

SIDA Evaluation Report, Health, Kenya

1992/4

MAINTAINING HEALTH

An Evaluation/In-Depth Review of the Maintenance Project
for Rural Health Facilities in Kenya



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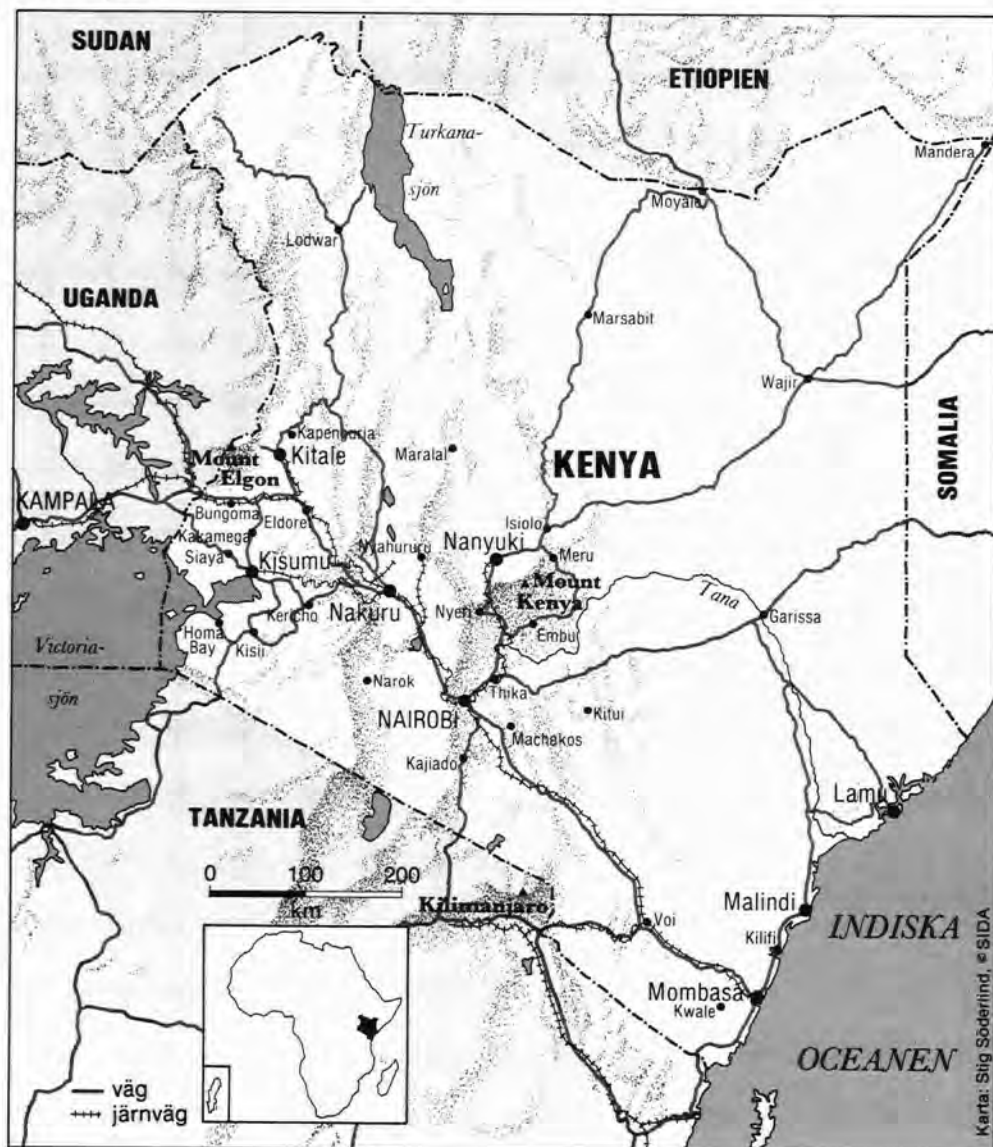
Errata.

Due to printer's error, the title on the spine of this report is incorrect.

It should read:

**SIDA Evaluation Report 1992/4,
Health, Kenya.**

Kenya



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ACRONYMS AND ABBREVIATIONS

BP	Blood Pressure
CHW	Community Health Worker
DANIDA	Danish International Development Activities; <i>also</i> Danish Foreign Ministry, South Division
DDC	District Development Council
DHEO	District Health Education Officer
DHMT	District Health Management Team
DKK	Danish Kroner
DMOH	District Medical Officer of Health
EDP	Essential Drugs Programme
EM	Evaluation Mission
F/Y	Fiscal Year
FINNIDA	Finnish International Development Agency
FP	Family Planning
GDP	Gross Domestic Product
GOK	Government of Kenya
GTZ	German Association for Technical Co-operation) <i>(Deutsche Gesellschaft für Technische Zusammenarbeit)</i>
HC	Health Centre
HQ	Headquarters (<i>here</i> Ministry of Health)
KEPI	Kenya Expanded Programme for Immunization
Kshs	Kenyan shillings (1 US dollar = approx. Kshs 28.50 [Sept 1991])
LPO	Local Purchase Order
MCH	Mother and Child Health Care
MD	Medical Doctor
MOH	Ministry of Health, Nairobi
MOPW	Ministry of Public Works, Nairobi
mtce	maintenance
OPD	Outpatients' Department
PHO	Public Health Officer (<i>here</i> usually District PHO)
PHO(M)	Public Health Officer in charge of maintenance
PHT	Public Health Technician
PIU	Planning and Implementation Unit (in MOH)
RHF	Rural Health Facility
SEK	Swedish Kronor (1 US dollar = approx. SEK 6.20 [Sept 1991])
SIDA	Swedish International Development Authority
TEC	Technical Evaluation Committee
TBA	Traditional Birth Attendant
ToR	Terms of Reference
VIP latrine	Ventilated, improved pit latrine

EXECUTIVE SUMMARY

Background

After a long period of support to construction of rural health facilities in Kenya, the two donors DANIDA and SIDA as well as the Kenyan Ministry of Health decided that more effort must be devoted to maintenance of these facilities.

The programme started in 1987 with a pilot phase in four districts to gain experience. The programme is supposed to gradually expand and eventually cover the whole country. As many RHFs were already in a bad state it was assumed that renovation ("rehabilitation" in programme terms) must precede the start of running maintenance at most dispensaries and health centres. A corner-stone in the system was an extensive programme for training and "sensitising" all people involved, both at district and RHF levels.

The programme is implemented by the Ministry of Health through the Physical Planning and Implementation Unit (PIU).

The evaluation

The purpose of the evaluation (in DANIDA terminology it is an *in-depth review*) is to summarise experiences from the pilot phase and to provide a basis for decisions for the GOK and the donors about the future of the programme when the present agreements expire in 1992.

The evaluation/identification mission was a joint GOK-DANIDA-SIDA exercise. The evaluation team comprised nine members, out of which two were nominated by DANIDA, three by SIDA, three by Ministry of Health and one by Ministry of Public Works.

The evaluation is based on documents, statistical and financial information from PIU and official sources, observations and interviews with RHF and district staff during field visits and interviews with PIU staff in Nairobi. The mission made field trips to the four pilot districts and to two non-pilot districts. In total 42 RHFs (30 dispensaries, 12 health centres and sub-health centres) and 3 maintenance workshops were visited.

The report has two parts. Part A is the evaluation and Part B discusses alternatives for the future of the programme.

Objectives of the programme

The project documents mention several objectives for the project, which has

been a problem for the evaluation. The mission decided to consider that the main objective of the project is to create a system for running maintenance of rural health facilities. The objective of the pilot phase is simply to gain experiences from one design of such a system in order to decide whether it is feasible and how it can be improved. All objectives are nevertheless evaluated and commented upon in this report.

General conclusions

The mission's main conclusion is that it is evidently possible to create a functioning maintenance system for RHFs with the organisation and the resources utilised in the pilot phase. It seems possible with even less resources, as has been shown in the non-pilot districts.

A rising awareness as to the importance of maintenance and adequate maintenance procedures of RHFs has been achieved both among RHF staff and at district level. Observations so far indicate that the choice of Public Health Officers in charge of maintenance, PHO(M), and Public Health Technicians, PHT, to carry the responsibility for maintenance was wise. The Building Inspectors have played an important role in implementation and quality control.

It is, however, too early to draw any conclusions about the sustainability of a maintenance system since it has been in full operation only in a few districts for maximum one year.

Although the original idea was the creation of a system for running maintenance, several other objectives were included, which may have reduced the value of the pilot phase as guidance for alternative strategies. Of the total costs of the programme less than one third has been spent on creating a running maintenance system.

The importance of staff and community participation in the programme has been realized by PIU. It is apparent that in order to have a self-sustained running maintenance system it is imperative that all levels of society is involved, especially the community. The mission found that the local communities had a high awareness of their own health problems, the most prevalent diseases within their area and how to overcome these problems.

The report has extensive comments on the Standards and Guide-lines for "rehabilitation" and new constructions.

The evaluation team concludes that for a given amount of funds, renovation of dispensaries is more cost-effective than renovation of health centres. The priorities, especially concerning renovation, between health centres and

dispensaries should be reconsidered. (See discussion in section 11.3 below.)

From calculations made in the report it is safe to conclude that maintenance of a building is considerably more economical than deterioration + new construction. A minor addition to the yearly MOH budget would secure good quality rural health facilities in the long run. The scenario with no maintenance will after a decade or two lead to insurmountable costs for new constructions.

Results of the pilot phase

Despite delays during the first years the pilot phase seems to be coming out well compared to the plan of operation. The "rehabilitation" programme, although delayed at the beginning, has later been carried out at great speed, utilizing the financial resources well. (Instead of the term "rehabilitation" we suggest that a distinction is made between new investments, renovation, and running maintenance.)

146 RHFs (out of which 114 dispensaries) have been subject to renovation plus new construction or are contracted. The total contract sum (in current prices) is about 93 million Kshs or about 637,000 Kshs per RHF. In 1991 the average cost figure is about 7-800,000 Kshs per RHF.

Using small contractors for major works at RHFs has largely failed. Large contracts and established, mostly large, contractors from district capitals paired with professional administration from the Ministry of Health (MOH) and the Ministry of Public Works (MOPW) is the most certain way to rapid renovation and new construction of RHFs with good workmanship. However, this does not enhance local capacities. Nor does it involve the PHTs. Experiences of labour contracts are positive. However, such contracts require considerably more supervision and administration on MOH's and MOPW's part.

In general, it seems that the organisational structure of the project is effective for implementation and fits well with the MOH structure. However, the officers in charge of dispensaries and health centres may benefit from some general management training.

Three alternatives for the future

The evaluation discusses three alternatives for the programme's future. The mission believes that alternative C is best.

- A. The project can continue as in the pilot phase with most funds being used for renovation/new construction. In this proposal the project will remain basically as it is, but will expand.

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- B. The project can place emphasis on the establishment of maintenance systems and cease doing renovation/new investments on the same scale as at present. Instead of large-scale and complete renovation, only basic repairs are done to keep the facilities operating in a reasonable manner. PHTs as well as PHO(M)s are trained in all districts.

- C. The project can continue with renovation/new investments as in the pilot phase, but not so comprehensively, and give added emphasis to training and the establishment of maintenance systems. An established maintenance system would be a pre-condition for renovation/new investments, which would be the opposite priority of the pilot phase. This proposal would require greater investments in training, and would involve the Building Inspectors in the establishment of maintenance systems more than at present.

A maximum of 10 years should be used to cover the nation. Planning of the comprehensiveness of renovations of a facility in terms of time and funds should be based on this. During 10 years, the unrenovated and non-maintained facilities will deteriorate further. Therefore the maintenance system,

including training of all necessary PHO(M)s and PHTs and the provision of funds for emergency repairs, should be established in the whole country by the end of the first five year phase.



In need of maintenance.

PART A: EVALUATION

1 INTRODUCTION

1.1 Background

After a long period of support to construction of rural health facilities in Kenya, the two donors DANIDA and SIDA as well as the Kenyan Ministry of Health realised that more effort must be devoted to maintenance of these facilities. Otherwise the money invested would soon be wasted as the buildings and the equipment were deteriorating rapidly.

In principle, the maintenance of all government buildings is the responsibility of the Ministry of Public Works. However, with its comparatively small resources, a rather centralised organisation and no suitable system for day-to-day running maintenance, it is difficult to carry out effective upkeep of the many small and geographically dispersed rural health facilities. Thus, it seemed a good idea to the parties involved to investigate the possibilities of having the "parent" ministry (i.e. the Ministry of Health) take care of its own buildings.

In two studies at the middle of the 80's the idea was scrutinised and a plan for creating a maintenance system for rural health facilities was designed. It was suggested that this programme should be implemented in several steps and be based on the present MOH organisation. The plan, which has largely been followed, was that the programme was to start with a pilot phase in a small number of districts to gain experience. The programme would then gradually expand and eventually cover the whole country.

As many RHFs were already in a bad state it was assumed that renovation ("rehabilitation" in project terms) must precede the start of running maintenance at most dispensaries and health centres. A corner-stone in the system was an extensive programme for training and "sensitising" all people involved, both at district and RHF levels.

The Planning and Implementation Unit (PIU) in the Ministry of Health, at that time almost exclusively manned by expatriates, had been in charge of

the construction programme and it was assigned the task of establishing and running the maintenance project.

The subsequent agreements between the donors and the government of Kenya states that the Government of Kenya (GOK) should provide sufficient Kenyan staff and that the cost for running maintenance should be covered from the GOK budget. The donors should provide funds for training, "rehabilitation" of buildings, expatriate staff at PIU and building inspectors in the pilot districts. Donors funds should be handled separately from the GOK funds both centrally and in the districts. DANIDA and SIDA have shared the funding with DANIDA taking care of the practical tasks.

The pilot phase started in July 1987. Four districts were selected: Kilifi and Kwale on the coast north and south of Mombasa, and Kisumu and South Nyanza in the Lake Victoria area. The main reasons for this selection was the high population density and comparatively poor health status in these districts, especially among children, which called for a rapid restoration of health facilities to an acceptable capacity.

1.2 The evaluation; purpose and timing

The pilot phase was originally planned to last three years and to be evaluated during the latter half of 1989. For various reasons the phase was extended and will now end in June 1992. The evaluation reported here took place during three weeks in September 1991. This timing was mainly determined to fit in with the SIDA health sector support annual review in November 1991.

The purpose of the evaluation (in DANIDA terminology it is an *in-depth review*) is to summarise experiences from the pilot phase and to provide a basis for decisions for the GOK and the donors about the future of the programme when the present agreements expire in 1992. The evaluation mission's terms of reference (Appendix 1) state that it shall also identify alternatives for a possible continuation of the programme. These alternatives are described and discussed in part B of this report. Part A is the evaluation.

The evaluation/identification mission was a joint GOK-DANIDA-SIDA exercise. The terms of reference (ToR) were drafted and agreed upon at the maintenance programme review in 1990. Only minor details such as the time plan was changed before the present evaluation took place.

1.2.1 The evaluation team

The evaluation/identification team comprised nine members, out of which two were nominated by DANIDA, three by SIDA, three by Ministry of Health

and one by Ministry of Public Works. The members were:

Mr Kefa Ajode, Public Health Officer (MOH)

Dr Anders Björkman, MD, medical expert (consultant to SIDA)

Mr Stefan Dahlgren (SIDA), Head of Evaluation Section at SIDA
(team leader)

Mr Nigel Hawkesworth, Social Scientist, Institutional Analyst
(consultant to DANIDA)

Mr I M Hussein, Senior Assistant Secretary (MOH)

Ms Lise Juul, Architect (consultant to DANIDA)

Dr Tage Klingberg, civil engineer and economist (consultant to
SIDA)

Mr Titus Muriithi, Economist (MOH)

Mr P S Wasike, Architect (MOPW)

During all field trips the team was accompanied by the PIU Project Coordinator Mr P W Mugu, who as a resource person supplied the team with valuable information.

1.2.2 Method

This report is based on documents such as the PIU semi-annual progress reports, reports from review missions and various studies commissioned by the PIU (see list in Appendix 1), statistical and financial information from PIU and official sources, observations and interviews with RHF and district staff during field visits and interviews with PIU staff in Nairobi.

The Team made field trips to the four pilot districts and to one non-pilot district, Murang'a, where also running maintenance had been introduced. In addition, two health centres and one dispensary outside Nairobi without any maintenance system were visited. This served as a base for comparisons with the pilot districts. In total 42 RHFs (30 dispensaries, 12 health centres and sub-health centres) and 3 maintenance workshops were visited.

During the field visits all buildings at the facility were inspected, interviews were made especially with the Officer-in-Charge and the Rural Health Technician (maintenance). The team's medical expert carried out formal interviews with staff members at most RHFs visited and with patients and representatives of the local community whenever possible (see further chapter 9 and interview protocols in Appendix 5).

The computer-based PIU follow-up system for expenditures gave a good picture of costs for maintenance, renovation and new constructions for each facility. The building inspectors provided written information about each

facility, in many cases including drawings of previous and new designs when applicable.

The mission started with a preparatory meeting for the Scandinavian team members in Copenhagen at the end of August. Representatives for DANIDA and SIDA gave a background to the programme and documents were distributed. At this meeting the team agreed upon the program for field visits that was later carried out. During the field trips in Kenya the team held meetings at the end of each day to summarise and compare findings. Three full team meetings were also held in Nairobi in order to discuss early drafts of the report. The final editing of the report was made by the team leader.

The team presented the main conclusions and proposals for the future of the programme for the Ministry and the donors before the Scandinavian members departed.

1.2.3 Quality of data

The team has made considerable efforts to check and cross-check available data. Due to the very short preparation period and the intensive program in Kenya the possibilities to verify all details were limited. It is nevertheless our conviction that the data reported and other facts are reliable enough to provide a firm base for our conclusions. The visits to RHFs and interviews with staff members and other people do not constitute a random sample in a statistical sense. However, they represent a large proportion of the facilities and the people involved in the pilot phase, and with the rather consistent information from different sources it is fairly safe to conclude that the information collected is of sufficient quality for our task.

1.3 This report

The report has two parts. Part A is the evaluation and Part B is our proposals for the future of the project and a brief discussion about alternatives.

The report has no separate chapter presenting all conclusions and recommendations. Instead our conclusions and, in some cases, recommendations or suggestions, are given in the chapters where findings on various subjects are reported and discussed. The main points are discussed in chapter II.

2 OBJECTIVES

2.1 General comments

The project documents mention several objectives for the project, which has been a problem for the evaluation. From the background documents, briefings, discussions with people involved and not least the name of the project, the evaluation Team decided to consider that the **main objective** of the project is to **create a system for running maintenance of rural health facilities**. The **objective of the pilot phase** is simply to gain experiences from one design of such a system in order to decide whether it is feasible and how it can be improved.

For practical purposes the evaluation Team considered the Plan of Operation from 1987 as the basic project document. However, in this document there is definitely a confusion about objectives, which made it necessary to "interpret" the text.

The Plan of Operation begins by stating that the many RHFs have never been regularly maintained and that the Ministry of Health "has now decided to embark on a maintenance project for rural health facilities". The text then continues by saying (p 1):

"The project aims at correcting major defects and wear and tear in order to restore the buildings to a maintainable standard without expanding them beyond the originally planned or designed functions."

As we discuss below in section 2.3 it seems that the project at the outset never made a clear definition of what was meant by maintenance. The quotation above is, in our opinion, a contradiction since restoring a building cannot be the same as running maintenance.

The next paragraph in the Plan of Operation says that "concurrent with the rehabilitation of facilities a programme for regular preventive maintenance will be introduced...". It thus seems that the two tasks — renovation and maintenance — had the same weight. But on the next page the components of the project are listed, and there "establishment of a self-sustained recurrent maintenance system..." is mentioned first and "rehabilitation" second.

Renovation may be seen as a prerequisite to maintenance or at least a supporting activity, but in our view it cannot reasonably be treated as the main purpose of the project.

The other project components in the list are:

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- replacement or repair of broken furniture and damaged medical equipment;
- support to allow the completion of some unfinished Harambee projects;
- remodelling or minor additions to some RHFs for family planning purposes;
- support to the construction of additional staff houses where it can be proved that lack of staff housing prohibits proper staffing.

On the next page again (p 4) there is a new list of purposes for the project, this time under the heading "Overall Aims and Objectives". They are (in this order):

- To improve the quality of Rural Health Services by maintaining workable equipment, buildings of acceptable standard, water supply and sanitation.
- To improve staff conditions by constructing additional staff houses...
- To halt capital destruction and save recurrent costs in future through a preventive maintenance programme.
- To rehabilitate buildings as a prerequisite for preventive maintenance.
- To increase the maximum life span of medical and non-medical equipment...
- To promote cleanliness and involve staff in regular maintenance.
- To motivate, equip and train health technicians to undertake minor repairs.
- To support the Family Planning Program by incorporating Service Delivery Points in the rehabilitation work.
- To support the District Focus Policy by utilizing local contractors, labour, materials and implementing capacity."

It was for the Team evident that this mixture of development objectives, immediate objectives and activities, without a clear indication of priorities, necessitated a choice to make a proper evaluation possible as indicated in the first paragraph in this section.

The Team is not suggesting that the programme was designed in a haphazard manner. There were, of course, rational reasons to include each individual component, which a study of the project history reveals. An example is the support to the District Focal Policy by using local contractors, which was

a strong wish by the Kenyan government. However, the Team believes that it is possible and justified to select one main objective as discussed above.

All objectives are nevertheless evaluated and commented upon in this report.

2.2 A discussion of definitions

The main objective of the project is to introduce a "sustainable system for regular preventive maintenance of RHFs". The project has, however, spent most of its resources on what is called "rehabilitation", which actually has included plenty of new construction. We will, in this evaluation, try to use terms we believe are more often and widely used.

First, we will make a distinction between *maintenance* and *new investments*.

The concept of *maintenance* comprises activities that keep a building/facility or equipment operational. Maintenance corrects defects, wear and tear without expanding the facility or the equipment beyond its original functions. Maintenance includes the following activities:

- Cleaning, grass-cutting, watering of flowers etc. i.e. normal everyday house-keeping and gardening.
- Preventive maintenance, i.e. taking measures to forestall breakdowns, damages and other problems before they occur. Examples are: oiling doorlocks and hinges, cleaning gutters from leaves, cleaning interior of water tanks, painting of window frames before old paint has disappeared. Application of wire mesh under the roof to keep bats out is also preventive maintenance.
- Acute repairs, e.g. clearing blockage of a pipe, repairing a damaged doorlock, replacing a smashed window-pane with a new one. Repairing a broken chair also belongs here.
- Planned maintenance that may be periodic or a one-time thing. Replacement of a set of old furniture or a number of worn-out doors or painting a room are examples of planned maintenance on a limited scale.
- Renovation. When planned maintenance is performed on a grander scale, i.e. more or less affecting a whole building or a whole set of equipment, it may be called a renovation. Renovation of a building may include acute repairs such as repairing cracks, changing windows, clearing the drainage system, putting in new water taps, painting walls and ceilings etc etc. Together these activities make the building more or less as good as when it was new.

New investments are activities that expand a building, add a function to a facility (or a set of equipment) or otherwise raise its standard or usefulness beyond its original state. As new investments we regard the following:

- Construction of a new building, e.g. a new staff house.
- Expansion of an existing building, e.g. addition of a new wing to an existing dispensary.
- Technical upgrading of a building through installation of a roof catchment system and a new water tank. Installation of an electrical system (if previously non-existent) is also technical upgrading.
- Improvement of a function may be referred to this category. Construction of a VIP-latrine to replace old-fashioned latrines or installation of a soak pit raise the technical standard and are thus new investments.

In real life different measures are, of course, often carried through at the same time e.g. new construction, renovation of buildings, upgrading of sanitary facilities, furnishing of new and better equipment as well as reparation of damaged old equipment.

2.3.1. Is it really "rehabilitation"?

The PIU-project uses the term "preventive maintenance" for what actually seems to be a combination of (or rather a confusing mixture of) cleaning + true preventive maintenance + acute repairs + maybe larger measures of planned maintenance.

What is called "rehabilitation" in the PIU-project is a combination of planned maintenance, renovation, technical upgrading and new construction. This can be noted in the financial accounts, where "rehabilitation" is correctly divided in "new construction" and "renovation".

2.3.2 Our redefinition of activities involved

We will use the terms maintenance and new investments as discussed above.

The term "rehabilitation" we will largely try to avoid, since the way it is used in the PIU-project is misleading or at least confusing.

3 PROJECT ORGANISATION

3.1 Structure

The project is implemented by the Ministry of Health through the Physical Planning and Implementation Unit (PIU). The PIU is part of the Planning and Development Division and reports to the Deputy Secretary in charge of that division. The same Deputy Secretary is Chairman of the Project Steering Committee.

The Steering Committee includes the Project Coordinator, Chief Hospital Secretary, Chief Public Health Officer, Chief Clinical Officer, Chief Nursing Officer, Deputy Secretary (Finance), the District Medical Officers of Health (DMOH) of the four pilot districts, the Senior Adviser, and donor representatives. It meets quarterly, sets guide-lines and policies, discusses constraints and approves annual work plans and budgets.

At the district level, the District Health Management Team (DHMT) headed by the DMOH, is responsible for health services. They approve PIU work plans in the district and set priorities regarding the sequence in which dispensaries and health centres are renovated. Under the DMOH, the District Public Health Officer supervises maintenance work through one or more Public Health Officers (Maintenance) who have been trained by the project. They in turn supervise the Public Health Technicians (PHTs) at each facility, who have also been trained by the project.

Building Inspectors in each district (three out of four being Nordic), in co-operation with the Ministry of Public Works (MOPW) staff, supervise the renovation work. The Nordic Building Inspectors are responsible for the donor funds used in the district, the accounting of which is under the Senior Adviser in Nairobi. The Building Inspectors have played an important role in quality control. The Building Inspector position in the districts is temporary, and will be withdrawn after renovation is complete and the maintenance system is in place. In the long term, when a maintenance system is country-wide, it may be necessary for DMOHs to have a position similar to Building Inspectors at the provincial level in order to advise, inspect and monitor the maintenance of facilities.

The Ministry of Public Works plays an important role in renovation through joint supervision, preparation of Bills of Quantity, and certification of completed elements for payment. The Permanent Secretary of MOPW must also approve all contract awards over Kshs 1,000,000. This last procedure, which can take 6-8 weeks, has caused delays in awarding contracts and

starting work. MOPW staff at district level also advise and assist in maintenance matters if requested, but they are generally over-burdened at the district level and do not have much time for this work. In general the co-operation between PIU and MOPW is good and should continue.

There has been difficulty in at least one pilot district in having the Building Inspector accepted as a member of the Tender Board that is awarding PIU contracts. It is necessary that this be regularised in a new project phase.

3.2 Conclusions and recommendations about the organisation

In general, the Evaluation Team feels that the organisational structure of the project is effective for implementation and fits well with the MOH structure.

The Steering Committee plays an important role in project management, and should continue in a new phase. Its size, however, should be examined. It will not be possible to include the DMOHs of all the new districts that will be covered by the project in a new phase.

The Evaluation Team considers that the right choice has been made in using the PHO(M)s and PHTs as the implementators of maintenance activities in rural health facilities.

3.2.1 Technical Assistance

There are currently three Nordic Building Inspectors and four advisers in headquarters plus an accountant. Without reducing efficiency and accountability, it is recommended that these positions be continually reviewed to see where local expertise can be utilised either full-time or on a consultancy basis.

3.2.2 Role of the Donors

DANIDA and SIDA share the same philosophy and approach to health care, and there is a mutual benefit in working together to shape policies and adapt to new situations. If this were to continue it would be to the advantage of the project.

DANIDA and SIDA, however, have different administrative and financial procedures. This has sometimes created problems in the project, such as a cash flow problem in 1990, problems related to different budgeting procedures for technical assistance costs, and different conditions of employment of persons employed in the project by the two organisations. It would simplify

matters if one of the donors took on a lead role in handling all donor administrative tasks, such as appointment of technical assistance staff. The other donor would be co-financier and participate in policy matters.

The project has been subject to semi-annual reviews, although two reviews were not held every year. The reviews have helped to make policy suggestions, especially the revisions of guide-lines, but they do not seem to have had much effect on important issues like the emphasis on rehabilitation as opposed to maintenance and training during the first three years of the project. The Evaluation Team feels that annual reviews will be sufficient in the future.

3.2.3 Monitoring

The 1990 review made some strong comments about the lack of a comprehensive monitoring and evaluation system within the project, and recommended the appointment of an adviser to establish and operate a system. This has not been done, and the project itself has attempted to collect data sufficient for the evaluation and identification mission.

The Evaluation Team appreciates that the project has a detailed data collection of hard facts concerning construction progress and expenditures. However, it agrees with the last review mission that the data is not always easily usable in that it lacks easily accessible summaries of data that show progress at a glance, such as average costs figures for different activities that can be used for planning purposes.

In addition, the project has no system for the collection of soft data, such as changing of attitudes about maintenance among different categories of staff, about the extent of community participation in maintenance, about the effects of training on the technical performance of staff, etc. Some studies have been done at the urging of previous reviews. While useful to the Evaluation Team, they are one-time efforts of variable quality.

The Evaluation Team therefore recommends the appointment of a short-term consultant to design a monitoring system that will cater for both hard and soft data, and which will be comprehensive enough to cover all the activities of the next phase. External studies can still be commissioned as and when necessary.

3.2.4 Financial System

Donor and GOK funds are used for different purposes in the project. GOK funds are used exclusively for preventive maintenance work. In addition GOK

covers the costs of all GOK staff involved in the project. The maintenance funds follow the normal GOK disbursement and accounting procedures, with the district PHO being the AIE holder. The Evaluation Team finds this arrangement to be satisfactory, because GOK takes full responsibility for the recurrent costs that will continue after the project is finished.

Since project start GOK has contributed Kshs 10,150,000 for maintenance, including Kshs 5,000,000 in 1991/92. The Evaluation Team considers this to be an excellent contribution to an activity that has not traditionally been regarded with any priority. The Evaluation Team appreciates that securing these funds has not been easy in times of financial constraint, but it now appears that it is generally accepted in MOH that maintenance funds for RHFs is an essential part of the budget. The new phase should include agreement on increasing amounts each fiscal year.

Donor funds have been used for all other activities (renovation, new construction, training, technical assistance, etc). The Senior Adviser has been accountable for donor funds. At the district level the Building Inspectors have administered these funds. This arrangement is satisfactory and has not given rise to any major problems of disbursement and accountability.

The Evaluation Team is of the opinion that the same financial system should be utilised in a new project phase.

3.2.5 Management Issues

The Evaluation Team considers that the management system for project implementation has been satisfactory. However, the Evaluation Team has identified some aspects of the management of maintenance activities that should be looked into.

The officers in charge of dispensaries and health centres may benefit from some general management training, as it has been observed that the management abilities of these officers vary from excellent to poor. The project cannot take on the responsibility of giving all of them supplementary management training. It will, however, be necessary to orientate them (in 1-2 day seminars) about management of maintenance activities, including supervision of maintenance and subordinate staff, in order to ensure proper standards of cleanliness and maintenance.

There is a problem of supervision of the Public Health Technicians (PHT). In theory they have three superiors to report to: the officer in charge of the RHF, the divisional PHO, and the district based PHO(M). The Evaluation

Team suggests that lines of authority be made more clear. The officers in charge should be the immediate superiors of the PHTs in maintenance matters and should direct their daily activities. The PHO(M)s should act first and foremost in a supporting and advisory role – both to the PHTs and to the officers in charge. The aim of creating clear lines of authority would be to promote close supervision and support to staff involved in maintenance.

Table 4.1
Achievements so far according to print-outs from PIU

Renovation and new construction as per 01.09.1991

Districts	Incl. Pit Lat. and Staff House Number of HCs	Number of Disp. + SHC	Number of Work-shops	Number of Con tracts	July 1991 Budget & Workplan (Contract	Spent as per 01.09.1991	Com-pleted
Kilifi	5	32	1	14	12,750,015	11,725,751	92%
Kwale	3	18	0	9 (+3)	14,971,089	5,070,072	32%
S. Nyanza	15 (+1)	27 (+9)	0	44 (+10)	38,744,264	28,181,285	73%
Kisumu	7 (+1)	19 (+6)	1	15 (+7)	26,131,969	16,526,622	63%
Total	30 (+2)	96(+18)	3	82 (+20)	92,597,337	61,503,730	66%

() = Not tendered (is included in contract sum as an estimate)

4 “REHABILITATION” AND NEW INVESTMENTS

4.1 Achievements

As can be seen in table 4-1, achievements so far comprise renovation and new construction for 32 HCs, 114 Dispensaries and Sub-HCs and 3 workshops.

The total completion as per 1 September, 1991 out of the budget sum for fiscal year 1991/92 is 66%. However, many projects are on-going and twenty projects not yet tendered are in the pipeline. Therefore PIU anticipates to spend 100% of the budget sum as per July 1992 when the pilot phase ends.

It is not possible to make an exact comparison between achievements compared to plans. The Plan of Operation gives 1987 prices, and figures are a mixture of renovation and new construction. The pilot project was delayed for more than a year because of lack of staff within the PIU. The project started in July 1987, but not until the last quarter of 1988 had most of the staff arrived. The senior building inspector arrived in the middle of 1989. Also for six months last year PIU was more or less paralysed because of uncertainties about donor funding.

According to table 4-2 the actual expenditure as per July 1991 is Kshs 60.5 million. The cost of new staff houses is 32% of total renovation and construction — as compared to Plan of Operation where the percentage is 17. In the pilot project, the cost for staff houses only is 60% of new construction, and although this cannot be compared to the percentage in the Plan of Operation, it is a considerably higher figure than anticipated there. It can also be noted that new construction is as high as 55% of the total renovation and new construction programme, and for which the new staff houses are largely responsible.

According to the survey carried out in the four pilot districts before the "rehabilitation programme" started the conditions of the buildings (treatment buildings and staff houses) were as follows:

- 19% good, direct to preventive maintenance
- 33% needs minor repair
- 36% needs major repair
- 12% to be demolished.

Table 4-2
"Actually spent as per July 1991"

(Note the different periods below)

Renovation and new construction.

Spending from project start to July 1991

(Source: Information, Contracts and Contractor Performance, PIU)

Renovation

Renovation of HCs, Disp. and staff houses	Kshs	27,627,189
(HQ 10-11)		

New construction

Staff houses	Kshs	19,552,610
New waiting areas and SDPs	Kshs	1,034,827
Other constructions	Kshs	465,992
Pit latrines	Kshs	4,651,365
Water tanks and wells	Kshs	6,082,543
Sanitation (soak pits and placenta pits)	Kshs	1,087,696
(HQ 12-14)		

Subtotal	Kshs	32,875,033
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Total renovation and new construction	Kshs	60,502,222
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Budget in Plan of Operation, June 1987

(1987 prices)

Renovation of buildings incl. water tanks, pit latrines, etc.	Kshs	24,770,000
Water wells	Kshs	900,000
Completion of Harambee projects	Kshs	1,200,000
Staff houses	Kshs	7,200,000
Family Planning SDP (incl. equipment)	Kshs	8,450,000

Total renovation and new construction 1987/88 to 1989/90	Kshs	42,520,000
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4.2 Comments on Standards and Guide-lines for "rehabilitation" and new constructions

The SIDA/DANIDA Final Report from August 1986 is the base for the PIU Plan of Operation of June 1987. In the Final Report 1986 are laid down certain broad guide-lines for renovation of existing buildings and for new construction which were transferred in the Plan of Operation. There it is also stated that the rehabilitation of buildings means correction of major defects and wear and tear in order to restore buildings to good working condition without expanding them beyond originally planned or designed function.

Later in the year 1987 a set of more workable guide-lines and standards were introduced by PIU and since then three revised editions have been made. In these guide-lines many of the former items have been specified further, and many items have rightly been added, but there is also a general raising in standards from one edition to the other. Here, the Review Missions have had some influence.

An example: The Final Report 1986 does not include electrical installations. In the first edition of Guide-lines there is talk of repair of installations and also a limited amount of new internal wiring to be installed at Rural Health Centres (but not at dispensaries and in staff houses) where there is mains supply on site. In the latest Guide-lines this has been altered to: "A limited amount of new wiring can be installed where there is mains supply on site. (A maximum connection fee of Kshs 30,000 shall apply). As a guide one light fitting can be installed for 12 square meter floor (in certain rooms)." In staff houses each room can be provided with one light fitting and a double socket).

It is our opinion that this standard is too high for this sort of project where so many health facilities are badly in need of repair.

The latest editions include "Repair to existing toilets". To us it seems a better solution to demolish them and to build pit latrines instead. Most of the toilets in buildings inspected by the Team were out of order and seemed to cause more problems than usefulness.

Although the general standards might be a little high for this project and considering the above reservations, it is the impression that it has been justified to raise the level somewhat as long as no further improvements are introduced.

In the latest edition of Guide-lines (January 1991) procedures concerning survey work, preparation of tender documents, etc. have been included. This is an improvement. It is essential that the local staff and the community be involved at an early stage and given information on the future of their health facility.

MAINTAINING HEALTH



Renovation involves both buildings, improvements around the buildings such as concrete slabs (which are made on site), and new furniture. In Kwale District a private carpenter's workshop mainly delivers to health facilities (middle picture).

4.2.1 Staff Houses

The Final Report 1986 states that an average district will have 1 new staff house for approximately every 5 RHFs. Considering that there are about 1,200 RHFs in the country and 39 rural districts, that would amount to 6 staff houses per district. However, in the Revised Guide-lines of September 1989 this has been altered to: "As a general rule 24 new staff houses can be built per average-size district". In fact, Kilifi and Kwale each gets 24, South Nyanza 48 and Kisumu 36 staff houses which amounts to 132 in the pilot phase, equal to Kshs 33 million in today's prices! Further, in some districts it has been difficult to make the staff move in. This matter has caused considerable concern in the Evaluation Team.

It should be an obligation for the District Health Management Teams and for PIU to ensure that staff houses will only be built where it can be proved that lack of housing prohibits proper staffing. This is also stated in Plan of Operation for PIU.

4.3 Technical Experiences. Design and Materials

The Evaluation Team visited five districts during the field trips. Murang'a which is a non-pilot district was seen as an example of one of the districts where "first-aid maintenance" for GOK funds was carried out. Four dispensaries and one HC were visited in Murang'a. On four of the facilities where the figures for "actual amount spent" were available, the average was less than Kshs 30,000. The visit was interesting in the sense that it showed how much could be done to stop deterioration with very limited funds. (See also section 5.2, Guide-lines for Maintenance.) Also, three facilities outside Nairobi not yet subject to any maintenance program were visited for comparison. They supported the impression that many RHFs may be maintained without substantial renovation.

In the pilot districts Kilifi, Kwale, South Nyanza and Kisumu 25 dispensaries, 2 Sub-HCs, 5 HCs, 1 Demonstration HC and 1 Training HC were visited to get an impression of the renovation and new construction programme.

The general impression was that the renovated facilities were tidy and clean, the grass was cut, and in some cases even flower beds had been created. However, it was noted that in certain facilities trees were still growing quite near the buildings. This might look nice, but there is the danger of the roots spoiling the foundations and the underground piping, and also attracting termites. Therefore such trees should be completely uprooted.

The workmanship was of an acceptable standard although there were a few exceptions. The remodelling of rooms to create a better patient flow or

to incorporate MCH/FP rooms was done with much skill. In several places an existing waiting room at the end of the building was closed in to create a new room (for mother and child care/family planning) and the covered verandah was used for waiting. In need of sufficient waiting space a built-to waiting area of a simple construction was erected.

External walls: Many of RHF buildings were started on a *Harambee* (self-help) basis and therefore construction was not always carried out professionally. In several cases it was noted that the damp-proof course (DPC) above the foundation was missing. The DPC of bituminous felt is laid into the wall on the foundation to prevent moisture rising from the ground and foundation. When missing, it results in paint on the wall peeling off. In these cases it is important to provide for a good storm water drainage system outside the building. In addition, good ventilation of the rooms is essential.

Roofing: It is now a policy in Kenya that asbestos cement sheets cannot be used where water is collected from the roof. Therefore, corrugated iron sheets have been used for all new roofing. This material — although used in all parts of the country — is unsuitable, especially in hot areas. Since this is a pilot project PIU should have tried out other alternatives such as the roof sheets developed by the Housing Research Development Unit at the University of Nairobi, consisting of sand, cement and fibre — a very cheap and tested material.

Roof structure and ceilings: It was noticed that in several places soft-board ceilings were put up in the verandah area. This component is not suitable where it is exposed to damp air. On the whole, using ceiling boards is problematic as it creates a roof cavity for bats. This causes a lot of damage as was noted in many of the facilities. It should in fact be of top priority to avoid the penetration of these animals. It would be more appropriate to put up a light wall from the existing external wall (on the verandah side) and right up to the roof sheets. Then the trusses or rafters would be exposed and an increased volume of the rooms with a cooling effect would be created.

Doors: It is considered to be a good policy that solid tongued and grooved doors are used on all external door openings. Although more expensive than plywood doors, this is the only sound solution.

Sanitation: In the RHFs where water-borne sanitation was already installed before the renovation programme had commenced, it was learned that there were problems with desludging of the septic tanks because the tank capacities were below the required level. This is another reason why water-borne sanitation should not be introduced.

Water tanks: For roof catchment of water two types have been tried out in places where they were missing – and with no reliable water source – and as replacement of defect water tanks. One type is a 2 mm steel tank, 3 mm at bottom, and the other is a ferro-cement tank cast in situ.

No defects were noted on either type having been installed during the last 3-4 years. Time will show which type is the most durable. The ferro-cement tank is the most attractive, least expensive and can also be made by a small contractor or a *fundi* as was seen during the site visits.

Pit latrines: The ventilated improved pit (VIP) latrines were in all places functioning well. For cleaning purposes the concrete slab next to the hole to the pit ought to be sloping towards the hole. At one RHF in the Kisumu District villagers were taught how to make pit latrine slabs, which was a good initiative. However, it was noted that the concrete slabs were only about 6 cm thick. This is not adequate since the reinforcement bars, which were visible in some of them, should be covered by minimum 2.5 cm of concrete. With a non-skilled labour force the slab ought to be 8-10 cm thick.

Staff houses: A new type of staff houses has been designed for this programme. The plan is simple and nice, leaving out corridors so as to make full use of the 50 sq.m space. Four different types with small variations have been developed, one in each district. It is good that these experiments have been carried out in the pilot phase. It seems that the Kwale model is the most convenient in terms of adaptability for the coast/lake climate as it provides for good cross-ventilation. It has a split-roof construction whereas the other three types have a double pitched roof which might be more suitable in a highland zone. A questionnaire for the staff living in them and the measuring of indoor climate for a period of time will clarify which staff house should be further developed.

In most types a partly covered verandah surrounded by a high perforated wall has been introduced. However, the space is not easily furnished because of a hollow steel column in the middle and a step along the full length of the verandah dividing it into four equally large sections. The column could be omitted without extra cost by letting the ringbeam follow the outer line of the building taking the full span over the verandah. Furthermore, the step across the verandah would not be required if the change in floor level is made from each room to the verandah slab.

It is our opinion that external surfaces in most places need not be plastered or painted (this also applies to pit latrines). Hereby the cost would be reduced and the maintenance would be easier. The internal walls need a better

plastic gloss paint that can be washed. This was a complaint from several staff members.

On the whole the people living in the staff houses were satisfied with their new homes. Comparing the PIU staff houses (1 living room and 2 bedrooms) of 50 sq.m with the MOPW similar house of 55 sq.m but with electricity, plumbing and roof tiles, the figures are the following:

Average Kwale/S. Nyanza PIU house ...Kshs 249,634

Prices April 1991 (source PIU).

Average Kisumu MOPW houseKshs 330,000

Prices October 1991 (source MOPW architects)

4.4 Selection Procedures

When a new set of projects for "rehabilitation" is to be tendered they have normally been placed in groups within the district instead of being scattered. There are two good reasons for this. Sometimes several smaller contracts are tendered with one contractor, and it would be impractical if this contractor's projects were placed far from each other so that he should transport building materials and perhaps labour over long distances. For the building inspector who supervises the construction work it is also time saving with projects situated near each other.

4.5 Discussion

4.5.1 Fulfilments of Objectives: Pre-requisite for Maintenance?

One of the overall aims and objectives in the PIU Plan of Operation is to rehabilitate buildings as a prerequisite for preventive maintenance. However, under the heading Activity Content it is also stated that: "The recurrent maintenance programme will be run simultaneously with the rehabilitation programme". The wording is not clear, but it might mean that as soon as a facility has been rehabilitated then a maintenance programme can be established.

It was a policy of PIU from 1987 to 1990 that "rehabilitation" should be carried out on a large scale before maintenance could start. The rehabilitation work, i.e. renovation and new construction, commenced in early 1988.

In 1990/91 the preventive maintenance programme started, not only in the four pilot districts but also in nine surrounding districts where staff had been trained and motivated. This was the first time that a form of maintenance was carried out prior to "rehabilitation". The nine non-pilot districts carried out only urgent repair to the health facilities in the first year in order to stop

deterioration, but it is a form of upkeep which is most effective. Therefore it can be argued, and is now also a policy with the PIU, that "rehabilitation is *not* a prerequisite to maintenance".

To take a further step it ought to be established that for a district to qualify for renovation and new construction, training and motivation of staff and local communities should have been carried out and maintenance should have started on a small scale.

4.5.2 Impact on Health Services

The overall objective to improve the quality of health services may not necessarily be directly connected to "rehabilitation" and maintenance. However, by maintaining buildings at acceptable standards, provide water, sanitation and workable equipment, by constructing staff houses when essential, conditions for the staff have improved considerably. It is believed that surroundings and working conditions do have an effect on human beings and that such improvements will stimulate and motivate them to carry out better work. Indirectly, the quality of health services may improve.

It is difficult to prove this and as an objective for the maintenance programme it can hardly be evaluated.

5 MAINTENANCE

5.1 Achievements

The maintenance component of the project had a slow start. The management of PIU considered "rehabilitation" to be the main goal in the first years and therefore training of PHOs and PHTs was started late. GOK funds were in the beginning not provided as agreed and were made available late in the year.

The lack of training was explained to the Team as the main reason for the late start of the maintenance programme.

Concerning the GOK funding for all physical maintenance, a comparison between agreed and actual funding is shown in table 5-1.

It is a condition for good planning that funds are made available according to agreements and at a time during the fiscal year which makes it possible to utilize the funds.

In the first year of maintenance (1988/89) a total of Kshs 2 million was distributed to all the 39 rural districts as soon as funds were made available. Detailed information and instructions on how to utilize the funds as "first



The Public Health Technician (PHT) has a keyrole in the system. The well equipped tool-box is an effective means for ensuring that simple, but important, and necessary day-to-day maintenance is carried out.

aid" in order to stop deterioration of structures were given. As there was no trained maintenance staff at that time, monitoring of progress was to be done through a reporting system. Only 17 districts out of 39

reported on their utilization of the maintenance funds. Guide-lines and instructions had been largely overlooked. The main part of the funds were used for major repairs in a few RHFs within a district or for new construction or for non-maintenance items.

For 1989/90 the agreed GOK amount of Kshs 2.5 million was cut down first to Kshs 293,000, but later a total of approximately Kshs 550,000 was made available by the end of the fiscal year. In order to utilize the funds two pick-up vehicles for maintenance work were purchased.

In 1990/91 Kshs 3 million was agreed. Out of these funds 2,700,000 were to be issued to the 4 pilot districts and the 9 non-pilot districts mentioned above. All districts had at that time at least one trained PHO(M). Kshs 300,000 were to be kept in MOH HQ as an emergency fund for districts without trained maintenance staff. In April 1991 Kshs 400,000 was deducted from the not yet distributed funds. On the other hand no claims had been made for the emergency fund. In the end a total of Kshs 2,612,000 was disbursed.

This was in fact the beginning of the maintenance programme. A maintenance system had been set up in PIU with manuals, guide-lines, organization charts, inspection charts, etc. The District Health Management Teams in the districts concerned were briefed and the staff at the RHFs was informed and motivated towards maintenance, and above all the PHOs and the PHTs in the pilot districts had been trained.

During this fiscal year maintenance work was carried out in all of the 13 districts. 111 RHFs were completed and work was going on in another 25 facilities at the end of the fiscal year. Out of the allocated funds 97 % had been utilized. During the site visit to a non-pilot district it was noted that the work which had been carried out as "first aid" had been selected in accordance with the priorities laid down.

Table 5-1

	GOK funding agreed (Kshs)	GOK funding made available
1987/88	500,000	0
1988/89	2,000,000	2,000,000
1989/90	2,500,000	550,000
1990/91	3,000,000	2,612,000
1991/92	5,000,000	5,000,000
Total	13,000,000	10,162,000

In the fiscal year 1991/92 GOK funding of Kshs 5 million has been allocated. Out of this, Kshs 1 million is set aside for vehicles for the project as PHOs will often bring building materials to the site for small contractors or *fundis*. Three other districts which are under the Finnish Health Care Programme (all in Western Province) have also been included in this GOK funded "first-aid" maintenance programme. The four million was shared by the four pilot districts and the 13 non-pilot districts. Funds were distributed equally according to size and number of facilities.

5.2 Guide-lines for maintenance — Technical experiences

A comprehensive Maintenance Manual has been prepared by PIU giving information and guide-lines for work and duties to be carried out.

Preventive maintenance is divided into:

- Basic maintenance, routine activities which do not require technical skills or special tools (non-technical staff, local communities).
- Minor repairs, repair work which can be executed by semi-skilled staff or local artisans using basic professional tools.
- Major work, repair work requiring skilled artisans and professional tools/machinery.

It is stated that the preventive maintenance system shall keep the buildings in an acceptable state of repair and that this will be assured by improved awareness and daily care by the users, by introducing standard maintenance work at regular intervals and by regular inspection.

A system for planning and execution of maintenance work has been worked out. The system provides guide-lines and rules for the various activities involved and supports these with check-lists, forms and schedules.

The objectives of the system are to ensure that the staff in the RHF has the knowledge and means to do basic preventive maintenance work and has access to a person with the necessary skills and tools for minor repairs.

Furthermore, every RHF should have a reporting system (maintenance diary) through which assistance for maintenance/repair work beyond its own capabilities can be sought, and that the facility will regularly be visited and inspected by staff specialized in building maintenance. The preventive maintenance and repair work will be managed and coordinated at district level.

An organizational model has been worked out in which the different staff members have their duties described in detail. This goes especially for the PHO and the PHT.

Concerning guide-lines for basic priorities, the cleaning of buildings and

site is considered the most cost-effective activity and should be given priority A. B is the prevention of water damage, C is security, D is water supply installations, E is sewage and waste disposal, F is bat, termite and mould control, G internal surfaces and H is external surfaces. All priorities are described thoroughly with instructions on how to control or rectify damages.

Activities such as inspection of buildings, costing and preparation of budgets and work-plans, implementation of planned work and supervision and finally documentation of completed work is accounted for in great detail.

The Maintenance Manual of March 1991 revised annually is an important document that will have great impact on preventive maintenance activities. The manual is also used as background material for training maintenance staff.

The Evaluation Team has the following comments:

a) The participation of the local communities is mentioned only in connection to the cleaning of buildings and sites. We consider it an omission that further participation is not considered.

b) On the basic priority list, the bat and termite control should be given a higher ranking, possibly in the range of B. Experience from the site visits of the Evaluation Team shows that many buildings have a great problem with bats that would be rather cheap to avoid. For termites the same applies.

c) Concerning the minor repair fund recommended in the manual, it is known to have been tried out by PIU with not too great a success. However, as this fund is so important in order to ease the minor repair activity at the RHF, an effort ought to be made to re-introduce this arrangement in a different set-up.

Another very instructive maintenance manual for minor repair work has been introduced. It has many drawings and down-to-earth explanations. The manual was made in Tanzania but is adapted to Kenyan conditions.

The PHTs are provided with a Maintenance Diary which serves as a record of their observations and a means for communication with the PHO. More emphasis should be put on proper use of this diary.

5.3 Districts with and without "Rehabilitation"

With regard to maintenance of RHFs there are three categories of rural districts in the country:

a) Four pilot districts where renovation and new construction has been/is being carried out and where the preventive maintenance system is in operation in the newly renovated facilities and in facilities where no renovation and new construction has been needed. All technical staff has been trained in preventive maintenance.

b) Twelve non-pilot districts where preliminary maintenance/urgent repair is being given to RHFS. PHOS have been trained.

c) 23 districts where no repair has been made except for a few emergency cases. No technical staff has been trained.

5.4 Discussion

5.4.1 Is it Possible to Evaluate?

In the Plan of Operation it is stated that at the end of a three-year pilot period at least one year's experience from recurrent maintenance shall have been obtained for evaluation purposes.

The training for maintenance of the PHOS was started in February 1990 and ended in July of the same year, but it was not until January 1991 that all were in position and had started working (source: PIU). From September 1990 to March 1991 all PHTs were trained. Considering that the PHOS and PHTs are the most essential persons within the preventive maintenance programme, and considering that they have had so few months of experience in the field, it hardly possible to evaluate their performance properly. However, a rising awareness of the importance of maintenance was found among the RHF staff as well in the DHMT when the site visits were conducted.

It can be pointed out that although the preventive maintenance system is so new and that many of the RHFS did not need much preventive maintenance after the renovation, we observed that in quite a number of places the system was working well. Our conclusion is that in principle the system is good and will probably remain effective.

There are many preparations involved in setting up a recurrent maintenance system like this. Although the outset was slow and troublesome the project is now proceeding well and much experience has been gained, if not during one full year as was anticipated.

5.4.2 Conditions for a Running Maintenance System

In order to make the establishment of a self-sustained preventive maintenance system effective, it is not sufficient to organize the work well from the side of HQ and districts. It is considered most important to create understanding, awareness and motivation among the staff and the local community. A precondition for this attitude is the support from technical and administrative levels on a long-term basis.

The importance of staff and community participation in the programme

has been realized by PIU. In commencing the preventive maintenance system in a RHF, three meetings are being held over 3-6 months with all staff, with the district PHO(M) and with the PIU building inspector. (See also discussion in section 9.2 below.)

At the first meeting all RHF staff is informed about the preventive maintenance system and its consequences, information is collected about any existing arrangements of maintenance and individuals or organizations in the local community are identified that could be of assistance in the preventive maintenance work.

At this meeting explanation is given as to the role of the district and the GOK funding allocated in an annual budget. Also the set-up of the PHO(M) and PHT and their responsibilities are communicated. The duties of the staff and the contributions from the local community are discussed. A division of buildings and site into maintenance areas will be made at this stage.

At the second meeting the objectives are to identify individuals to be responsible for various maintenance tasks within the RHF, and to agree upon time schedules. Practical exercises are to be carried out in inspection, supervision, implementation, reporting and recording of maintenance work. The preparation of a complete Maintenance Handbook for the specific RHF is also one of the objectives. The third meeting is held with the objective of monitoring the understanding of and ability and willingness to implement preventive maintenance activities and to provide moral support for RHF staff involved in the exercise. Follow-up meetings are envisaged.

It is the opinion of Evaluation Team that a sound base for a running maintenance system has been created as a result of

- the importance given to staff involvement,
- the work carried out so far in the way of organization and information on maintenance work,
- the administration and involvement at HQ level (PIU).

6 EQUIPMENT AND FURNITURE

6.1 Medical equipment

6.1.1 Provision

In general medical equipment has been provided by the MOH to RHF when the facilities once were finalized. Many health centres have been constructed with donor support during the 70's and 80's and some even as early as during the 50's. In cases of donor support, the necessary medical equipment has been supplied through donor funding.

Repair and replacement of medical equipment have been overlooked in many RHFs for many years. Service of broken medical equipment has been undertaken on an ad hoc basis.

The Team found that some RHFs were short of certain essential medical equipment such as blood pressure measuring machines or weighing scales or had incomplete delivery and surgical sets, uterine sounds, needle holders or scissors in particular.

6.1.2 Maintenance

Interviews with RHF staff indicated an increasing awareness and motivation towards maintenance of medical equipment.

It was noted with satisfaction that the PIU had introduced and supplied the RHF with a medical equipment kit at a cost of Kshs 20,000/kit (as compared to a cost of Kshs 10,000 for a delivery bed). This kit had been distributed to facilities where "rehabilitation" was finalized. At the time of delivery of the kit a seminar on maintenance and use of the medical equipment kit was held for the staff.

It is questionable whether the same PIU medical equipment kit is adequate both for dispensaries and health centres. Rural health centres usually perform more complicated medical procedures as deliveries and surgical procedures of higher quality than a dispensary. Therefore, there may be a need for additional provision of medical equipment for health centres.

Staff interviewed were satisfied with the medical equipment kit. No major repairs or defects of the equipment was noted. However, some RHFs had received the kit quite recently. The time of observation is therefore limited. Inventory lists of the equipment was also kept in good order by the staff.

A few items, especially in the surgical and delivery sets, are in need of regular replacement rather than repair due to frequent use, washing and ste-

rilization procedures. The possibility of introducing a replacement scheme for special medical equipment serving this purpose for RHF is discussed in section 6.3.

Minor maintenance of medical equipment such as change of batteries of otoscopes and torches is important and should be under the responsibility of the PHT(M) and performed without delay. Minor repair or adjustment of weighing scales or BP machines should also be under the responsibility of the PHT(M), but to be known and undertaken by all trained staff.

As for major repair, equipment in some districts is sent to the district maintenance workshops, where technicians decide on repair or replacement. These workshops have not yet been established on a nationwide basis and their role and function in relation to RHF is questioned in section 6.3.

6.2 Furniture

6.2.1 Provision and maintenance

For rural health facilities there is a standard equipment list of basic furniture and associated equipment established by the MOH.

The term used by MOH is non-medical equipment as opposed to medical equipment previously described. Furniture covers items such as chairs, tables, benches, lockers, wardrobes, beds, mattresses, sheets, screens, lamps (where applicable) but also delivery beds (health centres only) and examination coaches for family planning purposes. Refrigerators, gas-cylinders, cool boxes and vaccine carriers are supplied and replaced through the immunization programme (KEPI).

Under the PIU rehabilitation programme, locally produced furniture has been distributed to facilities where "rehabilitation" have been finalised.

Our Team found, however, that a complete set of furniture was missing in many facilities, predominantly dispensaries. In some PIU rehabilitated facilities furniture was still missing in spite of the fact that "rehabilitation" was finished a year back.

However, in spite of these findings, the PIU experiment of utilizing local producers for provision of furniture seems to be worth further support. The provision or replacement of basic furniture could also be undertaken in co-operation with the community with only minor support from the MOH in the future.

Provision of special equipment, such as delivery beds, investigation coaches, beds for wards as well as screens must be channelled through the DHMT.

Decisions of replacement or new investments of furniture should rest with the staff in-charge in collaboration with the community providing funds or labour. If the facilities were allowed to build up or were provided with small funds, these could be utilised for that purpose. This aspect of replacement is in need of further studies and could be addressed by the PIU in a future programme.

6.3 Maintenance workshops

PIU is establishing nine maintenance workshops at an estimated total cost of 7.3 million Kshs. All major construction work is to be finished by the end of 1991. This was not a part of the original project plan, but was later requested to be included by SIDA.

The evaluation Team visited three workshops, at Kericho and Nakuru and one under construction in Homa Bay.

The workshops are located in the four pilot districts at district or provincial hospitals. Additional districts have been included. A tenth workshop is under construction in Kwale district, but integrated in the new hospital under construction, financed through the World Bank.

A major part of the total construction cost is spent on the demonstration workshop at Kisumu, finalised at a cost of 3.2 million Kshs. The average estimated construction cost (except Kisumu) is 0.5 mill Kshs/workshop.

PIU's involvement is linked to training of Medical Equipment Technologists provided by German GTZ (a three year course), and Austrian funding of training of Medical Equipment Technicians (a two year course) as well as Austrian provision of tools and equipment for the workshops. PIU fun-

ding of the buildings was intended to secure a storeroom, office and workshop for the local PHM so that the facilities would be shared for equipment maintenance and building maintenance. The workshop in

Table 6-1
Maintenance workshop location and construction costs.

Location	Cost/workshop	Comments
Kilifi	322,000	Finished
Kwale	?	World Bank
Kisumu	3,200,000	Demonstr. workshop
Homa Bay	1,006,000	Under construction
Kerugoya	350,000	Extension, finished
Kapsabet	670,000	
Kericho	528,000	Extension, finished
Voi	512,000	
Nakuru	243,000	Renovation, finished
Machakos	513,000	
Total	7,344,000	

charge reports to the MOH or to the Hospital Secretary.

The number of staff varies from place to place. There is at least one Technologist, who is in charge, and a number of technicians. They almost exclusively repair hospital equipment. The remaining time is used for RHF equipment when it is delivered to the workshops. The workshops, although having a small stock of items like bolts, screws and wiring, are short of spare parts. They do not seem to be working at their full capacity. Spare parts are financed by the hospital budget, but the budget is about half of the requirements.

The Team found a long time neglect of repair and/or replacement of medical equipment at RHF. Very few staff had ever sent a weighing machine, BP machine or any other item for repair. In most cases staff was also unaware of their own responsibility in this respect as well as a lack of knowledge of where to send equipment for replacement or repair.

In districts where maintenance workshops have been established there was an awareness of responsibility and also where equipment was to be sent for repair. Very few, however, had sent equipment for repair to district maintenance workshops. The few who had sent items for repair had all received their equipment back within 1-2 months. In some cases the recently repaired equipment was broken after a short time, indicating that the work was not proper or that the item should rather have been replaced.

Medical equipment recently supplied by the PIU in the form of a medical equipment kit also seem durable, perhaps one reason why few rehabilitated facilities had yet had any need for repair.

It may be questioned if there is a true need for workshop repair of equipment for rural health facilities. The equipment required is simple (see enclosed list of medical equipment kit in Appendix 7) and when it breaks down it may best be replaced. The existing workshops will only be able to cater for ad hoc repair of such equipment unless a transportation system is introduced, for example provision of motorcycles to technicians who can travel around and do minor repairs. This may be tried, but in the long run it will involve running and repair costs of transport at all the workshops.

Also, the building maintenance activity does not need a workshop at provincial level. An office and store for the local PHT(M) will be useful, but it is doubtful if it can justify the construction of large workshops.

6.3.1 Conclusion

The construction/rehabilitation of workshops apparently filled a need in the creation of a system for maintenance of hospital equipment, but it will have

little effect on the repair of of RHF equipment. An elaborate transportation system and repair system of RHF equipment will be too complicated to maintain. Repair of such equipment can occur on an ad hoc basis if existing transport, such as the essential drug supply vehicles, is available or utilizing supervisory visits performed by DHMT members. Otherwise the equipment should be replaced.

In addition to an overview of the PIU medical equipment list, a replacement scheme of the most needed and utilised equipment could be worth looking into. A replacement scheme of specified medical equipment provided on regular basis (2 - 3 years) comparable to the EDP kit could be a possible alternative.

7 LOCAL CONTRACTORS AND "FUNDIS"

The term "local contractor" may have different meanings. According to one study of contractor capabilities, commissioned by PIU, some insist that local means Kenyan as opposed to foreign. Others mean Kenyan African. According to the District Focus Policy, however, the term "local" clearly means district based (Yambo, 1990, page 92).

By "local" contractor we will refer to a firm that is based in the same district as the RHF in question. A large firm having a small office in the district is not "local".

A *fundi* is normally not a contractor. A *fundi* is mostly just one man without a registered firm. He is local. Not only is he from the district. Mostly he comes from the same community as the RHF subject to work. A *fundi* may temporarily employ a couple of helping hands.

7.1 Promotion of local contractors

One of the objectives of the project is to enhance local contractors by using them instead of firms from distant towns (Plan of Operation, 1987). Hopefully, they will thereby develop, offering better building capacity when needs arise in the future. Also, it may boost the local economy in general and thus promote rural development.

It is not stated, however, in the project documents to what extent the project may sacrifice time, quality or resources to engage local contractors. Further, it is not stated how established government procedures for tendering should be applied to allow preferential treatment of locals.

7.1.1 The building sector

The formal construction industry has about 2,300 contracting firms and over 65,000 employees (Statistical Abstract, 1989, p. 230). The annual turnover of these firms was in 1988 about 3.3 % of the nation's monetary GDP. In addition, it is estimated that in the non-monetary economy building activities amount to almost half that amount (op. cit.).

Fundis are often found in this part of the economy. We can estimate that *fundis*, local day-workers etc. in the building trade may be as many as 30-40,000. This implies that an average district may have almost one thousand men available outside firms in the formal sector. We can conclude that local resources are abundant in numbers. However, quality and organization is another thing.

7.1.2 Registered contractors

Contractors are listed and classified by the Ministry of Public Works in Nairobi. They are classified in categories according to what size project they may take on. The table below shows a summary of the list. The limits were established in 1985. Due to rapid inflation the limits are successively lowered, in real terms. Proposed new limits are also shown.

Table 7-1
Classification of contractors according to project size.

In millions of Kshs.
(Source: Ministry of Public Works, direct communication)

Category	Limit	Proposed limit	No. of firms
A	30 mill.	80 mill.	155
B	20 - 30	60 - 80	60
C	10 - 20	40 - 60	105
D	5 - 10	20 - 40	190
E	2.5 - 5	10 - 20	275
F	1.5 - 2.5	4 - 10	395
G	0.75 - 1.5	1 - 4	515
H	< 0.75	< 1	570
Total			2,265

For small local contractors the requirement to be listed may hamper entrance to the formal market for building contracts.

The classification is supposed to be based on some kind of judgement of the firm's technical and managerial

capabilities and financial soundness. Experience shows, however, that a MOPW classification is far from a quality guarantee. PIU has been forced to terminate several contracts with classified companies.

7.2 PIU use of contractors, *fundis* and labour contracts

By 1991 a total of 102 contracts covering 146 sites were finalised or tendered. The total sum of the contracts was Kshs 93 million. The lion's share of the contracts has gone to large or middle-sized firms (categories A-E). The PIU contracts have not seldom run over a million Kshs, thus ruling out category H and often even category G. The PIU sometimes lumps several RHF works into one contract, which doubles or triples the contract sum, automatically excluding small contractors. The aspired economy-of-scale thus counteracts the objective of promoting local and small contractors.

However, also for smaller contracts firms of categories A - E are often chosen. The small firms are obviously often out-competed even for contracts of 1-2 million Kshs.

Of the contracts many were awarded firms from Mombasa, Nairobi and Kisumu, i.e. from provincial capitals. The contracts discussed here are for complete renovation and additional new construction of RHFs, i.e. "rehabilitation".

Moreover, no less than at least 20 contracts have been terminated due to poor workmanship or almost no work at all. Also many large and middle-sized firms were terminated.

The high number of terminated contracts may possibly indicate that projects are too large. Another explanation, according to the building inspectors, is a general lack of construction management skills. Some contractors may not have foreseen that MOH, through its building inspectors, actually should enforce all contract stipulations and demands for quality.

7.2.1 Some experiences

In many cases small local contractors have been tried without success. In South Nyanza for instance, there are five small contractors. All were tried by PIU. All failed to fulfil their contracts and the contracts were terminated.

There is a general experience by PIU building inspectors that larger firms (based mostly in district capitals) are required to get larger undertakings done rapidly and well. However, not seldom a large firm may send not very good people to a remote work site. A *fundi* sends the best he has — i.e. himself.

7.2.2 Labour contracts

Local *fundis* and small contractors can seldom take on total responsibility for a project. Lack of transport is one reason, lack of capital is another and lack

of management skill is a third. Instead, PIU has in some cases tried the so-called "labour contracts", i.e. the contractor (who may then be a *fundi*) furnishes labour (often himself and a few hands). MOH, through its building inspector, purchases the building materials and delivers them on site.

Experiences of labour contracts are positive. However, such contracts require considerably more supervision and administration on MOH's and MOPW's part.

Finally, in many cases, *fundis* are engaged for repair jobs etc. This may be done without a formal contract. A PHO has the authority to order this below 10,000 Kshs in each case.

7.3 Tendering procedures and procurement

As soon as a project is expected to exceed Kshs 10,000 a tendering procedure is required. Tender documents, including a bill of quantities, are set up. Quotations from several contractors are required. The subsequent formal and slow decision process follows. (See Diagram 7-1 for illustration.)

Before tendering, interested firms apply for pre-qualification. Screening of unsuitable firms should be made at this stage. Accepted firms submit tenders, which are scrutinized by a Technical Evaluation Committee (TEC). It is a PIU experience that a Ministry of Health Building Inspector should be on that committee.

The Committee submits its judgement to the Tender Board, which normally takes the lowest bid, unless strong reasons indicate otherwise. The Building Inspector should sit also on the District Tender Board, according to some officials in MOH and PIU.

7.3.1. Slow acceptance

A "letter of acceptance" is issued by the Medical Officer of Health. However, if the contract exceeds one million Kshs, the Permanent Secretary of MOH, upon recommendation from the Permanent Secretary MOPW, has to issue the letter.

The whole procedure takes time. It is an experience from almost all PIU projects — and certainly from all districts — that the letter of acceptance involves unnecessary delays. Especially the detour to Nairobi causes disturbing delays. The interplay between the two Ministries is not smooth. The Team has found no valid reasons why the letter of acceptance should be subject to a Nairobi decision (two decisions in fact).

Although the routine involving the Permanent Secretaries at MOH and

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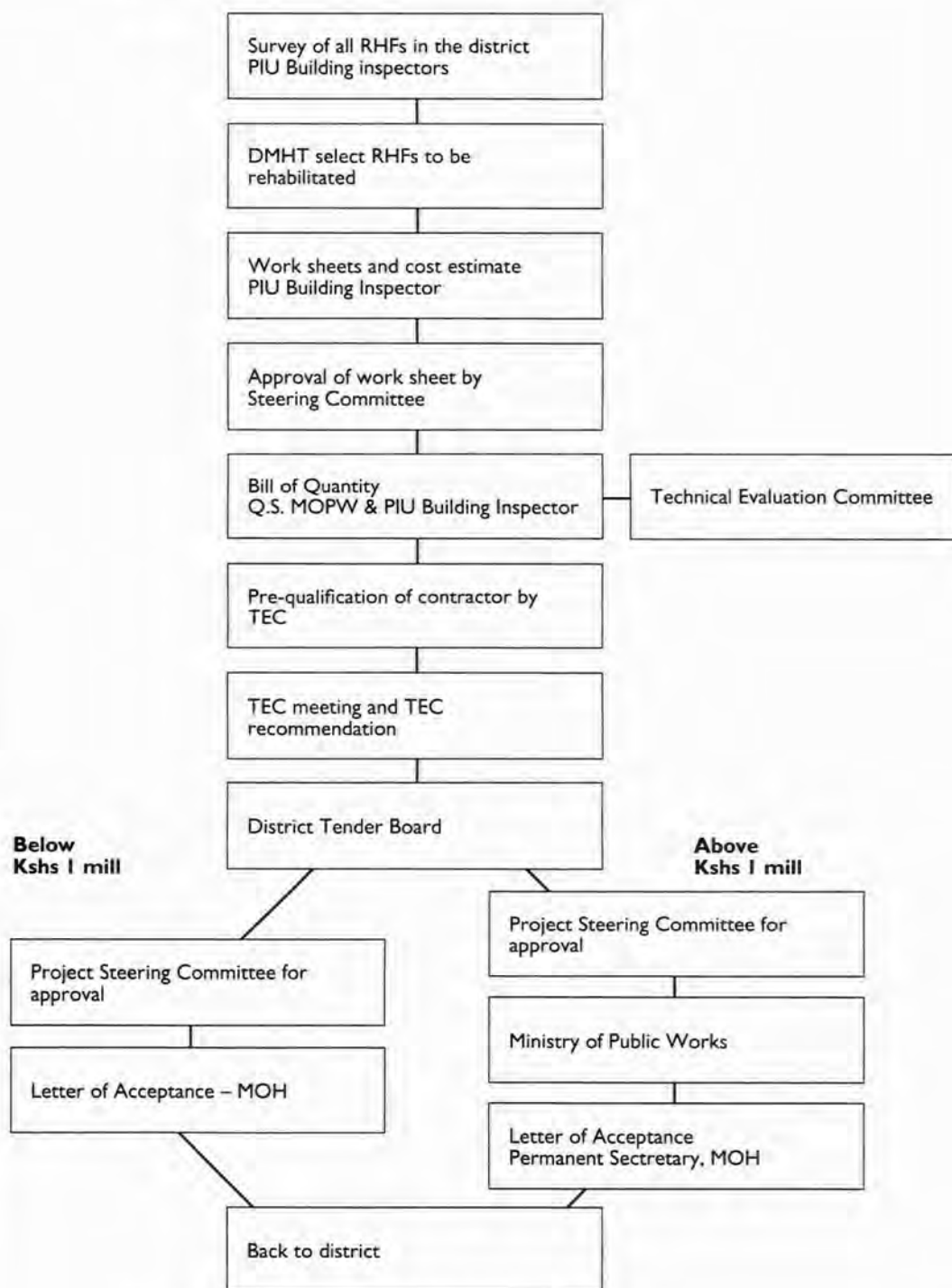


Fig 7-1 Tendering procedure for rehabilitation contracts

MOPW was meant to check expenditure and ensure that all the tendering procedures have been adhered to, there is a need to review the whole procedure to avoid excessive red tape.

7.3.2 Procurement for maintenance

For maintenance purposes there is often a need to procure some materials and maybe a few days or weeks' work. This may be ordered by the PHO, normally upon suggestion from the PHT.

Materials for less than Kshs 2,000 and labour for less than 1,000 (i.e. about 8-10 days of work) can be paid by the PHO in cash. However, larger sums have to be settled with a local purchase order (LPO). This means that a *fundu* after a two-week assignment has to travel to the district capital to get his cash. This may take him a day or more, since he has no car. These money limits are considered too low. They have not been adjusted for inflation since long.

7.4 Conclusions: Advantages and constraints

Large contracts and established, mostly large, contractors from district capitals paired with professional administration from MOH is the most certain way to rapid renovation and new construction of RHFs with good workmanship. However, this does not enhance local capacities. Nor does it involve the PHT, which is a disadvantage.

Employing local firms and *fundis* is part of a strategy to develop building capacity in rural areas. Locals are expected to be needed for maintenance work in the future.

Using small local contractors for major works at RHFs has largely failed.

Labour contracts is a way to use *fundis* and local, small contractors and still achieve aspired results. However, intense supervision is necessary. To use PHTs for this supervision is an untried possibility worth testing.

For limited assignments and for repair and normal maintenance tasks local contractors and *fundis* can be employed by PHO, using PHT for supervision and for direct co-operation on site.

PIU personnel has pointed at the possibility of training local firms in construction management, to enhance their potential as contractors. This, however, would be beyond the tasks of PIU and might be taken up by the Ministry of Public Works.

A revision of government procedures may do away with some unnecessary

obstacles to efficient procurement. This would lower total cost for contractors as well as for the government administration itself.

Finally, local contractors cannot be given preferential treatment in tendering with present procedures. However, local firms and *fundis* can be used and developed for tasks of more limited nature. The design of projects and tasks is the key to using local resources.

8 TRAINING

8.1 Achievements

The Plan of Operation envisaged that planning and preparation of the training activities would be finished at the end of year 2, and that the courses would be run during year 3. In practice most of these activities have been done in years 3 and 4. It appears that project management did not give priority to training activities in the first two years.

A Training Framework prepared by the Training Officer and a consultant was completed in June 1989. It identified and outlined the training and information needs for all categories of staff, but only went into details concerning the Public Health Officers. It proposed special training courses for PHOs and PHTs, seminars for staff in charge of RHFs, and information to DHMTs and all other relevant staff. These categories appear to be the correct ones, and the Evaluation Team has not identified others except the information needs for creation of community participation.

The project has held two training courses for PHOs, in all 38 staff, and 8 training courses for 163 PHTs. The project is wisely training more officers than the exact number of positions required in order to take account of transfers, retirements, etc. The project also decided to train District Health Education Officers (DHEO) to "sensitize" MOH district staff and the public about maintenance, although this was not proposed in the Training Framework. Only 5 out of 12 DHEOs attended the training. They appear to have too many other duties to have time for this activity, and the project has now ceased training this category of staff. Seminars have been held with DHMTs, but no formalized information work has yet been carried out with the officers in charge of RHFs and the communities. The last two categories are a major omission, considering that the project has been in operation for over four years.

8.2 Discussion and conclusions

8.2.1 PHO Training

As proposed in the Training Framework, a local consultant was engaged in late 1989 to carry out a training needs assessment of the PHOs and a training capacity analysis of available expertise in existing institutions. Subsequently, a 20 week course was held during February–July 1990. The course included much time spent on working out procedures and formats required to implement maintenance on a district basis, and therefore was of a longer duration that would be required for pure training purposes. The course included a competency analysis and had clear outputs of the skills that the participants should have acquired through the training. The second course was reduced to a length of 12 weeks, which is a commendable reduction. The Evaluation Team is of the opinion that the course should be shortened as much as possible through continuous analysis of the relevance of each session.

8.2.2 PHT Training

This activity did not have the same amount of preparation as the PHO training. A training needs assessment is not available, and a training capacity analysis was not comprehensive enough to avoid conducting one course at an inadequate institution (Nairobi Industrial Vocational Training Centre). The two first courses were found not to be sufficient, partly because of lack of tools, and the participants had to take another course later. Subsequently 8 proper courses were held. The curriculum has thus developed through experience.

The present curriculum, with its heavy emphasis on practical repairs, appears to be very relevant. Two weeks, however, is too short a time to do all the practical work as well as give sufficient information about administration and responsibilities. As the project suggests, it should be extended to about 3 weeks. Use of all the tools in the tool kits issued to the participants needs to be explained more fully, as the Evaluation Team found that some PHTs did not know what some of the tools were for.

8.2.3 Selection

The selection of the officers to become PHO(M)s and PHTs and be the recipients of training has been somewhat haphazard, although the quality of these staff is on the whole good. It is recommended that the project give more detailed criteria for qualifications and attitudes required so as to ensure that

the officers selected are both competent and interested. The Project Coordinator could be involved in the selection process of the PHO(M)s, and the PHO(M)s should be involved in the selection process of the PHTs.

8.2.4 Effects

The effects of training are difficult to measure. The project itself has carried out an evaluation in September 1991 which is generally very positive. The observations of the Evaluation Team are also positive in that the majority of PHO(M)s and PHTs visited seemed to be effective and interested in their work, although there are some notable exceptions. Perhaps the greatest achievement of the project and its training activities is that it has successfully started a process of attitude changing about maintenance which is taking place at MOH headquarters, at the district level in the DHMTs, and at the facility level. Attitudes, however, are not easy to change, and a long term effort will still be needed to make a permanent change. This can be done through follow-up training and close supervision and support.

8.3 Recommendations

The evaluation report on training makes many recommendations about improvements in training, most of which seem sensible. The Evaluation Team, however, would warn against much increase in the length of training, especially training that takes officers away from their place of work. While there may be a need to give supplementary training to the staff already trained, this should be kept as short as possible so as not to take training resources away from the new districts in the next project phase. It would be best that all supplementary training is finished before the start of the next phase. Constant supervision and support, rather than more training, may be the most effective way of increasing efficiency.

The Evaluation Team agrees with the training evaluation report that there is a need for training in administrative procedures for PHO(M)s and PHTs, and that the officers in charge of facilities should have training or information about their role in maintenance activities. Before the next phase a strategy and procedures should be worked out for community participation in maintenance.

8.3.1 Capacity

PHO(M)s have already been trained in 16 districts. In most cases 2 officers

have been trained in a district, but in three cases only one has been trained. It should be possible to train at least 2 PHO(M)s in each of the remaining 24 districts of Kenya within the first two years of the next phase (if it is decided to cover the whole country) as well as give follow-up training and support to those already trained.

A report by the Training Officer in March 1991 on PHT training estimates that the Kisumu Industrial Training Centre and the Mombasa Industrial Training Centre (which have successfully carried out PHT training) should be able to cater for 15 three week courses per year, making a total of 300 PHTs trained per year. The costs in 1991 prices would be about Kshs 12,000 per trainee, including the cost of the tool kits. PHTs have been trained only in the 4 pilot districts. Given an average need of 50 trained PHTs per district (taking account of drop-outs, transfers, etc) it would mean that the programme could expand with 6 districts per year, or 30 districts over a five year period.

9 VIEWS FROM LOCAL COMMUNITIES AND STAFF

9.1 Views of RHF staff on "rehabilitation" and maintenance

In a previous report on attitudes of health staff towards maintenance of RHF (Musyoki, PIU-office, 1990) it was found that awareness about maintenance as part of RHF staff duties was generally lacking. Most of the health staff in charge saw no role for themselves in the actual repair at the facility.

It was also noted that there had been a considerable inaction and/or extensive delay for many years on repair of replacement requests partly due to the inter-ministerial responsibilities for maintenance works.

One of the recommendations from the above mentioned report is that the role of the community can play in the maintenance and overall operations of the RHFs should be explored. It should also be a clear division of responsibilities of different staff towards maintenance of buildings and equipment as part of their routine activities.

The Team found that there seems to have been a change of RHF staff attitudes and awareness towards the need for regular maintenance. Such changes were noted among staff which had participated in sensitization seminars

on maintenance arranged by PIU. Staff in charge were also aware of PHT(M) responsibilities towards maintenance of the facility. There was also an awareness of their own responsibility towards maintenance of medical and non-medical equipment.

In facilities not under maintenance or "rehabilitation" there was a low level of understanding of staff as to their responsibility to maintain their own facilities. However some responsible staff members might have taken initiatives of their own to secure maintenance with community support, for example for minor repairs or even simple new constructions like a waiting hut close to the dispensary. (RHF staff views on maintenance of medical and non-medical equipment is further discussed in sections 6.1. and 6.2.)

It was also noted that management capability of RHF staff varies no matter training, experience and support given. Staff motivation is of utmost importance for successful management on all levels.

9.1.2 Conclusions

There is a need of increased support and supervision from the district level (DHMT) especially on management aspects of RHF. Seminars and training courses for staff in responsible positions on management aspects of RHF could be arranged at district level as one way of improving management. Such seminars could be supported and financed by PIU in a future maintenance programme. However most crucial for successful management of RHF is an adequate selection and promotion of RHF staff in responsible positions. Incentives to support such staff as staff houses, house allowances and hardship allowances are discussed in section 10.1. as several ways of promoting managerial interest and skills. In this aspect DHMT members must take a more active and leading role.

9.2. Involvement of the local community

9.2.1. Harambee

Since Independence the Kenyan expression *Harambee* has been used as a symbol for working together. *Harambee* activities have been characterised by people coming together on voluntary basis and working towards a goal formulated by the community. *Harambee* projects have been very common throughout Kenya especially within the social sector.

It was noted by the Team that many RHFs had been initiated as *Harambee* projects by the local communities. In all cases this work was done according

to government plans and regulations with permission from DDC. Funds had been raised by the community and facilities had been erected utilising local labour as work force. Before the dispensaries were finished *Harambee* projects in many cases ran out of funds. The initiative and interest for continued support of the project within the community tended to decline.

Similar unfinished *Harambee* projects have been finalised through the PIU maintenance programme, in some cases with support and co-operation from the local community. In one case it took 23 years for the community to finalize the dispensary. However, other communities have managed to construct a dispensary within 2-3 years only with minor, final support from the PIU.

9.2.2 Focus group interviews

During this evaluation focus group interviews have been utilized to study common knowledge, attitudes and practices within the local communities in relation to awareness and attitudes to health, health facilities and in particular maintenance aspects of these facilities. For this purpose interviews were held with Village Committees, Village Dispensary Committees, attending patients especially mothers with children, Traditional Birth Attendants (TBA) and Community Health Workers (CHW). (Protocols for these interviews are enclosed in Appendix 5.)

9.2.3 Community awareness

In a recent evaluation report on training of PHOs and PHTs (Fox, Andersen, PIU 1991) a growing awareness of PHO regarding the importance of public involvement is noted.

Many facilities, especially dispensaries, were started on *Harambee* basis, which indicates that there is a tradition of public interest to be drawn on.

As for the PHTs, they seem to have a rather limited view of community participation. They see it as a matter of persuading the people to contribute by cutting grass or by making financial contributions. However, a main conclusion of this evaluation report on training is that effectiveness of a maintenance project can only be achieved when all key actors within the system are involved and committed.

The Team found that the local communities had a high awareness of their own health problems, the most prevalent diseases within their area and how to overcome these problems. Communities expressed the vital importance of daily accessibility to basic medical treatment where the availability of drugs was considered the overall most important factor. The

importance of immunisation of children was high as well as the need for family planning.

Communities often expressed interest and concern for an extension of their dispensary with a maternity wing and almost all communities wanted "their" facility to be upgraded to a Health Centre or Hospital. At the same time the utilization rate for deliveries at HC level is quite low (average 14 deliveries per month per HC) confirming that an overwhelming majority of women deliver at home alone or assisted by Traditional Birth Attendants (TBA).

9.2.4 Traditional Birth Attendants (TBA)

Interviews with TBAs revealed a strong wish to improve their own skills in order to secure safe home deliveries. This was found to be implemented through on-going programmes of training and support of TBA from Field Health Educators. In the interviews TBA declared that they were in great need of equipment such as gloves, soap, scissors to cut the cord with and towel to help assist clean and safe deliveries. At the same time they also asked for transport to nearest hospital in case delivery difficulties should occur at village level.

9.2.5 Community participation in maintenance of RHF

Communities expressed deep concern and interest in supporting their own facility, in particular people around dispensaries. This willingness was expressed explicitly in interviews with communities around health centres.

Communities suggested that contribution could be raised in the form of funds for particular projects, as work labour for fence-making or cleaning of compound. However communities that had almost completed a facility on *Harambee* basis were not eagerly discussing fund raising as alternative for their continued support. They declared that they were poor and did not have money to contribute. One community on the other hand had volunteered to collect drugs from the district capital when the dispensary was out of drug supply.

Some programme officers (PHO) within the PIU as well as members of DHMT, visited by the team, also expressed great interest in the importance of increased community contribution in a future maintenance programme.

9.2.6 Conclusions

Local communities are sincerely interested and also sometimes committed in contribution with labour and perhaps even fund raising to support the

maintenance and progress of their village health facilities. This concern is shared with programme officers within the PIU and DHMT members.

9.3 Recommendations

It may be reasonable never to embark on a major repair or a maintenance programme of RHFs without a signed agreement with the representatives of the community as to their contribution to the project in form of e.g. funds, labour, fencing, cleaning, supply of staff house or drug collection.

As for the recurrent maintenance of the RHFs, there could also be a mutual agreement stipulating the yearly contribution of funds and labour from the community to ensure support of maintenance. Such community support will increase the pressure on local staff and MOH to fulfil their part of maintenance. Contribution of funds could also be used to build up a major repair fund for to be utilised at a later stage for major repairs or new investments.

The appreciation of the communities contribution of identifying needs and give ideas as well as fund-raising should not be underestimated. These are possible challenges that may once again lead the community to a sense of "ownership" of the facilities (Fox, Andersen, op cit). This sense of "ownership" should be supported by RHF staff, PIU field officers and MOH officers to ensure a true community participation on RHF levels.

10 COSTS

We will primarily present costs as current costs based on PIU accounts. As far as we can judge the PIU accounting system is accurate and allows analyses of costs with regard to contracts, districts, renovation versus new construction, types of costs etc.

When needed, we will give the corresponding figures in 1991 value. For conversions we will assume a yearly cost increase of 12 % from 1987/88 to 1989/90 and 15 % for the past fiscal year. This is roughly according to official inflation rates (EIU, 1991). For fiscal year 1991/92 we will, based on new data, assume an inflation rate of 22 % (The Nation, Oct 3, 1991, p.1). The PIU claim of a 2.5 % monthly price increase across the board (PIU, July 1991) seems to be an overestimate. However, the official figures may be on the low side.

The total stock of Government of Kenya RHFs is about 1,200 facilities. The PIU has estimated their replacement value, if newly erected today, to

over 3,000 million Kshs. This equals over 2.5 million Kshs per RHF. Thus, the RHFs in the four pilot districts may represent a "new" value of over 300 million Kshs. We will come back to these figures later on in this chapter.

10.1 How much did the various activities cost?

Table 10-1 shows money spent in the project according to project documents. Numbers are rounded off and the division between new investments and renovation is based on percentage figures from the progress reports.

It should be noted that costs for MOH staff at district level (e.g. building inspectors) and time spent by PHOs and PHTs are not included. Thus, the true costs of the total maintenance and construction effort is in reality higher.

It should also be noted that "PIU running costs" do not cover all central costs. Costs for office personnel, office expenses, fuel etc. are included, costs for expatriate experts are not.

It is worth noting that one third of the total cost is for new construction (of latrines, tanks, staff houses etc.), which is not maintenance.

The second largest item is renovation of existing RHFs, accounting for over one fourth the total.

If we add up the items, which are aimed at creating a maintenance system in the field (workshops + training + vehicles + GOK funds) we get 21.4 million Kshs, which is 24 % of the total. If we also add all of PIU's running costs we get 31 million Kshs or 35 % of the total. This is, however, on the high side, since not all vehicles and PIU administration were for the maintenance pro-

Table 10-1
Total cost of the maintenance project
1987/88 - 1990/91

Mill. of current Kshs

Sources: "Joint Swedish/Danish review...", Oct 1990, and PIU Progress Reports 11 and 15

	1987/88-89/90	1990/91	Sum
New Investments (55%)	18.4	11.3	29.7
Renovations (45%)	15.0	9.2	24.2
Maintenance Workshops	(incl. above)	2.8	2.8
Minor Repair Funds	—	0.05	0.05
Equipment & furniture RHF	0.3	2.8	3.1
Training, studies, tools	2.9	2.8	5.7
Vehicles & PIU equipment	7.3	0.5	7.8
PIU running costs	6.2	3.5	9.7
GOK Maintenance funds	2.6	2.5	5.1
Total	52.6	35.4	88.0

gram. Thus, we can conclude that of the total project costs *less than one third* has been spent on creating a running maintenance system, which actually was the main objective.

Renovation and new construction have overshadowed the creation of a maintenance system because the PIU management in earlier years of the project deliberately focused on "rehabilitation". Lately, the emphasis has shifted toward maintenance.

146 RHFS (out of which 114 dispensaries) have been subject to renovation and new construction or are contracted. The total contract sum (in current prices) is about 93 million Kshs or about 637,000 Kshs per RHF. In 1991 the average cost figure is about 7-800,000 Kshs per RHF.

10.1.1 Cost of various items

We will here give rough (rule-of-thumb) figures for the cost of various items. The figures are averages or typical costs at the 1991 price level. However, variations are considerable.

New construction of a staff house of 50 sq.m may cost about 330,000 Kshs or 6,600 Kshs/sq.m.

Renovation of an existing building at a RHF may cost 1,000-1,400 Kshs/sq.m. For a dispensary of 100-120 sq.m a renovation thus may cost 100,000-160,000 Kshs. Renovation of a Health Centre of 300 - 600 sq.m may cost between 0.3 and 0.6 million Kshs.

A new water tank + base may cost 30,000-40,000 Kshs.

A new VIP-latrines may cost 20,000-30,000 Kshs.

Training of a PHT for two weeks costs 5,000 Kshs/person excluding overhead. The newly trained PHT is equipped with a set of two tool boxes for 6,000 Kshs. Including overhead, planning and a couple of follow-up visits on site a trained and equipped PHT may cost at least 15,000 Kshs.

10.1.2 Costs for health centres versus dispensaries

The cost of renovating a dispensary and adding new constructions according to the level of ambition used so far may look like this:

Renovation of 120 sq.m, main building	160,000
Two pit latrines	60,000
Water tank and roof catchment	50,000
Other, e.g. soak pits etc	40,000
New staff house	330,000
Total for a dispensary, Kshs	640,000

The cost for renovation of a health centre is more than twice as high as for a dispensary (in average about 2.4 times). Also projects including new constructions show roughly the same ratio. The difference is largely explained by the difference in floor-space and number of pit latrines, tanks, and new staff houses.

10.1.3 Staff houses

Total investments in new constructions have been around 30 million Kshs so far (29.7 million in the Table 10-1). The large part, almost two thirds, was spent on new staff houses.

The remaining over 10 million Kshs was spent primarily on water tanks and wells (almost 6 million Kshs), new pit latrines (around 4 million Kshs).

A conclusion may be that by confining new investments to the creation of acceptable water and sanitation installation the new investments in RHFs can be cut down by about two thirds.

10.2 Maintenance funds

Some 40 RHFs have received 2,000 each as a Minor Repair Fund. The officer-in-charge had the authority to use the money upon request from the PHT. This was a test by PIU. People in the field meant this was indeed worthwhile, since it considerably increased the possibility for the PHT to fix minor things with little delay.

Similarly, GOK has allocated maintenance funds to over 1,000 RHFs not subject to renovation. The average fund was around 2,000 Kshs/year per RHF.

About half of the minor repair funds were not utilised properly. Therefore, the authority to make payments should be with the PHO in charge of maintenance.

Suppose that as little as 0.5 % of the cost of new construction is set off yearly for a maintenance fund. For an average RHF that might mean some 12,000 Kshs per year. It is our opinion that such a sum would suffice for running maintenance, if we then assume that much of the work is done by the PHT and subordinate staff outside this fund.

12,000 per RHF would mean some 14 million Kshs per year to provide all government RHFs in the country with a fund that is probably adequate for outlays in connection with maintenance.

We conclude from this evaluation that a minor fund for purchase of mate-

rials or a few days assistance by a *fundi* is required for the maintenance system to be effective. However, the authority to order the actual payment should rest with the PHO and not be delegated to the RHF.

10.3 Does maintenance pay?

We will make a rough calculation to illustrate the economics of maintenance versus dilapidation and subsequent new construction.

A RHF totally lacking maintenance may be run down in a decade or two. Let us assume that without maintenance a RHF may be used for 20 years. After that it will be abandoned and a new one erected for a cost (in 1991 price level) of 1.6 million Kshs.

Let us further assume that good maintenance (including materials purchased, assistance by *fundis*, time spent by PHTs etc) costs annually 2 % of the cost of new construction. If an average RHF today costs 2.5 million to build, the annual total maintenance cost would be 50,000 Kshs (in 1991 price level). This RHF will be usable, we assume, at least 40 years.

We can compare the two scenarios by calculating the total cost discounted to present value of each. Let us calculate in real terms using a real discount rate of 5 %. (This way of calculating means that we do not have to make any assumption of inflation rates):

Table 10-2
Total cost for two alternatives
— A simple investment analysis

	No maintenance	Good maintenance	
New RHF year 1	2,500,000	2,500,000	
Present value of 20 years of mtce	— *	600,000	*no maintenance
Present value of new RHF year 20	985,000	— **	**no new RHF
Total cost, Kshs (discounted to present value)	3,485,000	3,100,000	

In the calculations above we have on purpose made assumptions that are rather unfavourable for maintenance. Still the scenario with maintenance comes out significantly more economical. Experience shows that a well

maintained building lasts more than 40 years, which improves the figures further.

Experience also shows that even without a maintenance scheme some costs for acute repairs will occur. Otherwise the RHF will not even last 20 years, but rather maybe only 10-15 years. Therefore the non-maintenance scheme will in real life cost more than the simplified comparison above shows.

Thus, it is safe to conclude that maintenance of a building is considerably more economical than deterioration + new construction. A maintenance scheme is a good investment indeed.

In addition to the "hard data" we have used for our comparison, we can ask ourselves what kind of health care is to be delivered in a non-maintained building after 15 years?

10.4 Maintenance and the health care budget

Suppose that all about 1,200 government RHFs would be subject to an ambitious maintenance scheme requiring annually 2% of the cost of new construction (this would include cost of time spent by PHTs etc). The annual cost for all Kenya RHFs would then be about 60 million Kshs. This is to be compared to the MOH budget of over 1,600 million approved by Parliament on October 3, 1991. Thus, a minor addition to the yearly MOH budget would secure good quality rural health facilities in the long run.

The scenario with no maintenance will after a decade or two lead to insurmountable costs for new constructions.

10.4 Conclusion about costs

How much does good running maintenance cost annually? That we do not yet know. We have indications that a couple of thousand Kshs per year for a dispensary for minor outlays may lead to much actual maintenance performed.

We have seen several RHFs less than 10 years old but already seriously run down. With successive small scale maintenance work this deterioration of the facility would have been avoided. A renovation for several hundred thousand Kshs would then not have been needed.

Running maintenance is inexpensive. It depends very little on funds, but it depends much on competence, motivation and management. Running maintenance is very good business — beside positive effects for health care and the positive response from staff and patients.

11 DISCUSSION

11.1 The outcome in relation to objectives

The mission's main conclusion is that it is evidently possible to create a functioning maintenance system for RHFS with the organisation and the resources utilised in the pilot phase. It seems possible with even less resources, as has been shown in the non-pilot districts.

Observations so far strongly indicate that the choice of PHO(M)s and PHTs to carry the responsibility for maintenance was wise. The Building Inspectors have played an important role in implementation and quality control.

It is, however, too early to draw any conclusions about the sustainability of a maintenance system since it has been in operation only in a few districts for maximum one year.

Although the original idea was the creation of a system for running maintenance, several other objectives were included, which may have reduced the value of the pilot phase as guidance for alternative strategies. Of the total costs of the project less than one third has been spent on creating a running maintenance system.

The arrangement with separate funds for rehabilitation and maintenance has worked well. Because of different conditions of employment and financial procedures, it would certainly be administratively simpler if one agency was the lead donor and administered all aspects of donor involvement, including appointment of all technical assistance staff. The other donor's role would be exclusively as co-financier.

Despite delays during the first years the pilot phase seems to be coming out well compared to the plan of operation. The "rehabilitation" programme, although delayed at the beginning, has later been carried out at great speed, utilizing the financial resources well. (Instead of the term "rehabilitation" we suggest that a distinction is made between new investments, renovation, and running maintenance. See also section 2.3 above.)

Quite a number of activities have been included in the Guide-lines on Rehabilitation 1991 compared to the guide-lines in the Plan of Operation 1987. Some of these seem to be too elaborate.

The Team concludes that for a given amount of funds, renovation of dispensaries is more cost effective than renovation of health centres. For that reason the priorities, especially concerning renovation, between health centres and dispensaries should be reconsidered. (See discussion in section 11.3 below.)

A rising awareness as to the importance of maintenance and adequate maintenance procedures of RHFs has been achieved both among RHF staff and at district level. It is apparent that in order to have a self-sustained running maintenance system it is imperative that all levels of society is involved, especially the community.

Training activities should have started at the beginning of the project and not in the third year. However, most of the training that has been carried out appears to have been relevant and effective. The DHMTs and the officers in charge of RHFs need more information on the maintenance programme and their responsibilities. The selection of PHTs for training in maintenance seems to have been done with little regard for talents and interest.

Using small contractors for major works at RHFs has largely failed. Large contracts and established, mostly large, contractors from district capitals paired with professional administration from MOH and MOPW is the most certain way to rapid renovation and new construction of RHFs with good workmanship. However, this does not enhance local capacities. Nor does it involve the PHT, which is a disadvantage. The design of projects and tasks is the key to using local resources.

11.2 The necessity of "rehabilitation" and new investments

At the start of the project it was assumed that renovation of the buildings at a health facility must be carried out before the maintenance activities could start. For instance, the Plan of Operation talks about bringing buildings up to a "maintainable standard".

Not directly related to the maintenance system, but to the possibilities of recruiting staff or the working conditions for the staff and thereby to an operational facility, was the new construction of staff houses. The construction of improved water supply and sanitation was considered strongly related to having a well functioning health centre or dispensary. The addition of extra rooms, specifically for MCH/FP activities was also seen as a way of strengthening the functions of a facility.

One must, of course, ask if all these very costly undertakings are at all necessary for creating a maintenance system. We have to some extent already given comments on that in different sections of the report, but perhaps a more comprehensive answer is needed.

Our simple conclusion is that the answer is "no" — neither renovation, nor new constructions are absolutely necessary to start running maintenance in a RHF (or any other building for that matter).

It goes without saying that a house in good condition is easier and perhaps less expensive to maintain than a house that is run down, but, regardless of its present state, any building which is used is possible to maintain, and if it is needed in the future it is most probably worth maintaining. We would like to go so far as saying that there is virtually no alternative; wear and tear occur continuously, and since not all RHFS can be renovated or "rehabilitated" at once and at the same time, maintenance must start immediately.

Experiences from the non-pilot districts prove that it is quite possible to have a running maintenance system without great costs. The results are encouraging from what the Team observed in Murang'a and learned from other sources. Economic arguments can be found in chapter 10 — maintenance costs are much better investments than new constructions.

Another question is how a health facility should be defined in practical terms. Since access to clean water and good sanitation are corner-stones in the policy of preventative health care it is only logical that some facilities are improved in these aspects. Additions for MCH/FP activities to previously too small dispensaries may be motivated by similar arguments. However, these additions or improvements are not directly related to maintenance and should not be seen as a prerequisite for this.

Even less valid are improvements in the form of staff houses. Here the project clearly diverted (although apparently with the consent of the Steering Committee) from the Plan of Operation, which required that a need must "proved". We found very few cases where it seemed to be absolutely necessary to build new staff houses in order to recruit or keep staff at a facility. The way the construction of staff houses was decided, with more or less a quota for each pilot district instead of assessing the need for each case individually, is far from recommendable. It is even counter-productive to the creation of a of maintenance system since it both takes resources away from the absolutely necessary upkeep and creates more buildings that must be taken care of.

11.3 What facilities should have the attention?

11.3.1 A tentative assessment of services in relation to costs

A tentative assessment of the quality of health care service provided by health centres and dispensaries visited was undertaken by the Team. It must be stressed that the following discussion is based on a limited and

not randomly selected number of health facilities, but the problem is important and should be discussed further.

It was noted that performance of both curative and preventive health service were in many aspects almost on the same level at health centres and dispensaries. This is important information considering the priority of allocations of funds within the PIU rehabilitation programme, but also in view of

Table 11-1
Health facilities in Kenya

(Source: MOH NHIS statistics 1989)

Facility	GOK	NGO	Total
Hospitals	70	57	127
Health Centres	266	77	343
Rural Health Demonstration Centres	23	-	23
Rural Health Training Centres	5	-	5
Sub-Health Centres	42	2	44
Dispensaries	808	443	1251

GOK and MOH priorities and support to these facilities in the near future.

The present PIU rehabilitation programme has given priority to only GOK rural health facilities. The average total cost per dispensary and health centre in the four pilot districts since the start of the programme is presented in Table 11-2.

The average cost of "rehabilitation" and maintenance per dispensary is in 1991 price level around 0.6 million Kshs as compared to 1.3 million Kshs per health centre.

Apart from these observations the Team found that daily OPD and MCH attendance at health centres did not differ much from the attendance rate of dispensaries. Health centres had on average 15-20 staff compared to 3-4 staff at dispensaries. The patient/staff ratio at health centres is therefore low compared to the dispensaries.

The health centres visited seemed to deliver a slightly higher quality of curative services as compared to the dispensaries (see Appendix 4). It was also found that, the quality of preventive services provided at health centre level is higher compared to dispensaries. This could be expected and perhaps explained by the provision of more trained staff for health education and outreach purposes available on health centre level.

According to the present Kenyan health care policy, a health centre should be responsible for promotion and support of health and health service for the

Table 11-2 Average total cost per district and per facility

(In thousand Kshs)		
District	Dispensary	Health Centre
Kilifi	397	411
Kwale	494	2,482
South Nyanza	635	1,161
Kisumu	746	1,279
Average total cost	568	1,333
Average cost new construction only	261	412

surrounding area, covering the nearest 5-6 dispensaries. Based on observations by the Team, it was found that the health centre support to dispensaries is often lacking, mainly due to transport difficulties. Dispensaries rely more on direct support and supervision from the district level and in particular the DHMT.

According to this policy, dispensaries should have the responsibility of referring patients to health centres for further and more advanced medical treatment when necessary. Health centres should also in their case be responsible for referring severe cases to the district hospital for admission and especially for surgical procedures like cesarean sections. From interviews with members of the community it seems that the health centre in many cases is by-passed by patients who either go to a dispensary or directly to a district hospital.

Safe deliveries should be promoted to be undertaken in institutions like health centres or hospitals. High-risk pregnancies should be detected early during ante-natal screening and forwarded to district hospital for delivery. It was found that in fact only a small proportion of women deliver at health centre level (probably 1-5% of all deliveries take place at health centres). Reliable referrals to district hospital from health centres are not always possible to undertake because of transport problems.

Health centres as compared to dispensaries are quite often large complexes, although size may vary. Some centres have installations for piped running water with flushing toilets, electricity and telephone. Costs for maintenance and repair of these installations are a heavy burden on the MOH economy.

The Team also found that the local communities had difficulties in identifying the health centre as their "own" facility. Lack of community participa-

- GOK will provide the necessary project staff for PIU and the necessary number of PHOS and PHTS for training.
- GOK will provide funds for maintenance, in increasing annual amounts to be specified in the budget and project agreement.
- It should also be noted that the usefulness of the project is closely related to other inputs which are essential to the provision of health services, in particular drugs. Large investments in buildings will not be able to prevent a decline in the quality of health services if essential drugs do not continue to be made available to rural health facilities regularly and in sufficient quantity.

5 Monitoring and Evaluation

The project may need an improved in-house monitoring system where all relevant information, both quantitative and qualitative, can be made available at a glance. A consultant could design a system. Local consultants can be hired on a need basis to do small evaluation studies when necessary.

Annual instead of semi-annual reviews is sufficient.

6 Equipment

Provision of medical equipment and furniture should continue as in the pilot phase no matter what alternative strategies are chosen. Regarding maintenance of medical equipment, the Evaluation Team feels it would be most practical to create replacement kits of the most fragile equipment (perhaps costing about Kshs. 5,000 each), instead of creating a complicated transport and repair system for maintenance.

7 Choice of Facilities — Emphasis of Health Centres or Dispensaries

The project can continue to cater for all GOK rural health facilities, or can place emphasis on dispensaries as opposed to health centres. The argument for the latter suggestion is that dispensaries are the most cost effective delivery systems for health care. Concentrating on dispensaries would mean that more facilities would be covered with the same amount of funds. This choice will affect the scale of the project in terms of how many districts can be covered in a five year period.

8 Three Alternatives for the Future — Emphasis on Maintenance or Renovation/New Investments

- Alternative A. The project can continue as in the pilot phase with most

funds being used for renovation/new construction. The number of staff houses may stay in the same proportion as at present or be scaled down to be based on actual need. The project could start renovation/new construction in all 9 non-pilot districts which have trained PHO(M)s and have started emergency repair work. The activities in the non-pilot districts could be started in another 9 adjoining districts. In this proposal the project will remain basically as it is, but will expand.

- **Alternative B.** The project can place emphasis on the establishment of maintenance systems and cease doing renovation/new investments on the same scale as at present. This proposal would take its starting point in the activities in the non-pilot districts. Instead of large-scale and complete renovation, only basic repairs are done to keep the facilities operating in a reasonable manner. PHTs as well as PHO(M)s are trained in all districts.

This proposal would mean that more districts could be covered with a given amount of funds. It would also mean that the recurrent maintenance costs of the facilities would be higher than those which have been completely renovated, and that GOK alone would probably not be able to afford these costs. There would therefore be a need to combine donor and GOK funds for maintenance, which would give rise to accountability problems and depart from the principle that maintenance/recurrent expenditure is solely the responsibility of GOK.

- **Alternative C.** The project can continue with renovation/new investments as in the pilot phase, but not so comprehensively, and give added emphasis to training and the establishment of maintenance systems. An established maintenance system would be a pre-condition for renovation/new investments, which would be the opposite priority of the pilot phase.

This would mean that, before renovation/new investments are started, all the necessary PHO(M)s and PHTs in a district have been trained and have had experience of small repairs, that the DHMT and all officers in charge of facilities have been informed and advised, and that all the communities have been informed, consulted and agreed with regarding their participation in maintenance.

This proposal would require greater investments in training, and would involve the Building Inspectors in the establishment of maintenance systems more than at present. It would also mean a slow start to renovation/investments, as the first year would be taken up with establishing the maintenance systems in the non-pilot districts.

This proposal requires a commitment from MOH and the communities

before large-scale donor funds are utilised. Criteria and indicators would be established as to when a maintenance system in a district is sufficiently established to qualify for renovation/new investments.

As can be concluded from Part A of this report the Evaluation Team believes that alternative C is best.

9 Scale and Speed of the Project

The rationale of a pilot phase, if deemed successful, is that it would be replicated over the whole country, and that national coverage should be achieved as fast as possible. Four districts have been completed. Three others (Busia, Kagamega, Bungoma) may be covered by Finnida. That leaves 34 rural districts for the project to complete, or 37 if Finnida does not complete the three. It would be impossible to complete the country in 5 years, but to wait 15 or 20 years is impractical and hardly acceptable. In the long run it would also be very costly. The Evaluation Team is of the opinion that a maximum of 10 years should be used to cover the nation. Planning of the comprehensiveness of renovations of a facility in terms of time and funds should be based on this.

During 10 years, the unrenovated and non-maintained facilities will deteriorate further. Therefore the Evaluation Team recommends that the *maintenance system*, including training of all necessary PHO(M)s and PHTs and the provision of funds for emergency repairs, should be established in the whole country by the end of the first five year phase. There is training capacity to achieve this, if small increases are made in the calculations found in Part A, chapter 8. *Renovation* of all RHFs could be planned for completion within about ten years.

10 Budgets and Priorities

The Evaluation Team is not able to work out detailed budgets, but presents the following considerations as the basis of a budget proposal that can be made by the PIU.

- After completion of the pilot phase, work out exactly how many GOK rural health facilities in the whole country that remain to be renovated.
- Accepting that the country should be covered in 10 years, calculate 40% of the remaining facilities to be done in the first 5 years (work will be quicker in the second five years because the procedures and organisation will have been established in the first phase).
- Calculate the following costs:

- Training and administration costs to establish a maintenance system in the whole country within 5 years.
- Average costs of renovating a dispensary and a health centre without new construction (without new staff houses, pit latrines, water tanks and soak pits).
- Cost of providing new water and sanitation systems (water tanks, pit latrines and soak pits) at a dispensary and a health centre.
- Cost of provision of equipment and furniture to health facilities.
- Cost of a new staff house.
- Administration and staff costs to cover 40% of the country's remaining facilities within 5 years.

With these figures, various options can be costed.

In terms of priority the Evaluation Team lists the above activities in the following order (administration being taken as a given):

1. Establishment of a maintenance system in the whole country.
2. Provision of adequate water and sanitation systems to all rural health facilities.
3. Provision of equipment and furniture.
4. Renovation of dispensaries without new staff houses.
5. Renovation of health centres without new staff houses.
6. New staff houses.

This order of priorities has been arrived at as a result of observations made during the evaluation. The Evaluation Team considers that establishment of a maintenance system must now be the primary activity of the project, not least because it is imperative to quickly stop the physical deterioration of facilities in the country. Maintenance must not wait for renovation. The non-pilot districts have shown that a maintenance and repair system can be established and be of great value before any renovation is undertaken. In order to promote the creation of maintenance systems, the Evaluation Team feels a functioning maintenance system in a district should be made a pre-condition for renovation activities.

The second and third priorities are given because the Evaluation Team feels that such an order of priority will give an immediate improvement in health service, even before renovation is undertaken, provided that basic maintenance is taking place.

Renovation of many facilities is necessary in order to prevent further decay and to make the facilities better places to work and live in. However, funds for renovation should not have the first priority in the budget. After the

other priorities are met, the remaining funds can be used for renovation, and perhaps spread more thinly than in the pilot phase. In that way more facilities are reached with a given amount of funds.

New staff houses should have the last priority because they appear not to have been necessary in all cases, and they are new investments unrelated to maintenance and renovation.

11 Outputs and Indicators

In accordance with the above list of priorities some outputs and indicators can be as follows. This is not an exhaustive list, but rather an illustration to help in the planning process. A final list can be made at the time of writing the project proposal and appraisal, when the actual numbers can also be filled in.

- number of PHO(M)s and PHTs trained and functioning effectively.
- number of tool kits and maintenance equipment distributed, and in use.
- number of DHMTs informed about maintenance.
- number of heads of RHFs informed about maintenance, and number managing maintenance activities effectively.
- number of communities informed, consulted and agreed with concerning participation in the maintenance of facilities.
- monitoring system established to measure effectiveness of maintenance activities.
- number of RHFs with adequate water and sanitation facilities at the end of project period.
- number of medical equipment and furniture distributed, and a replacement system in operation.
- number of dispensaries renovated.
- number of health centres renovated.
- number of staff houses renovated.
- number of new staff houses built.

12 Funds for Maintenance

GOK is providing shs. 3,000,000 in 1991/92 for maintenance activities in 16 districts, and shs. 7,000,000 has been applied for in 1992/93. If these funds were increased by shs. 1,000,000 per year for three years and by shs. 2,000,000 in the last year, it would mean that shs. 12,000,000 would be made available in 1997/98, the last year of the project.

These funds should cover not only preventive maintenance of the renova-

ted facilities (which may cost about shs. 2,000–3,000 per facility per year), but also the costs of emergency repairs to the maintained facilities which have not yet been renovated (say shs. 15,000 per facility per year). There are about 1300 rural health facilities in the country, so shs. 12,000,000 would give an average of about shs. 10,000 per facility, which seems adequate.

13 Risks and Constraints

1. There is a risk that financial constraints of GOK will affect the amount of funds available for recurrent maintenance of RHF in the MOH budget. The annual amounts should be specified in the project agreement, and timely allocation of the funds should be made a condition for continued donor funding. Sustainability of a maintenance system is totally dependent on permanent understanding and commitment in MOH to the system. That is why the donors should assist MOH by agreeing to specific and clear conditions, and through taking resolute action to ensure that the conditions are fulfilled.
2. Creation of a sustainable maintenance system requires the changing of attitudes in MOH and at the facilities. Attitudes are not something that can be changed overnight. It is a long process, often dependent on personal factors such as the quality of leadership and management ability at any one place. A constraint to this process may be the frequent transfer of key staff to other areas or other assignments. Attitude changing is difficult to measure, but the project's monitoring system will have to place emphasis on this aspect in order for the project to have some idea of sustainable effect.
3. Trying to establish a maintenance system in the rest of the country within 5 years will involve quite a complicated logistics operation, with the attendant risks of delays. There will also be problems with finding enough qualified *fundis* and small contractors in order to ensure an acceptable quality of work.

14 Further Action

On the basis of the above considerations, it is recommended that the Ministry of Health work out a proposal to the donors which can be appraised in early 1992.

APPENDIX 1

Terms of Reference for Evaluation/Identification Mission on the Rural Health Maintenance Project in Kenya

1. Background

In 1985, a joint DANIDA/SIDA Appraisal Mission recommended that the Ministry of Health (MOH) should develop a self-sustained system for maintenance of rural health facilities (RHF) including equipment. It was also recommended that resources for preventive maintenance should be increased, and that DANIDA and SIDA should support the formulation of a policy framework within the District Focus Concept.

In November 1985, the MOH submitted a request to DANIDA and SIDA for assistance to consolidate, renovate and maintain rural health facilities in the entire country. The request was appraised by a joint SIDA/DANIDA mission in May 1986. At the request of the MOH, the appraisal team prepared a report outlining how the institutional and managerial aspects of a maintenance programme could be approached. Later the same year (November/ December), a Swedish Appraisal Mission recommended that SIDA and Danida should fully coordinate their support to the maintenance RHF-buildings and equipment.

Subsequently, the MOH requested Danish and Swedish support to start a rehabilitation and maintenance project in 2 to 4 districts over a three year pilot period. The Project would be implemented by the Planning and Implementation Unit (PIU) in the Ministry of Health.

Swedish support to the Maintenance Project was covered under the Specific Agreement on Health Sector Support for 1987/88 to 1989/90 with a total grant of SEK 17,76 million. The current Specific Agreement on Swedish Health Sector Support covering the period 1 July 1990 to 30 June 1993, amounts to SEK 11,0 million for maintenance of RHF's. Danish support to the Project is stipulated in an Agreement on a grant basis up to D.kr. 19,0 million (adjusted to D.kr. 20,4 million by 1990).

Both Agreements stipulate that the Government of Kenya (GOK) shall make available K.shs. 5,0 million for preventive, recurrent maintenance of rural health facility buildings and equipment, out of which amount K.shs. 0,5 million shall be set aside for 1987/88, K.shs. 2,0 million for 1988/89, and K.shs. 2,5 million for 1989/90. The current MOH-SIDA Agreement stipulated that GOK shall allocate K.shs. 3,0 million and K.shs. 5,0 million for the FYs 1990/91 and 1991/92 respectively.

The agreements between the MOH and the two donors stipulate that reviews of the project should be held in April/May and October/November each year to review progress of activities, to ensure that they are in conformity with the Agreements and the agreed Plan of Operation and Workplans. The original plan was to evaluate the project after the first two years, i.e. mid-1989.

During the intermediate review of the project in October, 1988, it became clear that due to slow recruitment of personnel to the PIU, the implementation of certain activities was so much delayed that an evaluation in 1989 would have little value. A joint Swedish/Danish Review Mission recommended in April/May 1989 to prolong the pilot period with one year to include the Financial Year 1990/91. Consequently, it was suggested to postpone the planned evaluation to mid-1990.

After the review of the project in November 1989, SIDA and DANIDA and the Ministry of Health agreed to prolong the pilot period with one further year, i.e. to the end of June 1992. Following this decision, the planned evaluation for mid-1990 has consequently also been postponed by one year.

2. Objectives

The main objectives of the mission are to carry out:

- an in-depth review of the first four years of the pilot phase of the rural health maintenance project,
- an identification of different strategies for a possible future rural health maintenance programme.

3. Outputs

The mission shall prepare a report in two parts. One part presenting the results from the evaluation, the other part containing the recommendations for a possible future rural health maintenance programme.

The mission shall utilize, to the extent possible, the logical framework concept, and the report's two parts should be structured accordingly.

The presentation of the evaluation shall be divided into a cross cutting section containing the general analyses, and then deal with each project component under separate headings.

The results from the identification shall be presented a number of separate programme models demonstrated within different scenarios.

The presentation of the models shall be detailed enough to provide a suffi-

cient basis on which a choice can be made by GOK and the donors jointly, as to which model shall be developed into a full fledged project proposal by GOK. When GOK has prepared the project proposal, the donors should be ready to appraise it for a possible future financing.

4. Intermediate objectives of the evaluation

The intermediate objectives of the mission are to carry out:

- an assessment of the relevance of the original project objectives,
- an assessment of project design in the light of achieving the overall objectives,
- an assessment of whether the main activities have been adequate to reach the overall objectives.

4.1 Scope of work of the evaluation

The scope of work of the evaluation shall comprise, but not necessarily be limited, to the following tasks:

General analysis

- review the accomplishments of the main activities in relation to agreed implementation plans,
- analyse the appropriateness of the institutional set-up (PIU/MoH, central and district),
- assess the appropriateness of the system of project funding and disbursement (bilateral agreements, GOK contributions, etc.)
- assess the adequacy of project inputs, such as staff, equipment, and funds,
- review the project management internally (leadership, lines of authority, etc.) and externally (studies, review missions, donors, etc.),

Rehabilitation of buildings

- assess the role of the rehabilitation as a prerequisite for preventive maintenance,
- review the suitability of original and modified guidelines (standards),
- examine the selection procedures regarding the approach and phasing of rehabilitation (concentrated - dispersed implementation),
- analyse the procedures used in selection of local contractors,
- assess the experiences gained by the project in using small local contractors (Contractor Study),

Preventive maintenance

- assess the achievements in establishing a self-sustained recurrent maintenance system for rural health facilities,

- analyse GoK commitments and actual contributions in terms of funds, staff, and other resources,
- assess the appropriateness of the organisational structure in the districts for implementing preventive maintenance,
- examine the suitability of established procedures and new and/or planned routines, as well as instruction material, regarding future sustainability,
- examine the experiences gained from the use of the minor repair fund,

Maintenance and rehabilitation of equipment

- examine the suitability of the maintenance workshops, in terms of numbers, locations, and size,
- examine the functioning of the maintenance workshops regarding staff, equipment, and other back-up services, as well as operational routines,
- assess the adequacy of standard equipment lists for rehabilitated health facilities,

Training

- assess the suitability of the implemented training programme with regard to its role in establishing a sustainable maintenance system for rural health facilities,
- review the principles for selection of candidates for the different training courses,
- review the curricula used in the different training courses,
- review training materials developed by the project (manuals, handbooks, etc.)

5. Intermediate objectives of the identification of possible future programmes

The intermediate objectives of the mission is to carry out:

- an analysis of the experiences from the evaluation of the pilot phase of the project,
- a logical framework analysis of project objectives, short term and long term, and on project target groups,
- a presentation of alternative models for a sustainable rural health maintenance programme, taking into account different scenarios.

5.1 Scope of work of the identification task

The scope of work for the identification may comprise, but not necessarily be limited to, the following:

Recommend for each of the identified alternative models in the different scenarios:

MAINTAINING HEALTH

- a suitable institutional set-up for the programme, both centrally and at district level,
- an appropriate system of project funding,
- total project design and the necessary project components,
- a system of project management,
- major inputs, in terms of funds, and essential staff,
- scale and coverage of operations.

6. Composition of the team

The team will be comprised of the following persons:

Stefan Dahlgren, sociologist, head of evaluation section, SIDA, (team leader),

Tage Klingberg, economist, external consultant to SIDA,

Anders Björkman, MD, public health expert, external consultant to SIDA,

Lise Juul, architect, external consultant to DANIDA,

Nigel Hawkesworth, institutional expert, external consultant to DANIDA.

7. Timing and Reporting

The mission will take place between the 16th September 1991 and the 5th October 1991.

The mission shall present to the GOK and the donors a summary of their main conclusions and recommendations prior to their departure from Kenya.

A draft main report shall be submitted to SIDA and DANIDA not later than 1st November 1991. A final report shall be made ready no later than 3 weeks after comments by the donors are made available.

APPENDIX 2

PROGRAM FOR THE EVALUATION/IN-DEPTH REVIEW MISSION

16/9	Arrival of part of the team to Nairobi Meeting with PIU staff Introduction to Kenyan team members
17/9	Introduction to Permanent Secretary, Director of Medical Services and Chairman of the Steering Committee Introduction at DANIDA and SIDA (p.m.) Meeting with PIU staff
18/9	Field visits in Murang'a District
19/9	(a.m.) Arrival of the rest of the Scandinavian team members Meeting at PIU (p.m.) Departure for Malindi by Charter
20/9	Field visits in Kilifi district. Meeting with DHMT
21/9	Field visits in Kilifi district (p.m.) Drive to South Coast
22/9	Internal team meeting
23/9	Field visits in Kwale district. Meeting with DHMT
24/9	Field visits in Kwale district (p.m.) Drive to Mombasa
25/9	Departure for Homa Bay by Charter (p.m.) Field visits in South Nyanza district. Meeting with DHMT
26/9	Field visits in South Nyanza district
27/9	(a.m.) Drive to Kisumu Field visits in Kisumu district. Meeting with DHMT
28/9	Field visits in Kisumu District (p.m.) Departure Nairobi by Charter
29/9	Internal meeting
30/9-2/10	Meetings and work in Nairobi
3/10	Debriefing for MOH and Donors
4/10	Revision of Draft (evening) Departure of Scandinavian team members

APPENDIX 3

LIST OF PERSONS MET AND RHFS VISITED DURING THE FIELD TRIPS

Murang'a District

Staff at the following RHFS:

Kamahuha Dispensary

Kandara Health Centre

Kiunyo Dispensary

Kigora Dispensary

Kegetuini Dispensary

Kilifi District

Mr. Harry Wamubeyi, District Commissioner

Dr. Kahindi, DMOH

Mr. Muhammed Ngoto, DPHO

Mr. Athuman Chiguzo, PHO(M)

Staff at the following RHFS:

Mambrui Dispensary

Dida Dispensary

Ngerenya Health Centre

Matsangoni Dispensary

Vidingo Demonstration Health Centre

Chasimba Dispensary

Ribe Dispensary

Mariakani Dispensary

Kwale District

Mr. Ali Korane, District Commissioner

Dr. Ajoug, DMOH

Mr. Eric Odongo, DPHO

Mr. Walter Odhiambo, PHO(M)

Staff at the following RHFS:

Samburu Dispensary

Tiwi Rural Health Training Centre

Waa Dispensary

Muhaka Dispensary
 Shimoni Dispensary
 Mwaluphamba Dispensary
 Mkongawi Dispensary
 Ndavaya Dispensary
 Kilimangodo Dispensary
 Vitsangalaweni Dispensary

South Nyanza District

Mr. Cymo Gituai, District Commissioner

Dr. Bhibi, DMOH

Mr. Silwaya, DPHO

Mr. Magati, PHO(M)

Staff at the following RHFs:

Kandiege Dispensary

Homa-Lime Health Centre

Kendu Bay Dispensary

Adiedo Sub-Health Centre

Wagwe Dispensary

Ndhiwa Sub-Health Centre

Ndiwa Dispensary

Macalder Health Centre

Othoro Dispensary

Rongo Health Centre

Kisumu District

Dr. Suleh, DMOH

Mr. Imbayi, DPHO

Mr. Henry Nyama, PHO(M)

Staff at the following RHFs:

Sango-Rota Dispensary

Kusa/Kadingo Dispensary

Sigoti Health Centre

Katito Dispensary

Rabour Dispensary

Railways Dispensary

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MAINTAINING HEALTH

Maintenance of health facilities is considerably more economical than letting them deteriorate and then construct new ones.

That is one of the main conclusions in this evaluation of a maintenance and renovation programme for rural health facilities in Kenya.

Running maintenance is inexpensive. It depends very little on funds, but much more on competence, motivation and management. Running maintenance is very good business – besides positive effects for health care and the positive response from staff and patients.

But the evaluation questions whether it is wise to engage in excessive repair and reconstruction of health centres. Priority should be given to simple maintenance and repair of dispensaries, which seems more cost-effective.

The evaluation was conducted by a joint Swedish-Danish-Kenyan team. It covers the project's pilot phase in four districts, and a comparison with districts outside the pilot phase activities.

Sweden's bilateral development co-operation, handled by SIDA since 1964, comprises 19 programme countries: Angola, Bangladesh, Botswana, Cape Verde, Ethiopia, Guinea Bissau, India, Kenya, Laos, Lesotho, Mozambique, Namibia, Nicaragua, Sri Lanka, Tanzania, Uganda, Vietnam, Zambia, and Zimbabwe.

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