APPENDIX 3

合意議事録

JAPAN/KENYA CO-OPERATION

AGREED MINUTES OF DISCUSSION

In response to a request by the Republic of Kenya for the Kajiado/Narok ground water development project the Government of Japan sent through the Japan International cooperation Agency (JICA) a team headed by Mr. Kiyoshi Kato, Director, Grant-aid Department, JICA to Kenya to conduct a basic design study for 9 days from December, 7 to 15, 1981.

The team had a series of discussions and exchanged views with leading officials from the Ministries of Water Development and Livestock Development.

As a result of the study and discussions, both parties agreed that the principal concepts that have been agreed upon, shall form the basis of the report made to the Governments of Kenya and Japan. The major items are prescribed herein and in the annex.

NAIROBI, 15th December, 1981

Mr. Kiyoshi Kato,
Leader,
Japanese Basic Design Study Team

Mr. A.N. Ndiho,
for: PERMANENT SECRETARY
Ministry of Water Development
KENYA

ANNEXE

I. Project sites identified by the Government of Kenya for future development. Geophysical investigations are to be undertaken on the first five sites of the Group Ranch category in both Districts.

II. Inception Report as finally agreed by the Ministry and the Basic Design Study Team.

III. Equipment list in their order of priority as agreed by the Basic Design Study Team and the Ministry.

IV. Kenya Government obligations.

V. List of Participants in the Meetings.

VI Other Kenyan request.

ANNEXE I

The following project sites have been selected by the District Development Committee and submitted to the Ministry for the RWS Programme Phase V.

Narok District

1. Nairage Nkare
2. Ololounga
3. Ewaso Ngiro
4. Narosura
5. Olmasutie
6. Emarti
7. Enabelbel
8. Enengetia
9. Mosiro
10. Olopironit

Kajiado District

1. Kajiado Town
2. Nol Turesh
3. Kibiko
4. Kisamis
5. Elangat Nkorai
6. Oloorera
7. Eukorika
8. Kiseria Nkorai
9. Mparasha Pipeline

Apart from the sites for RWS Programme Phase V, there are 47 schemes listed under the Group Ranch Water Supply Programme for future implementation. These are as follows:-

Kajiado

1. Ewaso Onkidongi
2. Loodoariak
3. Kilonito
4. Oldonyio-Onyokie
5. Shombole
6. Endoinyio Narok
7. Olkeri
8. Torosei

9. Meto
10. Lorngosua
11. Ilpartimar
12. Oldonyio-Orok
13. Mailua
14. Enkaroni
15. Nkoile
16. Esokota
17. Sajiloni
18. Enkorika
19. Lolgirra
20. Olkulului
21. Osilalei
22. Emotoroki
23. Lolarash-West
24. Lolarash-North
25. Lolarash-South
26. Mbirikani
27. Kuku
28. Individual Ranches - Ilbissil Area 2B/H
29. Individual Ranches Kaputiel Plains 3B/H
30. Individual Ranches Kajiado Area 2B/H

Narok

1. Ewaso Nyiro
2. Oldonyo Rasha
3. Olenkuluo
4. Maji Moto
5. Narosura
6. Ololulunga
7. Nkorkorri - Lemek
8. Moyoi Transmara
9. Oloirien-Transmara
10. Entasekera
11. Olmetie
12. Morijo Loita
13. Naikarra
14. Leshota
15. Noorpopong-Suswa
16. Olkinyei
17. Koiyaki

ANNEXE I

The Ministry of Water Development
Republic of Kenya

INCEPTION REPORT

FOR

BASIC DESIGN STUDY

ON

KAJIADO-NAROK GROUNDWATER DEVELOPMENT

November, 1981

JAPAN INTERNATIONAL COOPERATION AGENCY

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APPENDIX I List of Plant and Machinery for D.C.U.

APPENDIX II List of Equipment and Material requested.

1. INTRODUCTION

A request was made by the Government of the Republic of Kenya to the Government of Japan for international cooperation of the captioned project on the grant basis. Upon the receipt of the request a contact mission was sent to the Government of Kenya in September, 1981.

Objectives of the contact mission were to study the background of the project and to identify the concept of the project for further justification of the execution of the requested international cooperation. For this purpose, a preliminary study and discussions were made by the mission and the Government officials concerned.

As a result, it was found that about 20 sites were applied to the Ministry for implementation of the rural water supply scheme by the District Development Committee in the project area under the Rural Water Supplies Programme Phase V and also about 30 schemes are under planning in the Ranch Development Programme.

Based on the conclusions derived by the contact mission, the Government of Japan determined to undertake the basic design study. For this purpose a basic design study team is dispatched to the Kenyan Government by the Japan International Cooperation Agency.

The objectives of the basic design study are to draw a clear picture of the project in the context of its justification and to identify the contents of necessary international cooperation. It is also an important subject of the basic design study to make necessary arrangements for the operation and maintenance of the equipment to be provided through international cooperation for their maximum contribution to the project. Finally the assessment of the effectiveness of the international cooperation to the project is an important aspect of the basic design study.

Purpose of this inception report is to summarize objectives and scope of the basic design study and necessary cooperation to be extended to the study team for the successful result of the study.

2. BACKGROUND OF THE PROJECT

A greater part of Kenya is occupied by dry areas which are receiving an annual precipitation of less than 600 mm/year. Accordingly, the water development aiming at an efficient water use and its equitable distribution is one of the most important policies in her development programme. For this purpose a total sum of 6,400 million shillings is appropriated for various kinds of water developments in the five year development plan during 1979 and 1983.

Previously, in the development plan 1974-1978 the basic development goal of the water sector was described as "Bringing to the entire population the benefits of a safe water supply to the requirements for domestic and livestock consumption." It has been the stated intention of the Government to achieve this by the year 2000.

However, at present the population which is receiving clean and safe water supply is 2,700,000 in urban areas and 1,480,000 in rural areas which is equivalent to only 28% of the total population, 14,900,000.

Development activities in the water sector can be classified according to whether they are primarily concerned with the water supply needs of rural dwellers or primarily aimed at expanding water supplies in urban places. Within these broad classes, and taking account into the resources constraint, programme targets have been set for the 1979-1983 plan period. These are :-

i) To expand the coverage of improved water supplies to include more people residing in the rural areas thereby increasing the total rural population served to over 4 million people by 1983.

ii) To increase the number of people served by an improved water supply in urban places by 1,360,000 so that the total urban population served will be approximately 3,945,000 people by 1983.

iii) To achieve a better balance between the sewerage systems and water supplies in some of the larger urban places.

iv) To complete Stage I of the National Master Water Plan concerned with data collection, and then to move into Stage II concerned with the master plan for national use of water resources over the next years or so.

v) To increase substantially the effort applied to water conservation over the plan period in recognition of the increasing importance of conserving as much as possible of the nation's water resources and related it to the soil conservation programme.

vi) To expand activities in the areas of flood protection and drainage of swamps and valley floors as part of the effort to increase the quantity of agriculturally productive land in the country.

vii) To expand the use of water for minor irrigation activity throughout the country.

viii) To upgrade substantially the role of the private sector water development activity and to integrated this effort completely with planned public sector activities and self-help activities.

In order to achieve above targets, much efforts have been made through the phased Rural Water Supplies Programme since 1970. At present a part of the rural water supply schemes under Phase III and Phase IV are under construction and preparatory work has been commenced for Phase V.

At the same time, development of arid and semi-arid regions in the country is also another emphasis in the national development programme. For this purpose various measures have been applied to upgrade econony and living standard in such dry areas.

For this purpose, another water supply schemes are provided in the semi-arid and arid areas under the Ranch Development Programme. This is a special water supply programme for livestock development in the North Eastern Province, Narok-Kajiado Province and Taita Province partly sponsored by the World Bank since 1976.

3. THE BASIC DESIGN STUDY

3.1 The Project Area

Under the circumstances, the Kajiado-Narok are is selected for the project area. The Kajiado-Narok area lies approximately between latitudes $0^{o}35'S$ and $3^{o}15^{o}S$ and longitudes $34^{o}30'E$ and $37^{o}55E'$ covers some 28,000 km^{2}.

To the West, Narok District is bordered by South Nyanza and Kisii Districts; to the North-West by Kericho District; to the North by Nakuru District. To the East of Narok District is Kajiado District which is bordered to the North by Nakuru, Kiambu and Nairobi District; to the East by Machakos District and to the South by Tanzania Republic.

Although the area has seven permanent and seasonal rivers flowing westwards and southwards, groundwater is the major source of water due to the vast aridness and the diverse topography. The area has littlerainfall of between 400-500 mm/year which contribute to the aridness and prolonged droughts.

The Mau Narok, Loita and Chyulu Hills form recharge and catchments to a small portion of the whole area.

Geologically, the area is underlaid by both metamorphic and volcanic rock formations. Generally, the metamorphic rocks give very little yields and poor quality of water while the volcanics have high and good quality waters.

The project area has a population of about 350,000, some settled here and there near the hills along the riverbeds. Others lead a nomadic life dictated by availability of water and seasonal grazing. population of 750,000 is projected for the year 2000. There are over 200,000 heads of cattle, goats and sheep. Only less than 10% of the total population has access to clean water.

The economic activities in the area include traditional livestock keeping, as the major pre-occupation,subistence framing and tourism. The latter thrives on wild game viewing by toursiss.

On the whole, the project area has big potential for livestock and agricultural development provided that good water is made available. similarly, the living conditions of local people will be improved and more social facilities provied. There is therefore very big demand for a lot of good clean water to be made avilable.

3.2 THE PROJECT.

In order to provide clean and adequate water for both of people and livestock in the area. The project implementation is organized in the following stages.

(1) Water Resources Assessment.

The initial stage of the project is to assess the type and magnitude of water resources available in the project area.

The responsibility for water exploration and assessment rests directly with the Water Resources Department.

Since the project area is occupied by semi-arid areas to a great extent the ground water could be the only avaialble water source in many places. However, the surfaces water is also available in certain areas around isolated hills. Considering the price of water the first priority is placed on the surface water development where ver sufficient and reliable water sources are available.

(2) Water Source Planning

Based on the results derived from water resources a assessment, The most rational type of water source has to be planned in each locality of the scheme. Economy of the water is one of the most important aspect in the selection on the water source.

In a semi-arid area a deep well could be the only water source. However, considerational are given to shallow wells with hand pumps where a shallow aquifer is available which has advantages in both of capital investment and operation/maintenance cosy.

The other type is small to medium scale earth dams for conservation of surface water. For this purpose the existiong Dam Construction Unit have been achieving considerable performance on the other provinces with the similar geographical conditions. DUC is consisted of earth moving heavy machinery and supporting equipment. At present, 5 Dcus are under operation in various areas in dry regions of the country.

(3) Project Implementation

At this stage of the project, necessary project, necessary procedure are underteken for the implementation of the each identified scheme which requires ample volume of work for designing and material for construction.

There are two major national programmes in relation to the project, the one is Rural Water Supplies Programme and the other is Ranch Water Development. The Rural Water Supplies Programme is the most important national water supply programme and commenced in 1970. The phase I of the programme completed 72 rural water supply schemes. The pase II has completed 29 schemes with sh.56.7 million in 1972. In the phase III and phese IV. 70 schemes and 65 schemes were plannes respectively and are undergoing at present. Recently preparatory work for phase V has been commenced. Many numbers of water supply schemes are planned for the project areas u nder this progamme. The Ranch Water Supply is a rural water supply progamme aiming at the up-grading the living standard of the local people and watering livestock especially in arid and semi-arid regions in the nation. This programme has been operated since 1976 and at present various kinds of schemes are under construction in the other dry erea Kajiado/Narok is also a part of project area of this programme.

Under the circumstances the importance of the project can not be ver emphasized. Each department in the Ministry of Water Department has been making a great effort to achieve the set targets of the national water develnpmebt programme. However, However, the lack of manpower equipment and also insufficient fund for the project implementation are the setback to the project to be solved.

3.5 Objectives of The Basic Design Study

Objectives of the Basic Design Study are summarized as shown below :-

(1) To study the present state and the future projection of Rural Water Supply;

(2) To identify the relative situation of the existing and the future projection of the present state of rural water supplies in the project area in comparison with the national condition;

(3) To determine the implementation schedule of Rural Water Supply in the project area;

(4) To identify the necessary items and types of machinery, equipment and material to be provided by this international cooperation;

(5) To estimate the cost of the above necessary items;

(6) To study the most efficient method of operation and maintenance of the machinery and equipment to be provided by this international cooperation;

(7) To determine the most effective method of the required training of the local staff;

(8) To train the local staff on hydrogeological investigation including resistivity survey and

(9) To assess the extent of the effectiveness of the international cooperation to the project.

4. SCOPE OF STUDY

4.1 General Background of Rural Water Supply in Kenya

The contents of the study is summarized as shown below.

(1) Study on the basic policy and its background of the Rural Water Supply in Kenya.

(2) Present state and future projection of Rural Water Supply.

a) Present state of supply and demand

b) Future projection of supply and demand

(3) Type of Rural Water Supply

a) Type of water source

b) Type of water supply facilities

(4) Design criteria and standard design

(5) Cost of Rural Water Supply

a) Material cost and transportation

b) Plant and hire cost

c) Wages

(6) Standardized cost of Rural Water Supply per capita

(7) Financial aspect of Rural Water Supply

(8) Method and system of operation/maintenance including revenue

4.2 Project Preparation

(1) Present state of Rural Water Supply in the project area

a) Present state of supply and demand

b) Future projection of Rural Water Supply

c) Type of available water sources

(2) Determination of project priority and its implementation schedule

(3) Project Site

a) Description of the project sites
b) Hydrogeological condition
c) Supply and demand
d) Basic Design
e) Cost Estimate
f) Cost estimate of the future implementation of the project

4.3 Method and system of the project implementation

a) Institutions and organizations related to the project implementation
b) Financial background of the project
c) Method of operation and maintenance of the items to be provided by this international cooperation
d) Scope of the international cooperation and responsibility of the Kenyan Government for the project

4.4. Identification of necessary international cooperation for the project

a) Determination of the specification for the required machinery equipment and material
b) Determination of the quantity for the required machinery, equipment and material
c) Cost estimate of the necessary machinery, equipment and material
d) Determination of the method and cost estimate of the necessary training of the local staff

4.5 Assessment of the effect of this international cooperation on the project

4.6 Training of the local staff for hydrogeological fiedl investigation and its analysis including resistivity survey

4.7 Recommendations

The flow chart of the scope of study is summarized as shown in Fig. 1.

Fig Ia Flowchart

General Background of Rural Water Supply

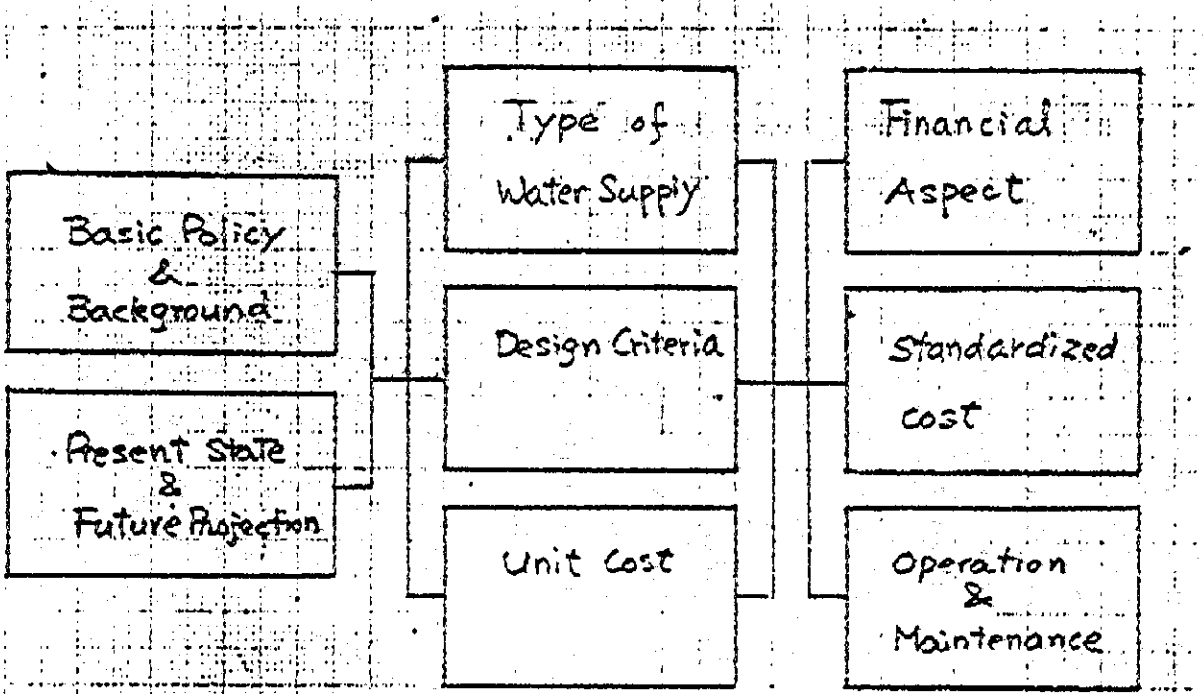
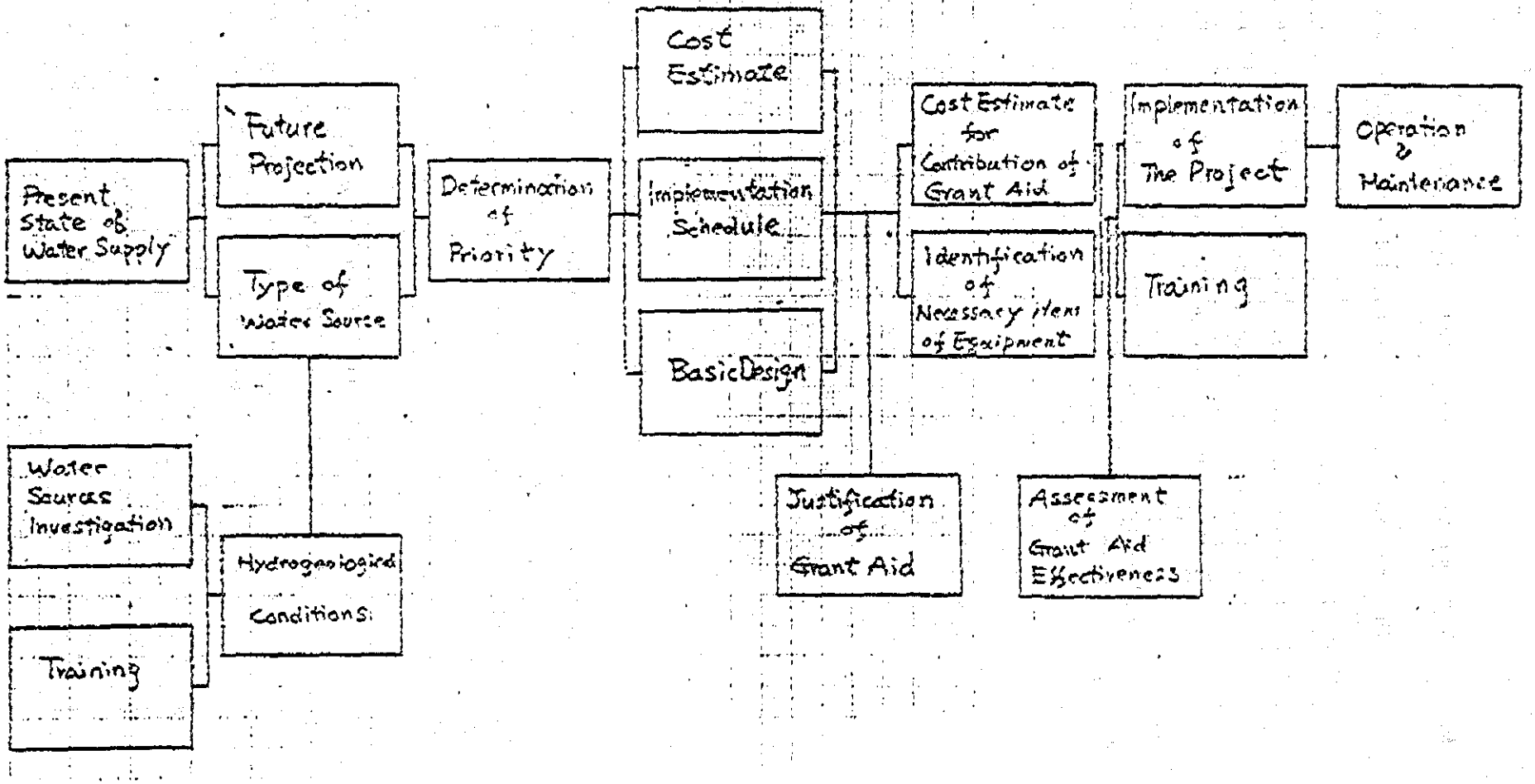


Fig 16 Flowchart

Project Preparation



5. SCHEDULE OF THE BASIC DESIGN STUDY TEAM

The team is consisted of the following four members :

Team Leader :	Mr. Kiyoshi KATO
Deputy Team Leader: (Planning Engineer)	Mr. Akihiko TOGO
Team Member : (Geophysicist)	Mr. Yukio HOSHINO
Team Member : (Hydrogeologist)	Mr. Yoshimi KISHIKAWA

The time schedule of the study team is shown in the attached sheet.

6. REPORT

Reporting schedule is summarized as below :-

Final Report (10 copies in English) : 20th March 1982

The Final Report (10 copies in English) will be submitted to the Ministry of Water Development by the end of March 1982.

7. CONTRIBUTION OF THE GOVERNMENT OF KENYA TO THE PROJECT

In order to complete this basic design study the Ministry of Water Development is kindly requested to provide the study team with the following data, information and necessary services.

(1) Requested data

a) Available data of hydrology and meteorology
b) Available data of hydrogeology and geology
c) Population census and its future projection
d) Topographical maps scale of 1:50,000 and 1:250,000
e) Price list of the necessary items of rural water supply and drilling
f) Statistics of rural water supply
g) Design criteria and standard design
h) Drinking water standards

Time Schedule of Basic Design Study

	Title	Name	1981 Nov	1981 Dec	1982 Jan	1982 Feb	1982 Mar
1	Team Leader	K. Kato		▬			
2	Deputy Team Leader	A. Togo	▬	▬		▭	
3	Geophisist	Y. Hoshino	▬	▬	▬	▬	
4	Hydrogeologist	Y. Kishikawa	▬	▬	▬	▭	

▬ Work on the sites

▭ Work at headoffice

Inception Report

Draft Final

Final Report

(2) Details of present state of rural water supply in the project area

(3) Priority list of water supply schemes and its implementation schedule in the project area

(4) Detailed information of other international cooperation in relation to the rural water supply in the project area

(5) Required counterpart staff

a) 4-hydrogeologists or geophysicists for the training of hydrogeological investigation

b) At least one senior officer from each related division to the project for study on items described in Chapter 4 of this plan of operation

(6) Transportation for hydrogeological field survey. At least one four wheel drive vehicle.

(7) Field accommodation during field surveys for the hydrogeological survey team.

APPENDIX I

PLANT AND EQUIPMENT FOR A NEW CONSTRUCTION UNIT

No.		No.
1.	Bulldozers 300 HP	2
2.	Bulldozers 200 HP	1
3.	Motorised scraper, $15m^3$	3
4.	Towed scraper, $13m^3$	1
5.	Motor grader, 140 HP	1
6.	Selfpropelled compactor	1
7.	Front loader Excavator (Backhoe)	1
8.	Lorry 7-8 tons, tipper	2
9.	Lorry 7-9 tons, flat back	1
10.	Fuel tankers	2
11.	Low-loader, 60 tons pay load	1
12.	$5m^3$ drinking water tanker	2
13.	1500 gallon water trailer	2
14.	Workshop trailer equipped	1
15.	Storage trailer	1
16.	Office caravan equipped	1
17.	Living caravan equipped + 2	2
18.	Diesel generator 250V, 2.5KVA (lighting power)	1
19.	Tents (military type) + equipment	40
20.	Pick-up, 4WD	2
21.	Station Wagon 4WD	2
22.	Various tools and equipment (pumps, mixers, compressors) soil lab.	
23.	Communication equipment	1

Item No. 18-power generator to be supplied chassis mounted. Item No.6 to be a sheep foot roller Item No. 26 will be used along with item No. 11 Item No.24 will be used for pulling the caravans, compressors power generator, welding generator.

Item No.25 mainly for casual labourers and subordinates

NO.		QTY
24.	Excavator (Wheeled)	1
25.	Farm Tractor with open trailer	1
26.	Concrete mixer	1
27.	Block making machine	1
28.	Compressor Drilling	1
29.	Service Truck (Lorry)	1
30.	Mobile workshop (Mechanical Engineer's	1
31.	Block Making machine	1
32.	Water Pump (6 HP)	1
33.	Unit-Huts (Living)	20

BREAKDOWN OF ITEM NO. 22 (TOOL AND EQUIPMENT)

Portable compressor	1
Tool kits (Mechanical)	10
Tool kits (Electricians)	5
Tool Kits (Panel Beater)	2
Tool Kits Welder	2
Hydraulic Press for track type tractors	1
Petrol driven Arc Welding set	1
Gas Welding equipment	2
7 ton workshop gantry	1
Trolley jacks 15 tons	2
Trolley jacks 7 tons	2
Steam Cleaner	1
Paraffin Cleaner (Bath)	1
Fuel Injector's Tester	1
Lifting Tool (Manual Fork Lift)	1
200 PSi Workshop Air Compressor	1
100 Tons workshop press	1

APPENDIX II

EQUIPMENT LIST

1-1	Top Drive Rotary Water Well Rig		2 units
2.	Tricone Bits (for 10,000M)		1 lot
3.	Test pumping Equipment Submersible Type		2 units
4.	Testing Equipment		2 units
5.	Well Casings and Screens		1 lot
6.	Pumping Unit (permanent)		60 units
7.	Transportation Equipment		
	a. Station Wagon 4x4	3 Nos.	
	b. Pick-up	delete	
	c. Trailer Mounted Water Tank 6M3	2 Nos.	
	d. Fuel Tank Lorry, 6M3	2 Nos.	
	e. Full/semi trailer 10-ton loading capacity with trailer tractor	2 Nos.	
	f. Cargo Type Truck loading capacity 8-ton with 3-ton hydraulic crane	2 Nos.	
	g. Crane Truck, 10-ton capacity	2 Nos.	
8.	Camping Equipment		
	a. Caravan for drilling engineers & counterpart	4 Nos.	
	b. Trailer mounted dining & shower facilities	2 Nos.	
	c. Prefabricated toilet	2 Nos.	
	d. Camping tents for labourers, drivers & spare stock	20 Nos.	
	e. Stationery water tank and fuel tank 3M3	4 units	

9.	Mobile workshop including welder, lathe, boring machine, generator etc.	1 unit
10.	Fed and Foam materials	1 lot
11.	Miscellaneous materials including steel bar, steel plate, holt and nuts, wire ropes, angles etc.	1 lot
12.	Communication Equipment	1 unit
13.	Spare Parts for years	1 lot
14.	Japanese drilling engineers 4-persons for one year.	

ANNEXE Ⅲ

See APPENDIX 1 of this report

ANNEX IV

ARRANGEMENTS TO BE TAKEN BY THE GOVERNMENT OF KENYA

1. To ensure prompt unloading and customs clearance at ports of disembarkation in Kenya and prompt internal transportation therein of the products purchased under the Grant.

2. To exempt Japanese nationals from customs duties, internal taxes and other fiscal levies which may be imposed in Kenya with respect to the supply of the products and the services under the verified contracts.

3. To accord Japanese nationals whose services may be required in connection with the supply of the products and the services under the verified contract such facilities as may be necessary for their entry into Kenya and stay therein for the performance of their work.

4. To maintain and use properly and effectively the equipment purchased under the Grant.

5. To bear all expenses, other than those to be borne by the grant, necessary for the local transportation of the machineries, equipment and services under the Grant.

ANNEXE V

List of Participants

a) Japanese Participants

Basic Design Study Team

K. Kato	Director, Grant Aid Department J.I.C.A.
S. Sasaki	Grant Aid Department, J.I.C.A.
A. Togo	Pacific-Consultants International

Embassy of Japan and JICA Nairobi Office

M. Hayama	First Secretary, Embassy of Japan
K. Okabe	Resident - Representative, J.I.C.A. Nairobi office
H. Takenaka	J.I.C.A. Nairobi office

b) Kenya Government Participants

Mr. A. N. Ndiho	Under Secretary, Ministry of Water Development.
Mr. M. Mbutha	Assistant Secretary, M.o.W.D.
Mr. D. M. Kirori	Director, Water Resources Dept. Ministry of Water Development
Mr. F. M. Mureithi	Deputy Director, Water Engineering, Ministry of Water Development.
Mr. W. J. Odhiambo	Deputy Director, Engineering Department, Ministry of Water Development.
Mr. S. Makondiege	Deputy Director, Engineering Department, Ministry of Water Development.
Mr. Kadelback	Engineering Department, Ministry of Water Development.
Mr. E. M. Mwai	Chief Geologist, Ministry of Water Development.
Mr. Njui	Head, Ranch Section, Ministry of Water Development.
Mr. S. Ochieng	Head, Drilling Section, Ministry of Water Development.
Mr. A. Abdalla	Drilling Section, Ministry of Water Development.

Mr. W. Hagstron	Drilling Section, Ministry of Water Development.
Mr. R. Langat	Assistant District, Ministry of Livestock Development

ANNEXE VI

Other Kenyan requests:

1. Two Japanese drilling engineers and one mechanic for a period of at least 6 months.

2. Consultant for tender preparation and evaluation.

3. Training in Japan

APPENDIX 4

調　査　日　程

Nov 9 月　東郷団員東京発

10 火

11 水　東郷団員ナイロビ着　大使館表敬

12 木　Director of Water Resources Mr. Kirori 打合せ

13 金　Under Secretery Mr. Ndiho 打合せ

14 土　資料収集

15 日　資料整理

16 月　資料収集

17 火　資料収集

18 水　Mr. Ndiho　Mr. Kirori と打合せ

19 木　資料収集

20 金　Inception Report Draft 提出

21 土　資料収集

22 日　資料整理　地下水調査班ナイロビ着

23 月　Director of Ergineering Mr. Mutitu と打合せ

24 火　Permanent Secretary 調整要請

25 水　Mr. Mureithi　Mr. Kirori　Mr. Ndiho　羽山書記官　東郷団員打合せ

26 木　資料収集

27 金　Engineering Dep と Water Resources Dep 協議

28 土　資料収集

29 日　資料整理

30 月　JICA Mission 及コンサル業務の説明　Min. of Livestock Development

Dec 1 火　Inception Report Comment 受領　Mr. Ndiho 打合せ

2 水　Messrs Mureithi Kirori と打合せ

3 木　資料収集

4 金　資料収集　Inception Report 修正，電探機器等納入　地下水探査講習

5 土　ケニヤ祝日　Jamfri Day

6 日　資料整理

7 月　加藤団長佐々木団員ナイロビ着　地下水探査講習

8 火　資料収集　地下水探査講習

Dec	9	水	現地踏査　　地下水探査実施Kajiado開始
	10	木	現地踏査　　地下水探査
	11	金	Mr. Ndiho 等と打合せ　　〃
	12	土	資料収集　　〃
	13	日	資料整理　　〃
	14	月	資料収集および打合せ　　〃
	15	火	Inception Report 提出受理　　〃
	16	水	加藤団長・佐々木・東郷　ナイロビに着　　〃
	17	木	〃　　〃
	18	金	〃　東京着　　〃
	19	土	〃
	20	日	〃
	21	月	資料整理
	22	火	地下水探査
	23	水	〃
	24	木	〃
	25	金	〃
	26	土	〃
	27	日	〃
	28	月	〃
	29	火	〃
	30	水	〃
	31	木	地下水探査カジアド終了
Jan	1	金	電探結果解析
	2	土	資料整理
	3	日	電探解析カジアド分終了
	4	月	地下水探査ナロック開始
	5	火	地下水探査ナロック
	6	水	〃
	7	木	〃

Jan	8	金	地下水探査ナロック
	9	土	〃
	10	日	〃
	11	月	〃
	12	火	〃
	13	水	〃
	14	木	〃
	15	金	〃
	16	土	〃
	17	日	〃
	18	月	〃
	19	火	〃
	20	水	電気探査ナロック終了
	21	木	電気探査ナロック解析およびトレーニング
	22	金	〃　〃
	23	土	〃　〃　終了
	24	日	資料整理
	25	月	ＪＩＣＡナイロビ事務所に報告　地下水調査班ナイロビ発
	26	火	
	27	水	
	28	木	地下水調査班東京着

APPENDIX 5

Dam Construction Unit

APPENDIX I

PLANT AND EQUIPMENT FOR A NEW CONSTRUCTION UNIT

No.		No.
1.	Bulldozers 300 HP	2
2.	Bulldozers 200 HP	1
3.	Motorised scraper, $15m^3$	3
4.	Towed scraper, $13m^3$	1
5.	Motor grader, 140 HP	1
6.	Selfpropelled compactor	1
7.	Front loader Excavator (Backhoe)	1
8.	Lorry 7-8 tons, tipper	2
9.	Lorry 7-9 tons, flat back	1
10.	Fuel tankers	2
11.	Low-loader, 60 tons pay load	1
12.	$5m^3$ drinking water tanker	2
13.	1500 gallon water trailer	2
14.	Workshop trailer equipped	1
15.	Storage trailer	1
16.	Office caravan equipped	1
17.	Living caravan equipped + 2	2
18.	Diesel generator 250V, 2.5KVA (lighting power)	1
19.	Tents (military type) + equipment	40
20.	Pick-up. 4WD	2
21.	Station Wagon 4WD	2
22.	Various tools and equipment (pumps, mixers, compressors) soil lab.	
23.	Communication equipment	1

Item No. 18-power generator to be supplied chassis mounted. Item No.6 to be a sheep foot roller Item No. 26 will be used along with item No. 11 Item No.24 will be used for pulling the caravans, compressors power generator, welding generator.

Item No.25 mainly for casual labourers and subordinates

NO.		QTY
24.	Excavator (Wheeled)	1
25.	Farm Tractor with open trailer	1
26.	Concrete mixer	1
27.	Block making machine	1
28.	Compressor Drilling	1
29.	Service Truck (Lorry)	1
30.	Mobile workshop (Mechanical Engineer's	1
31.	Block Making machine	1
32.	Water Pump (6 HP)	1
33.	Unit-Huts (Living)	20

BREAKDOWN OF ITEM NO. 22 (TOOL AND EQUIPMENT)

Portable compressor	1
Tool kits (Mechanical)	10
Tool kits (Electricians)	5
Tool Kits (Panel Beater)	2
Tool Kits Welder	2
Hydraulic Press for track type tractors	1
Petrol driven Arc Welding set	1
Gas Welding equipment	2
7 ton workshop gantry	1
Trolley jacks 15 tons	2
Trolley jacks 7 tons	2
Steam Cleaner	1
Paraffin Cleaner (Bath)	1
Fuel Injector's Tester	1
Lifting Tool (Manual Fork Lift)	1
200 PSi Workshop Air Compressor	1
100 Tons workshop press	1

A P P E N D I X　6

機　材　受　領　書

G.P. 246

INTERNAL MEMO

From Storekeeper	To Mr. Yoshimi Kishikawa
My Ref. WD/4/2/38/30	Your Ref.
Date 23rd January, 1982	Date

SUBJECT

List of Equipment Received into the Geology Store from JICA (on behalf of Japanese Government) on 5/12/81:

GEOELECTRIC INSTRUMENTS:

1. ES-62, RESISTIVITY EQUIPMENT

TRANSMITTER (2112)-AND RECEIVER (2113) MODEL 2220	1 UNIT
-CURRENT ELECTRODE, AB-1 (2510)	8 pcs
-DRY CELL, BM-1 (2906)	5 pcs
-BACK CARRDER (1651)	4pcs

2. CABLE(BLACK) W/CABLE REEL (1618) 400m — 2 ROLLS

-CABLE(RED) W/CABLE REEL (1618) 400 m	2 ROLLS
-DRY CELL, UN-1 AND ACCESSORY CORD	1 SET

3. CABLE (BLUE) W/CABLE REEL (1618) 400m — 1 ROLL

-CABLE (GREEN) W/CABLE REEL (1618) 400m	1 ROLL
-DRY CELL, BM-1 (2906)	15pcs
-WOODEN BOX FOR DRY CELLS (BM-1)	2pcs
-BATTERY 12V 32 AH W/CARRYING BAND (1925)	1 pc
- BATTERY HCHARGER, 220V (1927)	1 UNIT
-TESTER	I UNIT
-TOOLS	1 UNIT

4. ELECTRIC CONDUCTIVITY TESTER — 1 SET

- SPECIFIC EARTH RESISTANCE TESTER* 5 ELECTRODE	1 SET
- ELECTRIC CALCULATER (L1214) + ADAPTOR ADI - 234V	1 SET
-ELECTRIC CALCUALTER (L 3) + ADAPTOR ADI-234V	2 SET
-DRY BATTERY (UM-1)	40 pcs
-BATTERY BAG	4 pcs
-SAMBLE BOTTLE	30 pcs

I have received the above listed items in Geology Store.

Storeman : Mr. Wildfred K. Ng'ang'a .....Ngʼangʼa's.....

Writters: Mr. Justus T. Ituli(geologist) .....

1457
1828=81037 5/12/81
NC

CAMP ON

18 1830=81037
22145 JICANOB

OUT

THIS IS JAPAN INTERNATIONAL COOPERATION AGENCY

56.11.18

TOKYO JICA 18 1530

JICANOB NAIROBI

TLX

(KENYAKOKU CHIKASUI KAIHATSU KEIKAKU) GR204
1. HYOOKI CHOOSANI HITSUYOONA KAKINO DENKITANSAYOO SHIKIZAIWO
4 CASES NIWAKE (YAKU 500KG) 22HI BA-055 NITE HOSHINO KISHIKAWA
RYOO DANYINNI KEIKOO SASETAITO JUNBISHITE IRUTOKORO SHORT NOTCE
NARUMO TSUUKAN TETSUZUKINI BENGIWO HAKARARERUYOO MIZUSHIGENSHOONI
TSUUCHIARITAI.
2. SHIKIZAI LIST

C/NOS.	DESCRPTION OF GOODS		QUANTITY	AMOUNT
	GEOELECTRIC INSTRUMENTS:			
1.	BS-G2, TRANSMITTER (2112) AND RECEIVER(2113)			
		MODEL 2220	1 UNIT	920,000YEN
	CURRENT ELECTRODE, AB-1	2510	8 PCS.	44,000
	DRYCELL, BM-1	2906	5 PCS.	14,250
	BACK CARRDER	1651	4 PCS.	48,000
2.	CABLE(BLACK) W/CABLE REEL(1618) 400M		2 ROLLS	70,000
	CABL(RED) W/CABLE REEL (1618), 400M		2 ROLLS	70,000
	DRYCELL, UM-1 AND ACCESSORY CORD		1 SET	57,000
3.	CABLE(BLUE) W/CABLE REEL(1618), 400M		1 ROLLS	35,000
	CABL(GREEN) W/CABLE REEL(1618), 400M		1 ROLLS	35,000
	DRYCELL, BM-1	2906	15 PCS.	42,750
	WOODEN BOX FOR DRYCELL(BM-1)		2 PCS.	24,000
	BATTERY 12V 32AH W/CARRYING BAND	1925	1 PC.	13,000
	BATTERY CHARGER, 220V	1927	1 UNIT	25,000
	TESTER		1 UNIT	5,000
	TOOLS		1 SET	10,000
4.	ELECTRIC CONDUCTIVITY TESTER		1 SET	245,000
	SPECIFIC EARTH RESISTANCE TESTER + [illegible]		1 SET	140,000
	ELECTRIC CALCULATER (L 1214) + [illegible] AB1-2341		1	19,000
	ELECTRIC CALCULATER (L 3) + [illegible] AD1-2012			24,000
	DRY BATTERY (UM-1)		40	3,600
	BATTERY BAG		4	24,000
	SAMPLE BOTTLE		30	27,000
	TOTAL			1,895,600.- YEN

JICAHDQ

Date 5/12/81

COL CFMD

I have received all the listed items — in Geology Store

56.11.18

NNNN
V

Wilfred Ngang'a — [signature]
Witness — Mr. Ituli — [signature]

APPENDIX 7

地下水調査サイトの合意書

OFFICE OF THE PRESIDENT
PROVINCIAL ADMINISTRATION

Telegrams: "DISTRICTER", Narok
Telephone: Narok 4
When replying please quote
Ref. No. ADM. 15/18/Vol.?/222
and date

OFFICE OF THE
DISTRICT COMMISSIONER
P.O. Box 4
NAROK, KENYA

6th January, 1982

120

7 JAN 1982

JAPAN INTERNATIONAL CO-OPERATION AGENCY
KAJIADO/NAROK GROUND WATER
DEVELOPMENT PROJECT
GROUND WATER ASSESSMENT PROGRAMME

Following findings gathered from Narok District by JAICA Team and in addition to discussions between Mhalule/JAICA Team on Wednesday 6th January, 1982 in D.C's Office, Narok it was recommended that the priority for implementing water projects in Narok District should be as follows:-

1. Ewaso Nyiro
2. Olenkuluo
3. Maji Moto
4. Ololunga
5. Nkorinkori - Lemek

All these proposed projects which are in Group Ranches are in accordance with previous District Development Committee meeting recommendations.

(M. MHALULE)
For: DISTRICT COMMISSIONER
NAROK

c.c. The District Water Officer,
NAROK.

D.D.O.,
NAROK, (to see file copy.)

OFFICE OF THE PRESIDENT

Telegrams: "DISTRICTER", Kajiado
Telephone: Kajiado 4
When replying please quote
Ref. No. ...ADK.15/18/16
and date

OFFICE OF THE
DISTRICT COMMISSIONER
P.O. Box 1, KAJIADO

15th December, 19..81

Japan International Co-operation Agency,
Kajiado/Narok Ground Water Development, Project.

(Att. Mr. Kishikawa)

Dear Sir,

RE: GROUND WATER ASSESSMENT PROGRAMME

Following our discussion (Mule/JAICA Team) held in my office on 10th and 15th December, it was agreed that borehole sitting and drilling by JAICA team should be carried out vide the following sites ranked according to priority:-

1. Swaso - Kidong
2. Kenya Marble Quarry (K.M.Q)
3. Oldonyo - Onyokie
4. Selengei
5. Lengism.

All the agreed sites were in accordance with District Development Committee recommendations of previous meetings.

Thanking you for your interest in this worthy cause.

Yours faithfully,

(D.M. MULE)
DISTRICT DEVELOPMENT OFFICER KAJIADO,
FOR: DISTRICT COMMISSIONER,
KAJIADO.

c.c.

District Water Officer,
KAJIADO.

APPENDIX 8

調 査 団 員

調　査　団　の　構　成

団　　長	;	Mr. Kiyoshi Kato	加　藤　　清
水道計画	;	Mr. Akihiko Togo	東　郷　昭　彦
電気探査地質	;	Mr. Yukio Hoshino	星　野　幸　雄
水理地質	;	Mr. Yoshimi Kishikawa	岸　川　良　己
調　　整	;	Mr. Saburo Sasaki	佐々木　三　郎

JICA