

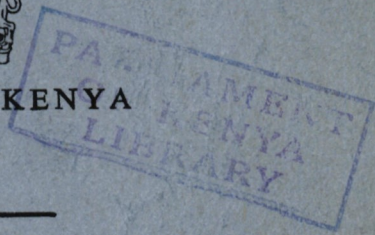
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REPUBLIC OF KENYA



***Mombasa Pipeline Board***

***Report and Accounts  
for  
Financial Year Ending  
30th June 1972***

657-3  
MPB

# *Mombasa Pipeline Board*

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*Report and Accounts  
for  
Financial Year Ending  
30th June 1972*

KENYA NATIONAL ASSEMBLY  
Accession: 10013248

Call No: 657-3 MRB





## MOMBASA PIPELINE BOARD

### REPORT AND ACCOUNTS FOR THE FINANCIAL YEAR ENDED 30th JUNE, 1972

#### Constitution of the Board

During the year under review, the Board was constituted as follows:—

##### *Chairman*

V. G. Matthews, C.M.G., O.B.E., B.Sc. (up to 31st October, 1971).  
T. C. J. Ramtu, M.A. (from 1st November, 1971).

##### *Vice-Chairman*

Johnson Mweru, Esq.

##### *Members*

Rockie Mchinga, Esq.  
Councillor R. S. Ali (Mombasa Municipal Council).  
Deputy Director-General, East African Harbours Corporation, Mombasa.  
P. Mwangola, Esq.  
Permanent Secretary, Ministry of Agriculture, Nairobi.  
Director of Agriculture, Ministry of Agriculture, Nairobi.

##### *Secretary*

O. S. Cege, B.E. (Civil) D.I.C., Director of Water Department, Government of Kenya (up to 31st March, 1972).  
E. A. Ngunya, B.Sc. (Civil) Eng., Director of Water Department, Government of Kenya (from 1st April, 1972).

#### Systems Operated

The installations operated by the Board consist of two major pipelines connected with their respective sources of supply. These are:—

1. The Mzima/Mombasa Pipeline, and
2. The Marere/Mombasa Pipeline.

The Mzima/Mombasa Pipeline with a designed capacity of 8,000,000 gallons per day delivers water by gravity from Mzima Springs in Tsavo West National Park to serve reservoirs at Mazeras, dropping through a vertical distance of some 1,660 feet. The pipeline is constructed of prestressed concrete pipes in sizes ranging from 21 inches to 30 inches.

Because of the large drop in elevation between Mzima and Mazeras it was found necessary to incorporate 10 break pressure tanks so that working pressures could be kept within reasonable limits.

The reservoirs at Mazeras 130 miles from the intake, consist of three prestressed concrete tanks each with a capacity of six million gallons making a total of 18 million gallons.

Water is then conveyed from Mazeras to service reservoirs at Changamwe through twin 21 inch diameter prestressed concrete pipelines, in which there are no break pressure tanks. From the Changamwe reservoirs, whose capacity is some 6.5 million gallons, water is supplied to Mombasa Island reticulation system.

The Marere Pipeline is a gravity pipeline 26 miles long, made of cement lined steel construction throughout its entire length. It has its source in the Shimba Hills and conducts water to the Changamwe reservoirs via pipe bridge over the Mwachi Creek. At Changamwe this water is mixed with the incoming Mzima water and then reticulated to Mombasa Island.

There are a number of subsidiary pipelines serving various parts of northern and southern areas of Coastal Region, deriving their supply from the above two major schemes. These are described below.

(a) *North Mainland Pipeline.*—This pipeline is connected to the twin 21 inch diameter pipelines between the Mazeras and the Changamwe service reservoirs. The pipeline discharges into service reservoirs with a total storage capacity of one million gallons located at Nguu Tatu and from these it is fed to the North Mainland reticulation system. The system delivers water to the Mainland north of Mombasa including Nyali, Bamburi, Kisauni and Shimo-la-Tewa.

(b) *Mazeras/Kilifi Pipeline.*—This is a six inch asbestos cement pipeline originating from Mazeras reservoirs and can deliver 350,000 gallons per day. This pipeline delivers water as far north as Kilifi and is regulated by three tanks of 100,000 gallons each at Ribe, Kaloleni and Mikiriani.

(c) *South Mainland Pipeline.*—On the South Mainland there are two subsidiary supplies taken from a single connexion to the Marere pipeline near Kaya Bombo. A connecting pipe to the main pipeline conducts water to a 250,000 gallon tank on the Kaya Bombo Hill. From there one pipeline supplies water northwards as far as Likoni and another conducts it southwards as far as Diani. The connecting pipeline is capable of delivering 450,000 gallons per day to the two systems.

In last year's Annual Report reference was made to the constant difficulties experienced in the various pipeline systems operated by the Board. It was mentioned that the Board appointed British Consultants, Messrs. Scott Wilson Kirkpatrick and Partners to advise them on the question of major augmentation and a number of other problems. The Consultants have now submitted four reports. A summary of the reports is given below.

(i) *Report on the Immediate Augmentation of North Mainland Supply System.*—The demand for water in the North Mainland has exceeded the capacity of the pipeline and the supply requires immediate augmentation. In their terms of reference the Consultants were asked to assess and recommend immediate methods of increasing the capacity of the system. They were also asked to assess and recommend augmentation of the system to meet longer term demands of the North Mainland areas.

The investigations by the Consultants revealed that the reticulation system is likely to be able to cope with peak water demands in the immediate future. However, the present combined capacity of the North Mainland and Nyali Bridge pipelines is inadequate to meet peak demands likely to occur.



The investigations have shown that steps must be taken immediately to augment the rate at which water can be supplied to the North Mainland area. The Consultants have recommended the provision of a booster station on the North Mainland pipeline and also provision of larger diameter flexible connexion for the Nyali Bridge Pipeline.

Adoption of the measures recommended would result in an increase in water rate flow from the present 1,075,000 gallons per day to 1,600,000 gallons per day. This increase would enable the system to meet all likely demands until at least early 1974. At the time of writing this Annual Report, work on the augmentation of the supply system was in progress.

(ii) *Investigation into the possibility of augmenting the Marere Supply by boosting and harnessing local sources of water.*—The springs at Marere Headworks have a minimum potential of 1.8 million gallons per day, while investigations have shown that the rate of flow in the pipeline could be boosted by pumping to 3.5 m.g.d. Extra sources of supply are therefore required.

The Consultants report concludes that the augmented flow would be best achieved by pumping treated water from the Pemba River into the pipeline, together with harnessing of selected local boreholes as a reinforcement during periods of low flow in the Pemba.

The recommendations by the Consultants would achieve a flow throughout the year of 3.5 m.g.d. or as near to that as possible.

Augmentation and the construction of Pemba River works is well under way, and supply for pumping equipment, filters, dosing units have been processed.

(iii) *Examination of the Mzima Pipeline Break Pressure Tank System.*—The Mzima pipeline is presently being operated on a free flow basis, the rate of flow in each section being adjusted so that there is an overflow at each break pressure tank.

The increasing water demand makes it essential that the pipeline runs to full capacity without wastage at the break pressure tanks. At present there is about 1.2 million gallons per day unaccounted for and although some of this is being lost by overflow at the break pressure tanks, part of it may be lost due to minor undetected leakages throughout the length of the pipeline. The Consultants have prepared proposals for operating the existing pipeline to the maximum capacity utilizing the new Larner Johnson Valves linkages and pressure relief valves which have been installed. Once these proposals have been implemented there is no reason why automatic operation of the system should not be achieved.

The completion of the commissioning of the break pressure tanks has not yet been effected: the present indications are that work will start after the Marere pipeline has been successfully boosted.

(iv) *Report on a Major Augmentation of Mombasa Pipeline Board Supplies.*—On 2nd March, 1971, the Consultants submitted a First Draft Report entitled "Investigation into an additional source to provide the necessary immediate augmentation of the Mombasa Pipeline Board Supplies". This report dealt mainly with means by which water supply to the Mombasa area could be augmented. The Board was desirous that any augmentation carried out should provide enough water to obviate the need for a further augmentation before 1990.

The Consultants carried out an investigation into future water requirements and as a result concluded that, in order to meet water requirements of the areas already served or likely to be served in the future, an augmentation scheme would have to be capable of providing water at a rate of 12 m.g.d. (54,500 m<sup>3</sup>/day).

After a preliminary assessment of all known water resources in the area bounded by the Coast, the Sabaki River, Tsavo River and the Kenya Tanzania Border they found that five schemes warranted detailed study:

- (i) A further development of Mzima Springs.
- (ii) Abstraction of water from Sabaki River.
- (iii) An impounding scheme on the Pemba River.
- (iv) An impounding scheme on the Mwachi River.
- (v) Desalination of sea water.

In comparison it was found that on the grounds of speed of exploitation there was little to choose between them. Four of the five schemes were found to be capable of providing enough water to meet the forecast needs of the Mombasa area up to 1990. The exception was the Pemba River Scheme which could only yield water at a maximum rate of 31,800 m<sup>3</sup>/day (7 m.g.d.), which means that if this scheme was carried out another major augmentation would have to be undertaken in early 1980. Since no scheme has any pronounced advantages in comparison to the others on technical grounds or in terms of swiftness of exploitation the choice of the most suitable scheme can best be made on economic grounds. When economic comparison was carried out it was found that the Pemba River Scheme was the most economic of them all. The Sabaki River Scheme ranked number two.

The Consultants therefore recommended the Pemba River Scheme because it would have by far the lowest initial capital cost (estimated at £6,238,000).

When the first Draft Report was studied, it was found that the report did not give enough information on the Sabaki River Scheme. This was made necessary because of discussions held with Water Department, the Consultants and the World Bank Team, which had visited us at the time. The World Bank indicated that they would be more impressed with the idea of a regional approach to our water needs. The Consultants were therefore instructed to carry out further studies on a regional basis. At the time of writing the second report is under preparation and should be ready by 15th July, 1972.

The implication of the report on major augmentation of Mombasa Pipeline Board supplies will be the question of finance in a major degree. It is likely that the scheme which the Consultants will recommend will have a capital cost of about £14m. As mentioned earlier the various aspects of the major augmentation has been discussed with the World Bank representatives but since the Second Report was not ready the views of the Bank are not known at the time of writing. However, we know the Bank is interested in the project and are likely to be favourable to our request for a loan. At the time of writing all possible sources of finance are being investigated.

The Mombasa Pipeline Board was established under the authority of the Mombasa Pipeline Board Act (No. 19 of 1957), which makes the Board responsible in the discharge of its functions to the Minister for the time being, in charge of water. During the year under report this has been the Minister of Agriculture. The



actual operation and maintenance of the installations is undertaken by the Directorate of Water Department, Government of Kenya, acting as the Board's agents. The fees for these services are calculated in accordance with an agreed formula.

The plan at Appendix I shows a layout of the systems operated by the Board during 1971/72.

### Finance

#### (a) CAPITAL ACCOUNT

The capital at charge on the 1st of July, 1971, was K£5.047 million made up as follows:—

- (i) Mzima System—K£4.458 million.
- (ii) Marere System—K£38,367.
- (iii) North Mainland System—K£160,168.
- (iv) Marere/Kaya Bombo System—K£194,687.
- (v) Mazeras/Kilifi System—K£195,499.

The capital is wholly borrowed on loan capital, the creditors being the Government of Kenya for projects (i) (ii) and (iii) and the East African Railways and Harbours Corporation, Barclays Bank D.C.O., the Kenya Commercial Bank Limited and the Standard Bank in respect of project (i) only. The three banks loaned as a consortium a total of K£1,350,000, the repayment of which is guaranteed by the Government of Kenya. This loan is covered by an issue of Registered Bonds. The loans and guarantee by the Government of Kenya are secured by a debenture issued to the Government by the Board. The new South Mainland project and the Mazeras/Kilifi project referred to under (iv) and (v) have been financed partly by a loan made by the Israeli Government to the Kenya Government and re-lent to the Board, partly by a loan from the British Government and partly from the Board's own resources. The terms of the Israeli loan are interest at 6 per cent and a period of seven years. In recognition of the fact that seven years is an impossibly short life in respect of projects of this kind, the Government of Kenya in relending extended the period to 25 years. Even 25 years is a short period in relation to such projects and this has inevitably had its effect on the charges which have necessarily had to be made to the consumers for the water from these new supplies. Of the 25 year term, four years were taken up in construction. The Board was not permitted to capitalize the interest during this construction period and the need to find funds to pay interest during a period of no revenue also had its effect upon the water tariff. The loan is being repaid over the remaining 21 years in equated instalments at 6 per cent. The same terms apply to the British Government loan.

The Marere project and the North Mainland project were financed by loans from the Government of Kenya. These are being repaid by equated instalments of interest and capital, the details of which can be seen in the Accounts. Repayment in respect of the Marere project commenced in 1958 and in 1962 in respect of the North Mainland project.

It will be observed that the loan of K£500,000 made in respect of the Mzima/Mombasa project by the then Railways and Harbours Administration (now the separate Railways Corporation and the Harbours Corporation) was referred to in the last Annual Report as having been extended until the 31st December, 1973. This means of course that there is a need for fresh negotiation to extend this loan beyond that date.

Loans totalling K£2,170,000 made by the Kenya Government in respect of the Mzima/Mombasa project fell due for repayment, partly on the 31st December, 1968, and partly on the 1st January, 1969. The negotiations by the Board for further renewal led to the loans being extended until the 31st December, 1974, with a small upward adjustment of interest. It is likely that the current financial year will see the opening of preliminary discussions on the possibility and the terms and conditions of extensions beyond 1974. Since the original renewal, a major factor has entered into the calculations. Reference has been made above to the employment of Consultants in respect of a number of problems which confront the Board (in particular the question of major augmentation of Mombasa's water supply). The fees for these consultations and Reports are likely to be very substantial and if they have to be met from the Board's Reserve Fund (which is in effect the Board's Sinking Fund) the ultimate repayment of the outstanding Government of Kenya loans financing the Board's Mombasa/Mzima project is likely to be deferred beyond earlier expectations. A substantial proportion of this total fee is accounted for in the cost of locating and designing the works for the Mombasa major augmentation. If the Board is permitted to regard this as part of the overall capital cost then it will be possible to recoup the Reserve Fund from any capital loans raised to cover the project. In these circumstances the deferment referred to above will be minimized.

During the year under review capital repayments were as follows:—

- (i) Mzima System—K£127,999.
- (ii) Marere System—K£3,073.
- (iii) North Mainland System—K£6,994.
- (iv) Marere/Kaya Bombo System—K£4,993.
- (v) Mazeras/Kilifi System—K£5,014.

The capital remaining on charge at the end of the year on the 30 June, 1972, was K£4.889 million made up as follows:—

- (i) Mzima System—K£4.322 million.
- (ii) Marere System—K£35,171.
- (iii) North Mainland System—K£152,731.
- (iv) Marere/Kaya Bombo System—K£189,394.
- (v) Mazeras/Kilifi System—K£190,185.

(b) REVENUE

The Board's revenue accrues almost entirely from the bulk sale of its water.

Below are set out the comparative figures of consumption and revenue for the year ending the 30th June, 1972, compared with that ending 30th June, 1971. These figures are given in respect of the Board's principal regimes.

YEAR ENDED 30th JUNE, 1971

<i>Mombasa and District</i>		<i>North Mainland</i>		<i>Mazeras/Kilifi</i>		<i>South Mainland</i>	
Consumption million gallons	Revenue K£	Consumption million gallons	Revenue K£	Consumption million gallons	Revenue K£	Consumption million gallons	Revenue K£
2,410	552,274	299	61,117	34	12,802	65	24,274

YEAR ENDED 30th JUNE, 1972

<i>Mombasa and District</i>		<i>North Mainland</i>		<i>Mazeras/Kilifi</i>		<i>South Mainland</i>	
Consumption million gallons	Revenue K£	Consumption million gallons	Revenue K£	Consumption million gallons	Revenue K£	Consumption million gallons	Revenue K£
2,798	642,043	283	58,289	40	15,138	90	33,743



The figures above disclose the same story throughout, the story of ever rising consumption. Throughout the Board's regimes consumption has increased and is increasing, emphasizing the urgency of developing new sources of supply if difficulties over shortage are not to be encountered in the not too distant future. Some of the increases during the year were substantial, notably that in the South Mainland system where consumption has gone from 65 million gallons in the previous year to 90 million gallons in the year under report. This is an increase of some 38 per cent. The Mazeras/Kilifi section shows an even more substantial increase i.e. from 34 million gallons to 40 million gallons or nearly 17 per cent. These figures and those for the South Mainland disclosed clearly the appetite for water generated by putting water into areas hitherto unserved. The increasing demand is of course a reflection of development catalysed by the installation of the water supply. This satisfactory result in producing new development is of course that intended by the Board in making the supplies available. What the Board now has to ensure is that it is not overtaken by events set in train by its own action. In other words constant vigilance will be necessary to ensure that supply keeps pace with this ever increasing demand.

However, it should be noted that in the North Mainland water consumption for the year ending 30th June, 1971, was 299 million gallons while consumption for the year ending 30th June, 1972 was 283 million gallons indicating there was a reduction in consumption. The reason for this was that for the months of January and February in the year ending 30th June, 1971, the recorded monthly consumption was far above one million gallons per month due to serious bursts in the line so that the recorded flow was much higher than the actual consumption. Under normal circumstances the consumption for that year should have been about 281 million gallons.

(c) EXPENDITURE

The Board's outgoings during the year fell under four headings:—

- (i) The service charges on the repayments of the outstanding capital loans.
- (ii) Fees paid to the Directorate of Water Department in respect of the operation and maintenance of the Board's installations.
- (iii) The expenditure on new work and improvements, special maintenance, etc.
- (iv) The cost of the Board and its staff.

These for the year under review were as follows:—

- (i) K£455,575.
- (ii) K£85,860.
- (iii) K£154,426.
- (iv) K£11,897.

(d) FINANCIAL RESULTS FOR THE YEAR

The Board's overall revenue comprising the income from the sale of water and certain minor sources such as house and meter rents totalled K£973,859. A sum of K£200,025 out of this amount is in respect of sale of water through meters 10 and 11 during the period January, 1963, to 30th June, 1971. This amount was collected by the Ministry of Agriculture as the Board's operating agents, and erroneously treated it as its own revenue until March, 1972, when the ownership of the two meters was established. With a total outgoing of K£707,759 the year's working disclosed an operating surplus of K£266,100. This is the amount therefore available from the year's working to be conveyed to the Reserve Fund and brings the total of that Fund as at the 1st July, 1971, to K£783,770. Reference was made

in last year's Report to the many commitments which the Board might have to face and therefore the high desirability of building up this Reserve Fund which represents the Board's only immediate source of finance. Since those words were written the Board has been compelled to incur liability for substantial expenditure in respect of Consultants engaged to advise the Board on a number of problems including that of the major augmentation required by 1974. As has been stated elsewhere in this Report these Consultants have already been engaged and the work which is of such vital importance to Mombasa and the Coast Province is already well in hand. There is no doubt that the availability of the finance necessary to engage these Consultants from the Board's own resources made this immediate action possible in circumstances where delay could have had very serious consequences. These fees will greatly deplete the Board's Reserve Fund and unless the major part of this payment can be recouped from any capital loan raised to finance the construction of the major project or otherwise, the Board will face a repetition of the long and anxious process of building up again the Reserve to a healthy level.

(e) OPERATION OF SYSTEMS

(i) *Mzima Pipeline.*—As stated elsewhere in the report the Break Pressure tanks have proved inefficient in practice and the Consultants have prepared proposals for operating the existing pipeline to the maximum capacity utilizing the new Larner Johnson Valve linkages and pressure relief valves. The commissioning of the Break Pressure tanks will require careful planning, detailed organization and the consideration of the consequences at every stage of the work. This work has not started and it is proposed to make use of the services of Water Department maintenance gang under the direct control and supervision of the Consultants.

In last year's Annual Report it was stated that the Board had agreed to establish regular watering points at suitable places to replace the supply from break pressure tanks. The Board's policy also is that there should be no subsidization in supplying water to any consumer. Applications for domestic consumption will continue to be very carefully examined and weighed against national objectives as it is now being done. There should be a minimum water charge equivalent to 2,000 gallons per month at the prevailing rate.

During the year there was a number of bursts on the pipeline, in fact, this was so far the worst year in the history of the pipeline. In November, when the Consultants were installing the valve linkages, a burst occurred at Mile 47. This was immediately followed by a second burst on Section 9 when Mazeras inlet was closed down. During refilling two more bursts occurred and altogether this proved to be the worst crisis so far and caused a lot of inconvenience to the consumers in Mombasa West Mainland and North Mainland. The work on commissioning of the valve linkages and the automatic system had to be stopped, and has in fact not been taken up later. In June a serious leak on Section 8 necessitated closing down of the pipeline. After repair and during refilling a burst occurred further downstream on Section 8 and again a serious leak on Section 9. This time bursts were repaired practically without inconvenience to the public. The new digging machine proved to be effective and reduced the time for completing repairs drastically.

(ii) *North Mainland Pipeline.*—As stated earlier in this report this pipeline is a source of anxiety to the Board. With consumption rapidly rising the Board requested the Consultants, Scott Wilson Kirkpatrick & Partners to assess and



recommend immediate methods of increasing the capacity of the system. A summary of the Consultants recommendations has been given elsewhere in this report and includes the provision of a booster station on the North Mainland pipeline.

The booster station at Bagamoyo is under construction but so far the work has not been up to expectations. The Consultants are at present looking into the problem and it is hoped that the installation will be up to design performance in time for the peak tourist season.

The Nyali booster station and bridge connexion have been a constant cause of nuisance. The flexible joints are bursting frequently and at present the "Petter" engines are out of order and spare parts are difficult to obtain. A few serious leaks and a number of minor ones have been repaired.

(iii) *Marere Pipeline*.—Although this pipeline is somewhat old it has been a valuable standby and addition to Mzima Pipeline supply. No serious difficulties have been reported over the year. The recommendations from the Consultants regarding augmentation to the pipeline are being implemented.

(iv) *Mazeras/Kilifi Pipeline*.—This pipeline is now fast approaching its design capacity and with the new Tezo-Roka Water Supply expected to be in operation in September, 1972, the question of installing a third pump unit at Mazeras and Ribe should be decided upon.

(v) *The Mazeras Reservoirs*.—The reservoirs, totalling 18 million gallons, represent the first line of defence against water shortage in Mombasa in the event of a breakdown of the Mzima Pipeline. With the present demand there have been difficulties in keeping the reservoirs at a safe level. In February, therefore, we were forced to impose rationing in Mombasa to bring up the levels. In future it is proposed to start rationing as soon as the levels drop below 20 feet, i.e. a storage volume at Mazeras of some 8.3 million gallons.

The Wallace & Tiernan chlorination equipment at Mazeras has been a constant headache, and largely non-operational since installation.

(vi) *Changamwe Reservoirs*.—These comprise six reservoirs totalling some 6.5 million gallons. Reservoir No. 5 has, due to earth movements, developed cracks which again cause leaks and loss of water. It eventually developed so far that the tank had to be taken out of operation after repairs had been unsuccessful. It is proposed to line the tank with Butyl sheeting.

The chlorination equipment has now been repaired and refitted and is back in operation.

The master meter for the Marere inflow has been out of operation for the best part of the year. Steps have been taken to get new recorders for that one and the two 21 in. lines from Mazeras.

(vii) *Secondary Water Supplies*.—These secondary water supplies are set out in the "Statement of Water Supplied" in the Accounts forming part of this report. They operated successfully throughout the year.

T. C. J. RAMTU,  
*Executive Chairman,*  
*Mombasa Pipeline Board.*

**CERTIFICATE OF THE CONTROLLER AND AUDITOR-GENERAL,  
KENYA, ON THE ACCOUNTS OF THE MOMBASA PIPELINE  
BOARD FOR THE YEAR ENDED 30TH JUNE, 1972**

Revenue Account	...	...	...	...	Statement No. 1
Net Revenue Account	...	...	...	...	Statement No. 2
Net Revenue Appropriation Account	...	...	...	...	Statement No. 3
Capital Account	...	...	...	...	Statement No. 4
Balance Sheet	...	...	...	...	Statement No. 5
Statement of Water Supplied	...	...	...	...	Statement No. 6

The attached accounts have been examined in accordance with section 13 of the Mombasa Pipeline Board Act (Cap. 373). I have obtained all the information and explanations I have required and as a result of my audit, I certify that in my opinion, the accounts are correct.

D. G. NJOROGE,  
*Controller and Auditor-General.*

Nairobi,  
29th January, 1973.



MOMBASA PIPELINE BOARD

REVENUE ACCOUNT FOR THE YEAR ENDED 30TH JUNE, 1972

1970/71		EXPENDITURE		1970/71		INCOME	
K£ s. cts.		K£ s. cts.		K£ s. cts.		K£ s. cts.	
2,499 19 80			TO PIPELINE BOARD—HEAD OFFICE:				
759 19 00		6,533 6 40	Chairman's Remuneration ..	650,465 11 35			
98 1 15		2,178 6 30	Staff ..	824 0 05			
182 19 15		190 5 55	Cost of Official Entertainment ..			949,242 4 05	
419 10 20		232 10 00	Incidental Expenses ..			848 2 40	
			Travelling Expenses and Allowances of Members ..				
25 0 00		589 16 80	Expenses of Audit ..	1,162 6 60			950,090 6 45
50 13 20		25 0 00	Bank Charges ..	1 10 00			1,480 15 85
140 13 20		72 14 90	Maintenance and Running Expenses of Board's Transport ..				45 1 80
—		734 0 85	House Rent ..				
—		1,050 0 00	House Allowances (Staff) ..				
		290 13 80					
4,176 15 70		11,896 14 60					
			TO MAINTENANCE AND OPERATION OF PIPELINES:				
			Reimbursement to the Ministry of Agriculture—				
56,806 11 10		60,161 17 05	(i) Main Pipelines ..				
5,163 17 75		6,656 3 75	(ii) North Mainland Scheme ..				
2,476 11 70		4,005 19 95	(iii) Marere/KayaBomboScheme ..				
3,200 6 30		5,290 17 05	(iv) Mazaras/Kilifi Scheme ..				
5,035 7 60			Extraordinary Maintenance and Renewals ..				
12,051 9 80		16,191 0 50	Hire Charges of Vehicles ..	102,051 7 00			
84,034 4 25		9,745 8 70					
563,542 8 05		837,668 2 50					
K£652,453 8 00		K£ 951,616 4 10	To balance carried to Net Revenue Account ..	652,453 8 00			
		K£ 951,616 4 10					K£ 951,616 4 10

**NET REVENUE ACCOUNT FOR THE YEAR ENDED 30TH JUNE, 1972**

1970/71		EXPENDITURE		1970/71		INCOME	
K.£ s. cts.		K.£ s. cts.		K.£ s. cts.		K.£ s. cts.	
55,190 16 43	To INTEREST CHARGES:	45,603 13 59		563,542 8 05		837,668 2 50	
60,000 0 00	(i) Bank Loans (K.£1,350,000)	60,000 0 00					
39,999 19 95	(ii) Kenya Loan (K.£1,000,000)			4,895 01 70	By Balance brought from Revenue Account ..		
	(iii) E. A. R. & H. L o a n (K.£500,000)	40,055 1 85		10,455 16 35	By INTEREST RECEIVED:		
116,875 0 00	(iv) Kenya Loan (K.£2,170,000)	116,875 0 00			Reserve Fund Investments ..	5,276 15 30	
1,657 11 60	(v) Kenya Loan (K.£70,277)	1,534 13 45			Cash on Deposit with Cereals and Sugar Finance Corporation ..	16,965 6 75	
10,340 0 50	(vi) Kenya Loan—North Mainland Land Scheme (K.£210,000)	9,896 1 81			Profit Redemption of Investments ..		22,242 2 05
24,011 11 40	(vii) Kenya Loan—Marere/Kaya Bombo and Mazeras/Kilifi Schemes (K.£400,193)	23,411 3 45	297,375 14 15	3,350 3 05			
<u>308,074 19 88</u>							
3,072 13 95	LOANS REDEEMED:						
6,993 13 80	Annual Instalment—Kenya Loan—Marere Supply ..	3,195 12 10					
	Annual Instalment—Kenya Loan, North Mainland Scheme	7,437 12 49					
127,999 04 57	Annual Instalment—Bank Loans	136,959 3 57					
10,006 12 85	Annual Instalment—Kenya Loan Marere/Kaya Bombo and Mazeras/Kilifi Schemes	10,607 0 80	158,199 8 96				
148,072 5 17	To Transfer to Loan Redemption Fund ..		135,675 13 51	135,675 13 51	By Provision for Loan Redemption carried to Net Revenue Appropriation Account ..	135,675 13 51	
135,675 13 51			404,335 1 44				
126,096 14 10	To Balance, being net operating Surplus carried to Net Revenue Appropriation Account ..		<u>K.£ 995,585 18 06</u>				
<u>K.£717,919 12 66</u>				<u>717,919 12 66</u>		<u>K.£ 995,585 18 06</u>	



**NET REVENUE APPROPRIATION ACCOUNT FOR THE YEAR ENDED 30th JUNE, 1972**

1970/71		EXPENDITURE		1970/71		INCOME	
K£	s. cts.	K£	s. cts.	K£	s. cts.	K£	s. cts.
1,231,177	19 17	To Balance as at 1st July, 1971	..	126,096	14 10	By Transfer from Net Revenue Account	..
135,675	13 51	Balance brought from Net Revenue Account	..	1,246,971	4 88	Balance as at 30th June, 1972	..
6,214	6 30	Financing the cost of rehabilitation of the	..				
		Mzima/Marere Pipelines and North	..				
		Mainland Scheme installations and Con-	..				
		tribution towards construction of Marere/	..				
		Kaya Bombo and Mazeras/Kilifi Schemes	..				
		K£	1,520,882	8 09	1,373,067	18 98	K£
<u>K£1,373,067</u>	<u>18 98</u>						<u>8 09</u>

**LOAN REDEMPTION FUND  
STATEMENT OF FUND FOR THE YEAR ENDED 30th JUNE, 1972**

1970/71		EXPENDITURE		1970/71		INCOME	
K£	s. cts.	K£	s. cts.	K£	s. cts.	K£	s. cts.
1,763,783	15 63	To Balance as at 30th June, 1972	..	1,628,108	2 12	By Balance as at 1st July, 1971	..
				135,675	13 51	Transfer from Net Revenue Account	..
<u>K£1,763,783</u>	<u>15 63</u>	K£	1,899,459	9 14	1,763,783	15 63	K£
							<u>9 14</u>

**STATEMENT OF INVESTMENTS AS AT 30th JUNE, 1972**

Nature of Stock	Amount of Stock	Cost Price	Quotation (Middle Market Value)	Market Value at 30th June, 1972
	K£ s. cts.	K£ s. cts.	%	K£ s. cts.
4½ per cent Nyasaland 1971/78 ..	3,263 15 60	3,229 7 25	72	2,349 18 40
8½ per cent East African Railways ..	66,110 0 80	62,696 7 48	102½	67,762 15 80
and Harbours 1975 ..				
	K£	65,925 14 73		70,112 14 20

**CAPITAL ACCOUNT FOR THE YEAR ENDED 30TH JUNE, 1972**

EXPENDITURE	Assets as at 30th June, 1971	Expenditure during the year	Total to 30th June, 1972	INCOME	Loans as at 1st July, 1971	Received during the year	Total to 30th June, 1972
	K£ s. cfs.	K£ s. cfs.	K£ s. cfs.		K£ s. cfs.	K£ s. cfs.	K£ s. cfs.
<b>To ASSETS:</b>							
Mzima and Marere Instal- lations .. .. .	5,158,003 14 31	127,355 10 45	5,285,359 4 76	By LOANS RAISED:	1,350,000 0 00	—	1,350,000 0 00
North Mainland Scheme .. .. .	237,422 17 19	7,446 9 55	244,869 6 74	Bank Loans .. .. .	500,000 0 00	—	500,000 0 00
Marere/KayaBomboScheme .. .. .	200,621 4 10	3,433 9 70	204,054 13 80	E.A.R. and H. Corporations Loan .. .. .	2,170,000 0 00	—	2,170,000 0 00
Mazeras/Kilifi Scheme .. .. .	201,133 2 90	—	201,133 2 90	Kenya Loan .. .. .	70,277 0 00	—	70,277 0 00
	K£ 5,797,180 18 50	138,235 9 70	5,935,416 8 20	Kenya Loan—North Mainland Scheme .. .. .	210,000 0 00	—	210,000 0 00
				Kenya Loan—Ex-Uganda .. .. .	1,000,000 0 00	—	1,000,000 0 00
				Kenya Loan—Mazeras/Kilifi .. .. .	200,512 17 85	—	200,512 17 85
				Kenya Loan—Marere/KayaBombo Scheme .. .. .	199,679 19 15	—	199,679 19 15
					K£ 5,700,469 17 00	—	5,700,469 17 00
				By CAPITAL RECEIPTS:			
				Sale of Assets .. .. .	3,731 0 57	—	3,731 0 57
				Recovery of damaged valves .. .. .	1,589 0 00	—	1,589 0 00
				Contribution from the Admiralty for the North Mainland Scheme .. .. .	2,750 0 00	—	2,750 0 00
				Refund of Consultant's Fees .. .. .	180 3 00	—	180 3 00
				Refund on Installation of Tele- phone at Nguu Tatu .. .. .	57 0 00	—	57 0 00
					K£ 8,307 3 57	—	8,307 3 57
				By Contribution from Net Revenue Appropriation Account for the rehabilitation of the Mzima/ Marere Pipelines, and North Mainland Scheme installations and contribution towards cons- truction of Marere/Kaya Bombo and Mazeras Kilifi Schemes .. .. .	88,403 17 93	138,235 9 70	226,639 7 63
			K£ 5,935,416 8 20				K£ 5,935,416 8 20





**STATEMENT OF WATER SUPPLIED—1971/72**

Conn. No.	CONSUMER	Gallons	Rate per 1,000 Gallons	Amount	Total Value of Water Supplied
			K.Sh. cts.	K£ s. cts.	K£ s. cts.
MWS	<b>MINISTRY OF AGRICULTURE:</b> (Including Water Supplied through Meters 10 & 11)				
	South Mainland Water Supply .. .. .	2,471,243,900	4 60	568,386 01 85	
	Mazeras/Jaribuni Water Supply .. .. .	89,982,700		33,743 10 25	
	Kilifi Water WSupply .. .. .	21,942,200		8,228 06 50	
	Voi Water Supply .. .. .	18,426,700		6,910 00 25	
2	Mariakani Water Supply .. .. .	36,176,100		7,930 06 15	
7	Kwale Water Supply .. .. .	19,882,100		4,547 12 05	
15	Mazeras Water Supply .. .. .	9,087,800		1,864 16 85	
17 & 75	Kinango Water Supply .. .. .	10,363,300		2,124 09 40	
41	Bachuma Water Supply .. .. .	5,906,000		1,210 14 55	
25	Matuga Holding Ground .. .. .	1,365,200	2 00	136 10 40	
78	North Mainland Water Supply .. .. .	579,100	7 50	217 03 25	
46-51, 68 & 71		121,113,000	4 60	27,879 03 45	663,178 14 95
40	<b>MINISTRY OF WORKS:</b> Road Construction Unit—Mackinnon Road .. .. .	237,700	4 60	54 13 35	
97	Road Construction Unit—Mackinnon Road .. .. .	106,500	6 00	31 19 00	
16					86 12 35
3	<b>EAST AFRICAN RAILWAYS CORPORATION:</b> Maungu .. .. .	32,014,900	4 60	7,363 08 65	
4	Mackinnon Road .. .. .	22,946,300	4 60	5,277 12 90	
6	Samburu .. .. .	33,138,600	4 60	7,621 17 50	
35	Manyani .. .. .	742,300	4 60	170 14 65	
55-59	Landhies .. .. .	2,631,200	4 60	605 03 60	21,038 17 30
1	<b>PRISONS DEPARTMENT:</b> Manyani Camp (Mbololo Hills Prison) .. .. .	25,007,600	4 60	5,751 15 00	
45	Shimo-la-Tewa Prison .. .. .	32,031,000	4 60	7,367 2 60	13,118 17 60
16	<b>COUNTY COUNCIL OF KWALE:</b> Samburu .. .. .	27,600	2 00	2 15 20	
19	Mwanda .. .. .	141,600	2 00	14 3 20	
53	Mgalani Water Dip .. .. .	121,600	4 60	27 19 35	
54	Mwachi .. .. .	78,100	4 60	17 19 40	
63	Mwachinga .. .. .	879,600	4 60	206 09 00	
64	Mwalungani .. .. .	101,000	4 60	23 04 55	
65	Lutsangani .. .. .	8,500	4 60	1 19 10	
83	C.C. of Kwale .. .. .	151,300	4 60	34 16 05	
93	Gwachemi .. .. .	51,300	6 00	15 07 80	344 13 65



STATEMENT OF WATER SUPPLIED—1971/72—(Contd.)

Conn. No.	CONSUMER	Gallons	Rate per 1,000 Gallons	Amount	Total Value of Water Supplied
			K. Sh. cfs.	K£ s. cfs.	K£ s. cfs.
18	Mrs. Betty Daneu	930,100	4 60		213 18 45
21	Mr. Jackan N. Mwabaki	124,100	4 60		28 10 90
23	Mr. Samuel Chidzugwe Nguma	209,000	4 60		48 01 45
24	Kenya National Parks—Tsavo East	4,012,700	4 60		968 18 45
26	Kanwar Store	232,500	6 00		69 15 00
29	East African Oil Refineries	94,135,400	4 60		21,651 02 85
39	Taita Ranching Co. Limited	1,374,600	2 00		137 09 20
42	Kisauni Ltd.	2,064,600	3 75		387 02 10
43	Bamburi Portland Cement Co. Ltd.	49,667,200	3 25		8,070 18 30
44-70 & 91	Nyali Ltd.	80,746,800	3 75		15,140 00 40
5	Project Manager UNDP/FAO	387,200	4 60		89 01 10
52	Mr. Burusi Tsuma	101,800	4 60		23 08 15
61	Kenya Meat Commission	1,131,900	4 60		260 06 70
62 & 74	Kenya Safari Lodges and Hotels	8,650,100	4 60		1,989 04 85
67	Provincial Veterinary Officer, Mombasa	993,300	4 60		228 09 15
69	Mr. Raymond Sydney Mayers	6,060,700	4 60		1,393 18 30
72	Mr. Yusuf Ali Mwatsahu	89,800	4 60		20 13 05
73	Mrs. Helen Wanjiru Meigo	2,700	4 60		— 12 40
76	Mr. Ikonge Mwangunda	327,000	4 60		75 04 20
77	Mr. Cuphi Ng'ala	135,700	6 00		40 14 20
79	Head Mistress, Taru Harambee Secondary School	216,500	6 00		64 19 00
80	Mrs. Mnyazi Kombo	106,400	4 60		24 09 40
81	Mr. William Kombo	22,600	6 00		6 15 60
82	Mr. Kazungu Nyanze	103,500	6 00		31 01 00
84	Kahindi Ng'owa	33,600	6 00		10 01 60
85	Kenya National Parks—Tsavo West	2,500	4 60		— 11 45
86	Mr. M'yuu Lembi	157,000	6 00		47 02 00
87	Mr. Salim Abdallah	26,500	6 00		7 19 00
88	Mr. Chenge Mazarakwe	36,300	6 00		10 17 80
89	Mrs. Mary Lucas	124,500	6 00		37 07 00
90	Mr. Mwinvi Hamisi Juma	172,300	7 50		64 12 25
92	Captain O. N. Wanyoike	199,600	6 00		59 17 60
94	Bachuma Graziers Scheme	717,600	6 00		215 05 60
96	T. C. J. Ramitu	3,600	6 00		1 01 60
98	Kenya National Parks—Tsavo	95,500	6 00		27 06 00
		3,008,000,300			749,214 11 95







