Evaluation of the Integrated Rural Water Supply and Sanitation Project

MOUNT DARWIN DISTRICT

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EVALUATION TEAM

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ABBREVIATIONS

DDC	District Development Committee
DDF	District Development Fund
DWSSC	District Water Supply and Sanitation Committee
IRWSSP	Integrated Rural Water Supply and Sanitation Projects
LWF	Lutheran World Federation
MLGRUD	Ministry of Local Government, Rural and Urban Development
MEWRD	Ministry of Energy and Water Resources Development
NAC	National Action Committee
NCU	National Co-ordination Unit
NGO	Non-Government Organisation
NMPRWSS	National Master Plan for Rural Water Supply and Sanitation
NORAD	Norwegian Agency for Development Co-operation
NRWSSP	National Rural Water Supply and Sanitation Programme
VCW	Village Community Worker
VIDCO	Village Development Committee
VIP latrine	Ventilated Improved Pit latrine

1. INTRODUCTION

1.1 The National Rural Water Supply and Sanitation Programme

At the time of Independence in 1980, one of the immediate concerns for Zimbabwe was to rehabilitate and reconstruct the infrastructure of the rural communal and resettlement areas of the country, where some 53% of the population (primarily women and children) live. The bulk of the rural (communal) areas are in natural regions III to V, and are characterised by low rainfall, environmental degradation and limited access to services such as health and educational facilities. Rehabilitation of water installations was one of the initial priorities for development of the communal areas, with the emphasis being on increasing access to protected water sources for domestic use and livestock watering.

The Norwegian Agency for International Development (NORAD) was one of the first agencies to assist with the rehabilitation exercise, and Norwegian aid has continued to be influential in all areas of development within the water and sanitation sector. As programme orientation moved away from rehabilitation alone to emphasise on-going primary water supply development in the communal areas, NORAD financed the preparation of the National Master Plan for Rural Water Supply and Sanitation, which was completed in 1984. The plan was intended to serve as a planning tool for the sector, to overcome the existing weaknesses in policy, strategy and planning issues and within institutional structures.

As recommended by the NMPRWSS, the National Action Committee (NAC), together with its secretariat the National Co-ordination Unit (NCU), based in the Ministry of Local Government, Rural and Urban Development (MLGRUD), was established in 1985. The current sector programme - the National Rural Water Supply and Sanitation Programme (NRWSSP) - is operated through the NCU. The NRWSSP has the following key objectives:

Overall objectives:
- to improve health conditions;
- to reduce the physical burden of women and children;
- to improve economic conditions

Specific objectives:
- improvement of water supply in terms of reliability, quality, quantity and accessability,
- improvement of sanitation through latrine construction;
- motivating behaviour change through health education;
- promoting community responsibility

The sector strategy developed to meet these objectives includes the following components:

Inter-ministerial co-ordination:

A number of government agencies are involved in the water and sanitation sector. Under the IRWSSP, District level water and sanitation committees (DWSSC) are formed, as sub-committees of the District Development Committee (DDC). Broadly, the tasks of each agency are defined as:

Ministry of Local Government, Rural and Urban Development - overall sector co-ordination;

Ministry of Energy and Water Resources Development - implementation of borehole drilling and water surveying;

District Development Fund (MLGRUD) - implementation of deep wells, borehole drilling and maintenance of all rural water supplies;

Ministry of Health - health education, sanitation construction and shallow /hand- dug wells;

Ministry of Community and Co-operative Development - community mobilisation, training and pre-siting exercises;

Ministry of Lands, Agriculture and Rural Resettlement - land use planning

Ministry of Finance Economic Planning and Development - donor coordination, control of funds, monitoring.

To optimise integrated co-ordination and implementation, all activities are decentralised to the District level, where IRWSSP are prepared. The District Administrator, has overall responsibility for the work and co-ordination of the District water supply and sanitation team.

Community participation:

In order to enhance community management and ownership of water and sanitation facilities, substantial community participation activities are built into the project. These include:

- pre-siting exercises;

- mobilisation of water point committees - the first tier of the three-tier maintenance system;
- labour and in-kind contributions to deep and shallow well construction, and to latrine construction, as well as financial contributions to household latrine construction.

Three-tier maintenance system:

The rapidly growing number of water supply installations requires support to the DDF, which has been developed within the three-tier strategy:

- at village level, the water point committee, one of the members of which is trained as a pump caretaker;
- at ward level, the pumpminder, appointed through DDF to undertake routine maintenance and repairs for water points in a given number of wards, and to supervise the work of the caretakers;
- at District level, the DDF District Maintenance Unit, to oversee and provide third-tier back-up to all primary water supply maintenance.

Districts are encouraged to prepare detailed project proposals, based on guidelines provided by the NCU. District submissions are passed through the Provincial Water and Sanitation Subcommittee to the NCU, which submits them to the NAC for approval. District projects have usually operated for a three year period in the first instance although this is now changing to five years.

Programme status

By September 1990, the status of the National Programme was as follows:

19 integrated District projects in progress;
5 integrated District projects approved, waiting for finance;
5 integrated District project proposals under preparation

Other donor funded projects were in progress in 18 Districts, and non-government organisations (NGOs) were involved in water and sanitation activities in 33 of Zimbabwe's 55 Districts.

The integrated District project in Mount Darwin which is evaluated here is one of the 19 District projects currently in progress.

1.2 Background to the Mount Darwin IRWSSP

Mount Darwin is located in the extreme north of the country, with approximately one-third lying in the Zambezi Valley.The population of the District was

estimated to be 90,330 in early 1987. Areas to the north of the District have the highest population densities, and are designated as natural region IV. Development activities have been hindered by the difficult geo-physical conditions of the area, and of late, by the security problems emanating from the unstable security situation on the Mozambican side of the border.

In 1986/87, a private consulting firm, Interconsult, was commissioned to carry out an inventory exercise in the whole of Mashonaland Central, to determine the number of wells and boreholes in each District, and in each ward. On the basis of the inventory of water points obtained, priority lists were prepared for those Districts and wards which were in most urgent need of additional primary water supplies. Mount Darwin was chosen as the priority District, and within the District, the priority wards identified were Karanda, Chawanda, Chitse, Mudzengerere, Newedza, Kandeya and Matope.

The Mount Darwin IRWSSP was also a pilot project for the NRWSSP strategy, being the first District-based, integrated project to be implemented. All responsibility for the project lay with the Government agencies concerned, in contrast to the Manicaland District projects, started in 1983/84, which had utilised the input of consultants in many areas of project operation.

The IRWSSP was originally proposed to run for a three-year period from 1987/88 to 1989/90. Funding for the three years was committed by NORAD, and in the NCU Plan of operation for 1987-91, proposed budget figures for Mount Darwin were given as follows:

1987/88	Z$1,500,000
1988/89	Z$1,200,000
1989/90	Z$1,400,000

A further Z$1,200,000 was allocated for 1990/91 as part of the allocation granted for an extension of the IRWSSP in the District for a further three years (1990/91 to 1992/93). The extension was requested in view of the fact that the project had met only half of the water supply requirements and one-sixth of the household sanitation requirements by the end of the first three-year project. The release of funding for the fifth and sixth years of the project is contingent upon the current evaluation.

1.3 Objectives and methodology of the Mount Darwin IRWSSP

The objectives of the project in Mount Darwin were:

1. To improve the health and living conditions of village communities through the provision of new, protected water supplies and the rehabilitation of existing water supplies for domestic purposes. Water points were to be within walking distance (500m).

2. To improve the health of village communities through the provision of adequate sanitation facilities and health education. At least 50% of the households were expected to have sanitary facilities at their homesteads.

3. To ensure adequate, cost-effective maintenance of all water points through the establishment of a community based three-tier maintenance system.

4. To encourage decentralised planning of water and sanitation projects, through community participation in planning, implementation and maintenance.

The implementation strategy spelt out in the project proposal was one in keeping with the national programme guidelines (as described in 1.1 above), emphasising the inter-ministerial approach, decentralised planning and community participation and management.

2. OBJECTIVES OF THE EVALUATION

2.1 Development of the objectives

As noted above, the continuation of the Mount Darwin IRWSSP into its fifth and sixth years with funding from NORAD is contingent upon the findings of this evaluation. This implies the adoption of standard external evaluation techniques and objectives, where the primary aim is to review the overall appropriateness of the IRWSS project in meeting sector development goals at the District level.

The evaluation of the Mount Darwin project, and of another District project (Makoni District, Manicaland), however, forms part of a larger consultancy study being undertaken by a team coordinated by the Training Centre for Water and Sanitation (Department of Civil Engineering, University of Zimbabwe) under commission from the NCU. This consultancy study has as its terms of reference, the development of an evaluation methodology for District IRWSS projects in Zimbabwe. As stated in the original project proposal developed by the NCU, the rational for the consultancy is as follows:

> *"There has been an increasing awareness of the need to develop an evaluation methodology for use in District IRWSS projects in general, of a more formal and independent type than the informal, in-house evaluations currently carried out by District teams on a half-yearly basis. This has become particularly pertinent now, as Districts which joined the programme at the start are likely to move towards completion of their projects within the next one to two years.*

A well-structured and appropriate evaluation methodology is required to assess progress made, and identify lessons to be learned for the future development of the integrated approach. The methodology should be appropriate for the conducting of independent evaluations during the life of District projects, or upon project completion.....
Given the scale of the NRWSS programme, long-term dependence on external support for evaluation purposes is not feasible. A methodology must therefore be developed which is appropriate for periodic local implementation at modest cost."

As the evaluations of Mount Darwin and Makoni Districts were already scheduled for financial year 1990/91, it was decided to utilise these evaluations as a testing ground for the methodology and techniques being developed as part of the larger consultancy. Further details of the methodology are given in section 3 below.

2.2 Objectives of the evaluation

Based on the terms of reference provided by the NCU, the objectives of the evaluation of the Mount Darwin IRWSSP are:

1. to determine the relationship between targets and outputs produced, and rate of implementation;

2. to determine the appropriateness of technologies used including standards of construction, maintenance and patterns of use;

3. to determine the cost effectiveness and appropriateness of the procedures used in the District for the development and installation of water and sanitation facilities;

4. to determine the effectiveness and prospects for sustainability of the operation and maintenance system and associated training and support systems;

5. to determine the effectiveness and appropriateness of District project preparation, co-ordination, work planning, monitoring and reporting systems, and the support given to the District from provincial and national levels;

6. to determine the impact of the IRWSS project, both positive and negative, on the capacity at the District level, to plan, co-ordinate and implement rural development projects in general;

7. to determine the effectiveness, appropriateness and impact of community participation and health education components of the District IRWSS project;

8. to assess the participation of women in project activities, their access to training for different income generating positions, their role as decision makers and implementors, how implementation procedures promote women's participation, if the selection of field workers takes into account women's traditional roles and knowledge in domestic water supply, and changes that have taken place in women's lives as a result of their being abundant water supplies near the home and improved sanitation facilities;

9. to determine the attitudes of the beneficiary population to:
   - the project in general;
   - the relationship between implementing agencies, local authorities and communities;
   - inputs required of community members;
   - the involvement of women;
   - the acceptability of facilities installed.

The objectives related to assessing the role and participation of women, changes in their lives, etc., have been expanded beyond those incorporated in the initial terms of reference. This is in response to a request by the newly-formed NAC Working Group on Gender Participation to consider the inclusion of more specific gender related issues in the development of the evaluation methodology.

3. METHODOLOGY

3.1 Data collection methods

As described above, the methodology used in the evaluation of the Mount Darwin IRWSS project was based on that developed in the Draft Handbook of District Evaluation Methods for Integrated Rural Water Supply and Sanitation Projects. This methodology, designed primarily for District team use, emphasises a non-quantitative approach to the evaluation; this, therefore, was the scope of the present evaluation exercise. The methodology includes a District-level workshop, desk studies, interviews and field observations.

The District-level, one-day workshop was held with representatives of the DWSSC, project implementors and members of the District council. Using a problem-identification technique, undertaken through small group discussions, the aim of the workshop was to summarise the successes and weaknesses of the project and identify the factors contributing to these. In this way, constraining and

facilitating factors were identified and described, and action was recommended where possible.

The desk studies involved a review of records and reports. In particular, review was made of the original project document, quarterly and annual reports, maintenance reports and financial records (where available). Examination of these records was important in analyzing, for example, the management, monitoring and reporting systems, training and facility unit costs, and outputs and targets and the degree to which they correspond.

Group interviews were conducted with the following: District teams, pumpminders, water point committee members and groups of water point users. In all cases, the discussions were guided by the issues to be explored as defined by the objectives and as further elaborated in the Evaluation Handbook which is still under preparation. Issues discussed with each group included the following:

District teams:

- project preparation and planning;
- co-ordination and control;
- monitoring and reporting mechanisms;
- financial control;
- training;
- operations and maintenance;
- health education and community participation;
- gender issues.

Pumpminders:

- operational issues, including training;
- the three-tier maintenance system;
- relationships with the water point committees.

Water point committees and user groups:

- the existence, creation and functioning of the water point committees;
- the form and extent of community participation;
- maintenance and training;
- health and hygiene education;
- water utilisation;
- opinions of and attitudes towards latrines, and the different types of water points;
- the nature and extent of the involvement of women in the project and the impact on their activities.

Observations of the water points and latrines were carried out using checklists developed in the draft handbook. These included water point and

latrine usage, construction standards, maintenance and hygiene practices. In addition, wherever possible, members of the family were interviewed in households which had a latrine.

3.2 Sampling framework

As the methodology is principally not a quantitative one the aim of the sampling was to ensure representativeness. The situation observed must reasonably represent the situation actually pertaining in the District. The method of sampling aimed to take into account different developments over time affecting the project. Consequently, two wards where the project was already established and two wards where the project was new or just being implemented were selected randomly from a list given by the DWSSC members.

Whilst the emphasis was placed mainly on qualitative data the sampling was also designed to collect some detailed data on construction using checklists. Using these checklists a small number of water points and latrines were examined in depth for technical or construction faults as described below.

In each ward, water points representing deep wells, shallow wells (bucket pumps) and boreholes were purposively selected. Whilst every effort was made to have all three types of water point represented in a ward, this was not always possible for the shallow wells. In this case, a shallow well was then sampled in an adjoining ward if it was similar in terms of the project life. Water point committees and community members were interviewed at the water points. The total number of water points examined in detail in Mount Darwin was 12, comprising 4 boreholes, 4 deep wells and 4 shallow wells.

A total of 24 latrines were examined using a detailed checklist amongst the households using these 12 water points. In addition to observations of the latrine, where possible the householders were interviewed, particularly concerning use and satisfaction with the facility. Discussions concerning the sanitation project were also held with the water point committees.

Most emphasis was placed on the collection of information about latrines and water points in terms of their accessibility, reliability, suitability, and acceptability as perceived by the community. Therefore on visiting the wards discussions were held with community leaders such as village community workers and political leaders regarding the above points whilst some additional 30 to 40 latrines were observed more casually. Likewise for water points an additional 15 to 20 were seen during the movements around the wards.

The data from the checklists were examined for conformity with construction guidelines in the NRWSSP. The opinions and attitudes of the community together with our own observations contributed most information to our findings regarding the four points mentioned in the previous paragraph.

With the increasing emphasis being given to community participation and

responsibility in IRWSSP it is important that the balance of sampling effort between the community and physical structures favours the community. In addition to the samples of community structures at ward level it is important to ensure that they are adequately represented in data collection at the District level.

Data on the IRWSSP for Mt. Darwin were also collected from a Participatory evaluation workshop conducted at District level. The participants were chosen to provide a sample of each of the major components of the project - management staff, implementation staff and beneficiaries.

The process of sampling and data collection will be described in more detail in the Evaluation Handbook.

4. RESULTS OF THE EVALUATION

We describe the results of the evaluation, including the opinions of the participants of the workshop, under the headings of the evaluation objectives. Conclusions and recommendations are drawn wherever possible or appropriate. In situations where we do not give recommendations it is because we feel that either there is not enough information, or a recommendation is unnecessary.

The results are cross referenced to the recommendations where appropriate.

4.1 The relationship between targets and outputs produced, and rate of implementation.

The targets and outputs for the first three years of the project are set out in Table 1. Overall, 75% of the target for the installation of water points was reached, but only 30% of the targeted number of latrines were in place by the end of the third year. It is clear, however, that by the third year, targets for latrine construction were much more realistic than in previous years. All other activities for which targets were set were being satisfactorily addressed in the second and third year of implementation (Table 1).

The setting of unrealistic targets for all project components arose initially because of the planning process which was conducted by consultants with little direct input from the Ministry cadres involved. The process has now been changed; targets are set by the DWSSC for the coming year at an annual meeting to develop the implementation plan. These targets are rendered more appropriate by reference to what each ministry has been able to achieve in the previous target period. This is a very good approach, and allows discussion and consensus to be used as limiting factors against over-ambitious targets.

TABLE 1

MOUNT DARWIN DISTRICT IRWSS: TARGETS AND ACHIEVEMENTS IN THE THREE-YEAR PERIOD 1987/88 TO 1989/90

Activity	Agency	1987/88		1988/89		1989/90	
		Target	Actual	Target	Actual	Target	Actual
Siting of pws	MWERD	100	65	-	-	-	-
New boreholes installed	MWERD*	50	26	40	30	60	53
Boreholes rehabilitated	DDF	50	67	50	35	25	4
Deep wells installed	DDF	20	21	45	51	70	38
Headworks	DDF	-	-	65	50	-	-
Shallow wells installed	MOH	30	14	60	30	50	50
Latrines constructed	MOH	1500	200	2500	404	800	815
Builders' training	MOH	168	106	192	146	96	0
Pumpminders' training	DDF	4	4	-	-	4	4
Pump caretakers' training	DDF	164	115	105	135	180	151
Well sinkers'/blasters' training	DDF	25	65	-	-	-	-
Refresher courses	MCCD	-	-	-	-	96	72
Presiting of pws	MCCD	200	152	315	315	-	-
Water point committees	MCCD	100	115	105	130	220	235
Village WSSC	MCCD	42	47	58	58	-	-
Ward WSSC	MCCD	7	7	-	-	-	-
Opening ceremonies	MCCD	-	-	10	2	10	5
Ward inventory	MCCD	7	16	-	-	-	-
Ward land use plans	AGRITEX	7	5		-	2	1

* DDF took over borehole drilling from MWERD from 1988/89

At the evaluation workshop, the DWSSC participants singled out the failure to meet the project targets as the single, most serious problem. Reasons for the lack of achievement were many and cover most of the points raised elsewhere in this document plus the national shortage of transport, cement and other materials. We felt that the single most important reason was not recognised and that was the lack of planning. The DWSSC had not been involved in project preparation, had taken over the project from a consultant, had not received any training in project management and were not using the project document in preparation of their implementation plans. Constraints are always present and implementation planning should take these into account and adjust the project targets, and if necessary, the project budget accordingly. The project document should form the basis of all planning for the life of the project (**Recommendation 5.2.1**).

Sanitation. Field observations confirmed the very patchy coverage of appropriate sanitation facilities. A village community worker in Chiswiti reported that out of approximately 250 households, only 15 had latrines (6%), although there was evidence in the same ward of much higher coverage at the administrative centre.

In Bveke ward, one VIDCO chairman reported that there were eight latrines amongst 156 households (5%), whilst the councillor for the ward, which had had assistance from World Vision, said that there was a ward coverage of approximately 15%.

The most up to date inventory for Mt Darwin was for 1988 (Table 2) which is derived from the implementation plan for 1990/91. This gives an overall coverage of 7% of households with VIP latrines ranging from 2 to 17% and leaves 7,700 latrines to be constructed to reach the phase one target at 1989 population figures. The rate of implementation reached a maximum of 815 in the last year reported (Table 1) which means that it will take almost ten years to construct the 7,700 latrines. The most important conclusion from this is that the project document and targets must be adjusted according to the present realities of implementation. When the most important constraint for latrine construction , availability of cement, is overcome then the rate of implementation may improve.

Water. The ward coverage of water points in 1988 are shown in Table 2. The persons per shallow well unit varies considerably from ward to ward indicating where most attention needs to be placed. Unfortunately the ward inventory is not kept up to date and used as a planning tool with the possibility that too much effort will be placed in some wards. (**Recommendation 5.2.9**). Table 2 does not include the 1989/90 facilities and if we add these the approximate number of persons per shallow well unit is 62. This shows good progress toward the achievement of Phase 1 targets of 50 persons per shallow well unit assuming that these water points are working.

TABLE 2. MT DARWIN WARD INVENTORY OF FACILITIES, 1988.

WARD	POPN 1989	P/SWU 1988	1988 EXISTING BH	DW	SW	VIP	% LATRINE COVERAGE
Nembire	6931	103	7	5	17	45	4
Nowedza	6072	69	9	14	1	127	13
Dotito	7287	104	9	4	13	202	17
M/gerere	6768	71	10	12	9	81	17
Chitse	6857	69	13	11	1	169	15
Chawanda	6794	61	15	13	7	65	6
Karanda	7319	65	14	14	1	69	6
Bveke	6958	70	14	10	-	54	5
Sohwe	5480	67	10	10	2	79	9
Pachanza	6166	83	6	13	5	31	3
G/Chigango	5182	104	10	-	-	17	2
Mukumbura	6531	123	10	1	-	31	2
Kaitano	4919	123	8	-	-	22	3
Chiswiti	11757	181	13	-	-	98	5
Kandeya	5894	71	9	12	2	94	10
Matope	7474	123	9	4	4	141	11
TOTALS	108389	86	166	123	58	1325	7

NOTES 1989 Population is based on 1982 census
P/SWU = persons per shallow well unit
% latrine coverage assumes 6 people per household

4.2 The appropriateness of technologies used including standards of construction, maintenance and patterns of use.

Headworks. All the deep wells and boreholes visited during the evaluation exercise had completed headworks, with aprons and drains, washing slabs and fences. The shallow wells had aprons and drains. The deep wells and boreholes had cattle troughs, though in only one instance was there evidence that the troughs were actually used. This was the model water point which had a pipe with a valve attached to the trough and another pipe connected to a water storage tank. The tank was used to facilitate the laundering of clothes at the nearby washing slab.

At another very busy water point, cattle had broken down the fence to get to the water from the runaway. This water point also had a cattle trough, which was unused. The water points are designed with a laterally placed cattle trough, sometimes with a pipe connection to the pump, but usually to be filled with buckets of water. It is clear that with the cattle trough laterally positioned in relation to the water point, even with a pipe connection, the community does not take the time and trouble to fill it. This may be different in the middle of the dry season, especially where there are no other sources of water for the animals. We are not convinced that a previous design which had the cattle trough collecting waste water should have been discarded. The present design does not serve the purpose and we recommend that the design of cattle troughs be revised. **(Recommendation 5.2.10)**

The standards of construction of the water points themselves were generally acceptable. However the washing slabs, almost without exception, were very poorly constructed and already falling in. The evaluators were told that the reason for this was that the builders had been given an incentive scheme, whereby the more washing slabs they built, the more they were paid, so a shoddy job was done in haste. Whatever the reason, considerable money has been wasted as the washing slabs will need rehabilitation very soon. Maintenance of headworks is a community responsibility but has not been required in most IRWSSP as yet. Consequently no training has been conducted for this. We would recommend that existing latrine builders be given short courses by DDF on headwork construction and maintenance. **(Recommendation 5.2.11).**

In general, the maintenance of the headworks, as evidenced by the cleanliness of the facility, was acceptable. Only in one instance was this not adequately carried out. This was where the water point, a borehole, was situated near a school. This may indicate that where a water point is shared by both the community and an institution, the responsibility for its upkeep becomes so diffuse that maintenance may not be effectively carried out.

Water points. Whilst the mix of different types of water points is defined nationally, we recommend that the water supply technology be adapted to the hydrological conditions of the District or even ward in question. More flexibility must be accorded to the District but with an emphasis on shallow wells in wet areas and on boreholes in dry areas. **(Recommendation 5.2.5)**. The disadvantages of trying to place water points where they are not appropriate was seen in Mount Darwin which is a very dry District. One ward, Bveke, had been allocated seven deep wells and one

borehole. It had been allocated more boreholes but due to the difficulty of finding water in the Zambezi Valley, Chiswiti was allocated most boreholes and Bveke got deep wells. The one borehole collapsed. Of the seven deep wells six were dry and one operated for only 15 minutes before going dry. Thus despite a lot of effort nothing in this ward has improved. It should be recognised that dry areas should have a different mix of technology than wetter areas and we suggest that a review be undertaken of the success rate and cost of deep wells in the drier Districts.

The Valley floor is unsuitable for shallow wells and deep wells and in many places boreholes have yielded salty water and have to be closed. The NRWSSP should recognise the diversity of environments in the rural areas and accept that some areas may benefit from the use of surface water or other alternatives to the limited technologies currently accepted by the programme. **(Recommendation 5.2.5)**

Shallow wells also posed problems, although they tend to be installed only in areas where water is known to be available, and at least two of those visited were giving inadequate water.

An additional issue for shallow wells is the valves on the bucket pumps which are the parts that break down most often. On two of these pumps which were visited, the valves were broken. In addition, on one of these, the bucket itself had developed some holes, and was leaking. Whilst the replacement or repair of the valves could probably be easily carried out at community level, it appears that the training for this had not been carried out. Moreover, the need for the proper repair of the valve may not be very evident to the community as long as water can be drawn. Invariably, the water drawers would simply hold the bottom of the bucket and pour out the water, thus contaminating the bucket and consequently the source. The appropriateness of this technology from a hygienic point of view needs to be reassessed as its safety assumes proper maintenance.

As far as maintenance is concerned, in all cases there was evidence of greasing of the pumps, except of course for the bucket pumps. However, only about two of the pumps checked in detail were in good working order. All the rest had some problem, which whilst not yet resulting in a complete breakdown, served to make the process of drawing water more burdensome and in some cases, afforded an opportunity for contamination of the water. Almost all the pumps observed could not be repaired by the community, as villagers did not have the skills nor the equipment. We deal with this issue again under section 4.4.

The pumpminders were known to the water point committees in most cases. It was not clear, however, what the system of maintenance was, and particularly in respect of preventive maintenance. It seemed that the downtime before major repairs were undertaken was 2-3 months according to the water point committees. (see also section 4.4)

Water was said to be drawn at least three to four times per day. The number of times water was drawn depended upon the proximity of the water point to a particular household. Those further away came less often and so used less water. Whilst a variety of containers were used to carry the water, the most commonly used ones were 20 litre cans. This suggests that the water usage could be between 60-80 litres per household per day. This figure excludes water for laundry, as in most cases laundry would be done at the water point. Invariably, the water

collectors were women and children, particularly girls.

There were a couple of requests that the washing slab should have a roof, particularly to provide shade for the women doing their laundry there. It would seem that this is not an unreasonable request, and is one that could be fulfilled through supporting the community to construct this addition. We did not see any water points where the community had taken the initiative to build any additional facilities such as shelter or washing lines by themselves.

Latrines. Amongst the 24 households visited where latrines were given a detailed inspection, it proved difficult in most cases to assess the appropriateness of the latrine technology being used, as the families had never had a latrine before. They therefore found it difficult to say what they like or prefer about the latrine. Those who had used traditional pit latrines liked the lack of smell and the few flies associated with the Blair VIP latrine. Some who had had the early round version of the VIP preferred the square type of construction, but generally it is not possible to comment on the users' view of appropriateness as they did not have anything with which to compare. In our view, the latrines clearly satisfied the basic needs for rural sanitation and the lack of negative comments by any of the families interviewed in itself indicated that the technology was acceptable to the community.

Construction standards for VIP latrines were invariably good throughout the District and there is now a broad understanding amongst the community as to how the VIP latrine is intended to function. This knowledge probably serves to ensure better control over the builders who are keeping to a generally high standard. Minor problems of cracking plaster and leaking joints in the roof were observed in some cases, but by far the most serious problem comes from the shortage of fly screen. Forty percent of the latrines visited had no fly screen due to non-availability. This is surprising, given the slow pace of latrine construction attributed to cement shortages, where we would have expected to find all other elements in good supply. No attention was drawn to the shortage of fly screen at District level, yet it is a highly significant feature of the VIP latrines' design. We recommend that Blair Research Laboratory be requested to look again at a local substitute for the imported fly screen even accepting that this will have a shorter life. **(Recommendation 5.2.12).**

The local attempts to save on cement have led to only plastering the corners and vent pipes on the outside, which has produced a distinctive and attractive appearance to the latrine. Several of the latrines investigated were not built by trained builders but by people who had previously worked with these builders as assistants. This indicates the sustainability of the training programme, and suggests that only a limited amount of training need be given in an area.

The latrines were well maintained, being clean inside and in the general surroundings. This was also observed for the two sets of communal latrines observed at water points. A common reason people gave for wanting a latrine was to avoid faeces in the bush, especially now that tree coverage had decreased.The control of diseases was also commonly given as a reason for having latrines. At all latrines there was clear evidence of use as indicated by footpaths and anal cleansing material, bathing stones and accumulating sludge. Some families expressed the need for another latrine either to separate males and females, or to separate

elders from their children.

4.3 The cost effectiveness and appropriateness of the procedures used in the District for the development and installation of water and sanitation facilities.

The financial procedures for project implementation are cumbersome and extremely difficult to monitor. The coordinator and the DWSSC can only co-ordinate the operational aspects of implementation of the project, but have no opportunity to monitor, co-ordinate or control project expenditure for the District. MLGRUD and DDF are the only agencies which have a commitment register at District level and who can actually control their project expenditure from within the District.

None of the other agencies at District level have any idea of the financial status of their components of the project. No commitment registers are kept at District level for these agencies and they do not receive financial reports from the provincial level. The expenditure is controlled from the Province, but the District, which is supposed to plan, control, direct and implement the projects have no financial control and do not even know if the Province charges any provincial expenditure to the project. Financial reporting appears to be limited to upwards from the Province within the ministry and finally across from the Ministry of Finance, Economic Planning and Development to the NCU. Consequently, it is virtually impossible to determine what have been the actual expenditures incurred in most of the project activities.

We feel that the financial system is a major weakness in the IRWSSP which has an unknown but undoubtedly important impact on the efficiency and cost effectiveness of the programme. The project implementors have accountability for the project success or failure and therefore must also have accountability and control over the project finances. A recent meeting (Decade Consultative Meeting) emphasised the importance of community management and control over the water and sanitation programme and recommended that this can only be effectively brought about by the District Council taking control of the project. Ultimately this may take place, and when it does so, it will simplify financial control of the project. Until that time it is essential that the financial procedures are strengthened. This should begin with the District Coordination Handbook which at the present time is weak on the advice given on financial reporting. Each Ministry should maintain a commitments register according to the budget line items for that Ministry. Ideally this should be maintained at District level but as a minimum the District level should receive a monthly financial statement from the Provincial level which is based on the commitments register. As part of the normal quarterly project monitoring a financial report, based on the commitment register, should be submitted by each Ministry (**Recommendations 5.2.2; 5.2.3**). The NCU is changing the reporting frequency and the call up of funds from quarterly to six monthly. This should reduce the delay and bureaucracy involved in obtaining funds but should be accompanied by better control procedures.

TABLE 3

THE RELATIONSHIP BETWEEN PERCENTAGE ACHIEVEMENT OF TARGETS AND PERCENTAGE EXPENDITURE OF BUDGET BY MINISTRY FOR MT DARWIN DISTRICT : 1987-1990

YEAR	1987/88				1988/89				1989/90			
AGENCY	% achiev	budg. alloc	expend	% expend	% achiev	budg. alloc	expend	% expend	% achiev	budg alloc	expend	% expend
DDF												
.Deep wells	105	180000	151120	84	113	669000	760000	113	54	955000	900066	94
.Rehabilitat.	134				70				16			
.Boreholes	-				75				88			
MEWRD												
.Siting	65	450000	435077	97	-	-	-	-	-	0	41312	-
.New boreholes	52											
MOH												
.Shallow wells	46	535000	139435	26	50	325000	183207	56	100	323000	189926	59
.Latrines	13				16				101			
.Building training	63				76				-			
MCCD												
.Presiting	76	210000	61356	29	100	91000	94747	117	100	93000	150000	161
.Water Point Committees	115				124				100			
.Village WSSC	112				100							
MLGRUD		110000	39500	36		68000	116961	172		55000	54045	99

Despite the difficulties in obtaining any financial data on this project it was possible in a crude way to relate the gross expenditure of Ministries to their percentage achievement of targets for the financial years 1987/90 (Table 3). Budgets are normally allocated according to targets and the estimated cost of the items within those targets.

It is possible that there is some carry over of materials from one year to the next but by and large the percentage achievement of targets shown in table 3 must be related to the percentage expenditure. In some cases where there was no targets e.g. MEWRD in 1989/90 not much can be said although in this case the expenditure was probably for the siting of boreholes constructed by DDF.

By comparing Tables 1 and 3 it is also possible to see the actual amount of work carried for the expenditure incurred. Taking each agency in turn some comments can be made about the cost effectiveness of the procedures although these comments could have been more accurate and pertinent if expenditures had been broken down by activity.

DDF. DDF is almost keeping to budget, close to achieving borehole targets but for activities run entirely from within the District (deep wells and rehabilitation) is falling further behind target each year.

MoH. The MoH constructed 66% more shallow wells and 100% more latrines in 1989/90 than in 1988/89 for the same expenditure. The only difference is the training of latrine builders did not take place in 1989/90. This is difficult to explain without more detailed financial figures but even with the higher output in 1989/90 only $119,000 was required for the latrine and shallow well construction according to unit costs in the District Coordination Handbook. The expenditure of a further $60,000 in that year would suggest a real unit cost of 50% higher.

MCCDThis ministry has consistently achieved its targets but with a constantly rising real expenditure for each unit of output. MCCD overspent its budget allocation by $60,000 in 1989/90 but with no obvious reasons in terms of output. Again it is difficult to make any further interpretation due to the lack of financial information.

We could not see the basis on which agencies had been allowed to exceed their budget and are not convinced that the detailed implementation planning that takes place for IRWSSP results in a cost effective implementation of the project. We have mentioned earlier the unsatisfactory status of the financial control and would repeat that the proper control and reporting of expenditure is crucial to project management at the District level and planning at the National level. As recommended this needs to be addressed urgently. In addition the NCU needs to collect as much financial data as is available in order to review the unit costs used in planning of IRWSSP (**Recommendations 5.2.2; 5.2.3**).

The comments made above (4.2) on the use of different technologies in different circumstances would also have significant effects on the cost effectiveness of the National Rural Water Supply and Sanitation Programme.

All externally funded projects should have carefully controlled budgets where the expenditure conforms as closely as possible to the project budget, and the project staff should be accountable for this expenditure. At the present time, however, no one could be held accountable.

Each ministry is responsible for the procurement of its own supplies to

implement the project and the only coordination in procurement is for cement and purchases made on behalf of the project by NCU. There was strong support for a single District store, although this is unlikely to be effective unless coordinated through one agency such as the District Council. The late payment of accounts by Government results in some suppliers being unwilling to supply Government and some materials therefore being difficult to obtain. A situation which is further compounded by the lack of control over finances currently experienced by the DWSSC.

As far as the appropriateness of procedures in relation to community participation is concerned, at almost all of the water points, the communities had been involved in the siting of the water points. In a few of the older water installations, this had not been the case, but this had certainly been carried out at the more recently installed water points.

At all of the water points visited there were water point committees. This was even true of the shallow wells, which are not officially required to have such committees, and where, according to the Ministry of Health, they did not exist. This indicates that the community obviously felt a need for and perceived the usefulness of this form of organisation. The creation of water point committees is thus an appropriate procedure in the development and installation of the water facilities.

At all except one of the water points visited, the committees were active, meeting regularly. The one water point where the committee was not active, as evidenced both through interview and by the observed lack of greasing, general cleanliness and upkeep, was situated near a schooland highlights the potential problem of diffused responsibility.

The DWSSC felt that the potential for sustainability of the project was high, given the effectiveness and enthusiasm of the water point committees. The DWSSC felt, in fact, that with the high level of community participation, the community could be encouraged to take more control of the project or be more closely involved with its management. This might assist in overcoming the disappointment of the community when implementing agencies could not keep up with the expectations of villagers due to lack of materials or transport.

The required community contribution of digging 3 metres, collecting sand and stones seemed to be appropriate in that the community did not complain. Elsewhere we have discussed whether they should only dig 3 metres and made recommendations regarding rationalisation of the well digging programme. Similarly, the provision of accommodation to the well sinkers could also be considered appropriate although there is variation in the amount and type of community contribution both within and between Districts. The provision of food for the well sinkers may cause hardship in several areas of Mt. Darwin, given the low crop yields throughout the District and particularly in the Valley floor.

Community contribution through labour or other resources is seen as necessary for engendering the sense of community responsibility and self-reliance. However this contribution should not be excessive. We recommend that there is a review of the community support given to well sinkers with a view to standardisation

(**Recommendation 5.2.13**). The well sinkers are being remunerated quite adequately for their work and it may be unnecessary for communities to contribute food. The recommendation for a standard approach to the construction of all wells may also assist in overcoming some of these discrepancies.

4.4 The effectiveness and prospects for sustainability of the operation and maintenance system and associated training and support systems.

District Team The District team had experienced no problems with training of staff in the field, although they felt that training of staff at District level needed attention. This was particularly so for the Ministry of Community and Co-operative Development, where there was a high turnover of staff. Each ministry has training requirements that they felt were not being addressed in the current project, and which had a bearing on their ability to implement the project.

The operation and maintenance system is based on water point committees, pumpminders (9) and the District team. However, DDF (national level) suggests that the water supply operatives (3), should be decentralised to ward level to supervise the pumpminders. This sounds like a good initiative, but in practice, the additional resources required to fully support the operatives at the decentralised level may be prohibitive. We would also urge that before creating what would in fact be a fourth tier to the maintenance system, more attention is given to establishing the pumpminders as an effective preventive maintenance system by giving them more management support at the District level. Rather than decentralise the water supply operatives, due to their tasks now being undertaken by the pumpminders, the role of the District maintenance team should be reviewed and the job description of the water supply operatives redefined accordingly. (**Recommendation 5.2.6**)

The Ministry of Health is responsible for the maintenance of bucket pumps on shallow wells; pumpminders advise the committees on what type of maintenance is required, but do not assist in this themselves. It was observed at the shallow wells visited that the bucket pumps are not being maintained, partly because the Ministry has no spares. Whilst we believe that the idea behind the introduction of the bucket pump is that the community should maintain it itself, it is clear that <u>any</u> system installed must have a well-defined operation and maintenance system.

There should only be one system for maintenance of water points and therefore we would recommend that DDF assume responsibility, within the three tier system, for the maintenance of bucket pumps. This would also serve to standardise the community role at water points, their training and the support they are given by the supporting agency. (**Recommendation 5.2.7**)

Pumpminder. Both the pumpminders and the DWSSC mentioned a number of constraints to the pumpminders' functions. They have to cover two wards each, regardless of the distances and number of installations involved. This leads to difficulties in reaching the extreme water points. The highest number of water points covered by a single pumpminder is 56, with others responsible for between 14 and 56 water points. These are mostly type A and type B bush pumps.

For the District system as a whole, however, there is no operation and maintenance plan and the pumpminders do not have a fixed programme of work. The District team felt that there needs to be more control over the activities of the pumpminders, with some kind of evidence that they had been to a pump. Currently, they are instructed to visit the water points for which they are responsible twice a week. They visit the District DDF office on the 12th and at the end of each month, when they hand in their reports, a timetable of activities for the coming two weeks and requests for any spare parts. The pumpminders' itinerary is disrupted by attending to breakdowns, but in any case, it is clearly impossible for them to visit each pump twice weekly. They say themselves that they manage to visit each pump about once every three weeks.

On visiting a water point, the pumpminders check the pump for faults and pumping. From a review of the record books, it would appear that pumps are being repaired within 3-5 days after being reported, which is very good (and conflicts with the evidence on lag time provided by community members, as noted in 4.2 above). The most common repairs are broken rods and faulty foot valves. The pumpminders have sheer legs or a tripod but now mainly use the 'siwill' for extracting down the hole components. They find this device very useful and relatively easy to transport. They report that there is always plenty of assistance from the community, and they feel that the villagers are now very motivated as regards their water supply.

The pumpminder does not keep any record in his book of having visited a pump or what spares it needs to keep it running. Pumpminders repair broken down pumps which does not constitute a preventive maintenance system.

The pumpminders do not have adequate supplies of spares and only have cup leathers. They therefore have to write lists of spares required in the event of a problem occurring, and ask the DDF to deliver them. This happens quite quickly, and spares are usually received within 1-2 days; transport costs will be high with such a system, however. The pumpminders record books indicate that on average they repair eight breakdowns per month, so the number of spares utilised per pumpminder is not large.

The pumpminders should have a clear work plan with realistic targets and a checklist to be completed at every visit to a water point (**Recommendation 5.2.6**). All water points should be visited on a regular basis and a proper preventive maintenance strategy established. Only in this way will the number of breakdowns be reduced and the pumpminder system become worthwhile.

We would recommend that all of the pumpminders be equipped with a basic set of spares which can be replenished as necessary on a monthly basis (**Recommendation 5.2.6**).

The major complaints mentioned by the pumpminders themselves were that the bicycles wear out quickly due to the heavy equipment they carry and constant use; they are casual workers; and their pay is inadequate.

Water point committees. The water point committee, one member of which is a pump caretaker, is the first tier of the maintenance system. In all cases at the water points visited, training of these committees had been carried out.

According to those members interviewed, the training focused on:

- keeping the headworks and surrounds clean and maintained;
- how to use the pump;
- having an adequate supply of water;
- the need for and how to grease the pump.

We mention elsewhere the reluctance of water point committees to further develop the water point with facilities they want. We did not investigate the training of these WPC's but suspect that the training is directed at the activities the committee should undertake to maintain the existing facilities. We would suggest that the training should have a specific orientation of the ownership being community and train also on the possibilities for the community to further develop the water point to suit the community needs. They can be advised where to seek advice on these developments but the decision is theirs. (**Recommendation 5.2.14**).

Most of the water point committee members interviewed knew the pumpminder in their area, and the pumpminders, according to them, seemed to visit the water points regularly. However, the pumpminders were said to be mostly concerned with greasing the pumps themselves, so it would seem that there is an overlap between their function and that of the pump caretakers, who were also supposed to grease the pumps. Nevertheless, this was not brought up as a problem by the community.

At the community level there was a number of pumps observed to be in need of immediate repair and which, if not repaired in time, would break down completely. Many of these pumps had been in a state of disrepair for some weeks already. In fact, out of the 12 water points visited, two were in a very bad state of disrepair, 4 were in a poor state of repair and three were fair to good. Where pumps had been repaired, DDF was mentioned as the responsible agency. This calls into question the effectiveness of the pumpminder, who is at present doing no more than the pump caretaker in respect of preventive maintenance. The committees are supposed to report repair needs through the pumpminder to the water supply operatives; this serves to do little except lengthen the time before the repair is actually effected.

Latrines With regards to latrines, the prospects for sustainability are not good if the supply of basic materials such as cement and flyscreen remains at its present level. The intention of the programme that additional or replacement latrines are to be provided solely from household resources is good in principle but impossible in practice at the present time. Building expertise is clearly present throughout the community and whilst we may see an easing of the cement shortages in the medium term, there is no reason to expect that the flyscreen shortage will ease. **(Recommendation 5.2.12)**

4.5 The effectiveness and appropriateness of District project preparation, co-ordination, work planning, monitoring and reporting systems, and the support given to the District from provincial and national levels.

The Mount Darwin District team were not involved in the initial project preparation, as the project document was prepared externally by the Provincial Water Officer who was hired as technical assistance to the Provincial Administrator, the designated Project Manager on behalf of MLGRUD. The DWSSC did have sight of the final draft, but their exclusion from the planning process meant that they did not identify with the document, or how the project plan was supposed to be used to guide project implementation. As noted, this was the first integrated project to become operational, and this procedure has now changed, but it provides an important lesson on the necessity to have projects developed by the District themselves. From the outset of the Mount Darwin project, external planning led to the adoption of unrealistic targets, which had consistently to be adjusted downwards.

The DWSSC do not use the project document in implementation planning and have used estimated financial allocation figures from the NCU as the basis for developing the implementation plan. The importance of the project document as the guiding instrument for the whole project period cannot be overemphasised. The project document is the basis of the agreement with the donor. It also clearly should put into perspective what the project is setting out to achieve. Annual implementation plans must follow the project document with only minor, justified, changes to take into account prevailing conditions. Any significant deviation from the project document should only be possible after the agreement of the donor and should require the project document to be modified accordingly. The failure to follow this procedure leads to projects drifting from year to year with staff having no clear idea of the progress towards the overall objectives. We recommend that all IRWSSP be reviewed at the earliest opportunity to ensure that they are operating according to a project document prepared following the District Coordination Handbook and that implementation plans are produced following the overall plan laid down in the project document (**Recommendation 5.2.1**). The DWSSC should produce an updated project document which reflects the District performance capability and modified budget for the remainder of the project life. **(Recommendation 5.2.1)**

The co-ordination at District level is very good and the DWSSC really works as an effective team in planning and implementation. Unfortunately, the District Council is not represented on the DWSSC, so the amount of co-ordination achieved with this body is limited. One very positive aspect, however, is the input made by councillors to the planning process for implementation. The councillors and extension workers meet to compare the councillors' wishes with the targets proposed by the DWSSC. This type of discussion could be developed with the more formal involvement of the council in the planning process, through membership of the DWSSC. It will be important to involve the council executive, however. The discussion process has come to a halt in the District at the moment, due to the dissolution of the elected body, highlighting the inappropriateness of using

the councillors who represent a political platform, rather than the executive, which provides continuity, and who report to the councillors. **(Recommendation 5.2.15)**

Monitoring and reporting systems were not effectively developed or used at the beginning of the project, but with the introduction by NCU of the new, standardised monitoring forms, this situation should change. Both reporting and monitoring are essential tools in planning for implementation and in adjusting targets, as well as facilitating the identification of problems and constraints at an early stage of implementation. It was reported that monitoring through field visits had been curtailed due to lack of transport. It is not necessary for senior staff to spend more than 1-2 days per month in the field, however, as properly planned sample surveys would provide all the monitoring information required by the managers of the project at District level.

The monitoring forms provide good data on physical progress and activities but at present include no financial information. As discussed elsewhere (section 4.3) it is essential that financial reporting is included in the monitoring system and that an annual financial report is submitted to NCU from the District level using commited expenditure against budget lines of the project. **(Recommendations 5.2.3; 5.2.4).**

Support to the project by national and provincial levels appears to be adequate. Problems and difficulties reported to the provincial level were felt by the DWSSC to be dealt with fairly effectively. It was noted by the DWSSC that some ministries do not attach a high priority to the activities of their staff on the IRWSS project at the District level, and it was felt that awareness training was required for provincial officers of all the ministries.

4.6 The impact of the IRWSS project, both positive and negative, on the capacity at the District level, to plan, co-ordinate and implement rural development projects in general.

The DWSSC felt that a positive effective of the IRWSS project was increased community support for other development projects. The mobilisation system developed through the water and sanitation project was in place and people responded through it well, offering support for other projects such as school construction. The project has, in addition, consolidated or coordinated all water and sanitation activities in the District, including those implemented by non-government agencies. Another positive benefit was that the IRWSS project served to operationalise the process of land use planning in the community, which was otherwise only an abstract concept.

Some other programmes have had a negative impact on the IRWSSP. One example given was the food for work programme, which, by paying the community, discourages them from unremunerated community participation on other programmes. In addition, although no direct negative effects were mentioned, the observation was made that because the project is tightly managed with targets and timeframes, staff tended to concentrate more on these activities. The implication was that District staff would perform better in their other activities if they had a clear programme of work.

4.7 The effectiveness, appropriateness and impact of community participation and health education components of the District IRWSS project.

Community participation in the latrine component of the project is difficult to balance with the availability of resources. As the project in Mount Darwin is active throughout the whole District at any one time, there is no real focus of activity. The community are encouraged to build latrines but if this motivation is too successful MoH cannot supply the cement and people become disillusioned. The participation at the beginning of the project was slow to build up with targets not being met (about 10% was achieved). The VIP latrine is generally well known now, as is the project, but disappointment is beginning to set in as the agencies cannot satisfy their promises of the provision of cement. The community is unwilling to dig pits due to the fear that they will collapse before cement becomes available, and thus there is a situation where the community is ahead of the project's ability to support it. The sanitation activities should focus on only a few wards at a time, the community should be told how many latrines can be supported in that ward (from the implementation plan) and wards should be mobilised in relation to the expected cement supply. In this way the sanitation component can be more efficiently managed in relation to the resources available. **(Recommendation 5.2.16).**

As far as the water supply component of the project is concerned, the effectiveness of the community participation approach is shown by the fact that the communities willingly contribute to the project through their labour and through the formation of active water point committees. These forms of community participation are also appropriate, in as much as they are broadly commensurate with what the community can afford. In respect of the impact of the approach, the community identified the water points as there own although we found no cases where they had taken the initiative themselves to effect any changes or improvements to the water point. On this issue, however, it was not clear what amount of real responsibility the communities felt they had in relation to the water point as they have no control over what the pumpminder or DDF do.

Amongst the water point committees interviewed, there was unhappiness about the support they give to well sinkers, especially in respect of being asked to provide vegetables, meat and mealie meal. They feel they cannot sustain this, particularly after poor harvests. Community contribution through labour or other resources is seen as necessary for engendering the sense of community responsibility and self-reliance. However this contribution should not be excessive and it should be similar in all areas. We recommend that there is a review of the community support given to well sinkers with a view to standardisation **(Recommendation 5.2.13).** The well sinkers are being remunerated quite adequately for their work and it may be unnecessary for communities to contribute food.

The health education component of the project is effectively non-existent, as there are no specific health education programmes and no expenditure on such activities. What health and hygiene education takes place is incidental to the IRWSS project.

The health and hygiene messages which, in most cases, were given by the Village Community Workers (VCWs), emphasised the utilisation of the protected water sources for drinking, especially for children, in order to prevent diarrhoea. The importance of hand washing after using the toilet and before eating was another message which had been received from the VCWs. Whilst many community members mentioned this, there was an honest comment that whilst this is what they had been taught, it was in fact very difficult to actually carry out these activities. There was no mention of hand washing after handling children's faeces and nappies.

The measures taken to ensure that the container in which water was to be carried from the water point was clean were also observed in the field. In most cases, the buckets were cleaned on the apron at the water point in a satisfactory manner. Bucket pumps with damaged valves were observed being handled from the bottom which is likely to introduce contamination into the well. Even after we repaired it the bucket continued to be tipped rather than emptied via the valve.

The storage and subsequent method of collection of this water from the storage container was discussed with community groups. Whilst it seemed that the message of the importance of covering the stored water had been widely disseminated and understood (it was to prevent vermin getting into the water), it was not clear to what extent it was actually practised. This was because the covers for the containers were in many cases not available. The collection of water from the storage container was said to be undertaken with a mukombe, or cup, both of which were normally hung up on a wall. Again, to what extent this was actually taking place is not clear. Not every household hung up the cup or mukombe, and amongst those that did, the children were said to be careless, leaving the cup or mukombe lying around on the ground.

These are all obviously important areas for intensive health education, and examination of the factors facilitating and constraining the effective take-up of such messages should also be an important component of all IRWSSP. As a major component of a project which is being implemented primarily for its health benefits the lack of attention to health education is disturbing. The health education component of the IRWSSP needs to be strengthened. The project document and subsequent implementation plans should identify a specific programme of health education activities with clear targets established that can be evaluated **(Recommendation 5.2.8)**.

4.8 The participation of women in project activities, their access to training for different income generating positions, their role as decision makers and implementors, how implementation procedures promote women's participation, if the selection of field workers takes into account women's traditional roles and knowledge in domestic water supply, and changes that have taken place in women's lives as a result of their being abundant water supplies near the home and improved sanitation facilities.

Women's participation in the IRWSS project is active, but primarily at the lower levels of decision making. Women represent some 50-75% of the membership

of water point committees, although for cultural reasons, the chairman is invariably a male member of the committee.

No women have been trained as pumpminders or latrine builders and there is only one woman on the DWSSC. One woman worked as a well sinking team supervisor for a short time before being offered employment elsewhere but this started a more active programme of training women well sinkers. Thus the only income-generating positions for which women have been trained are as members of the well sinking teams. Several of the women acting as pump caretakers on the water point committees felt that they do more work than pumpminders, yet do not get paid. The feeling was quite strong that they should receive more training and assume more responsibilities over maintenance of their water point.

Overall, however, implementation procedures promote women's involvement in the project in a participatory but not collaborative way. Whilst recognising the restrictions of women's traditional roles, greater efforts should be made to bring the community, especially women, into the decision and management process of IRWSSP. In addition more attention should be given to training women in income generating positions as latrine builders, well sinkers and pumpminders. (**Recommendation 5.2.17**).

Women participating in the group discussions were asked if the water points had made any difference in their lives. Their response was that the water points had reduced the time taken in water collection. The women now spent this 'extra' time in the fields during the rainy season, or in their gardens, in the dry season. More time was thus available for production activities.

4.9 The attitudes of the beneficiary population to:

- **the project in general;**
- **the relationship between implementing agencies, local authorities and communities;**
- **inputs required of community members;**
- **the involvement of women;**
- **the acceptability of facilities installed.**

In general, the communities were very appreciative and supportive of the project, and there were no major criticisms. Similarly, the relationship between the implementing agencies and local authorities appeared to be positive, again because there were no major complaints. The evaluation workshop raised issues of poor distribution of new water points and cement for latrines. This reflected the difficulty of obtaining water in some areas and the chronic shortage of cement. The recommendations already made about latrine construction (**Recommendation 5.2.16**) the water supply technology (**Recommendation 5.2.5**) are relevant here and we also recommend that a member of the District Council executive should be a member of the DWSSC (**Recommendation 5.2.15**).

The inputs required from the community members seemed to be satisfactorily accepted. We have made a recommendation regarding reducing the level of support to well sinking teams from the community but in other areas it is likely that the community contribution could be increased. The further development of community

support for the project needs to be by increasing their decision making role and actual responsibility for various components of the project. This is not evident at present but with an increasing emphasis at a central level for community management this must begin with devolvement of responsibility to the community. The water point committees in Mt Darwin were highly motivated and wanted further training to be able to take over additional duties on pump maintenance. This is certainly one approach which could be considered. Another is to give ward leaders the responsibility for implementation of a part of the project e.g. latrine construction. With latrine construction targets allocated from the project document, training and supervision from the District level, the ward leaders would probably take the responsibility very seriously. We do not suggest this as a recommendation, rather it is an example of how community responsibility can be increased in the IRWSSP. We would recommend that the NAC explore the possible ways in which community management can be developed in a gradual way such as outlined above. **(Recommendation 5.2.18).**

The attitudes towards the involvement of women was perceived to be positive by the women themselves who were pleased to be given roles in the project as they are the most frequent users of the facilities. The attitude of the few men interviewed was in general positive towards the involvement of women although wary of activities such as well sinking which could take the woman away from home overnight. The finding that in most of the water point committees the leadership post is still filled by men is indicative of the perpetuation of prevailing socio-cultural norms, which neither women nor men seem inclined to modify.

The water point facilities are acceptable as evidenced by their use, as is the case with household latrines. At water points without latrines, requests were made for these and for washing (bathroom) facilities. Requests were also made for shelters over the washing slabs. These additional facilities should be provided by the community themselves and they should be encouraged to manage their water point, not just to carry out specific tasks given in their training as water point committees. **(Recommendation 5.2.14).**

5. CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusions

It is our overall conclusion that the findings of the evaluation indicate that the elements for successful implementation of the IRWSS project are in place in Mount Darwin. This is despite both the initial difficulties faced by the District team in planning realistic targets and the constraints which currently face the project. The extent to which the DWSSC has been able to adopt the integrated, inter-ministerial approach is extremely encouraging, and the fact that they have managed to develop appropriate community participation strategies provides a strong basis for future project implementation. This is particularly so if the recommendations concerning the use of the project document and financial control are implemented.

Whilst the outlook for implementation activities is generally favourable there are a number of issues of concern relating to the long term sustainability of the facilities installed. It is our conclusion that if the operation and maintenance component of the project is not significantly improved, the long-term sustainability of the project is highly doubtful. This is one of the key areas of weakness within the project, amongst the two mentioned above.

Three important factors need to be considered first:

* Firstly we refer to the project document. For a donor funded project this is the most important document during the life of the project. With an inadequately prepared project document project implementation is extremely difficult, projects often go off course and it is highly likely that the project objectives will not be achieved. A well prepared project document guides the implementation of the project throughout its life, ensuring that appropriate activities are undertaken at the right time, that resources are correctly and efficiently allocated and most importantly that the project objectives are addressed in a direct and orderly manner. We feel strongly that every IRWSSP should have an up to date project document which forms the basis of the District implementation plan **and also** is the basis of NAC consideration and acceptance of the implementation plan. **(Recommendation 5.2.1)**
* Secondly, the fundamental issue of lack of control over finances, expenditures and financial reporting mechanisms at the District level has serious repercussions. The District are unable to effectively control implementation and plan according to expenditure and also they are totally unaware of how much each project activity actually costs. Likewise at a national level the evaluation of cost effectiveness and its use in planning the NRWSSP is almost impossible with the current financial reporting system.
* Thirdly, there is the problem of trying to apply national guidelines from the District Coordination Handbook on types of water source into a District where these are not appropriate. Mt Darwin is a very dry District and a great deal of effort is expended on deep wells, and even boreholes, where alternative strategies may be more appropriate.

It is important that these issues are addressed quickly and effectively. Evaluation reports from various Districts over the past 3-4 years have highlighted some similar problems and constraints occurring in other Districts involved in the IRWSSP. Finance and technology choice were certainly identified in the 1988 evaluation of the Mount Darwin project. The DWSSC is to be commended for putting the maximum effort into the project in light of these problems, but there is every possibility that District teams will become increasingly demotivated if no significant effort is made to resolve them.

Other areas of weakness within the project are as follows:

- the emphasis by the DWSSC on planning for annual targets is done without reference to the overall project objectives and there is no long term perspective by which to assess cumulative totals for the wards of the District. The issue of coverage is thus neglected, as is the more accurate identification of the number of water points which are actually operational. This is particularly problematic where the initial data on what water points existed prior to project implementation is inaccurate.

- observations at the field level contradict the generally optimistic picture of the operations and maintenance system as described by the pumpminders and DWSSC. It is clear that preventive maintenance is not at present being carried out effectively.

- the bucket pumps were particularly poorly maintained at community level, at the same time as being excluded from the three-tier maintenance system.

- the health education component has been seriously neglected, potentially to the detriment of any real health impact arising from the provision of protected water sources and appropriate sanitation facilities, and jeopardising the sustainability of the project into the long-term.

- the financial control systems operating within the project are not compatible with a truly integrated, decentralised implementation strategy, designed to give overall responsibility to District level staff for a development project of some magnitude.

In the following section, we make recommendations for action on these and other issues which have arisen from the findings of the evaluation.

5.2 Recommendations

5.2.1 A project document should always be prepared by DWSSC with the fullest consultation with the implementors and recipients and this document should form the basis for all additional planning or changes to the project. The project document should follow the NCU guidelines as laid down in the District Coordination Handbook with planning to the Ward level. Any changes to the plan of implementation should be justified with reference to the project document. Any

significant changes to targets, budget or methods should be approved with the submission of a modified project document. The NCU should ensure that all IRWSSP are operating according to the above project document and all implementation plans are based on this project document.

5.2.2 Financial control and reporting procedures should be urgently addressed and control over project expenditure should be fully decentralised to the District level of each ministry. Without this there is no accountability. At the minimum, until new procedures for implementation or management are developed, each Ministry at the District level should receive a quarterly report on project expenditure by budget line committed at Provincial level.

5.2.3 A quarterly financial report must be included along with other monitoring information for each Ministry. These may be compiled from commitment registers at District or Provincial level. The District Coordination Handbook should provide clear and emphatic guidelines for this. Monitoring forms should be used for project management not just reporting. In particular, progress reports should be compared with financial expenditure by DWSSC and Ministries to control implementation and expenditure.

5.2.4 Annual financial reports by budget line for incurred expenditure, should be submitted by each Ministry to the NAC.

5.2.9 Whilst every attempt should be made to more closely match outputs with targets, and to maintain an even rate of implementation, estimates of coverage and cumulative totals should be incorporated into on-going planning and monitoring activities.

5.2.10 With respect to water point installations, the design of cattle troughs, washing slabs and headworks should be reviewed, in order to render them more appropriate to water point users.

5.2.5 Whilst recognising the need for a clear policy and guidelines for implementation there should be more flexibility in the water supply technology balance as appropriate to the water resource conditions of the District. In particular for Mt. Darwin, less use should be made of shallow wells and deep wells due to the poor supplies of accessible underground water. The NCU should review the guidelines to produce alternative strategies for areas of differing hydrological conditions.

5.2.7 Shallow wells should have trained water point committees as with all other water points. They should fall under the same maintenance system as all other water points, in other words have a pumpminder and be officially maintained under DDF rather than MoH.

5.2.6 Attention needs to be given by DDF to the operation and maintenance

of existing water points. The pumpminder cadre require a clear work plan from DDF with realistic targets and a checklist to be completed at every visit to a water point. All water points should be visited on a regular basis and a proper preventive maintenance strategy established by DDF. Pumpminders should be provided with a basic set of spares to be replenished regularly by DDF.

5.2.8 Health education activities within the integrated projects should be accorded more priority by MoH, NCU and DWSSC with a detailed programme of activities with measurable targets included in the project document and implementation plans.

5.2.11 DDF should train existing latrine builders in headwork construction for post project maintenance of headworks.

5.2.12 A local substitute should be sought for flyscreen which is now largely ignored in the construction of latrines. Blair Research Laboratory should be requested to reconsider the alternatives to imported flyscreen and produce a recommendation for the NCU/MoH.

5.2.13 Community contributions to well sinking teams should be reviewed by NCU and standardised.

5.2.14 Training of water point committees should be orientated toward reinforcing the wpc in the feeling of community ownership and responsibility for the water point. They should be encouraged to develop the water point in any way the community feels would improve the service.

5.2.15 A member of the District Council executive should be a member of the DWSSC.

5.2.16 Implementation of latrine construction should be more focussed with wards advised of their latrine target for the year and likely cement supply. The ward will then be able to match its community support with the targets of the programme and the ability of the MoH to supply the materials.

5.2.17 Women should have more opportunity for training in income generating positions e.g. pumpminders and latrine builders but more mobilisation and motivation is required from the DWSSC to encourage women to avail themselves of the opportunities.

5.2.18 The NAC should consider ways in which community participation can be changed in orientation from one of community assistance to the project towards more community responsibility in management and control of aspects of the project. Gradual moves in this direction will facilitate implementation of community management and cost recovery in the future.