THE INTEGRATED SANITATION, WATER, GUINEAWORM CONTROL AND COMMUNITY HEALTH PROJECT (SWACH) UDAIPUR (RAJ.)

SWACH
स्वच्छ

A MANUAL

Volume - 1

[Implementation Guidelines for Drinking Water]

Supply

THE INTEGRATED SANITATION, WATER,

GUINEAWORM CONTROL

AND

COMMUNITY HEALTH PROJECT

(S W A C H)

UDAIPUR - RAJASTHAN

A MANUAL

Volume - 1

[Implementation Guidelines for

Drinking Water Supply]

SWACH

स्वच

TABLE OF CONTENTS

		Page
1.	Conversion of Stepwell	
1.1	Identification of villages and clusters	2
1.2	Listing of stepwell for conversion	2
1.3	Dialogue with the community for the public wells and with individuals with the private wells	4
1.4	Design and estimates	6
1.5	Approval of Design and estimates	9
1.6	Overall Planning	9
1.7	Procurement of material	11
1.8	Selection of masons and labour	12
1.9	Distribution of materials	12
1.10	Construction of stepwell	13
1.11	Inspection	14
2.	Drilling of Boreholes and Installation of Handpumps	
2.1	Drilling Boreholes	15
2.1.1	Selection of village/hamlet and identification of site for drilling	15
2.1.1	Intimation to the PHED	18
2.1.3	Rig movement plan	19
2.1.4	Drilling	19
2.1.5	Drilling depth, water yield and water quantity	20
2.2	Installation of Handpump	21
2.2.1	Starting installation work	21
2.2.2	Construction of platform and installation of handpump	22
2.2.3	Education to the handpump users	23

3. Maintenance and Repair of Handpumps

3.1	Selection of handpump mechanics	24
3.2	Training of Handpump mechanics	25
3.3	Allocation of area and handpumps	25
3.4	Spareparts	26
3.5	Replacing the old tools and purchasing special tools by the existing mechanics	27
3.6	Refresher training for the existing mechanics	27
3.7	Scheduled maintenance	28

ANNEXURES

I Model Estimates for conversion of stepwells
II Stepwell basic background data
III Request for conversions of private well
IV Detailed Estimate
V Abstract of cost with B.S.R.
VI Monthly Progress Report (JEN)
VII Imprest Cash Account - Format
VIII Voucher (Single Expenditure)
IX Voucher (Multiple Expenditure)
X Account for stepwell converted
XI Muster roll - Format
XII Stepwell inspection Report
XIII Proposed Handpump sites by SWACH project
XIV Rig movement plan
XV Monthly Progress Report - Drilling
XVI Monthly Progress Report - Handpump installation
XVII List of recognised suppliers of tools for repair and maintenance of handpumps
XVIII List of tools required for repair and maintenance of handpump

LIST OF ABBREVIATIONS

1.	P.D.	Project Director
2.	P.O.	Project Officer
3.	A.P.O(T)	Assistant Project Officer (Technical)
4.	J.E.N.	Junior Engineer
5.	V.C.D.	Village Contact Drive
6.	V.C.T.	Village Contact Team
7.	H.P.	Handpump
8.	P.H.E.D	Public Health Engineering Department
9.	D.P.I.C.	District Project Implementation Committee
10.	B.S.R.	Basic Schedule Rates
11.	I.T.I	Industrial Training Institute

DRINKING WATER SUPPLY : IMPLEMENTATION GUIDELINES

A major thrust of the Project is to provide drinking water through safe water sources. This includes both providing new sources in selected tribal habitations and upgrading the existing unsafe sources. The objective is not only to remove drudgery of rural women who spend considerable amount of time in collecting water but also to reduce the incidence of water related diseases including the guineaworm which is widespread in the Project area at present. A three pronged approach will be adopted to achieve this goal. This will include, (i) conversion of stepwells to draw wells, (ii) installation of handpumps in areas hither to devoid of any protected water source and (iii) improvement of the existing repair and maintenance system so as to ensure uninterrupted supply of water from handpumps and prevent the water getting polluted. Concious attempts will be made to involve the local community, particularly women and educate them while planning and implementing the various activities relating to drinking water supply.

1. CONVERSION OF STEPWELLS

The process of converting stepwells into sanitary draw wells must be well planned and due attention must be given to:-

- initial community participation in selection
- correct technical designs and estimates worked out by the project Staff
- prompt and correct execution of the works (including community participation) and eventually follow-up of the works.

The steps to be followed are given below:

1.1 Identification of villages and clusters

As gaining control over the guineaworm disease, by generally providing safe drinking water/moving people to draw water from safe sources, is the major purpose behind stepwell conversion, it is imperative that a strategy is followed that gives maximum effect in this respect. It is thus necessary that villages are covered by the activities in turn of order of priority; priority being given first to those villages that report large numbers of guineaworm cases. Information received from Village Contact Drives,Animators, Medical Searches under the National Guineaworm-Eradication Programme and other possible independent sources should be relied upon for identifying and listing the villages. Whenever such information is seriously conflicting, the staff should itself assess the situation.

Although work should start in the villages with high guineaworm infestation, these villages cannot be taken up in isolation. Clusters of villages sorrounding each identified village should be delimited, and these clusters should be treated as units for the work later to be performed. This "cluster approach" ensures quicker control to be gained over the disease. It also ensures better and more economic execution and supervision of the work, saves staff resources and makes efficient planning of transport of materials possible.

1.2 Listing of Stepwells for Conversion

Once a village is identified, the P.O. should delimit the clusters on the basis of the available information about the guineaworm patients and number of stepwells in the area. The JEN should make a comprehensive list of all the wells to be converted in the cluster. This is a very important stage in the the planning of stepwell

conversion. To ensure that only those wells are taken for conversion which fullfil the criteria fixed by the project, a close supervision is necessary.The, PO and APO(T) should visit at least 30% of the stepwells on the random basis before sanctioning them

The list thus prepared may include public as well as private stepwells used as sources for drinking water. Such wells may also serve as sources for irrigation, but in no case should a well solely used for irrigation be converted by the Project. The lists of stepwells prepared by Village Contact Teams should serve as a starting point for this exercise, but as indicated the officers concerned must check them up and confirm the lists in the field. For a stepwell to be included among those to be converted there must be a clear connection between it as a watersource and established guineaworm cases.

Performing this verification they must furthermore also assess all drinking water sources in the village; that the interventions proposed take on the nature of a comprehensive "plan for safe water-supply" for the cluster.

Thus, requests resulting from the Village Contact Drive for the installation of handpumps should be simultaneously assessed, that provision of handpumps can be tailored to and if necessary support the programme of stepwell conversion. These two exercises are intimately related and must be performed together. Needless to say, stafftime is also saved in this way. The list of HP-sites (old/new) will furthermore enable the Project to plan sanitary interventions, and together with PHED plan drilling and draw up rig movment plans.

Considering the fact that there could be a very large number of stepwells in a cluster to meet the requirements of a generally scattered population, wells must thus be ranked for priority of conversion, considering the number of Guinea worm cases connected with them and the number of people who take their drinking water from them.

As a first step in planning the work at the level of the Project Office the PO concerned is thus obliged to draw up a conclusive list of all villages to be covered under him/her and to arrange them in order of priority. Secondly, the cluster of each such village must be determined, and thirdly, within each such cluster all stepwells to be converted will be listed , once again being arranged in order of priority.

When identifying the stepwells for conversion those wells that should be provided with a handpump should be simultaneously identified, enabling the J.En. to take this into consideration when designing the conversion . An early indication of the requirements of such handpumps should be communicateed to Project Director to make timely procurement possible.

1.3 Dialogue with the community for the public wells and with induviduals for the private wells .

No conversion should be attempted without the consent of the community or the individual owner concerned.
Although rules and regulations of the Government may empower us to convert unsafe wells in the wider interest of the public, without getting prior agreement from the users/owners ,resorting to unilateral action should on all accounts be avoided .

This may of course call for visiting a village more than once to explain the reasons for the proposed conversion, thereby "persuading" the people to lend their cooperation. In cases of continued resistance the PD should be informed, and if necesssary the DPIC may also be requested to intervene .

Sometimes the opposite situatiion may occur, that the Project staff finds itself under pressure to convert a stepwell that does not meet our requirements for conversion. Such pressure must of course be resisted, and inability of the Project to comply must be carefully explained. In cases of persistent insistance the case should be refered to the PD.

Communication with the villagers should always take the form of a dialogue . The project staff should take the opportunity to use these meetings to orient the villagers about the wider purpose and concerns of the Project. At the same time our staff must carefully listen to what the villagers may say. Remember that the "resistance" thay may put up very likely has good reasons that can be accomodated for by the Project, either in adjusting the design of the conversion (in cases of people fearing it will interfer with normal usage of the well, eg. for irrigation) or in providing health-education (in cases when people claim unable to drink any other kind of water than they drink at present.)

The Project Staff should also make a point to explain the "total package" of water supply, sanitation and other measures that the Project may provide to the village in question! Be careful, however, not to give unrealistic promises as to when or to what extent such utilities can be provided

For the conversion of a private stepwell it is required that the owner formally requests the Project to take it up. With the help of the Project Staff (preferable the J.En,) the format given as Annexure III is to be filled up and signed by the owner of such a well.

1.4 Design and Estimates

There are wide variations as to the size and type of stepwells to be converted, and accordingly it is difficult to lay down any standard design or fixed financial norm applicable to all conversions.

A few model designs have, however, been prepared and are given as Annexure I. They are to serve as general guidelines to the staff in drawing designs and calculating the estimates.

It should, however, be stressed that the J.En., who is to draw the designs and calcualte corresponding estimates, must consider each well as a unique case and accordingly individually evolve the most suitable and economic design. This may require continuous support and supervison by the APO(Tech) and the PO concerned. The J.En. is, as mentioned above, to take due consideration of local concerns in designing the conversion. This ensures local cooperation and ensures that the conversion is not tampered with later on. Basically it ensures maximum utility to the villagers.Along with the design and the estimates, the J.En. should also furnish information about the names of guineworm patients connected to the well and the number of households/persons taking water from it. This information, together with other basic data on the well is to given as per the proforma given in Annexure II.

Basing his schedule on the list of stepwells identified for conversion, arranged according to priority, the J.En. is thus once again to visit all the villages and sites falling under his jurisdiction. He is then to prepare detailed designs and cost-estimates for each well, taking into consideration the points mentioned earlier, as well as the measurements and observations he makes, and contacts he takes, now. Once again it is important that local perople are well informed about his doings, and he should take the oportunity, whenever it arises, to continue the dialogue with owners and users.
The resultant designs together with the estimates should then be submitted to the APO(Tech) concerned.

In finalizing these documents, (the design on the plain piece of paper, the estimate according to the format given in Annexure IV, basing the later on the current BSR (1987), given in Annexure V,) the J.En. is to keep the following factors in mind:

- the conversion must be so designed that it does not afterwards permit anyone to enter the well and come in physical contact with the water.
- A parapet should be raised around the well, high enough to prevent children from falling into the water.The parapet should have upper portion tapered out side so that it is not used as washing platform and the extra water does not go into the well.
- the well should preferably be dewatered to enable cleaning it
- all plants in and around the well should be removed, lose materials on the walls likewise be removed and all gaps and holes in the walls should be plastered, at least above seepage level, so as to avoid

future pollution.

- If possible, the accumulated mud at the bottom of well should be removed, since cyclopes 'hide' in the mud, especially during the cold season mainly when conversions take place.
- the 'new' water seeping into the well after conversion must be chemically treated before the well is commissioned. For this coordination the local PHC is essential.

- upon conversion the well is provided pulleys to enable drawing the water safely. Generally a draw well that is used by less than 20 households is provided 1 pulley only, other wells are provided with more ones. The number is to be suggested by the J.En. based on the number of households the well thus caters to, as well as the physical possibility of installing several pulleys.The J.En. is to ensure that the pulleys are installed in such a way that the buckets touch the water even when the water-table is low.
- in a limited number of cases the Project will install handpumps on stepwells to increase public access to water from these particular wells. As noted under point (1) these wells must be identified at an early stage. Such wells are usally public wells, situated at roadsides and tend to be used also by many passers-by, not only people from the immediate village.
- in case there is an old cattletrough available, it should be repaired and made functional.
- suitable drainage of wastewater should be provided, to avoid water-logging around the platform.
- stands for keeping waterpots should furthermore be provided, at each pulley.
- if the well is used for irrigation, as mentioned above, great care must be taken to accomodate the wishes of the owner for a design enabling him to utilize a pumpset without inconvenience. Remember that if this is not done it is very likely that the owner will tear down or otherwise damage a section of the parapet.

- Some fishes, known to eat cyclops, should be introduced in the certain stepwells which are likely to be used by big large number of people. The introduction of fish should take place only after the consent of the users.
- a plaque should finally be fixed on to the converted well for easy identification of the work done by the Project.
  It should thus mention SWACH, furthermore it should state year and month of the conversion, together with the sanction-number of the well.

1.5 Approval of designs and estimates

All works costing Rs.7,500 or less can be approved by the Project Officer concerned, upon recommendation of his/her APO(Tech).

In case the estimate indicates an investment in excess of Rs.7,500 for converting a well, the Project Officer must refer the case to the Project Director for decision. This should be done together with full justifications for the work.

1.6 Overall Planning

The overall targets for stepwell conversion in the Project are given in the Plan of Action, and they are yearly revised by the head office of the Project, providing a'long-term' work plan and budget. Eventhough these targets are only indicative, and can be both under as well as overshot, they will serve as broad frames for initial planning.

The PD, in consultation with the POs of the Project, will then divide the targets between them, each heading a separate office. This exercise will be based on the lists of stepwells identified in each area, refered to earlier. Funds will be requested and advanced according to these targets, in accordance with their phasing, and cashflow will then be dependent on performance and timely accounting.

Request for cash and distribution of cash should ideally keep to a three months' cycle and the PD/SWACH is to prepare quarterly updatings of workplans and budgets.

Actual, immediate workplanning, reviews and accounting, on the other hand, keep to a monthly cycle.The construction work undertaken till the 20th of last month should be reported. The 'reporting month' from 20th of last month to 20th of current month will ensure timely reporting of the work in the first week of each month. This will also help in planning for next 'reporting month' and monitoring the work done in the last 'reporting month' during the first week of each month.

In the begining of each month the APO(Tech) should have a plan ready for all conversions to take place next 'reporting month' in his area. This means that the J.Ens. under him must provide their inputs some time before then.. This could be termed the 'short-term' planning of the Project.

It is for the PO to coordinate this workplan with similar monthly workplans for other activities of his office, to arrive at the greatest possible degree of integration in the project. It is of particular importance to coordinate "hard-ware" and "soft-ware" activities. (i.e. local training should, if possible, coincide with major physical interventions).

In the very beginning of each month, then, the PO reviews all work under his office performed during the preceeding month. In case of stepwell conversions this review is based on the monthly progress reports that the J.En's submit (format in Appendix V).

The review is in particular to deal with coordination achieved by the office, between different kinds of activities executed by it. Experiences should immediately be fed into future planning.
The progress reports and the accounts are compiled and brought to Udaipur for a monthly review meeting, under the Project Director, around the 10th of each month, for the entire Project.

The monthly progress report for SWACH is then compiled and presented to the Commissioner around the 15th.

The accounts are compiled and likewise submitted to the PA/UNICEF/Udaipur who then reviews cashflow and cash requirements with the PD.

As mentioned above this regularly leads to quarterly updatings of a 'medium term' workplan and budget.

1.7 Procurement of materials

The procurement of material need not wait till the estimates are made for each well, or for that matter for all wells in a cluster. Based on the targets fixed for the year as per the work plan, attempts should be made to procure the materials well in advance keeping in mind the broad pattern of their utilization. Procurement of cement and handpumps will be done centrally for the entire Project, by the headoffice, while procurement of pulleys and other materials will be left to the Project Office concerned.

For the purchase of sand and stone locations should be identified in advance and arrangements be made to get the materials at a short notice. In this way, there could be several points for the procurement of sand and stone even within a block.

The JEN handles an advance for some local purchase Of material and labour payment. An unduly large amount of cash advance should not be given to JEN. The advance given to JEN should be in proportion to the construction work undertaken by him and should be kept track of in accordance with the format printed in Appendix VII. Likewise he handles two kind of Vouchers/ Receipts (Apppendix VII and IX) for sign and multiple expenditures. He makes accounts for each stepwell according to the format gives in Appendix X.

1.8 Selection of masons and labour

Normally two to three masons are employed on a stepwell, out of which at least one mason is a skilled mason who can do plastering and punning also. The skilled masons are always not available in the local village. A number of skilled massons should be identified in the area with the help of the block functionaries. These masons should be contacted for their timely availablity and willingness to undertake the job. These could be deployed in the villages where the local skilled masons are not available. As regards engaging labour, priority should be given to those available in the local area, preferably they should be from the same village. Women labourers should furthermore be given preference.The J.En. enters all pertinent information on the daily labourers in the Muster Roll kept by him (See Appendix XI)

1.9 Distribution of materials

During the monitoring meetings at the begining of each month, the requirements of material of each JEN should be assessed. The required material should, then, be sent to the actual construction site or the centralised store maintained by the JEN, at the choice of the JEN. The material to be supplied from the project office would be cement, pulleys, plaques and handpumps (if required to be

installed) A local person (the owner of the private well or mason) should be identified for each stepwell to take care of the material supplied, until the construction work is over.

In order to economise on transportation, the cluster approach should be the guiding principle for the distribution of materials, as well as for construction activities.

1.10 Construction

Conversion of stepwells follows a seasonal pattern dependent on availability of labourers and height of water table in the well. Just after the monsoon the water table may be too high and recharging to quick for work to be really effective. During the winter some resistance, which must be heeded, may arise because dewatering may interfer with irrigation. To fit into the strategy for guineaworm eradicaton the well must however, be converted before the tranmission- period starts in April/June. The preceeding months thus tend to be hectic.

The construction work itself consists of three major components;

- dismantling
- earth work, and
- masonry

In carrying out these works (as well as in making the estimates as mentioned proviously) the correct Basic Scheduled Rates (BSR), at present of 1987, is the guiding document (see Appeneix IV). These are laid down and revised by the Government of Rajasthan.

In case the actual cost of the construction exceeds the approved estimates, the same can be cleared at the level of the Project Officer up to a maximum of 20% BSR unless the cost of stepwell thus exceeds 7500. Any excess beyond 20% BSR or the cost or 7500 must be approved by the Project Director.

The Muster roll should always be kept at the site by a responsible person. It should be checked daily by the J.En.

After the construction is over the masonry structure should be cured for at least a week. Special attention should be given to cure the part of the parapet that supports the pulley. The pulleys should not be allowed to be used until at least a week after they were fitted.

The owner of a private well should be expected to cure and guard his own well, while it may be necessary to employ someone (on muster-roll) for the time necessary, where the well is a public one. Women, can, once again, be given priority.

The J.En. is to make clear to all and everyone the importance of curing, and he is to tell the villagers how the well is to be best utilized in the future.

1.11 Inspection

While the J.En will inspect and measure the construction of each well converted by him, the APO(Tech) should visit at least 30% of them at random, at various stages. The Project Officer should see at least 20% of the wells so converted.

As for stepwells requiring an investment above Rs.7,500, 100% of them should be visited at any time by either the APO(Tech) or PO.

The particulars of stepwells visited by the POs and APOs should be reported to the Project Director in the proforma attached as annexure XII.

The purpose of these inspections is to ensure that all the requirements of the activities connected to stepwell-conversions as envisaged in these guidelines, have been met.

2. DRILLING OF BOREHOLES AND INSTALLATION OF HANDPUMPS

2.1 Drilling Boreholes

Selecting a suitable site and adopting a minimum quality criteria for drilling are the two most important consideration to be kept in mind while drilling the boreholes. Although the Project area has handpumps which work out to less than 250 population per handpump, a large number of people still do not have any access to handpump. The ones located in the villages are too far from their habitation. They also do not have any other protected source of drinking water available. These households account for a major proportion of water-related diseases reported in the area. The Project will, therefore, make deliberate attempts to provide these hamlets with handpumps. For the achievement of the project objectives in drilling, a fair amount of planning, monitoring and co-ordination is required at the project level. The drilling constraints should be recognised and project should try to match the existing resources to the drilling constraints for optimum results. The following conditions should be kept in mind while planning.

- difficult access sites
- sites have collapsable formation
- sites when ground water is uncertain and experience shows a more than 15% failure rate.

The areas where above mentioned difficulties could be encountered should be marked on a map. For different area, a different strategy will have to be followed. Keeping these broad principles in mind the following steps should be followed for drilling of boreholes:-

2.1.1 Selection of Village/Hamlet and Identification of Site for Drilling

The Project Officer, with the help of the Technical Assistnat (Hydrogeologist), will be responsible for selecting the village/

hamlet where drilling can be taken up by the PHED.The target for hand pump installation in the Proejct area should be first devided into block targets according to the population of the block and existing handpump in the block. The targets of the block should be further subdivided into the targets for each Panchayat and Village (if possible) These targets should be the starting point for site selection for drilling. While keeping the above targets in mind following steps should be taken .

- in compact habitation there should be one handpump for every 200 population.
- hamlets with a population of 100 and above and without a handpump should be provided with (in case of hamlets having less than 100 persons it is advisable to get the stepwell converted, if available, rather than have a handpump; however, if no stepwell is available, installation of a handpump may still be considered with prior approval of the Project Director).
- in villages/hamlets reporting bad quality water in handpumps, it is advisable to have a handpump fitted on a converted stepwell rather than to go for drilling a new bore;

In the villages with high guineaworm infestation or in very scatteredly populated villages, there may be a need for installing more handpumps than indicated by above criteria. There may be many cases where previously installed handpumps are concentrated at particular places and from the point of accessibility more handpumps than the normal norm have to be provided for better spatial distribution. In all cases where more sites than the norm are to be released, approval of the project director should be sought after giving full justifications.

Site selection should start in an area with lowest density of handpumps and high guineaworm infestation. A cluster approach should be adopted in site selection so that rig movement becomes easier. All the sites to be selected in a village should be released together so that hydrogeologists and rigs do not unnecessarily go to the same village again and again. The areas with high failure rates are known to the project offices. In such areas, a thorough geohydrological investigations are required.The terrameters should be used in the site selection in these areas along with the maps showing ligniaments.As regards site selection within a village/hamlet the list of the sites prepared by VCT should act as a starting point. The hydrogeologist will consult the women users for their preference. following points should be kept in mind during the site selection

a) Community users (specially the women) agree with the proposed location of the handpump

b) This is sufficient indication that the drilling will yield an acceptable water supply.

c) The site should be at least 30 meters from any sanitary disposal facility (septic tank, pit latrine, or drain that recieves human waste)

d) The handpump site should have a good drainage, so that handpump does not create water logging problem in future.

e) All local residents will have access to and free use of the pump

f) The handpump should not obstruct the traffic in any case and neither should the waste water from the handpump erode the road.

g) The selected site should be on the government land. If it is unavoidable to select a private land, the owner should be made to surrender that piece of land to the government.

2.1.2 Intimation to the PHED

On receipt of the list of location from the Hydrogeologist, the Project Officer will examine the same, ensure that the recommendation has been made as per the guidelines prescribed and finalise the list after making necessary changes, if required. The final list, arranged clusterwise/Panchayat samiti-wise should be submitted to the Assistant Engineer (drilling) located at the district headquarters in the proforma annexed as Annexure XIII. Copies of this list should be sent to the Project Director, EE (drilling), APDDO, B.D.O and the Pardhan. The list of drilling points proposed by the Project Officer should be consistent with the number of rigs available with the AE. The number proposed should be sufficient to keep the existing rigs occupied for a quarter. It is necessary that the Proejct Officer submits the list of proposed drilling points to be taken up during a quarter a month before the starting of the quarter. The project office should also give the direction and length of drains for each sites (along with the disposal points, if possible) so as to avoid any confusion at the time of handpump installation. In case the Project Officer feels that a few locations suggested by the Hydrogeologist do not confirm to the guidelines laid down, but are justified for some genuine reasons, he should make a separate case and submit the list to the Project Director with full justification for this approval. The Project Director, on receipt of such a proposal, will look into the merits of each case before according his approval. If necessary, his representative will inspect the site before a decision is taken in the matter.

2.1.3 Rig Movement Plan

The Assistant Engineer (drilling) in consultation with the project officer will prepare a quaterly rig movement plan based on the list given to him and inform the drillers accordingly. While preparing the rig movement plan, the Assistant Engineer should distribute the rigs at his disposal in such a way as to suit the geohydrological conditions of the area and accesibility of different rigs in different region and it should be planned in such a way that the same rig can drill all the points in that village. A copy of the rig movement plan must be sent to the Project Officer, the EE (drilling) and the Project Directort by the start of every quarter.The rig movement plan should be in the proform attached as Annexure XIV

2.1.4 Drilling

On reaching the village, the drilling team should ensure that the point shown to them by the villagers confirms to the identification particulars given by the Project Officer. In case of any doubt or dispute, they should not undertake the drilling operation but report the same to the Assistant Engineer (drilling) who in turn will inform the Project Officer.The Project Officer should carryout an on-the-spot visit alongwith the Hydrogeologist to help the drilling team locate the proper site. As this process may take a couple of days, the drilling team may move to the other villages in the cluster pending a decision on the drilling site. As the distance between villages within a cluster will be small, this arrangement will not affect the rig movement to any significant extent. These minor adjustments within a cluster are unavoidable.

The drilling team should ensure that the water from the drilled borehole tastes good. In case the water gives a foul smell or is saline,or is of bad taste the same should be immediately brought to the notice of the AE (drilling). As the purpose of drilling a borehole is to provide drinking water, the one not satisfying this criterion should be considered as failure.

As drilling attracts a crowd in the village, it is advisable to utilise this apportunity for educating people on water,health, hygiene and sanitation. The drilling crew will be suitably trained for this purose and suitable communication material would be provided to the crew.

2.1.5 Drilling Depth Water Yield and Water Quantity

A casing of minimum six meter length should be provided with the borewell. There should be a proper seal around the casing so as to prevent any percolation.The drilling team should ensure a minumum drilling depth of 50 metres in Dungarpur & Banswara and depth of 60 meter in Udaipur district and an yield rate of 720 litres per hour. Both these criteria should be adopted simultaneously. However, in areas where hardrock formations exist and there are possibilities of striking water at a very low level attempts should be made to go upto a depth of 70 meters. In case of collapsible formations where drilling beyond a certain depth is not possible, the yield rate should be taken criteria, provided the drilling has gone upto at least 30 meters. However, once drilling in these areas are taken up with ODEX-165 equipment, the minimum drilling depth of of 50 metres should be meticulously followed. In all these cases the water

column should be at least 25 metres. As the drilling is done to provide drinking water it is imperative that the water from the borehole is suitable for drinking. In case the yield primafacie shows otherwise, the drilling should not be considered as successful and it may not be advisable to make any further investment by installing a handpump. The Assistant Engineer (Drilling) should inform the Project Officer about the drilling depth, water yield and suitability of the water for drinking for each of the boreholes drilled in the proforma atteched as Annexure XV. This should be done during the first week of every month.The Project Officer should ensure that the drilling has been done as per the guidelines. In case of any contradiction,the same should be discussed with the Assistant Engineer (Drilling) before the point is released to the contractor for installing the handpump.

2.2 Installation of Handpump

Because of certain administrative reasons, installation of handpumps will continue to be done through the private contractors (as the present practice goes) for some time to come. However, adequate attention by the PHED and the Project staff has to be paid to ensure that no compromise is made on the quality of installation. In this regard, the specification laid down by India Mark II Handpump Installation and Maintenance Manual brought out by UNICEF should be the guiding document. Besides, the time gap between drilling and installation of handpumps should be minimised. For this purpose, the following points should be borne in mind:

2.2.1 Starting of Installation Work

The installation process should start within a month from the date when drilling is over.This should be ensured by the Executive Engineer (PHED). This will be in contrast to the

present system where considerable delay occurs in completing the installation work. Some times the timelag exceeds several months. As the material requirements for each handpump is fixed, it sounds logical to supply materials to the contractor in advance so as to enable him to construct the platform and fix the pedestal within a short time. Other materials required for installation such as pipes, cylinder assembly etc. can be supplied subsequently as these will be required only a week after the platform is constructed. It is advisable to supply the contractor a copy of the rig movement plan so as to enable him to plan his work in advance. As the failure rate of boreholes is not high (less than 15%), the contractor may be persuaded to plan his installation work in line with the rig movement plan. The contractor should also be advised to raise the number of installation teams so that a larger number of handpumps can be installed. This of course, should be linked with the possible number of drillings likely to be completed by the existing rigs.

2.2.2 Construction of Plat-form and Installation of Handpump

A minimum of one week is a must between the construction of a platform and the actual installation of a handpump. This is necessary to allow for the curing time. As there is a tendancy with the contractors to do both these phases without leaving any time gap which affects the quality of installation seriously, it is necessary that it does not happen. Besides, the PHED personnel and the Project staff, the users should also be involved in this. Similarly, it is important to ensure that the drainage for the handpump is suitably directed as planned at the time of selecting the site for drilling.The EXEN PHED should inform in the proforma attached as Annexure XVI

2.2.3 Education to the Handpumps Users

Once the installation is done and the handpump becomes operational, the users should be briefed about how to use the handpumps by the social animators and health educators. The users should be encouraged to use the waste water for kitchen gardening or plantations

3. MAINTENANCE AND REPAIR OF HANDPUMPS

In order that the people depend upon handpump as a reliable source of drinking water, it is necessary to reduce the breakdown, immediate action should be ensured to repair it. Information collected through the VCTs shows that in the Proeject area nearly one-fifth of the pumps are out of order. Although the present system of repair and maintenance is supposed to be the cheapest in the country, in reality it is not so. If the expenditure incurred by the PHED in their intensive compaigns (undertaken twice a year) is also taken into consideration, then the cost of repair goes much beyond Rs.300 p.a. per pump. With this cost it could be possible to improve the performance rate significantly. The major areas of intervention will relate to the selection of handpump mechanics, giving refresher courses at certain intervals to the existing mechanics, introducing a system of scheduled maintenance, involving the community to look after certain aspects of maintenance and so on. In this respect the following guidelines should be taken note of:

3.1 Selection of Handpump Mechanics

Who selects?

While selecting a new handpump mechanic, the following factors should be borne in mind.

- the person should not have any seasonal activity,(such as cultivation, agriculture labour etc). This is essential so that the repair and maintenance work is not hampered during the period when the seasonal activity is at its peak).

- Preference should be given to persons knowing carpentry blacksmithy, repair of cycles and other machinery (this would ensure that the person has some aptitude for repair and maintenance).

- the person should have passed at least VII standard and know cycling. (This is needed so that the person can read and understand the instructions and also can be mobile)

- the person should belong to the same area in which he is supposed to look after the maintenance and repair of handpumps(the present practice of recruiting mechanics from out side the area of their jurisduction and select several persons from the same Panchayat must stop).

- each batch of newly recruited mechanics should consist of 15 persons. (A number which is acceptable to the ITI of the Project area).

- the selected persons should be prepared to buy the tools either from his personal funds or by taking a bank loan which may come upto Rs.4000/- (the Project staff, ofcourse, should guide them in this regared)

- the number of mechanics to be selected should be linked with the number of handpumps likely to be installed in given year and the number proposed to be alloted to each mechanics (This is necessary to avoid the recruitment of more persons than what is disirable).

3.2 Training of Handpump Mechanics

The newly recruited handpump mechanics should be trained at the ITI available in the Project area. The duration of the course will be 6 months of which 3 months will be devoted to field training. Training schedule will be finalised by the Project Officer in consultation with the Executive Engineer (PHED) and the ITI principal. During the training the trainees will be paid a stipend of Rs.150 per month. In addition, an amount of Rs.110 per trainee per month will be spent during the first three months towards honorarium to the faculty and material cost incurred. Thus the cost per trainee per month will be Rs.260 during the first three months and Rs. 200 during the remaining three months. The training will be carried out as per the syllabus developed by the ITI in consultation with the Project.

3.3 Allocation of Area and Handpumps

Once the mechanics are selected for training, immediate steps should be taken to identify their areas of jurisdiction including the number of pumps to be looked after by them. This would also call for having a dialogue with the existing mechanics operating in the same area. It is not advisable to allot more than 40 handpumps per mechanic and the distance should be within a radius of 5-7 kilometres. Also it is important

to see that the newly recruited mechanics get their loans by the time they complete their course so that they can take up their work within the shortest possible time from the date when they come out of the ITIs. The Project Officer should ensure that the tools purchased for the mechanics are of good quality and as specified in the India Mark II Handpump Installation and Maintenance Manual brought out by UNICEF. A list of recognised suppliers of special tools for repair of handpump is provided at Annexure-XV for guidance.

3.4 Spare Parts

The Panchayat samitis should make bulk purchases of spare parts required for repairs and maintenance of handpumps. They should consult PHED to purchase parts of better quality. Alternatively, parts can be purchased from the state-owned Agro-Industries corporation. The present practice of giving Rs.65 per pump per year to each handpump mechanic (as is the practice in some blocks) for purchasing spare parts should be stopped. The requirements of parts for a given year can be estimated on the basis of the number of pumps currently existing, the number likely to be added during the year and the consumption pattern observed in the past. For this purpose carrying out an ABC analysis in some blocks may be thought of. In the interim, it is advisable that the BDO calls a meeting of all handpump mechanics and arrive at a realistice estimate of the spare part requirements. The mechanics should give a requisition to lift spare parts available at the block as and when required. The Block fitter should be responsible for maintaining the stock of spare parts and issuing the same to the mechanics.

3.5 Replacing the Old Tools and Purchasing Special Tools by the Existing Mechanics

It is noticed that most of the existing mechanics in Project area have tools which are worn out. Besides, they do not seem to have special tools like a self-locking clamp which is a must for taking out the pipes and the cylinder asembly especially when the boreholes are beyond 70 feet dept. It is necessary that these mechanics are asked by the BDO to replace the worn out tools and purchase the special tools without which repair of below ground assembly will be a difficult task. This is extremely urgent. The Panchayat Samiti should make it obligatory on the part of the mechanics to have the prescribed tool. A list of tools required for this purpose is presented in Annexure XV. Annexure XVI indicates the name and address of a few recognised tool manufactures for reference.

3.6 Refresher Training for the Existing Mechanics

The existing mechanics should be given refresher training of one month duration which will include training. The syllabus developed by M/s Richardson Cruddas, Madras for training of block level technicians engaged in installation and maintenance of India Mark II Deep Well Handpumps will be adopted with minor changes so as to include the soft-ware components envisaged under the project. The ITIs will organise the refersher training for the existing mechanics. The Project Officer with the help of the BDOs should organise such training courses.

3.7 Scheduled Maintenance

At present maintenance of handpumps is rarely done. Sometimes maintenance is confused with repair.It is not so.Maintenance and repair have to be treated separately. As the handpump is a mechanical device, it requires maintenance at regular intervals so as to reduce the incidence of breakdown and thereby improve the pump performance. This would call for evolving a system of scheduled maintenance which would also include replacement of some parts. One such example will be the replacement of leather bucket, which has been found to be the most vulnerable part of a pump. A time schedule should be worked out indicating the dates when a mechanic would attend to a pump. This will also help the mechanic to have better support from the community as the villagers would now know about his programme in advance. It is possible to carryout the suggested scheduled mainenance within the budgetary limit prescribed for the repair and maintenance of handpumps and hence no additional amount will be required for this purspose.

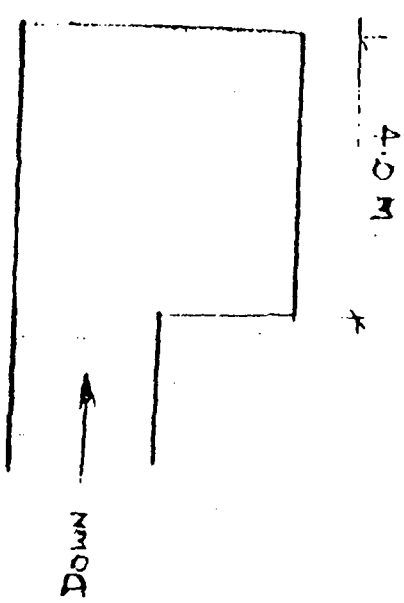
ANNEXURE

ESTIMATE FOR CONVERTING STEPWELL INTO DRAWELL

(Based on P.W.D. B.S.R. 1987 Circle I, Udaipur)

Sl. No.	Particulars	No.	Length (M)	Breadth (M)	Height (M)	Qty./ Amount
1.	Dismantelling masonry incl stacking of stone & disposal of rubnish in mud mortar	2	4.80	0.40	0.20	0.768
		1	4.00	0.40	0.20	0.320
		1	2.00	0.40	0.20	0.16
						1.248Cum.
			@ 7.50 /- Cum		Rs.	9.36
2.	E/U xxxxx in excavation & in foundation & H.S.M.B. as per specification.	1	2.00	3.00	1.00	6.00
		1	3.00	1.50	0.20	0.90
						6.90Cum
			@ 13/-Cum		Rs.	89.70
3.	R.R. stone masonry in super structure with cement sand mortar 1:6 (for wells)	2	4.80	0.40	0.80	3.072
		2	4.00	0.40	0.80	2.560
		1	2.00	0.60	2.00	2.400
		1	3.00	1.50	0.40	1.800
						9.832Cu.
			@ 268/- Cum		Rs.	2634.98
4.	Cement Plaster on walls with cement sand mortar 1:4 20 mm thick in 2 coat	4	4.00	-	2.00	32.00Sq.
			@ 18/- Sqm.		Rs.	576.00
5.	Cement plaster on walls with cement sand mortar 1:6 (20mm thick in 2 coat)	4	4.80	-	0.60	11.52Sqm
			@ 14/- Sqm.		Rs.	161.28
6.	Neat cement punning for walls of bathroom WC & in side walls of water tank etc.	same as per plaster quantity				43.52Sqm
			@ 2/- Sqm		Rs.	87.04

Sl. No.	Particulars	No.	Length (M)	Breadth (M)	Height (M)	Qty. Amou
7.	P/L CC 1:2:4 D.P.C. Dassa sills or coping incl. neat finishing smooth surface in regd. size 50 mm thick	4	4.40	0.40	-	7.04 Sqm
			@ 32/- Sqm.		Rs.	225.28
8.	P.L. CC 1:2:4 Mix M 150 with stone grit max size 20 mm thick incl rendering with C.M' 1:3 if necessary curing etc. complete	1	3.00	1.50	0.10	0.45 Cum
			~~@ 514/- .25-~~ @ 514.25/- Cum.		Rs.	231.41
9.	Supplying hoisting fixing in position steel work in tees angles channels & flates etc. comp as per specification	0.30 Quintal				
			@ 900/- Quintal		Rs.	270.00
10.	Engaging of pumping set 5/9 H.P. for dewatring purpose	one day @ 92.50/-day				Rs.92.50
11.	R.R. Stone Massonry repairs in tuman with old and new s stone in C.M. 1:6	Lump Sum				10Sqm.
			@ 36/- Sqm		Rs.	360.00
			Total			4737.55
			Add 6.50% for Supervision Ch.		Rs.	307.94
			Grand Total			5045.49
			Say Rs. 5100/-			



A.P.C.(1) JEN.

Appendix II

Stepwell Basic Background Data

1. Panchayat Samiti
2. Village
3. Code No.
4. Name of Stepwell
5. No. of Users
6. Type of Step
7. No.of Guineaworm Patients using this well
8. Type of Well
9. Whether used for irrigation purpose or not
10. Estimated Cost

Junior Engineer

ANNEXURI III

सेवामें,

श्रीमान् परियोजना अधिकारी जी
स्वच्छ/नारू उन्मूलन परियोजना,
उदयपुर ।

विषय:- नारू उन्मूलन कार्यक्रम के अन्तर्गत सीढ़ीदार कुएं/बावड़ी को आदर्श कुएं में परिवर्तित कराने के सम्बन्ध में ।

महोदय,

उपरोक्त विषय में निवेदन है कि हमारे कुएं/बावड़ी से .....व्यक्ति पानी पीते हैं, एवं इसके पानी पीने से नारू रोग फैलता है तथा इस वर्ष .....मनुष्यों को इसका पानी पीने से नारू निकला है । कृपया इसकी सीढ़ियां बन्द कर इस पर गिरारी लगाने के आदेश प्रदान करावें ।

हमारे कुएं से पानी पीने के लिए ले जाने को किसी को मनाई नहीं है, एवं भविष्य में भी हम पीने के पानी के लिए किसी प्रकार की रोक नहीं लगायेंगे ।

कृपया उक्त कार्य शीघ्र कराने के आदेश प्रदान करावें ।

धन्यवाद ।

नारू रोगियों के नाम:-

1
2
3
4
5
6
7
8
9
10
11
12

प्रार्थी

हस्ताक्षर/निशानी

नाम..... पिता श्री.....

दिनांक.....

जाति.....

फला..... गांव.....

स्थान.....

पंचायत..... पं. सं.....

उपरोक्त कुएं का सर्वे किया गया तथा इसमें सभी तथ्य प्रमाणित किये जाते है ।

( )

दिनांक

कनिष्ठ अभियन्ता

OFFICE OF THE PROJECT OFFICER

SWACH/ I. G. E. P.

UDAIPUR

DETAILED-ESTIMATE

Name of work: Conversion of step well in to draw well of.....

Vill ..... G.P..... P.S.....

Name of Junior Engineer..... Cluster.....

C. C. No.....Population.....Guinea worms.....

S.No.	Particulars	Measurement No.	L	B	H	Quantity
1	2	3	4	5	6	7
1.	Dismantelling masonry incl stacking of stone & disposal of rubbish					
	a. In mud mortar					
	b. Dry mortar					
	c. In cement mortar					
2.	E/W in excavation in foundation H.S.M.B. as per specification					
3.	R.R. stone masonry in foundation & Plinth with cement sand mortar 1:6					
4.	R.R. stone masonry in super structure with cement sand mortar 1:6					
5.	Add extra for pillars (rectangular & square in plan) for stone masonry work through stone bed plate at every I M interval					
6.	Add extra for above for walls 30 CM or below in thickness					
7.	Cement plaster on walls with cement mortar 1:6 20 mm thick in 2 coats					
8.	Cement plaster on wall with cement mortar 1:6 (20 mm thick in 2 coats)					
9.	Neat cement punning for walls of bathroom WC & inside walls of water tank etc,					
10.	P/LC. C. 1:2:4 Mix (M 150 with stone grit max. size 20 mm (M15/) with stone grit including rendering with CM 1:3 if necessary					

1	2	3	4	5	6	7
11.	PLC. C 1:2:4 D. P. C. Dassa sills of coping *Inel. neat finishing with smooth surface in* regd size 50 mm thick					
12.	Supplying hoising fixing in position steel work in tees angles channels & flates etc. comp. as per specifications					
13.	Engaging set 5/9 H. P. for dewatering purpose					
14.	R. R. dry stone masonry					
15.	R. R. stone masonry repairs in tuman with old new stone in C.M. 1:6					
16.	S/F Name Plate					
17.	.....					

( )

JUNIOR ENGINEER
SWACH;I.G.E.P., UDAIPUR

ANNEXURE V

OFFICE OF THE PROJECT OFFICER

SWACH/I. G. E. P.

UDAIPUR

Name of work:- Conversion of step well into draw well of.....

Vill.....G. P..... .....P.S.....

Name of Junior Engineer..... Cluster.....

C. C. No .... Population..... .....Guinea worm.....

Abstract of Cost/P.W.D. (B. & R.) B.S.R. 1987

S. No.	Particulars	Quantity	Rate	Amount
1.	Dismantelling masonry incl. stacking of stone & disposal of rubbish			
	(a) In lime mortar		15/- PCum	Rs.
	(b) In mud mortar		7.50/-PCum	Rs.
	(c) In Cement mortar or old hard masonry in lime mortar		17/-PCum	Rs.
2.	E. W. in excavation in foundation trenches in HS M.B. hard-kankar, gravel, morrum etc. lift upto 1.5 m. stacking the excavated soil cleat from the edge of excavated and soil in 15 c.m. layers where required etc. Consolidated each deposited layer by ramming and watering and then disposing of all surplus soil as directed within a lead of 30 m.		13/-PCum	Rs.
3.	R/R stone masonry in foundation & Plinth with Cement sand mortar 1:6		233/-PCum	Rs.
4.	R R Stone masonry in Super structure with Cement sand mortar 1:6 (for wells)		268/-PCum	Rs.
5.	Add extra for pillars (rectangular & square in plan) for stone masonry work through stone bed Plate at every 1 m interval		30/-PCum	Rs.
6.	Add extra for above for walls 30cm or below in thickness		14/-PCum	Rs.
7.	Cement Plaster on walls with cement sand mortar 1:4 20mm thick in 2 coats		18/-PSqm	Rs.
8.	Cement plaster on walls with cement sand mortar 1:6 (20mm thick in 2 coats)		14/-PSqm	Rs.
9.	Neat cement punning for walls of bathroom WC & inside walls of water tank etc.		2.00/-PSqm	Rs.
10.	P.L. C.C. 1:2:4 Mix (M 150) with stone grit max size 20mm (M 150) with stone grit incl rendering with C.M. 1:3 if necessary curing etc. complete (hand mixing & hand compacted)		514.25/-PCum	Rs.

S. No.	Particulars	Quantity	Rate	Amt
11.	P/L CC 1:2:4 D. P. C. Dassa sills or coping incl neat finishing smooth surface in read size 50mm thick.		32/- Sqm Rs.	
12.	Supplying hoiting fixing in position steel work in tees angle channel & flates etc. comp as per specification		900/- pq - Rs.	
13.	Engaging of pumping set 5/9 H. P. for dewatering purpose		92.5/-pday with POL Rs.	
14.	R. R. dry stone masonry		50/-pcumt Rs.	
15.	R. R. Stone masonry repairs in tuman with old anew stone in C.M. 1:6		36/-P sdmt Rs.	
16.	Name Pliate		55/-No. Rs.	
17.	.....		TOTAL.....	
			Add 6.5% for	
			Other charges Rs	
			G. TOTAL.....	
	Water utilizers:		Say Rs.....	
	1			
	2			
	3			
	4			
	5			
	6			
	7			
	8			
	9			
	10			

( )

Assistant Project Officer (Tech)
SWACH/I. G. E. P., UDAIPUR

Junior Engineer
SWACH/I.G.E.P. UDAIPUR

ANNEXURE VI

PROFORMA-'A'

CONVERSION OF STEPWELL

Panchyat Samiti _____ J.En. _____ District: Udaipur

S. No.	Village	C.C. No.	Name/Location	Sanction No.	Sanction Date	Sanction Amt.	Expenditire Material	Expenditire Others	Expenditire Labours	Expenditire Total	Cat. Pvt.	Sche. D/F	Month of Conv.	Remark

कार्या० परियोजना अधिकारी स्वच्छ/जलापूर्ति परियोजना, उदयपुर।

सीढ़ीदार बावड़ियों को आदर्श कुओं में परिवर्तित करने की सूची

कनिष्ठ अभियन्ता .... पंचायत समिति ....

क्रमांक	नाम बावड़ी	कहाँ	गांव	खसरा नं.	ग्राम पंचायत	अनुमानित लागत	स्वीकृति राशि	दिनांक	विशेष विवरण
1.	2.	3.	4.	5.	6.	7.	8.	9.	10.

ANNEXURE VII

OFFICE OF THE PROJECT OFFICER

SWACH / I. G. E. P.

UDAIPUR

IMPREST CASH ACCOUNTS

Imprest Cash Book of:–

Month and date	Voucher No.	Transaction	Amount of Cash Received		Amount of Cash Payment		Remarks
1	2	3	4		5		6
			Rs.	P.	Rs.	P.	

ANNEXURE VIII

HAND RECEIPT

Cash Book Voucher No .. ..

(1) Pay by Cheque / Cash

(2) Paid by me P D

Received from.....

Name of work for which Payment is made .....

.....Chargeable to .....

.....vide item of pay bill.....

(Voucher No.).....

(Stamp)

Witness

Signature of Payee

हेण्ड रिसिप्ट

1. सप्लायर का नाम मय पता : .....

2. वाहन का प्रकार मय संख्या : .....

3. कार्य का नाम : .....

4. प्रदायगी सामग्री का विवरण : .....

क्र.सं.	दिनांक	सामग्री का विवरण	दूरी का विवरण (लीड)			दूरी कि.मी. में	मात्रा	दर	रकम
			कहां से	कहां तक	कच्चा/पक्का				
1	2	3	4	5	6	7	8	9	10

स्थान :

दिनांक :

हस्ताक्षर सप्लायर्स

प्रमाणित किया जाता है कि-

1-प्रमाणित रूपये..... .....भुगतान हेतु पारित

2-.....स्टॉक रजिस्टर पेज संख्या..... रू०..... अक्षरे.....

दिनांक..... .....पर दर्ज थी। व्यय मद.....

3-सामग्री बाजार दर से ....क्रय की गयी।

4-सामग्री जिस कार्य हेतु क्रय की गई उसी कार्य में ली गई तथा स्टॉक पेज सं०..... .....

.....पर दर्ज की।

5-नाप पुस्तिका सं. ..... पेज संख्या.....

प्रमाणित

हस्ताक्षर कनिष्ठ अभियन्ता

सहायक परियोजना अधिकारी,
(तकनीकी)
आई.जी ई.पी उदयपुर

ANNEXURE X

कार्यालय स्वच्छ/समन्वित नारु उन्मूलन परियोजना, उदयपुर

क्रमांक : एफ ( ) आईजीईपी/पीओ/उदय/88-89 दिनांक

1- कनिष्ठ अभियन्ता का नाम :-

2- बावड़ी/पशुओं को नांद/वाशिंग प्लेट फार्म का नाम/स्थान --

3- गांव का नाम :-

4- सार्वजनिक/निजी --

5- ग्राम पंचायत का नाम--

6- पंचायत समिति का नाम--

7- समूह

8- अनुमानित लागत (तखमीने के अनुसार)

9- स्वीकृति संख्या

10-निर्माण कार्य मैजरमेन्ट चुनाई, प्लास्टर (अन्दर,बाहर, चारों तरफ का पूर्ण मैजरमेन्ट का विवरण)

रागो

11-सामग्री व्यय का पूर्ण ब्यौरा--

1	चुनाई पत्थर	मात्रा	दर
2	रेत	मात्रा	दर
3	सोमेन्ट	मात्रा	दर
4	गिट्टी	मात्रा	दर
5	छवाई का पत्थर	मात्रा	दर
6	अन्य यातायात व्यय		

12-डी-वाटरिंग पम्प दिनों की सं. दर

13-गिरारी संख्या दर

14-अन्य व्यय

15- .....

16-मजदूरी

17-कुल व्यय

18-बी.एस.आर. से अधिकतम राशि प्रतिशत/ %

( )

हस्ताक्षर
कनिष्ठ अभियन्ता

मस्टर रोल एवं कार्य का विवरण—

क्र. सं.	कार्य का विवरण	कार्य की मात्रा	दर	कुल राशि	विशेष विवरण
1	2	3	4	5	6

प्रमाणित किया जाता है कि—

1. इस मस्टर रोल की राशि पूर्व में नहीं उठायी है।
2. इस मस्टर रोल पर अंकित श्रमिकों को विभागीय कार्य पर ही लगाया गया है।

1. कुल भुगतान योग्य रकम.....
2. पूरी दर से रकम.....
3. कार्य का प्रतिशत (%).....

कार्य का नाप दिनांक.....को लिया गया तथा उसका इन्द्राज नाप पुस्तिका संख्या.....के पृष्ठ संख्या.....से.....तक कर दिया है।

कनिष्ठ अभियन्ता
दिनांक..... हस्ताक्षर एवं नाम

जांच की गयी सही पायी अतः प्रमाणित

सहायक परियोजना अधिकारी (तक.)

.....

भुगतान के लिए पारित रुपये.....

अक्षरे रुपये.....मात्र।

लिपिक/लेखाकार परियोजना अधिकारी

इस मस्टरोल का भुगतान मेरे द्वारा किया गया है, रुपये का..... भुगतान कर दिया गया है तथा रुपये.....का भुगतान होना बकाया है।

बकाया का विवरण—

क्र. सं.	श्रमिक का नाम	कुल बकाया राशि	
1	2	4	

दिनांक.....

भुगतान करने वाले के हस्ताक्षर

.....

नाम.....

ANNEXURE XII

पुस्तिका संख्या.....

पेज संख्या.....: 51

स्वच्छ/समन्वित नारू उन्मूलन परियोजना, उदयपुर

दिनांक.....को जारी किया गया।

निर्माण कार्य मस्टर रोल

कार्य का प्रकार ..... नाम कार्य ..... फला/गांव .....

राजस्व ग्राम..... कोड संख्या..... ग्राम पंचायत..... पंचायत समिति..... माह.....

क्रम संख्या	श्रमिक का नाम/पिता/पति का नाम जाति-निवासी	उम्र	पद	दिनांक	दिनों की संख्या	दर	कुल रकम	श्रमिक के हस्ताक्षर/ अगूठा निशानी	भुगतान करने वाले के हस्ताक्षर
1	2	3	4		6	7	8	9	10

Appendix XII

Stepwell Inspection Report

Name of Office _____

S.No.	Village	Code No.	Panchayat Samiti	Step well	Date of Visit	Vosited by	Remarks if any

Annexure XIII

Proposed Handpump sites by SWACH Project

Name of office _____ List No. _____ Distt._____

S.No.	Village	Census Code	Gram Panchayat	Panchayat Samiti	Location of Handpump	Proposed depth in meters	Direction and length of drain	Name of contacted person
1	2	3	4	5	6	7	8	9

Annexure XIV

Tentative Action Plan for Rig No. Distt.

S.No.	Name of Village	Code No.	Tehsil	No.of Hand pump	Month	Head

Executive Engineer
PHED, Drilling Division
Udaipur

ANNEXURE XV

GOVT. OF RAJASTHAN

PHED DRILLING RIGS
MONTHLY PROGRESS REPORT

District ..... (Code .....)

District ..... (Code .....)

Rig No. | | | |

Month/year | | | | | M | M | Y | Y |

S. No.	District Code	Block Code	Village Code No.	Village Name	Borehole No.	Drilling dates From	Drilling dates To	Drilling Depth (m)	TOP Casing Dia (mm)	Casing (m) Length	Yield (l/min.)	S / U	S.W.L (m)
1													
2													
3													
4													
5													
6													
7													
8													
9													
10													
11													
12													
13													
14													
15													
16													
17													
18													
19													
20													

Cumulative total since commissioning

Progress	Boreholes	Successful	Unsuccessful	Depth (m)	Casing (m)	Compressor hours	Power pack hours	Rig travel Kms
Cumulative								

Rig utilization during the month (days)

Drilling	Crew training	Servicing	Breakdowns: Repairs	Breakdowns: Waiting for spares	Rains	Hondys	Shifting	Non availability of: Casing	Non availability of: Diesel	Non availability of: Site	Inaccessible site	Other reasons: Days

Remarks : (Max 60 Characters) :—Please fill only one character per column

Quantity Consumed: Fuel	Quantity Consumed: Lub. oil	Quantity Consumed: Comp oil	Bits Consumed (Type & Quantity)	Remark

Please check before signing that all columns are filled in the metric system

Junior Engineer Assistant Engineer Executive Engineer

Annexure XVI

GOVERNMENT OF RAJASTHAN
OFFICE OF THE EXECUTIVE ENGINEER, PHED, DRILLING DIVISION, UDAIPUR

Monthly Progress of Handpump installation for the month of .....

Name of District _____ Name of Sub Dn._____

S.No.	Name of village & location	Tehsil	Census code No. 1971	Census code No. 1981	Population 1981 SC	ST	Other	Total	Type of scheme	No.of H.P Installed	Problem Category P	Problem Category NP	Famine effected or not	App. uptodate exp. in vill.	Fresh or repeated village	point of current year or black log.	Installed Deptt/ Cont.	Progress

Junior Engineer,
PHED, Drilling

Assistant Engineer,
PHED, Drilling Sub Dn.

Annexure XVII

An Illustrative List of Recognised Suppliers of Tools for Repair and Maintenance of India Mark II Hand Pumps

1. Richardson and Cruddas Ltd.,
   (A Govt.of India Undertaking)
   Rajaji Salai,
   P.O.Box: 1276
   Madras 600 001 (Tamilnadu)

2. Achieve Engineering Works
   E - 294, Industrial Estate
   Peenya,
   Bangalor, 560 058 (Karnataka)

3. Prakash Engineering Enterprises,
   A - 193, Industrial Estate
   Peenya,
   Bangalor 560 058 (Karnataka)

4. Aqua Mech Pvt. Ltd.,
   20, Third Avenue,
   Basant - Nagar,
   Madras, 600 090 (Tamilnadu)

Annexure XVIII

LIST OF TOOLS REQUIRED FOR REPAIR AND MAINTENANCE OF INDIA MARK II HANDPUMPS

Standard Tools

1.	Buttom Die (to suit 12 mm rod) M 12x1.75 Threads	1 set
2.	Die set for 32 mm GI pipe	1 set
3.	600 mm pipe wrench	1 nos
4.	450 mm pipe wrench	1 nos
5.	300 mm pipe wrench	1 nos
6.	M17 x M19 double ended spanners (to suit 10 mm x 12 mm, bolts & nuts)	8 nos
7.	300 mm screw or adjustable spanner	1 nos
8.	Screw driver 300 mm	1 no.
9.	Screw driver 300 mm long	1 no.
10.	2 kg. hall pein hammer with handle	1 no.
11.	Hacksaw frame with two spare blades 300 mm	1 no.
12.	Pressure type oil can (½ point with oil)	1 no.
13.	Wire brush	1 no.
14.	250 mm half round file with handle	1 no
15.	250 mm flat file with handle	1 no.
16.	Lithium base/multipurpose grease	1 kg
17.	Graphite Grease	1 kg
18.	Nylong rope (3 mm thick)	75 meters

Special Tools

1.	Self locking clamp	1 no.
2.	Tank pipe lifter	1 no.
3.	Coupling spanner	1 no.
4.	Handle axle punch	1 no.
5.	Connecting rod lifter	1 no.
6.	Crack spanner	2 nos.
7.	Lifting spanner	3 nos
8.	Connecting rod vice	1 no.
9.	Chain coupler supporting tool	1 no.
10.	Bearing Pressing tool	1 no.
11.	Tool Box	1 no.