

EAST AFR. PROT.
25056

G. O.
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JUL 09

Governor No.
366

28

1909

Nairobi Water Supply

5 July

Sends further report of Putnam's proposals: (1) laying down pipe capable of supplying 80000 galls daily, (2) P.W.D. to take over water works from the clergy, (3) water system to be under (4) municipality to take over the supply from P.W.D. eventually, (5) terms for (4) to be as liberal as possible

st Previous Paper.

13000

W. Fielder

Ask essay that Lord Curzon does not propose to deal with the important matter until the new gov has been able to look into the matter on the spot & furnish him with his views - but say that the papers sh^d be brought to his P. forward's notice as soon as possible after his arrival?

H. J. R.

7/10/09

Attornee
W.B.
W.D.

Copy to Mr. Tans 3 June 10, 13827/10

My Lord,

With reference to the correspondence respecting the Nairobi Water Supply terminating with Your Lordship's telegram of the 24th ultimo I have the honour to report that the whole matter has been the subject of careful and critical inter-departmental examination, a fact which I trust may be considered to excuse the considerable delay which has taken place in arriving at a definite conclusion.

2. At Mombasa, where even now the majority of the inhabitants buy their water, it was comparatively easy to collect the data on which to base our estimate of probable consumption and revenue, but in Nairobi this has not been the case and so unsatisfactory have been the

replies

H.M. Principal Secretary of State
for the Colonies,

Downing Street,

LONDON, S.W.

4
Hobley
July and
1902
Sanderson
me 30th.

It has been thought advisable to make our calculations on a basis of so many gallons per head of population.

3. From the exhaustive minute furnished by the Municipal Committee, a copy of which is enclosed herewith, Your Lordship will be able to trace the process by which the figures on page 11 are arrived at. From them it would appear that there ought to be but little difficulty in guaranteeing a fair rate of interest on the capital necessary for bringing a really good supply of water into the town. Captain Sanderson allows $5\frac{1}{2}\%$ and a considerable sinking fund, but I am inclined to think that Your Lordship did not propose that the original capital should be redeemed in this way, in which case a higher rate of interest could easily be paid.

4. There remains the question of the terms on which the existing works erected for and by the Uganda Railway should be transferred to the Public Works Department and ultimately to the Municipality. Now that the
Railway

Railway has become a Government department, I do not think that it is necessary to consider its interests as apart from our general policy in regard to the development of Nairobi, provided, of course, that its actual requirements are fully supplied. I am therefore strongly in favour of the surrender of the present water supply on liberal and generous terms, more particularly as it is due to the initiative taken by the Government in establishing first the Railway and then the administrative headquarters in Nairobi that the town has attained its present size.

5. It should also be remembered that out of the total population the proportion of African natives, many of them employees of Government departments, is a large one. The Government is, I consider, under some obligation to provide these people with an ample and inexpensive water supply and that fact should be taken into consideration when we make the bargain which will eventually be necessary with the Municipality. The primary step, the transfer from the Railway to the Public Works Department, is

conditions, provided always that the requirements of the former are safeguarded.

6. There is no doubt that the situation demands action on our part in the near future. The present season has been a very dry one and owing to the paucity of the existing supply the inhabitants of the suburbs are being put to the greatest inconvenience; the drainage of the town is carried on with difficulty, the extensions recommended in Mr. Williams's scheme are at a standstill, and Government property and buildings on the outskirts of the Municipal area are rendered useless.

7. My proposals are briefly as follows:-

(1) That the necessary capital be provided at once for laying down a pipe capable of conducting the whole available supply, say 800,000 gallons daily, into the town.

(2) That the Public Works Department take over the Water Works from the Railway.

(3) That the ^{et} metre system be introduced.

(4).

23 Provincial Commissioner's Office (25 JUL 1909)

Nairobi,

July 2nd. 1909

34

Sir:-

I have the honour to present to His Excellency a comprehensive report on the Nairobi water question. I have little to add to the facts but would mention that the money spent on the New Gaol & Police Lines amounts to some £.10,000 and in addition to this some thousands of pounds have been spent on drainage works in that vicinity, none of the buildings erected at such costs can be utilized till the water supply is increased.

I would support the Committee in their recommendation that the proposed new main should be of such a size as to bring in the whole of the available supply as it is impossible to accurately forecast the growth of the town at present and it would be very regrettable if the whole water question had to be reraised ten years hence. It is proposed that the new supply would be furnished to each householder on the rental system, a meter costs about £.3/ and it is considered that these should be supplied to householders on the rental system, say at a rental of 10/- per annum, and the cost of the meters

Secretary to the Administration

should be gradually written off year by year.

The leads from the mains to the houses and any house fittings would have to be paid for by the house-holders or house-owners.

The supply of water to the native locations could not be arranged on meter system, a fee of so much per month per hut would have to be levied.

If it is decided that the town shall pay for the present water supply it is suggested that instead of taking the original prime cost its present value should be assessed by a board of arbitration and the cost of taking up the old main and the prospects of its utilization elsewhere would naturally be assessed by such a board.

I am in favour of the expenditure on the proposed new water supply being made a charge on the revenues of the Municipality as it is well that the town should begin to realize its indebtedness to the State for the financial assistance afforded.

There is one other important point and that is that the proposed preferential tariff of 35 cents per 1000 gallons instead of One Rupee should be considered as contingent on the method in which the

the present water supply is handed over by the Railway Department.

That is to say if the town is saddled with the cost of the old supply I do not see what claim the Government can set up for preferential treatment. If however the Government (vide the Hon'ble Treasurer's minute of 31/5) adopts the view that it is its duty to bear a proportion of the cost in view of the large native population, then it would be only equitable for the Protectorate to receive a preferential tariff.

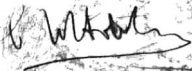
The fact should not be ignored that the Government is the ground land-lord of the whole of the township and that undoubtedly does throw upon it some moral onus as to the supply of water to its lessees.

I would also venture to point out that the repeated desire on the part of private concessionaires to obtain control of the water supply is fairly good evidence of the financial soundness of the scheme.

I have the honour to be,

Sir,

Your most obedient servant,



I. Much has been written and many meetings of Committees and Sub-Committees have been held on the Water Supply of Nairobi which has been a question of vital importance for the last 5 years. The consensus of opinion expert and otherwise is -

- (1) That the present supply is utterly inadequate to the needs of the town.
- (2) that this inadequate nature of the supply, not only involves discomfort to the residents and a danger to Public Health but retards all schemes for the development and improvement of the town.
- (3) that in order to obtain the necessary supply a sum of not less than £20,000 must be expended, as stated by the Hon'ble Commissioner of Public Works and the Railway Engineers.
- (4) that the present standpipe system is undesirable
- (5) that there is a sufficient quantity of water at the source, 11 miles from Nairobi, to provide the town with a supply suitable to its requirements, and that this supply would now be available if a large enough main had been laid in the first instance.
- (6) that unless the required amount of water is brought in, large sums of money already spent on the new Gaol, Police Lines, drainage of the site for Native Location and other works undertaken by the Government as the result of Mr. Williams

The population, of all races, is estimated at about 15,000 and spread over an area nearly 10 miles in circumference.

The Hon'ble Commissioner of Public Works states that as the result of recent actual measurements 104,000 gallons of water are consumed daily in Nairobi.

This is distributed among the population by means of 516 standpipes. The standpipes are allotted as follows:-

Private premises & Officials quarters	191
Government Offices & Works	55
Public	18
Free	11
Not in use	41
	<hr/>
Total	516.

The average per head of population is thus slightly less than 7 gallons a day.

Out of 50 houses in Parklands (an important and growing suburb of Nairobi) 12 only are provided with standpipes and even these give a very poor supply for the greater part of the year, and water has to be obtained from rain tanks or the river: the former soon become empty and the latter is polluted. Of the Native population of 10,000 50% must depend on the river for their water. The river water has been condemned by the Medical Authorities and they have forbidden it to be laid on for use in the New Native Location.

The Dhobies who carry out the laundry work of the town have to wash

Further there are ⁴ miles of open drains which have to be flushed and cleaned daily, and out of the ~~3~~ 27 miles of roads in Nairobi at least $2\frac{1}{2}$ miles require watering 7 months in the year. For drain cleaning and street watering, upkeep of public gardens and cemeteries no water ~~is~~ at all is available from the standpipes but the work has to be done with water brought from the river, a slow & laborious process and a most unsatisfactory makeshift.

Pipes are ^{high} laid for a gradient supply of river water to flush some of the main drains, but owing to the heavy demands on the river for irrigation purposes and the fact that the flow depends largely on the rains, it is not safe to rely on this supply for Municipal purposes.

Mr. Williams states in his report "I am not aware of any important town where the quantity supplied per head is so small" and it is even smaller now than when Mr. Williams was here nearly 5 years ago.

III. With regard to the standpipe system, the Railway Department by agreement with the ratepayers in November 1904 supplied the town with water by means of standpipes on payment of Rs. 5. per mensem per public standpipe, and in cases where a standpipe is shared by several houses the amount due on the standpipe is made up amongst the householders concerned. The Municipality collect the water rate from all private and public standpipes

At the present season this office collects on 170 standpipes out of 316 and for the first 6 months of the current year the average collection per mensem is Rs. 270/85; no rate is charged on premises which have been unoccupied for a month.

The standpipe system is objectionable in many ways. It is wasteful because there is no check on the amount of water drawn and large number of Natives and others use the water without paying for it.

It is inconvenient on account of the standpipe being situated usually some little distance from the house and water for household purposes has to be carried by hand.

It is uneven in distribution: for whereas in some parts of the town the flow ^{from} the standpipe is plentiful enough to provide for stables cowsheds and gardens, in other parts of the town their flow is diminished to a mere trickle barely sufficient for drinking purposes: and the same rate is paid for the standpipe in both circumstances.

In the Indian Bazaar there are 8 public standpipes for a population of at least 5000 and the payment of Rs. 5. per standpipe is far too low for the quantity of water consumed.

Other public standpipes, of which only 4 remain, are similarly unremunerative as large numbers of Natives both resident and itinerant use the water in passing without contributing to the rate.

referred to in para I, there is some difference of opinion on the following important questions:-

- (a) The actual amount of water that is required for Nairobi.
- (b) The actual revenue that will accrue from the improved water supply.
- (c) The conditions upon which the control of the supply should be transferred from the Railway Department.

V. The actual amount of water required.

Before dealing with (a) in the above paragraph an analysis of the population is required. This may be given as follows:-

	<u>Census returns in Nov.06.</u>	<u>Estimate for June 1909</u>
Europeans & Eurasians	642	1000.
Goanese	510	700
Indians	8071	8578 10% increase
Africans	9291	10220 10% increase
Total	13514.	15298.

The Hon'ble the Commissioner of Public Works has required statistics as to what amount of water will actually be taken by the various sections of the Community as was done in Mombasa. In a town like Mombasa where at present most of the water is paid for and the Natives and Indians live in well defined quarters, fairly reliable statistics may be obtainable, but in Nairobi the case is different. The New Native

water: and some 6000 out of 10,000 Natives are --
scattered in huts and irregular villages over an
area of seven square miles. Along 2 miles of river
banks ^{are} numberless dwellings and tenements of a primi-
tive order inhabited promiscuously by Indians and
Natives. The premises in the Indian Bazaar are
tenanted by sub-lessees, a large number of whom consti-
tute a floating and irresponsible population.

As a result therefore of the meetings of the Municipal
Sub-Committee on the subject it is considered that it
would serve no practical purpose to endeavour to
obtain from each householder in Nairobi the approximate
amount of water which they require: but, if this is
insisted on, the information will be obtained. As an
example of the futility of the answers which we may
expect — The District Commissioner and the Town
Clerk recently visited 25 houses in the Bazaar,
explained to the inmates what was proposed with regard
to the water supply and asked how much water they
would use if it was laid on. Typical Bazaar shops
were taken. The answer for the 25 houses worked out
at 24 gallons per head per diem, considerably less than
the present inadequate supply.

Mr. Williams the Government Sanitary Expert states in
his report that the minimum should be 18 gallons per
head per diem. The Hon'ble the Commissioner of
Public Works estimates the required supply at from
300,000 to 400,000 gallons per diem for the present
population, or from 20 to 26 gallons per head: and

Sub H. 3
should not be less than 50 gallons per head of population including 5 gallons per head for Municipal use.

That many persons in a mixed community like Nairobi will take less than the average allowance is as obvious as that others will take considerably more.

On the precedent afforded by the various Public Health Acts and Municipal Regulations at Home and in the Colonies, Rules can be brought in to compel house-owners to provide their premises with a good and sufficient water supply to the satisfaction of the Medical Officer of Health or Local Authority.

In Nairobi such rules could only be carried out by ^{the same} taking the town water supply or by erecting rain water tanks of sufficient capacity and in such a manner as would satisfy the Medical Officer of Health. It would be safe to say that practically every owner would prefer the former alternative.

The question therefore appears to be not so much the quantity of water which each owner thinks he or his tenants will be likely to use as what quantity should be supplied in accordance with requirements of Public Health. If an immediate estimate of these requirements is to be given the last Census Returns

November 1906, allowing for estimated increase, should serve as a working basis. The present population is therefore estimated at 15,000 round numbers and if 25 gallons per head are taken as required, amount of

water

2000 Non-resident Natives at 5 gallons.	10,000
Factories	1,000
Total	461,000.

The requirements therefore may be variously estimated as follows:-

- (1) According to Mr. Williams 270,000 gallons
- (2) According to Hon. Commissioner of Public Works 500,000 to 400,000 gallons
- (3) According to Mr. Willoughby .. 461,000 " estimate

Mr. Williams in his ~~report~~ does not appear to have allowed for Municipal purposes or factories: relying, no doubt, on a supplementary supply from the Nairobi River. He considers however that in 1916 396,000 gallons would be required and 540,000 in 1926. He states that to allow for fluctuations in demand for water the distributing main should be large enough to deliver twice the amount of the average daily requirements so that in 1926 the main should be capable of delivering ~~2,200,000~~ 1,080,000 gallons a day, similarly by taking No. 3 estimate the main should be capable of delivering 922,000 gallons at the present day.

The Superintendent Way & Works Uganda Railway states that by laying a 12 inch main (another expert puts it at 9 inches) a million gallons could be brought into Nairobi.

and as by 1926 (or possibly earlier) a distributing capacity of a million gallons will be required at the lowest estimate, the most beneficial course to adopt would be to provide the town at once with a main capable of distributing a million gallons, and thus meet the daily requirements as given in estimate No.3; namely 461,000 gallons for consumption & to allow for fluctuations = 922,000 gallons.

VI. The actual Revenue that will accrue from the improved supply (referred in Para IV (b)).

This is extremely difficult to estimate for the following reasons:-

- (1) 14/15 of the population are Asiatics and Africans the majority of them live in the manner described in para IV.
- (2) The meter system has never been introduced and the present standpipe system gives no indication of what revenue would be obtained if a meter system were to be introduced with the improved supply.
- (3) The Native Location in which it is anticipated that at least 8000 Africans will be housed eventually is not yet built for reasons given above.

In estimating the Revenue the following points must be noted:-

- (1) A preferential rate to the Railway and Government of 55 Cents instead of Rupee 1 per 1000 gallons for 60,000 gallons a day must be allowed for vide

(3) The Native population whether living in the Location or not can hardly be expected to pay at the rate of Rupee 1 per 1000 gallons per head. (Their wages run from Rs.5 a month to Rs.18.) It will therefore be necessary to levy a fixed rate per hut. Putting the average number of occupants in each hut at 5 and the total number of Natives in the Location at 8000, the water rate would have to be paid on 1600 huts. The highest amount that could reasonably be charged per hut would be Rupee 1 per mensem.

Rs.1600 per mensem = £1280 per annum. The difference between this amount and what would be paid if Rupee 1 per thousand gallons were to be charged per head, is allowed for in the estimate.

Taking the estimate of the total amount of water required to be 461,000 gallons a day and the charge for water as suggested by Mr. Eastwood in his Memo of June 6th. 1907 to be Re.1 per thousand gallons for ordinary consumers with a minimum of Re.1 for anything under a thousand, the gross potential Revenue works out as follows:-

		per annum.
5000 gals. for 15000 pop:	at 25 gls per head p.diem Re.1 per 1000..	£9125
5000 " " 15000 pop:	at 5 " " " " for Municipal uses...	Nil
5000 " " 2000 pop:	at 5 " " " " itinerant Natives...	Nil
1000 " " For Factories (5 Fact: @ 200 gls per diem) approx:		£ 250
1000 gallons per diem.		£9150.

From this

From this must be deducted the following

(A) For preferential tariff to the Railway Department the difference between Cents 35 and Re.1 per 1000 gls for 60,000 gls per diem	Per Annum. £ 949.
(B) Deduct for difference between Re.1 per mensem per hut in Native Location and Re.1 per 1000 gls per head	£3586.
(C) Deduct 10% on £4615 for vacant premises and waste	£ 461
	<u>£4996.</u>
	£9150
	<u>£4996</u>
<i>Nic</i> Total Revenue.	<u>£4154.</u>

Though this figure corresponds very closely to Mr. Eastwood's estimate of June 6th. 1907, it will be some time before the full revenue from the Natives population is obtained.

TABLE OF ESTIMATED EXPENDITURE & REVENUE.

Ref: Mr. Eastwood's Memo. of June 6th. 1907.

Value of Present Works	£ 20,000.
For Extension of Works	£ 20,000.
Total.	<u>£ 40,000.</u>

YEARLY COST:

REVENUE		EXPENDITURE	
As detailed in para VI.	24154	Interest on £20,000 @ 3 1/2% . . .	£ 700
		Annual instalment payable to Railway for 20 years	£ 1000
		Cost of working	£ 1100
		Balance to go into sinking Fund	£ 1854
Total.	24154	Total	£ 4154.

VII.

The Conditions upon which the Supply should be Transferred from the Railway (Ref: para-IV. c.)

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Although this matter must of course be decided by the Government the main points may be briefly summarised as follows:- *Ref. Mr. McCallan pres. 6 & 05*

In 1904, the Manager of the Railway and the then Sub-Commissioner (Ukamba) resident in Nairobi arrived at an agreement whereby the Railway Department kindly undertook to instal a water supply in the town from the source at Kikuyu. A meeting of ratepayers was called and they agreed to pay the water rate as suggested by the Manager and as detailed above in para III.

This action on the part of the Manager conferred a great boon upon the town which up to that time had been compelled to depend upon the impure water of the river for its supply. Within 2 years it was found that the main was too small: as described in Mr. Williams report and in the Hon'ble the Commissioner of Works Minute No.49.

It is agreed that the sum of £20,000 is required for necessary extension of the works. The Railway Department naturally are not prepared to undertake this burden but are willing to hand over the supply to the Municipality, at present virtually a Government Department, provided that the original cost of the works, £20,000, is repaid to them. In Mr. Eastwood's scheme (Memo. June 6th. 1907) which was approved both by the Hon'ble the Manager and by the Municipal Committee, provision is made for this payment to be made by annual instalments of £1000. (ref: above para VI)

In support of this payment it is urged that the sum expended on the water works by the Railway is part of the Railway loan of 5 millions, on which interest is being paid by the Home Government and will continue to be paid for the period of the loan, and that meanwhile the sum of £20,000 is a charge against the Railway Department.

On the other hand it is contended that the water in this country belongs to Government and not to any particular department, and that the acquisition of the present supply by the Railway has not excluded the Government from the ownership of the water; so that if the existing water are handed over to another Government Department, the repayment of the cost of the works should be made a book transaction. It is proposed that the water supply should be handed over to the Municipality. The Municipality however, though at present apart of the Administration, will eventually become a Corporation, which, though separated from the Government control, will yet benefit to the extent of £20,000 worth of plant, if arrangements are not made to repay this sum to the Railway.

Nairobi is a poor community and is likely to remain so for several years. It depends very largely on the various Government Departments, not only for developments and improvements of every kind, but for mere existence. Since it has become the head quarters of the Government, there has been a great increase in the proportion of Government Officials and Employees resident in the town to private individuals, and of Government buildings and works to those privately owned.

The vested interest of the Government being as large as they are, it is less unreasonable to request that the repayment of the amount expended by the Railway on a 50 main which has now to be replaced by a larger one in order to provide the town with a proper water supply, may not be made a charge upon the rates.

NAIROBI,

June 30th. 1909

E. Sanderson.

TOWN CLERK.

*Approved by Municipal Sub-Committee
on Water Supply.*

Jos. D. Callan.

Chairman Municipal Committee.

Gov
25 05 6/09
cap.

~~W. Lloyd~~
S.L.

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DRAFT.

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cap. N. 473
oag.

Imon

12 Aug 09

M. Noall 10/8
M. Read 10/8

Sir,

I have the honour to
ack: the receipt of your despatch
N. 366 of the 5th of July, on the
subject of the Nairobi Water
Supply & to inform you that
I do not propose to deal
with this important matter
until the new Gov. has been
able to look into the matter

Copy Treas 3/June 10. 1382/10