



# Zambezi River Authority



**ANNUAL REPORT 2010**  
23<sup>rd</sup> Edition of the ZRA Annual Report & Accounts

**Front cover Picture:**

Kariba Office Administration Building

**Back Cover:** Kariba Dam Annual Spilling, 2010



# ZAMBEZI RIVER AUTHORITY

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Annual Report & Financials for the Year Ending 31<sup>st</sup> December, 2010

23  
edition

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## ZRA Annual Report & Accounts 2010 23<sup>rd</sup> Edition

Layout & Design: Public Relations & Communications Unit  
Published by: Zambezi River Authority, 2011



Zambezi River Authority (ZRA) is a statutory body which was constituted in 1987 through parallel Acts of Parliament in Zambia and Zimbabwe.

ZRA manages and monitors the quantity and quality of the water in the Zambezi River common to Zambia and Zimbabwe and also the Kariba Dam complex for dam safety, power generation, environmental data collection and other uses.

The Kariba Dam, constructed between 1956 and 1959 is located on the Zambezi River approximately 400 kilometers downstream of the Victoria Falls. It houses two power stations; one on the North Bank managed by Zambia Electricity Supply Corporation (ZESCO) in Zambia and the other on the South Bank under Zimbabwe Power Company (ZPC) in Zimbabwe.

## Mission, Vision, Values

### Our Mission:

*"We at the Zambezi River Authority commit ourselves to satisfying all our stakeholders through purposefully and sustainably exploiting the natural advantages offered by the Zambezi River"*

### Our Vision:

*"To be the premier organ for harnessing and managing the Zambezi waters for economic and social development"*

### Our Values:

- **Fairness** – Equal opportunity for all employees through justice, even-handedness and impartiality
- **Transparency** - openness in the conduct of the organization's affairs including information flow
- **Integrity** - ethical and moral standards underpinned by honesty and reliability in all our interactions
- **Respect** – Uphold the people value chain as every employee is an asset.
- **Health and safety** – employees are more productive when their welfare is safeguarded
- **Professionalism** - all employees must demonstrate their skill, competence, purpose and character

# Mission



Snr. Manager for Finance & Human Resource, Mr Kaluba, giving a presentation during the Strategic Planning workshop held at Elephant Hills Hotel, Vic Falls

# Vision

# Values



**1. Hon. Elliot Mangoma, MP**  
Chairman

He is the Minister of Energy and Power Development in the Zimbabwean government.

**2. Hon. Kenneth Konga, MP**  
Co-Chairman

He is the Minister of Energy and Water Development in the Zambian government.

**3. Hon. Situmbeko Musokotwane, MP**  
Member

He is the Minister of Finance in the Zimbabwean government.

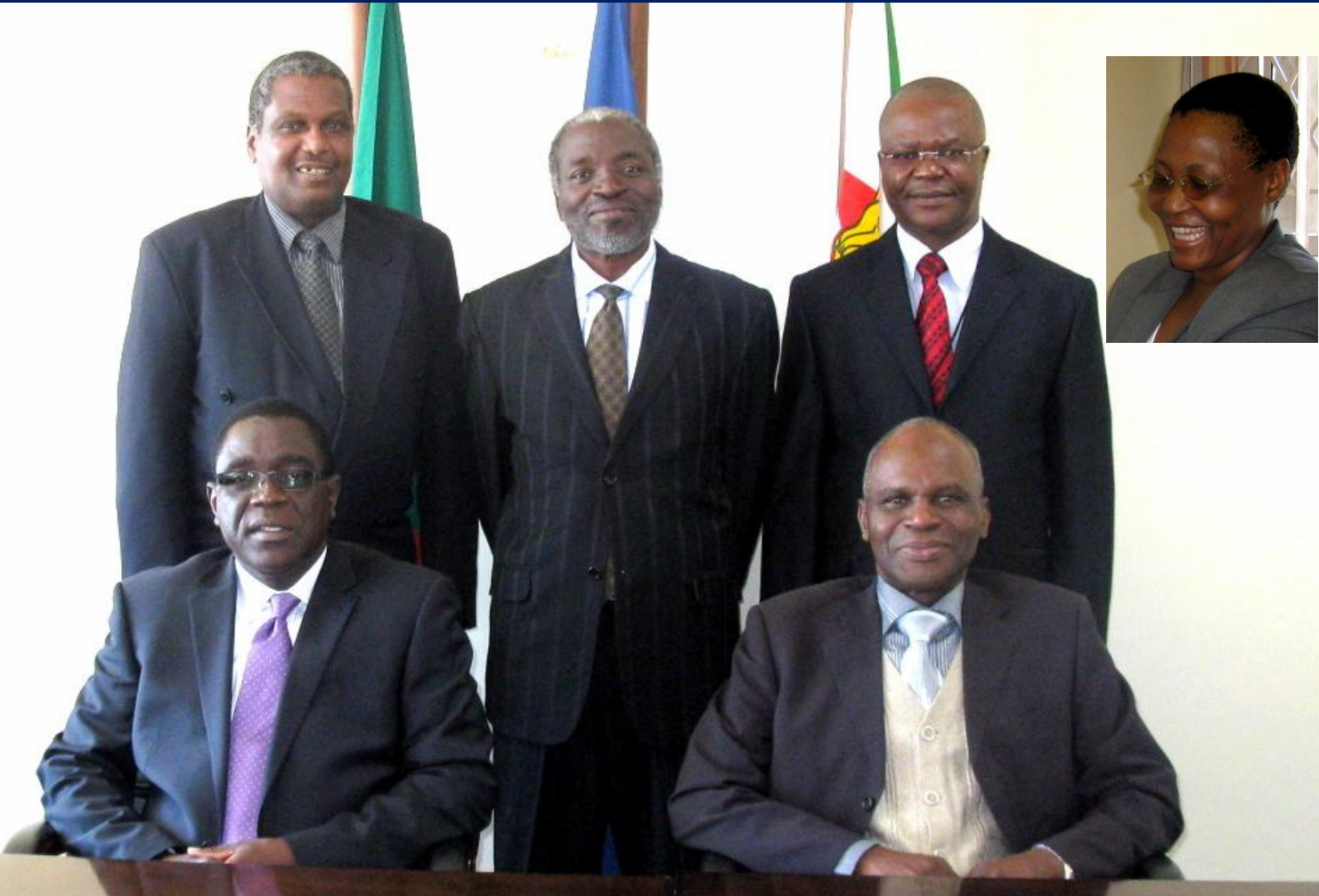
**4. Hon. Tendai Biti, MP**  
Member

He is the Minister of Finance in the Zimbabwean government

### The Council of Ministers

Zambezi River Authority is governed by a Council of Ministers consisting of four members holding portfolios of Energy and Finance in the Republics of Zambia and Zimbabwe. According to the ZRA Act, the Chairmanship of Council is held alternately by the Ministers responsible for Energy in the Governments of Zambia and Zimbabwe.

## Board of Directors



**Mr Teddy Kasonso**

Board Co-Chairman – Zambia  
(Front Row, Left)

**Engineer Charles Chipato**

Board Member- Zimbabwe  
(Back Row, Left)

**Mr Anthony Undi**

Board Member- Zambia  
(Back Row, Right)

**Mr Justin H Mupamhanga**

Board Chairman – Zimbabwe  
(Front Row, Right)

**Mr Amos Kambenja**

Board Member- Zambia  
(Back Row, Middle)

**Makeletso M Namasasu, (Mrs)**

Board Member - Zimbabwe  
(Above insert)

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### Alternate Directors

Mr OS Kalumiana • Mr F Maziveyi • Mrs I Maboshe

## Board of Directors

This is chaired alternately by Permanent Secretaries with Energy portfolios in the Governments of Zambia and Zimbabwe.





Eng. Chrispen M Munodawafa  
**Chief Executive**



Jonathan Kangwa  
**Corporate Secretary/  
Finance & Human Resource  
Director**



Eng. David Z Mazvidza  
**Projects, Maintenance  
and Dam Safety  
Director**



Eng. Clement FG Mukosa  
**Water Resources &  
Environmental Management  
Director**

## Management

The management team comprises the Chief Executive and three Directors who serve as the Corporate Secretary/Finance Director, Water Resources & Environmental Management, and Projects & Dam Safety.

## Chairman's Statement



### Message from the Chairman, ZRA Board of Directors, Permanent Secretary Ministry of Energy and Water Resources, Zimbabwe

It is my honour and privilege to present the Zambezi River Authority Annual Report for the year ended 31<sup>st</sup> December 2010.

During the year under review, the Authority continued to meet its mandate of monitoring and maintenance activities in line with the Standing Operations Procedures manual for the Kariba Dam.

#### Authority Operations

The Authority's Engineering Consultants carried out a five-year inspection of the Kariba Dam in October 2010 which confirmed the state of the Dam as satisfactory.

They assessed major maintenance projects to be undertaken and recommended project timelines for two projects namely, procurement of an emergency gate and a new gantry at the spillway and; modeling and re-shaping the Plunge Pool.

During the year under review, the Zambezi basin received above normal rainfall which in turn had a high effect on the flows into Lake Kariba, necessitating the opening of the floodgates in March and July 2010.

#### Water Utilization for Power Generation

The ZESCO and ZPC power utilities were allocated 40 billion cubic meters of water for power generation and on average, they both utilized 94%.

#### Board Tour

Every year, the Zambezi River Authority Board endeavours to undertake a familiarization trip to various dam management sites globally, to observe and share best practices in dam construction and management. However, this year, the Board felt the need to enrich its experiences locally and acquire a deeper understanding of its own origins by visiting the source of the Zambezi River in September 2010 at Kalene Hills, in the North-Western Province of Zambia.

This visit was undertaken purposefully for the Board to evaluate the application of knowledge acquired over the years from other country visits as well as assessing the situation on the ground regarding the affectations of its operations in managing and maintaining the Kariba Dam complex.

**Baby Zambezi River!**  
**The Zambezi River at its source.**  
**Magnificent spots of the river born!**  
(Management & Board trip, 2010)



### Five-year Strategic Plan

Through the new strategic plan (2010-2014), we have a new emphasis on demonstrating results in dam management. The 2010 Annual Report therefore brings our operations into focus. We have made solid progress in setting a strategic direction and laying out detailed plans for the next five years where multiple activities are underway in five key areas.

At the heart of ZRA's work is the conviction that new knowledge can unlock solutions to old problems through powerful ideas. Our new strategy shows there is a range of options that offer a better way of addressing old and new concerns. ZRA's experience suggests that sustainable socio-economic development can only happen when human and natural systems work in harmony, which demands that benefits are equitably shared and environmental gains are properly valued.

### Corporate Social Responsibility

Three developmental projects namely, the Nyamhunga, Gatche-Gatche, and Nkandabbwe Irrigation Schemes under the Zambezi Valley Development Fund (ZVDF) were undertaken along the Zambezi Valley in the two Contracting States

Throughout 2010, we used our expertise in dam management to offer new insights into long-standing challenges, like assessing flood risks in the climate policy. We engaged in processes with key constituencies to advocate for community adaptation to climate change. We also supported community driven initiatives to show how much can be achieved by harnessing the skills and inventiveness of local people and their organizations

### Corporate Governance and Compliance

According to the statutory requirements of the Contracting States, four Board meetings and one Council of Ministers meeting was held during the course of the year to give policy guidance to the Authority.

### Board and Management Changes

I would like to acknowledge the contributions to the ZRA Board by retired Board Member, Mr. B. Msiska and welcome Mr. A. Undi.

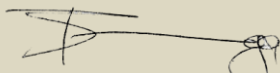
May I also take this opportunity to bid farewell to the members who have separated from the Authority while welcoming the incoming team.

On behalf of the Council of Ministers and the Board of Directors, I wish to express our sincere gratitude for the collective service they rendered to the Authority.

### Conclusion

The last 12 months has tested ZRA's mission and mandate. We need to advance the hydro- energy systems for the economic turn-around of the Contracting States.

May I take this opportunity to sincerely thank the ZRA management and staff for professionally acquitting themselves in dam and river management and assure them of the Board's continued support.



**Justin H Mupamhanga**



### Strategic Planning

In 2010, we focused on developing a strategic direction to be implemented over the next five years. A platform for staff and stakeholders to map out the Authority's five year Strategic plan was held in Victoria Falls in April 2010, during which we revised our mission, vision and values to reflect our responsiveness to an environmental scan.

As team-players, we endeavored to communicate a consistent message on our operations and corporate social responsibility to our defined stakeholders which are: *shareholders* (the contracting states of Zambia and Zimbabwe), *employees*, *customers* and *the Service providers*. *Insurers*, *investors* and *the money markets*, *opinion leaders* and *the community*, together with the *media* and *Professional networks*, all make up to our stakeholders.

We acknowledged and recognized the various competencies represented in all our offices and we utilized internal expertise to harmonize our productive workforce.

I am happy to say this report reflects quality management; financial soundness; ability to attract, develop and keep talented people; prudent use of corporate assets; innovativeness and last but not least – community and environmental responsibility.

### Financial Performance (Summary)

	2010		2009	
	ZK ('000)	US\$ ('000)	ZK ('000)	US\$ ('000)
Operating Income	54,755,125	11,326	48,727,458	10,478
Operating Expenses	60,879,272	12,590	46,544,205	9,369
Net Operating Income	(6,124,147)	(1,264)	2,183,253	1,109

## Operations

Generally, the Authority's activities remained embedded in its structural objectives of undertaking the routine monitoring and maintenance of the Kariba Dam and appurtenance structures as per provisions of the Standing Operations Procedures (SOP) Manual.

With the five-year strategic plan underway, a lot of key operations have been outlined in the maintenance and servicing of the dam structure.

## Five Year Inspection

The Authority passed the 6th edition of the five yearly inspection of the Kariba Dam wall that was undertaken from 11 - 21 October 2010 by expatriate consultants

The main objective was to identify existing or potential dam safety deficiencies that could have developed over the last five years. It also included the review of monitoring data and interpretation of the same. A review of notes from previous inspections preceded the actual field inspections, thereby allowing comparison of the present condition of the structure to its condition in 2005 when the last five-yearly inspection was conducted.

The findings from the 2010 inspection will be availed in a technical report which is yet to be prepared.

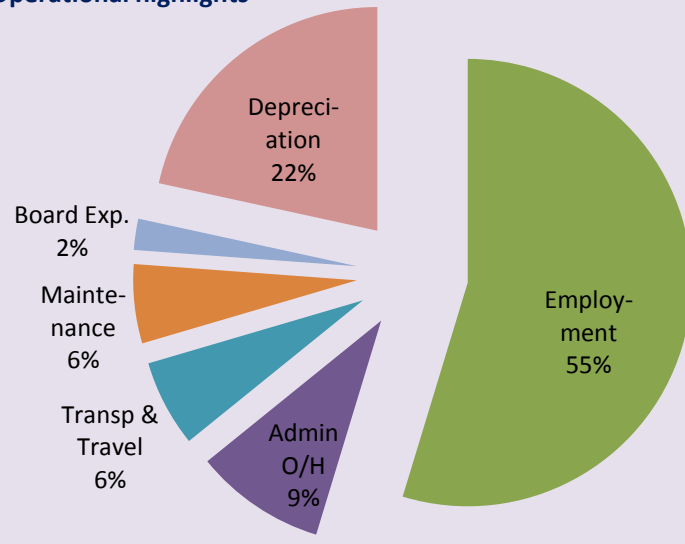
## Zambezi Valley Development Fund Projects

As our corporate social responsibility to the communities displaced from the Kariba Dam basin, the Authority, through the Zambezi Valley Development Fund (ZVDF), undertook three developmental projects namely; the Nyamhunga, Gatche-Gatche, and Nkandabbwe Irrigation Schemes along the Zambezi Valley in the two Contracting States.

Throughout 2010, we used our expertise in dam management to offer new insights into long-standing challenges, like assessing flood risks in the climate policy. We engaged in processes with key constituencies to advocate for community adaptation to climate change. We also supported community driven initiatives to show how much can be achieved by harnessing the skills and inventiveness of local people and their organizations.

**MC Munodawafa**  
Chief Executive

Operational highlights



**...we used our expertise in dam management to offer new insights into long-standing challenges, like assessing flood risks in the climate policy. We engaged in processes with key constituencies to advocate for community adaptation to climate change.**



**SPILLING:** Owing to heavy rains, it is becoming a calendar event that spilling takes place during the first quarter of the year. Here, local and foreign tourists enjoy the spectacle during the opening of floodgates.

## Our key objectives:

- ❖ Undertaking the routine monitoring and maintenance of Kariba Dam and appurtenant structures as per provisions of the Standing Operations Procedures (SOP) Manual.
- ❖ Implementing developmental projects under the Zambezi Valley Development Fund (ZVDF) earmarked to improve the socio-economic status of the communities displaced from the Kariba Dam basin following dam construction.



Director: Eng. David Z Mazvidza



# Projects Maintenance and Dam Safety Monitoring



## General

The department continued to address its key objectives core to its operations as depicted on the left here.

### Top to bottom:

1. Three floodgates open during the annual spilling. Floodgates remained open for four months and were closed on 12<sup>th</sup> July, 2010
2. Installing a newly refurbished water pump at Gatche-gache Irrigation scheme.
3. Consultants inspecting a stop-log during the 5 yearly Inspections.
4. The Survey team carrying out the geodetic measurements and Crest levelling.

## 1.1 Dam Wall Monitoring and Surveillance

### 1.1.1 Instrumentation

Dam monitoring instruments are in a good working order and this has allowed for continued acquisition of monitoring data for the period under review.

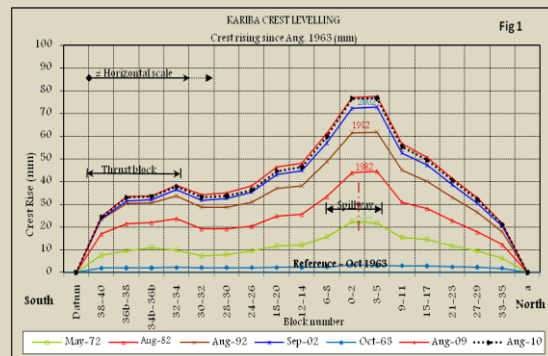
The concrete-swelling effects of Alkali Aggregate Reaction (AAR) continued to manifest with negative impacts of loss of tolerances for moving parts such as the floodgates and the stop-beams.

### 1.1.2 Monitoring Results

#### 1.1.2.1 Geodetic Measurements and Crest Levelling

Two measurements were carried out in February and August 2010 and reports produced as required by the Standing Operations Manual. The secondary South Bank Geodetic Network measurement was also carried out in August 2010.

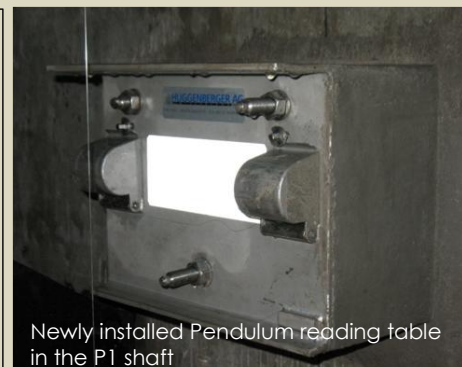
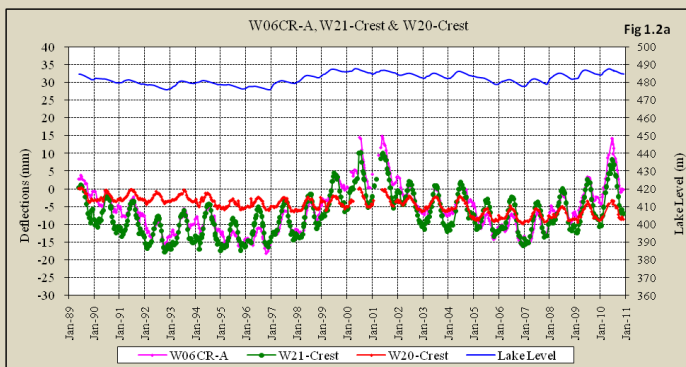
Fig. 1 presents a plot of the August 2010 precise levelling results. The vertical crest rise indicates the response of the structure to the continuing concrete swelling due to AAR.



#### 1.1.2.2 Main Dam Pendulums

Routine data acquisition, processing and analysis from the five sets of pendulums in the main dam continued in the period under review.

A plot of seasonal deflections of the Dam wall using data from three selected pendulum lines W06-Crest located close to the right bank abutment, W06-Crest (close to the central and the deepest section), W21 (close to the left bank abutment) is presented in Fig 1.2(a) below.





## 1.2 Dam Wall Maintenance Works

General maintenance and rehabilitation works continued on the main dam and its ancillary structures in the year under review. The routine clearing of all overgrowth (grass) on the entire south bank and unblocking of all drainage systems were completed as planned for the year, together with other annual maintenance programmes.

The spillway hydro-mechanical equipment was serviced as per provisions of the Standing Operations Procedures Manual (SOP) although, due to prolonged spilling, the programme was rescheduled to the end of the year from an initial plan targeting the 1<sup>st</sup> quarter of 2010.

Right: Mechanical staff calibrating stop beam gantry Load cells at the dam wall.



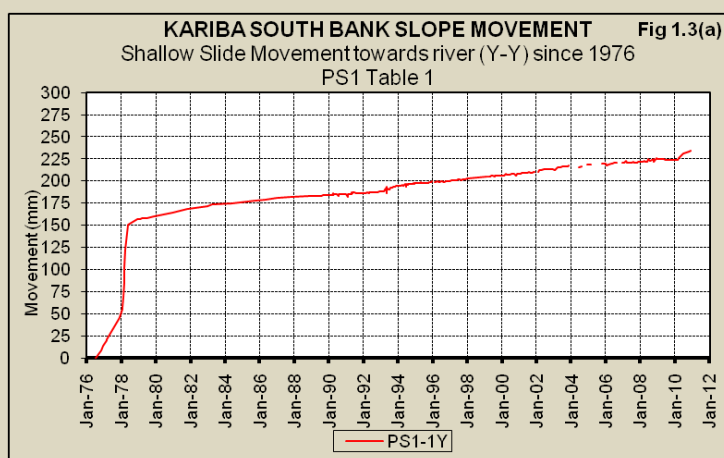
### 1.2.1 Dam Galleries

Inspection and maintenance of dam galleries continued in the period under review. No changes were noted in the seepage pattern and the galleries are generally in good condition.

## 1.3 South Bank Monitoring and Surveillance

### 1.3.1 South Bank Pendulums

The gradual sliding of the south bank towards the river continued at an average rate of 2.11 mm/yr in the shallow/upper slide as shown on **Fig 1.3 (a)** that presents a plot of data from the upper reading table of south bank pendulum PS1.

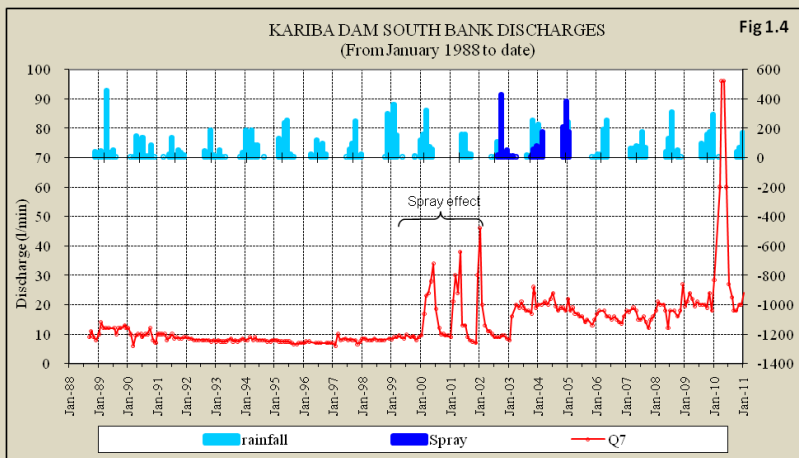


### 1.3.2 Drainage Discharge Measurements

The monitoring of the discharges was continued in line with the requirements of the SOP manual for the period under review. A marked increase in discharge rates was experienced for some of the measurement points during the spilling period.

## Projects, Maintenance & Dam Safety Monitoring

This effect is illustrated in Fig 1.4 below, which is a plot of the discharge records from the measurement point (Q7).



### 1.3.3 Diversion Tunnel Access Adit (DTAA)

Rehabilitation works were undertaken to stabilize the DTAA against soffit failure. The works were done by Authority staff following an unsuccessful tendering process. The rehabilitation involved rock-packing of the first 60m of tunnel length from the portal entrance.



**LEFT:**  
Closing of DTAA, here the final stages of the rehabilitation works of the tunnel.

## 1.4 South Bank Maintenance Works

### 1.4.1 Surface Sealing

Routine clearing of vegetation and debris continued for the period under review. Repairing of disbanded and ageing surface sealing continued to enhance the impermeability of the surface and reduce seepage into the south bank land mass.

### 1.4.2 Drainage, Adits and Shafts

Clearing of rock falls, debris and the unblocking of drain holes continued in the period under review. This is to facilitate the effective drainage of water from the south bank adits and shafts in line with the requirements of the SOP manual.

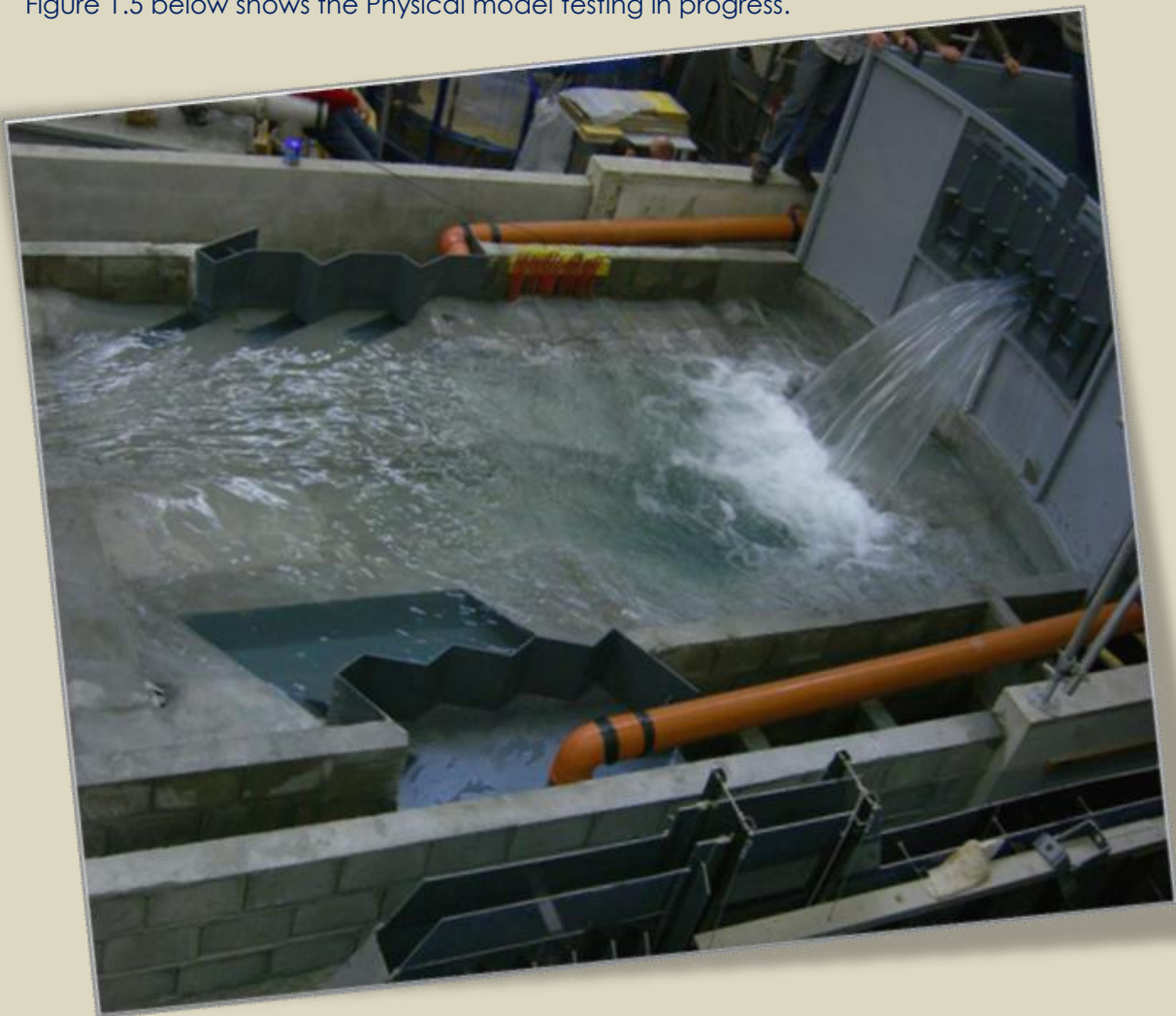
### 1.5 Plunge Pool Monitoring and Surveillance

The plunge pool hydraulic modeling studies continued in the year under review. The Switzerland based specialist hydraulic laboratory "**Laboratoire de Constructions Hydrauliques**" (LCH) was contracted to carry out the modeling.

A hybrid modeling approach to the problem was adopted, and this combined numerical and physical modelling of the Kariba plunge pool.

By December 2010, the physical model construction had been completed and tests were run to calibrate the model.

Figure 1.5 below shows the Physical model testing in progress.



The image is a composite of two photographs. The top photograph shows a dense, vibrant green field of water hyacinth plants along a lakeshore, with a clear blue sky and a line of trees in the background. The bottom photograph shows the same area in a much sparser state, with only scattered patches of water hyacinth floating in the water. A dark blue rectangular box is overlaid on the top right of the image, containing white text. The text describes the two scenes and the date of each. The logo 'WR & EM 2' is centered across the middle of the image, with 'WR' and 'EM' in dark blue, '&' in light blue, and '2' in red.

Water Hyacinth fringing the lakeshore at  
Sanyati Gorge (top; March 2010, &  
bottom; December 2010)

**WR & EM 2**

# Water Resources



# Environmental Management

This report relates to the activities of the Department of Water Resources and Environmental Management (WREM) for the period January – December 2010. The report is prepared in the context of the three sections that constitute the WREM Department, namely:

- Hydrology
- Water Resources & Environmental Management
- Information Systems

**Director:**  
Eng. Clement  
FG Mukosa

**Objective:**  
Managing the  
Zambezi  
River's water  
quality and  
quantity for  
power  
generation  
and other  
stakeholders



## 2.1.0 Operational Hydrology

### 2.1.1 Rainfall

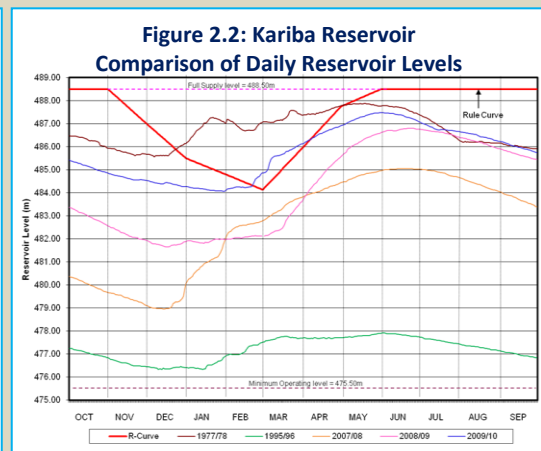
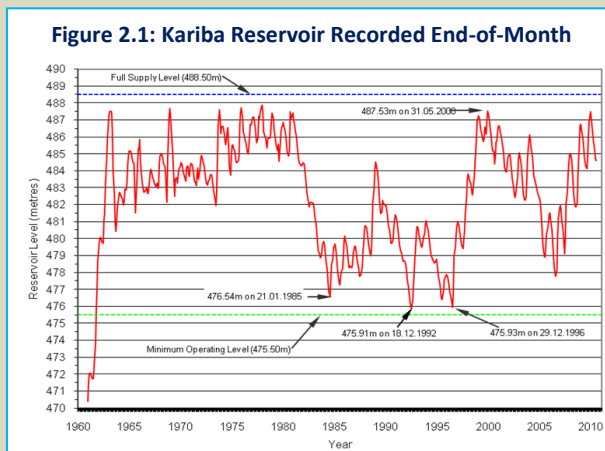
In 2010 the Lake Kariba sub-catchment received normal to above normal rainfall almost in all areas of the sub-catchment. The period January to April and November to December 2010 recorded very high cumulative rainfall which resulted in very high river levels and flows in the Zambezi River and its tributaries. The later period was much wetter and impacted heavily on the rise in the lake level.

### 2.1.2 River Flows and Lake Levels

The hydrograph at Victoria Falls, which is the key station for monitoring inflows into Lake Kariba from the Upper Zambezi River catchment, shows that flow magnitudes of the 2009/10 season were of the same order as those of 2008/09 up to about the third week of March 2010 when the flows for 2009/10 fell below those of 2008/09 until the end of April 2010. Thereafter the 2009/10 flows picked up to surpass those recorded in 2008/09 during the same period. The flows for 2009/10 season were also well above the Long Term Mean flows though the peak flow was lower than that of the latter season. More details are shown in Figure 3.2 which shows flow hydrographs for the selected seasons of 1977/78, 1995/96, 2008/09, 2009/10 and the Long Term Mean. The hydrograph for 2009/10 shows a double peak at Victoria Falls station which is unusual. The higher peak was at 4,969m<sup>3</sup>/s which was lower than the peak flow of 5,651 m<sup>3</sup>/s recorded in 2008/09 season.

The lake level during the year 2010 varied from 484.27m on 1<sup>st</sup> January 2010 to 487.48m before dropping to 484.60m on 31<sup>st</sup> December 2010. The highest lake level of 487.48m attained on 30<sup>th</sup> May 2010 was under controlled conditions due to spilling from 9<sup>th</sup> March to 2<sup>nd</sup> June 2010. Storage capacity increased from 65% full (at 484.27m) at the beginning of the year to 91% full (at peak level of 487.48m) before dropping to 67% full on 31<sup>st</sup> December 2010.

Figure 2.1 shows the variation in lake level from May 1961 to December 2010 while Figure 2.2 shows a comparison of several seasons Daily Reservoir Levels including the 2009/10 season. It can be seen that the lake level in 2009/10 season remained high throughout the period under review, implying that storage was high throughout this period.



## 2.1.3 Operation of Spillway Gates

Table 2.1 Summary of Gate openings

Date Opened	Gate No.	Time Opened	% Opened	Date Closed	Time Closed
09.03.2010	3	10:00	50	12.07.2010	16:20
09.03.2010	5	10:14	50	12.07.2010	16:26
09.03.2010	1	11:04	25	09.03.2010	12:01
19.03.2010	1	10:00	50	12.07.2010	16:01
09.03.2010	6	11:32	25	09.03.2010	12:25
09.03.2010	4	11:50	25	09.03.2010	12:11

Due to the high inflows into the lake two spillway gates were opened on 9<sup>th</sup> March 2010 and a third gate was opened on 19<sup>th</sup> March 2010 to maintain the level below the rule curve. The three gates were closed on 12<sup>th</sup> July 2010 during which period a total of 18.44 billion

cubic metres of water was discharged. At the time of opening the spillway gates, gates 1, 4 and 6 were opened briefly and closed to test their condition.

## 2.1.4 Water Balance

Table 2.2 is a schematic representation of the water balance for the year 2010. The summary of the water balance of Lake Kariba for the year 2010 compared with the 2009 and 2008 is given in Table 2.3 and Figure 2.3 respectively.

The total inflow into Lake Kariba during the year 2010 was 63.73 billion cubic metres, an improvement by 9.12 billion cubic metres over the previous year when 54.61 billion cubic metres was recorded. Inflow of this order of magnitude was last recorded in 1981 when 61.21 billion cubic metres was recorded. It is interesting to note that this was the fourth consecutive year of recording a positive net inflow into the lake.

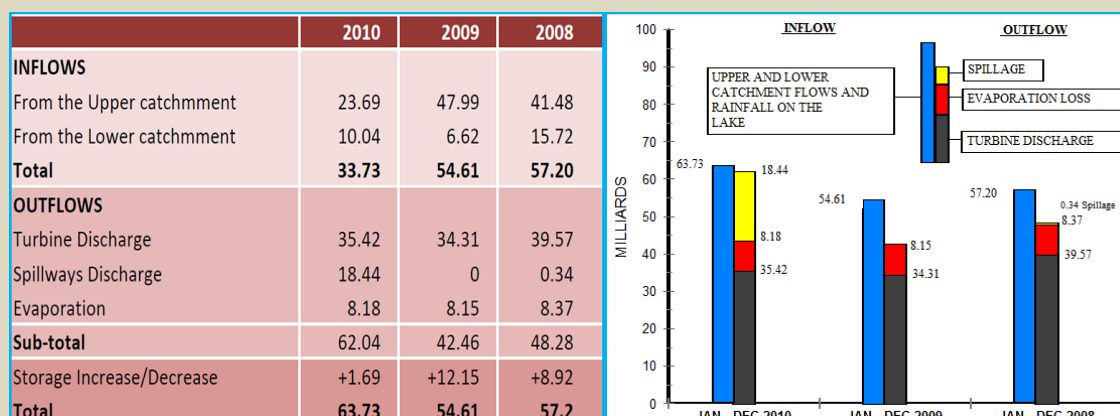
Table 2.2: Lake Kariba Water Balance-January to December 2010. All readings in milliard (x10<sup>9</sup>m<sup>3</sup>)

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Annual Total
<b>INFLOW</b>	2.74	6.94	13.34	12.18	11.54	6.02	3.13	1.58	1.08	1.08	1.03	3.07	<b>63.73</b>
<b>TURBINE DISCHARGE</b>	2.81	2.42	2.95	2.88	3.24	3.18	3.18	3.22	2.91	2.93	2.83	2.87	<b>35.42</b>
<b>SPILLAGE</b>	0	0	3.02	4.47	4.67	4.53	1.75	0	0	0	0	0	<b>18.44</b>
<b>EVAPORATION</b>	0.76	0.62	0.63	0.59	0.53	0.48	0.49	0.64	0.78	1.02	0.86	0.78	<b>8.18</b>

Total outflow from the lake was 62.04 billion cubic metres in 2010 broken down as follows: turbine discharge 35.42 billion cubic metres, spillway discharge 18.44 billion cubic metres and Evaporation 8.18 billion cubic metres. The difference between inflows and outflows of 1.69 billion cubic metres went into building up the storage. The high amount of spillway discharge was attributed to the rehabilitation works that were still ongoing at Kariba North Bank power station which reduced the generation capacity and consequently water used for power generation.

## Water Resources & Environmental Management

Table 2.3: (Right) Annual Water Balance for Lake Kariba – January to December; and Figure 2.3 (left) show a summary of the water balance for the same period.



### 2.1.5 Water Allocation for Power Generation at Kariba

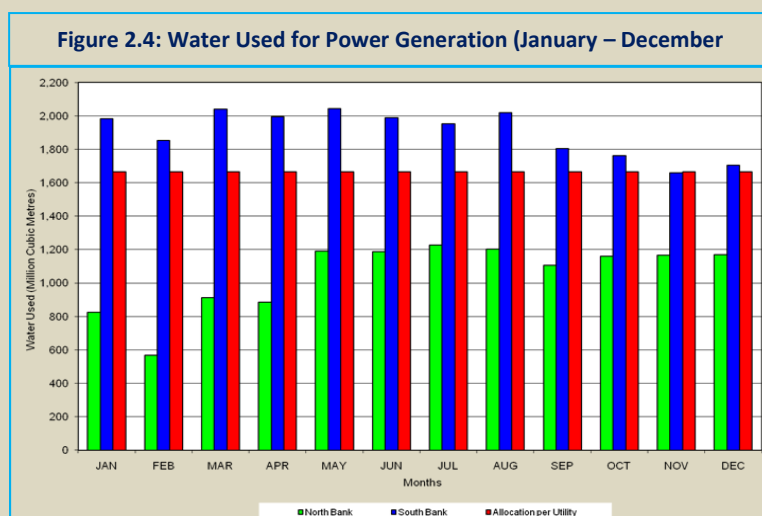
The power utilities were allocated 40 billion cubic metres of water for power generation in 2010 shared equally between the two of them. This allocation was a reduction from the 48 billion cubic metres of water allocated in 2009 because Kariba North Bank (KNB) was still carrying out rehabilitation works which limited its water utilization capacity. Table 2.4 below shows the amounts of water, in Million Cubic Meters (MCM), used for power generation at Kariba from 1<sup>st</sup> January – 31<sup>st</sup> December 2010.

Table 2.4: Water used for Generation at Kariba Complex during 2010/milliards - x10<sup>9</sup>m<sup>3</sup>)

Month	Kariba North Bank Power Station			Kariba South Power Station			Cumulative Allocation for Kariba Complex (MCM)	Cumulative Water Used at Kariba Complex (MCM)	% of Allocation
	Water Allocated (MCM)	Actual Used (MCM)	% of Allocation	Water Allocated (MCM)	Actual Used (MCM)	% of Allocation			
January	1,666.67	825.6	50	1,666.67	1,983.90	119	3,333.34	2,809.50	84
February	1,666.67	568.68	34	1,666.67	1,852.75	111	6,666.68	5,230.93	78
March	1,666.67	911.03	55	1,666.67	2,040.32	122	10,000.02	8,182.28	82
April	1,666.67	884.54	53	1,666.67	1,994.81	120	13,333.36	11,061.63	83
May	1,666.67	1,192.16	72	1,666.67	2,044.09	123	16,666.70	14,297.88	86
June	1,666.67	1,187.96	71	1,666.67	1,990.50	119	20,000.04	17,476.34	87
July	1,666.67	1,227.23	74	1,666.67	1,951.43	117	23,333.38	20,655.00	89
August	1,666.67	1,201.84	72	1,666.67	2,019.96	121	26,666.72	23,876.80	90
September	1,666.67	1,107.24	66	1,666.67	1,804.45	108	30,000.06	26,788.49	89
October	1,666.67	1,161.80	70	1,666.67	1,763.70	106	33,333.40	29,713.99	89
November	1,666.67	1,166.95	70	1,666.67	1,659.20	100	36,666.74	32,540.14	89
December	1,666.67	1,168.24	70	1,666.67	1,704.91	102	40,000.08	35,413.29	89
<b>TOTAL</b>	<b>20,000.04</b>	<b>12,603.27</b>	<b>63</b>	<b>20,000.04</b>	<b>22,810.02</b>	<b>114</b>	<b>40,000.08</b>	<b>35,413.29</b>	<b>89</b>

It can be seen from above table that the utilization levels were varied with KNB Power station utilizing 12,603.27 million cubic metres and Kariba South Bank (KSB) 22,810.02 Million cubic metres of their allocation of 20 billion cubic metres to generate electricity in 2010. These utilization levels translate to 63% for KNB and 114% for KSB, indicating an under utilization by KNB by 37% and over utilization by 14% by KSB.





The total combined utilization stood at 89% of the allocation. As mentioned earlier, the lower utilization of KNB was due to the rehabilitation works which were still ongoing during the year under review. Figure 2.4 is a graphic representation of the water used for power generation during the year 2010.

## 2.1.6 Hydrological Control and Seismological Investigations

During the year under review routine flow measurements and maintenance works were carried out to ensure smooth operations. All the telemetry stations were serviced with the help of the French Consultant late in the year under review but receipt of the data from the network was awaiting the reconnection of the transmission by EUMETSAT by the end of the year.

The annual station Audit was conducted between November and December 2010 to check on compliance and state of equipment and stations. The findings showed that all field procedures were being followed and that the equipment was in good working order. The only station where a persistent problem was found was at Watopa Pontoon on the Kabompo River. The problem of land subsidence reported on in 2009 recurred showing that the area had not stabilized yet from the tremors. In fact, local reports indicated that in October 2010 there was a sizeable tremor which affected Lukulu and it is believed that its effects extended to Watopa area as evidenced by the sinking of the gauge plate. Because of these recurring incidences of land subsidence, the station is to be relocated to the right bank of the river during the first quarter of 2011.

The Authority continued to provide consultancy services to various organisations and individuals during the year under review. These consultancy works included a bathymetric survey of Mpulungu Harbour on behalf of Ministry of Transport and Communications. The provision of daily river level data to Namibia which was suspended was resumed following a fresh request from that country's Ministry of Water and Agricultural Development.

### ENGINEERING CONSULTANTS FOR THE KARIBA DAM

Coyne et Bellier  
Jacobs Engineering  
Eng. Terrence C Kabell

### AUDITORS

Ernst & Young (Zambia)

### BANKERS

Barclays Bank of Zambia Limited  
Standard Chartered Bank Zambia Limited  
Stanbic Bank Zambia Limited  
Barclays Bank of Zimbabwe  
First Merchant Bank of Zimbabwe  
Zimbank of Zimbabwe

### 2.2 Infrastructure Development

#### 2.2.1 Gauge Readers Shelters and Latrines

The Authority constructed three Gauge Readers shelters at Lukulu, Nana's Farm and Watopa Pontoon for accommodation of its staff in remote stations and five Ventilated Improved Pit latrines (VIP) at Ngonye, Luezi Ranch (Kalomo), Gwayi, Ume and Sanyati where Gauge Readers shelters were constructed in 2008 without these facilities. Figure 2.5(a) shows one of each of the completed shelters and VIP toilets at some of the stations.

Figure 2.5(a): Newly-constructed Gauge Reader's Shelter at Nana's Farm in Livingstone; (b): Newly-constructed Ventilated Improved Pit Latrine at Gwayi Station. The rain gauge installed at Nana's Farm is shown in Figure 2.5(c).



#### 2.2.2 Installation of Rain Gauges

The Authority installed nine rain gauges at its stations to improve the coverage of rainfall data collection for rainfall-runoff forecasting and water balance calculations. Installation of the rain gauge at Kalabo will only be done after the flood plain becomes passable again in the third quarter of 2011.

#### 2.2.3 Provision of Furniture

All the stations were renovated and provided with office furniture.

### 2.3 Flow Metering Project

Progress was made on the search for suppliers of Turbine Flow meters as the Authority visited Hydro Quebec of Canadian and Rennasonic of American who had been identified. The visit afforded the

Authority a better understanding of the challenges it was facing in finding a supplier for the meters. By the end of the year 2010 evaluation of tenders had been completed and a supplier invited for initial discussions to take place early in 2011. It is therefore expected that the meters will be installed next year.

### 2.4 Water Resources and Environmental Monitoring

#### 2.4.1 Water Hyacinth Monitoring

Water Hyacinth monitoring on Lake Kariba's Eastern Basin was successfully conducted at the end of each month of 2010. Additionally, two Lake-wide weed and water quality monitoring missions were achieved in February and July 2010.

Results of the monitoring indicate that the weed situation at hot-spot sites such as Mlibizi, Gatche-Gatche, Crocodile Farm, Nyaodza and Sanyati Mouth remained non-threatening. Pictorial presentations of the weed situation at hot-spot sites on the Eastern Basin are shown as Annex I.

#### 2.4.2 GIS & Remote Sensing

A dedicated Server hosting GIS and Image Processing software was installed on the 3<sup>rd</sup> Floor of Kariba House in February 2010. ArcView 9.3 GIS software was successfully installed and activated on this Server while ArcView 9.2 was installed at Hydro Office in Kariba. Mike Basin was also successfully installed and activated on the GIS Computer.

#### 2.4.3 Water Quality Data Collection and Processing

As indicated above, monthly data collection and processing exercises were achieved during all the months of 2010 for all stations on the Eastern Basin. The Section also undertook the two Lake-wide sampling missions in February and July 2010. Further, the Section undertook quarterly field trips to the Lower and Upper Catchments in during the year.

Results of the analyses conducted both *in-situ* and in the Authority Environmental Lab indicate that the Lake is in a non-threatening situation in respect of pollution as most parameters continued to register within acceptable ZRA Guideline values. Annexes II and III are graphical presentations of the water quality sampling results for various stations during 2010.

#### 2.4.4 Environmental Lab and the Batoka Boat

Apart from the persistent problem of water supply, the Environmental Laboratory functioned fairly well during the period under review. All the capital items and reagents for the Lab as budgeted in the 2010 Authority Budget were procured and installed, including software for the HPLC. Additional requirements were included in the 2011 budget proposal.

The Environmental Boat, *Batoka*, is in a sea-worthy condition and was successfully used for the two Lake-wide water quality sampling expeditions in 2010. Prior to the second mission, the Boat received a new coat of paint and full service by the P&DS Department. Meanwhile, a brand new speedboat was procured towards the end of the year to replace the old one. Figure 2.6 below shows the Batoka Houseboat and the new *Bayliner* Speedboat.

#### 2.4.5 Water Rights Applications

There were no water rights applications during the period under review. However, the Authority submitted both written and oral comments on the Water Resources Management and the Environmental Management Bills No. N.A.B 50 and 52 of 2010, respectively, to a Parliamentary Select Committee Meeting on the same Bills at Parliament Buildings, Lusaka.

**Figure 2.6:** The Batoka Houseboat (Left), and the newly acquired Bayliner Speedboat (left).



## 2.5 Information Systems

### 2.5.1 Information Technology Systems Support

Several trips to Kariba and Harare offices were made for purposes of providing technical support services necessary for the smooth running of the Authority's Information and Communication Technologies (ICTs).

To maintain relationships with ICT firms and improve the services they provide, visitations were made and discussions held with various suppliers. The discussions and liaison with suppliers focused on the supply and repair of equipment, as well as training needs geared to assist Authority computer users get the most out the ICT systems.

In order to keep the Authority website available technical support services were provided to keep it running and enable Authority sections to use for enhancing their products and services.

### 2.5.2 Local Area Networks (LANs)

The Harare Local Area Network (LAN) was revived and extended so that it covers more offices and support additional equipment. The network was also improved by configuring appropriate servers and enhancing the provision of network services.

In Kariba the Civil Yard and Admin blocks were integrated using the existing optic-fibre network, enabling the two sites to share Internet connections, records and information resources.

In order to take advantage of the improvements in Internet technologies, broadband Internet services were enhanced for all the Authority stations. Requirements for an Internet Broadband connection at the Harare Office was drawn up and works on the setting up of the broadband connection were initiated.

### 2.5.3 Communication

In order to improve the visibility of the Authority, mobile email addresses we introduced and a new domain, "**zambeziriverauthority.org**", registered.

In view of the fact there is better broadband Internet facilities, the Internet can now be used for interactive communications between the Authority and its stakeholders. In this regard, tele-conferencing facilities for selected offices were introduced with the view to extend these facilities to every office with a computer.

Engaging in processes with key constituencies in advocating for community adaptation to climate change...!



The Authority participated in a Climate Change workshop conducted by UNESCO in Harare from 15<sup>th</sup> to 19<sup>th</sup> November 2010

*Jonathan Kangwa, Director*

The Finance and Human Resource department provides administrative services to the Authority through the facilitation of human and financial resources.



# Finance & Human Resource



### 3.1 Human Resource Management

Figure 3.1: Establishment Highlights...

<b>Fig. 3.1</b>	<b>2010</b>	<b>2009</b>
Recruitment	3	6
Death	0	2
Retirement	2	1
Resignations	1	0
End of Contract	0	1

The Authority has an approved staff compliment of 151 employees operating from the Authority's three stations in Lusaka Zambia, Harare and Kariba in Zimbabwe.

A number of changes took place in the staff establishment with three separations and three recruitments. The three new members of staff recruited are: Miss Tatenda Makunike, Miss Vanessa Mutentwa, and Mr Bob Mwangala, for the positions of Typist/Receptionist at Kariba office, Secretary – Dep. WR&EM, and Hydro Technician, respectively.

The Authority also bade farewell to Mr. Godwin Lyambiaka, a Gauge Reader and Mr Evis Masapo Siamachoka who both retired after serving the Authority for 16 and 21years, respectively. Mrs Mandima, Supplies Assistant (K) resigned on 31<sup>st</sup> December 2010. She served the Authority for 10 years.

### 3.2 Industrial Relations

The industrial relations situation was harmonious during the year. The Authority's unionized employees in Zambia are affiliated to the Zambia Water Sanitation Engineering and Allied Workers Union, while those in Zimbabwe are represented by the Worker's Committee affiliated to Zimbabwe Electricity and Energy Worker's Union, respectively.

### 3.3 Planning & Development:

#### 3.3.1 Education & Training Highlights

1. Mr Gilbert Zulu, the Administrative Assistant (Lusaka) attended intensive short courses in Business Administration and Management Studies at Tazara Training Centre from 5<sup>th</sup> to 16<sup>th</sup> April and 26<sup>th</sup> to 8<sup>th</sup> August, 2010 in Mpika Zambia.
2. Mr Charles Bingura the Registry Supervisor at Head Office attended the Zambia Library Association Annual General Meeting and a pre-Annual General Meeting Seminar in Livingstone from 12<sup>th</sup> to 15<sup>th</sup> August, 2010.
3. Ms Bernadette R Liyungu, the Human Resource Officer attended the Institute of People Management of Zimbabwe Annual Conference from 21<sup>st</sup> to 23<sup>rd</sup> July 2010 held in Victoria Falls, Zimbabwe.
4. Thadios Gumi, the Boat Captain and Stancelass Chambati, the Boat Attendant attended a two weeks field and lab practice for Water Quality Personnel at the University of Zimbabwe Research Centre in Kariba.

## Finance and Human Resource

5. The Workers' Committee Representatives attended a Labour Skills Development Management course at the Management Training Bureau in Harare, Zimbabwe from 8<sup>th</sup> to 10<sup>th</sup> September 2010.
6. Ms Elizabeth Karonga, the Public Relations and Communications Manager, attended a Climate Change workshop for Media Practitioners conducted by UNESCO in Harare from 15<sup>th</sup> to 19<sup>th</sup> November 2010.

### 3.4 Welfare, Health and Safety

The Authority, in its quest to promote and enhance good health among its employees, has provided gymnasium facilities for use by employees at Head Office and at Kariba Office for Kariba/Siavonga based employees. In addition, some members of staff at Head Office and Harare Office have continued playing Golf. The Authority is currently reviewing its Health and Safety Policy.

#### 3.4.1 HIV/AIDS Fund

HIV/AIDS workshop on Cervical Cancer, male circumcision and general sensitization were conducted in Lusaka on 30<sup>th</sup> September 2010 and in Kariba from 7<sup>th</sup> to 8<sup>th</sup> September 2010 for Kariba/Siavonga employees and their spouses. The Zambia Health Education and Communication Trust (ZHECT) facilitated the workshop and provided on-site Voluntary Counseling and Testing to the participants. Close to 98% of the participants in Kariba/Siavonga were counseled and tested.

Members of staff who have declared their status were provided with food packs and nutritional supplements on a monthly basis in keeping with the Authority's wellness programme. Distribution of both male and female condoms, reading materials to members of staff and posters about HIV/AIDS on notice boards at all Authority offices continued during the year. The HIV/AIDS committee members also continued giving individual counseling to members of staff.

#### 3.4.2 Home Ownership for Members of Staff

During the year, the Authority continued to empower its members of staff through the Home Ownership Scheme by availing them with loans to purchase houses.

#### 3.4.3 Long Service Awards

The Authority continued with its tradition of recognizing long serving members of staff who clock 10, 15, 20 and 25 years of service with the Authority. The long service awards ceremony took place at the end of year party held in Kariba, Zimbabwe.



**Authority members of staff touring of the Victoria Falls after attending a two-day Strategic Planning workshop in Vic Falls town. Here, Mr G Siazilemu, Ms Lucy Chikukwa, and Ms Barbara Huxtable, having a feel of the environment.**



## Directors' Report

The Directors have pleasure in submitting their report together with the Audited Financial Statements for the year ended 31<sup>st</sup> December, 2010, disclosing the Authority's state of affairs.

### Principal Role

The Zambezi River Authority is engaged in the business of managing and monitoring the quantity and quality of the water in the Zambezi River common to Zambia and Zimbabwe and also the Kariba Dam complex for dam safety, power generation, environmental data collection and other uses.

### Directors and Board Meetings

Two Board members retired from the Board. Mrs Emily Striedl and Mr Belin Msiska retired from the Board on 17<sup>th</sup> August and 6<sup>th</sup> September 2010, respectively and were replaced by Mr Anthony Undi and Mr Amos Kambenja. Mr Kambenja was alternate director before his appointment.

According to the statutory requirements of the Contracting States, four Board meetings and one Council of Ministers meeting was held during the course of the year to give policy guidance to the Authority.

The Board and Management undertook a Study Tour to the Zambezi River environs during the year where they visited the source of the Zambezi at Kalene Hills, Mwinilunga. This study tour was undertaken as part of a continuous process for the Board to acquaint itself with the Authority's operations relating to the management of the dam, hydrology, pollution and environmental issues.

### Board Committees

The Board has two principal standing committees that enable it to discharge its executive functions. These are the Audit & Technical, and the Finance & Human Resource Committees. These committees continuously evaluate progress towards meeting the Authority's mandate in addition to ensuring effective and efficient management of the Authority.

### Human Resource & Training

The Authority has an approved staff compliment of 151 employees operating from the Authority's three stations in Lusaka Zambia, and in Harare and Kariba, Zimbabwe.

A job description for the new post of ICT Technician/Programming Officer was developed and submitted for consideration. In order for the Authority to take full advantage of the benefits of ICT, it is strongly recommended that more ICT staff need to be recruited.

ICT training requirements for various computer users in the Authority were identified. Furthermore, some staff members underwent training in their job related fields.

### Property, Plant and Equipment

The Authority purchased plant and equipment totaling US\$ 765,000.00 for its operations during the year. Among the key plants procured for refurbishment works on-going at the dam wall were a Mercedes Benz Tipper, JCB Dumper, Atlas Copco Compressor and some utility vehicles. A new *Bayliner* speedboat for Lake-wide water quality sampling expeditions was also procured to replace the old one.

### Corporate Social Responsibility/Donations

The Authority female employees showed their motherly instincts by celebrating the International Women's Day on 19th March, 2010 with their fellow women admitted to the Kariba District Hospital.

The staff donated 500 packs maternity pads, 40 packs cotton wool, 140 boxes gloves and 25kg washing powder to the Maternity Ward of the Kariba District Hospital in Kariba, Zimbabwe. (See picture below).

### Auditors

We would like to thank Messrs Ernest & Young, Zambia, for their professional service during their three year appointment as the Authority's auditors from 2008 to 2010.

### By Order of the Board



**Jonathan Kangwa**  
Corporate Secretary



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**Zambezi River Authority**

# **Financial Statements & Notes**

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For the Year ended 31 December 2010

23  
edition

### Statement of Responsibility for Financial Statements

The directors are responsible for the preparation of financial statements that give a true and fair view.

The Board of Directors confirm that the following statement is in accordance with a resolution of the directors: This responsibility includes: designing, implementing and maintaining internal control relevant to the preparation and fair presentation of financial statements that are free from material misstatement, whether due to fraud or error; selecting and applying appropriate accounting policies; and making accounting estimates that are reasonable in the circumstances.

In the opinion of the directors:

- the statement of comprehensive income is drawn up so as to present fairly the deficit of income over expenditure of the Authority for the year ended 31 December 2010;
- the statement of financial position is drawn up so as to present fairly the state of affairs of the Authority as at 31 December 2010; and
- there are reasonable grounds to believe that the Authority will be able to pay its debts as and when they fall due.

Accordingly, the financial statements set out on pages 40 to 58 were approved by the board of Directors on 16<sup>th</sup> June 2011 and signed on its behalf by:



.....  
**J H Mupamhanga**  
Chairman



.....  
**T J Kasonso**  
Co-Chairman

### Independent Auditor's Report to the Council Of Ministers of Zambezi River Authority

#### Respective responsibilities of directors and auditors

##### Report on the financial statements

We have audited the financial statements of Zambezi River Authority which comprise the statement of financial position at 31 December 2010 and the statement of comprehensive income, the statement of changes in reserves and statement of cash flows for the year then ended, and the notes to the financial statements, which include a summary of significant accounting policies and other explanatory notes as set out on pages 40 to 58.

##### Directors' responsibility for the financial statements

The company's directors are responsible for the preparation and fair presentation of these financial statements in accordance with International Financial Reporting Standards and the requirements of the Zambezi River Authority Acts, 1987, of Zambia and Zimbabwe. This responsibility includes: designing, implementing and maintaining internal control relevant to the preparation and fair presentation of financial statements that are free from material misstatement, whether due to fraud or error; selecting and applying appropriate accounting policies; and making accounting estimates that are reasonable in the circumstances.

##### Auditor's responsibility

Our responsibility is to express an opinion on these financial statements based on our audit. We conducted our audit in accordance with International Standards on Auditing. Those standards require that we comply with ethical requirements and plan and perform the audit to obtain reasonable assurance whether the financial statements are free from material misstatement.

An audit involves performing procedures to obtain evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error.

In making those risk assessments, the auditor considers internal control relevant to the entity's preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of accounting estimates made by management, as well as evaluating the overall presentation of the financial statements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

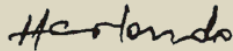
##### Opinion

In our opinion the financial statements present fairly, in all material respects, the financial position of Zambezi River Authority at 31 December 2010 and its performance and cash flows for the year then ended in accordance with International Financial Reporting Standards.

**Report on other legal and regulatory requirements**

In accordance with Zambezi River Authority Acts, 1987, of Zambia and Zimbabwe, we report that, in our opinion, the required accounting records, other records and registers have been properly kept in accordance with the Act.

**Ernst & Young**  
**Chartered Accountants**



**Henry C Nondo**  
**Partner**

**2011**  
**Lusaka**

## Financial Statements and Notes

### Statement of Comprehensive Income

for the year ended 31 December 2010

	Note	2010 ZK'000	2010 US\$'000	2009 ZK'000	2009 US\$'000
Operating income	12	54,755,125	11,326	48,727,458	10,478
Operating expenses	13	60,879,272	12,590	46,544,205	9,369
<b>Net operating income</b>		<b>(6,124,147)</b>	<b>(1,264)</b>	2,183,253	1,109
Net finance income		4,976,840	995	12,649,054	2,720
Non operating income		1,040,046	215	1,187,511	255
<b>Net (deficit)/income</b>		<b>(107,261)</b>	<b>(54)</b>	16,019,818	4,084
<b>Other comprehensive income</b>					
Exchange difference on consolidation		(8,312,721)	53	(2,404,784)	(947)
Other gains/(losses)	16	(3,382,521)	(704)	(27,143,943)	(2,906)
<b>Total comprehensive income</b>		<b>(11,802,503)</b>	<b>(705)</b>	(13,528,909)	(231)

### Statement of Changes in Reserves - Kwacha

for the year ended 31 December 2010

	Revaluation reserves ZK'000	Revenue reserves ZK'000	Exchange adjust reserves ZK'000	Home ownership reserve fund ZK'000	Total ZK'000
At 1 January 2009	1,150,001,927	134,653,563	(91,577,083)	3,111,316	1,196,189,723
Total comprehensive income	(26,492,952)	16,019,818	(2,404,784)	(997,177)	(13,855,095)
Transfers	-	(428,290)	-	428,290	-
Capital grant written off	-	346,186	-	-	346,186
<b>At 31 December 2009</b>	<b>1,123,508,975</b>	<b>150,591,277</b>	<b>(93,981,867)</b>	<b>2,542,429</b>	<b>1,182,660,814</b>
At 1 January 2010	1,123,508,975	150,591,277	(93,981,867)	2,542,429	1,182,660,814
Total comprehensive income	(3,382,521)	(107,261)	(8,312,721)	-	(11,802,503)
Amortisation/adjustment	936,711	(936,711)	-	-	-
Transfers	-	(225,887)	-	225,887	-
<b>At 31 December 2010</b>	<b>1,121,063,165</b>	<b>149,321,418</b>	<b>(102,294,588)</b>	<b>2,768,316</b>	<b>1,170,858,311</b>

The notes on pages 44 to 58 form part of these financial statements.



## Statement of Changes in Reserves – Us Dollars

for the year ended 31 December 2010

	Revaluation reserves US\$'000	Revenue reserves US\$'000	Exchange adjust reserves US\$'000	Home ownership reserve fund US\$'000	Total US\$'000
At 1 January 2009	98,142	12,149	1,016	689	111,996
Total comprehensive income	(2,745)	4,084	(947)	(235)	(157)
Transfers	-	(92)	-	92	-
Capital grant written off	-	74	-	-	74
<b>At 31 December 2009</b>	<b>95,397</b>	<b>16,215</b>	<b>69</b>	<b>546</b>	<b>112,227</b>
At 1 January 2010	95,397	16,215	69	546	112,227
Total comprehensive income	(704)	(54)	53	-	(705)
Amortisation/adjustment	195	(195)	-	-	-
Transfers	-	(47)	-	47	-
<b>At 31 December 2010</b>	<b>94,888</b>	<b>15,919</b>	<b>122</b>	<b>593</b>	<b>111,522</b>

The notes on pages 44 to 58 form part of these financial statements.

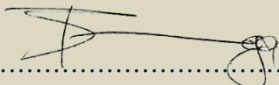
## Financial Statements and Notes


### Statement of Financial Position

as at 31 December 2010

	Note	2010 ZK'000	2010 US\$'000	2009 ZK'000	2009 US\$'000
<b>ASSETS</b>					
<b>Non current assets</b>					
Property, plant and equipment	7	1,093,457,035	93,120	1,103,939,852	95,301
Investments	9	3,734,604	777	3,320,708	714
		<b>1,097,191,639</b>	<b>93,897</b>	<b>1,107,260,560</b>	<b>96,015</b>
<b>Current assets</b>					
Consumable stores		336,052	70	75,451	16
Accounts receivable	10	44,187,471	9,194	65,276,600	14,036
Cash and cash equivalents	17	42,141,853	11,066	24,178,211	5,199
		<b>86,665,376</b>	<b>20,330</b>	<b>86,530,262</b>	<b>19,251</b>
<b>Total assets</b>		<b>1,183,857,015</b>	<b>114,226</b>	<b>1,193,790,821</b>	<b>115,266</b>
<b>RESERVES AND LIABILITIES</b>					
<b>Reserves</b>					
Revaluation reserves		1,121,063,165	94,888	1,123,508,975	95,397
Revenue reserves		149,321,418	15,919	150,591,277	16,215
Exchange adjustment reserve		-102,294,588	122	-93,981,867	69
Home ownership fund		2,768,316	593	2,542,429	546
		<b>1,170,858,311</b>	<b>111,522</b>	<b>1,182,660,814</b>	<b>112,227</b>
<b>Current liabilities</b>					
Trade and other payables	11	12,998,704	2,704	14,130,007	3,039
<b>Total reserves and liabilities</b>		<b>1,183,857,015</b>	<b>114,226</b>	<b>1,196,790,821</b>	<b>115,266</b>

The responsibilities of the directors with regard to the preparation of the financial statements are set out on page 37. The financial statements on pages 40 to 58 were approved by the board of directors on 16<sup>th</sup> June 2011 and signed on its behalf by:

  
 .....  
**J H Mupamhanga**  
 Chairman

  
 .....  
**T J Kasonso**  
 Co-Chairman

}  
**Directors**

The notes on pages 44 to 58 form part of these financial statements.

**Statement of Cash Flows**

for the year ended 31 December 2010

	2010 ZK'000	2010 US\$'000	2009 ZK'000	2009 US\$'000
<b>Cash flows from operation</b>				
(Deficit)/surplus for the year	(107,261)	(54)	16,019,818	4,084
Depreciation	13,059,976	2,718	5,415,665	525
Profit on disposal of assets	(36,215)	(23)	(52,517)	(11)
Interest receivable	(13,823,017)	(2,862)	(4,836,859)	(1,040)
Unrealised exchange (losses)/gains	(8,312,721)	53	(2,404,784)	(947)
Capital grant written off			346,186	74
Transfer to home ownership reserve	(225,887)	(47)	(428,290)	(92)
<b>Cash generated from operations</b>	<b>(9,445,125)</b>	<b>(215)</b>	<b>14,059,219</b>	<b>2,593</b>
<b>Changes in working capital</b>				
Increase)/decrease in inventories	(260,601)	(54)	(75,450)	(16)
Decrease in accounts receivable	21,089,128	4,842	19,909,279	4,822
Increase in accounts payables	(1,131,303)	(334)	(14,436,587)	(3,285)
<b>Net changes in working capital</b>	<b>19,697,224</b>	<b>4,454</b>	<b>5,397,242</b>	<b>1,521</b>
Net cash flows from operating activities	<b>10,252,099</b>	<b>4,239</b>	<b>19,456,461</b>	<b>4,114</b>
<b>Cash flows from investing activities</b>				
Proceeds on disposal of property, plant and equipment	97,979	35	206,840	22
Expenditure on property, plant and equipment	5,961,571	(1,240)	(2,175,713)	(468)
Interest received	13,823,017	2,862	4,836,859	1,040
Increase in investment	(413,896)	(63)	(209,392)	(25)
Net cash flows from investing activities	<b>7,545,529</b>	<b>1,594</b>	<b>2,658,594</b>	<b>569</b>
<b>Cash flows from financing activities</b>				
Increase/(decrease) in home ownership fund	225,887	47	(568,887)	(143)
Movement in capital reserves	-	-	(346,186)	-
	<b>225,887</b>	<b>47</b>	<b>(915,073)</b>	<b>(143)</b>
<b>Movement in cash and cash equivalents</b>				
Net cash flows	<b>18,023,515</b>	<b>5,880</b>	<b>21,199,984</b>	<b>4,540</b>
Cash and cash equivalents at beginning of year	<b>24,118,338</b>	<b>5,186</b>	<b>2,918,354</b>	<b>646</b>
<b>Cash and cash equivalents at end of the year</b>	<b>42,141,853</b>	<b>11,066</b>	<b>24,118,338</b>	<b>5,18</b>

The notes on pages 44 to 58 form part of these financial statements.

## Notes to the Financial Statements

for the year ended 31 December 2010

### 1. Significant accounting policies

#### 1.1 Basis of accounting

The financial statements are prepared on the historical cost basis of accounting, modified to include the revaluation of certain tangible fixed assets, and comply with the requirements of International Financial Reporting Standards and the Zambezi River Authority Acts of 1987.

#### 1.2 Water sales revenue

Operating income is based on water tariffs charged based on the water consumed in the generation of electricity as invoiced to the two utilities, ZESCO Limited and Zimbabwe Power Company (ZPC). The formula used is intended to provide the Authority with sufficient revenues to carry out its mandate and not to generate profits. Consequently, the tariff formula is reviewed every three years, while tariff rates are adjusted annually by the CPI rate of the United States of America.

#### 1.3 Property, plant and equipment

Property, plant and equipment are stated in the statement of financial position at cost or valuation less depreciation. Expenditure on assets under construction is initially shown as capital work in progress and is transferred to the relevant class of asset when commissioned. In compliance with IAS 16, assets have been revalued at the statement of financial position date and their probable useful lives and residue value have also been reassessed. The resultant values have been adjusted against fixed assets and the revaluation reserve, and are included in the statement of comprehensive income.

#### 1.4 Depreciation

Depreciation is charged to write off the cost or valuation of tangible fixed assets over their estimated useful lives on a straight line basis, at the following annual rates:

Leasehold properties	1.25% - 2.5%
Kariba dam structure and related assets	1.25% - 2.5%
Motor vehicles	25%
Furniture and equipment	20%
Capital work in progress is not depreciated.	

However, assets with nil book values but still employed in operations of the Authority business have been revalued and reinstated on the statement of financial position based on their current depreciable value.

## Notes to the Financial Statements

for the year ended 31 December 2010

### 1. Significant accounting policies (continued)

#### 1.5 Revaluation reserve

The surplus arising on revaluation of tangible fixed assets is credited to a non distributable reserve. A transfer is made from this reserve to the revenue reserve each year equivalent to the difference between the actual depreciation charge for the year and the depreciation charge based on historical cost.

#### 1.6 Capital grants

Capital grants represent amounts received for the purchase or construction of tangible fixed assets.

#### 1.7 Investments

Investments are stated at cost or net realizable value. Interest is re-invested.

#### 1.8 Consumable stores

Stores are stated in the statement of financial position at the lower of cost and net realizable value.

#### 1.9 Translation of foreign currencies

Transactions denominated in foreign currencies are translated into Zambian Kwacha or United State Dollars at the average rates of exchange for the year. Assets and liabilities denominated in foreign currencies are translated into Zambian Kwacha or United State Dollars at the rates of exchange ruling at the statement of financial position date.

#### 1.10 Retirement benefits

The Authority subscribes to defined contributory pension schemes for the benefit of its members of permanent and pensionable staff. Contributions are charged to the income and expenditure account at 15% of the Basic Salary. In addition the Authority has taken out benefits insurance for contract employees at 35% of basic salary.

#### 1.11 Financial instruments

As at 31 December 2010, the carrying amount of cash and short term investments, debtors and creditors approximated their fair values due to short term maturities of these assets and liabilities.

#### 1.12 Cash and cash equivalents

Cash and cash equivalents are defined as cash on hand, bank balances and short term, highly liquid investments readily convertible to known amounts of cash and subject to insignificant risk of changes in value.

For the purpose of the statement of cash flows, cash and cash equivalents consist of cash, deposits in banks and short term investments, net of outstanding bank overdrafts.

### Notes to the Financial Statements

for the year ended 31 December 2010

#### 1. Significant accounting policies (continued)

##### 1.13 Trade and other receivables

Trade and other receivables are stated at fair value estimated as the present value of future cash flows, discounted at a nominal rate of interest (6%) at the reporting date, less impairment losses, except where the effect of discounting would be immaterial. In such cases, the receivables are stated at cost, less impairment losses.

##### 1.14 Financial assets

Financial assets within the scope of IAS 39 are classified as financial assets at fair value through profit or loss, loans and receivables, held to maturity investments or available for sale financial assets as appropriate. When financial assets are recognized initially, they are measured at fair value, plus, in the case of investments not at fair value through profit or loss, directly attributable transaction costs.

A financial asset is impaired if its carrying amount is greater than its estimated recoverable amount. The recoverable amount is estimated at the present value of expected future cash flows discounted at the financial instruments' original effective interest rate.

The Authority's principal financial assets are bank balances and cash and trade receivables. The Authority maintains its bank accounts with major banks in Zambia and Zimbabwe of high credit rating.

##### 1.15 Financial liabilities

The Authority's financial liabilities are trade and other payables. Financial liabilities are classified according to the substance of the contractual arrangements entered into. Trade and other payables are stated at fair value calculated based on the present value of future cash flows discounted at the market rate of interest at the reporting date, unless the impact of discounting would be immaterial, in which case they are stated at cost.

## Notes to the Financial Statements

for the year ended 31 December 2010

### 1. Significant accounting policies (continued)

#### 1.16 Capital management

The primary objective of the Authority's capital management is to ensure that it maintains a strong credit rating and healthy capital ratios in order to support its business and maximise stakeholder value.

The Authority manages its capital structure and makes adjustments to it, in light of changes in economic conditions.

No changes were made in the objectives, policies or processes during the year end 31 December 2009.

#### 1.17 New standards and interpretations effective in 2009

A number of new standards, amendments to standards and interpretations are mandatory for the year ended 31 December 2010, and have been adopted by the Authority where relevant to the Authority's operations.

##### **IFRS 8 Operating Segments**

The IFRS specifies how an entity should report information about its operating segments in annual financial statements and requires an entity to report selected information about its operating segments in interim financial reports. It also sets out requirements for related disclosures about products and services, geographical areas and major customer. An entity shall apply this IFRS for annual periods beginning on or after 1 January 2009

*No impact on the 2010 financial statements*

##### **IAS 23 Borrowing Costs**

Before the Standard was revised entities had the option to capitalize or expense borrowing costs relating to qualifying assets. This option is no longer available.

The revised IAS 23 now requires that borrowing costs that are directly attributable to the acquisition, construction or production of a qualifying asset are included in the cost of that asset. Such borrowing costs are capitalised as part of the cost of the asset when it is probable that they will result in future economic benefits to the entity and the costs can be measured reliably. The standard was also revised to exclude certain assets as qualifying assets.

This revised Standard is effective for annual periods beginning on or after 1 January 2009

*No impact on the 2010 financial statements*

### Notes to the Financial Statements

for the year ended 31 December 2010

#### 1. Significant accounting policies (continued)

##### 1.17 New standards and interpretations effective in 2009 (continued)

###### IAS 1 Presentation of Financial Statements (Revised)

The main changes are as follows:

- Change of the titles of primary statements. The revised Standard replaces the term 'Balance sheet' with 'Statement of financial position' and 'Cash flow statement' with 'Statement of cash flows'.
- Separation of items previously disclosed in the statement of changes in equity between 'other comprehensive income' and 'statement of changes in equity' in order to separate owner and non-owner changes in equity.
- Statement of comprehensive income to include profit or loss for the period (previously the income statement) plus all income and expense items that go directly to equity i.e. items that have by-passed the statement of comprehensive income but have nothing to do with the owners.
- Revised Standard requires dividends recognized as distributions to owners and related amounts per share to be presented in the statement of changes in equity or in the notes. The presentation of such disclosures in the statement of comprehensive income is not permitted.

*Implemented*



## Notes to the Financial Statements

for the year ended 31 December 2010

### 1. Significant accounting policies (continued)

#### 1.17 New standards and interpretations effective in 2009 (continued)

Whilst early application is permitted, entities will be required to comply with this revised standard for financial periods commencing on or after 1 January 2009.

		<b>Effective date</b>
<b>IFRS 1</b>	First time adoption of International Financial Reporting Standards – additional exemptions for first time adopters. <i>No impact on the 2010 financial statements</i>	Periods beginning on or after 1 January 2010.
<b>IFRS 2</b>	Group cash settled share based payments arrangement. <i>No impact on the 2010 financial statements</i>	Periods beginning on or after 1 January 2009.
<b>IFRS 3</b>	Business combinations (revised) <i>No impact on the 2010 financial statements</i>	Periods beginning on or after 1 July 2009.
<b>IAS 27</b>	Consolidated and separate financial statements (amendment). <i>No impact on the 2010 financial statements</i>	Periods beginning on or after 1 July 2009.
<b>IAS 39</b>	Financial Investments: Recognition and measurement – eligible Hedge items (amendments). <i>No impact on the 2010 financial statements</i>	Periods beginning on or after 1 July 2009.
<b>IFRIC 17</b>	Distributions of Non – Cash Assets to Owners <i>No impact on the 2010 financial statements</i>	Periods beginning on or after 1 July 2009

## Notes to the Financial Statements

for the year ended 31 December 2010

### 2. Legal status and principal activity

The principal activities of the Authority continued to be the operation and maintenance of the Kariba Dam and future dams that may be constructed along the Zambezi River, and the management of its waters.

### 3. Statement of accounts - form and currency

The Authority was constituted by the Zambezi River Authority Act 1987 of Zambia and Zimbabwe, which contain provisions relating to the form and content of the financial statements for the Authority.

Beginning January 2009, the Zimbabwean Government suspended the use of the Zimbabwean Dollar in preference for convertible currencies such as the United States Dollars. Therefore the financial statements for the year ended 31 December 2010 are presented in US Dollars and Zambian Kwacha.

The translation of the financial statements between Zambian Kwacha and United States Dollars for consolidation purposes is performed using the closing rate for monetary items on the statement of financial position and an approximate average rate for the income and expenditure accounts. Non monetary items once translated are not retranslated at the statement of financial position date. Translation differences arising on consolidation are taken to the exchange adjustment reserve.

The rates used for translation are as follows:

	<b>2010</b> <b>December</b>	<b>2009</b> <b>December</b>
Closing rate	1US\$ = K4,806.11	1US\$ = K4,650.57
Average rate	1US\$ = K4,806.11	1US\$ = K4,687.96

### 4. Significant accounting estimates

The preparation of financial statements in conformity with IFRS requires the use of certain critical accounting estimates and judgments concerning the future.

Estimates and judgments are continually evaluated and are based on historical factors coupled with expectations about future events that are considered reasonable.

Management has made judgments and estimates that have a significant risk of causing material adjustments to the carrying amount of assets in respect to the depreciation, useful lives and residue values of assets. The estimation of useful life and residual values of an asset is a matter of judgment based on past experience.

## Notes to the Financial Statements

for the year ended 31 December 2010

### 5. Risk management

Risk management in general is monitored through the board of directors through ensuring that policies, procedures and approved systems are adhered to and are adequate in managing all risks. In particular, operational risks are mitigated through strict adherence to the Standing Operational Procedures. Financial risks are mitigated through matching of revenue streams and contractual obligations to the Authority's functional currency.

Risk is inherent in the Authority's activities but it is managed through a process of ongoing identification, measurement and monitoring, subject to risk limits and other controls. This process of risk management is critical to the Authority's continuing viable operations.

#### a) Currency risk

Certain bank balances are denominated in foreign currencies and therefore lead to a risk of fluctuation of value due to changes in the foreign exchange rate.

#### b) Liquidity risk

The Authority is not believed to be exposed to significant liquidity risk, being inability to sell financial assets quickly at close to their fair value.

#### c) Cash flow risk

The Authority is not exposed to the risk that future cash flows associated with monetary financial instruments will fluctuate in amounts. It has no instruments that include a floating interest rate.

#### d) Interest rate risk

The Authority exposure to interest rate risk is low considering that it has no borrowings that are subject to floating interest rates.

#### e) Credit risk

Credit risk consists mainly of cash deposits, cash equivalents and trade receivables. The Authority only deposits cash with major banks with high quality credit rating and charges 6% interest on overdue trade receivables.

## Notes to the Financial Statements

for the year ended 31 December 2010

### 6. Taxation

The Authority is exempt from the payment of taxes on capital, income or profits in Zambia and Zimbabwe, under articles 17 and 19 of the Zambezi River Authority Acts, 1987 of Zambia and Zimbabwe respectively.

### 7. Property, Plant and Equipment

Year ended 31 December 2010

	Land & buildings		Vehicles, equipment, etc		Total consolidated	
	ZK'000	US\$'000	ZK'000	US\$'000	ZK'000	US\$'000
At 1 January 2010	1,126,791,537	97,056	7,146,318	1,000	1,133,937,855	98,056
Additions	2,286,590	476	3,678,347	765	5,964,937	1,241
Impairment adjustment	(4,353,355)	(906)	-	-	(4,353,355)	(906)
Disposals	-	-	(381,975)	(79)	(381,975)	(79)
<b>At 31 December 2010</b>	<b>1,124,724,772</b>	<b>96,626</b>	<b>10,442,690</b>	<b>1,686</b>	<b>1,135,167,462</b>	<b>98,312</b>
<b>Depreciation</b>						
At 1 January 2010	27,156,218	2,361	2,841,785	395	29,998,003	2,756
Charge for the year	10,772,412	2,241	2,287,564	476	13,059,976	2,717
Impairment adjustment	(970,834)	(202)	-	-	(970,834)	(202)
Disposals	-	-	(376,718)	(79)	(376,718)	(79)
<b>At 31 December 2010</b>	<b>36,957,796</b>	<b>4,400</b>	<b>4,752,631</b>	<b>792</b>	<b>41,710,427</b>	<b>5,192</b>
<b>Net Book Value</b>						
<b>At 31 December 2010</b>	<b>1,087,766,976</b>	<b>92,226</b>	<b>5,690,059</b>	<b>894</b>	<b>1,093,457,035</b>	<b>93,120</b>
At 31 December 2009	1,099,653,319	94,695	4,304,533	606	1,103,939,852	95,301

**Notes to the Financial Statements**

for the year ended 31 December 2010

**7. Property, Plant and Equipment**

Year ended 31 December 2010

	Land & buildings		Vehicles, equipment, etc		Total consolidated	
	ZK'000	US\$'000	ZK'000	US\$'000	ZK'000	US\$'000
At 1 January 2009	1,126,586,596	97,012	39,595,984	4,411	1,166,182,580	101,424
Additions	204,941	44	1,970,772	424	2,175,713	468
Impairment adjustment	-	-	(34,000,482)	(3,788)	(34,000,482)	(3,788)
Disposals	-	-	(419,956)	(47)	(419,956)	(47)
<b>At 31 December 2009</b>	<b>1,126,791,537</b>	<b>97,056</b>	<b>7,146,318</b>	<b>1,000</b>	<b>1,133,937,855</b>	<b>98,057</b>
<b>Depreciation</b>						
At 1 January 2009	22,792,154	1,982	9,563,347	1,329	32,355,501	3,311
Charge for the year	4,364,064	379	1,051,601	146	5,415,665	525
Impairment adjustment	-	-	(7,507,530)	(1,043)	(7,507,530)	(1,043)
Disposals	-	-	(265,633)	37	(265,633)	(37)
<b>At 31 December 2009</b>	<b>27,156,218</b>	<b>2,361</b>	<b>2,841,785</b>	<b>395</b>	<b>29,998,003</b>	<b>2,756</b>
<b>Net Book Value</b>						
<b>At 31 December 2009</b>	<b>1,099,635,319</b>	<b>94,695</b>	<b>4,304,533</b>	<b>606</b>	<b>1,103,939,852</b>	<b>95,301</b>
At 31 December 2008	1,103,794,442	95,031	30,032,637	3,083	1,133,827,080	98,113

## Notes to the Financial Statements

for the year ended 31 December 2010

	2010 ZK'000	2010 US\$'000	2009 ZK'000	2009 US\$'000
<b>8 Capital commitments</b>				
Approved by the Council of Ministers but not contracted for	41,861,218	8,710	12,472,829	2,682
<b>9 Investments</b>				
At beginning of year	3,320,709	714	3,111,316	689
Capitalised interest	302,785	63	239,219	51
Exchange gain	-	-	1	20
Transfer/adjustments	111,110	-	(29,827)	(6)
<b>At end of the year</b>	<b>3,734,604</b>			
All investments are held at fair value through profit and loss and comprise to members of staff for the purposes of asset finance and short term deposits. Interest on staff loans are between 6 and 10% per annum while interest earned on short term deposits during the year averaged 55%. The comparable bank lending rates for the year averaged 21% per annum. Employee loans are repayable				
<b>Represented by:</b>				
Home ownership loans	2,646,627	551	2,463,977	530
Barclays investment account	245,757	52	78,452	17
Other investments	842,220	175	778,279	167
	<b>3,734,604</b>	<b>777</b>	<b>3,320,708</b>	<b>714</b>
<b>10 Accounts receivable</b>				
Zesco current account	2,918,041	607	9,403,675	2,022
ZESA/ZPC current account	39,529,166	8,225	54,794,303	11,782
Sundry debtors	1,740,264	362	1,078,622	232
	<b>44,187,471</b>	<b>9,194</b>	<b>65,276,600</b>	<b>14,036</b>

**Notes to the Financial Statements**

for the year ended 31 December 2010

	2010	2010	2009	2009
	ZK'000	US\$'000	ZK'000	US\$'000
<b>11 Trade and other payables</b>				
Trade creditors	5,590	1	265,728	57
Provisions and accruals	12,993,115	2,703	13,804,405	2,969
Bank overdraft	-	-	59,873	13
	<b>12,998,704</b>	<b>2,704</b>	<b>14,130,006</b>	<b>3,039</b>
<b>12 Operating income</b>				
Income from water sales to Zesco & ZPC				
Variable charge	40,932,108	8,464	36,626,976	7,876
Fixed charge	13,823,017	2,862	12,100,482	
	<b>54,755,125</b>	<b>11,326</b>	<b>48,727,458</b>	<b>2,602</b>
<b>13 Operating expenses</b>				
Employment	33,381,964	6,886	31,863,671	6,852
Administration overheads	5,745,006	1,193	4,682,512	1,007
Transport and travel	3,811,052	790	2,145,945	461
Maintenance	3,514,113	719	1,113,746	239
Board expenses	1,367,162	283	1,322,668	284
Depreciation	13,062,338	2,718	5,415,665	526
	<b>60,879,272</b>	<b>12,590</b>	<b>46,544,207</b>	<b>9,369</b>
<b>14 Finance income</b>				
Interest receivable	6,014,407	1,211	4,836,859	1,040
Operating exchange losses	(1,005,221)	(209)	2,761,340	594
Exchange losses on current accounts	(32,345)	-	5,050,855	1,086
	<b>4,976,840</b>	<b>1,001</b>	<b>12,649,054</b>	<b>2,720</b>
<b>15 Non operating income</b>				
Rent receivable	891,394	184	965,428	208
Miscellaneous income	112,437	8	169,566	36
Profit on disposal of assets	36,215	23	52,517	11
	<b>1,040,046</b>	<b>215</b>	<b>1,187,511</b>	<b>255</b>

## Notes to the Financial Statements

for the year ended 31 December 2010

### 16 Other gains and losses

Asset impairment (losses)/gains	<b>(3,382,521)</b>	<b>(704)</b>	(26,492,952)	(2,745)
Capital grants written off	-	-	346,186	74
Investment impairment losses	-	-	(997,177)	(234)
	<b>(3,382,521)</b>	<b>(704)</b>	(27,143,943)	(2,905)

### 17 Cash and cash equivalents

Net cash equivalents to 1 January	<b>24,118,338</b>	<b>5,186</b>	2,918,354	646
Net cash equivalents at 31 December	<b>42,141,853</b>	<b>11,066</b>	24,118,338	5,186
Movement during the year	<b>18,023,515</b>	<b>5,880</b>	21,199,984	4,540

### 18. Financial instruments

Exposure to currency, interest rate, credit and liquidity risk arises in the normal course of the company's business.

#### (i) Credit risk

The carrying amount of financial assets represents the maximum credit exposure. The maximum exposure to credit risk at the reporting date was:

Trade and other receivables	2010	2010	2009	2009
	ZK'000	US\$'000	ZK'000	US\$'000
ZESCO current account	<b>2,918,041</b>	<b>607</b>	9,403,675	2,022
ZESA/ZPC current account	<b>39,529,166</b>	<b>8,225</b>	54,794,303	11,782
Sundry debtors	<b>1,740,264</b>	<b>362</b>	1,078,622	232
	<b>44,187,471</b>	<b>9,194</b>	65,276,600	14,036

#### Trade and other receivables - Impairment losses

Less than 60 days	11,466,000	2,386	11,466,000	2,466
Over 60 days but Less 120 days	10,866,000	2,261	10,866,000	2,336
Over 120 days but less than 180	10,266,000	2,136	10,266,000	2,207
Over 180 days but less than 240	9,000,588	1,873	9,000,590	1,935
Over 240 days but less than 360	2,588,883	539	9,666,000	2,078
Over 360 days	-	-	14,012,010	3,013
	<b>44,187,471</b>	<b>9,194</b>	<b>65,276,600</b>	<b>14,036</b>



**Notes to the Financial Statements**

for the year ended 31 December 2010

**18. Financial instruments (continued)**

**(i) Credit risk (Continued)**

	Note	2010 ZK'000	2010 \$'000	2009 ZK'000	2009 \$'000
Trade and other receivables	10	44,187,471	9,194	65,276,600	14,036
Cash and cash equivalents	14	42,141,853	11,066	17,087,252	3,674
		<b>86,329,324</b>	<b>20,260</b>	<b>82,303,852</b>	<b>17,710</b>

**(ii) Liquidity risk**

The following are the contractual maturities of financial liabilities as at 31 December 2010 in K'000

	Carrying amount	Cash flows within 1 yr	Cash flows within 2 yrs	Total cash flows
Trade payables	5,590	5,590	-	5,590
Other payables	12,993,115	4,970,349	2,044,544	7,020,482
	<b>12,998,704</b>	<b>20,260</b>	<b>2,044,544</b>	<b>7,020,482</b>

The following are the contractual maturities of financial liabilities as at 31 December 2010 in \$'000

	Carrying amount	Cash flows within 1 yr	Cash flows within 2 yrs	Total cash flows
Trade payables	1	1	-	1
Other payables	2,794	1,069	440	1,508
	<b>2,795</b>	<b>1,070</b>	<b>440</b>	<b>1,509</b>

The following are the contractual maturities of financial liabilities as at 31 December 2009 in K'000

	Carrying amount	Cash flows within 1 yr	Cash flows within 2 yrs	Total cash flows
Trade payables	524,692	524,692	-	524,69
Other payables	27,982,028	16,845,878	11,136,150	27,982,028
	<b>28,506,720</b>	<b>17,370,570</b>	<b>11,136,150</b>	<b>28,506,720</b>

## Notes to the Financial Statements

for the year ended 31 December 2010

### 18. Financial instruments (continued)

The following are the contractual maturities of financial liabilities as at 31 December 2009 in \$'000

	Carrying amount	Cash flows within 1 yr	Cash flows within 2 yrs	Total cash flows
Trade creditors	116	116	-	116
Other payables	6,195	3,729	2,465	6,194
	<b>6,311</b>	<b>3,846</b>	<b>2,465</b>	<b>6,311</b>

#### (iii) Currency risk

The Authority's exposure to foreign currency risk was as follows

	2010 ZK'000	2010 \$'000	2009 ZK'000	2009 \$'000
Trade receivables	44,187,471	9,194	65,276,598	14,036
Other receivables	817,039	170	790,597	170
Cash and cash equivalents	24,770,691	5,154	23,969,038	5,154
Investments	(138)	-	(697,070)	(150)
Trade payables	(262,346)	(56)	(262,346)	(56)
Other payables	(7,014,892)	(1,508)	(8,637,474)	(1,857)
<b>TOTAL</b>	<b>62,497,824</b>	<b>12,953</b>	<b>80,439,343</b>	<b>17,297</b>
Exchange rates applicable at year end	<b>K4,806</b>	<b>US\$1</b>	K4650	US\$1

# Appendices

## **Appendices**

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## Appendices

### Appendix 1

#### Statement of Capital Expenditure Compared with Capital Budget

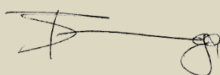
for the year ended to 31 December 2010

	Actual	Budget	Variance
Zimbabwe	US\$'000	US\$'000	US\$'000
Dam structure	402	8,340	7,938
Land and buildings	-	506	506
Furniture and equipment	34	33	-1
Motor vehicles	90	90	-
Equipment and machinery	231	200	-31
<b>Total</b>	<b>757</b>	<b>9,169</b>	<b>8,412</b>
Zambia	ZK'000	ZK'000	ZK'000
Dam structure	-	964	964
Land and buildings	355,287	576,733	221,446
Furniture and equipment	111,502	72,092	(39,410)
Motor vehicles	1,224,140	1,201,528	(22,613)
Equipment and machinery	632,417	653,631	21,214
<b>Total</b>	<b>2,323,346</b>	<b>2,504,947</b>	<b>8,412</b>
<b>ZRA TOTAL US\$</b>	<b>1,241</b>	<b>9,690</b>	<b>(8,450)</b>
<b>ZRA TOTAL ZK</b>	<b>5,964,937</b>	<b>46,572,170</b>	<b>(40,610,599)</b>

The budget was approved by the Council of Ministers by round lobbying.

#### Auditors' certificate

In accordance with Article 15(6) 6 of the Zambezi River Authority Act 1987, we certify that the comparative statement shown above is correct.



**J H Mupamhanga**  
Chairman

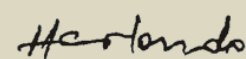


**T J Kasonso**  
Co-Chairman

}  
}

**Directors**

**Ernst & Young**



**Henry C Nondo - Partner**

## Appendix 2

## ZIMBABWE

## Statement of Financial Position

as at 31 December 2010

	2010	2010	2009	2009
ASSETS	US\$'000	K'000	US\$'000	K'000
<b>Non current assets</b>				
Property, plant and equipment	93,589	449,800,264	95,225	1,095,219,681
Investments	37	177,929	17	81,209
Current account	2,244	10,784,398	2,194	10,203,351
	<b>95,870</b>	<b>460,762,591</b>	<b>95,242</b>	<b>1,105,504,241</b>
<b>Current assets</b>				
Stores	70	336,053	16	74,409
Trade and other receivables	8,454	40,628,973	11,940	55,527,806
Bank and cash balances	10,010	48,109,095	3,656	17,002,484
	<b>18,534</b>	<b>89,074,121</b>	<b>17,805</b>	<b>72,604,699</b>
<b>Total assets</b>	<b>114,404</b>	<b>549,836,712</b>	<b>113,048</b>	<b>1,178,108,939</b>
<b>RESERVES AND LIABILITIES</b>				
<b>Reserves</b>				
Revaluation reserve	95,394	458,471,743	95,393	1,121,142,807
Revenue reserve	18,704	89,889,408	17,422	55,882,549
	<b>114,404</b>	<b>548,361,115</b>	<b>112,816</b>	<b>1,177,025,356</b>
<b>Current liabilities</b>				
Trade and other payables	307	1,475,560	233	1,083,583
<b>Total reserves and liabilities</b>	<b>114,404</b>	<b>549,836,712</b>	<b>113,048</b>	<b>1,178,108,739</b>

## Appendix 3

### ZIMBABWE

#### Statement of Comprehensive Income for the year ended 31 December 2010

	2010 US\$'000	2010 K'000	2009 US\$'000	2009 K'000
<b>Income</b>				
Water sales	6,882	33,232,170	5,962	27,726,698
Interest receivable	1,137	5,463,296	815	3,790,215
Rent	99	474,274	104	483,659
Miscellaneous	4	20,293	7	46,506
Profit on disposal of property, plant & equipment	-	-	10	32,554
Exchange gains on current account	-	-	1,086	5,050,519
Exchange gains on debt revaluation	-	-	578	2,688,029
<b>Total income</b>	<b>8,122</b>	<b>39,190,033</b>	<b>95,242</b>	<b>39,818,180</b>
<b>Expenditure</b>				
Employment	2,862	13,913,547	2,474	11,505,510
Depreciation	2,371	11,395,143	403	1,874,180
Administration overheads	571	2,742,330	273	1,269,606
Transport and travel	375	1,816,486	135	627,827
Maintenance	525	2,559,312	123	572,020
Board expenses	134	646,516	81	376,696
Interest payable	3	14,933	-	-
	<b>6,841</b>	<b>33,088,266</b>	<b>3,488</b>	<b>16,225,839</b>
<b>Surplus for year</b>	<b>1,282</b>	<b>6,101,766</b>	<b>5,073</b>	<b>23,592,342</b>

## Appendix 4

## ZAMBIA

Statement of Financial Position  
as at 31 December 2010

	2010 K'000	2010 US\$'000	2009 K'000	2009 US\$'000
<b>ASSETS</b>				
<b>Non current assets</b>				
Property, plant and equipment	13,820,021	2,876	8,720,171	1,875
Investments	3,520,028	732	3,239,499	697
	<b>17,340,050</b>	<b>3,608</b>	11,959,670	2,572
<b>Current assets</b>				
Stores	3,688,134	767	9,749,643	2,096
Bank and cash balances	5,074,661	1,056	7,177,274	1,543
	<b>8,762,794</b>	<b>1,822</b>	16,926,917	3,640
<b>Total assets</b>	<b>26,102,844</b>	<b>5,430</b>	28,886,587	6,211
<b>RESERVES AND LIABILITIES</b>				
<b>Reserves</b>				
Revenue reserve	1,083,719	224	1,162,587	250
Revaluation reserve	-	-	2,366,168	509
Home ownership fund	2,854,468	594	2,542,429	547
Current account	10,752,053	2,237	10,201,595	2,194
	<b>14,690,240</b>	<b>3,055</b>	6,071,184	3,499
<b>Current liabilities</b>				
Trade and other payables	11,412,604	2,375	12,613,808	2,712
<b>Total reserves and liabilities</b>	<b>26,102,844</b>	<b>5,430</b>	28,886,587	6,211

## Appendix 5

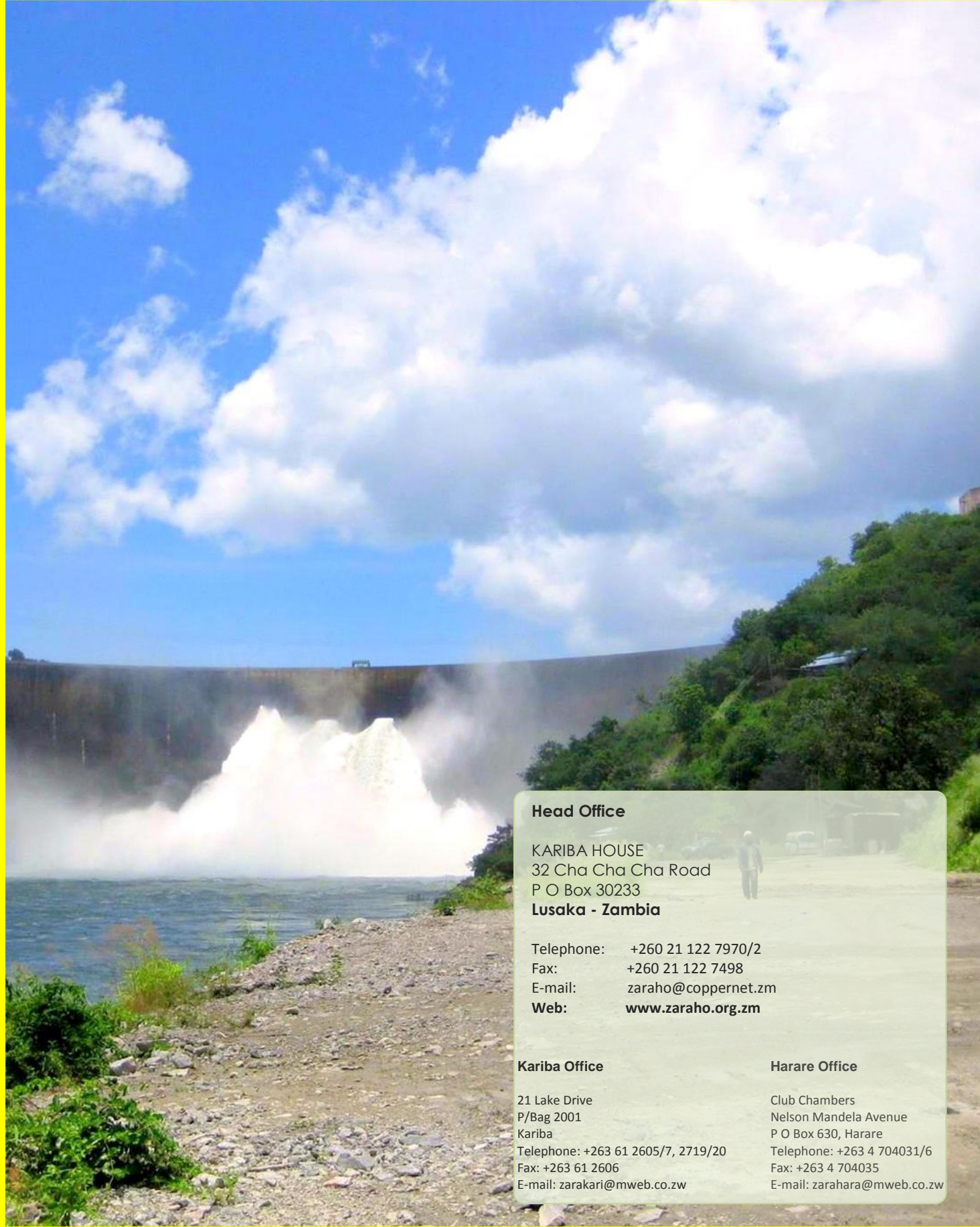
### ZAMBIA

#### Statement of Comprehensive Income for the year ended 31 December 2010

	2010	2010	2009	2009
	ZK'000	US\$'000	ZK'000	US\$'000
<b>Income</b>				
Water sales	21,522,955	4,444	21,002,904	4,517
Rent	417,120	87	483,094	104
Interest on deposits & overdue accounts	357,566	74	1,046,152	225
Profit on disposal of property, plant and equipment	111,821	23	6,765	1
Miscellaneous	15,655	3	138,488	30
Exchange difference on current account	-	-	74,814	16
	<b>22,425,117</b>	<b>4,631</b>	<b>22,752,218</b>	<b>4,893</b>
<b>Expenditure</b>				
Employment	19,468,418	4,024	20,357,694	4,378
Administration overheads	3,002,676	622	3,415,163	734
Depreciation	1,664,907	346	941,344	202
Transport and travel	1,994,565	415	1,517,909	326
Board expenses	720,645	150	947,398	204
Maintenance	954,801	195	543,483	117
Exchange losses	1,005,148	209	-	-
	<b>28,811,160</b>	<b>5,961</b>	<b>27,722,991</b>	<b>5,962</b>
<b>Deficit for year</b>	<b>(6,386,043)</b>	<b>(1,330)</b>	<b>(4,970,774)</b>	<b>(1,069)</b>







#### **Head Office**

KARIBA HOUSE  
32 Cha Cha Cha Road  
P O Box 30233  
**Lusaka - Zambia**

Telephone: +260 21 122 7970/2  
Fax: +260 21 122 7498  
E-mail: [zaraho@coppernet.zm](mailto:zaraho@coppernet.zm)  
Web: [www.zaraho.org.zm](http://www.zaraho.org.zm)

#### **Kariba Office**

21 Lake Drive  
P/Bag 2001  
Kariba  
Telephone: +263 61 2605/7, 2719/20  
Fax: +263 61 2606  
E-mail: [zarakari@mweb.co.zw](mailto:zarakari@mweb.co.zw)

#### **Harare Office**

Club Chambers  
Nelson Mandela Avenue  
P O Box 630, Harare  
Telephone: +263 4 704031/6  
Fax: +263 4 704035  
E-mail: [zarahara@mweb.co.zw](mailto:zarahara@mweb.co.zw)