REPORT

OF THE WORKSHOP
FOR DANIDA ADVISERS
ON
HANDPUMP MAINTENANCE SYSTEMS
IN
DANIDA SUPPORTED PROJECTS IN INDIA

BHOPAL, AUGUST 6th TO 12th, 1988

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INTRODUCTION

All the DANIDA supported rural drinking water supply projects have a common objective - viz. to provide safe, potable drinking water to people in problem villages in the rural areas in India. Since about 80 per cent of the preventable diseases are related to the consumption of polluted water, the programme of supplying pure water for drinking and other domestic purposes is intended to have a direct beneficial impact on the health of the people.

While all the DANIDA drinking water supply projects have this common objective, the modalities of implementation of the projects vary from State to State. In Orissa, a full-fledged Project Directorate with several Danish Advisers and a large complement of engineering and socio-economic staff is attempting to develop an integrated programme which ensures the local participation of the user communities and village artisans to make the entire project more participatory, and thus prepare the way for its sustainability after the external support ceases. In Madhya Pradesh, on the other hand, a single Adviser with a very small team of helpers has to contend with the bewildering intricacies of a bureaucratic machinery which is even a challenge to the hard-boiled bureaucrats who operate the system. In Tamil Nadu, a couple of Advisers can do little more than offer advice. In Karnataka, the Adviser can proffer his advice only at a secondary level and hope that the advice will percolate upwards to influence policy making. He does not have direct access to the policy makers, except informally.

Under these varied operational circumstances, the actual implementation of the projects reflect the specific constraints faced by the different Danida Advisers. Resistance to innovative strategies and more efficient methods is common to all the Danida assisted projects, but the differences in the operational flexibility available to the Advisers affects their morale as well as their ability to faithfully implement the plans of operation to which they are committed.

Each of the Advisers reports vertically to the Danida Mission in New Delhi, and solicits support from the Mission when bottle-necks involve policies and Bilateral Agreements. Depending on the nature and frequency of occurrence of problems, Danida Mission staff visit the projects. Such visits vary in duration,scope of work and frequency.

Due to the preponderance of the vertical relationship of Advisers to the Danida Mission, there was not much opportunity for dialogue among the Advisers in the water sector. Apart from casual sharing of information, there was no systematic machinery for lateral communications to discover whether there were common problems faced by the various projects, and whether it was possible to evolve a common approach to these common problems.

On the initiative of Frede Engelund, Adviser to the Madhya Pradesh Project, the Danida Mission proposed the idea of a Workshop for Danida Advisers to all the Advisers. A tentative plan indicating the framework of the discussions and a schedule for the Workshop was circulated to all the Advisers in the water sector in Orissa, Kerala, Karnataka and Tamil Nadu. The idea was received with enthusiasm. Mr. Paul E. Christensen, Counsellor Development, supported the idea

from the very beginning and gave it his full encouragement. Although this Workshop was not included in the annual plan of Workshops and Training Courses which was prepared in the beginning of the year, it came to be realised because of the spontaneous response from the Advisers and the encouragement of Mr. Christensen.

The Workshop for Danida Advisers took place in Bhopal from August 6th. to 12th,, 1988. The discussions were concentrated and intense. Each Adviser had ample time to make his/her presentation on the topic of the day. The discussions which followed each topic were frank and extensive. The spirit which prevailed during the Workshop was very cordial and mutually supportive. Differences of opinion were expressed without rancour and different approaches were accepted with mutual respect.

It is hoped that the present Report will serve not only to present to a wider audience the substance of the discussions at the Workshop, but also to document the need for regular meetings of Advisers focussed on specific issues. One of the strongest recommendations emerging from this Workshop is for continuing this practice regularly.

I would like to extend my sincere thanks to all the participants for cooperating in the preparation of this Report.

New Delhi, September, 1988.

Averthanus L. D'Souza.
Consultant.

CARETAKERS

- IDENTIFICATION
- SELECTION
- TRAINING
- RESPONSIBILITIES

DAY 1

CARETAKERS TRAINING

Aims & Objectives:

In Madhya Pradesh the districts of Chhindwara and Raipur were chosen for implementation of the 3-Tier Maintenance System. In Chhindwara district there are 5,455 handpumps, and in Raipur there are 6,956 handpumps. According to the agreement, each handpump should have its own caretaker. Hence, 12,000 caretakers will have to be trained under this project.

Since this is not a simple task, a detailed action plan was prepared for organizing the caretakers' training. A uniform caretakers' training course content was also made. The following system has been formulated after many trials.

Implementation:

Prior to any training, a district level meeting was organized at the Collectorate, Chhindwara, where all the heads and other staff members of different departments were present. The Chief Engineer, PHED, MP, and the Counsellor (Development) Danida New Delhi, also attended the meeting. The purpose of this meeting was to acquaint the Government officials about the aims & objectives of the Danida Projects. In this meeting it was also decided in which sub-division, the caretakers' training programme should begin. One of the three blocks of a sub-division was identified for the implementation of caretakers' training programme.

Selection of Caretakers:

A One Day Orientation meeting was organized with all PHED staff members of the block. A block has about 300 to 400 handpumps, about 8 mechanics and 7 other staff members. A Manual "One Day Orientation" has been prepared and this manual is followed throughout the day. One of the exercises during the day is to identify 2-3 mechanics,who will receive training to become trainers of the caretakers. During this One Day Orientation programme, all the mechanics are trained on "How to Approach villagers" (Sarpanch and user community), so that they can explain to the villagers how they should select a caretaker from amongst themselves. It is the handpump users' community which selects the caretakers. The mechanic who is the coordinator, involves the Sarpanch in explaining the caretakers' selection criteria to the users' community. The selected caretakers are then invited to attend the two-days' training camp.

While the rest of the mechanics are coordinating the caretakers' selection, the selected mechanics receive Trainers' Training so that they can train the caretakers at the caretakers training camp. To train these mechanics, a training programme has been prepared viz. "Trainers' Training Programme". After the completion of this training programme, the selected mechanics are capable and have confidence to conduct the caretakers' training camp.

The advantage of training the block mechanics as caretakers' trainers is that since the installation of new handpumps is an ongoing process, the trained trainer mechanics, who are based at the block and are well qualified to train newly selected caretakers will be able to ensure the future sustainability of the project.

Caretakers' Training Camp:

Prior to the camp, all the selected caretakers are registered in a proper attendance record sheet. The attendance of the caretakers is marked at the time of reporting at the camp venue. The trainers have to follow the prescribed schedule for the training camp. A video film is also used for training on the health aspects (Water borne diseases etc). In the afternoon session of the first day, the caretakers are taken to a handpump site for practical demonstration where they are asked their opinions about the hygienic surroundings and what they have been taught during the day. Some Caretakers will state that 'drain is not working properly', while others may say 'the drain is not long enough.', and some may point to 'the stagnant water around the handpump'.

The trainer will seek suggestions from the group about what should be done to improve the handpump's surroundings. The caretaker will suggest that the drain be extended and cleaned and the pools of stagnant water be paved up by stones etc. The trainer will suggest,"why do we not do it now?".

By following this practical exercise, the caretakers will improve a handpump site and it will be easier for them to transfer this knowledge for the improvement of their own handpump sites.

In Madhya Pradesh the caretakers do not receive any spanners for tightening nuts and bolts, because during our survey it was observed that in the areas where the caretakers do not have spanners and in areas where they were provided

with spanners, the percentage of loose nuts & bolts were the same, which indicates that the spanners are not used effectively.

Keeping the above in view and considering that the caretakers are voluntary workers, it was decided not to give them spanners because in Madhya Pradesh the caretaker is responsible for reporting break-downs as well as to keep the handpump surroundings always in a hygienic condition.

Manuals used:

1. One Day Orientation.
2. Selection of Caretakers.
3. Trainers' Training Manual.
4. Trainers' Handbook (Caretakers' Training Content).

SUMMARY OF DISCUSSIONS

After the presentations, there was discussion around the following issues:

1. Duration of Training:

The feasibility of reducing the 2-days caretakers' training course to one day.

2. Cost of Training:

In Tamil Nadu and Madhya Pradesh the cost of training caretakers is approximately Rs.100/- per person and the entire cost is borne by the project. There was apprehension that the PHED/DRD will not be able to bear this expenditure when the project is handed over. In this context, the one-day programme was seen as a solution.

In Karnataka, the expense is around Rs.80/- per person out of which Rs.30/- is borne by the PHED, towards costs of rent, food, and transport for the caretakers.

3. Voluntary Caretaker:

The commitment of volunteer caretakers was questioned. It was felt that the possibility of payment of some kind of honorarium to the caretakers should be explored. In this context the possibility of community contribution towards maintenance costs was also discussed. It was realized that the feasibility of establishing such a system of community contributions was doubtful.

4. Male Vs Female Caretakers:

In Karnataka, out of the over 8000 caretakers trained, more than 5000 are females and it was suggested that women caretakers be identified in all the projects where voluntary caretakers are proposed. It was felt that mixed groups of male and female caretakers should be trained wherever socio-cultural conditions permitted. The Bangalore office of Danida, however, is convinced that it will not be acceptable to caretakers to be trained in mixed groups.

5. Selection of caretakers for new installations:

It was urged that a system of identification and training of care takers be built into the maintenance system for new installations as and when they are added, as it is done in M.P. This was considered important to keep pace with the ongoing program of installations in a district.

In Karnataka, training courses for new caretakers includes replacements for drop-outs of caretakers who were trained in earlier courses.

6. Mobile offices:

The system developed in M.P. of using a "mobile office" (a large box with separate compartments for each form and for equipment) to be used in the caretakers training programme was appreciated and it might find application in the other projects.

7. Maintenance Responsibilities:

The question of assigning responsibility for both reporting and preventive maintenance to caretakers was discussed at length. In Karnataka the caretaker does both tasks whereas in M.P., the caretaker is merely expected to report and record breakdowns. However, no conclusion was reached since each system had its own merits.

MECHANICS

- SELECTION
- TRAINING
- TOOLS
- RESPONSIBILITIES
- SUPPORT SYSTEMS

DAY 2

SECOND TIER - 'THE MECHANIC'

A handpump mechanic is a Government employee with a diploma from an I.T.I. either in Fitter or Turner trades. This is the prescribed minimum qualification for the appointment of a handpump mechanic. These handpump mechanics are posted at block level. According to the Government's norms, each mechanic should look after approximately 30 handpumps, depending upon the local population density and geographical conditions. In this context an analysis of the mechanics was carried out and the major findings were:

1. each mechanic has about 70 handpumps to look after.
2. the mechanic does not have any tools.
3. lack of spare parts was a continuous problem.
4. At the time of lifting the pump assembly out of the tube well, it is difficult for the mechanic to find qualified helpers to assist him--especially at the time when the ground water level is decreasing and more riser pipes have to be added to the pump assembly, which obviously will make the pump assembly heavier.

In view of the above findings, a four days mechanic's training workshop has been prepared. The objective of this workshop is not to train the mechanics on how to repair handpumps as such, but to guide them on how to organize their work routine so that they can efficiently lookafter the large number of handpumps allocated to them and can perform preventive maintenance as well.

To overcome this problem of maintaining a large number of handpumps allocated to the mechanics, a grouping

system has been developed according to which, if a mechanic has 60 handpumps to look after, he can group them into A-B-C groups. Each month the mechanic will visit 20 handpumps for servicing, preventive maintenance and any necessary repairs to the handpumps.Apart from this he will also undertake any emergency repairs to all the handpumps reported by the caretakers during the month. Consequently, in three months all his 60 handpumps will be visited and necessary greasing and tightening of nuts and bolts or any adjustment (Preventive Maintenance) will also be carried out.

A maintenance tools kit has also been developed in consultation with and involvement of the mechanics. It is very important to distinguish between installation tools and maintenance tools. It is equally important that the maintenance tools kit is as light as possible since a mechanic has to carry it on a bicycle. In this regard, Danida, Madhya Pradesh has modified a pipe vice and the weight of the vice has been reduced tremendously. Also a long Pin Punch Drive has been added to the kit, so it is easier for the mechanic to replace the bearing which is normally a problem.

At the time of training,the above mentioned tools kit as well as some spare parts will also be provided to each PHED mechanic. During the four days workshop for the mechanics there will be practical demonstration at any handpump site. In this demonstration, the mechanics will lift out the handpump assembly and afterwards a group discussion will be held with the intention that every mechanic can learn from each others' experiences.

To monitor the mechanics' activities like repairing a handpump (Emergency Repairs - when a post card is received from the caretaker), servicing of a handpump during the month (Preventive Maintenance), spare parts used during the month etc., (these spare parts should be replaced for repairs undertaken for the next month), a Monitoring System has been introduced, which will be explained under the section on Monitoring System.

The Mechanics have been supplied with the following:

1. 4- days Training Workshop
2. Maintenance Tools Kit
3. Spare parts
4. Monthly Progress Report Book
5. Monthly Progress Report of Spare Parts
6. Completion Report Book
7. One day Training on Monitoring System(Proformas).

SUMMARY OF DISCUSSIONS

The following issues were discussed:

1. Numbers of Pumps under a Mechanic:

In M.P. the norm is 30-40 pumps per mechanic, but when the rate of construction of tubewells went up under the drought program, the number of pumps per mechanic went up unrealistically.

It was also observed that all the mechanics usually had to maintain a higher number of pumps than stipulated. The group recommended that the norms prescribed by the Government should be adhered to rather than overloading mechanics with additional pumps especially in seasons when breakdown frequencies are higher.

2. Provision of tools:

It was observed that the government departments do not supply proper maintenance tool kits inspite of having agreed to do so. Since tool kits were not forthcoming from the government of M.P., DANIDA has supplied the tool kits for the project to start. It is felt that the Government should be urged to provide the proper maintenance tool kits since it has agreed to do so.

3. Distinction between Installation and Maintenance Tools:

The question of tools necessary for maintenance by the mechanics was discussed. The maintenance tools to be used by the mechanics has been worked out by the M.P.

Project. These tools were displayed in the conference hall and were examined. It was recommended that a distinction be made between "Installation tools" and "maintenance tools" since the latter is what the mechanic requires. The weight of this kit should be as light as possible so that it can be carried on a bicycle over village roads.

4. Light weight special tools:

The M.P. project has developed a light weight Riser Pipe clamp with replaceable jaws. The introduction of this tool has substantially reduced the weight of the maintenance tool kit carried by the mechanic. If any such improvisations have been made in other projects, these should be circulated so that all projects can benefit. Such efforts should be an integral part of the experiments with maintenance systems in the different DANIDA projects.

An important point that emerged from the discussions is that by distinguishing between installation tools and maintenance tools and by improvising special tools, the cost of the tool kits as well as its weight can be reduced substantially.

5. Training of Mechanics:

In Tamil Nadu no arrangements existed until recently for training of mechanics. Recently M/s.Richardson & Cruddas have been approached to conduct their standard mechanics training course, which is expensive. The Tamil Nadu project could explore the possibility of

utilizing training resources available within other projects e.g. M.P. or Orissa as they have already developed and tested some of their training packages.

6. Maintenance Orientation:

The orientation of representatives from the government departments/local bodies responsible for maintenance was discussed. It was recommended that such efforts should be encouraged since this would create an awareness regarding the need for a maintenance system for rural water supply projects.

7. Payment to mechanics :

The Orissa Project has developed a system of payment to the mechanics through the local branches of Banks. The amount to be paid is sanctioned by the PHED officers after certification by the Panchayat Presidents and the amount is deposited in the bank to the credit of the mechanic. This enables him to withdraw the amount at his convenience.

MOBILE MAINTENANCE UNITS

- CHOICE OF VEHICLES
- TOOLS
- TRAINING OF CREWS
- STAFFING

THIRD TIER "THE MOBILE UNIT"

The Mobile Maintenance Unit, which is the third tier of the Danida/PHED 3-Tier Maintenance System, will be provided to the PHED, According to the agreed criteria the Mobile Maintenance Unit will look after approximately 500 handpumps and will also be used for the construction and repairs of platforms and drains. It was also agreed that the PHED, MP will appoint the necessary staff for the Mobile Unit. The prescribed staffing of the Mobile Maintenance Unit is as follows:

One Mechanic
One Mason
One Driver
Two Helpers

In Madhya Pradesh, two TATA 407 (light truck) and two Tractor Units with trailers have been provided to PHED for testing their efficiency, durability and versatility as Mobile Maintenance Units. According to discussions in the field with some PHED officers, the Tractor and trailer unit is more versatile than a truck, especially in rural areas where approach roads to villages are a problem. The maintenance cost is also lower on a Tractor unit. Both the light trucks and the tractor with trailor have been fitted with canvas hoods, fixed tool boxes and a pipe rack for extra 32 mm G.I.pipes, A platform has been made where the vice can be fixed, so that the mechanic can stand on the ground and by using this vice he can do any necessary fittings as well as thread the riser pipes and the connecting rods. By providing this

additional facility, along with the necessary tools to the "Mobile Workshop", it is expected that the standard of repairs will be improved.

The Mobile Unit has been equipped with the following tools:

Standard tools
Masonry tools
Special tools
Tripod and block
Spare parts
Fishing tools

Apart from its capability of undertaking installation of pumps and construction of platforms, the Mobile Unit is equipped to carry out major repairs of handpumps and repairs of platforms.

SUMMARY OF DISCUSSIONS

The following issues were discussed:

1. Choice of Vehicle:

The choice of the type of vehicle emerged as a crucial issue. For instance, it turned out that a mini-truck is more likely to be misused as compared to a tractor and trailer. The latter choice is likely to be more suitable for the country roads especially during the monsoons. Similarly the use of power tillers (small tractors) with trailers could be considered for difficult terrain such as Bastar.

2. Tools:

It was considered necessary for a set of standard tools to be available in each mobile unit for carrying out repairs.

Karnataka reported that Danida had supplied 41 Allwyn Nissan trucks equipped with one set of special handpump tools each.

3. Training of Staff:

It was learnt that Allwyns and Tatas who are supplying the vehicles for the Mobile Teams have undertaken to train the drivers in maintaining the vehicles. This is a commendable step and should be encouraged.

4. Staffing of Mobile Team:

The government departments involved in the maintenance system should appoint permanent crews for the mobile units. The recommended crew is as follows:

Driver	1
Mechanic	1
Mason	3
Helpers	2

The government of M.P. has agreed to provide the staff on the above pattern, but this has not been put into practice. It is recommended that DANIDA should take up the issue at a higher level in the Government to ensure its implementation.

MONITORING SYSTEMS

DAY 3

THREE TIER MONITORING SYSTEM

It was realized at an early stage that a Monitoring System is necessary to monitor each function of the 3-Tier Maintenance System. While conducting Caretakers' Training camps, it was noticed that the caretakers had begun to mail the postcards supplied to them when breakdowns occurred, but there was 1) no record of the postcards received and it was 2) not possible to verify whether the reported handpumps were repaired. Also it was not possible to check whether the mechanic had carried out any 3) preventive maintenance and if so, how many, and what 4) types of spare parts had been used during the month, There was no way of projecting the requirement of spare parts for the next few months. In view of this, a Monitoring system was developed to monitor the following different activities:

1. To monitor the activities of the mechanics and record the actual repairs and servicing of the handpumps a "Caretaker Log-sheet" was provided to the caretakers who keep this at the handpump site. Both, the mechanic and the caretaker record any repairs or visits to the handpump.

2. An Inward Register has been provided to PHED block headquarters for recording the postcards received.

3. A Completion Report Book has been provided to each mechanic. The Sub-engineer receives the postcard from a caretaker, which is recorded at the PHED office in the "Inward Register". He also records this breakdown in his Log-sheet at the PHED office. After recording the details, the sub-engineer despatches the postcard

to the concerned mechanic through a Messenger Motor Cycle daily. The messenger visits each mechanic in his headquarters every day and delivers the caretaker's postcard and messages from the sub-engineer. He also carries back any messages from the mechanics to the sub-engineer. Thus, the messenger is a daily link between the sub-engineer and the mechanics. When a mechanic receives the post card from his sub-engineer, he straight away goes and repairs the handpump in question. After completion of the repair work the mechanic fills-up the "Completion Report" and gets the signature of the village Sarpanch. This completion report along with the postcard is returned by the mechanic through the messenger to the concerned sub-engineer, who thus knows that the repair work has been completed.

Moreover the mechanic has to make preplanned and regular visits for preventive maintenance of the handpumps allocated to him. For this, a Grouping system for handpumps, i.e. A-B or A-B-C has been developed. The mechanic submits a Monthly progress report to his sub-engineer along with the monthly spare parts report. These reports, the sub-engineer receives from all the mechanics of his block, which gives him a clear picture about the state of the handpumps in the block.

The mechanics are provided with the following books :

1 - Completion Report Book.
2 - Monthly Progress Report for Mechanics.
3 - Monthly Spare Parts Report.

The Sub-engineer receives a Monthly Progress Report from all the mechanics along with the Monthly Spare parts report. He then compiles these reports into one report

This is a consolidated Monthly Progress Report for the Block, as well as a report for the total quantity of spare parts used in the block during the month.

The sub-engineers are provided with the following formats:

1. Inward Register
2. Handpump Log-sheet
3. Monthly Progress Report for the Block
4. Monthly Progress Report for the Mobile Unit.
5. Monthly Progress report for Spare Parts.
6. Handpump Directory (Numbering of handpump system).

Sub-Divisional Level:

The Assistant Engineer, at the sub-divisional level receives monthly progress reports from all the blocks under his jurisdiction, which are:

1. Monthly Progress Reports for the blocks.
2. Monthly Spare parts reports for the blocks.

The Assistant Engineer compiles a consolidated sub-divisional report along with his comments on the progress achieved during the month and forwards this report to his Executive Engineer at the Divisional level.

The Assistant Engineers are provided with the following formats:

1. Monthly Progress Report for the Sub-division.
2. Monthly Spare parts report for the Sub-division.

Divisional Level:

The Executive Engineer of the Division scrutinizes the reports received from each of the sub-divisions under his jurisdiction along with the comments of the Assistant Engineers. He then compiles all the reports from the sub-divisions and prepares a divisional level progress report.

The Executive Engineers are provided with the following formats:

1. Monthly Progress Report for the District.
2. Monthly Spare parts report for the District.

The Executive Engineer scrutinizes and compares the previous month's report and makes a consolidated report on his findings and forwards the report to his Superintending Engineer and the Chief Engineer at PHED Headquarters, Bhopal.

The Chief Engineer then takes necessary action on this report.

Numbering System:

To make the Monitoring System easier, a Numbering System has been introduced. Each village has been alloted 5 numbers in sequence e.g.

Village		Handpump Number	Remarks
Sagonia	-	411	The village now has only
		412	one handpump for which
		413	411 number has been allo-
		414	ted. The remaining numbers
		415	

have been left for new installations. It comes total 5 Nos. for each village.

In a few cases where a village has more than 5 handpumps, the handpump numbers are:

Village	Handpump Number	Remarks
Chhindi Kamath	961	The village has 7
-do-	962	handpumps.
-do-	963	
-do-	964	
-do-	965	
-do-	965/1	
-do-	965/2	

By alloting a number to each handpump, identification of the handpump is easier for any official recording or problem village etc.

A Handpump Directory is prepared, which is available at Block and Sub-divisional levels. These handpump numbers can be used for computerisation later on.

SUMMARY OF DISCUSSIONS

The following issues were discussed:

1. Numbering of Handpumps:

The use of various numbering systems and their relative advantages and disadvantages were discussed. Briefly the numbering systems were as follows:-

- M.P.: A four digit number unique within a sub-division with a provision for 5 numbers per village (beyond which numbers can be added e.g. 5/1, 5/2 etc.) This system is simple and easy to handle.

- ORISSA: An eleven digit system has been evolved which specifies District/ Block/Police Station/Village/ Pump No. with provision to distinguish between new installations and rejuvenations done by the project. The system has been adopted so that each pump has an unique number and is suited for computerisation.

- KERALA: An Alpha - Numeric system with 3 Alphabets/ 2 digits (G.P.)/2 digits (Ward No.)/3 digits (Stand-post No.) is used for identifying stand posts in piped water supply schemes.

- KARNATAKA: A numbering system will soon be introduced which will be very similar to the system in Orissa consisting of 11 digits.

2. Monitoring:

A distinction ought to be made between "monitoring", "reporting" and "follow up". Often in government systems reporting is considered to be synonymous with monitoring. This distinction should be made by organizing workshops/ orientations at all levels in which the monitoring/ information system is explained and demonstrated.

3. Data Storage and Retrieval:

The need for systematic storage and retrieval of monitoring data was appreciated by all the participants in the absence of which the data cannot be made use of. In the Orissa project a beginning has been made by computerising the data from the first phase. It was recommended that similar systems could find application in other projects once the data recording methods had been operationalised to suit computerization.

4. The monitoring system adopted in M.P. is quite elaborate. It provides for a monitoring of the performance at the following levels:

- Caretaker level (log sheets)
- Monitoring of breakdowns at block levels (Through inward register)
- Motor cycle messenger
- Mechanics monthly reports

- Mobile unit
- Sub divisional level
- District level

The system also provides for monitoring of consumption of spare parts at Block/Sub-division/District levels. A handpump directory has also been prepared which provides a summary of handpumps blockwise.

FIELD VISITS

DAYS - 4 & 5 : FIELD VISITS

Field visits were organized in Chhindwara District to enable participants to see how the 3-tier maintenance system is functioning. Three handpumps (1 at Jhirpa and 2 at Sita Dongri) were seen anddiscussions held with the caretakers at Sita Dongri and some users at all three. It was observed that all 3 handpumps were maintained well (chains greased, nuts and bolts in place and tightened, yield of water was normal, and working of the handle was smooth). The drainage, however, was poor in Jhirpa due to handpump being located in a natural depression. The platform, if raised by a foot at least, could solve this problem. The soak pit provided was not functioning at all and proved to be more of a problem. The cleanliness around the handpump was rather poor. Users of the Jhirpa handpump stated that the handpump went dry in summer and they had to walk almost 3 kms to fetch water. This is a rejuvenated pump with a well of 75 feet depth constructed about 10 years ago and unfortunately little has been done to rectify this problem. The caretaker's kit with log sheet was verified and found updated. There were regular entries by the mechanic and supervisory officers at both places. At Tamia, a recently installed PHED extra deep well IM-II handpump with cylinder at 60m with counter weights proved on the handle, was examined. The chain was not greased; it was folding; there was no platform; the inspection cover was not fitting and was bolted wrongly. The installation was directly below an electric post's support cable.

Field visits continued on the 5th day to the PHED sub engineer's office in Pandhurna Block. Detailed discussions were held with Mr.Jaiswal, Asst. Engineer, Mr.Dubey, sub-engineer and other

staff members on various issues, mainly around monitoring systems, indenting spare parts, work load, and distribution of responsibilities etc.

The following observations were made:

1. This Block has 371 handpumps of which 51 are without platforms.

   11 mechanics of whom 6 are temporary.
   324 caretakers.

   47 more caretakers to be trained for new installations under the droughtprogramme.

2. This block covers 150 villages of which about 10% are difficult to reach.

3. Average distance between villages was reported to be 3 to 4 kms.

4. There are 4 time keepers of which 3 help in the maintenance of handpumps and one works as the motor cycle messenger

5. The Inward Register, Mechanics' completion report and the post cards were examined. It was possible to trace records of breakdowns from the caretaker's level upto the Block level.

6. Other records e.g. the report sent from the Block level to the sub-divisional level, the log sheets containing information on all pumps in the Block and the mobile maintenance Team's reports were cross-checked and found to be consistent.

7. It was observed that on an average (July/August) 20 reports were received from the caretakers. In March, 36 such reports were received out of which 29 were attended to by the Mobile units and the remaining by Mechanics. It was felt that when the mechanics are fully trained and equipped with tools, the load on the mobile team will be substantially reduced.

   The present Mobile unit consists of a Tata 407 mini truck with built-in tool boxes, pipe racks, with provision to fix vices. The staff should consist of a driver, mechanic, mason and two helpers. The staffing at present is not officially sanctioned but drawn on a random basis from the staff of the PHED who are officially designated for other duties. No masons are present in any case.

In summing up, the following specific problems were mentioned by the M&D staff:

1. inadequate staff

2. lack of tools

3. irregular supply of spare parts.

From Pandhurna on the way to Nagpur, the team stopped at a handpump site at Ajangaon. It was learnt that this handpump was installed recently by the PHED, which had numbered the pump, appointed and trained the caretaker by themselves. The caretaker was equipped with a kit. This is a rather encouraging trend and is indicative of the acceptance by the PHED of the system developed by the Danida Advisor.

SUMMING UP AND RECOMMENDATIONS

DAYS 6 CONCLUDING SESSION

A wrap-up session was held in Nagpur on the last day to provide the participants with an opportunity to share their impressions of the Workshop and to identify common aspects of the systems in operation in all the Danida supported drinking water supply projects in India.

The feedback at this session was very positive. All the participants considered the Workshop to be extremely useful and thought that it was well organized and efficiently conducted. Some of the recommendations emerging out of this session were:-

- Similar Workshops for Danida Advisers should be held at regular intervals. If the focus of the discussions is clear and the Workshop is prepared carefully, it can be very satisfying and productive (like this one).

- There is need for systematic sharing of information among the various projects; disucssion of common problems encountered, and evolution of common strategies to deal with such problems.

- It was recommended that a "co-ordinator" function be set up urgently at the Danida Mission in New Delhi. This "co-ordinator" will facilitate communication among the different projects and will provide both information support and programme support to the Advisers in the field. It was felt that the occasional visits to project areas by officials of Danida Mission were not sufficient to serve the purpose of

programme support. The "co-ordinator" will also plan and organise the periodic "Workshops" to bring together the Advisers to discuss specific operational issues.

As part of the "co-ordinating" function in Danida Mission, a comprehensive documentation system should be developed by Danida Mission based on reports from the field as well as information and case studies from other Bilateral and U.N. Agencies. This information can be shared with the projects as well as with other implementing bodies/government departments.

It was stressed that health education and sanitation programmes form an integral part of the rural drinking water supply projects, and more stress should be given to monitoring and evaluating the progress of the health education programmes in the projects. A system similar to that being developed to monitor the handpump maintenance system should be developed to monitor the health education programmes and to evaluate to what extent this is being assimilated into the governments' systems.

It was suggested that the performance of the Government departments should be reviewed in the light of their commitments made to the projects, and wherever it was found that they could not meet their commitments because of constraints beyond their control, these need to be taken up at higher levels by Danida Mission.

It was found that while each Adviser had complete information about the project in his own State, he/she was not fully informed about the projects in other States supported by Danida. In order to meet this information need, a proforma was drawn up to elicit basic data about all the Danida supported drinking water supply projects. The project profiles will be shared among the projects after they are received by the "co-ordinator" at Danida Mission. A sample of the format is included in the Annexures to this Report.

APPENDICES

- TIME-TABLE OF WORKSHOP
- LIST OF PARTICIPANTS
- FORMAT FOR PROJECT PROFILES

Workshop for Danida Advisers
on Handpump maintenance systems
Bhopal : August 6th. to 12th., 1988.

TIME TABLE

Friday, August 5th. : arrivals

Saturday, August 6th.

forenoon : Presentation

a) Handpump Caretakers

* identification
* selection
* training
* caretakers kit

afternoon Discussions

Sunday, August 7th. : Presentations

forenoon

b) Handpump mechanics

* identification
* selection
* training
* tools

afternoon

c) Mobile Units

* functions
* equipment
* types (trucks/tractor vans/etc.)
* maintenance

Monday, August 8th.

forenoon

d) Monitoring Systems

* types of systems
* different formats
* documentation

afternoon Discussions

* how to integrate the monitoring systems into the functioning of the departments
* caretakers' notebooks
* existing Manuals
* training costs of caretakers

TIME TABLE (continued)

Tuesday, August 9th.	:	Travel to Chhindwara visit some villages en route
Wednesday, August 10th.	:	Visit to Sausar Block
afternoon		proceed to Nagpur.
Thursday, August 11th.	:	NAGPUR
forenoon	:	Wrap-up Session * Recommendations * Summary of Report of the Workshop.
Friday, August 12th.	:	Departure from Nagpur.

PARTICIPANTS

Kerala	Mr. Isac John Ms. Elizabeth Zachariah
Tamil Nadu	Mr. Jan Amdi Jensen.
Karnataka	Mr. Finn Hessel Krog. Mr. Hussein
Orissa	Mr. Raj Kumar Daw Mr. Sanjay Kumar Khatua Mr. Dipak Ray
Madhya Pradesh	Mr. Frede Engelund Mr. Sayed Anwar Mr. Khalid Kamaal Mr. Kuruvilla Thomas Mr. P.L. Devnath
Danida Mission, Delhi	Mr. S.R. Sarkar Mr. Averthanus L.D'Souza.

ABSTRACT ON DANIDA PROJECTS

1.	TITLE OF THE PROJECT	:
a)	Address	:
b)	Key Contact Person	:
2.	Year of Starting	:
3.	Specify (if the project has gone through several phases) the various phases by year.	:
4.	Basic Objectives	:
5.	Coverage	:
	Target	:
	Present Coverage (Specify the number of districts/sub-divisions/ blocks/ talukas/villages)	:
6.	Target Population Coverage	:
7.	Basic Tasks to be Achieved (e.g.-Installation of India Mark -II Handpumps/Rejuvenation of pumps etc.)	:
8.	Project Organization	:
	Organogram:	
	(Please describe in brief the working arrangement with the respective state administration).	:

9.	Salient Features of the Project	:
	(Please state briefly the operational guidelines of the project tasks as stated in (7) above)	:
10.	Reports/Publications already available (e.g. Manuals, Reports etc.)	:
11.	Future Project Activities (If any plans are there).	: