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REPUBLIC OF DENMARK
MINISTRY OF FOREIGN AFFAIRS

UNITED REPUBLIC OF TANZANIA

**Phase III
of
the Rural Water Supply Programme
in
Iringa, Mbeya and Ruvuma Regions.**

**Volume 1:
Main Report**

**Final Report of the First Annual Joint Tanzanian -
Danish Review Mission, which took place in Tanzania
from 26th August to 12th September 1991.**

**This report contains
restricted information
and is for official use only.**

Danida Ref.No. 104.Tanz.86

**February 1992
Danida
Ministry of Foreign Affairs
Asiatisk Plads 2
DK-1448 Copenhagen K
Denmark.**

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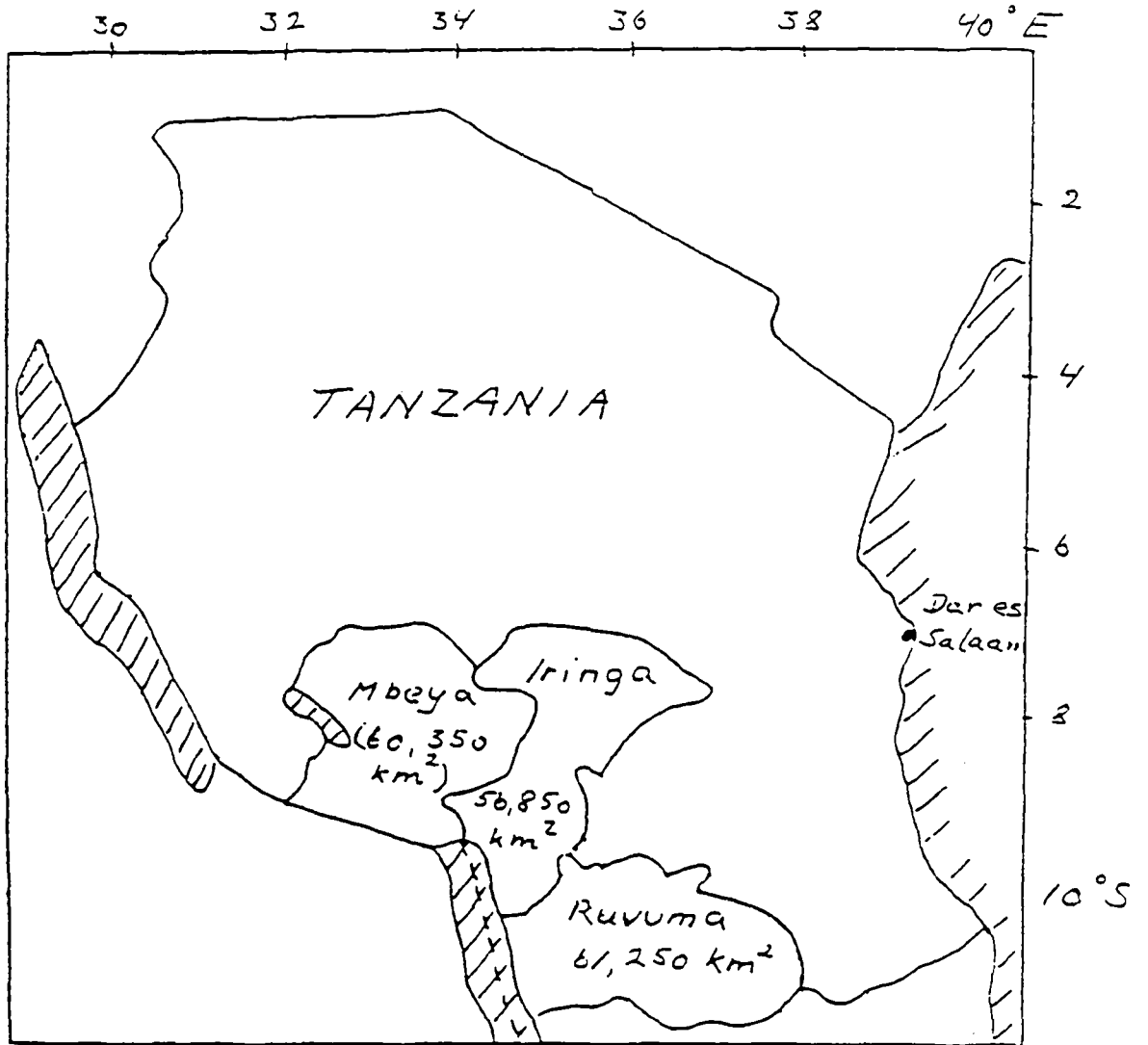
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THE THREE REGIONS OF IRINGA, MBEYA AND RUVUMA,
IN TANZANIA



List of Abbreviations used:

AFYA	Ministry of Health
AR	Appraisal Report
AVPA	Assistant Village Participation Adviser
BRALUP	Bureau of Resources Assessment & Land Use Planning
CCKK	A Consultancy Consortium of Carl Bro International A/S - Cowiconsult A/S - Kampsax-Krüger (under Phase I and Phase II)
CD	Community Development
CDA	Community Development Assistant
CDO	Community Development Officer
CDR	Centre for Development Research, Copenhagen
Danida	Danish International Development Assistance (under Danish Ministry of Foreign Affairs)
DC	District Council
DCDO	District Community Development Officer
DDCM	Director of Design, Construction and Materials Testing
DED	District Executive Director
DFO	District Forest Officer
DHO	District Health Officer
DKK	Danish Kroner
DMU	District Maintenance Unit
DP	Domestic Point
DPLO	District Planning Officer
DPO	Danida Project Office
DSM	Dar es Salaam
DSU	Danida Steering Unit for Water Project (during Phase I and Phase II)
DWE	District Water Engineer
EEC	European Economic Community
FINNIDA	Finnish International Development Agency
GI	Galvanised Iron
GOT	Government of Tanzania
HA	Health Assistant
HIMA	Soil and Water Conservation Project in Iringa region
HO	Health Officer
HP	Handpump
I/C	In Charge
IDWSSD	International Drinking Water Supply & Sanitation Decade
IRA	Institute of Resources Assessment
IWA	Interregional Workshop Adviser
MAENDELEO	Ministry of Community Development, Women Affairs and Children
MAJI	Ministry of Water, Energy and Minerals
MMU	Mobile Maintenance Unit
NORAD	Norwegian Agency for International Development
ODA	Overseas Development Agency
O&M	Operation & Maintenance
PICU	Project Implementation Coordination Unit
PlanOp	Plan of Operation
POO	Plan of Operation
PROWESS	Promotion of the Role of Women in Water and Environ- mental Sanitation Service

PS	Principal Secretary
PVC	Polyvinyl Chloride
RCDO	Regional Community Development Officer
RDD	Regional Development Director
RFO	Regional Forest Officer
RPA	Regional Project Adviser
RPLO	Regional Planning Officer
RSC	Regional Steering Committee
RTMU	Regional Training & Maintenance Unit
RWE	Regional Water Engineer
SADCC	Southern African Development Coordination Committee
SA	Scheme Attendant
SEC	Socio-Economic Cell
SIDA	Swedish International Development Agency
TRDC	Training for Rural Development Centre (Iringa)
TZS	Tanzanian Shillings
TOR	Terms of Reference
UNDP	United Nations Development Programme
UNICEF	United Nations Children's Fund
VR	Village Participation
VIP	Ventilated Improved Pit-Latrine
VIPA	Village Participation Adviser
VPA	Village Participation Assistant
VPC	Village Participation Coordinator
VWC	Village Water Committee
WID	Women in Development
WMP	Water Master Plan(s)

CURRENCY

Valid during the time of the Review Mission in September 1991:

1 DKK equal to 34 TZS (Tanzanian Shillings)
1 US\$ equal to 227 TZS (" ")



1. INTRODUCTION

1.1 Background

Since 1979 the Danish Government (Danida) has supported a rural water supply programme in the three regions of Iringa, Mbeya and Ruvuma in the Southern Highlands of Tanzania.

Phase I consisted of preparation of Water Master Plans (WMPs) for the three mentioned regions and of a pilot construction programme in the same regions and was based on a joint appraisal by the Ministry of Water (MAJI) and Danida in October 1978 of a Tanzanian project proposal. It culminated in the signing in December 1979 of an agreement between the two Governments covering Phase I.

The Water Master Plans consisted of two parts: a technical part which was prepared by CCKK (a consortium of four firms of Danish Consulting Engineers: Carl Bro, Cowiconsult and Kamp-sax-Krüger) together with Tanzanian engineers and technicians from MAJI and which involved physical visits to all 1509 registered villages in the three regions as well as hydrological and hydrogeological investigations etc.; and a socio-economic part, which was performed jointly by BRALUP (now IRA), a research institute of the University of Dar es Salaam and Centre for Development Research, CDR, in Copenhagen. The socio-economic part dealt with household surveys and testing of the concept of the participatory involvement of the beneficiaries both in decision making and in physical activities. The coordination of the various activities was undertaken by a Danida Steering Unit for Water Projects (DSU) established in 1980 in Ubungo (Dar es Salaam).

The preparation of the WMPs was carried out from January 1980 to May 1983. Altogether the WMPs documents are in 38 volumes and resulted in recommendations for the implementation of a rural water supply programme for the three regions based on the priority and design criteria contained in the WMPs. Furthermore, during Phase I a pilot construction programme was undertaken and resulted in substantial completion by 31st December 1983 of 11 new gravity schemes supplying water to about 49.000 people (1981 population figures) in 24 villages and 113 wells fitted with handpumps in 23 villages providing water to about 22.600 people. The total costs of the pilot construction programme was about DKK 44 millions.

In September 1983 a second agreement was entered into between the Governments of Tanzania and Denmark. In this agreement covering Phase II (January 1984 - December 1988) the physical targets were to supply water to some 300 out of 633 identified high priority villages in the three regions in accordance with the recommendations of the WMPs. The agreement also covered pilot projects in health education and sanitation as well as consultancy services. The total budget for Phase II was fixed at DKK 249 mio. (in September 1982-prices) out of which DKK

200 mio. was for construction. Phase II was later extended to June 1990 and the total budget was in accordance with Danida index regulations due to inflation and currency fluctuations adjusted to DKK 278 mio. During Phase II the programme has been reviewed annually by joint Tanzanian/Danish review missions, while an independent evaluation was carried out in May/June 1987. As of 30th June 1990 water supply schemes have been handed over to the village governments in 208 villages in the three regions, while schemes covering an additional 49 villages were close to completion, but the handing over formalities had not been completed at that time.

In July 1990 the Governments of Tanzania and Denmark have concluded a new agreement concerning a third Phase of the rural water supply programme in the three regions which will run from July 1990 until June 1995. During this Phase particular emphasis will be placed on developing the village-based operation and maintenance system for water supply schemes, the foundations of which have been laid during the previous phases of the programme. A second objective of Phase III is to supply water to additional 155 high-priority villages in the three regions. The total budget for Phase III is DKK 199 mio. (June 1989 prices).

Phase III is implemented by the Ministry of Water, Energy and Minerals (in the following referred to as "MAJI") and the Ministry of Community Development, Women Affairs and Children (hereafter referred to as "MAENDELEO") with advisory assistance from Cowiconsult and Danida employed advisers.

In the Plans of Operation for Phase III it is stipulated that annual joint reviews will be undertaken by Danida and the Government of Tanzania. Emphasis is to be given to specific issues for each review. The first joint review scheduled for August/September 1991 had the organisational and institutional issues and the potential need for introduction of a medium-deep borehole programme on the agenda.

1.2 Review Mission

The first annual joint Tanzanian/Danish review of Phase III took place in Tanzania during the period 26th August to 12th September 1991 in accordance with Terms of Reference (TOR), which can be found in Annex 1.

The Review Mission was composed of the following members:

Nominated by Danida:

- Mr. Erik Sjørslev Jensen, Senior Technical Adviser, Danida Headquarters, Team Leader (water supply engineer)
- Ms. Birgit Madsen, External Consultant to Danida (socio-economist)
- Mr. Freddie Hofman Andersen, External Consultant to Danida (organisational issues, budget, financial planning).

Nominated by the Government of Tanzania:

- Mr. Balthazar Njau, Head of Design Section, MAJI
- Mr. J.V. Nchinbu, Assistant Executive Engineer, Technical and Self-Help Activities Department, MAENDELEO.

Resource Persons:

- Ms. Pernille Haubroe, Desk Officer, Danida Regional Office for Southern Africa, S7, Copenhagen
- Mr. Hans Egerrup, Cowiconsult, Copenhagen
- Mr. Jakob Vinding Madsen, Counsellor (Development) Danida Mission, Dar es Salaam.

The programme of the Review Mission appears in Annex 2.

After introductory meetings in Dar es Salaam with the Acting Principal Secretaries of MAJI and MAENDELEO as well as with the Head of the Danida Mission, the Review Mission spent 15 days on field visits in the regions of Iringa, Mbeya and Ruvuma. Meetings took place with regional, district and village authorities, MAJI and MAENDELEO staff, project advisers and village participation assistants as well as with water committee members and scheme and handpump attendants. During the field programme the Review Mission was accompanied by resource persons from PICU in Dar es Salaam and by senior government officers at regional and district level as well as by project advisers.

A seminar was arranged in Iringa on 9th September 1991, where the Review Mission discussed its preliminary findings and recommendations with representatives of MAJI and MAENDELEO from Dar es Salaam as well as with representatives from the three regions.

In Annex 3 is a selective list of persons met by the Review Mission.

A brief of the findings, conclusions and recommendations of the Review Mission was presented in individual sessions with the Ag. Principal Secretaries of MAJI and MAENDELEO and their senior staff, as well as with the Minister Counsellor of the Danish Embassy in Dar es Salaam.

A draft report was edited by the Team Leader in Copenhagen based on the "Summary of Findings, Conclusions and Recommendations" as presented to the seminar in Iringa on 9th September 1991 and thereafter amended taking into account comments received as considered relevant by the Review Team. It was this "Summary" which was handed over at the debriefing sessions in Dar es Salaam, and which can be found as Annex 4. Additional inputs have also been prepared by individual members of the Review Mission.

A draft final report containing the views of the Review Mission as edited by the Team Leader was on 27th November 1991 presented to Danida Regional Office for Southern Africa, S7, in Copenhagen, which forwarded the said draft final report for comments by the relevant Tanzanian authorities (principally MAJI, MAENDELEO, PICU and RWE's etc) and the Danish Embassy in Dar es Salaam. By the end of January 1992 comments have been received from MAENDELEO (dated Dar es Salaam 27th December, 1991); from the Regional Water Engineer/Regional Project Adviser i Ruvuma Region (dated Songea 27th December 1991); from PICU (dated Ubungo 8th January, 1992); from the Danish Embassy (in Danish dated Dar es Salaam 20th December 1991) and from Danida S7 (in Danish dated Copenhagen 22nd January 1992). Some of the comments also include updating of information and of actions taken as a consequence of the Review Mission. The Team Leader has incorporated the comments received in this final version of the Review Report to the extent where the comments are considered relevant. As some of the comments are contradictory, this has been a somehow difficult task. The full text of the comments received in English can, however, be found as Annex'es No. 12 to 14 (respectively) in Volume 2.

The financial and administrative recommendations in the final version of the Review Report are subject to approval by the Governments of Tanzania and Denmark.

1.3 Acknowledgement

The joint Tanzanian/Danish Review Mission would like to express its thanks to all official and individuals met for the kind support and valuable information which the Mission received during its stay in Tanzania, which highly facilitated the work of the Review Mission.

2. EXECUTIVE SUMMARY OF FINDINGS AND RECOMMENDATIONS

FINDINGS

2.1 Status as the result of Phase I and Phase II

By 30 the June 1990 when Phase II officially ended, water supply schemes altogether covering 208 villages in the three regions had been handed over to the village authorities. Since then more water supply schemes covering an additional 49 villages, which were substantially completed during Phase II, have either been handed over or are expected to be handed over before the end of the year 1991.

The combined efforts of Phase I and Phase II are thus that 257 villages have received water supplies. It is difficult to differentiate between the results of the two phases but it is likely to assume that 210 - 225 villages have been covered under Phase II. Not all of these villages are, however, high priority villages for various reasons. Altogether 536.494 persons (1988 census figures) are served in the 257 villages, but the schemes have a total design capacity of about 800.000 persons.

The programme as such did not reach its physical target for Phase II of supplying water to about 300 high priority villages partly due to budgetary constraints and maybe partly due to a too optimistic assumption about the implementation capacity available under a participatory approach from the communities. Still the achievements are judged by the Review Mission to be very significant.

The Danish allocation of DKK 249 mio. in september 1982 prices has in accordance with Danida regulations been indexed to DKK 278.675.000 in current prices due to inflation and currency regulations. Except for a few mio. DKK the Danish funds have been spent by 30th June 1990. Remaining funds to be used for guarantee works on Phase II schemes.

2.2 Status of Phase III as measured against the PlanOps

Since the start of Phase III the programme has progressed more or less in accordance with the approved implementation plans for the three regions and in accordance with the approved PlanOps for the National activities/PICU and for the three regions taking into consideration that the timeschedule of all milestones and activities in the PlanOps have been extended with 6 months due to the delayed start of Phase III.

It should be mentioned that PICU has in March 1991 suspended the transfer of MMUs to district level in order to evaluate alternative less costly set-ups for the districts councils as the planned arrangements would not be sustainable. The Review Mission strongly supports this decision by PICU.

While waiting for a training plan to be worked out by an external consultant, PICU is reported in May 1991 to have stopped long-term training activities and issued temporary guidelines for continuation of other training activities. There are some disagreement about how much this decision has influenced the actual training activities in the regions, but it is certainly the feelings of the Review Mission that it has created confusion and dissatisfaction in all regions.

Some delays in implementation are due to vacancies in expatriate staffing, although the exact effect of the delayed arrival of some expatriate advisers may be difficult to assess.

2.3 Coordination and cooperation

There seems to be a lack of common perception in PICU and the regions about each other's role and responsibilities in the project. Furthermore there is claimed to be an imbalance between software and hardware activities or between community development and scheme construction activities. Also the institutionalized cooperation of national level between MAJI and MAENDELEO needs to be established. If these important tasks need intervention at a higher level than PICU, the Danish Embassy should take up this matter with the relevant Tanzanian authorities. It should be kept in mind that during appraisal of Phase III it was a principle that "if any conflict arises during Phase III between physical implementation targets and institutional oriented targets the latter will be given priority". (Appraisal Report para 7.3.11).

2.4 Community participation and other software aspects

It is realised that a thorough re-assessment of the appropriateness of the proposed transfer of VIPAs to RCDOs offices should be undertaken before any further action is taken.

The discrepancies between the CDAs available and the numbers required give reason to concern.

It is reported by PICU and the Danish Embassy in Dar es Salaam that with effect from 1992 the Community Participation Section (VIPA/RCDO) will have full control and responsibility over all financial resources, manpower and transport related to its community participation activities including training.

It is encouraging to note that almost all villages provided with water schemes have started to contribute to their water funds realizing the importance of water.

2.5 Technical issues

The local authorities are fully involved in the source and catchment protection programme. There is also a high degree of community awareness and participation especially as the villagers become aware of the benefits to their water supplies. An impressive start on this new activity in collaboration with

the regional forestry and natural resources department has thus been made in Phase III, although the long term sustainability is yet to be proved.

Although a new design criteria was introduced in the budget for Phase III, PICU has not realised this and discussed the consequences with the regions.

The Water Master Plans with their need-based priority criteria for village selection to qualify for implementation are still valid except for a few cases where conditions have drastically changed since the WMPs were prepared. For group gravity schemes it is, however, not possible to avoid including one or a few low-priority villages in such a group scheme.

The RSCs in all three regions in their steering committee meetings in October 1991 rejected the idea to introduce a medium-deep borehole programme. The presently selected technologies will thus be continued during Phase III.

2.6 Recommendations

The major recommendations of the Review Mission are:

- that the institutionalized cooperation at national level between MAJI and MAENDELEO should be established with the assistance of PICU, or if intervention at higher level is required, by the Danish Embassy in collaboration with relevant Tanzanian authorities;
- that the proper balance between software and hardware activities should be established keeping in mind that the major objective of Phase III is to secure village based operation and maintenance of both new and existing schemes with support - where required - from district level;
- that alternative proposals for other concepts for operation and maintenance support are considered than the proposed use of MMUs by district councils as this arrangement is found not to be sustainable. It is important to study the felt need of the VWCs for support from district level. Meanwhile regional MMUs will continue their monitoring and training activities during the guarantee year and assist with repairs, which are beyond the capability of the SA/HAS to undertake;
- that any unspent balance of Phase II funds are utilised for guarantee work in 1991 on Phase II schemes, and that a detailed cost savings plan for Phase III with a revised budget for Phase III is presented to Danida and GOT by February 1992. Furthermore the issue of incentives policy is to be referred for discussions between the Minister-Counsellor of the Danish Embassy and senior GOT representatives;

- that a senior executive full-time project coordinator be appointed by MAJI supported by the Chief Technical Adviser on overall project issues;
- that the training activities are continued at a realistic level and in particular that the proposed T2 workshop and M2 seminar are now scheduled for the first part of 1992;
- that a Steering Unit staffed with two senior programme officers, one with expertise on natural resources management and one with expertise on socio-economic matters, be established at the Danish Embassy in Dar es Salaam by medio 1992 when the Embassy staff members, who so far have performed this coordination role, depart;
- that the PlanOps shall be updated/revised incorporating the recommendations of the first annual review of Phase III in accordance with the article 8 (b) in the Government to Government Agreement for Phase III.

3. STATUS OF PROGRAMME PROGRESS

3.1 Status as the result of Phase I and Phase II

By 30th June 1990 when Phase II officially ended, water supply schemes altogether covering 208 villages in the three regions had been handed over to the village authorities. Since then more water supply schemes covering an additional 49 villages, which were substantially completed during Phase II, have either been handed over or will be handed over before the end of the year 1991.

The combined efforts of Phase I and Phase II are thus that 257 villages have received water supplies either through gravity piped schemes (186 villages), or shallow wells equipped with handpumps (68 villages), or through hydrams (1 village), or through boreholes with motordriven pumps (2 villages started during the pilot construction programme before the technology choice had finally been made). Reference is made to Annex 5 prepared by PICU, which shows the "Cumulative Handed over and Substantially Completed Schemes by 30th June 1990 in the three Regions (Phase I + Phase II)".

It should be underlined that not all of the 257 villages are high-priority villages as defined in the WMP. For grouped gravity schemes it is not possible as explained in para 6.3 to avoid including some low priority villages. Also during the pilot implementation programme under Phase I a number of schemes were embarked upon before a priority criteria had been developed.

The Review Mission has furthermore carefully studied the figures prepared by PICU and has adjusted the figures downwards for three reasons:

- a) For gravity schemes it is found for 6 villages in Mbeya region that their total 1988 population is 27.374 persons while the design population for the same 6 villages is 18.967 persons. It is found reasonable to adjust the covered population in 1988 with 8.407 persons, as it would be illogical to have a higher coverage than the design population. (It should be mentioned that the largest input to this adjustment is the village of Mbalizi, which in reality is a suburb of Mbeya town, where the 1988 census figure is 13.310 persons, while the design population for Year 2006 was estimated to be 7.180 persons).

Similarly for 2 villages in Ruvuma region their total population in 1988 was 6.122 persons, while the design population was estimated to be 4.668 persons. Consequently a reduction in the covered population in 1988 with 1.454 persons have been carried out.

- b) For pumped boreholes the 1988 population in Makongolosi village in Mbeya is stated to be 14.872 persons, while the design capacity of the scheme is stated to be 3.500 per-

sons. A reduction in covered population with 11.372 persons has consequently been performed.

- c) For handpump schemes the total number of beneficiaries has been reduced to maximum 250 persons per handpump. The PICU information in Annex 5 shows that altogether 165 handpumps in Mbeya region should serve 61.559 persons in 1988. On average this would be 373 persons per handpump, which is not a realistic number. This problem about only partly covered villages, which is a special problem in Mbeya region, is elaborated on under 6.4: Medium-deep borehole programme.

PICU has objected to the adjustment of population and claims that the existing population in each village share the available supply and as such is covered even through inadequately. This argument is not accepted by the Team Leader of the Review Mission.

The most accurate figures for the status as the result of Phase I and Phase II are in the opinion of the Review Mission as shown in Table 3.1.

Table 3.1. Number of persons served with water as a result of Phase I and Phase II.

Gravity schemes

<u>Region</u>	<u>Number of villages</u>	<u>1988 population</u>	<u>Average population per village in 1988</u>	<u>Design Population</u>	<u>Average design population per village</u>
Iringa	56	97.640	1744	150.350	2685
Mbeya	93	205.967	(2215)	309.031	3323
Ruvuma	37	93.975	(2540)	175.417	4741
Total	186	397.582	2138	634.798	3413

Wells with handpumps

<u>Region</u>	<u>Number of Villages</u>	<u>Number of HP's</u>	<u>1988 Population</u>	<u>Average Population per village in 1988</u>	<u>Average Population per HP in 1988</u>	<u>Design Population</u>	<u>Average Design Population per HP</u>
Iringa	17	232	38.248	2250	165	58.000	250
Mbeya	27	165	41.250	-	250	41.250	250
Ruvuma	24	227	51.963	2165	229	56.750	250
Total	68	624	131.461	-	210	156.000	250

Hydrants

<u>Region</u>	<u>Number of villages</u>	<u>1988 Population</u>	<u>Design Population</u>
Iringa	1	1.020	1.300

Boreholes with motordriven pumps

<u>Region</u>	<u>Number of villages</u>	<u>1988 Population</u>	<u>Design Population</u>
Mbeya	2	6.431	7.500

Total results:

<u>Region</u>	<u>Number of villages</u>	<u>1988 Population</u>	<u>Design Population</u>
Iringa	74	136.908	209.650
Mbeya	122	253.648	357.781
<u>Ruvuma</u>	<u>61</u>	<u>145.938</u>	<u>232.167</u>
<u>Total</u>	<u>257</u>	<u>536.494</u>	<u>799.598</u>

Altogether 536.494 persons have thus been provided with water-supplies (1988 population figures revised as indicated above), but the schemes are designed and constructed to serve some 800.000 persons in 20 years' time from the design of gravity schemes and in 10 years for handpump schemes.

It is not possible to differentiate between the results of Phase I and Phase II respectively. It was stated in Annex IX of a Report by a Review Mission on Economy, Organisation and Administration in April 1986 that schemes substantially completed during Phase I and supplying water per 31st December 1983 covered 47 villages with a 1981 population of about 72.000 persons and with a future design population in year 2006 of about 120.000 persons, while other schemes for 21 villages had commenced by 31st December 1983. However by the end of Phase I no procedures had been established for handing over the completed schemes to the village governments. Such procedures were first approved in 1985 and consequently it has been necessary to maintain and/or rehabilitate certain schemes from Phase I using Phase II funds until official handing-over could be arranged. It may, however, be considered that 210-225 villages have been covered during Phase II.

Although the programme as such has not reached its physical target for Phase II of supplying water to about 300 high priority villages, the achievements are still very significant through a good collaboration between the professional personnel of MAJI and MAENDELEO on the one side and the community participation of the villagers on the other. That the physical targets for Phase II have not been fully met, are partly due to budgetary constraints (extending the project period from 5 to 6 1/2 years within the original budget indexed for inflation etc.) and maybe a too optimistic assumption about the implementation capacity available under a participatory approach.

3.2 Status of Phase III as measured in accordance with PlanOps

3.2.1 General

Since the start of Phase III selection of village schemes for implementation under the three years rolling implementation programme in each region has commenced. Visits to selected villages by the Village Participation Cells have followed. Technical surveys, designs and construction activities have also been embarked upon. All more or less in accordance with the approved implementation plans for the three regions.

After the appraisal by Danida of Phase III in May 1988, Plans of Operation for Phase III for each region and for project activities at the national level were prepared in 1989 introducing the concepts of the Logical Framework Approach as instruments for the planning exercise. It is specified in Article 3 of the Government to Government Agreement for Phase III that the Plans of Operation shall be considered as annexures to this Agreement.

The Plans of Operation were, however, prepared under the assumption that Phase III would commence on 1st January, 1990. As Phase III officially started by 1st July, 1990 it has been assumed by the Review Mission that the timeschedule of all milestones and activities in the PlanOps have been extended with 6 months.

Information about implementation status by August 1991 as measured against the PlanOps has been presented to the Review Mission for the National PlanOp/PICU as well as for Mbeya and Iringa regions and can - after correction for the 6 months delay in the commencement of Phase III in the PlanOp/PICU - be found as Annex'es 6, 7 and 8 respectively. No implementation status was received for Ruvuma region, but the Review Mission has attempted to prepare a status by August 1991 based on written and verbal information received during the visit to Ruvuma region. The status for Ruvuma region appears as Annex 9.

In the following the highlights of the implementation status are described.

3.2.2 National PlanOp/PICU

The delays at the national level seem mainly by PICU to be explained by the shortages of expatriate staff. 6-7 senior adviser posts have actually been vacant since the start of Phase III, out of which two (O & M regional advisers in Iringa and Ruvuma regions) were filled just before the arrival of the Review Mission, while the VIPA in Mbeya has taken up her post by 1st October 1991). At PICU it is, however, mainly the post of Senior Technical Adviser which has been vacant, but which hopefully will be occupied early in 1992.

Although PICU disagrees the Review Mission is, however, doubtful that the effect of the delayed arrival of some expatriate advisers in the regions is so great as explained by PICU. The Review Mission is furthermore of the opinion that some expatriate advisory posts may be phased out earlier than expected in the PlanOp.

Delays have occurred on the training programme due to PICU's decision to suspend more or less all long-term training activities while awaiting the report from the Training Consultant, which was presented in a draft version in August 1991.

Not much seems to have happened on the inter-donor support to Kurasini store. This activity appears to have been given low priority.

The assessment and possible revision of the WMP criteria incl. design criteria has been postponed awaiting the present Review Mission to be involved. As to the design criteria this seems in the views of the Review Mission to be a fatal mistake at PICU, as a revised design criteria was already advocated in the Danida Appraisal report from May 1988 and for which the cost implications were included in the Phase III budget and approved by the Danish financial authorities. Although PICU claims that it inherited the problem from DSU, the Team Leader for the Review Mission still finds that it was a fatal mistake that PICU has not recognized that a new design criteria has been introduced in connection with Phase III schemes and discussed the consequences with the regions. This issue is further dealt with in para 6.1.

3.2.3 Similarities in the three regions

In all three regions the PICU decision in March 1991 to suspend the establishment of the mobile maintenance units at selected districts naturally have delayed these activities. The Review Mission, however, supports the decision by PICU. (For further details refer to para 6.9).

The PICU decision to suspend nearly all long-term training activities (as explained under para 3.2.2) consequently have created delays and dissatisfaction at regional and district level. There appears even to be disagreement about which activities have been stopped.

3.2.4 Mbeya region

A particular problem in Mbeya region compared to the other two regions seems to be that the Mbeya staff have been waiting for authorization on the issue of standardized latrine design for primary schools and village dispensaries. Consequently no latrines at these public institutions have commenced to be constructed. Mbeya region has not commented on this issue and it is therefore unclear whether constructions of latrines for primary schools and village dispensaries have started in Mbeya region.

Iringa and Ruvuma regions have gone ahead on this issue using design drawings previously approved by AFYA at the regional level.

4. ORGANIZATIONAL ASPECTS

4.1 Cooperation between MAJI and MAENDELEO at all levels

National level:

No institutionalized cooperation between MAJI and MAENDELEO has been established at national level, neither has an informal system been developed. The cooperation between the MAENDELEO representative at PICU, the Senior Community Development Officer and the representative of MAJI, the National Training Coordinator is hampered by the fact that the latter due to other important responsibilities has only very limited time left for the DANIDA-supported Project.

Both at MAJI and MAENDELEO there is an interest and will to establish a more formalized cooperation and communication system.

The Review Mission proposed that PICU works out at proposal on formalized cooperation between the two ministries at national level to be discussed and approved by the parties as soon as possible.

It is reported that this work has already started, and that contacts have been made with the Ag. Commissioner MAENDELEO and the Ag. Director for Design, Construction and Materials Testing in MAJI through PICU. It appears, however, that this is a task beyond the authority of PICU and may need interventions at a much higher level. The Danish Embassy may then have to take up this matter with the relevant Tanzanian authorities.

Besides, a training coordinator shall be appointed from MAJI who will be able to be on the Project on a fulltime basis with reference to the National Training Coordinator. Also the training in the software component i.e. community participation shall be looked into with support from MAENDELEO.

UNDP is supporting a programme in MAJI named PROWESS, Promotion of the Role of Women in Water and Environmental Sanitation Service. One of the main aspects of this programme is coordination of activities within the scope of the programme amongst MAJI, MAENDELEO, Ministry of Health and Ministry of Regional Administration and Local Government. The programme operates at present only at the national level, but as from 1992 a programme coordinator will be in position in each region.

The Review Mission recommended that contact be made by PICU to the programme and that a formalized coordination and cooperation be established between this programme and the project. PICU is now reported to have contacted Ms. Hilda Gondwe, the country coordinator for PROWESS to formalize coordination.

Regional level:

The Regional Management Committee chaired by the Regional Development Director (RDD) is composed of representatives for all sectors, MAJI, MAENDELEO, Health, Natural Resources, etc. The Committee convenes each quarter for discussing projects and other matters.

In each of the three regions a special Regional Steering Committee for the Rural Water Supply Project has been established since the start of Phase I.

Regional Steering Committee meetings and inter-regional meetings have proved to be important project management and coordination tools. RSCs are convened twice a year and inter-regional meetings are held quarterly. The one for the 4th quarter is the so-called Joint Committee meeting which gathers all relevant persons from all ministries and agencies involved in the Project.

The RSC meetings have a standard agenda concentrating on project progress. The inter-regional meetings raise main themes decided upon from meeting to meeting.

The Review Mission supports the established framework of meetings and their agendas and thereby agrees that the quarterly schedule of RSC meetings stipulated in the PlanOp has been changed to half a year.

For further information about cooperation between MAJI and MAENDELEO both at regional and district levels please refer to paras 5.1.1 and 5.1.2.

4.2 Organization Charts

The organization charts as prepared by PICU can be found in Annex 10. These include:

- Organogram for Seconded PICU Staff to Regions
- Organization Plan
- Managing the Training Function
- Regional Organization
- PICU organogram
- Overall PICU Organization (Advisers)

4.3 O & M Organization

During Phase III the major objective is to secure village-based operation and maintenance of both new and existing water supply schemes with support from district level. Village councils must include sufficient allocations for O & M purposes of water supplies in their budgets, which are approved by the DED. Considerable efforts have been made to open water fund accounts for the village to be able to pay for spare parts and salaries to SA/HA.

Furthermore it was envisaged that a number of districts would be provided with a mobile maintenance unit (MMU) for the purpose of providing technical, organization and training support to the VWCs and scheme attendants with regard to maintenance. This was under the assumption/precondition that the District Council in its budget would include the recurrent costs for operation of the MMU, e.g. salaries for three full-time staff members, fuel, repairs, depreciation etc., and that the transfer of responsibility for support to the village-based O & M system from RWE to DWE would take place in a phased manner taking into account number of schemes completed, technical skills and capacities, logistics etc. Both Mbeya (Rural) district and Iringa (Rural) district have prepared draft letters of understanding for such transfer of responsibilities from RWE to DWE. It was, however, found that the annual recurrent cost for such a support arrangement (inclusive of logistical support to DWE and District MAENDELEO staff) would amount to TAS 12.5 million, which is far beyond the ability of a district council to meet, which would mean that the arrangement would not be sustainable.

Consequently PICU in March 1991 suspended the transfer of MMUs to district level in order to evaluate different set-ups less costly for the district councils as regards the recurrent expenditure.

The Review Mission strongly supports this decision by PICU and recommends that the suspension is extended until the time of the next annual joint Review Mission scheduled for September 1992 in order to evaluate alternative solutions from the point of view of what do the VWCs and SA/HAS see as their felt need for support from district level. It means that no purchase or transfer of MMUs or vehicles to DWE and District MAENDELEO staff will take place during 1991 and 1992, while the alternative solutions are being studied. Meanwhile regional MMUs will continue their monitoring and training activities during the guarantee year. The regional MMUs may also have to assist with repairs which are beyond the capability of SA/HAS to undertake.

The assistance to improve office, workshop and store facilities for DWE as well as to upgrading of existing MAENDELEO office facilities at district level will continue in accordance with agreed time schedules and budgets in the PlanOp.

PICU is commenting that the budget figures in the PlanOp for upgrading existing MAENDELEO office facilities at district level are insufficient and will submit revised budget figures in February 1992.

Bicycles for use by scheme attendants (in principle one per gravity village where relevant) should be issued to the village government at the time of handing over as is the case with toolboxes and spares. Handed-over schemes from Phase I and II should also receive bicycles for use by scheme attend-

ants. PICU has after the Review Mission ordered the mentioned bicycles.

4.4 Project Management Systems in MAJI and MAENDELEO

Apart from the role of the Director of Design, Construction and Materials Testing no project management system has been developed in MAJI. Internal MAJI communication and coordination on the Project is very weak. Even project progress reports are not distributed to the relevant personnel. With the workload put on the DDCM and the limited staff resources the Director is unfortunately not able to devote much of his time to project issues.

In MAENDELEO the Department of Technical and Selfhelp Projects supervises the MAENDELEO activities in the Project. It receives progress reports from the Senior CDO in PICU and gives advice if requested. It does not undertake any active project monitoring.

The Review Mission proposes that a senior executive full-time project coordinator be appointed by MAJI supported by the Chief Technical Adviser on overall project issues. Sufficient executive authority shall be delegated to the coordinator leaving only questions on strategies and general approaches to be decided by the DDCM. This recommendation is supported by S7 in Danida HQ.

A project monitoring group shall be established within MAJI to ensure efficient communication and cooperation within the Ministry on project issues.

The Review Mission proposes that it be considered to give the Department of Technical and Selfhelp Projects in MAENDELEO an active project monitoring role on the Project software programme.

4.5 Sharing responsibilities between the Project Implementation Coordination Unit (PICU) and the Regional Water Departments

There seems not to be a common perception in PICU and in the regions about the roles and responsibilities of each party in the Project.

The Review Mission finds that PICU was created to allow MAJI headquarters to perform its proper advisory and monitoring role towards the regions. The principal duties of PICU are listed under 4.2 in the National PlanOp. The duties are still relevant (maybe with the exception of project designs which should follow the normal MAJI regulations). These mentioned duties contain decisions on issues which have to be decided at national level.

On the other hand PICU should not involve itself in routine day-to-day issues which are best performed at the regional

level with its detailed knowledge of local conditions and in line with GOT decentralization efforts.

It is reported that the above issues were thoroughly discussed at meetings in the regions with PICU in October 1991, and that a solution is claimed to have been found to every one's satisfaction.

The Review Mission finds that some advisers both at PICU and in the regions have a tendency to go beyond their designed roles as advisers and more act as implementors. This tendency should be corrected in line with increased responsibilities given to RWEs and their staff within the structure of the Government Agreement on Phase III and the PlanOps attached to it, the Appraisal Report for Phase III and the WMPs. It is reported that consequently the job descriptions for the advisers are being adjusted. However, it should also be realized that some advisers are accountable to DANIDA for budgets and stores under the DPO according to DANIDA rules, for those disbursements and expenditures which cannot be channelled through treasury to RWEs and RCDOs.

4.6 Reporting procedures and quality and use of reports

Quarterly progress reports are prepared for each region and presented to PICU and the RWE. Copies are also given for information to the RWE/RPAs in the other two regions and to Cowiconsult Dar es Salaam. Although the mentioned reports include community participation they do not seem to be presented to the RCDOs.

From one quarterly report given to the Review Mission it appears that this report has the following main contents:

- Financial status
- Physical status
- Problems encountered or anticipated
- Action items for PICU
- Implementation: Survey and design, and construction
- O & M (incl. of progress on maintenance works)
- Community participation: Formation of VWCs, establishment of Village Water Funds, Mobilization Meetings and Handover of schemes
- Training and Seminars
- Other activities like water analyses and water quality, hydrology, sourceprotection, and health and sanitation
- Regional Workshop, transport and stores
- Staffing situation
- Cooperation with others (incl. of Regional Steering Committee).

It appears to the Review Mission that the report contained a lot of useful information. However it was not clear to the Review Mission who is the target group for this kind of reports. Also the Review Mission had no chance to find out

whether PICU normally comments on the regional quarterly progress reports.

PICU issues a number of circulars to the regions on policy and other issues.

PICU also prepares an annual report for Danida based amongst other inputs on the regional quarterly reports.

4.7 Training and Human Resource Development Plan

A draft training plan has been worked out by an external consultant and submitted in August 1991. In order not to carry out training which would not be in accordance with the training plan, the Project in May 1991 stopped long-term training and issued temporary guidelines for continuation of other training activities.

Obviously the regions have been rather confused about the training policy of the Project since then. All regions have stopped training of village water committees, and Ruvuma and Mbeya have also stopped training of user groups at domestic water points. Training of scheme attendants have continued.

The confusion and discontinuation of training activities have created serious dissatisfaction in all regions, and it is in all places clearly spelled out that further postponement will have an adverse effect on project performance and sustainability.

The draft training plan is very comprehensive and represents in its present form a too ambitious approach. However, conceptually and managerially it integrates well in the national training policy for the water sector.

The national training management framework has lately been established in the Project regions. It consists of the regional training coordinator allocated to PICU at the top level, one part-time regional training manager (professional), one full-time regional training coordinator (technician) for each region, and one full-time district training coordinator (technician) for each district. The appointed persons all belong to present MAJI staff. They have no formal education within training, but through the training of trainers programme proposed in the draft training plan their knowledge will be continuously upgraded.

The Review Mission recommends that all basic training activities be restarted as soon as possible where these have been suspended. It regards first and foremost all training at village and district level as far as O & M is concerned. The existing training approach shall be continued, but relevant changes proposed in the draft training plan shall be incorporated.

For training at all other levels and for training of trainers the draft training plan shall in principle be adhered to. However, a realistic level of training activities for Phase III shall be defined in terms of number of courses, timing and participants. For this purpose the draft training plan will constitute a very useful "shopping list". The task will be carried out by the proposed full-time training coordinator for the Project and the Senior Community Development Officer in PICU in close cooperation with relevant personnel at regional and district level.

The Review Mission finds that two training courses proposed in the Training Plan should be paid special attention:

Learning Materials Development Workshop (T2) and Project Strategy, Planning and Management Seminar (M2). The former is considered as imperative for course development activities which constitute a bulk of training activities in the nearest future. The Workshop aims at creating a core group of Project trained course developers who will have the skills of designing and preparing learning materials.

It is reported by PICU and the Danish Embassy in Dar es Salaam that the T2 workshop has been scheduled to take place in Dar es Salaam during weeks number 4, 5 and 6 in 1992 with about 15 project staff members from the 3 regions.

Based on the issues raised under para 5.5, Development of Appropriate Communications Materials, the Review Mission finds it important to support the execution of the proposed seminar on project strategy, planning and management. The seminar will enhance PICU's competence in problem-solving, improve centre-region relationship and coordination as well as strengthen the efficiency in project implementation practices. Also, the Seminar will provide opportunities for amelioration of regional coordination as well as collaboration between the construction and village intervention sections. The M2 seminar is likely to take place ultimo April/primo May 1992 according to information from the Danish Embassy.

Statistics on training

Total available for training in Phase III	DKK 6.900.000
Spent on training activities in 1990	DKK 800.000
Spent on training activities 1.1.91-30.6.91	DKK 300.000
Planned expenditures on training 1.7.91 - 31.12.91	DKK 500.000

4.8 Project communication and coordination

There seems not to be a common perception in PICU and in the regions about each other's role and responsibilities in the Project. Communication and coordination are carried out as activities, but appear not to reach their intended aims.

Weekly scheme meetings and monthly progress meetings at regional level are held to ensure the communication and coordination between software and hardware components of the project.

However, even if this is the case the Review Mission is left with the impression that some software personnel are dissatisfied about the structural imbalance between community development and scheme construction activities, which they claim is due to lack of understanding of the project strategy.

The Review Mission finds that there is a theoretical confrontation expressed in these views. The issues are dealt with in the Village Participation Handbook, and if there are unsolved definitions or demarcation problems, they should be referred to PICU for clarification and decision, if necessary in consultation with the DANIDA office.

It is acknowledged that there is presently a shortage of community development personnel in relation to the ongoing construction programme.

The Review Mission proposes that interregional coordinators be appointed amongst the advisers for the following fields:

- construction
- operation and maintenance
- community development
- workshops
- stores
- accounts

The coordinators shall function as intermediaries between PICU and the regions. Their main tasks will be to establish a common project perception about strategies, approaches and roles of different project levels, and for the construction, O & M and community development coordinators to ensure the necessary balance between software and hardware implementation.

It is encouraging to register that after the Review the following task forces have been established:

Iringa: - O&M Task Force (including transport)
- Community Participation Task Force

Mbeya: - Technical Task Force (including design)

Ruvuma: - Handpump Technology and Hydrogeology Task Force

The O&M Task Force held its first meeting in Njombe in December 1991, while the transport meeting will be held in Ruvuma 14-16 January, 1992. "Revision of VP Handbook Committee"-meetings have taken place twice.

4.9 Expatriate staffing level (including vacancies since start of Phase III)

According to the Organization Chart on page 7 in Annex 10 altogether 15 advisers are proposed for PICU and the three regions combined.

At the time of the Review Mission's visit to Tanzania the two posts of O & M advisers in Iringa and Ruvuma had just been filled after a vacancy of about one year. The following expatriate positions were still vacant:

- senior technical adviser in PICU (since August 1990 except for a two-month assignment in March and April 1991)
- accounts adviser (since June 1991)
- VIPA in Mbeya (since March 1990). The VIPA for Mbeya has been approved after considerable delay, and the person selected is expected to arrive shortly. (Did actually arrive by 1st October 1991).

Interviews with suitable candidates for the posts of senior technical adviser, accounts adviser and other posts which will fall vacant in the coming year have been carried out in Copenhagen in August 1991 and if approved by the relevant authorities contracts can be signed with the selected persons in the near future. However one should not expect that they can arrive before the first quarter of 1992. This is still correct when finalizing the report.

Obviously the vacancies have adversely affected the smooth implementation of the Project.

The Review Mission finds that employment of a full-time accounts adviser is no longer justified. The Tanzanian project accountant at PICU has acquired sufficient knowledge in accounting to be able to take over the full responsibilities of the accounts section if ad hoc assistance can be provided in connection with half-yearly and yearly statements of accounts.

The Review Mission proposes that the accounts adviser, who left in June 1991, be retained for short-term assignments two times a year for the coming two years, and that the auditors of the Project be asked to supervise and assist the project accountant when called for in connection with consolidation of the projects accounts and in solution of any problem arising within her field of responsibility.

This has consequently been approved by the Danish Embassy in Dar es Salaam and by S7 in Copenhagen. The former Danish accounts adviser is scheduled to visit the project for 2 weeks in early April 1992 in connection with the yearly statements of accounts, and for 2 weeks in early September 1992 in connection with the half-yearly statements of accounts.

The present procurement and stores adviser shall be given a Tanzanian counterpart as soon as possible. This will enable the Project to phase out this expatriate position after three years of Phase III instead of the four years stated in the PlanOp. A Tanzanian counterpart has after the Review been identified for the Procurement and Stores Adviser

4.10 Local staffing

Generally speaking in all the three regions the local staff on the hardware side maybe with the exception of Ruvuma region satisfy the project staff requirements, but on the software side there is a considerable shortage of staff, CDOs and CDAs in particular. For example, in Ruvuma region there are 36 wards with water schemes, but only 26 wards have CDAs working in the Project. In some of the districts there are few CDAs compared to the number required by the Project, because basically the CDAs are employees of the District Councils, and shortage of CDAs in the districts may be caused by low capacity of the districts to absorb the CDAs. It is recommended that more VPAs should be trained to increase the number of CDAs. (Refer to para 5.6 for further information on this question).

According to the PlanOp, the O & M activities have to be shifted to the districts. It is important that a thorough study be made to ensure that a satisfactory number of local project staff, both hardware and software, are available before shifting the O & M activities for the sustainability of the Project.

4.11 Local and regional procurement

Local and regional procurement has not really been an issue during the later years of the Project. Pipes and fittings, which constitute about 70% of the total scheme costs, are purchased in Denmark, vehicles in Japan, and cement, timber, reinforcement bars, GI sheets, hand pump heads and rising mains etc. in Tanzania.

Production of pipes and fittings relevant for the Project takes place in the SADCC region and in East Africa.

The Review Mission proposes that a desk study followed up by visits to relevant manufacturers in the above countries be carried out by the procurement adviser. If quality, price and terms and reliability of delivery are competitive to Danish deliveries it shall be considered to change suppliers. PICU

comments that a study to among others the neighbouring countries of Kenya, Zimbabwe and Botswana is planned in mid 1992.

The project has been allowed to make direct procurement on a pilot basis during the year 1991. Prior to this arrangement all procurement went through an agent "Old East" and payment was effectuated by Danida Copenhagen. Through the pilot attempt the project saves agent fees and project accounting has become less complicated and more up-dated than previous since there is no invoices pending from Danida head quarters anymore.

Up to now the pilot attempt has proved very successful and the Review Mission recommends the arrangement to be continued after 31.12.91 if not any major difficulties arise in the last quarter of this year.

However, the Danish Embassy in Dar es Salaam comments that by the end of 1991 the procurement arrangements have been adjusted. While purchase of pipes and fittings (approximately 50% of the annual amount for the project) will still be done directly by the project, and this will also be the case with purchase of handpumps and drilling equipment from Tanzanian Wells Services and Supplies Co. in Morogoro, the remaining purchases will be through "Old East". No reasons have been stated for the revised arrangement.

4.12 Store and Stock Control

Stores exist at central level (PICU) and at regional level. The administration is based on the Cardex system. Stock control consists of a yearly stock taking and a quarterly spot check on 10% of the stored items. The Review Mission finds the store in very good order and the management and control of stock efficient. There is practically no loss on stock.

There is a plan for computerization of stores management.

Decentralization of the PICU store to the regions will commence at the beginning of 1992. General stores will be decentralized during 1992, and the PICU stock of Landrover 109 spares will be sold.

The Review Mission recommends that computerization of stores management be further considered before implementation taking into account the GOT views in connection with the future role of Kurasini stores, and that dismantling and decentralization of the PICU store be advanced compared to the PlanOp to terminate by mid-1993.

4.13 Financial Management and accounting systems

An accounts handbook has been worked out. The routines and procedures stated in it are followed, and both accounting, monthly consolidation of accounts and yearly financial statements are carried out satisfactorily.

Financial management is hampered by the fact that the financial statements do not reflect the activity budget summary presented in the PlanOp, but relates merely to DANIDA's general requirements. However, the accounts system includes the needed information, but no routine has been established for this important budget monitoring.

It is realised that there are two channels for funding: one channel through RWE's offices according to GOT regulations, and one channel through DPO according to DANIDA rules.

The Review Mission recommends that budget monitoring based on the PlanOp distribution of activities be established as soon as possible, and that accounts in this connection also be consolidated for main activities like e.g. training, development communication, allowances and water source protection.

PICU comments that budget monitoring as recommended has now been established effective 1992.

4.14 Staff incentive system

There is a general concern in all the three regions regarding the big differences in the per diem and other incentives between the temporary local staff employed by the Project and government employees working in the Project, whereby those for the latter are limited and low. While it is generally agreed that this may have a negative effect on the implementation of the Project, any attempt to review the existing system should therefore aim at increased productivity as well as sustainability taking into account the gradual phasing out of the project employees as stipulated in the PlanOp, project budgetary constraints and general government policy on incentives.

Due to the precedents and consequences both in GOT and for other DANIDA-supported projects the Review Mission recommends that the whole issue of incentives policy is referred for discussions between the Head of DANIDA Mission and senior GOT representatives.

4.15 Decentralization to District Level

Decentralization to district level comprises the following issues:

- scheme design and construction
- operation and maintenance
- disbursement of Danida funds through the Ministry of Local Government.

The AR says as follows about decentralization:

"In accordance with GOT policy and in agreement with local Government Act, the project will in a phased manner gradually

strengthen the capacities for operation and maintenance and implementation at district level".

Scheme design and construction for some minor and less complicated gravity schemes have been delegated to the district level in the few districts where an engineer is in charge. Most district engineering offices are managed by a technician. With some assistance from the RWE's office and the RPA the works progress, but it is the general opinion that both capacity and capability at district level are still rather limited. To this come the very weak financial situation of the district level administration, which makes it very unlikely that a major sustainable improvement of the district engineering offices can take place within the Phase III period.

For these reasons the Review Mission recommends that decentralization to districts within design and construction shall be promoted with care and no steps be taken which are not considered sustainable.

Decentralization of O & M are dealt with in para 4.3.

Disbursement of Danida funds to the district level is through MAJI and the RWEs. It has been discussed whether it could be supportive to the decentralization process that disbursement to the district project activities takes place through the Ministry of Local Governments which is the parent ministry for district authorities.

The Review Mission is not in favour of this within Phase III for two reasons. First, the present system functions quite well and to change it will put burdens on the project and probably disturb the implementation. Second, it is difficult to channel funds for specific purposes at district level. The amount will enter into the right account but the sum itself will arrive into the overall deposit of the district council. Thus in situations where the council is short of funds to cover the budgeted activities funds might not be available for the project activities timely and sufficiently.

5. VILLAGE PARTICIPATION

The following is a presentation of the findings of the Review Mission concerning the Village Participation (VP) component in project performance.

The performance of the V.P. component is assessed in accordance with implementation as stated in the Plan of Operation, and with specific reference and emphasis on the Terms of Reference of the Review Mission.

5.1 Cooperation between MAJI and MAENDELEO

A prominent feature of the Phase III project is to "- integrate the project with responsible sector institutions". Accordingly, also emphasizing that the village capacity should be strengthened through "Cooperation with MAENDELEO for undertaking mobilization, awareness-building and skills development through training and communication support activities, paying special attention to women" (PlanOp).

5.1.1 Regional Level

At regional level MAENDELEO has since project Phase III started seconded a senior Community Development Officer (CDO) as head of the MAJI Village Participation Section (VP Cell) in all the three regions.

The head of the VP Cell reports to the Regional Water Engineer (RWE) and to project management at PICU.

Within the Regional Community Development Officers's (RCDO) office in Ruvuma and Iringa regions a senior CDO has been assigned to work full-time on village participation activities in O & M of water supplies.

The RCDOs in Ruvuma, Iringa and Mbeya regions have been provided with a vehicle each. The RCDO in Ruvuma region has been provided with funds for construction of additional office space.

In Ruvuma and Iringa regions the senior CDOs, seconded to the MAJI VP Cell, and the senior CDOs assigned to work on O & M activities of water supplies within the RCDOs offices have attended 6 weeks management courses at ESAMI training centre in Arusha.

Communication procedures between the two departments concerning coordination of O & M activities still need to be formalized and established within all three regions.

The RCDOs in all three regions expressed their urgent need for clarification of areas of responsibility and access to project funds.

PICU should, based on input from the regions, take an active role in facilitating clarification in these essential matters.

RWEs and RCDOs are members of the Regional Steering Committee (RSC).

5.1.2 District Level

District level activities are administered under the DED who is responsible to the District Council.

The DWEs and DCDOs are in technical matters responsible to respectively RWEs and RCDOs. The DWE, DCDO and the District Health Officer (DHO) participate in monthly meetings of the Social Service Committee under the District Council.

Construction of new office facilities for the DCDO Songea Rural District is on-going.

Communication procedures and lines of authority between the two departments still need to be clarified and established. Based on the information from the districts and regions PICU should take a coordinating role in clarifying and establishing these procedures.

5.2 Status on Transfer of Villages Participation Advisers to Regional Community Development Office

According to the PlanOp the " -VPC advisers (called the VIPA) will be phased into the regional offices of MAENDELEO", and function both as an adviser to the RCDO and to the RWE.

The status of the transfer of the VIPAs to the RCDOs office is as follows:

Ruvuma - Planned for July 1992. Allocation of a site for extension of the RCDOs office has been provided by the RDD, and the drawings for construction have been approved.

Mbeya - Planned for July 1992. The RWE in Mbeya is suggesting that the VIPA, who is expected in the post ultimo September 1991, should remain within the VP Cell under the RWE's office, thus in order to ensure that advice is given to both the RWE and the RCDO. It is also suggested that the new VIPA should have influence on this transfer, and therefore any further activity should await the VIPA's arrival.

Iringa - Planned for July 1991. Transfer has been delayed due to lack of office facilities. The VIPA is suggesting the need for clarification of the Terms of Reference (TOR) for the work within the RCDO's office as well as a need for an assessment of the stipulated organization of the community development work in the project. Accordingly it is suggested that the transfer is delayed until - "both an evaluation of the present situation has been done and adequate office facilities have been provided".

The VIPAs are unclear about their expected duties after transfer to the RCDO's office as the job-description is not yet specified. And between the RCDOs there seems to be some uneasiness concerning the transfer with respect to the role of the adviser.

It is important to keep in mind that the RCDOs need advice on a range of subjects and activities falling within their areas of responsibility, of which water only constitute one area. Thus, if the adviser only covers one subject area the justification for the transfer might be questionable.

Likewise, it seems rather difficult to maintain the crucial daily contact with the project engineers, as well as with the colleagues in the VP Cell, when physically located elsewhere.

In order to avoid negative effects on project progress the transfer must be based on a justified and appropriate needs assessment.

Thus, a thorough re-assessment of both the appropriateness and the extent (i.e. transfer of the entire VP Cell) of the transfer should be undertaken before any further action is taken.

The re-assessment should be with a view to integrating the project experiences into RCDO's office, and therefore it is essential that the RCDOs take an active role in a dialogue between all involved parties at regional level. This dialogue should be formalized into monthly meetings.

PICU should take an active role in coordinating these efforts, and action should be taken immediately.

MAENDELEO in its comments also supports the idea of reassessing the proposed transfer arrangements. Furthermore MAENDELEO would like to examine the possibility in the future to find local candidates for the VIPA posts. Danida has been supportive for such action earlier, but so far GOT has only been able to provide a local VIPA in Ruvuma region.

5.3 Training of Village Participation Assistants as Community Development Assistants.

Based on a key principle of strengthening institutional capacity the PlanOp for Phase III states that "- the project shall fund formal training to qualify VPAs as CDAs/CDOS who can take up assignments at district and ward levels, where they will mainly be involved with activities required for the establishment of an O & M system".

Accordingly, the draft training programme, which has been prepared by the training consultant (August 1991), includes a structured training programme for VPAs at Community Development (CD) Colleges (certificate courses), qualifying them for subsequent employment as CDAs under District Councils.

During 1991 the training schedule is as follows:

	Ruvuma	Mbeya	Iringa	Total
VPAs	14 (F/M)	16 (F/M)	6 (F/M)	36
VPAs at CDs	4 (2F/2M)	1 (F/M)	1 (F/M)	6
VPAs planned for training	3 (2F/1M)	2 (F)	3 (F)	8
VPAs already trained	2 (F/M)	2 (F/M) Not completed	4 (F/M)	8 <hr/> 58

Out of eight VPAs already trained the Review Mission was not able to obtain information concerning their employment status except for three, who are employed by District Councils to undertake project activities in districts in Ruvuma and Iringa regions, respectively.

The Review Mission observed some constraints in facilitating smooth implementation of the training programme, this is partly due to financial constraints within MAENDELEO in operating the CD Colleges, thus, the student intake at each of the CD Colleges has been reduced from 50 to 15 for the educational year 1991.

PICU has commented that it followed up on this matter with the Danish Embassy and MAENDELEO with the encouraging result that all the VPAs the project had recommended to be trained in CD colleges were admitted for the academic year 1991.

MAENDELEO should if needed ensure replacement of VPAs through facilitating assignments of CDAs to the project.

5.4 Training For Village Participation

The Water Policy emphasizes self-reliance, making the users i.e. the Village Council the owner of the water supplies in both legal and practical terms.

Therefore the institutional, financial and technological capacity of the user group to operate and maintain the water supplies is essential in order to ensure sustainability i.e. continued generation of benefits at a reasonable level and at a reasonable cost to the users.

A village participation training programme including conscientization, mobilization and skills development is a main area of activities in order to achieve sustainability of the water supplies.

Unfortunately, there has been some confusion and misinterpretation regarding implementation of this programme due to a

memorandum issued by PICU postponing most training activities since June 1991, awaiting the consultant training report.

Concerning the training of the direct beneficiaries i.e. VWCs and users, the VP Cell in each region should be the main responsible for the planning, including budgeting and budget monitoring and implementation of the training programme.

The three regional VP Cells are thus involved in the training of the following groups:

- (1) VWCs and village council leaders.
- (2) User groups such as women's groups and school children.
- (3) Scheme attendants and technicians.

The Review Mission support the efforts to reach women as a specific target group, such as female water committee members (VWC), female village council members, as well as other influential female village leaders and opinion-makers and female extension staff on village and ward level, as trained female community leaders could play a crucial role in facilitating project messages to the direct beneficiaries i.e. female drawers, managers and users of domestic water. In that respect it is therefore important, whenever appropriate, to link these efforts with the efforts undertaken by the Danida WID coordinator in reaching women groups directly through economic projects, thus training in basis book-keeping and elements of auditing could reach female VWC treasurers.

The Review Mission had the opportunity to conduct short interviews with a few CDOs, CDAs and VPAs when visiting project sites in the 3 regions. In general it was found that they all have a fair understanding of the villages participation approach applied in the project, which is substantiated by the fact that almost all the direct beneficiaries interviewed, and here particularly female VWC members and female trench-diggers, were able to explain why they were participating in the respective activities.

It is essential that the project staff reach the users directly through user meetings at the source i.e. DP or HP.

In order to facilitate this the Review Mission is of the opinion that there is a long-term development potential in using the existing structures such as the ten-cell unit. To ensure this conscientization and training of ten-cell leaders as a specific target group should, if not already, be included in the training programme planned for villages leadership.

Besides providing technical and organizational skills to the direct beneficiaries i.e. water users the training programme should also facilitate the comprehension of the VP approach and the link between the personnel of respectively the VP Cell and the Construction Section.

Village Participation aspects should therefore be an integrated part of all training activities. That is, technicians should equally be oriented in the VP approach for implementation of rural water supply as should the villagers.

The same applies to technical aspects, it is important that the VP Cell personnel has a clear understanding of some of the basic technical aspects, when training the user group.

Concerning the user group it should be a preference that at least the tap and handpump caretakers at each domestic point and handpump, have a basic and simple technical knowledge enabling them to prevent unnecessary "breakdowns" such as lack of water flow for days or weeks caused by leaves blocking the intake. It seems to be unrealistic to expect that the scheme attendants always are available in the villages.

A participatory training methodology, like for instance the methodology developed by UNDP/PROWESS, and in which some of the project staff members from each of the 3 regions, have been trained should be applied when training in village participation on all levels.

The UNDP/PROWESS programme is based on the SARAR training methodology, which is a time - and labour - consuming approach involving the direct beneficiaries in the planning and implementation process through use of self-made training exercises and communication materials directly related to the specific problem and geographical problem-area.

5.5 Development of Appropriate Communications Materials

A draft consultancy report on "Development Support Communication" has been prepared in June 1991.

At the time of the Review Mission the report had not yet been forwarded by Danida to GOT for comments, and therefore it was not possible to have any discussion concerning the proposals presented in the report.

Accordingly, the following only represents the comments of the Review Mission.

Generally the plan for development of support materials should be linked closely to the national strategy for villages participation in rural water and sanitation development programmes.

The National Strategy, which is in the process of being developed, is based on the PROWESS approach emphasizing full involvement of the beneficiaries, and in particular women at all levels of project planning and implementation.

Seen in that perspective the Review Mission team agrees with the definition of the development support communication, as presented in the report, stating the need to improve the unde-

rstanding between the Construction Section and the VP Cell, which could be facilitated by developing and applying appropriate development support communication materials.

With respect to the four proposed communication objectives presented in the report the Review Mission team suggests that a fifth objective, emphasizing capacity building amongst the direct beneficiaries, should be added.

It is noted that the proposed communication plan, both with respect to pilot area and to materials production, entails two alternative models.

For pilot area, model A1 seems to be far too time and personnel demanding requiring a total number of seven CDAs/CDOs with two to be posted in each region and one at the Training for Rural Development Centre in Iringa (TRDC).

Considering the constraints already facing MAENDELEO the Review Mission finds it beyond the capacity of MAENDELEO to provide the required staff of the CDAs/CDOs, as the project at this stage is already experiencing problems securing replacement of VPAs going for training at CD colleges, by CDAs.

Concerning materials production the Review Mission recommends that the feasibility for implementation of model B2 is further explored.

In this model each of the three communication officers proposed for assignment by MAENDELEO to the VP Cells in the three regions respectively, should develop materials and make use of the private printing facilities in the project area for the production.

Of the alternative models C1 and C2, the Review Mission recommends that model C2, - as presented in the draft consultant report: "Each region is responsible for producing its own communication materials and makes use of private printing facilities to produce the materials that the units are not able to produce", - is explored for further possible implementation in close cooperation with the regional VIPAs and heads of VP Cells. This should both be seen in the light of the ongoing development of communication materials in the regions as well as in the light of scarce institutional and financial capacity of MAENDELEO to provide the assistance required for the implementation of the more extensive model C1.

Model C1 as presented in the draft consultancy report needs further clarification with respect to the institutional set-up and line of authority, before the feasibility of the model can be commented upon.

Initially, the proposal to strengthen the TRDC with a complete set of communication equipment and human power may seem to be beyond the scope of the Rural Water Development Project, but more suitable as a separate project proposal if linked closely

to development of the national strategy for villages participation in rural water and sanitation programmes, which is presently being initiated.

The Review Mission recommends, as proposed in the draft consultancy report, production of two films on O & M and sanitation, respectively.

With respect to the ongoing revision of the Village Participation Handbook the Review Mission supports the recommendations in the draft consultancy report dividing the Handbook into 2 and in an A-5 format, which would seem more appropriate on field level.

Likewise the Handbook could be more attractive and user-friendly to other groups of project staff like engineers and technicians if it was supplied with illustrations and drawings, and supplied with more practical exercises and examples.

Technical manuals should also include essential aspects of Villages Participation and particularly in relation to O & M aspects and role of VWC and scheme attendants.

Development and use of visual aids, as suggested by the communication consultant, should be prepared, tested on all appropriate levels, revised if needed, and distributed for training purposes at all appropriate levels.

5.6 Role of Village Participation Cells in Regional Water Departments

The VP Cells in each of the three regions function as a separate section of MAJI, i.e. participating in meetings of heads of sections, and following the budgetary procedures for RWES.

The main objective of the VP Cell is to ensure village participation in project implementation, i.e. constructive activities. These tasks are performed by project employed VPAs and GOT assigned staff as CDAs and health officers.

The VPAs/CDAs are responsible for implementation of the participatory approach, constituting the basis of the project.

In construction activities the VPAs/CDAs prepare, in close cooperation with the site foreman and the VWCs and Village Councils, time schedules of labour input such as trench digging and hand-drilling.

Besides construction activities, VPAs/CDAs are also assigned to the mobile O & M units operating under the RWES, but also reporting to the RCDO through monthly meetings, a communication line recently established in Iringa region.

The VP Cells, through its villages based staff, are supporting the villages in establishing village level management system, i.e. formation of VWCs and village water funds.

It is encouraging to note that almost all villages provided with water schemes have started to contribute for their water funds, and that villagers have realized the importance of water.

The following is an illustration of the staff situation within the three regional VP Cells (excluding expatriate staff):

RUVUMA: Total VP Cell staff members

	Office administration	Construction	O & M	Under training	Total
CDO	1				1
VPAs	1	6	1	7	15
CDAs		6	3		9
Health staff		1			1
Total	2	13	4	7	26

The 17 staff members involved with construction and O & M activities cover a total number of 22 villages with schemes under construction and 61 villages with handed-over schemes.

According to figures provided by the RCDO in Ruvuma region the following additional staff members (CDAs) provide assistance to the Project:

District	No. of CDAs
Songea (R)	4
Mbinga	5
Tunduru	4
Total	13

The VP Cell in Ruvuma region has not indicated constraints with respect to staff capacity.

MBEYA. Total VP Cell staff members

	Office administration	Construction	O & M	Total
CDO	1			1
VPAs	2	13	1	16
CDAs		4	1	5
Health staff	1			1
Total	4	17	2	23

22
61
7 23 5

The 19 staff members involved in construction and O & M activities cover a total number of 42 villages with schemes under construction (including several group schemes) and 118 villages with handed-over schemes.

According to figures provided by the RCDO in Mbeya region the total number of CDAs in the region (September 1991) is as follows:

District	No. of CDAs
Chunya	10
Mbozi	10
Ileje	5
Mbeya (R)	17
Mbeya (U)	10
Kyela	8
Rungwe	16
Total	76

42
118
19/130/2,4

The VP Cell indicated constraints with respect to staff capacity in such a way that it may have a negative impact on releasing VPAs for further training at community development colleges.

IRINGA. Total VP Cell staff members

	Office administration	Construction	O&M	Under training	Total
CDO	1				1
VPAs	1	3	2	4	10
CDAs		10	1		11
Health staff		2			2
Total	2	15	3	4	24

The 18 staff members involved in construction and O & M activities cover a total number of 31 villages with schemes under construction, of which many are group schemes, and 74 villages with handed-over schemes.

According to figures provided by the RCDO in Iringa region, the total number of CDAs in the region (Sept. 1991) is as follows:

31
74
18/105/5,8

District	No. of CDAs
Iringa	26
Mufindi	17
Makete	9
Njombe	24
Ludewa	8
<hr/> Total	<hr/> 84

The VIPA in Iringa region estimates the need for CDAs at district level (O & M) as follows:

	1991	1994
Iringa	9	14
Mufindi	10	12
Makete	2	5
Njombe	2	4
Ludewa	1	5
<hr/> Total	<hr/> 24	<hr/> 40

Comparing the figures of CDAs available with the number of CDAs requested in order to carry out project activities, the Review Mission supports the concern expressed by the VIPA in Iringa region that the Project is geared towards physical targets using participation as a means rather than a goal in itself in order to establish sustainable village water supply schemes which ensure that "... the beneficiaries are willing to and capable of operating and maintaining their water system with a minimum assistance from outside .."

Thus, implementation of a genuine participatory approach is both time and labour consuming and as such difficult to measure in physical targets alone.

Considering the constraints facing the VP Cells and the lack of clarification of the role and the organizational framework of the Cell, the Review Mission recommends a thorough reassessment, in which an alternative model, - including budgetary responsibility to the VP Cell -, compared to the model in the PlanOp should be elaborated and considered for eventual implementation.

It is reported both by PICU and by the Danish Embassy in Dar es Salaam that with effect from 1992 the Community Participation Section (VIPA/RCDO) will have full control and responsibility over all financial resources, manpower and transport related to its community participatory activities including training.

5.7 Introduction of Quality Control of Village Participation Work

Initiative towards preparing measures for establishing a quality assurance control of the VP component before handing-over of a scheme to the village, has been taken by the VIPA in Ruvuma region.

At this stage ideas have not yet been transformed into tools and mechanisms on how to go about these assessments.

The Review Mission recommends that procedures are established for exercising quality control at all three stages of project implementation such as:

(1) **Before construction activities**

A willingness and capability assessment of the village council should be included in the VP survey.

The assessment should include identification of potential/actual conflicts within the village.

This information will be useful for project staff when preparing project input such as training and formation of VWCs.

Thus, some villages might need more support than others, and the project input required should be adjusted accordingly.

The head of the V.P. Cell should countersign the Village Agreement.

Indicators for monitoring, - i.e. using qualitative data monitoring sheets -, the motivation of village formal/informal leadership, including the ten-cell leaders and women group leaders, should be developed and applied.

(2) **During construction activities**

A concurrent assessment of the conscientization and training activities should be carried out.

The VP Cell should develop a set of indicators, i.e. using ratings which assign a value to each level of change, assessing the outcome of conscientization and training of VWC members, Village Council members, ten-cell leaders and women group leaders, school children and female/male water drawers/users.

(3) **Before handing-over**

An assessment should be made of the technical and organizational skills and capacity of the VWC/Village

Council and of the scheme attendants for ensuring O & M of the water supply.

The VP Cell should develop and apply a set of indicators for monitoring and evaluation of the level of comprehension, - including both technical and organizational/managerial aspects -, of the members of the VWC and the scheme attendants.

That is, the level of participation and willingness to contribute labour and user fees; group unity and strength of the WC; problem solving ability of VWC and scheme attendants; initiative and leadership capacity of VWC and scheme attendants.

The location of the DPs/HPs regarding the accessibility for the users and the appropriateness of workmanship should also be assessed.

In order to secure quality control the head of the VP Cell should countersign the Handing-over Certificate.

Generally, the participatory monitoring and evaluation should, for measurement of activities that cannot be assessed quantitatively, develop and apply a qualitative rating assigning a value.

(4) **A participatory monitoring and evaluation management tool should be established**

The long-term objective of introducing quality control of village participation work is to develop a management tool on village level.

Through participatory monitoring and evaluation, data are provided to help the VWC/Village Council to organize their labour and water fund input required for continued O & M of the water supplies in the village, i.e. repair work, purchase of spare parts, and allowances to scheme attendants.

At the same time, data generated through a participatory monitoring and evaluation system can provide useful information for planning of DWE's and DCDO's assistance in O & M of the water supplies.

The Review Mission has provided project staff ^{with} which information on how to develop a participatory monitoring and evaluation management tool.

5.8 Concluding Remarks Concerning Village Participation

With a national strategy for rural water and sanitation development emphasizing village participation and applying for PROWESS approach the demand on the capacity and quality of the work of the VP Cell will increase considerably.

The staff of the VP Cell will need professional training enabling them to apply the approach, of which the recommended village based participatory monitoring and evaluation system constitute a major part.

Therefore, the Review Mission recognizes the initiatives taken on regional level and particularly in Ruvuma region, - through training of technical staff in village participation aspects, and through regular meetings between Sections, - to overcome the in-built conflict of interest between the Construction Section and the VP Cell.

This should improve the communication and cooperation between the two Sections and hopefully clarify problems related to the pace of implementation, capacity and quality of performance and workmanship.

6. TECHNICAL ASPECTS

6.1 Design criteria set out in the Water Policy in relation to the design criteria used by the Project

During Phase II a design criteria of 25 litres per capita per day was used.

At the appraisal of Phase III in May 1988 the Appraisal Mission stated (para 8.6, page 64):

"The design criteria will be reviewed taking the findings of the recent water consumption study ("Water Consumption in Six Villages in 1987", by CCKK) into consideration leading to the following design criteria for Phase III schemes:

- daily per capita demand (incl. of losses and waste etc.) 33 litres (similar to present MAJI design criteria),
- institutions to be included as in MAJI design criteria,
- design period: year 2010 estimated population,
- peak factor for villages with more than 2,000 inhabitants: 2.5,
- peak factor for villages with less than 2,000 inhabitants: 3.0,
- storage demand in percent of daily design capacity: 50% (but standard size tanks),
- maximum number of users per tap: 200, and
- maximum walking distance to DP: 400 metres.

The cost implications of revising the design criteria as described above is an increase in costs of about 11% from the present level of expenditures.

The Appraisal Mission considers that inclusion of individual house connections in the design criteria cannot be justified. The consequences would be increased cost due to larger diameter pipes and above all the necessity to use sources further away for gravity schemes in those cases where minimum yield of the proposed sources is close to present calculated demand.

The principle followed in the decision about house connections is that the limited available funds should be utilized to supply as many people as possible with basic services rather than to supply a few people with elaborate services."

Can this be given a choice of frequency all what costs themselves? How you improve the design

It appears that this very important change in design criteria between Phase II and Phase III, for which the cost implications have been included in the Phase III budget, have not been understood and communicated to project staff.

It is found that there is no conflict between the recently approved Water Policy of the GOT and the above-mentioned revised design criteria for Phase III. Consequently these revised design criteria should be used for the remaining schemes under Phase III.

As for livestock water demand this should only be included in very special situations (i.e. where cattle troughs already exist on schemes to be rehabilitated as part of the Phase III programme). Otherwise cattle should be taken to traditional sources, but adhere to catchment protection measures.

6.2 The Water Master Plans as basis for implementation of Phase III.

The Water Master Plans for the three regions of Iringa, Mbeya and Ruvuma (altogether 38 volumes) were prepared during the period 1980-1983 including physical visits to all 1509 villages registered at that time in the three regions as well as extensive socio-economic studies. All with the purpose to establish an objective need-based criteria for selection of villages with high priority for implementation and at the same time to identify future water sources and technologies for implementation with a view that the constructed facilities can be operated and maintained in principle by the villagers themselves.

It was found during an independent evaluation in 1987 that the WMPs have provided a very useful and indispensable basis for implementation of Phase II especially in relation to priority and technology criteria.

As only part of the 633 identified high priority villages in the three regions will have received improved water supply facilities at the end of Phase III, it is not found relevant at this stage to revise or update the WMPs as such an exercise would involve considerable resources and could delay the implementation programme.

The Appraisal Mission in May 1988 stated (para 7.4.1, page 42): "... The need-based priority criteria of the WMPs applied for village selection to qualify for implementation is still valid. However, in a few cases conditions have drastically changed, and the assessment of need in such cases will be reconsidered by AFYA and RWE for approval by RSC and DANIDA..."

The present Review Mission supports the above statement.

6.3 Inclusion of low-priority villages in implementation plans

During the preparation of the WMPs it was realized that for a group gravity piped scheme it would not be possible to avoid including one or a few low-priority villages in such a group scheme, when the transmission main would pass through a low priority village. Partly because who would otherwise dig the pipe trenches in the low-priority village area, and partly because a left-out village might be tempted to vandalize the installations passing through the village area without providing benefits to its inhabitants. It has, however, always been stressed that the number of low-priority villages to be included in a group scheme should be extremely low.

Special cases are a small number of schemes started during the pilot implementation programme from 1981 (Phase I) before the priority criteria had been developed, and villages given a priority status.

It appears that a limited number of low-priority villages have been included for handpump installations under Phase II for reasons unknown to the present Review Mission. Some low-priority villages have also been included in the implementation plans for Phase III as a completion of partly covered villages started under Phase I and II.

A special case, which may be acceptable for handpump activities, would be a low-priority village which provides the source for a group gravity scheme, but where the village cannot be served, as it is located at a higher level than the source.

|| Otherwise the need criteria should be strictly adhered to.

6.4 Medium-deep borehole programme (need also to be seen in relation to partly covered villages under Phase II; potential; timing)

During the appraisal for Phase III it was agreed that the first joint annual Review Mission would consider the need for and the feasibility of a medium-deep borehole programme.

So far shallow well drilling with hand-auger equipment from a local manufacturer in Morogoro has been performed for groundwater extraction. Tube wells are drilled with depths from a few metres down to 30 metres depending on the geological formations, and water is generally found in weathered overburden and in sedimentary formations. Recently some hand-dug ring wells have been introduced to increase the storage capacity of low-yielding aquifers. The wells are equipped with either SWN80 handpumps (refitted with Grundfos stainless steel pump cylinders) or with NIRA handpumps. Altogether about 600 hand-pumps had been installed by 31 December 1990.

Some attempts have been made to utilize mechanized drilling rigs capable of drilling in formations down to 60 metres or more both during the WMP and later as pilot programmes in

1985/86. But in general the results were disappointing due to technical problems with the equipment and/or the contractor. However, both in Iringa and Mbeya regions some few villages have been covered by medium-deep boreholes drilled by a mechanical drilling rig from GOT or a small drilling rig operated by project personnel.

In general it can today be concluded that the WMPs underestimated the shallow groundwater potential in the three regions and especially so in Ruvuma region. The problem with the use of the hand-auger equipment is however that a number of villages have either only been partly covered, or the wells have located too far away from where the villagers live because the drilling teams failed to find positive well sites at the locations preferred by the villagers due to the limitations of the used equipment. The number of only partly covered villages or villages which proved negative for drilling of shallow wells seems especially to be a problem in Mbeya region, where it is estimated that about 170 additional medium-deep boreholes will be required in the 27 villages so far partly covered by shallow wells. About four villages in Iringa would require a mechanical rig, while the need for such a rig seems to be very limited in Ruvuma region.

It is recommended that a proper feasibility study is carried out by Cowiconsult (within the provision of the existing contract for consultancy services) before the next annual Review Mission stipulated for September 1992. TORs for the feasibility study will include at least: number of medium boreholes to be drilled; potential for success at high priority sites; choice of drilling equipment and of a well-tested handpump to operate at depths exceeding 25 metres; choice of drilling by contractors based on unit rates or drilling by project staff; scope of community involvement etc.

Before a decision is made about undertaking such a feasibility study it will be necessary for the relevant RSCs to confirm that they support such a study, as the consequence will be that for every high priority village to be included in a medium-deep borehole programme another village will have to be omitted, as the total number of villages to be supplied during Phase III due to budgetary constraints cannot be increased. A special problem will be to sacrifice a number of proposed Phase III villages in order to serve only partly served villages with shallow wells already handed over during Phase II.

RWES to prepare lists of potential villages for medium-deep borehole programme before the next RSC meeting.

The Review Mission proposed that the RSCs have this issue on the agenda for their next meeting in order that a decision whether to embark on the feasibility study or not can be made before the end of 1991.

The issue was on the agenda for the meetings in October 1991 for the three RSCs. However, it is reported by PICU that all the three regions rejected the idea and will not support such a study considering the consequences. It is therefore concluded that no feasibility study for medium deep borehole programmes will be undertaken.

6.5 Technologies presently used for water supply schemes

The technology choices presently selected for Phase III are:

- gravity piped schemes from streams or springs distributing water through DPs
- auger drilled shallow wells or hand-dug ring wells equipped with handpumps
- hydrams

The experiences with the above-mentioned technologies from the start of the pilot programme under Phase I and until today have in general been encouraging with good potential for community involvement right from the decision-making over physical construction and on to operation and maintenance of the completed water supply facilities.

6.6 Other possible technologies, and improvement of hand pumps and shallow well construction

Of other possible technologies the Review Mission can only recommend the following:

- use of solar powered pumps especially for remote areas where such a solution is relevant and feasible
- use of electrically driven pumps in those (few) cases where the national grid has been extended to be close to project villages, and transformers are already provided for low voltage distribution, and it is assured that the villagers will be ready to pay electricity costs for the water pumps
- a medium-deep borehole programme (as already explained under para 6.4)

There is an urgent need to introduce better dewatering equipment and well developing equipment for the ongoing hand-auger and ringwell programme within the budgets for such activities in Phase III. Also safety precautions at ringwell sites shall be intensified. PICU has after the Review Mission introduced better dewatering equipment and safety precautions at ring well sites.

6.7 Planning, design and construction capacity of regional water departments

It is the impression of the Review Mission that the regional water departments in Iringa and Mbeya regions are sufficiently staffed to undertake the planned implementation programme under Phase III, as the magnitude of work over the five-year period is more or less similar to the assignments undertaken under Phase II. Ruvuma region may, however, be a bit different. Whether MAENDELEO and the village participation cells in MAJI can cope with the proposed construction programme and also assist in securing a village-based operation and maintenance system for completed facilities is a different matter and is dealt with in para 5.6. If a conflict for available resources between "hardware" and "software" activities, however, should develop during Phase III, it is categorically stated in the PlanOp as well as the 1988 Appraisal Report that emphasis shall be on securing O & M activities and institutional development in preference to implementation of new schemes (i.e. a scaling down of implementation of physical targets).

The Review Mission has unfortunately not been able to study the capacity and capability of the district water departments in relation to design and construction of new schemes. Where these departments are headed by qualified engineers, there is no reason why design of smaller and uncomplicated gravity schemes should not be gradually transferred from RWE to DWE in line with the GOT Water Policy. This must, however, not happen at the expense of the important role that the district water departments has been assigned in providing back-up facilities, where required, to the villages in their operation and maintenance of handed over water supply facilities.

6.8 Quality control/final inspection of schemes before handover

With the new role of the Regional Project Adviser (RPA) as an adviser and not as an implementation engineer a process has already been started whereby the RPA now inspects the completed schemes and prepares lists of outstanding items to be completed before the official handing over.

The role of the Senior Technical Adviser in PICU in the final scheme inspections before handing over will consequently largely be of a formal character with an element of securing inter-regional standardization of procedures and as a mediator if conflicts should arise in the interpretation of agreements between the regional water department, the district administration and the village authority.

6.9 Operation and maintenance of water supply systems.

This subject is already covered under 4.3: O & M Organization.

From Mbeya region alternative proposals for other concepts for operation of maintenance at considerable lower costs for the

district authorities have been prepared for consideration and should be further studied by PICU and the other two regions.

6.10 Availability of spares for water supply schemes in the open market

As a result of the trade liberalization policy more spare parts of acceptable quality especially for gravity water schemes are now available in the open market. However, the quality of bibcocks is usually low, large diameter pipes and fittings of various materials and hand pump spare parts are not usually available in the open market. Therefore, notwithstanding the existence of a handpump manufacturing factory and a second one coming up, villages still require assistance from the district water offices to procure handpump spare parts and specialized gravity scheme materials.

6.11 Monitoring systems, in particular for functionality of handed-over water supply schemes

Information is reported to the regional O & M sections by the regional MMUs from their visits to the villages and also by DWEs in their monthly reports to their RWE. The regional O & M sections have built up a comprehensive data base from the MMUs reports and on request relevant information and statistics can be drawn from these data bases.

When regional MMUs do not continue to visit the handed-over schemes on a regular basis, the monitoring system must be redesigned.

6.12 Number of water supply schemes affected by pollution or disturbance of intake

Almost all the water schemes particularly in Iringa and Mbeya regions where surface source schemes are dominant have various degrees of pollution or disturbance of the intakes. Source and catchment protection activities, particularly afforestation have impressively started in Mbeya and Iringa regions with high degree of community awareness and participation. However, it is too early to see whether this is sustainable, as most of the trees are not mature, and other activities such as proper farming practices are yet to be adopted by all the farmers in the catchment areas. Nonetheless, comparative observations by the Project in Mbeya region have indicated that rivers with protected (government gazetted) forest catchments have stable flow and better quality water than those which have none. Therefore these activities should continue to be given priority by involving more villages at this early stage of the project.

6.13 Cooperation between the Project and the regional forestry and natural resources departments

Although cooperation exists between the Project and the regional forestry and natural resources departments, regions have adopted different approaches.

In Iringa all the activities related to source and catchment protection have since May this year been transferred to the Regional Natural Resources Officer (RNRO) with financial and logistical support from the Project as stipulated in the Plan-Op.

More or less in the same way in Ruvuma region a forest officer has been attached to the Project in the RWE's office (on secondment) and is responsible for water intake protection activities in the Project. He is provided with transport facilities and has a budget for his activities. He cooperates with the CDO in MAJI and with the project engineers in his day-to day activities. He is a member of the monthly project progress meetings and weekly work planning meetings in the RWE's office.

In Mbeya region, however, the activities are directly organized and coordinated by the Project through a project engineer and the Regional Forestry Officer. As a result a sustainable logistical support within the existing institutional set-up has been difficult to achieve. Therefore there is a need for Mbeya region to adhere to the PlanOp.

6.14 Cooperation with district councils on water intake protection and environmental issues

Districts seem to be fully involved in the source and catchment protection programme. District Executive Directors are fully aware of the programme and District Natural Resources Officers and District Forestry Officers (DFOs) have been involved in the planning of the programme. At the moment the DFOs are supervising the implementation of the activities including establishment of village/catchment area nurseries and tree planting. A sustainable logistical support system within the existing institutional set-up is yet to be established in all the districts.

6.15 Cooperation with villages on protection plans

Villages seem to cooperate in the protection of sources and catchments as long as they are aware of the benefits to their water supplies. In some villages this awareness has already been established by the Community Development Assistants, as a result of which various village-based activities are impressively taking place. These include establishment of village/catchment nurseries, tree planting and making of by-laws. However, solutions are yet to be found for villages which are near water sources and for various reasons do not get direct benefits/water from such sources; and also how best to control/limit human activities in the relatively large catchments which are the source of water for the existing large schemes serving several villages downstream particularly in Iringa and Mbeya regions.

It is reported that removal of people from the catchment area for the Ismani group scheme in Iringa has been proposed. Awar-

ness and dialogues with the villagers are the best way to solve the problem.

6.16 Water quality and its monitoring

According to the studies carried out so far most of the schemes with surface source, physical and chemical qualities of the water may be assessed as usually good except for big rivers where turbidities are high especially during the rainy season. Bacteriological quality may be assessed as generally not in accordance with WHO standards. Further, there are cases where the trend during the water source investigation period have shown promising results, but during construction and operation of the schemes a deteriorating trend has been observed. However, the sources selected are the best ones available within a reasonable distance, and treatment of rural water supplies is not advocated in the WMPs. Source protection may gradually improve the surface water quality.

On the other hand, schemes with ground water sources (shallow wells and boreholes) have been observed to have good and stable physical, chemical and bacteriological quality. Monitoring activities seem to be affected by the limitation on night-out allowances.

7. FINANCIAL ASPECTS

7.1 Update of budget for Phase III including assessment of its adequacy for achieving the tasks set out in the Plans of Operation

The PlanOp presents the following budget in 1989 prices (figures in DKK 000) distributed between the regions and PICU for the period 1990-1994:

Act.No.	Particular	Ruvuma	Mbeya	Iringa	PICU	Total
1.1	O&M establishment at RCDO office	1188	1205	1242	-	3625
1.2	O&M establishment at DWE office	4543	9546	8896	-	22985
1.2.8	RMU costs	451	353	491	-	1295
1.3	O&M establishment at village level	780	1055	1215	-	3050
1.4	O&M establishment for institutional latrines	50	50	50	-	150
1.5	Catchment area protection	497	2841	2088	-	5426
2.1.2	Training of MAJI and MAENDELEO staff	1000	1250	1305	-	3555
2.1.3	VP cell investment and operating costs	1730	1031	1960	-	4721
2.1.4	Water quality and quantity monitoring	1040	1040	1040	-	3120
2.1.5	Regional workshop strengthening	758	1078	828	-	2664
2.1.6	Regional stores strengthening	120	210	210	-	540
2.1.7	Improve transport management	34	54	54	-	142
2.1.8	Strengthening RWE design office	3199	3414	3470	-	10083
2.2	Construction of schemes	26000	44000	38000	-	108000
2.3	Sanitation programme	190	190	190	-	570
3.1	PICU investment and operation	-	-	-	7316	7316
3.2	PICU training and communication	-	-	-	1935	1935
	<u>Subtotal</u>	41803	67591	60333	9251	179000
	Consultancies	-	-	-	-	10000
	Contingencies	-	-	-	-	10000
	Total					<u>199000</u>

In connection with preparation of the 1991 budget PICU and the regions foresaw a major budget shortfall for Phase III. The considerations and assumptions behind this have been discussed thoroughly between the Review Mission and the project staff responsible for the budget.

The main reasons for the expected shortfall were:

- (1) considerable increases in allowances and transport costs, including investment costs of vehicles
- (2) a 75% increase of average scheme construction costs (including (1))

The Review Mission finds that the number of vehicles under the Project is too high, and that the re-investment policy which phases out vehicles after 3 to 4 years is not financially optimal. PICU, however, comments that at no time have vehicles been phased out after 3 years in the project, and that the normal time of phasing out vehicles is 4 to 5 years with emphasis on the 5.

Government allowances have increased by 100% in real terms (DKK value) from Phase II to Phase III.

The estimated increase of average scheme construction costs can mainly be explained by the chosen calculation method based on a per capita cost consideration. Recalculations during the visit of the Review Team have shown that the assumed per capita costs were too high, and that average village cost is a more reliable budget parameter than per capita cost, since a larger part of the scheme costs is not related to population size.

However, the average design population of Phase III villages is higher than assumed in the PlanOp budget, the distribution between gravity and hand pump schemes have changed in favour of gravity schemes, and the number of hand pumps per village has almost doubled due to the need of applying the distance criteria in almost all hand pump villages. Altogether this is very roughly estimated to increase the total construction costs in 1990 prices to DKK 129 million, distributed as follows among the regions and compared to the original PlanOp budget and the budget inflated up to 1990 (figures in million DKK):

<u>Region</u>	<u>PlanOp 1989</u>	<u>PlanOp 1990</u>	<u>Revised budget 1990(tentative)</u>
Ruvuma	26	27.3	30
Mbeya	44	46.2	53
Iringa	38	39.9	46
Total	<u>108</u>	<u>113.4</u>	<u>129</u>

Guarantee work on Phase II schemes is estimated to amount to about DKK 5 million (0.5 million in Ruvuma, 3.5 million in Mbeya, and 1 million in Iringa). It is anticipated that this may be covered by remaining Phase II funds.

S7 in Copenhagen has asked the Danish Embassy in Dar es Salaam to confirm the amount available of unused Phase II funds and is in agreement that such funds (if confirmed) should be used for the mentioned purpose.

All other costs are anticipated to be kept at PlanOp budget level (although inflated), assuming that the O & M solution at district level be changed to the proposed less expensive set-up, and a thorough savings campaign be carried out on all cost items, staff as well as equipment, vehicles, building construction and materials. Savings shall be carried out with due consideration to fulfilment of project objectives.

Approx. DKK 5 million of the shortfall of around DKK 15 million on scheme construction can be covered from the unused contingency provision of DKK 5 million (DKK 5 million have already been used for the consultancy allocation). If savings on other cost items to cover the remaining balance of DKK 10 million are not possible, the number of schemes must either be reduced, or gravity schemes converted to hand pump schemes which are considerably cheaper.

In anticipation of the worst scenario the Review Mission recommends that the RSCs in their meetings in October 1991 for preparation of the three-year rolling implementation programme for 1992-94 at the moment reduce their physical implementation targets for Phase III from 155 villages to 140, i.e. a reduction of 5 villages in each region.

The Review Mission recommends that PICU and the regions work out a detailed savings plan and a revised Phase III budget for presentation to DANIDA and GOT before 1 February 1992. It is reported by PICU that this cost savings plan has started.

7.2 PICU Container Trucks

When working out the above savings plan PICU should consider if significant savings can be obtained by using its own trucks and trailers for container transport. Reference is made to the report of G.B.Homer: "Recommendations for Logistical Arrangements during Phase III of the Water Projects, April 1989". For container transport the report presents the following figures on average cost of transport from Dar es Salaam to the three project areas:

Private hauliers	DKK 5.497.-
PICU without depreciation and overhead	DKK 2.758.-
PICU with depreciation and overhead	DKK 6.893.-

The Review Mission is of the opinion that the calculation disregarding depreciation and overhead is the relevant one in the present situation. The two trucks are said to be in good running condition, due to major repairs at the end of Phase II, and there are sufficient stocks of spares available for maintenance for a period of about 3 years. The project has tried to sell the trucks and spares, but has up to now not received an offer of any significance. Finally there will be no additional overhead costs in operating the trucks. The procurement and stores adviser will be able to undertake the overall management and workshop overhead will not be significantly affected.

PICU has according to information from the Danish Embassy in Dar es Salaam decided to keep one container truck in use as long as spares are available including "cannibalising" the second truck.

7.3 Savings on Vehicles

It is anticipated that the number of vehicles for the daily operations in the regions will be reduced as a consequence of the savings plan. In this connection the Review Mission would like to stress that vehicles being spared in this process should be taken efficiently out of operation and only be brought into use again when substituting run down or wrecked project vehicles. This also applies to the three Regional MMUs presently used to maintain schemes covering 61 villages in Ruvuma region, which should be reduced to one single MMU.

7.4 Buffer Stores

The present buffer stores amount to about DKK 12 million. Deducting absolute and dead stock might reduce the amount to about DKK 8 million. If this can be reduced to DKK 4-5 million at the end of Phase III DKK 3-4 million would be obtained for the savings plan.

PICU has commented that all obsolete and dead-stock has now been classified and inventoried, and permission obtained from GOT to dispose of it. Buffer stocks will then be reduced to 3 - 4 mill. DKK by 1993 when decentralization is completed.

7.5 Allowances

Allowances on the project are sky rocketing compared to the POO budget. Information received from PICU shows that the total POO allowances budget for Phase III amount to DKK 1.3 million, but already for the year 1990 DKK 3.9 million was used on this account.

7.6 POO Budget for Main Activities

The budget for some main activities in POO is distributed under several headings, which makes it difficult to monitor financially these activities. It concerns among others allow-

ances, training, communication materials, motorbikes, vehicles investment and running costs, salaries and bicycles. PICU has consolidated the budget figures for these items and the mentioned figures can be found in Annex 11.

8. STEERING UNIT AT THE ROYAL DANISH EMBASSY IN DAR ES SALAAM

The budget approved by the Finance Committee of the Danish Parliament contains a Steering Unit (10 man years), which may be established under the Royal Danish Embassy in Dar es Salaam to deal with the overall coordination from the Danida side of the project and in particular to take responsibility for the environmental aspects of the Project and for the coordination with other projects dealing with water and environmental issues in Tanzania.

It is envisaged that the Steering Unit may be staffed by two senior programme officers, one with expertise on natural resource management and one with expertise on socio-economic matters.

So far the role of the mentioned Steering Unit has been covered by the staff at the Danida Mission/Royal Danish Embassy in Dar es Salaam.

The Review Mission supports the idea of utilizing the personnel resources budgeted for under a possible Steering Unit to be established at the Royal Danish Embassy in Dar es Salaam - if the Embassy should in the future be unable to cover the coordination role so far performed by the Embassy staff.

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