the capacity of the Regional Directorate budget not exceeding Rs.15,000/- per system upon request of the District Panchayat as described in paragraph 2.4 above.

5. MINISTRY LEVEL

1. Developing policies and guidelines.
2. Supervising the implementation of the maintenance programme.
3. Providing training as necessary for staff involved in maintenance programme.
4. Ensuring the allocation of annual budget and necessary manpower to the Regional and District levels, particularly to strengthen the District's capacity to assume responsibility for the programme.
5. Promoting the gradual inclusion of a maintenance component in each District Development Plan.
6. Authorising and establishing a system for receipt of cash payment from villagers for tapstand repair items and materials.
7. Monitoring the progress of the maintenance programme during the transition phase.



## SECTION 3

### ANNEXES

The following section contains standardized forms, checklists, contracts, job descriptions etc to facilitate the implementation of the Maintenance Policy.

#### LIST OF ANNEXES

- ANNEX A - Water Supply and Sanitation Project Completion Certificate
- ANNEX B - Instructions for Final Project Inspection and Completion Report
- ANNEX C - Village Maintenance Agreement
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MINISTRY OF PANCHAYAT & LOCAL DEVELOPMENTREGIONAL DIRECTORATEWATER SUPPLY AND SANITATION PROJECT COMPLETION CERTIFICATE1. General Information

District: \_\_\_\_\_ Village Panchayat: \_\_\_\_\_  
 Ward Nos: \_\_\_\_\_ Project No: \_\_\_\_\_  
 Date of Starting of Project: \_\_\_\_\_ Date of Completion: \_\_\_\_\_  
 Population Covered: \_\_\_\_\_

2. Technical Information

- a) Type of system open/closed  
 b) Actual yield of source (during final inspection)  
 c) Length of the scheme  
 d) Number of components

Spring catchment: \_\_\_\_\_ Stream catchment: \_\_\_\_\_  
 Reservoir tanks (m<sup>3</sup>): \_\_\_\_\_ B.P. tanks: \_\_\_\_\_  
 Washout valve boxes : \_\_\_\_\_ Air valve boxes: \_\_\_\_\_  
 Tap stands: \_\_\_\_\_ Other: \_\_\_\_\_

3. Information on Sanitation

No of Latrines at School: \_\_\_\_\_ Health Post: \_\_\_\_\_  
 Panchayat Building: \_\_\_\_\_ Households: \_\_\_\_\_

4. Persons involved in construction

WSST: \_\_\_\_\_ Construction Committee Members \_\_\_\_\_  
 Overseer: \_\_\_\_\_  
 Engineer: \_\_\_\_\_

5. Maintenance Arrangements

The Village Maintenance Agreement has been signed. The Village Maintenance and Sanitation Committee (VMSC) and Village Maintenance and Sanitation Worker (VMSW) are aware of their obligations. The VMSW has signed the list of tools and spares left in his charge and one copy is on the file with the VMSW.

6. Project Completion

The Project Engineer and Chairman of the Water and Sanitation Construction Committee have thoroughly inspected the whole system and are satisfied that the system is totally completed and functioning properly.

\_\_\_\_\_  
 Chairman  
 Water & Sanitation Construction  
 Committee  
 Date:

\_\_\_\_\_  
 Project Engineer  
 Date:

Copy to: Regional Directorate, LDO, VMSC file, Field Office.



MINISTRY OF PANCHAYAT AND LOCAL DEVELOPMENT  
INSTRUCTIONS FOR FINAL PROJECT INSPECTION  
AND COMPLETION REPORT

The engineer must visit each completed project site, inspect the work, write and submit a project completion report. One copy must be sent to the District LDO, one copy to the Regional Directorate and one copy should remain in the field office, where appropriate.

While inspecting a completed system the engineer must carefully check the quality of construction and certify the project finished only after all work has been 100% completed.

Specifically he should check the following:

A. Source

1. The catchment structure must be of sound construction. All pipes should be of the proper size and in the proper location within the structure. All structures must have a locking cover placed in such a way that neither rain water nor surface water can enter.
2. The immediate area around the catchment must be fenced with barbwire in such a way as to keep animals out of the area. A larger area must be demarcated with "ketuki" or any other type of briar or bramble and the area declared a non-cutting/no-grazing/area by the village panchayat.
3. The water flowing into the catchment structure must be covered and protected, as completely as possible, from any type of contamination.
4. A surface water diversion ditch must be cut above the source and inside the demarcation line.
5. The catchment structure and the area around it must be protected from erosion by constructing check dams, building retaining walls and planting soil stabilizing plants and trees. All overflowing water must be carefully channeled away from the catchment area.
6. In deforested source areas, trees and soil-stabilizing bushes and grasses must be planted.
7. All valve boxes must be properly constructed with locking covers.

B. Supply Main (from source to reservoir)

1. The pipe must be properly buried to an absolute minimum of 60 centimeters, preferably 90 centimeters.
2. In rocky sections the GI pipe must be protected by laying the pipe in a stone-covered channel.

3. The pipeline route through jungle and other areas where route may be obliterated must be clearly marked.
4. All potential landslide sections must be stabilized by constructing retaining walls and planting trees.
5. The backfill on a descending or ascending pipeline must be protected from erosion. The soil must be compacted in a mound over the trench; on steep slopes stones should be placed in stair-step manner over the trench and water diversion trenches cut across the slope.
6. Pipeline laid through a gully must be protected from erosion by constructing at least one check dam on the down stream side of the line. Depending on the size of the gully and the peak flow it may be necessary to construct one or more check dams above and below the pipeline.
7. Suspended crossings over gullies, streams, landslides, etc., must be constructed such that all exposed pipe is GI. The point at which the pipe becomes exposed must be protected from erosion by constructing dry stone masonry walls around the pipe. The area of the crossing must be protected from erosion.
8. The immediate area on both sides of the pipeline should be declared a non-cutting area by the village panchayat.
9. All scour valves must be placed in locked valve boxes (or covered with a capped length of GI pipe) and the area protected against erosion. To carry away the water a non-erodable channel must be constructed.
10. All air valves must be placed in locked valve boxes and the area protected against erosion.

C. Reservoir

1. The reservoir must be properly constructed and protected from animals, curious children and villagers by fencing the area. The fence must have a locking gate.
2. The inspection cover must be locked to the tank in such a manner that neither rain, surface water nor any other contaminating substance can enter.
3. The valve box must be properly constructed and have a locking cover.
4. The area around the reservoir must be protected from erosion.
5. The water from the overflow and washout pipes must be properly channeled away from the tank.



D. Distribution and Service Lines

- same as 'Supply Main' -

E. Break Pressure Tanks

1. The break pressure tank must be properly constructed with a locking inspection cover such that neither rain, surface water nor any other contaminating substance can enter.
2. The area around the tank must be protected from erosion and the tank itself protected from animals, curious children and villagers.
3. The water from the overflow and washout must be properly channeled away from the tank.

F. Tapstands

1. The tapstands must be properly constructed and protected from erosion.
2. The platform must have a depression directly below the faucet to dampen the splash of the falling water.
3. The sullage must be piped at least five meters from the tapstand.
4. The tapstand flow must be adjusted to the design figure.

In writing a completion report, the engineer should list the following:

1. Name of village, ward number, and village panchayat.
2. Name of construction technician(s) and overseer.
3. Date of final inspection.
4. Note all design changes (changes should be recorded in red on the original prints in the design and estimate file kept in the field office).
5. Actual number of beneficiaries.
6. Actual length of system.
7. Number of tapstands, reservoirs and sizes, break pressure tanks, air valves, scour valves, plus the
8. The actual amount of materials used:
  - a) HDP pipe
  - b) HDP pipe fittings
  - c) GI pipe and fittings
  - d) Cement

9. Names of all members of the Village Maintenance and Sanitation Committee (VMSC).
10. Name of Village Maintenance and Sanitation Worker (VMSW).
11. VMSW remuneration, method of payment by the villagers and terms of contract.
12. List of maintenance tools and materials left with VMSW.
13. List of tools and materials needed by VMSW.
14. Certify that all tools not needed for maintenance have been returned to the Field Office, Regional Office or District Panchayat.
15. Sanitation
  - a) School and Health Post
    1. Number and type of school and health post latrines constructed.
    2. Number of beneficiaries.
    3. Actual amount of materials used.
    4. Actual cost of construction.
  - b) Private
    1. Name of each owner plus the total number and type of latrines constructed.
    2. Materials used.
    3. Estimated total cost of latrines.

MINISTRY OF PANCHAYAT AND LOCAL DEVELOPMENTVILLAGE MAINTENANCE AGREEMENT

Name of System:

Ward No:

Village Panchayat:

District:

We, the undersigned members of the Village Maintenance and Sanitation Committee, as representatives of the people served by our Water Supply System, agree to assume the following responsibilities:

- a. Operating, maintaining and protecting the water supply system.
- b. Appointing and supervising the Village Maintenance and Sanitation Worker (VMSW), who should have been nominated and trained during the construction phase. In case no VMSW has been previously selected, the committee shall select a suitable villager.
- c. Ensuring that tools and spare parts left on site after construction are stored and used properly by VMSW and that replacements are obtained from the District Technical Office.
- d. Arranging for appropriate remuneration, either in cash or kind, for the VMSW. The VMSW's remuneration should be based on the number of tapstands, length of the system and the ability of the village to pay.
- e. Organising provision of local materials and un-skilled voluntary labour.
- f. Resolving social disputes and preventing vandalism and misuse.
- g. Ensuring environmental protection of the source.
- h. Educating community in their responsibility for proper system use and maintenance.
- i. Maintaining a project file and keeping records of repair work and minutes of meetings.
- j. Requesting support for major maintenance through the District Panchayat.

- k. Each tapstand user group's representative on the VMSC shall be responsible for ensuring:
- Maintenance of tapstand and the surrounding area
  - Collection of money, materials and voluntary labour for tapstand repairs.
- l. Encouraging proper use and maintenance of latrines in schools, panchayat buildings, health post and other institutions, if any.

Signed: .....  
Chairman, Village  
Maintenance and Sanitation  
Committee

.....  
Local Development Officer

Date: .....

Date: .....

Members Signatures:



1. Maintain records of all repairs effected and spare parts and materials used and request the VMSC for replacements.

3. REMUNERATION

The VMSC on behalf of the beneficiaries of the water supply and sanitation system, agrees to remunerate the VMSW as follows:

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4. TERMINATION

This agreement can be terminated by either side by giving two weeks notice.

Signed:.....  
Chairman, Village Maintenance and Sanitation Committee      Village Maintenance and Sanitation Worker

Date: .....      Date: .....

Members Signatures:

MINISTRY OF PANCHAYAT AND LOCAL DEVELOPMENT  
MAINTENANCE AND SANITATION TECHNICIAN CONTRACT

Agreement for employment with the Ministry of Panchayat and Local Development (MPLD). This agreement outlines the terms of contract between the MPLD and Mr. \_\_\_\_\_ for the position of Water Supply Maintenance and Sanitation Technician (MST) beginning \_\_\_\_\_ and ending \_\_\_\_\_, thereafter being renewable on the recommendation of the employee's superior.

1. GENERAL CONDITIONS

The employee will work with honesty & diligence for the good reputation of the MPLD and for the efficient and successful execution of the Water Supply Maintenance & Sanitation programme in Nepal, in accordance with the duties and responsibilities outlined in the MST job description.

2. SALARY

The salary structure for this position is the same as that for a Water Supply & Sanitation Technician. Employees transferring to the position of MST from a WSST position will continue at the same salary level as in their former position. Thereafter, with the renewal of their contract and on the recommendation of the employee's superior, a raise not to exceed NC.Rs.25 per month can be granted. Salaries will be paid on the last day of each Nepali month. The monthly salary will be Rs. \_\_\_\_\_.

3. FIELD ALLOWANCE

The employee will receive field allowance at the rate of NC.Rs.400 per month.

4. REMOTE POSTING ALLOWANCE

The employee will receive remote posting allowance at the rate of NC.Rs.25 or NC.Rs.50 per month, depending on his posting as decided by the MPLD-Regional Director.

5. TRAVEL ALLOWANCE

During each work season, the employee will receive travel allowance for:

- a. two round trips from his farthest assigned project site to the Field Office or Regional Directorate where he is based.

This travel will be reimbursable only if authorized by the employee's superior. Rates of reimbursement for travel by foot will be based on HMG's rules for reimbursement of travel for kharidar and distances based on that set down by the district panchayat. Travel by air, road, or rail will be reimbursable on the submission of the ticket receipts. The employee will always travel by the most direct route and use the quickest and most economical means of transport available.

6. VACATION

The employee will not receive any paid leave during the period of this probationary contract. However, the employee will receive reasonable time off for Dasai holidays.

7. SICK LEAVE

Sick leave of one working day per month will be allowed with full pay. This sick leave may not be accumulated for carry-over from one year to the next. Sick leave in excess of the allotted amount per year will be deducted from the employee's salary.

8. TERMINATION

This agreement can be terminated by either side by giving two (2) weeks notice.

Signed for the Ministry of Panchayat and Local Development:

Date: \_\_\_\_\_ Regional Director: \_\_\_\_\_

Date: \_\_\_\_\_ Regional Engineer: \_\_\_\_\_

The agreement conditions have been read, understood and accepted by the employee:

Date: \_\_\_\_\_ Signature: \_\_\_\_\_



MINISTRY OF PANCHAYAT AND LOCAL DEVELOPMENTJOB DESCRIPTION FOR MAINTENANCE AND SANITATION TECHNICIAN

The Water Supply Maintenance and Sanitation Technician will have the following duties and responsibilities:

1. Re-activate or organize a responsible Village Maintenance and Sanitation Committee (VMSC)
  - 1.1 He will see that the Village Maintenance Agreement is signed.
2. Conduct public meetings and explain the concepts of maintenance and sanitation.
3. Explain the duties and responsibilities of the VMSC to the individual members and to the villagers.
4. Assist the VMSC in the selection of a Village Maintenance and Sanitation Worker (VMSW).
5. See that a contract for the employment of the VMSW is signed.
6. See that an appropriate system is established in the village to ensure regular remuneration for the VMSW.
7. Explain to the VMSW his duties and responsibilities.
8. Demonstrate to the VMSW proper inspection and maintenance procedures as per maintenance checklist.
9. Inspect the water system and latrines thoroughly with the VMSW and complete the inspection form accordingly.
10. Demonstrate to the VMSW the proper maintenance of the water system and sanitation facilities.
11. Identify any large scale maintenance works requiring voluntary labour and formulate a plan for their execution together with the VMSC and the VMSW.
12. Instruct the VMSW in making any minor repairs that can be completed with materials on hand.
13. Train the VMSC members in the proper maintenance of the system's components and sanitation facilities in the member's ward or area.
14. Assist the VMSC in preparing any request to the District Panchayat/Field Office/Regional Directorate for needed spare parts, tools or materials.
15. Submit to the Maintenance Co-ordinator reports on the status of the system and any major repair work required.

16. In consultation with the Maintenance Co-ordinator, prepare a travel plan to visit each assigned project on a regular basis.
17. Serve as a liaison between the village and the Field Office/Regional Directorate.
18. Assist in resolving any problems faced by the VMSC or the VMSW.

MINISTRY OF PANCHAYAT AND LOCAL DEVELOPMENT  
SUGGESTED VILLAGE MAINTENANCE AND SANITATION WORKER  
ROUTINE INSPECTION CHECK LIST

1. SOURCEA. Spring

1. Check lids and locks for damage
2. Check all pipes and valves for leakage or blockage
3. Drain and clean collection tank
4. Check and clean outlet pipe filter
5. Check area for erosion and take appropriate action to prevent further erosion
6. Check the fencing
7. Clean up area
8. Check collection tank and surrounding area for possible sources of contamination (surface runoff, etc)
9. Check collection tank and valve box walls for leakage

B. Stream (To be checked at least weekly during monsoon)

1. Make all checks required for spring source
2. Check sluice gate, if any, for damage
3. Check dam for damage and leakage and clean out area behind dam
4. Check and clean filter or strainer
5. Clear stream of any material which could damage structures

2. AIR VALVES

1. Check for leakage and proper operation
2. Check chamber lids, locks and walls for damage
3. Check area for erosion.

3. WASHOUTS

1. Check chamber lids, locks and walls for damage
2. Check valve and pipes for leakage or blockage
3. Open valve and flush out pipeline
4. Check area for erosion

4. BREAK PRESSURE TANKS

1. Check lids, locks and walls for damage
2. Check all pipes and valves for leakage or blockage
3. Drain and clean tank
4. Check area for erosion
5. Check tank area for possible sources of contamination

5. RESERVOIR TANK

1. Check lids, locks and walls for damage
2. Check all pipes and valves for leakage or blockage
3. Drain and clean tank
4. Check and clean outlet pipe filter
5. Check area for erosion
6. Inspect fencing
7. Clean up the area
8. Check tank area for possible sources of contamination

6. TAPSTANDS (to be inspected with the committee members responsible for the tapstand)

1. Inspect structure for damage
2. Check and clean platform and drain pipe and check for proper drainage
3. Check pipes, stopcock and tap for leakage and proper functioning
4. Adjust flow if necessary
5. Check area for erosion
6. Inspect (GI) valve box

7. PIPELINE

1. Inspect the pipeline to see that it is properly buried
2. Check the line for evidence of any breaks or leaks
3. Check the area around the line for erosion or landslides

8. STREAM AND GULLY CROSSINGS

1. Check pipe and joints for leakage
2. Check anchoring structures for damage
3. Check that the pipe is properly protected
4. Check area for erosion

9. SUSPENDED CROSSINGS

1. Check that the cable is taut
2. Inspect pipe and cable lashing
3. Check anchoring structures for damage
4. Check that the pipe is properly protected
5. Check area for erosion

10. SEDIMENTATION TANKS

1. Check lids, locks and walls for damage
2. Check all pipes and valves for leakage or blockage
3. Drain and clean tank
4. Inspect and clean baffles
5. Check area for erosion
6. Inspect fencing
7. Clean up the area
8. Check area for possible sources of contamination



MINISTRY OF PANCHAYAT AND LOCAL DEVELOPMENT  
DETAILED STATUS SURVEY OF WATER SUPPLY SYSTEM

Note: Use a separate form for each system. This survey should be conducted with the Village Maintenance and Sanitation Worker and members of the Committee.

Date of status survey :.....

Name(s) of surveyor(s):.....

.....

Accompanied by :.....

A. GENERAL INFORMATION

1. District: .....

2. Project : .....

3. Village Panchayat:.....

4. Wards covered by the project:.....

5. Name and address of the Pradhan Pancha:.....

.....

6. Name of the Village Maintenance and Sanitation Committee Chairman:.....

7. Name of other leading or interested persons:.....

.....

8. Total present population:.....

9. Which are the major ethnic groups in the project village and give percentage of total population

1. ....	%
2. ....	%
3. ....	%
4. ....	%

10. Type of system (open, closed, etc) :.....

11. Route description from district headquarters to the village (in km/hrs walk) | .....

12. Route description from nearest roadhead to the project village (km/hrs walk) .....  
.....  
.....
13. Date of project construction:.....

B. TECHNICAL DATA

1. Intake Structures

- 1.1 Number of intake structures:.....  
Type of source(s),(spring-stream):.....

- 1.2 What is the present yield? .....lps  
Is this sufficient? - Yes  
- No, only seasonally sufficient  
- Not sufficient at all

- 1.3 Are the intake structures leaking? Yes/No  
If yes, why and where is it leaking?.....  
State materials required for repair (quantity, size, length, number etc) .....  
.....  
.....

- 1.4 Is the inlet-channel clean from the stream intake? Yes/No  
State materials required for repair (quantity, size, length, number etc) .....  
.....  
.....

- 1.5 Is a valvebox installed at each intake structure? Yes/No  
If yes, how is the condition of these valve boxes? .....  
If not, is it necessary to install a valve box? Yes/No  
If yes, state the required materials (name, size, length, amount) .....  
.....  
.....



- 1.6 Are there gate valves installed? Yes/No
- If yes, how are the conditions of these valves? .....
- If replacement is necessary, note down the required materials and fittings | .....
- 1.7 Is a proper strainer built? Yes/No
- If not, replacement is necessary. Note down size and type of the required strainer | .....
- 1.8 Are all structures properly covered? Yes/No
- How and with what kind of materials are they covered? .....
- If not covered, note down name, size and amount of the roofing material | .....
- 1.9 Are the intake structures clean? Yes/No
- If not, why not and what kind of dirt is entering .....
- 1.10 Is the source area clean? Yes/No
- If not, why not? .....
- Is the source area fenced against cattle? Yes/No
- If not, raise this problem with the Committee.
- 1.11 Is it necessary to re-build the intake structure? Yes/No
- Is it necessary to build a new intake structure? Yes/No
- If yes, note down the required materials and fittings (name, sizes, etc) | .....

2. Reservoir Tank (R.T.)

2.1 What is the capacity of the RT  
(in m<sup>3</sup>)? .....

Is the present capacity sufficient? Yes/No

2.2 What type of RT it is (ferro/Stone  
masonry etc) .....

2.3 Is the RT leaking? Yes/No

If yes, why and where? .....  
.....

Does the leak cause a shortage  
of water for the system? Yes/No

2.4 Is the RT properly covered? Yes/No

With what kind of materials? .....  
.....

If not, why not? .....

If roofing is necessary,  
note down the required roofing  
materials (name, size, length,  
amount) | .....  
| .....  
| .....

2.5 Is the Inlet properly installed? Yes/No

If not, why not? .....

Is the Outlet properly installed? Yes/No

If not, why not? .....

Is the Washout properly installed? Yes/No

If not, why not? .....

Is the Overflow properly installed? Yes/No

If not, why not? .....

Is the Aeration properly installed? Yes/No

If not, why not? .....

What has to be repaired? .....

Note down the required fittings:.....  
.....  
.....

- 2.6 Is a valve-box/chamber installed? Yes/No  
If yes, how is its condition? .....  
If reconstruction is necessary, note down the required materials (name, size, length, amount) .....  
.....
- 2.7 Are all valves still functioning? Yes/No  
If replacement is necessary, note down the required valves and fittings (name, size, amount, length) .....  
.....
- 2.8 Is the reservoir tank clean? Yes/No  
If not, why not? .....
- 2.9 Is the reservoir tank area clean? Yes/No  
If not, why not? .....  
If not, raise this problem with the Committee.

3. Break Pressure Tanks

- 3.1 Number and places of the BPT(s): .....  
.....
- 3.2 Is a BPT leaking? Yes/No  
If yes, which one, why and how? .....  
.....
- 3.3 Are the inlet, outlet, overflow, washout and float-valve properly installed in each BPT? Yes/No  
Are they functioning? Yes/No  
If not, which and why not? .....  
If replacement is necessary, note down the required valves and fittings:(name, size, length, amount) .....  
.....

3.4 Is a valve-box installed at each BPT? Yes/No

If not, why not? .....

How are the conditions of the valve-boxes? .....

If re-building is necessary, note down the required materials: (name, size, length, amount) .....  
.....  
.....

3.5 Are the BPT-s properly covered? Yes/No

If not, why not? .....

With what kind of material? .....  
.....

If replacement is necessary, note down the required roofing materials: (name, size, amount) .....  
.....  
.....

3.6 Are the BPT-s clean? Yes/No

If not, why not? .....

4. Pipe Line

4.1 What kind of pipe is used in this system? .....  
(note down all sizes, type and quality: GI, HDP 6 or 10kg/cm<sup>2</sup>, PVC) .....  
.....  
.....

4.2 Are there leakages in the pipeline? Yes/No

Are the leakages easy to repair? Yes/No

If not, what is needed to repair certain leaks? .....  
.....  
.....

4.3 Are there exposed parts of pipe in the whole pipeline? Yes/No

If yes, how many percent and are these parts easy to re-dig? Yes/No .....%

If yes, how many meters has to be re-dug? .....

If not, why not? .....

Give an other solution to recover the exposed pipe: .....  
.....

4.4 Are there parts of the pipeline which have to be renewed? Yes/No  
If yes, note down thpe, length and size of the required pipe: .....

4.5 Are river and stream crossings well fixed with GI pipe or suspension structures? Yes/No  
If not, why not? .....  
If not, note down the required materials for replacement: (name, size, length, amount) .....

5. Airvalves - Pipeline Washouts - Control Valves

5.1 How many Airvalves are installed? .....  
How many Washouts are installed? .....  
How many control valves are installed? .....

5.2 Are all these valves functioning? Yes/No  
If not, why not? .....  
Which has to be replaced and why? .....  
If replacement is necessary, note down the required valves and fittings: (name, size, length, amount) .....

5.3 What kind of valve-boxes are built? (masonry cem/mud? GI pipe?).....  
If no valve-box is built, is it still necessary to build valve-boxes? Yes/No  
If yes, note down the required materials: .....

5.4 Are the valve-boxes well covered? Yes/No  
If not, why not? .....  
If not, note down the necessary roofing materials: (name, size, amount) .....

5.5 Are these valves properly used for their purpose? (e.g. washouts) Yes/No  
If not, why not? .....

6. Tapstands (to be inspected with committee member from the tapstand user group)

6.1 Total number of tapstands: .....

How many tapstands are from the original designs? .....

How many tapstands are made later by the villagers themselves? .....

6.2 What kind of tapstands are made? (cem. masonry, wooden posts, mud?) .....

6.3 How is the present condition per tapstand? .....

6.4 Do all taps supply enough water? Yes/No  
If not, why not? .....

6.5 What types of taps are used? .....

How many are not functioning properly of each type? .....

If replacement is necessary, note down type, size and amount of taps: .....

6.7 Is a stopcock installed at each tapstand? Yes/No  
If not, why not? .....

If there are no stopcocks placed at each tap, new ones have to be placed: Noted down the required valves and fittings (type, size, amount) .....

6.8 Is the tapstand area clean? Yes/No  
If not, why not? .....

C. SANITATION

1. Household Latrines

- 1.1 How many household latrines built? .....  
If none, why not? .....
- 1.2 What is the condition of household latrines? .....
- 1.3 Are household latrines properly used? Yes/No  
If not, why not? .....  
Are they clean? Yes/No  
If not, why not? .....

2. Institutional Latrines

- 2.1 Are latrines built at institutional buildings? Yes/No  
If yes, how many? .....  
What type? .....  
If not, why not? .....
- 2.2 What is the condition of institutional latrines? .....  
How full are they? .....  
How old are they? .....
- 2.3 Are institutional latrines properly used? Yes/No  
If not, why not? .....  
Are they clean? Yes/No  
If not, why not? .....

D. MAINTENANCE

1. Name and address of the VMSW .....  
.....
2. Is he doing a good job? Yes/No

3. Does the VMSW get paid? Yes/No
- If yes, who is paying the VMSW .....
- How does the VMSW get his payment? .....  
(in money, or in kind?) .....
- If not, why not? .....

4. Do the whole community feel the responsibility of keeping their water system in a good condition? Yes/No
- If not, why not? .....

E. VILLAGE STORE

1. How are tools, spare parts and materials stored? .....
2. Write down what is stored in the village:
- pipe: type, size and length: .....
  - fittings: name, size, amount .....
  - other materials: .....
  - tools: .....
3. If there are no materials and tools in the village; Give reasons where these materials and tools are? .....
4. Are the stored materials and tools in good condition? Yes/No
- If not, why not? .....

F. COOPERATION OF THE VILLAGE

1. Are the villagers satisfied with the present condition of the water system? Yes/No
2. Are there any quarrels or difficulties among the villagers which may disturb cooperation if external assistance is required? Yes/No
- If yes, what are the problems? .....



MINISTRY OF PANCHAYAT & LOCAL DEVELOPMENTSUGGESTED LIST OF MAINTENANCE  
TOOLS, MATERIALS AND SPARE PARTSA. Tools to be issued to Village Maintenance and Sanitation  
Worker

<u>S.No.</u>	<u>Description</u>	<u>Quantity</u>	<u>Unit</u>
1	Tool box	1	pc
2	Padlock	1	"
3	Heating plate	1	"
4	Teflon cover	1	"
5	Thermochrome	2	"
6	Pipecompound (putty)	1	can
7	Hemp or jute	1	bundle
8	Kerosine stove	1	pc
9	Hacksaw frame	1	"
10	Hacksaw blade	10	"
11	Flat file	1	"
12	Knife (Geberit)	1	"
13	Pliers	1	"
14	Adjustable wrench 10"	1	"
15	Pipe wrench 12"	1	"
16	Pipe wrench 18"	1	"
17	Screwdriver 10"	1	"
18	Tape 3 metre	1	"
19	Hammer 1 kg	1	"
20	Trowel	2	"
21	Finishing trowel	2	"
22	Shovel	4	"
23	Pickaxe	4	"

B. Materials and Spare Parts to be left in the care of the Village Maintenance and Sanitation Worker upon project completion

S.No.	Description	Qty	Unit	Actual Quantity Issued
1	Tap washers (minimum 2 pc per tap installed)	20	pc	
2	Wire (light; 20 SWG)	½	kg	
3	Bolts, nuts, washers (2"x½")	20	pc	
4	Grease	½	kg	
5	Wiremesh (5 mm)			
6	HDP Pipe (only in sizes and classes used)			
	50; 63, 90 mm	10	mtr (min)	
	20; 25, 32, 40 mm	20	" "	
7	HDP Pipe Fittings - 10% of quantity installed (min 1 pc)			
8	Brass Unions	"	"	"
9	GI Fittings	"	"	"
10	Gate Valves		minimum 1 piece	
11	Globe Valves		20% of quantity installed (min 2 pc)	

C. Miscellaneous items to be issued to the Village  
Maintenance and Sanitation Worker

<u>S.No.</u>	<u>Description</u>	<u>Qty</u>	<u>Unit</u>	<u>Actual Quantity Issued</u>
1	Flash-light (+ batteries)	1	pc	
2	Maintenance Log-book	1	pc	
3	Routine Maintenance Checklist	1	pc	
4	Other			
5				
6				
7				
8				
9				
10				

The above listed tools, spare parts and materials have  
been received by ..... Village Maintenance  
and Sanitation Worker

issued by ..... Overseer/Engineer

Witnessed by ..... Chairman, Village  
Maintenance and  
Sanitation Committee

Date: .....



MINISTRY OF PANCHAYAT AND LOCAL DEVELOPMENT  
SUGGESTED PROCEDURES FOR MAINTENANCE AND SANITATION  
TECHNICIAN DURING VILLAGE VISITS (TRANSITION PERIOD)

I. Initial Visit

1. Obtain information on project history from supervisor.
2. Obtain introduction letter for the Village Panchayat from District Panchayat.
3. Proceed to village with project file, forms and tools.
4. Inform Pradhan Pancha and/or Construction Committee Chairman of arrival and briefly outline Maintenance Programme.
5. Familiarize self with the system, its condition and problems and the general attitude of the villagers towards their system.
6. Request a public meeting to be called to explain the Maintenance Programme to the village.
7. Conduct public meeting as follows:
  - a. Briefly outline the Maintenance Programme.
  - b. Explain the need for establishing a Village Maintenance and Sanitation Committee (VMSC) and appointing a Village Maintenance and Sanitation Worker (VMSW).
  - c. Explain the criteria and procedure for selecting VMSC members.
8. Assist in forming VMSC and ensure the signing of the Village Maintenance Agreement (see Annex C).
9. Explain the duties and responsibilities of VMSC and VMSW.
10. Assist the VMSC to select the VMSW.
11. Assist the VMSC in concluding the contract agreement with VMSW and in establishing a remuneration system for VMSW.
12. In selecting the VMSW the following guidelines should be observed:
  - a. He should have a genuine and demonstrated interest in the maintenance and proper use of the system.
  - b. He should have an aptitude for the work required.
  - c. He should have a dependable, responsible nature.
  - d. He should be residing in the area covered by the system.

13. Conduct inspection and maintenance tour of the system with the selected VMSW and the VMSC and:
  - a. Refer to maintenance checklist (see Annex G) and demonstrate proper inspection and maintenance procedures to VMSW.
  - b. Demonstrate tapstand maintenance to each VMSC member and the tapstand user group.
  
14. Train VMSW in the proper performance of his duties and responsibilities (see Annex D).

## II. Subsequent Village Visits

1. Inform VMSW and VMSC Chairman of arrival.
2. Request a meeting of VMSC be called.
3. Conduct a detailed status survey of the system with the VMSW at least annually, using standard form (Annex H).
4. On more frequent visits, inspect the system following the VMSW Routine Inspection Checklist:
  - a. Assess and comment on the VMSW's work.
  - b. Continue to train and encourage the VMSW in proper inspection and maintenance procedures and instruct him on action to be taken.
5. Attend VMSC meeting:
  - a. Report on condition of system.
  - b. Report on VMSW's performance.
  - c. Briefly re-emphasize aims of the Maintenance Programme and give encouragement to VMSC and VMSW.
  - d. Assist in resolving any problems relating to the system and the maintenance programme.
6. Train the VMSW:
  - a. Informally test VMSW on material previously presented.
  - b. Review and introduce new materials.
  - c. Check the condition and quantities of spare parts, tools and materials.

SECTION 4SUMMARY OF CONFERENCE PROCEEDINGS1. Conference AgendaWednesday 6 October

- Session 1 - Official opening session.  
Inauguration by Kaski District Panchayat  
Chairman, Mr Ambar Bahadur Karki.
- Opening speeches by:
- Mr G.L. Shrestha, Regional Director,  
Regional Directorate, MPLD, Pokhara.
  - Mr K.B. Sharma, Under Secretary,  
MPLD, Kathmandu.
  - Mr C. Glennie, Project Officer,  
UNICEF, Kathmandu.
  - Mr K. Khoschashm, WHO Advisor,  
MPLD, Kathmandu.
  - Mr J.B. Shrestha, Regional Director,  
Regional Directorate, MPLD, Kathmandu.
  - Mr R.K. Shrestha, Principal,  
PDTA, Pokhara.
  - Mr A.B. Karki, Chairman,  
Kaski District Panchayat.
  - Mr C.B. Pradhanang, Superintending Engineer,  
MPLD, Kathmandu.
- Session 2 - Mid & Far Western Region  
Maintenance Programme Proposal presented  
and discussed.
- Western Region Maintenance Programme  
Proposal presented and discussed.
  - Central Region Maintenance Programme  
Proposal presented and discussed.
- Session 3 - Eastern Region Maintenance Programme  
Proposal presented and discussed.

Session 4 - Group discussions on following topics:

- Routine maintenance or rehabilitation
- Transfer of Maintenance to DTO directly or in stages
- Revenue collection

Thursday 7 October

Session 1 - Presentation of the responsibilities of the Village as laid down in the Mid & Far West Proposals.

Group discussions and report

Session 2 - The Mid & Far Western Region presented the role of the Field Office (transition phase) and of the District Panchayat (transition and final phase) as laid down in the Maintenance Proposals.

Group discussions and report

A working committee was appointed to collect the results of the group discussion and compile a comprehensive consensus of the responsibilities at all levels.

Session 3 - All Regions presented their respective views on the role of the Regional Office.

Session 4 - The role of Central Office (Ministry) was discussed.

The working committee presented a draft consensus of the responsibilities at all levels (Village; District; Regional Field Office).

2. Summary of Maintenance Programme Proposal presented by Mid and Far Western Regional Directorates

The proposal consists of a four-year plan envisaging the setting up, expansion and gradual handover to the District authorities of a village level maintenance and sanitation programme.

- During the first year the Programme will be started in selected villages in all three Noted areas.

Two Maintenance Technicians will be assigned to each Noted area and supervision will be done by a Maintenance Co-ordinator.

- During the second year the Programme will be expanded to other villages and include procedures for major repair work. One overseer is to be assigned to each Noted area. The number of Maintenance Technicians will be increased.



- During the third year, the management and operational maintenance component will be handed over to the District Offices.
- During the fourth year, the whole responsibility will be transferred to the District Offices.

Emphasis will be on developing procedures and organization for the Programme.

Eventually, the Programme envisages the assignment of one Maintenance Technician to each District in the Noted areas.

### 3. Summary and Maintenance Programme Proposal presented by Western Regional Directorate

As a follow-up of the 1980 Jhapa Conference, this RD executed a detailed investigation of water supply systems completed under its supervision. The report was entitled "Proposal for a Feasible Maintenance and Repair Management System of the Rural Community Water Supply and Sanitation Programme" written by Mr Walter Schramm of German Volunteer Service and Mr Lekh Bahadur Gurung of MPLD-RD Pokhara.

#### The distressing findings

1. The physical condition of Water Supply System, built by MPLD-RD Pokhara in the Western Development Region, is not satisfactory, especially with regard to operation and maintenance. Out of 45 CWSS projects only approximately 10% of all investigated structures do not need any repair.
2. The fruitful impact of the Noted Project Programme with its standardization, which has been implemented from 1977/78 should be noted. About 80% of the assessed structures of previous regular projects require major repairs or rehabilitation compared to only 35% of standardized ones.
3. Next to the standardization more experienced and better trained technical manpower has to get some credit too. Shortcomings in construction still occur in extremely high percentage. That means that our experienced technical staff still need training. Hence refresher courses, seminars, in-service training or workshops are seriously justified at all levels. Especially work on spring/stream catchment, valve chambers, manhole covers, rivercrossing as well as tapstands should be concentrated upon.
4. At present maintenance arrangements for CWSS projects are very poor, not appropriate, not coordinated and not supported by any structure. Activities partly performed are little effective because they are not combined in a wider concept. The assumed HMG-maintenance policies furthermore are of a paperwork nature, not sufficiently reflecting panchayat or project conditions.

This proposal for a Maintenance Programme revolves around the Village Maintenance and Sanitation Committee (VMSC), (here called 'Water Committee') and the Village Maintenance and Sanitation Worker (VMSW). The preventive maintenance on the CWSS system should be done by this VMSW.

Major repairs and rehabilitation will be done with support of the RD-Maintenance Section after a request forwarded from the Village Panchayat through the LDO/District Panchayat. The RD will need to set up a well-equipped and well-manned maintenance section which can assist in maintenance and rehabilitation as well as supervision of completed systems.

#### 4. Summary of Maintenance Programme Proposal presented by Central Regional Directorate

A thorough investigation of the state 31 CWS systems constructed under the supervision of the Central Office was conducted in 1981-82, resulting in a report "Proposal for a Feasible Maintenance and Repair Organization (Central Region)" by Bor Van Ommen (Dutch Volunteer Service).

##### The Findings

1. Over 70% of the systems evaluated showed major flaws; hampering the proper functioning of the systems.
2. The lack of standardization can be blamed for a major part of these flaws.
3. About 30% of the systems checked had a Maintenance worker assigned.

##### The Approach to Maintenance

The proposed procedures have been divided in three phases covering a five year period:

Phase I : Establish a Maintenance Section on Regional level. Compile programme procedures, planning and solve admin problems. This period should take 6 months.

Phase II : Repair and rehabilitation of all CWS systems completed in the period 1971-81 by the Regional Directorate. This period should take 4 years.

Phase III A: Prepare the District authorities to take over the Programme.

Phase III B: Conduct VMSW-training and courses for District level technical staff. Upon completion the District Office would assume responsibility for the Programme.

The set up of the Maintenance Programme follows the guidelines of the 1980 Jhapa Conference. It includes the responsibilities of the Villagers as well as external parties on National, Regional and District level.

LIST OF PARTICIPANTSMPLD, Kathmandu

1. Mr Santa Bahadur Rai - Additional Secretary
2. Mr Chandra Bahadur Pradhanang - Superintending Engineer
3. Mr Krishna Bhadra Sharma - Under Secretary
4. Mr Indra Bahadur Mali - Section Officer
5. Mr Arjun Narsing Rayamajhi - Engineer
6. Mr Rabindra Man Singh - Engineer
7. Mr Kuldeep Ratna Tuladhar - Engineer
8. Mr Santosh Pathak - Engineer
9. Mr Birat Man Pradhan - Engineer

MPLD Regional Office, Eastern Region

1. Mr Krishna Prasad Ojha - Section Officer
2. Mr Narendra Baral - Engineer

MPLD Regional Office, Central Region

1. Mr Jagannath Bhakta Shrestha - Regional Director
2. Mr Amrit Man Palikhe - Engineer

MPLD Regional Office, Western Region

1. Mr Govinda Lal Shrestha - Regional Director
2. Mr Mangal Bahadur Shrestha - Engineer
3. Mr Rudra Nath Adhikari - Section Officer
4. Mr Moti Lal Pandey - Engineer

MPLD Regional Office, Mid-Western Region

1. Mr Thum Raj Shrestha - Overseer

MPLD Regional Office, Far-Western Region

1. Mr Jiva Nath Regmi - Section Officer

WHO

1. Mr K. Khoschashm - Sanitary Engineer
2. Mr A.P. Hirano - Sanitary Engineer

UNICEF

1. Mr Colin Glennie - Project Officer
2. Mr Datta Tray Roy - Assistant PSC Officer
3. Ms Vanessa Tobin - Sanitation Officer

UNICEF Field Offices

- |    |                             |  |
|----|-----------------------------|--|
| 1. | Mr Larry Robertson          | - Project Officer,<br>Tubewell Project |
| 2. | Mr Henk van Norden          | - Project Officer,<br>Biratnagar       |
| 3. | Mr Bhai Raja Sakya          | - Project Officer,<br>Nepalgunj        |
| 4. | Mr Niranjan Lal Shrestha    | - Asst Project Officer,<br>Ilam        |
| 5. | Mr Bijaya Gopal Rajbhandari | - Asst Project Officer,<br>Chaurjahari |
| 6. | Mr Rajendra Sakya           | - Asst Project Officer,<br>Dadeldhura  |
| 7. | Mr Naresh Jung Gurung       | - Regional Field Officer,<br>Pokhara   |

SATA

- |    |                       |                                     |
|----|-----------------------|-------------------------------------|
| 1. | Mr Han Heijnen        | - Project Manager,<br>CWSS, Pokhara |
| 2. | Mr Raj Kaji Ranjitkar | - Engineer,<br>CWSS, Pokhara        |

SNV

- |    |                         |                      |
|----|-------------------------|----------------------|
| 1. | Mr Adarsha Man Tuladhar | - Programme Officer  |
| 2. | Mr Bor Van Omen         | - SNV Central Region |

GVS

- |    |                       |               |
|----|-----------------------|---------------|
| 1. | Mr Gerhard Dernbecher | - PTC Pokhara |
|----|-----------------------|---------------|

VSO

- |    |                 |        |
|----|-----------------|--------|
| 1. | Mr David Slater | - MPLD |
|----|-----------------|--------|

Department of Water Supply and Sewerage

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|----|-------------------------|----------|
| 1. | Mr Shiva Ratna Rajbahak | - Gorkha |
| 2. | Mr Dev Ratna Sakya      | - Butwal |

Local Development Officers

- |    |                         |                            |
|----|-------------------------|----------------------------|
| 1. | Mr Bhakti Bilas Subedi  | - Acting LDO (Nawalparasi) |
| 2. | Mr Parsu Ram Bhari      | - " " (Rupandehi)          |
| 3. | Mr Shyam Sundar Gubhaju | - " " (Kaski)              |
| 4. | Mr Sthane Swar Sharma   | - " " (Palpa)              |
| 5. | Mr Rama Dev Joshi       | - " " (Manang)             |
| 6. | Mr Ganesh Prasad Paudel | - " " (Gulmi)              |
| 7. | Mr Hari Prasad Adhikari | - " " (Baglung)            |

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|-----|-----------------------|-----------------------|
| 8.  | Mr Mohan Prasad Regmi | - Acting LDO (Myagdi) |
| 9.  | Mr Ram Sharan Sharma  | - " " (Tanahun)       |
| 10. | Mr Harihar Sharma     | - " " (Lamjung)       |
| 11. | Mr Mada Nath Khanal   | - " " (Gorkha)        |

Ministry of Health

- |    |                        |              |
|----|------------------------|--------------|
| 1. | Mr Badri Nath Shrestha | - Sanitarian |
|----|------------------------|--------------|

Observers

- |    |                          |                          |
|----|--------------------------|--------------------------|
| 1. | Mr Bishnu Hari Binaya    | - Overseer, MPLD Pokhara |
| 2. | Mr Birendra Prasad Shaha | - " " "                  |
| 3. | Mr Gajendra Sing Pun     | - " " "                  |

Guests

- |    |                       |  |
|----|-----------------------|--|
| 1. | Mr Amar Bahadur Karki | - President,<br>Kaski District Panchayat |
| 2. | Mr Ram Kumar Shrestha | - Principal, PTC                         |



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