社会開発調査部報告書

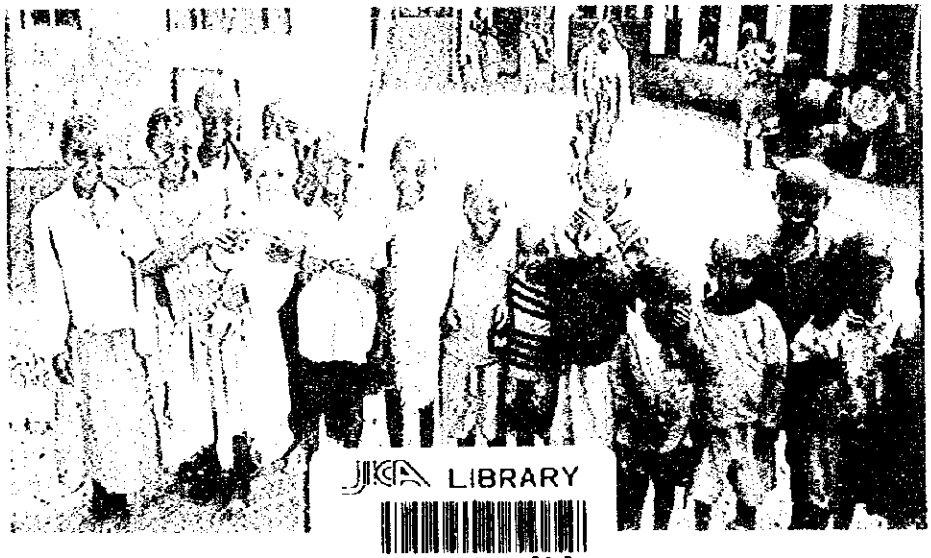
No. 52

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)
THE MINISTRY OF HEALTH
THE GOVERNMENT OF THE REPUBLIC OF KENYA

The Study on Strengthening the District Health System in the Western Part of Kenya

Final Report

Main



December 1998

Pacific Consultants International
IC Net Limited

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The exchange rates used in the Study are:
US$ 1.00 = 59.57 Kshs
US$ 1.00 = JY 139.60
(as of the end of August 1998)

PREFACE

In response to a request from the Government of the Republic of Kenya, the Government of Japan decided to conduct a Development Study on Strengthening District Health System in the Western Part of Kenya and entrusted to study to the Japan International Cooperation Agency.

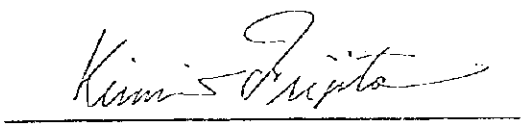
JICA selected and dispatched a study team headed by Dr. Katsuhide Nagayama of Pacific Consultants International to Kenya, four times between August, 1997 and December, 1998. In addition, JICA set up an advisory committee headed by Professor Takatoshi Kobayakawa, M.D., Ph.D., Tokyo Women's Medical College between August 1997 and December 1998 which examined the study from specialist and technical points of view.

The team held discussions with the officials concerned of the Government of Kenya and conducted field surveys at the study area. Upon returning to Japan, the team conducted further studies and prepared this final report.

I hope that this report will contribute to the promotion of this project and to the enhancement of friendly relationship between our two countries.

Finally, I wish to express my sincere appreciation to the officials concerned of the Government of Kenya for their close cooperation extended to the study.

December, 1998



Kimio FUJITA
President
Japan International Cooperation Agency

December 1998

Mr. Kimio FUJITA
President
Japan International Cooperation Agency
Tokyo, Japan

LETTER OF TRANSMITTAL

Dear Sir,

We are pleased to formally submit herewith the final report of "The Study on Strengthening the District Health System in the Western Part of Kenya."

This report compiles the results of the Study which was undertaken in the Republic of Kenya from August 1997 through December 1998 by the Study Team, organised jointly by Pacific Consultants International and IC Net Ltd.

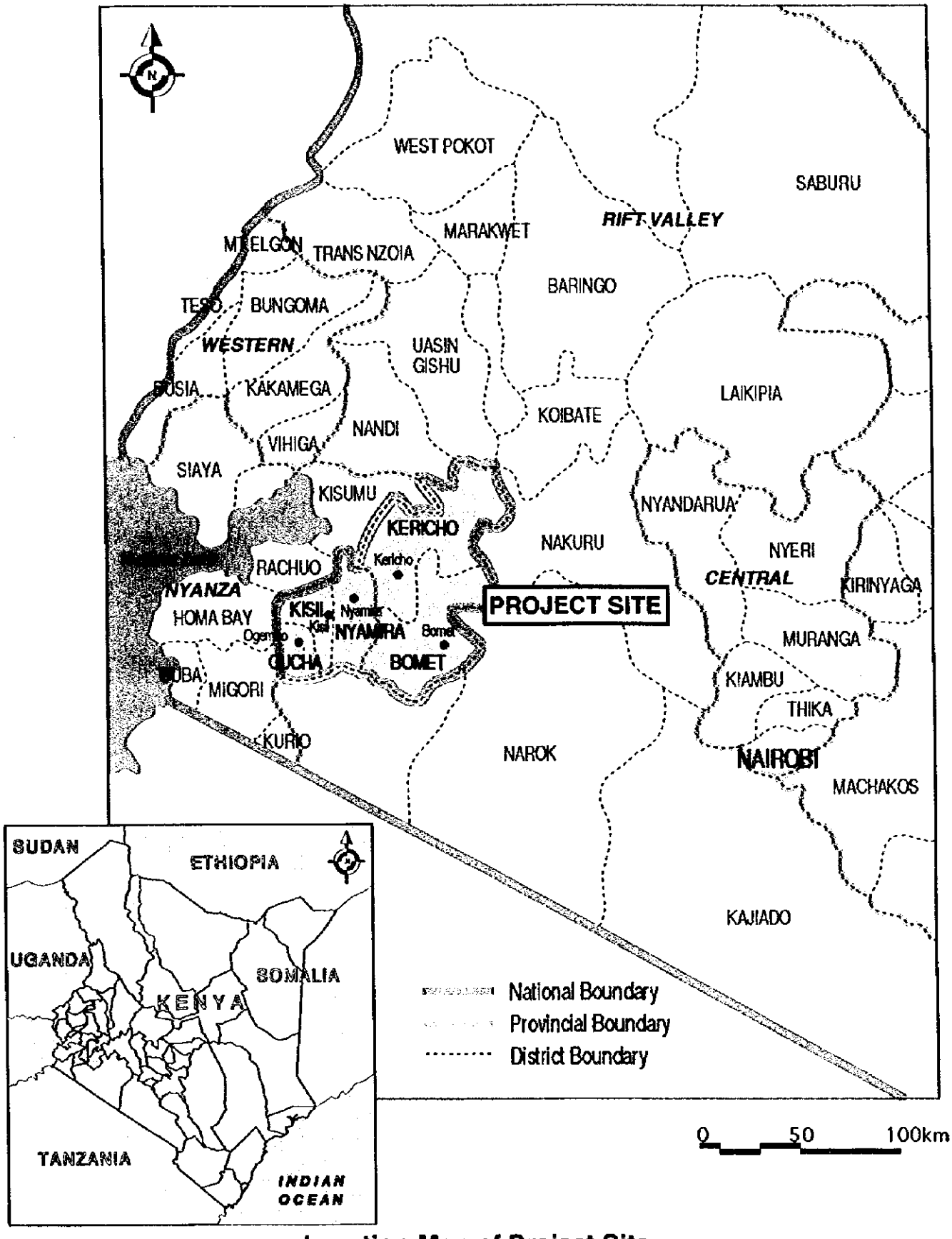
We owed a lot to many people for the accomplishment of the Study. We would like to express our sincere gratitude and appreciation to all those extended their kind assistance and cooperation to the Study Team, in particular, relevant officials of Ministry of Health, the Kenyan counterpart agency.

We also acknowledge all the officials of your agency, the JICA Advisory Committee, Embassy of Japan in Kenya and Ministry of Foreign Affairs.

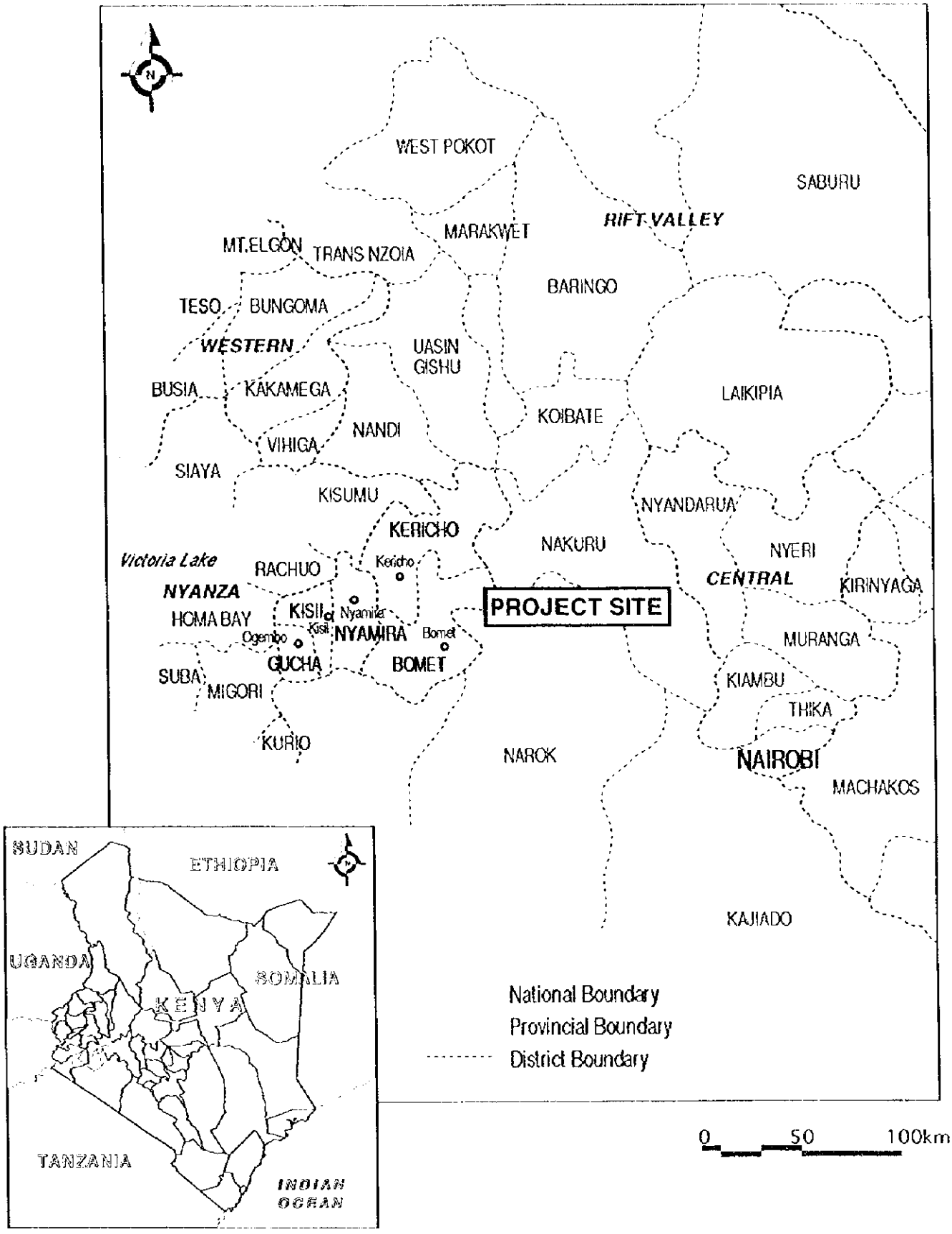
We wish the report really contributes to formulating appropriate polices and measures for improvement of district health service delivery systems by the Government of Kenya.

Very truly yours,

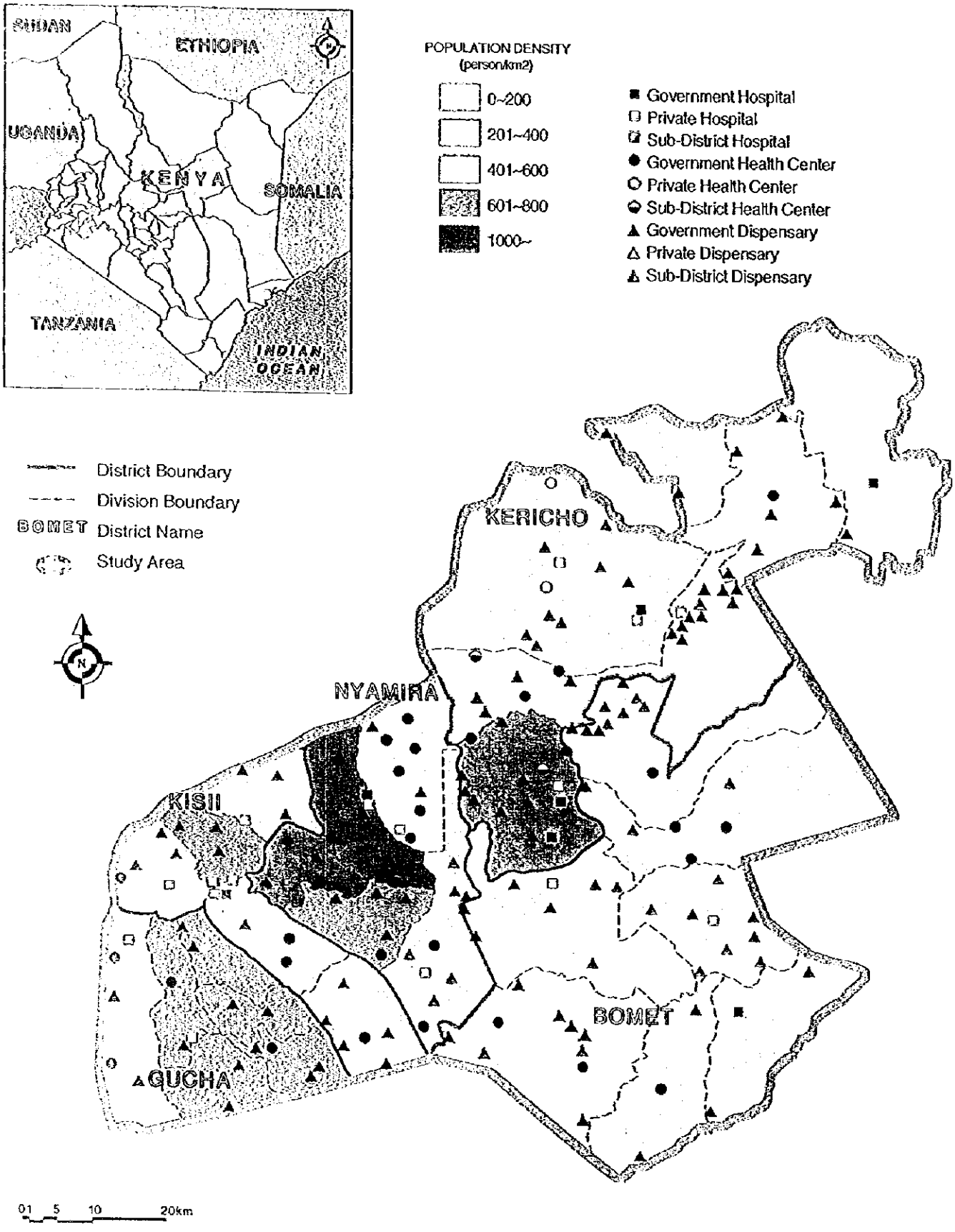
Dr. Katsuhide NAGAYAMA
Team Leader,
The Study Team for the Study on
Strengthening the District Health
System in the Western Part of Kenya

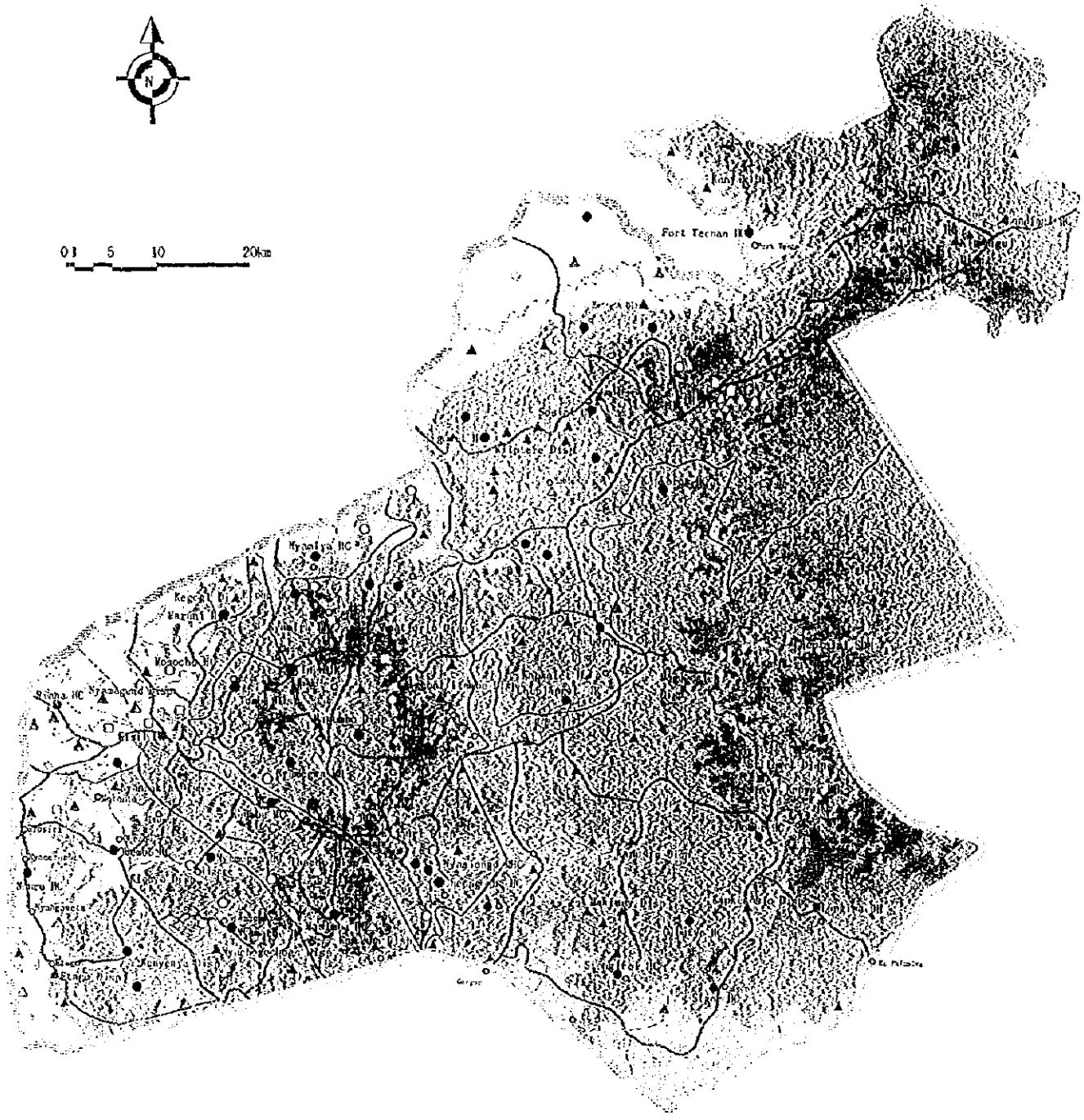


Location Map of Project Site



Location Map of Project Site


SUDAN
ETHIOPIA
UGANDA
KENYA
SOMALIA
TANZANIA
INDIAN OCEAN
POPULATION DENSITY
(person/km2)
0~200
201~400
401~600
601~800
1000~
Government Hospital
Private Hospital
Sub-District Hospital
Government Health Center
Private Health Center
Sub-District Health Center
Government Dispensary
Private Dispensary
Sub-District Dispensary
District Boundary
Division Boundary
BOMET District Name
Study Area
N
KERICHO
NYAMIRA
KISII
BOMET
GUCHA
01 5 10 20km



District Boundary

Division Boundary

contour

~5,000Ft (=1,520m)

5,000~5,500Ft (=1,680m)

5,500~6,000Ft (=1,820m)

6,000~6,500Ft (=1,980m)

6,500~7,000Ft (=2,140m)

7,000~8,000Ft (=2,440m)

8,000~

Government District Hospital

Private Hospital

Sub-District Hospital

Government Health Center

Private Health Center

Government Dispensary

Private Dispensary

Sub Dispensary

Distribution of Health Facilities in the Study Area

Executive Summary

1. BACKGROUND

In response to the request of the Government of the Republic of Kenya, the Government of Japan decided to conduct "The Study on Strengthening District Health System in the Western Part of Kenya" (hereinafter referred to as "the Study"). The Japan International Cooperation Agency (hereinafter referred to as "JICA"), the official agency responsible for the implementation of technical cooperation programs of the Government of Japan, undertakes the Study in accordance with the relevant laws and regulations in force in Japan.

On the part of the Government of Kenya, the Ministry of Health (hereinafter referred to as "MOH") acts as the Counterpart Agency for the JICA Study Team, and coordinates with other related government agencies.

2. OBJECTIVES OF THE STUDY

(1) To establish a master plan which strengthens the district health system in the Study Area and to formulate an action program for priority projects/programs as a result of the master plan, and

(2) To conduct technical transfer to the Kenyan counter personnel in the course of the Study, in terms of methodologies on: a) surveys and analyses for strengthening of the health sector; b) people's participation in the planning process; and c) a PCM approach in identifying planning issues.

3. THE STUDY AREA AND TARGET YEARS

The Study Area is encompassed with five (5) districts, namely, Kericho, Bomet, Northern Kisii (Nyamira) , Central Kisii (Kisii) and Southern Kisii (Gucha). The master plan covers the time framework up to the year 2005.

Notes: Three Districts have been renamed since 1998: Northern Kisii from Nyamira; Central Kisii from Kisii and Southern Kisii from Gucha In this report, the old names are used for convenience.

4 MAJOR PLANNING ISSUES

The Study was conducted with particular emphasis on the following five (5) planning issues:

(1) Improvement of "District Health Service Delivery System"

(2) Strengthening of "Health Information System"

(3) Prioritization of Diseases and Critical Health-related Issues

(4) Efficient Utilization of Financial Resources

(5) Proposal of "Effective and Implementable Projects/Programs"

5. STUDY APPROACH

The Study employed a Local People's Participatory Approach in the planning process while promoting close relationship with local stakeholders as well as MOH officials. Different from the top-down approach, this approach is based on a feedback process: ideas, opinions and plans of the local people were picked, discussed and assessed through a number of workshops at the district level.

6. MASTER PLAN

(1) Overall Planning Goal

The national policy goal should be achieved on the practical ground. Hence, any regional context must be geared with the national health policy framework, being reflected by the local reality. Hence, the overall goal of the Study is:

"To promote and improve the health status of all people residing in the target area, materializing the effective, efficient and sustainable mobilization of all the locally available health-related resources".

(2) Social Framework

Rapid increases in the population is a focal issue for social welfare as well as some of vital health-related programs such as FP and KEIP. There seem to be a gradually decreasing trend, but it is at a minimal level. In the year 2005, the total population of the Study Area will be about **3.4 million**, compared to 2.7 million at present as of 1997, About 700,000 will increase in the Study Area from 1997 to 2005.

(3) Planning Objectives

The overall goal needs to be interpreted into practical strategies with longer-term perspectives. The master plan, therefore, addresses two (2) key planning objectives which should be materialized with some numerical targets as follows:

Objective A:To provide **all the residents** with universal **access to minimum promotive and preventive health cares (P/PHC)** as well as **curative services and upgrade the quality of service.**

Objective B:To strengthen **linkages with other sectors to facilitate Community Development** relating to Health Improvement.

(4) Strategies and Rational Interventions

In the line with the two objectives of the master plan, strategies and/or rational interventions are formulated to meet the planning objectives. These comprehensively cover all the areas for the improvement of the district health system. It should be noted that one strategy alone cannot be effective, but needs to be mutually related with another for the implementation.

In the strategies and/or interventions, the four (4) keywords of "Health Policy Reform", namely 1) Decentralization, 2) Rehabilitation of Existing Resources, 3) Community-based and 4) Sustainability, are incorporated.

For Objective A

To provide **all the residents** with universal **access to minimum promotive and preventive health cares (P/PHC)** as well as **curative services and upgrade the quality of service** by/through:

(A1) Enhance Health Services for Priority Diseases

(A2) Functionalize District Health Service Delivery System

(A3) Promote Linkages in Health Services for Target Groups between Private and Public Health Providers

(A4) Develop Programs for Continuing Education for Rural Health Personnel

(A5) Rehabilitate Existing Health Facilities and Equipment

(A6) Strengthen Financial Capability at District Level

(A7) Institutionalize Supervision and Monitoring for Quality Assurance

For Objective B

To strengthen **linkages with other sectors to facilitate Community Development** relating to Health Improvement through:

(B1) Encourage Community-based PHC Activities for Health Improvement

(B2) Facilitate Integration of Rural Roads, Water and Sanitation Improvement

(B3) Encourage Self-help Group Activities through Empowering Women

Proposed interventions are integrated in a number of projects, taking into account: 1) implementability; 2) effective project linkages; and 3) functional relations among proposed interventions, and consequently a total of 37 projects were identified.

7. PROPOSED PRIORITY PROGRAMS

(1) Criteria for Prioritization

The following qualitative criteria are applied for looking into the priority of the long listed projects:

- Supportive or synergistic interventions to on-going projects and programs in the line with National Health Reform Policies;
- Cost effective interventions that have been already recognized in the neighboring areas or past studies;
- Forming an important base for the future development; and
- Leading to the strengthening capacity building and the reinforcement of the public system.

(2) Proposed Priority Programs

Out of the comprehensively listed projects, five (5) programs meeting with the criteria are formed as priority programs to be urgently implemented towards the year 2005.

Since the district health system cannot materialize by single project alone, but requires an integrated and balanced manner of implementation with multi-dimensional projects covering the entire health system even in the short-term. To this end, five priority project packages are proposed in the district health system structure with three dimensions of "Priority Diseases", "Health Service Systems" and "Human Resource". The five are as follows:

1) Priority Disease Program:

Malaria Control Program, with a target to reduce its mortality and morbidity by 50% and 30% respectively of the 1998 level, is proposed as one of possible individual projects, much of which will be integrated into the other proposed projects. While, ARI and HIV/AIDS control programs are developed with a Reproductive Health and Child Health Project, much of which shall be integrated into the Rural Health System Improvement Project. Thus, particular emphasis is placed on two areas:

- Malaria Control Project; and
- Reproductive and Child Health

2) District Hospital Rehabilitation Program;

It was identified that deterioration of facilities and equipment hinders improving the quality of curative service provided at district hospitals. Our of four (4) district hospitals, the Kisii DH, which has a wider potential catchment area beyond its geo-political boundaries, needs to be comprehensively improved in facilities, equipment and laboratory to well-function as a higher referral medical facility. The Kericho DH should also be comprehensively improved/rehabilitated, while the Nyamira DH requires partial improvement in roofing.

To improve the quality services provided by DHs, the proposed project should include other two components in an integrated manner: strengthening of the current hospital management system; and development of a New Maintenance System. Rationalization of the current budgetary system of FIF (Facility Improvement Fund) based on the cost-sharing is essential.

3) Rural Health System Improvement Program

To strengthen the rural health system under the national policy of "decentralization, the most vital factor is to strengthen the planning and management capability of DHMB (District Health Management Board) and DHMT (District Health Management Team), since both are responsible for the devolution of health administration.

On the other hand, to improve the rural health services under limited resources available, it was proposed to improve **16** health centers as **Priority Health Centers** of which the substantial functions shall be strengthened in terms of malaria control and reproductive and child health care. The priority health centers shall function as intermediate referral facilities which contribute to release unnecessary congestion of district hospitals and as health information dissemination centers for communities in their service areas at the division level.

These were selected on the basis of geographical location, existing facility assessment, role in the locality, level of community involvement, etc. The process of identification was based not only on the objective criteria but it also involved discussions with local counterparts and the MOH.

4) Community-based Preventive/Promotive Health Care Program

The current national policy shift from curative service to preventive/promotive health care could not be materialized without facilitation of community-based health care and promotion of people's awareness of their health. For this purpose, the following projects are proposed:

- Provision of start-up material kits as a basis of revolving fund to support people's self-help activities;
- Support of income-generating activities related to health promotion by community groups such as women's group and youth group; and
- Establishing "School Health Programs"

5) District Health Service Continuing Education Program.

To increase the numbers of professional and technical staff, trained and deployed to each District, is not under the control of Districts, but in the responsibility of MOH Headquarters and Kenya Medical Training Center (KMTC). Each District is, however, responsible for:

- Supervision of continued education and development of all professional and technical staff, once they have been assigned to the District;
- Orientation, training and development in the skills of governance of newly appointed Management Board and Facility Committee members;
- Training and development of community-based health care managers and workers; and
- Orientation of staff from health-related Ministries and organizations, involved in inter-sectorial activities.

Nevertheless, in the last ten to twenty years such opportunities for up-dating have not been available to many health staff. This has resulted, together with other causes, in a decrease in the quality of care to unacceptably low standards. In order to move this bottle-neck, a continuing education system for rural health staff is proposed to be formulated at each district level in association with improvement of the budgetary and institutional systems to sustain the human resource development.

8. FOR THE IMPLEMENTATION

(1) Facilitation of the National Health Policy Reform

The health reform is underway by the Kenya Government with a new policy framework that under the critical budgetary constrain, resources should be more effectively allocated towards more cost-effective measures. The underlying principle of this framework is decentralization to upgrade local people's health status. All the proposed projects/programs are in line with this policy, therefore, further facilitation of the national health reform is a premise for their successful implementation.

(2) Expected Donors' Contribution and Aid Coordination

Experiences accumulated through previous and on-going projects and activities by donors should be utilized for the implementation of the master plan under necessary coordination. In this sense, the following donors' efforts need to be integrated with the proposed projects: 1) as for facilities and equipment, coordination is needed with the PMIU project assisted by DANIDA, the Population IV Project by World Bank and the Capacity Building Program by USAID; 2) as for community-based projects, learning and experiences from the Bamako Initiatives by UNICEF, the Rural Water Preservation Project by IFAD and some notable activities by NGOs such as AMREF, should be incorporated in the project design; and 3) the Japanese assistance to KMTC should be linked with the proposed district continuing education project.

(3) Direction of the Japanese Assistance

The proposed five (5) priority programs deserve to be a model project to facilitate capacity building at the district level which is a key of successful execution of the National Health Reform. Therefore, Japanese assistance with a variety of aid programs are highly expected to implement all the programs, taking into account the following aspects:

- In order to assure the sustainable operation of the projects, the assistance needs to be functionally complex with hardware, software and human-ware;
- The assistance needs to last during a certain period of time (at least more than 3 years) to materialize steady and sound improvement and/or reform at the district level; and
- Coordination and cooperation with other donors' programs should be promoted so that the donors' interests and experiences can be mutually utilized.

ABBREVIATION

AFD	African Development Bank
AIDS	Acquired Immunodeficiency Syndrome
AIE	Authority to Incur Expenditure
ALS	Average Length of Stay
ARI	Acute Respiratory Infection
BCG	Bacilli de Calmette-Guerin
BFA	Budget and Financial Analysis
CBD	Contraceptives
CBHC	Community-based Health Care
CBS	Consumers Baseline Survey
CDD	Control of Diarrhoea Disease
CIDA	Canadian International Development Agency
CO	Clinical Officer
CPM	Capital Project Management
CSM	Cerebrospinal Meningitis
DALY	Disability Adjusted Life Year
DANIDA	Denmark International Development Agency
DCEC	District Continuing Education Coordinator
DCO	District Clinical Officer
DDC	District Development Committee
DFID	Department for International Development
DH	District Hospital
DHEO	District Health Education Officer
DHIS	District Health Information Officer
DHMB	District Health Management Board
DHMT	District Health Management Team
DMOH	District Medical Office of Health
DMS	Director of Medical Service
DPHN	District Public Health Nurse
DPHO	District Public Health Officer
DPT	Diphteria-Pertussis-Tetanus Vaccine
DSP	Dispensary
DTB	Department Tender Board
ECN	Enrolled Community Nurse
EDF	European Development Fund
EDL	Essential Drug List
EDP	Essential Drug Program
EEC	European Economic Community
FIF	Facility Improvement Fund
FINNIDA	Association
FP	Family Planning
FY	Financial Year
GOK	Government of Kenya
GTZ	Deutsche Gesellschaft fur Technische Zusammenarbeit
HC	Health Center
HCF	Health Care Financing
HECAFIP	Health Care Financing Program
HEROS	Health Sector Reform Secretariat
HESSP	Health Sector Support Program
HFC	Rural Health Facility Committee
HIMS	Health Information Management System
HMUs	Hospital Maintenance Unit
HPTC	Hospital Pharmacy Therapeutics Committee
IEC	Information, Education and Communication
JICA	Japan International Cooperation Agency
IPD	In-Patient Department
KAP	Knowledge, Attitude and Practice
KDHS	Kenya Demographic Health Survey
KEDL	Kenya Essential Drugs List
KEMRI	Kenya Medical Research Institute
KHCFP	Kenya Health Care Financing Program
KEPI	Kenya Expanded Program on Immunisation
KHPF	Kenyatta Health Policy Framework
KHRP	Kenya Health Rehabilitation Project
KMA	Kenya Medical Association
KMTC	Kenya Medical Training College
KNDP	Kenya National Drug Policy
KNH	Kenyatta National Hospital
MCH / FP	Maternal Child Health and Family Planning
MESD	Medical Engineering Service Division
MIS	Management Information System
MLG	Ministry of Local Government
MoPW	Ministry of Public Works
MSCU	Medical Supplies Co-ordinating Unit
MTB	Medical Tender Board
NASCAP	National AIDS/STDs Control Program
NGO	Non-governmental Organization
NHIF	National Hospital Insurance Fund
NPA	Non Project Assistance
NPHL	National Public Health Laboratory
OPD	Out-Patient Department
OPV	Oral Polio Vaccine
ORS	Oral Rehydration Salts
ORT	Oral Rehydration Therapy
OTC	Over-the-counter Drug
PCM	Project Cycle Management
PHC	Primary Health Care
PHMT	Provincial Health Management Team
PHO(M)	Public Health Officer (Maintenance)
PHT(M)	Public Health Technician (Maintenance)
PIH	Pregnancy Induced Hypertension
PMIU	Unit
PMOHs	Provincial Medical Office of Health
POM	Prescription-Only Medicine
PTA	Pharmacy and Therapeutics Committee
PTPP	Part Time Private Practice
PVC	Voluntary Organizations
RHTC	Rural Health Training Centre
RHF	Rural Health Facilities
RTI	Reproductive Tract Infections
SAD	Stores and Distribution
SDH	Sub District Hospital
SDP	Service Delivery Points
SIDA	Swedish International Development Agency
STD	Sexually-Transmitted Disease
TBA	Traditional Birth Attendant
TEC	Technical Evaluation Committee
TFR	Total Fertility Rate
TOT	Training of Trainers
TT	Tetanus Toxoid
UNDP	United Nations Development Program
UNFPA	United Nations Population Fund
UNICEF	United Nations Children Fund
USAID	U.S.Agency for International Development
VHC	Village Health Committee
WHO	World Health Organization
WB	World Bank

Table of Contents

Chapter 1

Introduction

1. INTRODUCTION

1.1 BACKGROUND

In response to the request of the Government of the Republic of Kenya (hereinafter referred to as "the Government of Kenya"), the Government of Japan has decided to conduct "The Study on Strengthening District Health System in the Western Part of Kenya" (hereinafter referred to as "the Study").

The Japan International Cooperation Agency (hereinafter referred to as "JICA"), the official agency responsible for the implementation of technical cooperation programmes of the Government of Japan, will undertake the Study in accordance with the relevant laws and regulations enforce in Japan.

On the part of the Government of Kenya, the Ministry of Health (hereinafter referred to as "MoH") shall act as the Counterpart Agency for the JICA Study Team and shall coordinate the implementation of the Study with other related government agencies.

The World Bank 1993 Annual Report states that despite global improvement in health care for the past 40 years health conditions of the African nations located to the south of Sahara were improving at a slower rate than the rest of the world. Many of the Governments in Africa are still having difficulties in providing adequate health care for the peoples, especially the poorest segments of society, in an efficient and effective way to utilise available resources.

Responding to such needs, Kenya is striving for a new reform in her own health sector. Since independence in 1963, Kenya has been formulating the health system by increasing the number of its facilities and health human resources. In 1970, Kenya started to provide free health services through primary health care facilities that were formerly the responsibilities of Local Government. Following this move, many facilities have been built by "Harambee", a self-help movement among local residents, various governmental institutions, and non-governmental organisations.

However, curtailment of health budget due to the economic crisis and the population increase brought about the gradual diminishing of the governmental per-capita expenditure on health. This budgetary crisis inevitably created chronic financial shortages for medical equipment and supplies, operation and maintenance of existing facilities, wage payment, and development of new facilities. Consequently, the quality of health services was degraded to the level that people began to distrust public health services. At the same time, it is evident that a regional disparity in health services has been increasing.

In order to tackle such problems, the Government of Kenya, spearheaded by the MoH, began a reform on health care policy by setting policy direction that ensure allocation of resources to cost effective programs. In 1994, Kenya called for a comprehensive "Health Sector Reform" for effective and efficient health services for Kenya citizens by the year 2010. As the initial phase, a five-year reform programme beginning from 1997 was planned for implementation with the assistance of donor organisations in the following categories:

1) strengthening of the public health service policy;
2) improvement on health service provider systems;
3) reorganisation of health care finance;
4) improvement and maintenance of health care human resources;
5) formulation of community and private sector participation in health services; and
6) reinforcement of health reform organisations.

1.2 STUDY OBJECTIVES

The objectives of the Study are as follows:

1) to establish a master plan which strengthens the district health system in the Study Area and to formulate an action programme for priority projects; and
2) to conduct technical transfer to the Kenyan counterparts on the methodologies of surveys and analyses, people's participation in the planning process, and project cycle management (PCM) approach in identifying planning issues.

1.3 SCOPE OF WORK

1.3.1 The Study Area

The study area (hereinafter referred to as "the Study Area") is composed of the following:

1) five (5) Districts - Kericho, Bomet, Nyamira, Kisii and Gucha; and
2) the service areas covered by Kericho District Hospital including parts of Nandi, Uasin Gishu and Kisumu Districts.

It has a population of about 3 million in 8,031 square kilometres of land.

1.3.2 Target Year

The master plan aims at the year 2005; the action plan, including priority projects and programmes, are designed for implementation between the year 2000 and 2005.

1.3.3 Major Planning Issues and Approach

The emphasis of the Study will be on five (5) issues.

Study Issues:

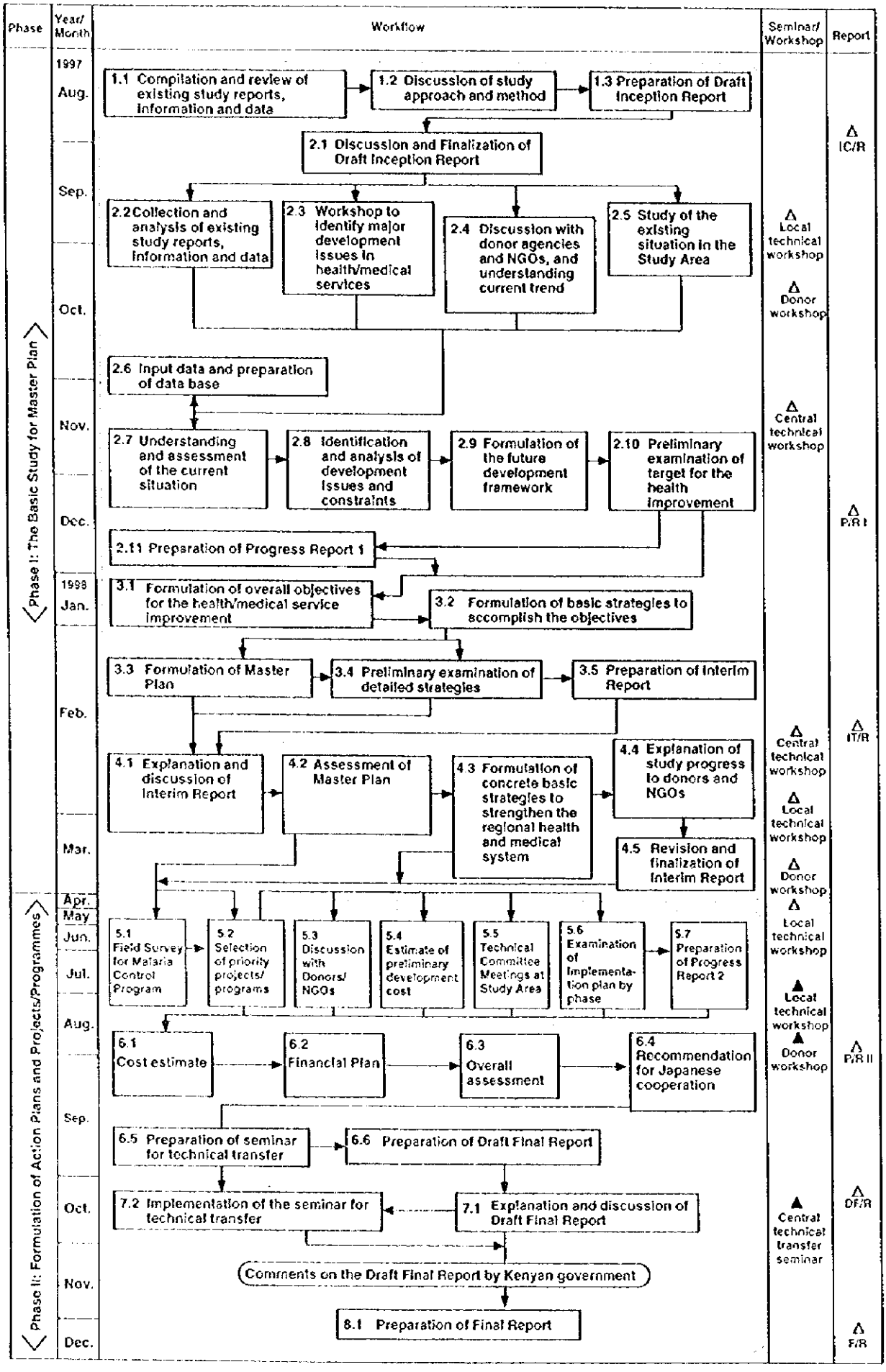
1) Improvement of the "District Health Service Delivery System"
   a) Development and Strengthening of the "Referral System"
   b) Human Resource Development in the Health Sector
2) Strengthening of the "Health Information System"
3) Prioritisation of Diseases and Critical Health-Related Issues
   a) Infant Mortality Rate (IMR)
   b) Diseases to be prioritised
   c) Reproductive Health
   d) HIV/AIDS
4) Efficient Utilisation of Financial Resources
5) Proposal for "Effective and Implementable Projects/Programmes"

1.3.4 Timeframe of the Study

The Study takes 14 months, commencing on August 26, 1997 and closing by end of October 1998. It is divided into two phases:

1) phase I for the base-line study and formulation of a master plan (up to March 1998) and
2) phase II for the development of action plans and projects/programmes (from May to December 1998).

Figure 1.1 Study Workflow



Chapter 2

Profile of the Study Area

2. PROFILE OF THE STUDY AREA

2.1 GENERAL PROFILE OF STUDY AREA

The Study Area covers part of Rift Valley Province and Nyanza Province with a land area of 7,200 square kilometres (1.25% of the total area of Kenya) that is mainly highland and mountainous located from 1,000 to 3,000 meters above sea level.

The Study Area has a highland sub-tropical climate with an annual rainfall that reaches 1,500-2,000 millimetre. It has a long rainy season between March and June and a short rainy season between October and December. The temperature ranges from 10 to 20 degrees Celsius.

The Study Area is densely populated (375 persons per square kilometre) with 2.7 million people (9.5% of the total Kenya population). Based on the 1989 population census, the average annual population growth rate between 1989 and 1997 is 3.05%, which is higher than the national average of 2.3%[1]. Because of the preference for larger family size among the ethnic groups and low prevalence of family planning, the population density in the Study Area is very high.

The average numbers of household members by district are as follows: Kisii (include Gucha) - 5.7; Nyamira – 5.7; Kericho – 5.6; Bomet – 5.9. All these are slightly larger than the average for Kenya, that is, 5.2 members.

Regarding the demographic structure, the age dependency ratio[2] in Kisii (include Gucha) is 104, in Nyamira is 122, in Kericho is 117, and in Bomet is 114. On the other hand, the national average is only 107. The growing population, especially the high rate of dependency ratio particularly attributed to ages under 15, would continue to exert pressure on a perpetually deficient social infrastructure such as schools and health facilities, and on a declining agricultural production.

Major economic activities are agriculture and livestock. The major cash crops grown are tea, coffee and pyrethrum, and staple crops are maize and beans. The number of people engaged in agriculture is 80% of the total labour force. The proportions of agricultural income in Kisii and Bomet are 41.5% and 55.6%, respectively, which are much higher than the national average of 29.9%.

1 1994- 2000 World Bank Projection

2 Population of the age under 15 plus the population of the age 65 above divided by the population of the age 14 to 64

The per capita income, though widely variable among districts, falls between 50 and 60% of the national level. The average household income for all the districts, except Nyamira, are close to the national average.

Table 2.1 Comparison of Per Capita Income and Average Household Income

District	Per Capita Income (above the age 15) Kshs/month	Average Household Income Kshs/month
Kericho	916	10,367
Bomet	1,015	11,265
Nyamira	887	5,607
Kisii	1,342	10,074
Kenya	1,847	9,696

Source: Welfare Monitoring Survey, 1994.

Further social and cultural characteristics of the Study Area are described in Chapter 12 and Chapter 14.

2.2 BOMET[3]

2.2.1 Natural Environment

Bomet district is a recently created district from the former Kericho district and is the seventeenth district in Rift Valley Province. The district is composed of 8 divisions (Table 2.2) that occupy a land area of 2,511 sq. km.

Table 2.2 Area and Administrative Units in Bomet District

Divisions	Land Area (sq. km.)	No. of Locations	No. of Sub-Location
Bomet Central	336.0	8	25
Chepalugu	161.0	3	13
Konoin	393.0	5	16
Kimulot	416.0	4	10
Longisa	291.0	6	19
Sigor	214.0	4	14
Siongiroi	279.0	5	15
Sotik	421.0	7	29
Total	2,511.0	42	141

Source: District Surveyor, Bomet; District Commissioners Office, Bomet, 1996.

[3] The description in this section is based on Bomet District Development Plan 1997-2001 (draft) and Bomet District Annual Workplan Financial Year 1997/98: District Health Profile, Objectives, Activities, Budget and Monitoring Indicators (draft).

The landscape in Bomet District is characterised by an undulating topography with the northern part giving way to flatter terrain in the south. The district has an altitude ranging from 1,800 in the south to 3,000 meters in the north.

Rainfall in the district is well distributed through the year except for a short dry season in January and February. The wettest season is April and May. Rainfall ranges from 1,000 mm to 1,400 mm.

The temperature in the district varies from 16°C to 24°C. The coldest months are usually between February and April, while the hottest are from December to January.

2.2.2 Socio-Political Environment

Bomet district has eight divisions. In addition, the divisions have 42 locations and 142 sub-locations. It has three full constituencies: Bomet, Chepalungu, and Konoin. Buret, the fourth constituency, is partially in the district.

The population of the district was 212,802 in the 1969 census, 291,340 in 1979, and 437,492 in 1989. This represents an annual growth rate of about 2.7% between 1969 and 1979, and 4.1% between 1979 and 1989. Average population density was 167 persons per square kilometres in 1989 and is expected to rise to 257 in 2001.

Table 2.3 Population of Bomet District

	1969	1979	1989	1997 (estimate)
Bomet Central	Not available		75,394	100,604
Chepalugu			54,772	73,086
Konoin			55,907	74,601
Kimulot			44,931	59,956
Longisa			57,196	76,321
Sigor			41,821	55,805
Siongiroi			33,516	44,723
Sotik			73,955	98,688
Total Population	212,802	291,340	437,492	583, 779

Source: Population census of 1969, 1979 and 1989.

2.2.3 Economic Environment

The main economic activity in the district is agriculture. The sector employs 80% of the total labour force. The northern part of the district has large- and small-scale tea farms. The average monthly income in Bomet is shown in Table 2.4.

Table 2.4 Mean Monthly Income in Bomet District (Kshs)

Population Aged 10 Years and Older			Population Aged 15 Years and Older		
Male	Female	Total	Male	Female	Total
1,228.4	254.9	757.7	1,634.4	344.0	1,014.6

Source: Welfare Monitoring Survey II 1994 Basic Report (1996), Central Bureau of Statistics, Office of the Vice-President and Ministry of Planning and National Development.

2.3 KERICHO[4]

2.3.1 Natural Environment

Kericho is one of the seventeen districts of Rift Valley Province. The land area of the district, totalling 2,515 sq. km., is divided into seven divisions (Table 2.5).

Table 2.5 Area and Administrative Units in Kericho District

Division	Land Area (sq. km.)	No. of Location	No. of Sub-Location
Ainamoi	540.0	7	16
Bureti	174.0	3	9
Belgut	660.0	5	14
Chilchila	158.0	4	9
Kipkelion	321.5	4	11
Londiani	523.0	6	9
Roret	138.5	3	6
Total	2,515.0	32	74

Source: District Surveyor Office, Kericho, 1996; District Personnel Office, Kericho, 1996.

Like most parts of Bomet, Kericho also has an undulating topography. Its altitude ranges from 1,800 to 2,500 meters. The Kericho plateau is located in the centre of the district. The climate of the district is categorised as highland sub-tropical. While lower highland areas have moderate temperatures, low evaporation rates and high rainfall, upper highland areas have high temperatures, high evaporation, and low rainfall.

Rainfall in the district is well distributed except for the short dry season in January and February. The heaviest rainfall is expected in April and May. The temperatures are between 16 to 20 degrees Celsius. While the coldest month is generally in July, the hottest is between December and February.

[4] The description in this part is extracted from Kericho District Development Plan 1997-2001 (Second draft).

2.3.2 Socio-Political Environment

Kericho District is divided into 7 administrative divisions. They are further divided into 32 locations and 74 sub-locations. Table 2.5 shows the number of these administrative units.

According to the population census in the year 1979 and 1989, there were 337,345 and 463,444 residents, respectively (Table 3.8). The annual population growth during these ten years was 3.18% on the average. The population in 1997 was estimated using this average rate. Though the rate is still high, it has declined from 3.7% in the 1970s due to reduced mortality brought about by improvement in health services. Population density is expected to be 238 per sq. km. in 1997 and 270 in 2001.

Table 2.6 Population of Kericho District

Division	1979	1989	1997 (estimate)
Ainamoi	Not available	115,784	149,325
Bureti		63,144	81,436
Belgut		126,836	163,579
Chilchila		27,488	35,451
Kipkelion		47,512	61,276
Londiani		49,293	63,572
Roret		33,387	43,059
Total Population	337,345	463,444	597,698

Source: Population census of 1979 and 1989.

2.3.3 Economic Environment

Agriculture and livestock are the major economic activities in Kericho District. They employ 90% of the labour force. The main cash crops are pyrethrum, wheat, coffee, tea, and sugarcane, while staple crops are maize, beans, potatoes, millet, and sorghum. Livestock products in the district include milk, beef, eggs, meat and mutton. The average monthly income in 1994 is shown in Table 2.7.

Table 2.7 Mean Monthly Income in Kericho District (Kshs)

Population Aged 10 Years and Older			Population Aged 15 Years and Older		
Male	Female	Total	Male	Female	Total
857.3	510.4	680.4	1,174.0	676.1	915.9

Source: Welfare Monitoring Survey II 1994 Basic Report (1996), Central Bureau of Statistics, Office of the Vice-President and Ministry of Planning and National Development.

2.4 KISII/GUCHA[5]

2.4.1 Natural Environment

Kisii and Gucha District are two of the ten districts in Nyanza Province. As Kisii was recently subdivided to form the Gucha district, the two districts share the majority of services. The combined land area of the districts is 1,302.1 sq. km.

Table 2.8 Area and Administrative Units in Kisii and Gucha Districts

Division	Land Area (sq. km)	No. of Locations	No. of Sub-Locations
Kisii District			
Keumbu	136.1	6	21
Suneka	126.1	5	15
Mosocho	97.5	6	12
Marani	125.0	6	13
Masaba	160.3	4	22
Gucha District			
Nyamarambe	208.2	6	21
Kenyenya	112.0	3	10
Ogembo	100.0	2	6
Nyacheki	81.0	3	7
Nyamache	78.0	3	12
Sameta	77.7	3	8
Total	1,302.1	47	147

Source: District Commissioner's Office, Kisii, 1996; District Commissioner's Office, Kisii, 1996.

The districts are mostly hilly with several ridges in the eastern parts. Altitude ranges from less than 1,000 to 1,800 metres. The districts are located in highland equatorial climate. Although rain falls almost all throughout the year, two rainy seasons can be identified. While long rainy season continues from the end of March to May, the short rainy season lasts from October to November. The average annual rainfall reaches more than 1500 millimetre. The large amount of rainfall makes possible the production of cash crops (e.g. tea and coffee) and staple crops such as maize and beans.

The high altitude of the districts contributes to an annual minimum temperature that is between 14° C to 18° C. On the other hand, due to its proximity to the Equator, the range of mean annual maximum temperatures is from 26° C to 30° C in the northern villages and 22° C to 26° C in the rest of the districts.

[5] The information is from Kisii District Development Plan 1997-2001, Office of the Vice-President and Ministry of Planning and National Development

2.4.2 Socio-Political Environment

Kisii and Gucha Districts are divided into 11 divisions, 47 locations, and 147 sub-locations.

The 1989 population census reported that Kisii and Gucha districts have a combined population of 747,042 and an annual growth rate of 2.72%. The population is estimated to reach 925,945 in 1997 and 1,030,873 in 2001. The population density is 721 persons per square kilometre in Kisii and only 649 in Gucha.

Table 2.9 Population of Kisii and Gucha Districts

	1979	1989	1997 (estimate)
Kisii District			
Keumbu	Not available	91,983	114,012
Suneka		67,108	83,179
Mosocho		76,314	94,589
Marani		74,759	92,662
Masaba		84,744	105,039
Gucha District			
Nyamarambe	Not available	94,459	117,080
Kenyenya		68,034	84,327
Ogembo		60,319	74,764
Nyacheki		46,199	57,263
Nyamache		42,124	52,212
Sameta		40,999	50,818
Total		747,042	925,945

Source: District Statistics Office, Kisii 1996.

2.4.3 Economic Environment

As in other districts in the Study Area, agriculture and livestock are the major economic activities that absorb 72.5% of the labour force in Kisii and Gucha districts. Most farmers grow cash crops as well as staple crops. Furthermore, the districts have soapstone and granite; the former is likely to contribute to the development of chalk industry while the latter can be used for interior decoration. The average monthly income in 1994 is shown in Table 2.10.

Table 2.10 Mean Monthly Income in Kisii and Gucha (Kshs)

Population Aged 10 Years and Older			Population Aged 15 Years and Older		
Male	Female	Total	Male	Female	Total
857.3	510.4	680.4	1,174.0	676.1	915.9

Source: Welfare Monitoring Survey II 1994 Basic Report (1996). Central Bureau of Statistics, Office of the Vice-President and Ministry of Planning and National Development.

2.5 NYAMIRA[6]

2.5.1 Natural Environment

Nyamira district is one of the ten districts in the Nyanza Province. In 1989, it was formerly part of the greater Kisii District. Nyamira district has a land area of 861 square kilometre in the Gusii Highlands.

Table 2.11 Area and Administrative Units in Nyamira District

Division	Land Area (sq. km)	No. of Location	No. of Sub-Location
Nyamira	180.0	7	19
Ekerenyo	215.0	4	17
Borabu	252.0	3	9
Manga	91.0	4	14
Rigoma	141.0	4	12
Total	879.0	22	71

Source: 1989 Population census; District Commissioner's Office - Nyamira, 1996.

It is divided into two topographical zones. The altitude in the northern part of Nyamira and Ekerenyo divisions is between 1,500 and 1,800 metres. The other part of the district is covered with steep hill crests and deep valleys with an altitude of more than 1,800 metres.

The climate of the district is classified as typical highland with plentiful rainfall averaging about 2,000 millimetres per year. The district has two rainy seasons: the long rainy season between March and June, and the short one between October and December.

The district does not experience extreme temperature variations largely due to its altitude. Average maximum temperature reaches 28.7 degree Celsius while the average minimum temperature is 10.1 degrees Celsius.

2.5.2 Socio-Political Environment

The district is divided into 5 administrative divisions, 22 locations and 71 sub-locations (Table 2.12).

Based on the annual growth rate of 2.76% in 1989, the 1997 population in Nyamira district is estimated to be about 587,942. The population density of 669 persons per square kilometre is one of the highest in Kenya.

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6 The information is from Nyamira District Development Plan 1997-2000, Office of the Vice-President and Ministry of Planning and National Development

Table 2.12 Population of Nyamira District

	1989	1997 (estimate)
Nyamira	131,783	164,343
Ekerenyo	126,430	157,668
Borabu	52,031	64,887
Manga	65,966	81,922
Rigoma	95,521	119,122
Total	471,461	587,942

Source: 1989 population census.

2.5.3 Economic Environment

Agriculture is the major economic activity in the district. Eighty percent of the labour force are employed in this sector. The rest of the workforce are self-employed in urban centres. The monthly income level is shown in the Table 2.13.

Table 2.13 Mean Monthly Income in Nyamira District (Kshs)

Population Aged 10 Years and Older			Population Aged 15 Years and Older		
Male	Female	Total	Male	Female	Total
857.3	510.4	680.4	1,174.0	676.1	915.9

Source: Welfare Monitoring Survey II 1994 Basic Report (1996), Central Bureau of Statistics, Office of the Vice-President and Ministry of Planning and National Development.

Chapter 3

Health Sector Reform and Local Health Plan

3. HEALTH SECTOR REFORM AND LOCAL HEALTH PLAN

3.1 NATIONAL HEALTH SECTOR REFORM

3.1.1 Background

The MoH has the responsibility of promoting health to all Kenyans. It is the major provider of heath services; although the missions[1], private[2] and voluntary organisations (PVO)[3] have also remained as indispensable actors. It principally organises health institutions at four levels, namely, national, provincial, district, and community. Through its 350 Hospitals, 500 Health Centres, and 2,950 Dispensaries[4], the MoH offers promotive, preventive, curative, rehabilitative, and palliative health services.

Despite a massive input on the health care delivery system since the country gained independence, the increasing population and newly emerging demand for heath care such as HIV/AIDS have been widely recognised to outstrip the ability of public providers.

To sustain the provision of health care delivery, the Government changed the patterns of investment from capital-intensive projects such as construction of curative care facilities to the provision of promotive and preventive health care. In other words, re-allocation and rational use of resources on prioritised diseases became inevitable.

3.1.2 Policy Framework for Reform

The MoH publised in 1994 the *Kenya's Health Policy Framework* (KHPF). It clearly stated the policy goal for the year 2010 as:

> *To promote and improve the health status of all Kenyans through the deliberate restructuring of the health sector to make all health services more effective, accessible and affordable.*

It spelled out six strategic imperatives as follows:

1 Religious organizations active in the provision of health services
2 Groups and individuals that provide health services for profit-making
3 Voluntary Organization
4 WHO Kenya country health profile, 1996

1) to ensure the equitable allocation of Government resources in reducing regional disparities in health status;
2) to increase the cost-effectiveness and efficiency of allocating and using resources;
3) to continue in managing the population growth;
4) to enhance the regulatory role of the Government in all aspects of health care provision;
5) to create an enabling environment for increased private sector and community involvement in health service provision and finance; and
6) to increase and diversify per capita financial flows to the health sector.

3.1.3 Policy on Decentralisation

In the KHPF, the MoH will continue to expand its policy-making function and play a greater regulatory role in all aspects of health care development and provision. It will delegate responsibility and authority for the day-to-day operations of the health care delivery to provincial and district health authorities. Specifically, it will decentralise to districts (and even to health centres) the following activities: planning, implementation, monitoring and, to a lesser degree, decision-making and financial management.

Table 3.1 lists the broad functions and responsibilities of the Ministry of Health at the headquarters, provincial, district, and community levels.

Table 3.1 Function and Responsibilities at Each Level

Levels	The New Functions and Responsibilities
Headquarters	National health policy formulation, strategic planning, monitoring, provision of resources and management
Province	Coordinating, supporting, supervising and training their respective districts to ensure quality assurance
District	Implementation of health reforms based on local conditions with emphasis on operational planning, management, and community mobilisation
Community (Health Centres/ Dispensaries)	Identifying priority health needs, planning, and implementing activities to meet those needs; resource acquisition, control and general management of health services

3.1.4 Management of Reforms

In coordination with representatives from the academic and donor communities, the MoH produced the KHPF Implementation Plan to clarify the objectives, indicators, and timeframe of the reform process. It organised the Health Sector Reform Secretariat (HEROS) to perform the following roles, functions, and responsibilities:

1) to provide advice and support to the central, provincial, and district levels;
2) to review and guide the prioritisation of reform measures;
3) to guide and advice the districts on development of funding proposals;
4) to monitor the progress of implementation;

5) to prepare and submit quarterly reports to the Ministerial Reform Committee and to the Permanent Secretary; and
6) to undertake any other assignments assigned by the Ministerial Committee.

The Ministerial Reform Committee (MRC) oversees the implementation of the Reform programme activities. The Permanent Secretary chairs it. Its membership comes from both the technical and administrative departments of the MoH. The Director of Medical Services is a member as well as representatives of NGOs and private health care providers. The functions and responsibilities of the MRC include:

1) advising the Central Board of Health;
2) supervising the operations of the HEROS;
3) monitoring and evaluating health sector reform activity; and
4) developing policy guidelines on the implementation of the reform.

The major issues the MRC has dealt with are:

1) the production of a framework and guidelines for annual district plans (to be implemented in 1998); and
2) the review and modification of the proposed structural and organisational changes at MoH headquarters.

3.2 HEALTH PLAN IN THE DISTRICTS (1997-2000)

The District Development Plan is prepared by District Departmental Heads of various ministries under the co-ordination of the District Commissioner, who is assisted by the members of the District Planning Unit. Drafts are discussed by members of the District Executive Committee and approved by the District Development Committee.

The following tables summarise the District Health Plans that were prepared as part of District Development Plans. Their consistencies with the KHPF were not considered in the preparation. These inconsistencies are caused by a lack of adequate integration between the District Level Planning and the Central Ministry Planning. In fact, the KHPI has not been fully disseminated to the district level. Some of the plans are still in draft form.

Table 3.2 Bomet Health Plan

District-Specific Objectives	
	1. Increase the utilisation of all idle capacity in the district 2. Complete construction and put into use all the installed projects 3. Do renovation works in all Rural Health Facilities (RHF) 4. Open up 12 New RHF in underserved areas selected by DDC 5. Reduce mortality, morbidity and disability caused by childhood immunisable diseases 6. Expand the Environmental / Sanitation project
Review of the 1994-96 Plan	
Achievement	The total facilities increased from 36 to 44 in 1995. Outpatient department in Longisa District Hospital has opened. The number of health personnel has increased from 204 in 1993 to 275 in 1996. The number of immunisation delivery centres has increased from 14 in 1994 to 17 in 1996. A new vehicle for SIDA-assisted Environmental / Sanitation project New ambulance for Chebangang and Ndanai Health Centres Extension of health facilities (Lugumek, Kanusinand Kapkesosio) Supply of Essential Drugs became regular in late 1995 and 1996. Construction of 31 Ferro-cement water tank, 43 water jars, protection of 5 springs and 19 latrines Preventive maintenance of 16 RHF including training of 28 Public Health Technician
Problems	Longisa division does not have in-patient facility. Patients and providers are frustrated when drugs are not available. The ratio of health personal remains low. Incomplete infrastructure Actual immunisation coverage is yet to be established.
Priority Projects and Programmes for 1997-2000	
On-going projects	Completion of unfinished construction and provision of equipment in Longisa District Hospital Provision of equipment and completion of construction with 4 facilities (Koiwa, Lugumek, Kanusin, Kapkesosio) Water and Sanitation Project in Bomet Central Division will be expanded to Sigor, Longisa and eventually to the whole district. Preventive Maintenance of RHF will be extended to the all other facilities
New projects	Construction, upgrading and renovation of facilities and provision of equipment (Tegat, Bomet, Kitoben, Olokyin, Menet, Sotik, Sigor, Cheptalal) Malaria control in lower zones (Sigor, Siongoroi and Chebalungu) Primary Health Care Programme in all divisions with emphasis on disadvantaged area School Health Programme
Programme	KEPI Open 16 new immunisation service centres at proposed facilities (Olokyin, Chemaner, Lugumek, Kapkesossio, Chebunyo, Chepwostuiyet, Sotic, Simbi, Kanusin, Koiwa, Kenyaor, Segutiet, Kitoben, Merigi, Itare, Gorgor)

Source: Bomet District Development Plan for 1997-2001 (Draft).

Table 3.3 Kericho Health Plan

District Specific Objectives	
	N/A
Review of the 1994-96 Plan	
Achievement	N/A
Problems	N/A
Priority Projects and Programmes for the 1997-2000	
On-going projects	Water and Sanitation (Ainamoi Division and Chepseon Location in Kipkelion Division) Maintenance of all Rural Health Facilities in the district Primary health care activities Construction of eye ward and theatre at Kericho District Hospital
New projects	Provision of medical and non-medical equipment to all Hospitals, Health Centres and Dispensaries. Construction of casualty department in the Kericho District Hospital Renovation of MCH/FP at the Kericho District Hospital
Programme	N/A

Source: Kericho District Development Plan for 1997-2001 (Draft).

Table 3.4 Nyamira Health Plan

District Specific Objectives	
	1. To increase ante-natal and post-natal clinic attendance from 65% to 75% 2. To intensify Family Planning activities in the districts 3. To reduce immunisable diseases through increase in coverage
Review of the 1994-96 Plan	
Achievement	Nyangema Health Centre was partially completed through EEC funding of Kshs 5.7 million. Ogando Dispensary, Nyamusi Health Centre and Manga Health Centre were completed with Regional Development Fund of Ksh 1.8 million
Problems	N/A
Priority Projects and Programmes for the 1997-2000	
On-going projects	Construction or expansion of facilities; provision of transport and equipment (Keroka, Tinga, Chepngombe, Nyamusi H/C, Isoge, Ekerenyo, Esani, Ogando, and Nyamasi Dispensaries)
New projects	Construction of Muchenwa Health Centre in Rigoma Division
Programme	N/A

Source: Nyamira District Development Plan for 1997-2001.

Table 3.5 Kisii and Gucha Health Plan

District Specific Objectives	
	1. To strengthen institutional capacity to design, implement and evaluate STD interventions 2. To promote preventive measures in reducing the risk of spread of STD 3. To enhance community-based provision of physical and psychological care, and develop strategies to mitigate socio-economic consequences of AIDS by encouraging community-based care of infected persons 4. To strengthen breast-feeding policy and improve nutritional status of children 5. Reduction of morbidity and mortality of six immunisable diseases and raise immunisation coverage within the district 6. To increase the number of Service Delivery Points (SDPs) and train traditional birth attendants in safe delivery practices 7. To improve sanitation, water quality and availability
Review of the 1994-96 Plan	
Achievement	Construction of Riana Health Centre, Eramba and Kenyenya Dispensaries were completed Rehabilitation of Matong and Boige Dispensaries and Nyamasi Health Centre were completed The six-body mortuary in Kisii District Hospital was rehabilitated
Problems	The newly-constructed Riana Health Centre, Eramba and Kenyenya Dispensaries still lack equipment and furniture. Construction of surgical contraceptive unit, MCH/FP unit, Dental /Dressing, injection unit, pharmacy and records offices in Kisii District Hospital have been suspended for several years.
Priority Projects and Programmes for the 1997-2001	
On-going projects	Construction of surgical contraceptive unit, MCH/FP unit, Dental /Dressing, injection unit, pharmacy and records offices in Kisii District Hospital. Completion of staff house, construction of maternity unit and provision of equipment in the following rural health facilities: Magena, Sosera, Nyaore, Eramba, Sieka, Kiogoro, Kenyenya, Kionyo, Nyansakia, Raganga, Riana, Etago, Moticho, and Gesabakwa.
New projects	Rehabilitation of Kisii District Hospital Upgrading of Health Centres to sub-district hospital (Keumbu, Gesusu, Nyamache, Ogembo, Nduru and Marani) Upgrading of Mission Health Centre to sub-district hospital Upgrading of Dispensaries to Health Centres (Nyacheki, Etago, Riotachi, Riana and Kenyenya) New construction of 26 Dispensaries (Nyansara, Nyansancha, Kiobegi, Chitago, Motonto, Muma, Mwata, Rioboera, Riyabo, Taracha, Mosando, Matunwa, Nyamemiso, Nyakononi, Mogweko, Geteri, Sugata, Nyagwekoa, Nyatike, Nyaguta, Nyagechenche, Gesabakwa, Kerera, Gakero, Kenyerere and Misesi) Construction of Maternity unit and provision of equipment (Ogango Dispensary) District-wide rehabilitation of RHF (Preventive Maintenance Implementation Unit)
Programme	STD/HIV/AIDS control project (Training and sensitising the communities)

Source: Kisii District Development Plan for 1997-2001.

3.3 PROJECTS SUPPORTED BY INTERNATIONAL DONORS

In the Study Area, there are three major health-related projects supported by international donors. Profiles of each project are summarised based on information provided by relevant donors.

3.3.1 Preventive Maintenance Project for Rural Health Facilities by DANIDA

Project Duration	Input for Renovation	Activities or Target Area	Achievements
Pilot: 5 years (1987-1992) 5 years (1993-1998)	54 million DKK for the whole country Kericho: 2.2 million DKK Bomet: 2.1 million DKK Nyamira, Kisii, & Gucha: 2.1 million DKK * Training and administrative costs are not included	Renovation of Rural Health Facilities (RHF) Training of DPHOs & PHOs on preventive maintenance, district-based programming, training of trainers and divisional meetings Provision of Equipment: Tool kits for all Public Health Technicians; distribution of medical and non-medical equipment. Funds for the Government of Kenya for preventive maintenance	DPHOs have been trained Renovation of some RHFs Construction of extensions in RHFs Furniture for renovated facilities Tool kit for PHTs Purchase of non-medical equipment for some facilities

3.3.2 Environmental Health Programme by SIDA

Project Duration	Input	Activities or Target Area	Achievements	Constraints
Kericho: started in 1989/90 Bomet: started in 1993/94	Average 2 million Ksh for each district Budget for Bomet: Water supply: 535,00 Kshs Sanitation: 117,000 Kshs Vector control: 45,000 Kshs Food hygiene and housing: 35,000 Kshs Community mobilisation: 140,000 Kshs Capacity building: 289,000 Kshs	Minor water supply Vector control Food hygiene and housing Community mobilisation and education including gender sensitisation Capacity building	Construction of water jar, spring protection, handdug well and VIP latrine through demonstration, cost-sharing and replication Purchase of mosquito nets, chemicals and equipment Training of implementers in different technologies on hygiene education Improvement of food storage, "jiko" and housing	Delay of disbursement of fund Unstable market prices Socio-economic factors Cultural factors Geographical profile Weather conditions

3.3.3 Community-Based Distribution (CBD) of Reproductive Health Commodities by GTZ

Project Duration	Input	Activities or Target Area	Achievements	Constraints
Gucha: Started in 1990/91	3 million Kshs for training of CBDs	Identification of Non-users Distribution of contraceptives	Trained 1,000 CBDs Reduction of population growth Created awareness on contraceptives methods Reduction of STD cases in tea estates particularly through the use of condoms	Poor communication limits proper supervision Transfer of trained supervisors Drop-out of some CBDs since they are not paid

3.3.4 Others

There are a few national program supported by donors, which is relevant to health improvement in the Study Area. IFAD support the strengthening of capacity building and the construction of rural health facilities within the Farmer's Group and Community Support Project: 1991-1999 providing US 2.1 million dollars in whole country.

IDA supports the STI program in the areas of project management, enhancement of preventive measures, and community support. The estimated cost for the project is US 40 million dollars in the country.

However, most of activities under those programs hardly are recorded and compiled in the district setting.

Chapter 4

People's Health Status and Priority Diseases

4. PEOPLE'S HEALTH STATUS AND PRIORITY DISEASES

4.1 STATUS OF PEOPLE'S HEALTH

4.1.1 Source, Data and Trends

For this report, data were collected from two sources, namely, the civil registrar and some selected health facilities. Although there is some room for improving their completeness and consistency, the data nonetheless reflect interesting trends in the Study Area.

4.1.2 People In Study Area Are Healthier But...

The infant mortality rate (IMR) in Kericho and Bomet Districts decreased by more than half from 86 per thousand livebirths in 1983 to 42 in 1992 (Table 4.1). Although the reduction was not as dramatic, the IMR in Kisii District went down from 62 in 1989 to 60 in 1996. Based on the assumption that the IMR is a sensitive index of health, one can surmise that the people in the Study Area are, in general, getting healthier or, at the very least, the newly born children have greater chances of survival than their older siblings.

Table 4.1 Comparative Health Indicators

Health Indicator	Kericho District	Rift Valley Province	Kisii District	Nyanza Province
Infant Mortality Rate (per 1,000 livebirths)	Year 1983: 86 Year 1992: 42		Year 1989: 62 Year 1996: 60	
Under-Five Mortality Rate*				
Male	85	95	113	186
Female	78	88	104	172
Total	82	92	109	179
Life Expectancy*				
Male	63.9	60.9	56.5	49.5
Female	67.2	62.8	60.9	53.5
Total	65.6	61.9	58.7	51.5
Crude Death Rate*				
Total	7.7	9.3	10.4	15.8

**Source: 1989 Census*

Three general health indicators show that the people living the Study Area are healthier on the average than other people living in other districts within the same province. Based on the 1989 census, there are fewer children under the age of five who succumbed to various types of diseases. The general population in the Study Area has longer life expectancy as the risk of dying from all causes is consistently lower.

All the health indicators would show that the people in Kericho District are better off than those in Kisii District.

Although the people in the Study Area are becoming healthier, there remain a lot of opportunities to save lives, to alleviate pain and suffering, and even to prevent people from getting sick. This can be achieved because many common causes of mortality and morbidity are diseases that can be prevented. Many are also responsive to treatment if diagnosed early and with appropriate medications.

4.1.3 Common Causes

Malaria is consistently the number one cause of all the deaths among the general population (Table 4.2) and even those among under five years of age (Table 4.3). It is also the most common reason for consultations at district hospitals or rural health facilities.

Table 4.2 Causes of Mortality among the General Population

Kisii District (Nov. 1996 - Oct. 1997)			Kericho District (Feb. 1997 - Aug. 1997)			Bomet District (Jan. 1997 - Oct. 1997)		
1. Malaria	1,178	33.2%	1. Malaria	371	30.5%	1. Malaria	355	21.2%
2. Pneumonia	387	10.9%	2. Tuberculosis	92	7.6%	2. Pneumonia	146	8.7%
3. Tuberculosis	376	10.6%	3. Accident	83	6.8%	3. Cancer	86	5.1%
4. Accident	253	7.1%	4. Pneumonia	75	6.2%	4. Tuberculosis	82	4.9%
5. Heart disease	213	6.0%	5. Anaemia	73	6.0%	5. AIDS	57	3.4%
6. Anaemia	171	4.8%	6. AIDS	44	3.6%	6. Anaemia	44	2.6%
7. Cancer	155	4.4%	7. Cancer	36	3.0%	7. Malnutrition	38	2.3%
8. AIDS	145	4.1%	8. Diarrhoea	24	2.0%	8. Meningitis	26	1.5%
9. Stroke	74	2.1%	9. Heart disease	19	1.6%	9. Stroke	24	1.4%
10. Diarrhoea	72	2.0%	10. Stroke	18	1.5%	10. Asthma	22	1.3%
11. Tetanus	48	1.4%	11. Tetanus	6	0.5%	11. Measles	20	1.2%
12. Measles	21	0.6%	12. Measles	1	0.1%	12. Tetanus	6	0.4%
Others	452	12.8%	Others	373	30.7%	13. Others	772	46.0%
Total	3,545	100%	Total	1,215	100%	Total	1,678	100%

Table 4.3 Causes of Under-Five Mortality

Kisii District (Nov. 1996 - Oct. 1997)			Kericho District (Feb. 1997 - Aug. 1997)			Bomet District (Jan. 1997 - Oct. 1997)		
1. Malaria	1,049	59.9%	1. Malaria	124	29.1%	1. Malaria	67	21.5%
2. Pneumonia	216	12.3%	2. Pneumonia	60	14.1%	2. Pneumonia	34	10.9%
3. Anaemia	94	5.4%	3. Malnutrition	45	10.6%	3. Malnutrition	20	6.4%
4. Measles	65	3.7%	4. Anaemia	29	6.8%	4. Measles	13	4.2%
5. Malnutrition	62	3.5%	5. Prematurity	23	5.4%	5. Anaemia	9	2.9%
6. Meningitis	29	1.7%	6. Tuberculosis	9	2.1%	6. Meningitis	5	1.6%
7. Accident	28	1.6%	7. Measles	6	1.4%	7. Prematurity	4	1.3%
8. Tuberculosis	27	1.5%	8. Accident	4	0.9%	8. Asthma	3	1.0%
9. Prematurity	22	1.3%	9. AIDS	3	0.7%	9. AIDS	2	0.6%
10. Diarrhoea	22	1.3%	10. Meningitis	3	0.7%	10. Accident	2	0.6%
11. Others	137	7.8%	11. Heart disease	3	0.7%	11. Cancer	2	0.6%
			12. Others	116	27.2%	12. Others	150	48.2%
Total	1,751	100%	Total	426	100%	Total	311	100%

Sources: Kisii, Kericho, and Bomet District Civil Registrars

The other common infectious diseases are respiratory infections (pneumonia and tuberculosis), diarrhoea, and immunizable diseases (tetanus and measles). There are emerging health problems such as HIV & other sexually-transmitted infections, cardio-vascular diseases, cancer and accidents. All these would show that there is an ongoing epidemiological transition in the Study Area.

Looking at the top 10 leading causes of hospitalisation in Kenya (Table 4.4), the disease pattern in the Study Area does not differ significantly from that in the entire country. Malaria is the leading cause of admission followed by respiratory infection (pneumonia and upper respiratory tract infection), diarrhoea, anaemia, abortion, tuberculosis and accidents. The proportion of malaria patients for the Study Area is larger than that for the entire country.

Table 4.4 Top 10 Leading Causes of Hospitalisation, 1995

Diseases/Condition	Cases	%
Malaria (all types)	53,539	18.5
Normal delivery	37,291	12.9
Pneumonia	26,715	9.3
Diarrhoea	14,106	4.9
Anaemia (all types)	12,246	4.2
Abortions	8,934	4.2
Pulmonary Tuberculosis	5,771	2.0
Upper Respiratory Tract Infection	5,088	1.8
Motor Vehicle Accidents	4,451	1.6
Hypothermia	3,797	1.3
All other diseases	116,776	40.4
Total	288,714	100

Source: Health Information System Annual Report 1995, MoH

4.2 MALARIA: THE PRIORITY HEALTH MENACE

4.2.1 Epidemiology and Entomology

a. Annual Trend

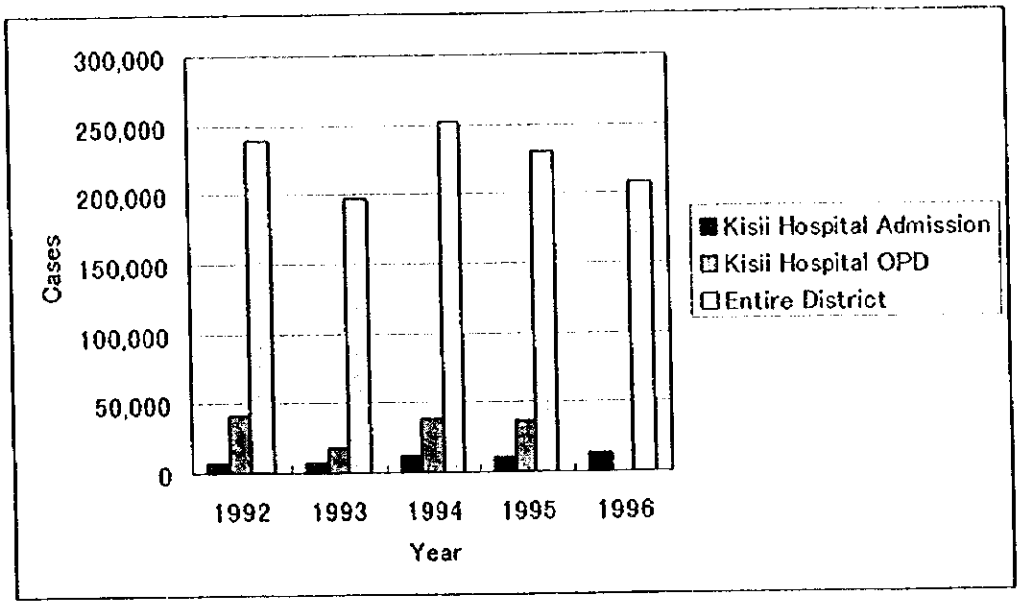
The number of reported cases vary through the years. A see-saw pattern (Fig. 4.1) is observed in Kisii District; the cases range from about 200 to 250 thousand per year from 1992 to 1996. While the number of consultations has remained stable, the number of admissions seems to be steadily increasing not only in Kisii District but also in Nyamira District (Fig. 4.2). This could be attributed to either a worsening of malaria cases (because only severe cases are admitted), ineffectiveness of treatment prior to seeking assistance from the district hospital, patients' preference for hospitals to rural health facilities, or all of the above.

b. Seasonal Trend

As expected, the cases of malaria increase with the wet season. From 1994 to 1997, the number of cases started to increase in April and peak in June or July (Fig. 4.3). Since rainy season came earlier this year as a result of El Nino phenomenon, the number of cases reached 2,000 in February and March compared to those in the previous year of only 300-600.

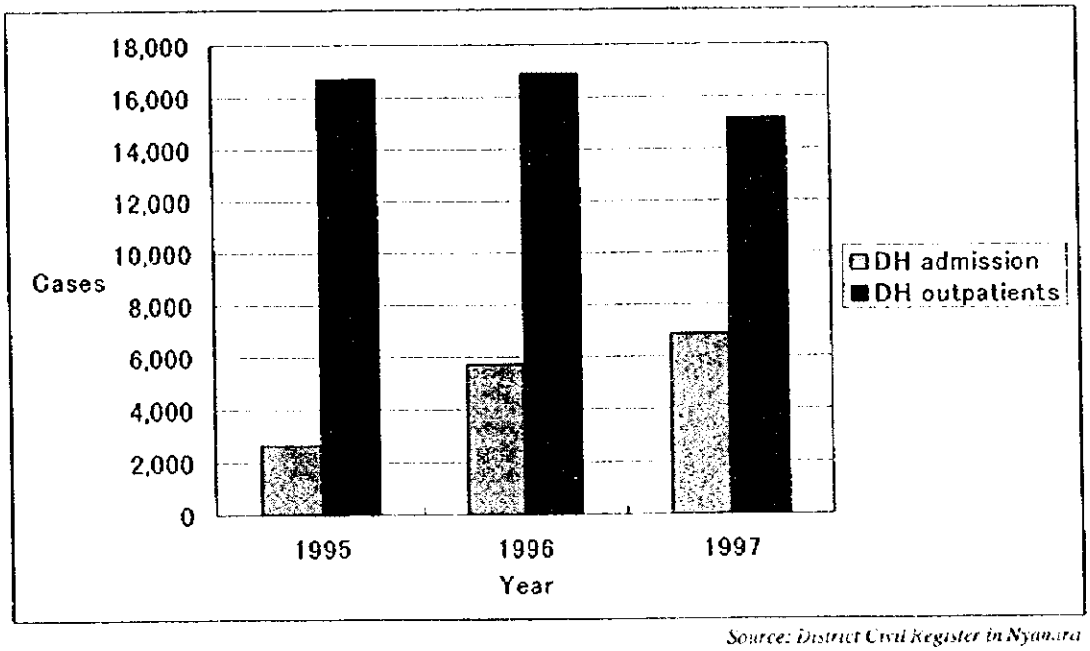
c. Prevalence among Children

The survey among all schoolchildren, with or without fever, between 6-8 years old and pre-schoolers (under the age of 5) in Kisii District revealed two interesting findings. One, the overall positivity rate is 36%. *Plasmodium falciparum* is the most common type (rate of 35.2%), followed by *Plasmodium malariae* (2.6%) and finally by *Plasmodium ovale* (0.6%). Two, children of all age groups can be affected; even children under the age of 1 showed parasites in their blood. Three, it seems there is no or extremely low new malaria infections that should be expected during the winter-dry season because the number of mosquitoes (i.e. *Anopheles gambiae* and *Anopheles funestus*), their parity, longevity, sporozoite rate, and effective bites for transmission are very low. However, a survey done for an entire year is suggested to fully appreciate the life cycle of mosquitoes that run for about 10 generations a year.



Source: District Civil Register in Kisii

Figure 4.1 Malaria Morbidity in Kisii District



Source: District Civil Register in Nyamira

Figure 4.2 Malaria Morbidity in Nyamira District

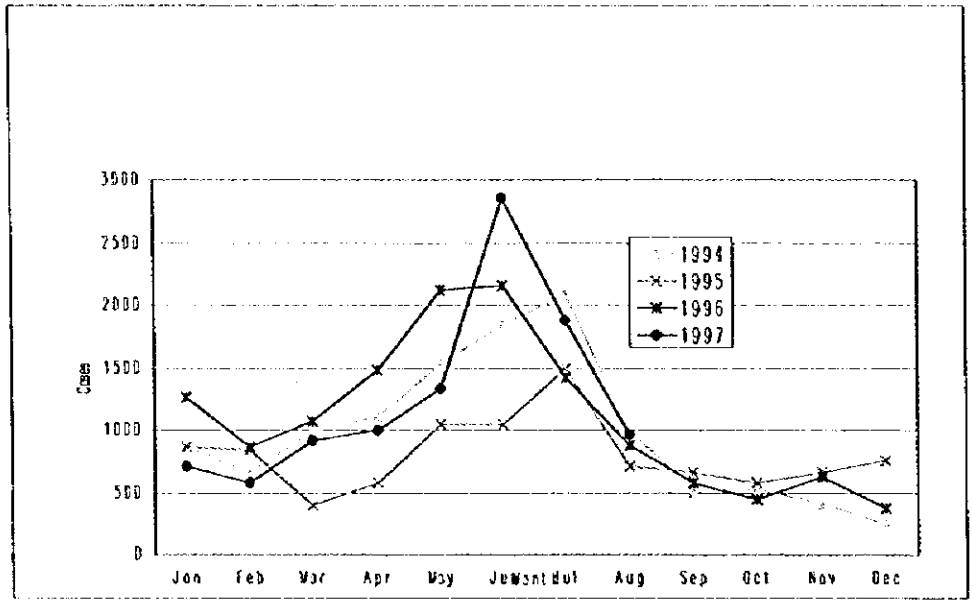


Figure 4.3 Number of Malaria Cases Admitted in Kisii DH

4.2.2 Health-Seeking Behaviour

a. Index of Suspicion

Among malaria patients who were interviewed, only 68% correctly suspected their condition. Half of them experienced headache and fever while about one-third complained of vomiting (Table 4.5). Some schoolchildren, who participated in the previously cited study, may have no fever but would have parasites in their blood.

Table 4.5 Major Symptoms of Malaria Patients

Symptom	Percentage (%)
Headache	52.2
Fever	47.8
Vomiting	35.3
Abdominal pain	16.2
Diarrhoea	15.4
Cough	11.8
Joint pain	9.6
Backache	7.4
Chills	7.4
Malaise	5.9
Chest pain	5.1

Source: JICA Study Team

b. Actions Prior to Visiting Authorised Health Facilities

Before visiting authorised health facilities, about two-thirds of the people in the Study Area, whether sick of malaria or of other illnesses, reported to have self-medicated,

visited private clinics or herbalists, eaten special food, or taken other measures (Table 4.6). Patients who self-medicated preferred buying medicines from ordinary shops to going to licensed pharmacies. Many of them took only antipyretics (e.g. Panadol or Actions).

Table 4.6 Actions Prior to Visiting Authorised Health Facilities

Actions	All Patients (284 cases)	(%)	Malaria Patients (136 cases)	(%)
Medicines	154	54.0	80	58.8
Shops (Kiosk)	66	23.2	28	20.6
Pharmacies	9	3.2	2	1.5
Clinics	48	16.8	27	19.9
Herb/herbalists	30	10.5	13	9.6
Cooling body	23	8.1	8	5.9
Foods	17	6.0	7	5.1
Others	6	2.1	2	1.5
None	94	33.0	48	35.3

Source: JICA Study Team

c. Cost of Actions Prior to Visiting Authorised Health Facilities

Because the costs are highly variable, Table 4.7 shows only the median, instead of the average, for each type of action. It seems people spend the most when they visit herbalists or private clinics.

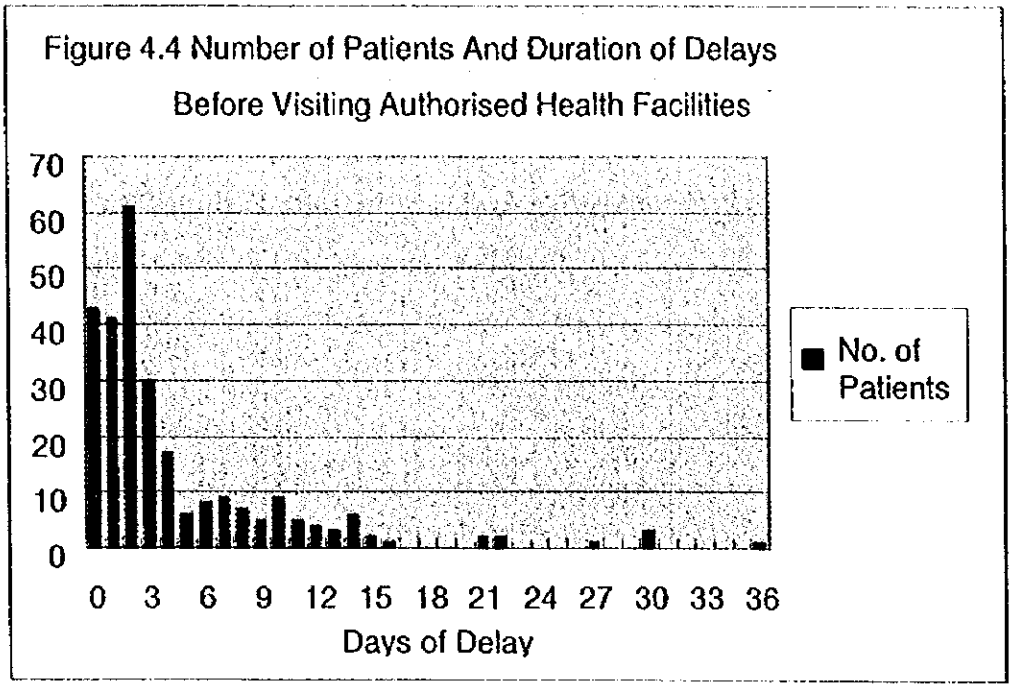
Table 4.7 Total Cost of Actions

Actions Prior to Visiting Authorised Health Facilities	Median (Ksh)
Herbalist	350
Clinic	200
Herb	170
Medicine (pharmacy)	80
Medicine (shops)	75
None	25

Source: JICA Study Team

d. Duration of Delay in Consulting Authorised Health Facilities

Figure 4.4 shows the duration of delay before visiting authorised health facilities. Around two-third of people visited health facilities within 4 days after sickness had emerged. However there were significant numbers of people (around 30%) who visited health facilities with procrastination of more than 4 days. As shown in Table 4.8, there was no big difference in average days of delay between patients who came on foot and by public transportation if we see all patients. However malaria patients using public transportation has longer procrastination than malaria patients came on foot, implying that many malaria patients were reluctant to visit health facilities if they had to use public transportaion.



Source: JICA Study Team

Figure 4.4 Number of Patients and Duration of Delays Before Visiting Authorised Health Facilities

	Number of patients interviewed	Transportation means	Average visiting time (min)	Transportation cost (Ksh)	Days of delay Average	SD
All patients	284	Walking (40%)	61	4	4.3	6.1
		Matatu (60%)	56	80	4.5	6.6
Total malaria patients	139	Walking (25%)	49	3	3.3	3.9
		Matatu (75%)	58	97	4.9	7.2

Source: JICA Study Team

4.2.3 Case Management

a. The Guideline

To understand the actual case management of malaria patients, the Study Team analysed the clinical records of patients in selected health centres from May until the first few weeks of July 1998 (period after malaria outbreak). The golden standard for assessment was the "National Guidelines for Diagnosis, Treatment and Prevention of Malaria for Health Workers" that was approved by the MoH in January 1997. The guidelines stipulated the following:

- Microscopic examination should be made whenever possible.
- In chloroquine-resistant areas, all health facilities should use a combination of Sulpha-component and pyrimethamine (SP), such as Fansidar, as the drugs of

first choice. However if SP is unavailable, other anti-malaria drugs such as chloroquine, amodiaquine (AMO) or quinine may be used. If chloroquine is used, the drugs for second line treatment shall be amodiaquine or oral quinine.

- In areas where malaria is chloroquine-sensitive, chloroquine will continue to be used but the travel history of patients should be checked. The drug for second line treatment shall be SP.
- Children with suspected severe malaria should be assessed clinically and microscopically.

The guideline also declared that 80% of malaria in Nyanza Province were found to be chloroquine-resistant. Considering the contiguity of Nyanza Province and Rift Valley Province, it is presumed that the drug of choice for the Study Area would be SP.

b. Microscopic Examination

Although about 14% of consultations at rural health facilities and 23% at OPD of district hospitals are attributed to malaria, the diagnoses are usually made clinically. The lack of equipment or re-agents is one of the major reasons for not doing microscopic examination. For example, among the 16 priority health centres (see Chapter 19), four do not perform the malaria blood smear, a standard procedure for health centres based on the MoH guideline. When patients are suspected to have complicated malaria, however, laboratory confirmation is requested either from district hospitals or private clinics.

c. Treatment

It seems chloroquine, singly or in combination, persists to be the drug of first choice. It is given as a tablet for mild cases without vomiting; as an injection for cases with vomiting; and together with SP tablet/injection or with quinine injection. SP tablet or injection is only the alternative when the drug of first choice fails.

Unconscious patients and those suspected of having severe/complicated malaria are referred to other facilities.

d. Resistance to SP and AMO

Although the uses of SP and AMO have been limited in the Study Area, resistance has been observed already in the survey done in Kisii from July to August 1998. Table 4.9 depicts that ten per cent of the patients under SP (7 of the total 68 patients) had parasites disappearing within 7 days and re-appearing within 28 days after treatment. The parasitological response to AMO was better; only 3.8% (3 of the total 63 patients) showed two types of resistance: one similar to that of SP; and two cases wherein parasite level did not disappear but only showed reduction.

The difference in clinical responses to SP and AMO was significant only at Day 2 (Table 4.10). During the other days, there was no significant difference in the disappearance of fever between those treated with SP and AMO.

Table 4.9 Drug Resistance Surveys in Kisii, Kenya: Parasitological Response

Drug	n	S	R1	R2	R3
Amodiaquine	79	76 (96.2%)	1 (1.3%)	2 (2.5%)	0
S/P	70	63 (90.0%)	7 (10.0%)	0	0

Source: Operation Research on Malaria by JICA Study Team, 1998

Table 4.10 Drug Resistance Survey in Kisii, Kenya: Clinical Response

	Post-Dose Febrile Rates (%)		
	Amodiaquine (n=63)	S/P (n=68)	P
Day 0	35	32	Not significant
Day 2	0	10	0.008*
Day 7	13	9	Not significant

* *Fisher's exact test.*

Source: Operation Research on Malaria by JICA Study Team, 1998

4.3 OTHER PRIORITIES

4.3.1 Children's Health: The Big Four Threats

Aside from malaria, the four other conditions that threaten the health of children in the Study Area are pneumonia and other acute respiratory infection (ARI), measles, diarrhoea, and malnutrition. These conditions hang like the sword of Damocles. But why? Why do they continue to threaten children's lives when the technologies for controlling them are available and have been used successfully in other communities?

There are at least three major reasons. One, the caretakers of children seem to be helpless. They seem unaware of simple home-based interventions that can protect their children from getting these four conditions. They are not familiar with signs and symptoms that would merit early referral, particularly of ARI and diarrhoea, to authorised health facilities. Some have not been advised on the importance of full course of treatment or vaccination (Table 4.11).

Table 4.11 Immunisation Coverage

	Valid Coverage: Age 12 - 23 months		Valid Coverage <1 Year	
	Card Only (%)	Card+ History (%)	Card Only (%)	Card+ History (%)
BCG	93.2	94.6	90.3	91.7
OPV (birth dose)	26.7	32.6	26.7	32.6
OPV1	68.2	79.4	66.8	77.8
OPV2	60.8	71.5	59.7	70.1
OPV3	55.1	64.8	54.3	63.8
DPT1	68.5	80.6	66.8	78.6
DPT2	61.1	71.4	59.7	69.9
DPT3	55.1	64.5	54.0	63.2
Measles	51.7	60.9	45.0	53.2
Fully immunised	34.1	40.4		

Source: Immunisation Coverage Survey, September 1994, KEPI

Two, the health system is functioning sub-optimally. Some staff are also unfamiliar with the clinical protocol for management of ARI. In fact, only half of the dispensaries surveyed use the guideline for diagnosis (Table 5.4 Supporting Discussion 2). They continue to prescribe medicines (i.e. penicillin as cited in the issue (Wamola, Mirza and Nsnazumuhire, 1981) that may not be effective to the most common pathogen (Haemophilus influenzae) of childhood pneumonia. On the other hand, some staff have been prescribing irrationally through the "shot-gun" approach. Because of limited diagnostic examination capabilities in their facilities, they resort to multiple drug therapy hoping that one of these antibiotics could be the appropriate one. If and when the proper antibiotics are prescribed, however, children with ARI would still be unfortunate because public health facilities often run short of antibiotics (Chapter 10). Gucha, the newly established district, does not have its own drug stock. Health facilities in the district did not receive the monthly drug kits from September to November 1997. Some health staff cited the limited supply of cold chain fuel as an explanation for the low percentage of fully immunised children.

Three, some children in the Study Area are simultaneously suffering from several risk factors such as low birth weight and anaemia. The big four conditions are, by themselves, threats to one another. Malnourished children with measles would be in a more precarious state when complications like pneumonia and diarrhoea set in.

The first two reasons would be discussed more lengthily and comprehensively in subsequent chapters.

4.3.2 Reproductive Health: Maternal Ill-Health and Excess Fertility

a. Maternal Mortality

Table 4.12 indicates Maternal Mortality Rate that the risk of dying due to the process of pregnancy, childbirth and puerperium in Kisii is relatively higher (about 1.5 times more) than the risk for all the districts.

Table 4.12 Maternal Mortality Rate

District	Maternal Mortality Rate (per 100,000 livebirths)	District	Maternal Mortality Rate (per 100,000 livebirths)
Kwale	1270	Bungoma	380
Busia	1040	Embu	320
South Nyanza	830	Kilifi	260
Kitui	830	Nakuru	200
Siaya	730	Taita-Taveta	190
Kisumu	610	Muranga	180
Kisii	520	Uasin Gishu	50
Mombasa	480	Total	360

Source: Kenya Maternal Mortality Baseline Survey Vol. 2, 1994 PSRI/UNICEF Rate from hospital records.

Aside from malaria, there are other causes of maternal deaths (Table 4.13). Ruptured uterus, postpartum haemorrhage and sepsis or septicaemia are indicative of faulty or unsafe techniques. While some were from health centres, many of the mortalities were referrals from the communities where only a few of the birth attendants have been trained.

Moreover, deaths due to antepartum haemorrhage and pregnancy-induced hypertension (e.g. eclampsia) could have been avoided if the traditional birth attendants or staff of rural health facilities have been trained to detect early signs and symptoms and refer promptly.

Table 4.13 Causes of Maternal Mortality

Hospital	No. of Cases	Causes
Kaplong MH	3 cases in 1995	Cerebral malaria (1) Ruptured uterus (1) Eclampsia (1)
	2 cases in 1994	Not specified
Tenwek MH	9 cases in 1996	Postpartum Haemorrhage and malaria (1) Adult Respiratory Distress Syndrome (1) Postpartum sepsis (2) Miliary Tuberculosis Septicaemia (2) Cerebral malaria (2)
Nyamira DH	4 cases in Oct. '96 to Nov. '97	Malaria (2) Sepsis (1) Antepartum Haemorrhage, placenta previa (1)

Source: Annual records at Tenwek MH and Kaplong MH, records from Nyamira DH

Another indicator of poor antenatal services in the Study Area is the high rate of stillbirths. Table 4.14 is most likely an underestimation of the true picture because about half of the deliveries are at home.

Table 4.14 Number of stillbirth

Hospital or District	Year	No. of Cases
Nyamira	1996	123
Bomet	Nov. 1996-Oct. 1997	25
Tenwek MH	1996	113
	1994	111
	1993	117
	1992	88
Kaplong MH	1995	13
	1994	28

Source: District civil register in Nyamira and Bomet, Annual records at Tenwek MH and Kaplong MH

Obstetricians at Kericho and Kaplong Hospitals added other causes of maternal deaths, namely, ectopic pregnancy, anaemia and illegal abortion. The diagnosis of ectopic pregnancy may be difficult as most health facilities do not have pregnancy tests. Anaemia, which is caused by either iron deficiency, malaria or haemorrhage may lead to congestive heart failure. Once more, early detection followed by treatment could veritably save many mothers.

Illegal abortion is often the only alternative for young girls who have not had the opportunity to use contraceptives. Because abortion is prohibited, pregnant young girls have to risk their lives in unhygienic and non-professional techniques.

Contrary the data presented in Tables 4.12 and 4.14 are based on hospital statistics and do not capture the mortality associated with deliveries outside hospitals. It is important to consider the impact of such deliveries at peripheral health facilities and homes. The poverty assessment report[1] points out that in Nyanza and Rift Valley, among the non-poor populations, less than half, 48 and 45% respectively, of the children were born in health facilities. Contrary, District Civil Registrars indicate only 11.7 and 7.6% in Kericho and Nyamira respectively, of deliveries that occur at homes while the JICA Study indicate 24.0 and 52.7% in Kericho and Nyamira respectively. Death registration or population-based information is one of crucial areas to be developed.

b. Excess Fertility and Family Planning

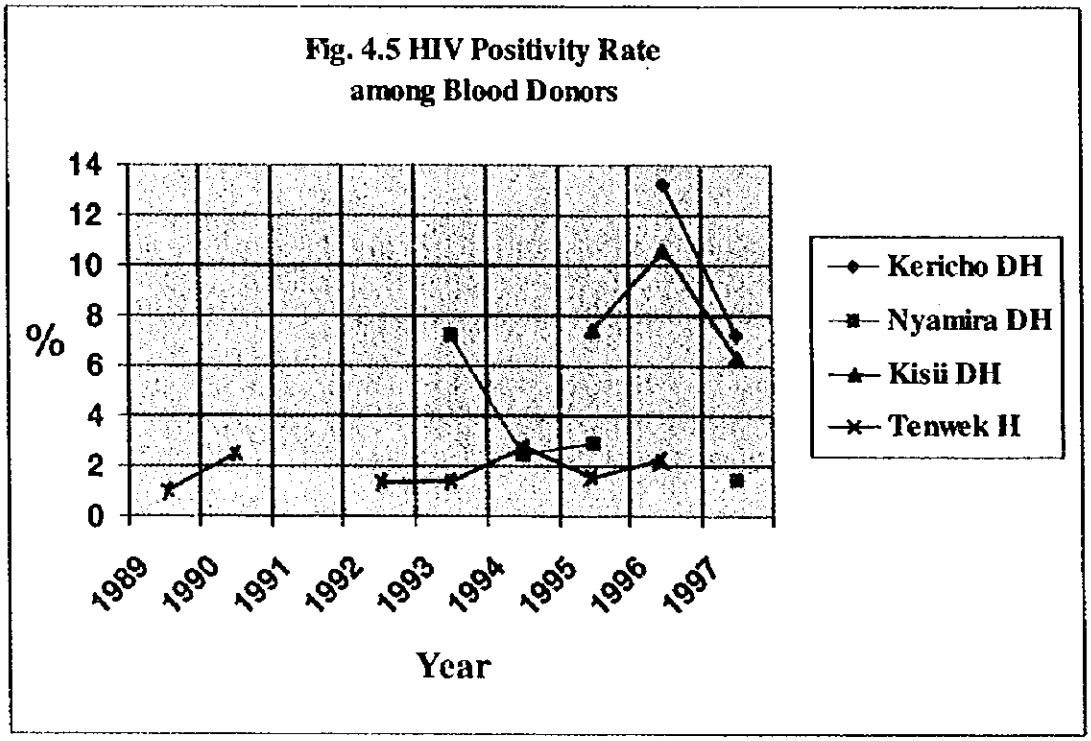
Among women of reproductive age in the Study Area, 13% have yet to hear and know about at least one family planning method (Table 4.15). Of those who know, only 54% are actually practising. The most common method is the injection of Depo-Provera as much as it is done only once every six months and can be done even without the knowledge of the husband. Condom seems not so popular. Neither vasectomy nor natural family planning means were reported.

[1] Ministry of Planning and National Development (1998) First Report on Poverty in Kenya Vol. II Poverty and Social Indicators, Nairobi

Table 4.15 Family Planning Survey: Knowledge and Practice

Knowledge on at least one kind of FP methods (n=158)	Yes: 138 (87%); No: 20 (13%)
Method	Number (%)
Depo-Provera injection	34 (45)
Oral contraceptive pills	17 (23)
Intrauterine device	6 (8)
Condom	5 (7)
Tubal ligation	5 (7)
Not specified	8 (11)
Total	75 (100)

Source: JICA Study Team



Ministry of Planning and National Development (1998) First Report on Poverty in Kenya Vol. II Poverty and Social Indicators, Nairobi

4.3.3 Emerging and Re-emerging Diseases: The Potential Perils

a. HIV/AIDS

HIV/AIDS has been reported as a common cause of death in all districts in the Study Area. Local health authorities, however, claim that the report is an underestimation. Some patients who reportedly succumbed to pneumonia, tuberculosis, diarrhoea, and malnutrition may actually have had AIDS, too.

Because the prevalence among the general population is difficult to estimate, the positivity rate among blood donors was used as an alternative indicator. The study showed that there is a significant number of HIV even among donors, who are often

simply relatives or friends (Fig. 4.5). The high positivity rate in Kericho may reflect the presence of two high-risk groups in the district: people working in bars or servicing the hotels along the highway; and tea pickers, some of whom live in large estates away from their espouses. As for Tenwek Hospital, the low positivity rate can be due to its policy of requiring all patients for surgery and those with tuberculosis to undergo HIV testing.

It is apparent that AIDS affect all age groups (Table 4.16). About 90% of those who died belong to the productive age from 15 to 54 years. Also, five children under the age of five years have already been victimised; however, information about how they got the virus is not available.

Table 4.16 AIDS Death by Age and Sex

Age group	Kericho		Bomet	
	Male	Female	Male	Female
<5	1	1	1	2
5-14	0	1	0	2
15-24	2	7	1	5
25-34	16	5	7	17
35-44	13	8	9	5
45-54	8	0	5	3
>55	1	0	0	0
Total	41	22	23	34

Source: District Civil Registrar

When it comes to the National AIDS/STDs Control Programme, a lot has been prepared at the national level. At the district, AIDS coordinators have been appointed. They have drawn up action plans and initiated some activities. However, they have encountered different types of problems in the implementation. Some people are still uneasy in openly discussing HIV/AIDS. Even in classrooms, AIDS education has not been introduced. Some people would prefer not to know about their conditions because they do not see the benefit of knowing. Instead, they are conscious of the stigma attached to HIV-positive patients. One program that has not been started in the Study Area is the community-based or home-based care for AIDS patients. This strategy has been tested in other communities in Kenya.

b. Tuberculosis

Fig. 4.6 documents the increasing trend in the number of tuberculosis patients seen in all the hospitals surveyed. This could be partly attributed to the successful MoH National Leprosy and Tuberculosis Program that is being assisted by DANIDA. However, some local health authorities believed that some of those cases could have been related to the spread of HIV.

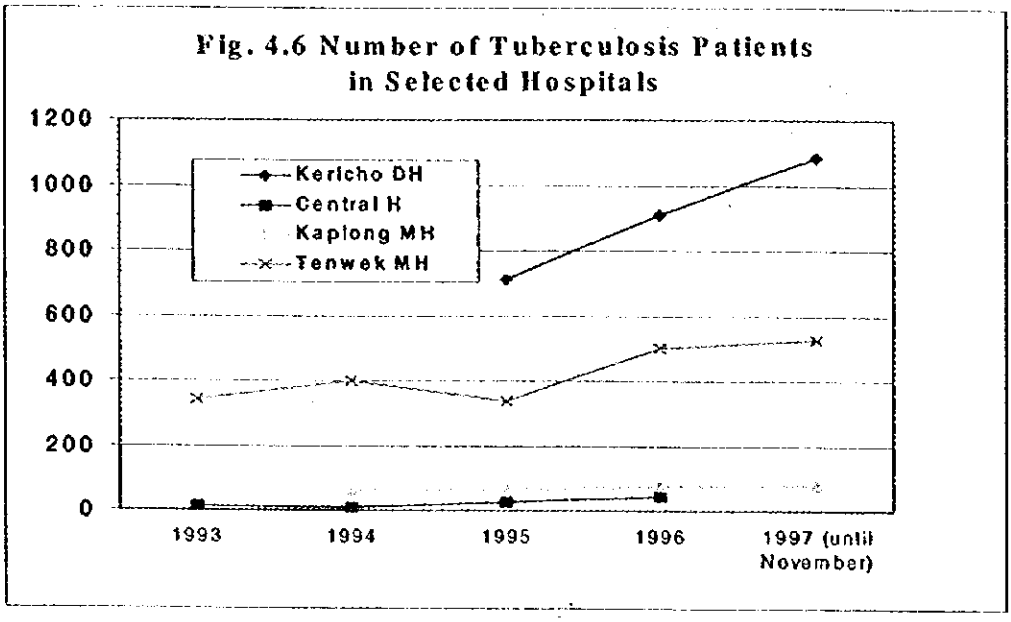


Figure 4.6 Number of Tuberculosis Patients in Selected Hospitals

At the Kericho District Hospital, more than 50% of inpatients with tuberculosis were HIV positive; at the Kaplong Mission Hospital, 70-80%. If HIV continues to spread unabated, would the number of cases with tuberculosis stretch the capacity of the national programme? Would the HIV-TB patients still be sensitive to the multiple-drug therapy? These are some questions for further study.

c. Yellow Fever

Yellow fever is another disease that may cause potential peril as it did in the districts next to Kericho in 1992 and 1993. Since then the Ministry of Health, in collaboration with WHO and KEMRI, established a sentinel surveillance system in the Rift Valley Province that involves 18 health facilities in nine districts. The surveillance system has been expanded to include other sentinel sites. Some health facilities in the Study Area have also been involved. In 1994 and 1995, the system confirmed ten cases, seven of which were from areas not known to have been affected during the 1992-1993 epidemic. The MoH intends to continue the ongoing immunisation of children 6 months and older in the endemic and adjacent districts.

Chapter 5

Organisation, Management and Information System

5. THE DISTRICT HEALTH ORGANISATION: ITS REFORM, STRUCTURE AND SYSTEMS

5.1 INTRODUCTION

As described in the Chapter 3, the Kenya Government's adopted the *Kenya's Health Policy Framework* that outlines the Government's political will and commitment for the future of the health sector in Kenya.

The MoH is now implementing the Health Sector Reform (hereinafter referred to as "the Reform") with quantifiable targets that ensure allocation of resources to cost-effective programmes. It has taking the lead in ensuring that the action plans would bring about the desired improvements in health status of the people in Kenya.

The initial emphasis was focused on the decentralisation, efficient management of available resources and the re-establishment of functional and financially sustainable health care delivery systems in the country.

For these reform initiatives to succeed, the Study focused on the implication of district health organisation, management and information system including the progress of Health Sector Reform in the district setting. The other important components of health system, financing, human resource and logistics would be discussed in chapter 6, chapter 7 and chapter 10 respectively.

5.2 PROGRESS ON POLICY IMPLEMENTATION

After the publication of *Health Sector Reform Policy paper*, its *Implementation and Action Plan* was formalised for operating and monitoring the progress of the Reform. However, the progress of the Reform is behind schedule and in general went no further than discussing the central policy implication.

5.2.1 The Reform at Central Level

The following are the progress related to the Reform.

- The concept of Essential Health Package is under discussion as a national standardised health service.

- Because it is linked to the improvement of service quality, the building of capacities of human resources is given emphasis. Concretely, the Department of Human Resources Development was created under the Director of Health Services.

- In order to strengthen hospital management, Hospital Management Boards (HMBs) are being established for district hospitals.

- Major laws regulating the health sector, including national guidelines such as a National Drug Policy, were reviewed by a taskforce.

- The trial of a new system of releasing budget as a block grant is under deliberation.

5.2.2 Progress on Decentralisation

The Reform put decentralisation as prerequisite element for the future health care delivery system. Up to present, the Provincial Health Management Teams (PHMTs) have been involved in a series of reform processes while the District Health Management Teams (DHMTs) have been less involved in the process. Table 5.1 describes the status of implementation of decentralisation based on expected output mandated in the *Implementation and Action Plans for Reform.*

The implementation of the Policy Framework will be strengthened through the planned Health Sector Strategic Plan for 1999-2004.

Table 5.1 Outputs of Implementation Plan and Progress

Expected Output	Progress
1. Policies, legislation and guidelines developed for decentralisation of management of government health systems	Members of DHMBs were appointed and Guideline for District Health Management Boards was released. Task force was appointed by MoH to review all Acts of the Republic related to decentralisation.
2. Effective decentralised management and financing systems in the health sector established	Discussion on-going
3. Roles and responsibilities of MoH, provinces, districts, and divisions defined and adopted.	Not yet adopted; financial and administrative management remain centralised
4. Provincial level strengthened to permit effective co-ordination of the district.	In the provinces, trained personnel and equipment were provided in order to strengthen the Health Information System. Workshop for Formulating Annual Workplan was held.
5. Roles of the DHMBs extended to permit them to oversee all health sector activities in the districts	No training was done for DHMBs.
6. District Health Management Teams strengthened	Workshop for Preparation of Annual Work Plan was held.
7. Hospital Management Boards established; functions of executive expenditure committees and hospital management teams were combined and consolidated	Established by name, but no guideline.
8. Roles of Rural Health Committees reviewed and strengthened	Not done
9. Quality/Standards of health services (drugs, supplies, equipment, manpower) at health centres and dispensaries improved	Essential Health Package is not yet defined
10. New community and outreach services created and existing ones improved	Not done
11. Decentralised provision of Health Services by NGO strengthened	Not done

Source: Interview with HEROS Member / JICA Study Team

5.3 PRESENT STRUCTURE OF HEALTH ORGANISATION

Figure 5.1 shows the current district health administration and management line among the organisation units. The Provincial Medical Officer (PMO), who chairs the Provincial Health Management Team (PHMT), takes on a supervisory role over District Health Management Teams as well as an advisory one to the District Health Management Boards within the province. The District Development Committee (DDC) oversees development in all sectors for the district. For the health sector, the District Health Management Board (DHMB) and the District Health Management Team (DHMT) are the major management organisational units at the district level. The DHMB is functioning as one of the subcommittees of the DDC. From the district management side, a district hospital is under District Medical Officer (DMO), but the organisational arrangement is still under discussion on the future autonomy of the district hospital and the dissociation of basic health care from other services. At the community level, the Facility Improvement Committees (FIC) that are composed of residents of the catchment area of a health facility support the Facility Management Team or its person in-charge.

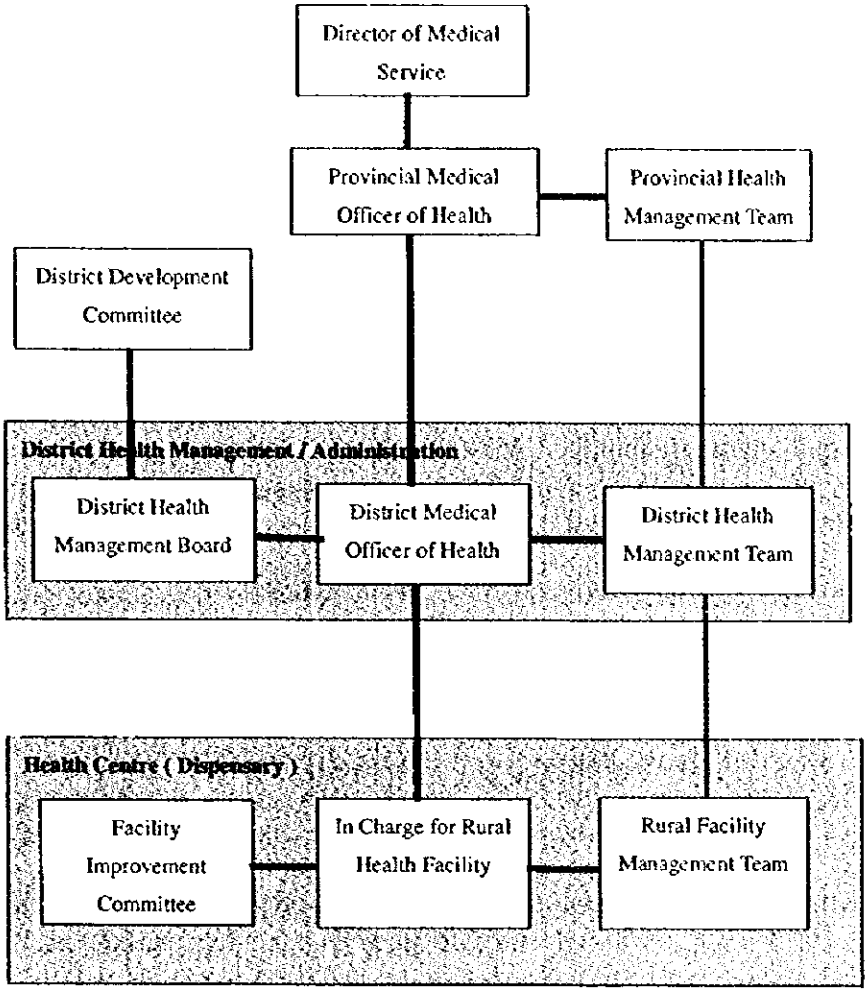


Figure 5.1 Organisational Chart

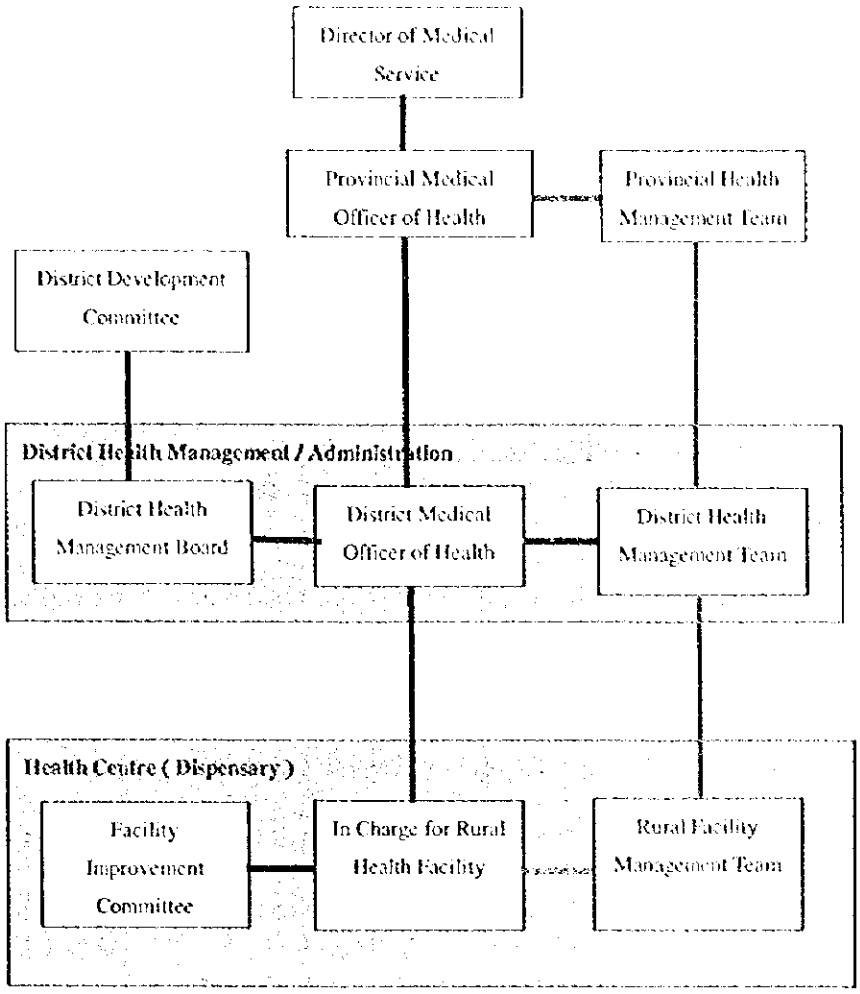


Figure 5.1 Organisational Chart

5.3.1 District Health Management Board (DHMB)

The DHMBs were established in 1991 to oversee all the health activities in the district. One of the main functions of the DHMB is the management of the Facility Improvement Funds. The DMO serves as Secretary to the Board. Other members, who are appointed by the Ministry of Health, have a variety of backgrounds, e.g. private medical practitioners, businesspersons and retired civil officers.

When the DHMT prepares long term plans for health services and development, representatives of the DHMB are required to oversee the plans. In some districts, members of the Board felt their role was well defined while in other districts members felt they were constrained. With the exception of Gucha, the other four districts had well-established DHMB.

The District Health Board is now being considered as executive body for responsibility and authority for administrative, financial and personnel management of Primary Health Care and Rural Health Facilities.

5.3.2 District Health Management Team (DHMT)

DHMTs were established when the District Focus for Rural Development was initiated in 1983. The DMO is the chairman of the DHMT. Other members of the DHMT include the District Public Health Nurse (DPHN), the District Clinical Officer (DCO), the District Public Health Officer (DPHO), the District Health Education Officer (DHEO), the Hospital Secretary, the Medical Superintendent, the Matron, the District Nutritionist, and the District Health Information Officer (DHIO).

The main task of the DHMT is to plan, co-ordinate, and implement health activities in the district. The DHMT is also responsible for monitoring the use of 75% of the Facility Improvement Funds collected from eligible facility and for planning the use of 25% of these funds allocated for Primary Health Care.

All health facilities are supposed to send monthly reports of their activities to the district where the District Information Officer, who is a member of the DHMT, is supposed to prepare monthly, quarterly and annual reports. The responsibility of health facilities is to prepare their annual budget for assessment by DHMT. The DHMB approve the planned budget.

Physically most of district administration office of DHMT is separated from each other and some of them are located in the district hospital.

5.3.3 Hospital Management and Administration

The hospital superintendent, who works as a medical doctor, is the chairperson of Hospital Management Team (HMT). Due to the shortage of medical doctors, DMOs

of Bomet and Nyamira also hold superintendent's post. The HMT consists of a matron, a hospital administration officer, and senior officers from each department. The Hospital Management Board is now being considered as the executive body for hospital management as well as Hospital Administrator who will be responsible for daily operation of the hospital.

5.3.4 Management and Administration at Rural Health Facilities

Health Centres

In government facilities, a clinical officer is in charge of a health centre and an enrolled community nurse (ECN) acts as his deputy. Most of the personnel at a health centre are ECNs while registered nurses are deployed in only a few health centres. GOK health centres in general have public health technicians and other preventive and promotive personnel, including family health field educators and nutrition assistants.

The Health Centre Management Team, consisting of an officer-in-charge and a few senior staff, is the group responsible for administration and daily management of the facility.

Dispensaries

Dispensaries are staffed with ECNs and subordinate staff. Public health technicians and the preventive/promotive personnel are assigned in 70-80 per cent of the dispensaries. While the ECNs take overall responsibility of the facility, there are some dispensaries where subordinate staff operate the facility.

5.3.5 Facility Improvement Committees (FIC)

The term "Facility Improvement Committees (FIC)" refers to a group of local people who is responsible for the rural health facility in a community. The officer-in-charge of the health facility usually serves as the secretary of the FIC. The FIC meets regularly to discus issues pertaining to the facility in general.

Since the introduction of official cost sharing in 1989, the awareness of the need to mobilise resources for essential health services has been increasing. All these led to the establishmnt of FICs that would solicit FIF at health centres and dispensaries.

5.4 MANAGERIAL TOOLS AND SUPPORT FACILITIES

5.4.1 Organisational Chart and Job description

There was no organisational chart or reporting protocol that guide the DHMTs and all the rural health facilities that were visited. While some facilities prepare a few tools for scheduling, like a rotation table for those on night shift, job description and manuals are not available for regulating work ethics and maintaining organisational discipline.

5.4.2 Meetings

Of the 33 health facilities visited in the five districts, only 6 held staff meetings on a monthly basis, 8 had no meetings yet, and 9 held only one meeting during the fiscal year. Bomet DHMT is the only one among the DHMTs that hold regular meetings. In addition, agenda are hardly circulated before meetings.

The two common subjects for discussion during meetings were transport and personnel. Recent issues discussed by the DHMBs in the Study Area included FIF expenditures, quality of health services, problems related to the district hospital and PHC activities.

5.4.3 Planning

Because of their attendance at a workshop organised by the HEROS group, Kisii and Bomet DHMT members had prepared a District Annual Workplan for 1997/8. Nyamira and Kericho have not prepared any plans. There are only a few annual plans available at health centres or dispensaries.

It was noted that the districts did not have a plan for continuing education. Training needs of the districts have not been assessed for a long time. Staff may be nominated to attend training/workshops/seminars from the MoH headquarters or from the province. In the facilities studied, only 25 per cent of the professional staff in the rural health facilities had attended any form of training during the past two years.

5.4.4 Recording and Quality Control

Hospitals and RHFs produce a lot of data and information through various types of forms and record books. However, there is no single facility that has all necessary forms due to the chronic shortage of the printed forms. This phenomenon is also true with other important managerial and monitoring tools. It seemed that the wall charts for managing ARI, diarrhoea and sexually transmitted infection have never been linked to their daily work.

5.4.5 Communication and Transportation

Aside from the vertical programmes and their logistics support from the central, the transportation and the communication measures are essential in providing support, supervision, and development of RHF as well as community-based activities. However, they are hardly available in public health facilities/system. The means of communication between DMOH and RHF often depends on personal visits. Supervisors who intend to visit a RHF are obliged to wait for a chance to have a seat in vehicles used for the delivery of drugs.

A blind test on the communication channel between DMOH and RHFs was conducted to assess the time required to deliver a questionnaire from the DMOH to RHF, and to return it to the DMOH. The results (Table 5.2) showed varying duration depending on availability of a person who would convey the message and public transportation ("matatu") to and from RHF. According to the test, only 25 (32%) of the 83 questionnaires were returned within 30 days.

Table 5.2 Tests on Communication Channel

	Average Days from "Request" to Action of the Delivery	Average Days from Date of Delivery to Return	Total Days from "Request" to Return
Kericho	2	23	25
Bomet	3	13	16
Kisii	5	12	17
Nyamira	17	9	26
Gucha	6	8	14

Source: JICA Study Team

Note: The request for filling a questionnaire was made through DMOH with ordinary instruction to Rural Health Facilities that are randomly selected. The method of delivery and completion days were also assessed.

5.5 HEALTH AND MANAGEMENT INFORMATION SYSTEM

5.5.1 Function at the Provincial Level

Along with the Reform, the PMOHs have set up statistical units with a computer set in their office in order to compile, process and use health and management information, which will be necessary to supervise and support the districts' plan. They also have developed a checklist for supervising district activities.

5.5.2 Function at the District Level

The district has medical record officers and health information personnel who are responsible for the collection, compilation, submission, and storage of the data from both governmental and non-governmental health facilities. Their office is usually located within the premises of the district hospital. They manage the data of the hospital as well as that of the district as a whole. The original forms of the data collected in the district are submitted to the headquarters in Nairobi.

5.5.3 Function of RHF

Health facilities are the primary place for data production, collection and reporting. The data collected are also supposedly used at the facilities for planning, monitoring, and evaluating the health activities.

5.5.4 Reporting Rate and Low Validity

The reporting rate of health-related data is generally low. It is observed that the districts have never received a complete set of data from all the health facilities for any one year. The Table 5.2 shows the average reporting rates of outpatient morbidity, which should be submitted monthly to the District Medical Record Officer. In case of Nyamira, only 7.5% of outpatient morbidity report were submitted to the district over the year. Regarding the reporting rate from P-H/C (Priority Health Centre: refer to Chapter 19) to the districts, the situation is better than that of district average. Most P-H/Cs report regularly but one third of the P-H/Cs respond below 50% of reporting rate. As a result, few of the data collected are utilised for planning and management at district level or at health facilities.

Table 5.2 Reporting rate of outpatient morbidity at the districts

	Kericho	Bomet	Nyamira	Kisii	Gucha
Number of Health Facilities	126	53	70	44	34
Number of Expected Reports in Year (No. facility x 12 months)	1512	636	840	528	408
Number of Actual Reports sent to District in the study year	336	308	63	199	178
Reporting Rate	22.2%	48.4%	7.5%	37.7%	43.6%
Inspection period	1995.1 - 1995.12	1997.1 - 1997.12	1997.7 - 1998.6	1997.1 - 1997.12	1997.7 - 1998.6

Source: District Medical Record Office / JICA Study Team

Even though reporting forms are filled, it is found that there are many errors and discrepancies in the filled forms. For example, one rural health facility reported more than 300 cases of accidents out of 600 total cases. Some facilities claimed that they dealt with 3-5 types of diseases in a single person.

5.5.5 Production of Data and Information

Through direct observation at several health centres, only one tenth of mothers brought the "Child Health Card". Despite the important information on child health for both health providers and mothers, the information in the cards have never been used for planning and monitoring.

In fact, many RHFs produce a lot of data and records. "Permanent Registration Book of Childbirth" is another example of a record that could be very useful for monitoring immunisation coverage and dropout trends if it is properly utilised.

Beside the "Child Health Card" and the "Permanent Registration Book of Childbirth", there are many types of forms and books for recording. However, there is no single facility that has all kinds of the forms. The printed forms are always lacking.

5.6 CONSTRAINTS AND PLANNING VISION

5.6.1 National Level

Constraints

- While the decentralisation of management to the district level has been part of MoH policy for more than a decade, few concrete measures have been introduced such as the creation of DHMBs and the transfer of control over cost-sharing revenue to local authorities.

- The strong central control over key resources combined with the lack of effective information and management systems is a major constraint to the rapid implementation of reforms.

Planning Directions

- Effective planning and management can be realised when the powers and authorities are transferred to district authorities. Otherwise, programme formulation will continue to depend heavily on an external decision-maker and source of resources.

5.6.2 District Level

Constraints

- In most districts, the vehicles are more than ten years old that require expensive maintenance. Budget allocations from the MoH headquarters are rarely adequate to maintain these old vehicles which run on poorly maintained

roads. For example, in Bomet District, one facility has an ambulance with no funds for fuel while another one has more than sufficient budget for its limited number of vehicles.

- In general, the DHMTs in the Study Area have not established meeting schedules. They do not circulate agenda for meetings. The Bomet DHMT is the only one that holds monthly meetings.

- Few health centres and dispensaries hold regular staff meetings. In dispensaries, where the ECN is the only professional staff, the need for formal meetings often does not arise.

- The HFC meetings are held to address specific problems. In some dispensaries, like Ibacho and Ramasha, the HFC chairperson, secretary or treasurer participate in the day-to-day running of the facility and contribute to making decisions.

Planning Directions

- Strengthening of technical capacity of the District Health Management Team in planning, management and resource mobilisation

- Development of manuals on district planning, monitoring, evaluation, and resource mobilisation

- Seminars for DHMT/DHMB members and facility managers on the modalities of conducting short, productive, and constructive meetings

- Strengthening the capacity to provide continuing education in management for DHMT staff, hospital administrators and related personnel

5.6.3 Planning at District and Local Levels

Constraints

- The information (e.g. up-to-date data on personnel and catchment areas) that are needed to produce district and facility workplans is often neither available nor easily accessible.

- While the HEROS group had produced a framework for district plans, few members of the DHMT and DHMB have the knowledge and skills to develop this document.

- The only districts that have district annual plans are Bomet and Gucha. Most district plans produced during the past decade only dealt with capital investments in facilities, vehicles and equipment. They are not based on

epidemiological data of the district. They do not include targets for services or other indicators.

- Vertical programmes have district action plans with estimated targets and implementation modules. However, all of the districts have no written plans for these programmes. While the MoH has on several occasions developed staffing norms for various categories of health facilities, neither these nor other guidelines are used in personnel planning. At the dispensaries and health centres, the officers-in-charge do not prepare workplans and do not have targets for their curative or public health activities.

- The emphasis on district continuing education activities during the past 15 years has been on the operation of vertical and donor-funded programmes such as FP, STD management and KEPI.

Planning Directions

- Introduction of appropriate local planning and management method that are adapted to local setting at selected facilities

- Strengthening of capacities of priority health centres in planning, management of information, and in conduct of training

- Support for training courses related to the new HEROS planning framework.

- Enhancement of participation of CHWs, TBAs, and CBDs to improve the link between the community and health facilities

- Expansion of intersectoral collaboration with other departments so that the District Education officers would participate in the planning and dissemination of health-related information in schools

- Participation of mission, NGO and private providers in the district planning process

- Provision of and training in the use of equipment (e.g. computers and calculators) that would assist the DHMTs in the planning process

- Support for the production of accurate district and facility catchment area maps with data on the location of villages and transportation routes

5.6.4 Supervision and Monitoring

Constraints

- The monitoring and supervision of the organisation, delivery, and quality of health services in the district and at the facilities are not in place. Supervisory

visits to health facilities are infrequent and not performed systematically even if some guidelines or data collection instruments are available.

- While DHMBs are responsible for overseeing district health activities, supervision and monitoring by DHMTs are hardly implemented as required. During visits, neither a checklist is used for assessment nor a record is produced.

- Management tools (e.g. area map) and information about catchment area and women of childbearing age were not available at facilities. There is little quality assurance mechanism within the facilities. A third party has never assessed the quality of services.

- Furthermore, difficulties with integrating vertical programmes into a comprehensive district implementation plan persist.

Planning Direction

- Integration and further decentralisation to lower levels of responsibilities related to provision of support, supervision and monitoring

- Establishment of a network for cross-supervision and monitoring among RHFs

- Institutionalisation of a process for quality assurance and development of a framework for supervision and monitoring

- Coordination of monitoring activities done by different ministries on common health and health-related programmes such as Family Planning, AIDS control and TB

5.6.5 Health Information and Management System

Constraints

- All personnel interviewed at the districts and RHF referred to an absence of feedback from the headquarters and districts as a major issue. It obviously reduces incentives of district and health facility level to collect and compile data timely and accurately.

- Although Health Information System Unit at the MoH headquarters publishes annual reports, some of the health facilities in the Study Area have not received even these annual reports.

- The reporting rate of health and management data/information is generally low. It is observed that the districts have never received a complete set of health information and workload from any health facility for any fiscal year.

- The situations described above contribute to the under-utilisation of the data for the improvement of health services and status. Although the data collected are compiled at district offices and headquarters, few are utilised for planning and management at the district and RHF levels.

- Although they have the minimum qualification of a two-year training at the Medical Training College, district medical record officers and statistical officers normally do not benefit from an in-service training. The lack of staff trained at statistical analysis contribute to low data validity.

- Some cases show inappropriateness of reporting forms as well as heavy burden of workload on health staff and justifies the revision of reporting forms.

- Except for salaries, budget for recurrent expenditure of the district medical records officer is not allocated.

- The lack of integration among a number of database systems reduces the efficiency of data utilisation.

Planning Direction

- Increase the utilisation of the information system as a tool for planning, decision-making, implementing, monitoring, and evaluating health activities;

- Enhancement of health personnel's understanding of the importance of data collection and analysis as well as their capacity in collecting, processing, analysing and utilising health data. Increase of reporting rate between RHFs and the Districts is a priority objective.

- Based on the analysis of the needs for health data and the revised reporting forms, integrated database system should be developed to enhance efficiency and effectiveness of data analysis by using database software such as Microsoft Access.

- District health and management information system is intended to utilise and manage the data based on an integrated database system, which enables those concerned to retrieve and combine the data from different data sets and to analyse the conditions regarding health status and health service effectively.

- The focus of aforementioned interventions has been on improving the system for health information at various levels of the MoH hierarchy. In the future, health officials at the districts and RHF could take more responsibility for the management of their own health data.