



REPUBLIC OF KENYA

**SPECIAL REPORT
OF THE
AUDITOR GENERAL
ON
THE CONSTRUCTION OF FIVE MAJOR
WATER DAMS BY THE NATIONAL
WATER CONSERVATION AND
PIPELINE CORPORATION
UNDER THE
MINISTRY OF WATER AND IRRIGATION**

MARCH 2011

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CHAPTER 1

Executive Summary

Introduction

1.01 During the last three financial years, the National Water Conservation and Pipeline Corporation (NWCPC) has been implementing five major water supply projects in Eastern and Rift Valley Provinces, as part of Government's effort to enhance the national capacity to store and supply water around the country. According to information available, the projects entail construction of four large dams and water treatment plants in Kajiado, Kitui, Marsabit and Koibatek Districts and rehabilitation of an existing dam and water treatment plant in Machakos District. Additional information indicates that at completion, the projects will cost the Exchequer an estimated sum of Kshs.9.829 billion, as shown below:-

Project Name	District	Expenditure		
		Construction Works (Kshs)	Consultancy Services (Kshs)	Total (Kshs)
Maruba dam	Machakos	380,000,000	600,000	380,600,000
Kiserian dam	Kajiado	989,397,136	72,905,536	1,062,302,672
Umaa dam	Kitui	824,457,120	54,320,480	878,777,600
Badasa dam	Marsabit	2,389,846,058	81,329,920	2,471,175,978
Chemususu dam	Koibatek	4,861,154,976	175,276,000	5,036,430,976
Total				9,829,287,226

1.02 Records available indicate that the projects are funded through the Ministry of Water and Irrigation under Vote D20, in the Estimates for the 2008/2009, 2009/2010 and 2010/2011 financial years, as shown below:-

Project Name	Budgetary Allocation under Vote D 20			Total
	2008/09	2009/10	2010/11	
Maruba dam	259,000,000	110,000,000	-	369,000,000
Kiserian dam	262,000,000	400,000,000	456,000,000	1,118,000,000
Umaa dam	259,000,000	350,000,000	546,000,000	1,155,000,000
Badasa dam	271,000,000	426,700,000	906,000,000	1,603,700,000
Chemususu dam	207,000,000	820,000,000	863,000,000	1,890,000,000
	1,258,000,000	2,106,700,000	2,225,000,000	6,135,700,000

1.03 As may be observed from the two tables above, the estimated cost of Kshs.9,829,287,226 for the projects exceeds the budgetary provision of Kshs.6,135,700,000 as reflected in the Development Estimates for the three years. It has not however been clarified how the shortfall of Kshs.3,693,587,226 would be financed, although indications are that the Ministry may still have to provide additional grants for the purpose.

Objectives of the Projects

1.04 The Ministry of Water and Irrigation and the NWCPC have both outlined three key objectives for implementing the water projects in the five Districts. The objectives are;

- i. To alleviate the low natural availability of drinking water in the region;
- ii. To mitigate against water shortages in periods of drought; and,
- iii. To achieve the medium-term water goals of the Kenya Vision 2030, by increasing the national capacity to store water from 5.3 cubic metres (m³) per capita to 16 by the year 2012.

1.05 According to records available, all the five projects are planned for completion by July 2012.

Purpose and Scope of the Audit

1.06 The purpose of the audit was to examine and evaluate the processes through which NWCPC has been implementing the five projects. In this regard, the audit involved;

- i. A review of the feasibility studies carried out by NWCPC prior to commencement of the projects;
- ii. An assessment of the extent to which NWCPC adhered to the requirements of the Public Procurement and Disposal Act 2005 in the procurement of construction works and consultancy services for the projects;
- iii. An establishment of whether NWCPC exercised economy and efficiency during implementation of the projects;
- iv. An ascertainment that Government Financial Regulations and Procedures were followed with regard to receipt, expenditure and accountability of the projects funds; and,
- v. A confirmation of the status of progress of construction and other related works.

1.07 The audit further reviewed compliance of the projects with the national environmental laws and regulations, and an evaluation as to whether appropriate management systems have been put in place to ensure environmentally sustainable utilization of the dams upon completion.

1.08 The scope of audit covered the period between July 2008 and January 2011.

Audit Findings

1.09 An examination of available projects records and the related documentation maintained at NWCPC in respect of the five projects revealed the following unsatisfactory and unexplained matters:

- i. According to information available, NWCPC had as at 30 November 2010 incurred expenditure totalling Kshs.3,793,298,633 on the five dams as shown below:-

Project Name	Actual Expenditure as at 30 November 2010 (Kshs)
Maruba dam	380,600,000
Kiserian dam	426,497,127
Umaa dam	615,023,132
Badasa dam	1,149,240,991
Chemususu dam	1,221,937,383
	3,793,298,633

However, and despite the very substantial expenditure on the dams, the Corporation does not appear to have, in the first instance, and before commencement of the projects, carried out comprehensive feasibility studies on the dams in order to assess and establish their financial and technical viability and sustainability.

- ii. A physical verification carried out by this Office in respect of the projects revealed that all the five dams are to be fed by tiny streams

or seasonal rivers, which as at the time of the audit had no flowing water, thus raising the question of how and when the dams would be filled as envisaged. Other indications are that the dams will be filled with storm/flood waters during the wet seasons.

- iii. Construction work on all the five dams has since encountered various significant design and technical challenges. For instance, a number of contractors have had to carry out additional and substantial grouting work (infilling with cement of natural crevices on the dam floor) than originally anticipated. This is an indication that adequate geological surveys and other related studies had not been carried out on the sites before the projects commenced.
- iv. Additional records verified during the audit indicated that the costs of acquiring land situated at the sites where three of the five dams – namely; Kiserian, Badasa and Chemususu, are under construction appear not to have been adequately provided for in the budget at the time of the projects' planning. Consequently, unexpected land access and compensation claims totalling Kshs.186 million had, as at 31 December 2010, been raised with the NWCPC by various private individuals and other parties, including the Kenya Wildlife Service (KWS) and the Kenya Forest Service (KFS). Further, and in the case of Kiserian, the acreage of some of the land already acquired appears to be under dispute.
- v. Key records detailing the procedures and criteria used in the identification of the firms pre-qualified for construction works and consultancy services were not made available for audit review. Further, and in other instances, original tender documents and other

related records submitted by bidders and other data in respect of construction works and consultancy services for the projects were similarly not made available for audit review. Consequently, and in absence of the records, it has not been possible to establish whether or not the successful firms were qualified and competent to offer the services or undertake the works under the respective contracts. In addition, and for the same reason, it has not been possible to ascertain that the contract sums agreed upon between NWCP and the firms were fair and competitive.

- vi. Records examined also indicated that the contractor for Badasa dam is licensed by the Ministry of Water and Irrigation under Category B in the Ministry's Licensing Guidelines, while the terms and conditions of the tender had required that any firm bidding for the project be registered under Category A. For information, contractors under Category B are limited to dam works of not more than 30 metres in height and Kshs.150,000,000 in value. Badasa dam is 52 metres high and entails construction works valued at Kshs.2,389,846,058. This may explain why the project is behind schedule.

- vii. With regard to one of the dams, notably Chemususu, the contract price of Kshs.4,861,154,976 was Kshs.749,009,070 or approximately 18% higher than the engineer's estimate, which had been set at Kshs.4,112,145,906. No plausible reasons have been provided for the very significant variation between the tender price and the engineer's estimate. Similarly, no explanation has been provided for the considerable increase in the contract price for Badasa dam by a figure of Kshs.913,012,949 or about 62% from

Kshs.1,476,833,109 to Kshs.2,389,846,058, only three months after the tender was repeated, following cancellation of the original award by the Public Procurement Administrative and Review Board.

- viii. Restricted tendering procedures instead of competitive bidding were used in the procurement of construction works for the spillway at Maruba dam at a cost of Kshs.78,395,120. Similarly, direct procurement method was used to procure services for the rehabilitation of a water treatment plant at the same dam, at a cost of Kshs.9,070,507. In the two instances, and due to failure by NWPC to adhere to the Public Procurement and Disposal Act 2005, it has not been possible to confirm that expenditure totalling Kshs.87,465,627 incurred on the two contracts was fair and competitive, and that such expenditure represented good value for money.
- ix. Two additional consultants (referred to as Dam Experts) were hired alongside the regular consultants, to provide quality assurance services on work done by the latter consultants and the contractors, in the five projects. However, the Corporation has not explained how the Experts were identified and their fee of Kshs.80 million, as shown in the Bills of Quantities, arrived at. Further, the specific terms of reference for the work to be carried out by the Experts, beyond that provided the regular consultants, were not disclosed. Consequently, it has not been possible to ascertain the propriety of expenditure totalling Kshs.80 million incurred on the services provided by the Experts.

- x. According to other records available, one of the two Experts was as well involved in the preparation of tender documents for the projects, although he was also a director in one of the firms which had submitted bids for consultancy services. Other records show that this particular firm was later awarded one of the major consultancy contracts under the projects.
- xi. Records examined indicated that an aggregate sum of Kshs.372,480,000 placed by NWCPC in two deposit accounts in a local bank was not properly supported and accounted for by the Corporation. Actual cash balances could not also be confirmed.
- xii. Payment vouchers and other related records for expenditure totalling Kshs.653,442,252, as shown below, out of total expenditure amounting to Kshs.3,793,298,633 incurred on the five projects as at 30 November 2010, were not made available for audit verification. Consequently, the propriety of the expenditure could not be ascertained:-

Project Name	Unsupported Expenditure (Kshs)
Maruba dam	305,976,255
Kiserian dam	8,993,000
Umaa dam	5,705,066
Badassa dam	285,889,410
Chemususu dam	46,878,521
Total	653,442,252

- xiii. According to other information available, NWPC had as at 30 November 2010 made deductions totalling Kshs.220,927,033 in relation to Retention Monies against various payments made to the contractors. However, it has not been possible to establish how the Monies were recorded, utilized and eventually accounted for, as records in respect thereof were not made available for audit review.
- xiv. Expenditure incurred against various items in the Bills of Quantities in respect of the five projects had as at 30 November 2010 exceeded the respective budgetary provisions by a significant amount of Kshs.660,051,978, as shown below:-

Project Name	Budgetary Provision as Per Bill of Quantities	Actual Expenditure in (Kshs)	Excess - Expenditure in (Kshs)
Maruba dam	13,224,500	22,390,000	9,165,500
Kiserian dam	61,752,875	117,707,727	55,954,852
Umaa dam	33,908,770	289,961,109	256,052,339
Badasa dam	54,431,000	210,150,693	155,719,693
Chemususu dam	262,650,000	445,809,594	183,159,594
	425,967,145	1,086,019,123	660,051,978

Although the total variations were equivalent to approximately 154% of the total budgeted provision under the projects, approval of the Corporation's Tender Committee for the excess-expenditure does not appear to have been obtained, as required by Section 47 of the Public Procurement and Disposal Act 2005.

- xv. The contractor for Umaa dam has lodged a claim for a variation of the contract sum from Kshs.824,457,120 to Kshs.1,267,377,753, representing an increase of Kshs.442,920,633, over and above the above contract sum. According to information available, the contractor has applied for a variation of the rates at which various excavation works undertaken are to be valued; a raise in the unit prices of several other items in the Bills of Quantities; and, a compensation for loss of productivity. However, and should NWCPC honour the claim, the contract sum of the dam will rise by approximately 53%.
- xvi. Examination of other prices shown in the Bills of Quantities in respect of the projects indicated that the unit costs applied against various general items and pieces of equipment were considerably high. For example, two ordinary motorcycles purchased by the contractor under the Umaa dam project were charged to the project at Kshs.1,160,000 per unit. A survey conducted in the local market during the audit however revealed that the price of similar motorcycles falls within the range of between Kshs.200,000 and Kshs.300,000.
- xvii. Although records show that NWCPC is as well financing the operation and maintenance of the motor vehicles purchased under the Chemususu dam project, the contract agreement between the Corporation and the contractor appears to indicate that the vehicles in question will become property of the contractor at the end of the project. This arrangement is clearly unusual as under normal circumstances, all vehicles purchased through Government funded projects revert to the Government after the end of such projects.

- xviii. According to the progress of work reports maintained by NWPC, work on four of the five dams is clearly behind schedule as shown below:

Project Name	Commencement Date	Expected Completion Date	Contract Period Elapsed as at 30.11.10	Estimated Level of Works Completed as at 30.11.10
Maruba dam	15.09.2008	28.02.2010	100%:	Commissioned in June 2010
Kiserian dam	06.01.2009	05.01.2011	98%	55%
Umaa dam	06.01.2009	05.01.2011	98%	53%
Badasa dam	09.06.2009	09.12.2011	52%	33%
Chemususu dam	19.07.2009	18.07.2012	44%	25%

Separately, audit inspections carried out at various projects' sites revealed that the levels of work done as shown in the reports, may not be commensurate with the actual work on the ground.

- xix. Although other records prepared by the NWPC indicate that Maruba dam was expected to increase the supply of water to Machakos town and the environs by approximately 5,000 m³ per day, a physical verification of the project revealed that the completed dam has not facilitated any meaningful increase in water supplies as envisaged, apparently because key infrastructure such as additional storage tanks and pipe distribution systems in the town and the environs do not appear to have been considered and budgeted for at the planning stage of the project.

- xx. NWCPC has not submitted for audit the Environmental Impact Assessment Licenses for three dams, namely; Maruba, Kiserian and Umaa. In absence of the Licenses, it has not been possible to confirm that the projects have fulfilled all conditions set by the National Environment Management Authority (NEMA) as required under the Environment Management and Control Act 1999. Further, and although the Corporation was granted interim licenses for construction of Chemususu and Badasa dams, no evidence was seen to confirm that that it has, as required by NEMA, prepared Environment Management Plans to guide implementation of two projects.

Conclusion

- 1.10 In view of the matters discussed in preceding paragraphs, it is clearly apparent that failure by the NWCPC to conduct feasibility studies before embarking on the projects has resulted in considerable financial and technical challenges which may result in delayed completion of the projects and substantial attendant costs.
- 1.11 The Corporation's failure to observe certain provisions of the Public Procurement and Disposal Act 2005 while procuring various consultancy services and construction works, has raised questions regarding the fairness, competitiveness and value for money on the expenditure of Kshs.9,829,287,226 expected to be incurred on the five projects.

- 1.12 Expenditure totalling Kshs.653,442,252 incurred on the project as at 30 November 2010 could not be ascertained as constituting proper charge against public funds due to lack of the relevant payment vouchers and other related records.
- 1.13 Due to a weak Project Management System at NWCPC, various expenditure items on construction works had exceeded the respective budgeted provisions in the Bills of Quantities by an amount of Kshs.660,051,978 as at 30 November 2010.
- 1.14 NWCPC does not appear to have factored in the respective project budgets, provisions for installation/improvement of water storage and distribution infrastructure in areas to be served by the projects. In consequence, additional public funds will be necessary and required in order for the objectives of the projects to be achieved.
- 1.15 Progress of works on four projects is running behind schedule, with the implementation periods for two of the dams, namely; Umaa and Kiserian having expired even though the progress of work is well below 56 % completion level.
- 1.16 The conditions set by the National Environmental Management Authority for grant of Environmental Impact Assessment Licenses in respect of the five projects do not appear to have been met although the works are still on-going.
- 1.17 In view of the issues highlighted in the preceding paragraphs, there is urgent need to review and realign the uncompleted projects, so as to rationalize their costs and ensure their viability and sustainability in relation

to those others within the water sector and in the national economy in general.

Detailed audit findings on each of the projects and the respective recommendations are discussed in the ensuing chapters of this report.

CHAPTER 2

Introduction

2.01 In November and December 2010, the Kenya National Audit Office carried out an audit of five major water dam projects under implementation by the National Water Conservation and Pipeline Corporation (NWCPC) in Eastern and Rift Valley Provinces, as part of Governments efforts to enhance the national capacity to store and supply water in the region and around the country. According to information available, the projects entail construction of four new dams and water treatment plants; namely, Kiserian in Kajiado District, Umaa in Kitui Distict, Badasa in Marsabit District, and Chemususu in Koibatek District. The projects also include rehabilitation and expansion of Maruba dam in Machakos District.

The National Water Conservation and Pipeline Corporation

2.02 The National Water Conservation and Pipeline Corporation (NWCPC) was established in June 1988 as a semi-autonomous agency under the State Corporations Act.

2.03 According to Legal Notice No. 270 of June 24 1988 and other relevant legislations, the mandate of the NWCPC includes:

- Development of state schemes and spearheading dam construction for water supplies, flood control and other related activities;
- Carrying out of land drainage and construction of dykes;
- Carrying out of ground water recharge using flood waters;
- Development of new bulk water supplies and retention of existing facilities; and,
- Drilling of boreholes.

2.04 During the 2008/09 and 2009/10 financial years, and as indicated above, NWCPD initiated and commenced implementation of five key projects involving construction of dams and water treatment plants in Machakos, Kajiado, Kitui, Marsabit and Koibatek Districts, as analysed below:-

District	Machakos	Kitui	Kajiado	Marsabit	Koibatek
Project Name	Maruba dam	Umaa dam	Kiserian dam	Badasa dam	Chemususu dam
Project cost in Kshs.	380,6000,000	878,777,600	1,062,302,672	2,471,175,978	5,036,340,976
Storage capacity in cubic meters (Millions)	2.45	0.87	1.22	5.00	11.00
Targeted population (approximate)	120,000	75,000	253,000	80,000	600,000

Funding of the Projects

2.05 Records examined during the audit showed that the projects are to be funded through the Ministry of Water and Irrigation under Vote D.20, in the Estimates for 2008/2009, 2009/2010 and 2010/2011 financial years, as detailed below:-

Project Name	Budgetary Allocation			Total
	2008/09 Kshs.	2009/10 Kshs.	2010/11 Kshs.	Kshs.
Maruba dam	259,000,000	110,000,000	-	369,000,000
Kiserian dam	262,000,000	400,000,000	456,000,000	1,118,000,000
Umaa dam	259,000,000	350,000,000	546,000,000	1,155,000,000
Badasa dam	271,000,000	426,700,000	906,000,000	1,603,700,000
Chemususu dam	207,000,000	820,000,000	863,000,000	1,890,000,000
Total	1,258,000,000	2,106,700,000	2,771,000,000	6,135,700,000

As may be observed in the preceding paragraph, the estimated cost of Kshs.9,829,287,226 in respect of the projects exceeds the budgetary provision of Kshs.6,135,700,000 reflected in the Estimates for Vote D20 for the three years, by a shortfall of Kshs.3,693,587,226. It has not however been clarified how the shortfall will be funded, although initial indications are that the Ministry may still have to provide additional finances to close the deficiency.

Objectives of the Projects

2.06 According to information available, the five dams and water treatment plants are to address the following challenges in the Districts and in the respective regions in general:-

- i. Alleviation of the low natural availability of surface water:
 - ii. Mitigation against water shortages during the period of droughts;
- and,

- iii. Achievement of the medium-term water goals of the Kenya Vision 2030, by increasing the national capacity to store water from 5.3 m³ per capita to 16 by the year 2012.

2.07 Construction of the dams and water treatment plants commenced on diverse dates between 2007/08 and 2009/10. According to other information available, the five projects are expected to be completed by 31 July 2012.

Purpose and Scope of the Audit

2.08 The purpose of the audit was to examine and evaluate the processes through which the five projects are being implemented by NWCPC. In particular, the audit focused on:-

- i. Review of the feasibility studies conducted by NWCPC before the projects were started;
- ii. Assessment of the extent to which NWCPC complied with the requirement of the Public Procurement and Disposal Act 2005 during the procurement of various works and consultancies for the projects;
- iii. Establishment of whether NWCPC exercised economy and efficiency during implementation of the projects; and,
- iv. Ascertainment that Government Financial Regulations and Procedures were adhered to with regard to receipts expenditure and accountability of the grants received from the Ministry and other sources.
- v. Compliance with the national environment laws and other related legislations;

- vi. The management systems in place to ensure effective and sustainable utilization of the dams; and,
- vii. Confirmation of the status of progress of construction and other related works.

2.09 The audit covered the period between July 2008 and January 2011 and was limited to:-

- i Examination of records and documentation maintained by the Ministry of Water and Irrigation and NWCPC;
- ii Interviews with key personnel at the Ministry's Headquarters, NWCPC, construction sector and in the local administration; and,
- iii Physical verification of the projects.

CHAPTER 3

Maruba Dam

Background of the Project

- 3.01 Maruba dam is located along a seasonal river referred to as Maruba, in Central Division of Machakos District in the Eastern Province. The dam is an earth-fill structure measuring 17 metres high with a capacity to hold 1.22 million m³ of water. Built in the 1950s, the dam serves a population of approximately 120,000 people living within a radius of approximately 10 kilometers of Machakos town.
- 3.02 According to information available, NWCPC rehabilitated the dam under the project and expanded its water holding capacity with the aim of achieving the intended range of 2.45 million m³. This range was viewed as approximating the needs of the growing population in Machakos town and in the surrounding areas.
- 3.03 Additional records examined indicated that the Corporation considered and opted to undertake the main works on the project using its in-house resources instead of outsourcing. As indicated in detail in the ensuing paragraphs, the works included expansion of the dam to enhance its water holding capacity, construction of a treatment plant and a spillway.

Scope of Work

3.04 The technical records and related documentation maintained at the NWCPC showed that the following specific works and tasks were to be undertaken under the project;

- i. Raising the height of the dam by 7.5 meters so as to accommodate an additional volume of 1.23 million m³ of water;
- ii. Construction of a spillway structure of 10 metres high to accommodate the enhanced capacity;
- iii. Rehabilitation of the existing treatment works as well as construction of a new 5000 m³ capacity water treatment plant; and,
- iv. Laying of a new 4.4 km pipeline to Nol-turesh storage tanks.

Audit Findings

Execution of Works by NWCP

- 3.05 Records available indicate that works on the project commenced in September 2008 and were scheduled for completion by the end of February 2010. Although the project was estimated to cost Kshs.380 million on an in-house construction arrangement, NWCP carried out works valued at Kshs. 301,604,880 only, while the construction of a spillway and a water treatment plant at costs of Kshs.78,395,120 and Kshs.9,070,507 respectively, were outsourced and awarded to other parties.
- 3.06 Examination of records relating to the works valued at Kshs.301,604,880 executed in-house by the Corporation revealed the following unsatisfactory observations:-
- i. Although information available indicates that some preliminary studies on Maruba dam had been carried out sometimes in 2006, no feasibility study appear to have been conducted before the project was planned and eventually commenced. In absence of the study and other related data, it has not been possible to establish how the project was determined as being financially and technically viable and sustainable. Further, the basis of assessing and arriving at the cost of Kshs.380,000,000 for the project was not clarified.
 - ii. Out of the total expenditure of Kshs.301,604,880 incurred by the Corporation on the project as indicated above, payment vouchers and other related documents for an amount of Kshs.233 million were

not made available for audit verification. In consequence, the propriety of this particular expenditure could not be ascertained.

- iii. Although grants totalling Kshs.372,480,000 as shown below, were disbursed by the Ministry to NWCPC during 2008/2009 and 2009/2010 and placed in two deposit accounts in a local bank, for eventual funding of various project activities, documents and other related data showing how the amount was spent were not been made available for audit review.

Payment Voucher	Date	Account Charged	Amount Kshs.	Cash Book
006646	27/1/2009	1-886-0000-3111502	2,700,000.00	Deposit Account
003440	20/11/2008	1-785-0000-3110500	180,000,000.00	Deposit Account
006646	27/3/2009	1-886-0000-3111502	2,500,000.00	Deposit Account
003934	8/12/2008	1-896-4110-3110504	125,000,000.00	Deposit Account
003934	8/12/2008	1-898-0000-3110504	25,000,000.00	Deposit Account
Sub Total Kshs.			335,200,000.00	
001125	3/9/2008	1-886-0000-3111504	6,500,000.00	Special Account
002969	30/12/2008	1-886-0000-3111504	1,000,000.00	Special Account
004386	8/1/2009	1-886-0000-3111401	10,000,000.00	Special Account
003924	8/12/2008	1-886-0000-3111502	5,800,000.00	Special Account
006161	4/3/2009	1-886-0000-3111502	4,000,000.00	Special Account
006337	4/3/2009	1-886-0000-3111502	4,500,000.00	Special Account
010502	23/6/2009	1-886-0000-3111504	5,480,000.00	Special Account
SubTotal Kshs.			37,280,000.00	
Total Kshs.			372,480,000.00	

In consequence, and in absence of such documents and data, it has not been possible to ascertain that the amount of Kshs.372,480,000 was utilized for the purposes intended and was properly accounted for.

- iv. Included in the Bills of Quantities was a provision of Kshs.9,000,000 for purchase of three 4WD vehicles for use in the project. However, and according to information available, no vehicles were purchased and no indication has been provided as to how the amount of Kshs.9,000,000,000 was utilized and eventually accounted for.
- v. Imprests totalling Kshs.8,635,141 issued to various officers reportedly involved in the execution of the project had not been surrendered or otherwise accounted as at 30 November 2010. As a result, the propriety of expenditure covered by such imprests could not be ascertained.

Procurement of Works for Construction of the Spillway

- 3.07 In a meeting held on 5th February 2009, NWCPC used restrictive tendering method of procurement to identify a firm to carry out construction works of a spillway for the dam. Accordingly, and following a review of the bids received, the contract was awarded to M/s Frabo & Company ltd of P.O. Box 78449-00507 Nairobi, at a contract sum of Kshs.78,395,120.00.
- 3.08 However, the Committee did not provide any plausible and justifiable reasons for not using open tender for the project, in accordance with the requirements of the Public Procurement and Disposable Act 2005. Consequently, and as a result of using restricted tendering for the spillway,

the Corporation was denied the benefits and advantages of open competitive bidding.

3.09 Examination of records relating to the spillway revealed the following observations:

- i. Payment vouchers and the related documentation for expenditure totalling Kshs.72,032,404 incurred on the spillway were not made available for audit review. In absence of the vouchers and the documentation, the propriety of the expenditure, which constituted about 18% of the value of the project could not be ascertained.
- ii. Payment Certificate No.4 in respect of the project indicates that various items provisions reflected in the Bills of Quantities were exceeded by amounts totalling Kshs.9,165,500. No reasons have however been provided for the cost-overruns in respect of the items.

Procurement of Works on the Water Treatment Plant

3.10 Although the water treatment plant was part of the work NWCPC had initially planned to undertake using in-house resources, the Corporation later on reversed the plan and instead contracted out the works. According to information available, the Corporation used direct procurement method for the purpose and contracted M/s Lee Construction Company Limited of P.O Box 28969-00200, Nairobi to carry out the treatment works, at a cost of Kshs.9,070,507. Other records show that the contract was to run for eight days starting from 15 May 2010.

The following unsatisfactory matters were noted in relation to the contract.

- (i) NWCPC has not provided any justification for use of direct procurement in awarding the treatment works to M/s Lee Construction Company. Further, it has also not been explained how the contract sum of Kshs.9,070,507 was arrived at and determined as fair and competitive.
- (ii) While settling the contract sum of Kshs.9,070,507 owed to Lee Construction Limited, the Corporation paid an amount of Kshs.10,521,788, which was over and above the contracted price by a balance of Kshs.1,451,281. Additional records indicate that the overpayment arose from an irregular inclusion of value added tax, while such tax had already been factored and included in the contract sum of Kshs.9,070,507.

Procurement of Consultancy Services

3.11 Records relating to procurement of consultancy services show that the Corporation used the direct procurement method to identify and appoint a consultant, Eng. Wilberforce J. Odhiambo to supervise the works at a fee of Kshs.17,500,000, as indicated in the Bill of Quantities. No reason was however provided for failure to use open tender while identifying the consultant.

Further, no information has been provided indicating how the consultant's fee of Kshs.17,500,000 was arrived at.

Other records seen show that the consultant was to provide the following services:-

- Carrying out regular site visits as agreed upon between the Corporation and the contractor;
- Checking of the work- in -progress in respect of the project;
- Reviewing of tests carried out;
- Inspection of works;
- Issuance of necessary instruction and approvals of work done; and,
- Making necessary design changes as and when need arises.

3.12 Other documents indicate that the consultant was to prepare and submit to NWPC various reports including the monthly progress status. However, and as far as I have been able to establish, no such reports were evident at NWPC as at the time of audit. In consequence, and in absence of the reports, the propriety of the expenditure of Kshs17,500,000 incurred on consultancy services could not be ascertained.

Audit Inspection – Site

3.13 A site inspection of the project conducted by this Office in November 2010 confirmed that work on the dam was completed in June 2010. However, and although the project was meant to increase water supply to Machakos town and its environs, the distribution infrastructure, including storage tanks, pipes and pumps, does not appear to have been improved and expanded to accommodate additional capacity. Consequently, no meaningful increase in water supply to the town and other areas has been recorded so far.

Compliance with Environmental Considerations

- 3.14 No evidence was seen to confirm that an Environmental Impact Assessment had been undertaken as required by the National Environmental Management and Coordination Act, 1999.

Recommendations

In view of the significance of the observations discussed in the preceding paragraphs, it is recommended that:-

- i. NWCPC undertakes an urgent review of the project with a view to ensuring that the supply of water to Machakos town and its environs is improved as intended, by facilitating installation of the necessary water distribution infrastructure.
- ii. NWCPC further investigates how grants totalling Kshs.372,480,000 placed in two deposit accounts operated by the Corporation were utilized and eventually accounted for.
- iii. Payment vouchers and other related records for expenditure totalling Kshs.305,976,255 incurred on the project be expeditiously submitted for audit verification.
- iv. NWCPC recovers an overpayment of Kshs.1,451,281 made to M/s Lee Construction, inclusive of interest.
- v. A sum of Kshs.9 million allocated in the Bills of Quantities for purchase of vehicles, which according to records available were not purchased or delivered, be recovered from the managers of the project.

- vi. Disciplinary and/or administrative action be taken against officers who failed to observe and adhere to the requirements of the Public Procurement and Disposal Act, 2005 while contracting various works and services.

CHAPTER 4

Kiserian Dam

Background of the Project

- 4.01 Kiserian dam is situated at approximately 2 kilometres south east of Kiserian town in Kajiado District. According to information available, the dam, which is currently under construction, will supply water to Ngong, Ongata Rongai and Kiserian townships and the surrounding areas. Other records seen indicated that the water from the dam would be available to a population of approximately 253,000 people.
- 4.02 The design of the dam lays out a 17 metres high earth-fill reservoir, with a capacity of 1.22 million m³ of water.

Procurement of Works

- 4.03 Twelve prequalified contractors were invited on 4 September 2008 to bid for construction of the dam and eight firms as shown below responded.

Bidder No.	Bidder's Name	Address	Nationality	Tender Sum (Kshs)
	Engineers Estimate			819,784,305.16
1	Intex Construction Ltd	P.O Box 60243-00200 Nairobi	Kenyan	1,521,306,055.50
2	Magic General Contractors Ltd	P.O Box 28548 Nairobi	Kenyan	974,396,202.10
3	SinoHydro Corporation	P.O Box 24446-00100 Nairobi	Chinese	1,087,375,654.00
4	S. S Mehta & Sons	P.O Box 41853-00100 Nairobi	To Confirm	1,057,085,676.00
5	Draft & Develop Engineer	P.O Box 2557-00100 Nairobi	Kenyan	849,773,559.00
6	Lee Construction Ltd	P.O Box 28969-00200	Kenyan	989,397,136.00
7	Frabo & Co. Ltd	P.O Box 7449-00509 Nairobi	Kenyan	993,878,776.80
8	Mid-roc W. Drilling Co.	P.O Box 78607-00507 Nairobi	Kenyan	653,564,073.80

Separate information indicates that the engineer's estimate for the project stood at Kshs.819,784,305.

- 4.04 The bids were evaluated by the Corporation's Tender Committee subsequent to which the Corporation awarded the tender to the third lowest bidder, M/s Lee Construction Limited at a tender sum of Kshs.989,397,136.
- 4.05 Further, information available indicates that the lowest bidder, at Kshs.653,564,073, M/s Mid-roc Drilling Company Limited was not considered and awarded the contract apparently because the firm lacked capacity and experience in construction of large dams. However, and as demonstrated in an ensuing paragraph, this position may not have been accurate.

4.06 An examination of other records maintained at the Corporation showed that works on the project commenced on 6 January 2009 and were scheduled for completion over a period of 24 months to 5 January 2011.

Scope of Work

4.07 According to the technical documents and other related records for the project, the scope of work for the dam entails:

- i. Construction of a reservoir embankment of a height of 17 metres, designed to hold approximately 1.22m³ of water;
- ii. Construction of a spillway and related works;
- iii. Construction of a water treatment plant with a capacity of 15,700m³ of water per day;
- iv. Laying of water pipes and installation of ancillary equipment for a distance of two kilometres to the reservoir tank;
- v. Construction of a water storage tank to store 500m³ of water; and,
- vi. Construction of staff houses and other related works.

Procurement of Consultancy Services

4.08 In December 2008, six consultancy firms were invited to submit proposals for consultancy services during construction of the dam. These firms were;

Name of the Firm	Address
Kiri Consult Ltd;	P.O. Box 4125-0056 Nairobi
Otieno Odongo & Partners;	P.O. Box 54021-00200 Nairobi
Norcken International;	P.O. Box 9882-00100 Nairobi
Samez consultants;	P.O. Box 72398-00200 Nairobi
Multiscope consulting Engineers;	P.O. Box 12012-00100 Nairobi
Runji & Partners Consultants;	P.O. Box 68053-00200 Nairobi

4.09 Following a review and adjudication of the bids, the Corporation awarded the consultancy contract to M/s Samez Consultants Limited at a contract sum of Kshs.72,905,536. According to other information seen, the consultancy services included supervision of construction works for the dam and other ancillary works and activities.

Audit Findings

Examination of records relating to the project revealed the following unsatisfactory matters:-

Feasibility Study

- i. NWPC does not appear to have carried out a feasibility study on the project before it was planned and implemented. Consequently, the basis on which the financial and technical viability and sustainability of the project were determined is not clear.

Award of the Contract for Works

- ii. Although as indicated elsewhere in this report, M/s Mid-roc Drilling Company was not awarded the contract despite being the lowest bidder at Kshs.653,564,073, due to what was explained as lack of capacity and experience in construction of large dams, records available indicate that four months after being disqualified for award of the Kiserian dam project, the firm was awarded by the Corporation the contract for construction of Badasa dam in Marsabit District at a contract sum of Kshs.2,389,846,058. Consequently therefore, and had the lowest bidder for the Kiserian dam project been awarded the contract, NWPC would have realized a saving of Kshs.355,833,063 or approximately 33% of the contract sum.

Retention Money

- iii. Retention money totalling Kshs.33,896,132 deducted against various payment certificates could not be verified due to lack of relevant supporting documents, including the deposit account in which the money has been placed.

Unsupported Expenditure

- iv. Payment vouchers and other related records in respect of expenditure totalling Kshs.8,993,000 as shown below, incurred on the project were not submitted for audit review. In consequence, the propriety of the expenditure could not be ascertained.

Date	Payee	Amount in Kshs.
26-Jan-09	Gregory Mugambi	165,000.00
30-Jun-09	Zablon Isaboke	300,000.00
3-Dec-08	Zablon Isaboke	300,000.00
18-Dec-08	B.M Musyoki and Co. Advocates	8,228,000.00
	Total	8,993,000.00

Unauthorized Expenditure

- v. A review of other records including Payment Certificate No.12 disclosed that NWCPC paid the contractor amounts totalling Kshs.55,954,853, over and above those approved and reflected in the Bills of Quantities. However, the excess expenditure does not appear to have been approved by the Corporation's Tender Committee as provided for under Section 47 of the Public Procurement and Disposal Act 2005.

Monitoring of Project Works

- vi. NWCPC does not appear to have established an effective framework for monitoring and evaluating implementation of the project. Indications are that the Corporation was solely relying on monthly reports prepared and submitted by the consultant and information from other parties.

Level of Completion of Project Works

- vii. A progress report for the month of October 2010 prepared by the consultant showed that the level of completion of project works as at 31 October 2010

stood at 55% compared to the planned 98.5%, as shown in the Table below:-

Item	Planned (%)	Actual %
Preliminary and General.	92.9	72
Dam Embankment.	97.74	61.4
Raw Water Pipeline.	100	34.4
Water Treatment Works.	95	61.0
Transmission Pipeline and Storage Tanks.	95	26.4
Average	98.5	55

Clearly therefore, the project works were behind schedule, and the completion date may have to be extended. According to other records seen, the slow progress of the works was attributed to: -

- Delay in the procurement of various instrumentation equipment for use in dam embankment works;
- Illegal encroachment of part of the land on which the reservoir, storage tank and main pipelines are to be placed or installed;
- Inadequate technical data on the site, including inconclusive geotechnical information; and,
- Non-availability of embankment construction materials near the site

However, it has not been explained why these challenges had not been addressed and resolved at the project planning stage, and in any case, before construction of the dam commenced.

Compliance with Environmental Considerations

- viii. A review of environmental records at NWCPC did not provide any evidence to confirm that an Environmental Impact Assessment had been carried out by the Corporation prior to commencement of the project, as required by the Environmental Management and Co-ordination Act 1999.

- ix. An audit inspection of the project site carried out in December 2010 revealed that sewerage and other raw waste water from Kiserian township are draining into the dam. An initial enquiry into the matter confirmed that the issue of the sewerage and waste water disposal had not been addressed before the project was embarked on and therefore no budgetary provision had been allocated to mitigate against the negative effects of the disposal.

Management of the Project

- x. Although records available indicate that once completed the project will be managed by Ololoiser Water Company and Tana-Athi Water Services Board, plans and budgetary provisions for infrastructural development to facilitate storage and distribution of the water to the targeted communities do not appear to have been prepared or set aside by the Corporation. Further, an additional review showed that there is no reliable water supply flowing into the dam site and expectations therefore are that the dam will be filled with storm/flood waters during the wet seasons.

Recommendations

4.10 In view of the matters discussed in the preceding paragraphs, it is recommended that:-

- i. A comprehensive review of the project be undertaken by NWCPC, with a view to assessing and considering the project's viability and sustainability.
- ii. Payment vouchers and other records relating to expenditure amounting to 8,993,000 be made available for audit verification.
- iii. Action be taken to review and redesign the sewerage and waste water system for Kiserian township, to mitigate the potential risk of pollution of the dam's water.
- iv. NWCPC plans, designs and installs the necessary infrastructure and other related facilities needed for storage and distribution of water to the beneficiaries of the project.
- v. Disciplinary and administrative action be considered against officers who failed to comply with the requirements of Public Procurement and Disposal Act, 2005.

CHAPTER 5

Umaa Dam

Background of the Project

5.01 Umaa dam is situated at approximately 7 kilometres north east of Kitui town in Kitui District. According to information available the project involves construction of a 28 metre high reservoir, designed to hold 870,000 m³ of water. Additional data show that the water supply is expected to serve a population of approximately 75,000 people in Kitui town and the environs.

The construction of the dam commenced on 6 January 2009 and was scheduled to take two years to complete i.e up to 5 January 2011.

Procurement of Works

5.02 Records available indicate that a tender for construction of the dam was advertised in the local media on 20 June 2008. Following a review and adjudication of the bids shortly thereafter, the tender was awarded to M/s Draft and Develop Engineers Limited of P.O. Box 2557-00100, Nairobi at a contract sum of Kshs.824,457,120.

Scope of Work

- 5.03 Technical records and other data at NWCPC indicate that the project includes the following works:
- i. Preliminary and general works ;
 - ii. Construction of the dam embankment;
 - iii. Construction of a water treatment facility;
 - iv. Construction of various road;
 - v. Construction of an administration block and staff houses;
 - vi. Laying of pipelines and ancillary pipe works;
 - vii. Installation of pumps and ancillaries equipment; and ,
 - viii. Electrical works

Procurement of Consultancy Services

- 5.04 The contract for supervision of works on the project was awarded to M/s Kiri Consult Limited of P.O. Box 4125-0056, Nairobi at a contract sum of Kshs.54,320,480.

Audit Findings

- 5.05 The audit of the project revealed various unsatisfactory observations as summarized below:

Feasibility Study

- i. NWCPC does not appear to have carried a feasibility study on Umaa dam project before it was started. Consequently, and in absence of

the study, the basis on which the project was assessed and determined as financially and technically viable and sustainable is not clear.

Project Expenditure

- ii. Examination of records available including payment certificates indicated that as at 31 October 2010, payments totalling Kshs.577,828,757, representing approximately 70% of the contract sum had been made to the contractor, while an estimated 40% of the project had been completed. Similarly, the consultant had, as at that date been paid fees totalling Kshs.37,194,376.00 or about 68 % of the value of the consultancy. Clearly therefore, and on the basis of the above statistics, the project was behind schedule. Further, and as may be noted from the statistics, the expenditure incurred on construction and consultancy as at the same date had exceeded the level of works completed.
- iii. Examination of Certificate No.10 dated 24 August, 2010 revealed that the contractor had, as at that date, been paid a cumulative total of Kshs.77,162,996.91 for bills which had not included in the contract agreement and were therefore ineligible. No reason has been provided for including such bills in the Certificate.

Payments Beyond Provisions

- iv. An aggregate sum of Kshs.178,889,341.80 paid to the contractor represented payments in excess of the provisions approved in the

respective items in the Bills of Quantities. As in the previous instance, no reason has been provided for the cost-overruns and approval of the Corporation's Tender Committee in this respect has not been seen.

Purchase of Motor Cycles

- v. Examination of Payment Certificate No.6 revealed that the contractor was paid an amount of Kshs.2,000,000 for the purchase of two motor cycles (Yamaha 125 cc) and a further sum of Kshs.320,000.00 in respect of overheads and profit. However, a market survey conducted in December 2010 by this Office established that the cost of the motor cycles may have been inflated by over 300%.

Claim on Price Variation

- vi. In September 2009, eight months after the project commenced, the contractor submitted a request for variation of the contract price by an amount of Kshs.442,920,633. According to information available, the contractor indicated in the request that the work already done be valued at revised rates and that several items of work in the Bill of Quantities be increased. He further requested for compensation for loss of productivity. As may be observed from the foregoing, the variation requested by the contractor represented an increase of approximately 53% of the contract sum of Kshs.824,457,120. However, and as at the date of the audit in

December 2010, the Corporation had not approved or settled the claim.

Unsupported Expenditure

- vii. Payment vouchers and other related records for expenditure totalling Kshs.3,711,136 shown below, incurred on the project were not submitted for audit.

Date	Payee	Amount in Kshs.
3/3/2009	Parkside Villa	178,640.00
6/30/2009	Wilberforce Odhiambo	300,000.00
12/3/2008	Wilberforce Odhiambo	300,000.00
2/3/2009	B.M Muindi	236,100.00
2/2/2009	Silas Muketha	127,000.00
2/4/2009	Jane Mwanza	815,696.00
3/17/2009	B.M Muindi	773,500.00
3/31/2009	B.M Muindi	980,200.00
	Total	3,711,136.00

In absence of the vouchers and records indicating the purposes for which the payments were made, the propriety of the expenditure could not be ascertained.

Level of Completion of Works

- viii. The progress of works report for the month of October 2010 indicated that 98% of the contract period had elapsed, while only

53% of the works had been completed. An audit inspection visit at the site by this Office revealed that other than various ancillary works including some buildings, no meaningful construction had been carried out on the main dam embankment, spillway and the water treatment plant. Other statistics show that as at the same period, approximately 70% of the contract sum had been paid to the contractor.

Similar to the other projects discussed in this report, the dam construction is clearly behind schedule.

Monitoring and Evaluation of Works

- ix. A review of other records at NWCPC did not show any evidence of an effective monitoring and evaluation mechanism in respect of the project. And as similarly observed in the reports for the other projects, the Corporation appears to solely rely on the reports provided by the consultant and other parties.

Compliance with Environmental Considerations

- x. Although records available indicate that NWCPC paid a sum of Kshs.1,933,930.00 to the National Environment Management Authority for issue of the environment compliance licence, no Environmental Impact Assessment report was however seen.

Management of the Project

- xi. According to information available, the plans and considerations for expansion and improvement of the water distribution system including storage tanks, pipes and pumps for Kitui town and its environs, do not appear to have been included in the project's plan and budget. In the circumstances, additional funds will have to be sought from the Exchequer to finance the above infrastructure, to facilitate supply of the water to the town and the surrounding areas.

Separate additional information revealed that there is no river feeding into the dam and as the case with other projects, it is anticipated that the dam will be filled by storm/flood waters.

Recommendations

5.06 Considering the issues raised in the foregoing paragraphs, it is recommended that:-

- i. NWCPC undertakes a comprehensive review of the project in order to assess its financial and technical viability and sustainability.
- ii. Payment vouchers and other related records for expenditure totalling Kshs.3,711,136 incurred on the project be submitted for audit verification.
- iii. Funding be provided for construction and installation of the necessary infrastructure and other systems needed to distribute water to the targeted areas.

- iv. Disciplinary and/or administrative action be considered against officers who failed to adhere to the requirements of the Public Procurement and Disposal Act, 2005.

CHAPTER 6

Badasa Dam

Background of the Project

6.01 Badasa dam is located 9 kilometres south east of Marsabit town. According to information available, the dam is planned to attain a height of 52m and hold a capacity of 5 million m³ of water. On completion, the dam is expected to adequately supply water to a population of approximately 80,000 people in Marsabit town and the environs.

Procurement of Works

6.02 On 20 June 2008, NWCPC advertised in the local media a tender for construction of Badasa dam and related works. Shortly thereafter, and following a review and adjudication of the tender by the Corporation, M/s Frabo and Company Limited of P.O. Box 78449-00507, Nairobi were awarded the works at a contract sum of Kshs.1,476,833,109. However, and before the works commenced, the award was nullified by the Public Procurement and Review Board due to various irregularities observed during the procurement process. Other information shows that retendering for the works was done in January 2009, following which five firms responded as shown below:-

Bidders' Name	Mailing Address	Remarks
Kundan Singh Construction Ltd.	P. O. Box 51018-00509 Nairobi	The firm did not qualify for financial bid
Frabo and Company Ltd.	P. O. Box 78449-00507 Nairobi	2,342,907,017.50
Midroc Water Drilling Co. Limited	P. O. Box 78607-00507 Nairobi	2,389,846,058.83
China Jianxi International Technical Corporation	P. O. Box 31533-00600 Nairobi	The firm did not qualify for financial bid
Tipple Eight Construction Ltd.	P. O. Box 54702-00200 Nairobi	The firm did not qualify for financial bid

6.03 Records available show that after a review and evaluation of the fresh bids, the tender was awarded to M/s Mid-roc Drilling Company who, as may be observed above, were ranked second lowest at Kshs.2,389,846,058. However, and on the basis the information seen during the audit, there is no plausible reason why the lowest bidder ie, M/s Frabo & Company, at a sum of Kshs.2,342,907,017 was not considered and awarded the tender. A separate enquiry into the anomaly appeared to indicate that the lowest bidder was not awarded the tender because he had already been engaged in other projects of similar nature, notably, Maruba dam in Machakos District and Chemususu in Koibatek District.

As a result of not awarding the tender to the lowest bidder, NWCPC lost a saving of Kshs.46,939,041. In addition, no reason has been provided for the very substantial increase in bid figures following the retendering of the project.

6.04 Other information indicates that the works commenced on 9 June 2009 and were scheduled to take a period of 30 months to 9 December 2011.

Scope of work

6.05 Examination of various contract documents and other data at NWPCPC indicated that the scope of work entails the following activities:-

- i. Carrying out of Preliminary and General Works;
- ii. Construction of a 52 metre high embankment for a reservoir;
- iii. Construction of a spillway and a diversion chamber;
- iv. Construction of an intake culvert and tower;
- v. Grouting and other related works;
- vi. Purchase and installation of mechanical, electrical and instrumentation equipments;
- vii. Construction of service roads and related works; and,
- viii. Construction of a water treatment plant as well as laying of a pipeline and ancillary works.

Procurement of Consultancy Services

6.06 The contract for consultancy services was awarded to M/s Runji and Partners Consulting Engineers and Planners Limited, at a fee of Kshs.75,833,260. According to additional information available, this fee was later raised to Kshs.81,329,920.

Audit Findings

6.07 The following observations were made in respect of the project:-

Feasibility study

- i. Although according to information available some preliminary studies on the project had been carried out in 2006, no comprehensive feasibility study appears to have been undertaken by NWCPC before the project was planned and implemented. In consequence, and in absence of the study, it has not been possible to establish how the project was determined as financially and technically viable and sustainable. Further, and for a similar reason, it has also not been possible to ascertain how the engineer's estimated cost of the project was arrived at.

Qualification of the Contractor

- ii. Although as indicated above M/s Mid-roc Drilling Company was awarded the contract, other records examined indicated that the company was registered and licensed under category B at the Ministry's Headquarters. Under the category, and according to the licensing records at the Ministry, the company was authorized and limited to construct dams costing not more than Kshs.150 million and attaining a maximum height of 30 metres. However, and as mentioned elsewhere in this report, Badasa dam was valued at Kshs.2,389,846,058 and was to attain a height of 52 metres.

Variation of Contract Price for Consultancy Services

- iii. In a meeting held on 17 December 2008, NWCPC varied and revised upwards the contract fee for consultancy services for the project by an amount of Kshs.5,496,660, from Kshs.75,833,260 to Kshs.81,329,920, following a request by the firm that the fees be reviewed. However, and although the variation was formalized by the Corporation, the basis and justification for the increase was not explained.

Payments for Work Done

- iv. A review of expenditure records at NWCPC indicated that as at 15 November 2010, the Corporation had made payments totalling Kshs.1,149,240,991 for work done as shown below: -

	Kshs.
Construction	1,117,985,991
Consultancy	<u>31,255,000</u>
	<u>1,149,240,991</u>

As may be noted from the preceding paragraph, approximately 46% of the contract sum had been paid to the contractors and consultants while only about 33% of the works had been completed.

Unsupported Expenditure

- v. Payment Vouchers and other related records in respect of expenditures amounting to Kshs.211,439,555 and Kshs.74,449,855 as shown in Corporation's ledgers for the 2008/2009 and 2009/2010 respectively, were not made available for audit. As result, and in absence of the records, the propriety of expenditure totalling Kshs.285,889,410 could not be ascertained.

Excess Expenditure

- vi. Records available indicated that NWCP had as at 31 October 2010 incurred expenditure totalling Kshs.155,719,693, over and above various provisions specified in the project's Bills of Quantities. Apart from the fact that the basis and rationale behind accepting and settling the excess-expenditure of Kshs.155,719,693 was not clarified, no records were seen to show how the figure was arrived at.

Retention Money

- vii. Retention monies totalling Kshs.208,363,512 deducted from various Payment Certificates as at 30 November 2009 were not verified due to lack of relevant supporting documents. Further, and on the basis of an enquiry made during the audit, the monies do not appear to have been placed in a deposit or any other appropriate account, as required by the Government Financial Regulations and Procedures.

Additional Consultants - Dam Experts

- viii. According to other records available, NWCPC contracted two additional consultants referred to as Dam Experts alongside the regular ones already on site, to provide quality assurance services for the project. Information available does not however indicate how the two Experts were identified, their competencies determined, and their aggregate fees of Kshs.80 million, as shown in the Bills of Quantities, arrived at.

In consequence, it has not been possible to ascertain the propriety of the expenditure. Further, the terms of reference including the specific tasks that were to be performed by the Experts were not disclosed.

Level of Completion of the Project

- ix. The progress of work report for the month of September 2010 prepared by the consultant indicated that the overall project completion was at 33%, while 52% of the contract period had elapsed. The works were therefore behind schedule.

An audit inspection visit to the project site in December 2010 by this Office revealed that no major works had been accomplished since September 2010. For example, the construction of the dam embankment had not commenced, while work on the tower and the diversion channel appeared to have slowed down considerably. No

satisfactory explanation has been provided by the Corporation for the slow rate of progress of works.

Compliance with Environmental Considerations

- x. Although the National Environment Management Authority issued an interim Environmental Impact Assessment license subject to the fulfillment of certain conditions specified by the Authority, including ensuring adherence to an Environmental Management Plan, no such Plan was however evident during the audit.

Management of the Project

- xi. As similarly observed in the reports for the other projects, there is no evidence of a visible river following into the dam. Accordingly therefore, and based on information gathered from other sources, indications are that the dam will be filled with storm/flood waters.
- xii. Key infrastructure including storage tanks, distribution pipelines and pays to facilitate supply of water to the targeted areas does not appear to have been factored in the project budget during the planning stage. As a result, additional funds will have to be considered and provided by the Ministry in order for the objectives of the project to be fulfilled.

Recommendations

The following recommendations may be considered in the light of the matters discussed above:-

- i. NWCPC should urgently review the financial and technical viability and sustainability of the project in order to rationalize it with those others within the water sector and in the country in general.
- ii. In view of the considerable difference between the original contract price of Kshs.1,476,833,109 cancelled by the Public Procurement and Review Board and the contract sum of Kshs.2,389,846,058 awarded by the Corporation following retendering of the project, there is need to comprehensively analyse the Bills of Quantities for the dam, with a view to ascertaining that the prices reflected therein are fair and competitive and that they represent good value for money.
- iii. NWCPC should consider seeking additional funds to ensure that key infrastructure including storage tanks, pipelines, pumps and other systems are in place to facilitate distribution of water to Marsabit town and the surrounding areas.
- iv. Disciplinary and/or administrative action should be considered against officers who failed to comply with requirements of the Public Procurement and Disposal Act, 2005.

CHAPTER 7

Chemususu Dam

Background of the Project

- 7.01 Chemususu dam is located in Koibatek District, approximately 80 kilometres north west of Nakuru town.
- 7.02 The dam is planned and designed to attain a height of approximately 45 metres and to hold a capacity of about 11 million m³ of water. It is anticipated that this capacity will adequately serve a population of about 600,000 people in Nakuru, Baringo and Koibatek Districts.

Procurement of Works

- 7.03 NWPCPC advertised a tender for construction of the dam in January 2009 and eleven bidders responded as follows:

Bidder's No.	Bidder's Name	Address	Amount (Kshs)
1	Mid-roc Water Drilling Co.	P.O Box 78607-00507 Nairobi	Not provided
2.	Kundan Singh Limited	P.O Box 15018-00509 Nairobi	Not provided
3.	Spenco (K) Ltd	P.O Box 14294-00800 Nairobi	Not provided
4.	Triple Eight Construction Company	P.O Box 54702-00200 Nairobi	Not provided
5.	Frabo & Co. Limited	P.O Box 7449-00507 Nairobi.	4,863,761,206.00
6.	China Jianx Corporation	P.O Box 31533-00600 Nairobi	Not provided
7.	Syno hydro Corporation Ltd	P.O Box 24446-00100 Nairobi	Not provided
8.	Pepco (K) Limited	P.O Box 21645 Nairobi	Not provided
9.	Nyoro Construction Company.	P.O Box 74416-00200 Nairobi	Not provided
10	Sinotec Company. Limited	Not indicated	Not provided
11.	Victory Construction Company.	P.O Box 45329-00100 Nairobi	Not provided

As may be noted in the table above, the value of bids submitted by ten of the eleven bidders were not made available for audit verification. Consequently, and in absence of the values, it has not been possible to establish whether or not the remaining one was the lowest and that it represented reasonable value for money in respect of the project.

Award of the Tender

7.04 NWCPC reviewed and evaluated the bids in February 2009 and awarded the contract to M/s Frabo and Company Limited at a contract price of

Kshs.4,863,761,206. However, and according to records available, the price was later slightly revised downwards to stand at Kshs. 4,861,154,976. The contract agreement between the Corporation and the contractor was signed on 21 April 2009, while works commenced on 19 July 2009.

According to the agreement and other related records, the works are scheduled to take a period of 36 months to 18 July 2012.

Scope of Work

7.05 According to the contract records and other technical data available, the scope of work covers:-

- i. Preliminary and general works;
- ii. Construction of an embankment;
- iii. Construction of a spillway;
- iv. Construction of a diversion chamber, intake and culvert tower;
- v. Foundation grouting and relief wells;
- vi. Construction of roads and parking;
- vii. Connection to existing water supply; and,
- viii. Installation of mechanical and electrical equipment.

Procurement of Consultancy Services

7.06 In January 2009, NWPC invited six consultancy firms as shown below, to submit bids for consultancy services for the project:-

Name	Address
Kiri Consult Ltd	P.O. Box 4125-00506 Nairobi
Otieno Odongo & Consulting Partners	P.O. Box 54021-00200 Nairobi
Norken International Consultants	P.O. Box 9882-00100 Nairobi
Samez Consultants	P.O. Box 72398-00200 Nairobi
Multi-scope Consulting Engineers	P.O. Box 12012-00100 Nairobi.
Runji & Partners Consultants	P.O. Box 68053-00200 Nairobi

7.07 No records were however provided to show how the six firms were identified before they were invited to bid for the services. Nevertheless, and according to other records reviewed, the Corporation awarded the services to M/s Otieno Odongo & Partners at a contract price of Kshs.175,276,000.

Audit Findings

7.08 Examination of records available at NWCPC indicated that as at 31 October 2010, payments totalling Kshs.1,175,058,862 in respect of works and Kshs.46,878,521 relating to consultancy services had been cleared and settled as at that date. The following observations were however made with regard to the project:-

Feasibility Study

- i. Records at NWCPC on the project indicated that Chemususu dam was designed by an Italian engineering firm in 1989 but could not apparently be built then due to financial constraints. Although as

further indicated in the records the designs were reviewed by local consultants in 2008 the report on the review including the feasibility studies were not submitted for audit verification, with the result that it has not been possible to establish whether or not the project is financially and technically viable and sustainable.

Engineer's Estimate

- ii. Examination of other records during the audit revealed that the contract price of Kshs.4,861,154,976 agreed upon between the Corporation and the Contractor was higher than the engineer's estimate of Kshs.4,112,145,906 by a figure of Kshs.749,009,070 or approximately 18%. No reason has been provided for the significant variation between the two sets of prices.

Apparent Conflict of Interest

- iii. Additional records examined in respect of the procurement of the consultancy services revealed that a director in M/s Otieno Odongo and Partner Limited had earlier been involved in the review of the design of the project, while the firm later bid for the project's consultancy services. Information available elsewhere in this report shows that the bid was successful.

In the circumstances, indications are that there may have been a conflict of interest during the process of procuring for consultancy services.

Unsupported Expenditure

- iv. Payment vouchers and other related records for expenditure totalling Kshs.46,878,521 incurred on consultancy services were not made available for audit review. Consequently the propriety of expenditure could not be confirmed.

Excess Expenditure

- v. Comparison of Payment Certificates Nos. 2 to 8 as at 30 November 2010 against the Bills of Quantities revealed excess-expenditure totalling Kshs.183,159,594 against work done on the spillway and the intake culvert tower, as shown below.

Item	Description	Bills of Quantities Kshs.	Payments as at 30 Nov. 2011 Kshs.	Over - Expenditure Kshs.	Percentage
3.22	Excavation in rock in small places	186,150,000	341,135,001	154,985,001	83%
4.226	Excavation in rock for cuttings	76,500,000	104,674,593	28,174,593	37%
Over-Expenditure				183,159,594	

No reason has been provided for the cost-overruns amounting to Kshs.183,159,594. Further, the overruns do not appear to have been referred to the Corporation's Tender Committee for approval as required under Section 47 of the Public Procurement and Disposal Act 2005.

Provision of Motor Vehicles

- vi. According to information, six project motor vehicles were purchased in 2009 and 2010 at a cost of Kshs.26,000,000 as shown below:-

Registration No.	Make /Model
KBF 803H	Toyota Double Cabin Pick-up
KBF 804H	Toyota Double-cabin Pick-up
KBL 091M	Toyota Double Cabin Pick-up
KBJ 602J	Toyota Land Cruiser Prado
KBJ 633J	Toyota Land Cruiser Prado
KBJ 674E	Toyota Double-Cabin Pick-up

However, and although according to information available NWPC is as well absorbing the cost of servicing and maintaining the vehicles, which as at 30 November 2010 stood at Kshs.39,450,000, the contract agreement stipulates that the vehicles shall become the property of the contractor after completion of the project. This is clearly an unusual provision for a Government project, as such vehicles would under normal circumstances revert to the Government at the end of the project.

Retention Money

- vii. Retention monies totalling Kshs.93,212,476 were deducted from various payment certificates as follows:

Cert No	Retention Amount
	KSHS
2	11,685,425
3	19,452,603
4	19,125,694
5	8,168,794
6	9,880,108
7	15,355,495
8	9,544,357
Total	93,212,476

However, and apart from lack of a Retention Money Register, it has not been possible to confirm that an actual cash balance of Kshs.93,212,476 exists and is available in the Corporation's cash account.

Additional Consultants - Dam Experts

viii. As similarly observed elsewhere in this report, NWCPC appointed two additional consultants referred to as Dam Experts, with the responsibility for providing quality assurance services in relation to project. Apart from the fact it has not been explained how the Experts were identified and their terms of reference determined, the following other anomalies were noted:-

- There is no clear line of differentiation between the services provided by the Experts and those already being offered by the regular consultants under the project.

- It has not been clarified how the fee of Kshs.80 million for the Experts as indicated in the respective Bills of Quantities was arrived at.
- According to additional information available, one of the Dam Experts is also a director in M/s Otieno Odongo and Partners Limited, the consultancy firm appointed to supervise the construction of the dam. Again, and in absence of any other clarification to the contrary, the question of conflict of interest may be relevant.

Monitoring of Progress of Works

- ix. As similarly observed in all other projects, NWPC does not appear to have arranged a monitoring and evaluation mechanism for the project. The Corporation therefore appears to be relying solely on the reports by the consultants and other parties.

Level of Completion of the project

- x. An audit inspection exercise carried out at the project site by this Office in November, 2010 confirmed that the construction of the dam was in progress. However, and according to the monthly progress report as of October 2010, the overall level of completion of the project stood at approximately 25%, while about 44% of the contract period had elapsed. The project was therefore behind schedule.

Compliance with Environmental Considerations

- xi. NWCPC has not submitted for audit review evidence showing that it has prepared an Environmental Management Plan for the project as required by the National Environment Management Authority. No reason has been provided for the omission. Further records indicate that the Kenya Forestry Service (KFS) will require a sum of Kshs.186,500,000 from the Corporation in respect of license fees and various environmental related compensation expenses, as shown below:

	Kshs.
License fee to access dam site	4,500,000
Compensation for trees cut in Lembus Forest	74,000,000
Compensation for rock to be excavated	<u>108,000,000</u>
Total	<u>186,500,000</u>

The fee and charges to be paid to KFS do not however appear to have been considered and included in the project plan and budget prior to commencement of the works.

Management of the Project

- xii. Funds for improving the water storage and distribution systems including reservoir tanks, pipes and pumps do not appear to have been factored in the project's budget. In the circumstances,

additional resources would have to be sought from the Ministry in order for the project to achieve its intended objectives.

Recommendations

On the basis of the matters discussed in this report, it is recommended that:-

- i. NWCPC undertakes a review of the project in order to assess and ascertain its viability and sustainability within the anticipated budgetary allocation in the water sector.
- ii. The Corporation carries out investigations to establish the reasons for the significant variance between the contract price of Kshs.4,861,154,976 and the engineer's estimate of Kshs.4,112,145,906.
- iii. The Corporation reviews likely cases of conflict of interest in the processing and awarding various contracts for consultancy services.
- iv. The Corporation reviews the project agreement between it and the contractor with a view to safeguarding the Corporation's interest especially with regard to ownership of motor vehicles after the project is completed.
- v. Disciplinary and/or administrative action be considered against officers who did not observe the requirement of the Public Procurement and Disposal Act, 2005.

CHAPTER 8

General Recommendations

The following general recommendations with regard to the management of the projects by NWCPC are relevant:-

Feasibility Studies

- i. NWCPC should in future ensure that comprehensive and detailed feasibility studies are undertaken in respect of all proposed projects, before implementation of such projects commences.

Accounting for Project Grants and Other Funds

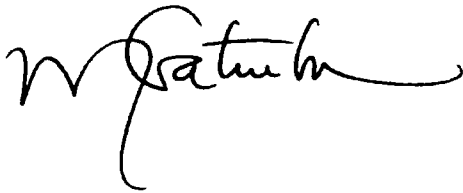
- ii. Adequate accounting records should be maintained in respect of all projects grants from the Ministry of Water and Irrigation and other sources.

Internal Controls

- iii. The internal controls in NWCPC need to be reviewed and strengthened in order to enhance safeguarding of revenue and other assets of the Corporation.

Consultations with Stakeholders

- iv. There is need for the Corporation to adequately consult and actively engage key stakeholders in the water sector including NEMA, KWS, KFS and others, prior and while implementing major initiatives and projects in the sector.



A.S.M. Gatumbu

AUDITOR-GENERAL

14 March 2011

KENYA NATIONAL AUDIT OFFICE