

Public Sector Investment Opportunities: Water Supply Sector

Sector: Water Supply	Investment Amount	Expected Input	Investment Mode								
Project Summary											
<p>1. Chivhu Dam</p> <p>Purpose: Water supply for Chivhu Town and Irrigation in the surrounding farms.</p> <p>Scope of Works: Construction of water supply station and zoned earthfill dam on Sebakwe River, about 7km south-east of Chivhu Town in Chikomba District, Mashonaland East Province.</p> <p>Beneficiaries: Chivhu Town and surrounding farms.</p>	US\$33 million	Funding	PPP								
<p>2. Shavi Dam</p> <p>Purpose: Irrigation of 824ha of land in Mabwematema Irrigation Scheme of the Midlands Province</p> <p>Scope of Works: Construction of a zoned earthfill dam across the Shave River in Runde Communal Lands, Midlands Province. The site is 20 km from Zvishavane Town along the Shurugwi –Zvishavane Road.</p> <p>Beneficiaries: Mabwematema Irrigation Scheme which was established on 1968.</p>	US\$ 9 million	Project Financial Model: Project loan to be repaid through selling of irrigation water using the currently approved raw water blend price.	PPP								
<p>3. Tuli-Manyange Dam</p> <p>Purpose: Water Supply for Irrigation and livestock in Gwanda and Gwaranyemba Communal Lands in Matebeleland South Province.</p> <p>Scope of Works: Construction of a cylindrical concrete arch dam of constant thickness across the Tuli River. The arch will be 30m high above the lowest level plinth surface and have a crest level of 180m giving a length to height ratio of 6. The upstream (extrado) radius of the arch is 100m with a good angle of incidence at the abutment foundations. The thickness of the arch is 8m with a 2m wide step from level 775.0m down to the plinth level.</p> <p>Beneficiaries: Gwanda Communal area villagers and small-scale farmers near the proposed dam.</p> <p>Technical Details:</p> <table> <tr> <td>Full Supply Capacity</td> <td>33 x 10⁶ m³</td> </tr> <tr> <td>10% Yield</td> <td>22 x 10⁶ m³</td> </tr> <tr> <td>Crest Length</td> <td>380 m</td> </tr> <tr> <td>Length of Spillway</td> <td>180m</td> </tr> </table>	Full Supply Capacity	33 x 10 ⁶ m ³	10% Yield	22 x 10 ⁶ m ³	Crest Length	380 m	Length of Spillway	180m	US\$38 million	Funding for construction	PPP
Full Supply Capacity	33 x 10 ⁶ m ³										
10% Yield	22 x 10 ⁶ m ³										
Crest Length	380 m										
Length of Spillway	180m										
<p>4. Bindura Dam</p> <p>Purpose: Water supply to Bindura Town, nearby mines and irrigation to surrounding farms in Bindura District, Mashonaland Central.</p> <p>Scope of Works: The project involves the construction of a zoned earthfilldam on the Mazowe River in the Bindura District of Mashonaland Central Province.</p> <p>Beneficiaries: The project beneficiaries are Bindura Town, Trojan Nickel Mine, Fredda Rebecca Mine, small mines surrounding the town, commercial and small-scale farmers near Bindura Dam</p>	US\$84 million	Project financing	PPP								

<p>Technical Details: Full Supply Capacity 100 x 10⁶ m³ 10% Yield 50 x 10⁶ m³ Crest length 1,248.0m Total Embankment Volume 2,282,300 m³ Number of Saddle Dams 3 Length of Spillway 150m</p>			
<p>5. Dande Dam and Tunnel</p> <p>Purpose: Irrigation in the Dande Communal Lands</p> <p>Scope of Works: The project involves the construction of a zoned earth fill dam on the Dande River and a 7.3km tunnel. The dam is 300m long with a crest with a crest width of 8m and of maximum height of 45m. There will be two saddle dams on the right bank of the main dam wall. The outlet works comprise of an intake structure, a 1.5m diameter full pressure concrete conduit, a gate and control valve house and 1.5m wide free flow 'D' tunnel.</p> <p>Beneficiaries: The Project beneficiaries are ARDA and communal people in the Dande Valley</p> <p>Full Supply 160x10⁶ m³ 10% Yield 59.3x10⁶ m³ Crest Length 300m Length of Spillway 200m Length of Tunnel 7.3km Diameter of tunnel 1.7m</p>	US\$83 million	Project Funding	PPP
<p>6. Mirror Dam Project</p> <p>Purpose: Water Supply and Irrigation</p> <p>Scope of Works: Mirror Dam consists of a conventional zoned earthfill embankment with a downstream rockfill toe across the Buzi River in Chipinge District of Manicaland Province.</p> <p>Beneficiaries: The beneficiaries of the project are the City of Chipinge, farmers, institutions and communities in the Chipinge area.</p> <p>Technical Details: Full Supply Capacity 22.87 x 10⁶ m³ 10% yield 14 x 10⁶m³ Spillway Capacity 1 031 m³/s Maximum height of dam 36.5m Maximum Depth of water 31.0m</p>	US\$43 million	Project Financing	PPP
<p>7. Eastbourne Dam</p> <p>Purpose: Water Supply</p> <p>Scope of Works: The Eastbourne Dam project consists of the construction of a conventional zoned earthfill embankment with a downstream rockfill toe across the Nyambwa River near Mutare.</p> <p>Beneficiaries: City of Mutare and its environs</p> <p>Technical Details: Maximum height of dam 36.5m Maximum Depth of water 31.0m Live Storage 18.26x10⁶m³ 10%Yield 15x10⁶m³/ann</p>	US\$39 million.	Project Financing	PPP

<p>8. Gwayi-Umguza Dam</p> <p>Purpose: Water Supply and Irrigation</p> <p>Scope of Works: Construction of a conventional zoned earthfill embankment with a central impervious core just below the confluence of the Gwayi and Umguza Rivers. The embankment is 4.58 km long (excluding the spillway) and generally straight with curves near the river bed to allow for good alignment with the concrete arch spillway. Because of the excessive length of embankment and the dry weather conditions in the region, it would be impractical to grass the downstream slopes. The alternative of using cement stabilisation for slope protection was considered and found to be more expensive than rip-rap.</p> <p>Beneficiaries: The City of Bulawayo, Tsholotsho Growth Point and rural communities near the dam.</p> <p>Technical Details: Full Supply Level 1028.00 m Full Supply Capacity 195 x 10⁶ m³ Storage Ratio 1.48 (M.A.R) High Flood Level 1033.76 m Live Capacity 184.66 x 10⁶ m³ Dead Storage 1.8 x 10⁶ m³ 4% Yield 17.7 x 10⁶ m³/annum 10% Yield 27.30 x 10⁶ m³/ann Surface Area at F.S.L 3264 ha Ogee Crest Spillway Length 200 m</p>	<p>US\$160 million.</p>	<p>Project financing</p>	<p>PPP</p>
<p>9. Kudu Dam Project</p> <p>Purpose: Irrigation and water supply</p> <p>Scope of Works: The project comprises construction of a Zoned Earthfill Embankment with a central impervious core across Munyati River, and a saddle dam of similar cross section. Due to the proved large quantities of core material and scarcity of fill material the impervious core will have slopes of 1:1 rather than the conventional 1:0.5. At its crest, the main dam core will be 6 metres wide, making the impervious core wide.</p> <p>Beneficiaries: Farmers in the Sanyati, Copper Queen, Chenjerai and Lower Gokwe Communal Areas</p> <p>Technical Details: Full Supply Level 947.00 m High Flood Level 953.12 m Maximum Height of Dam 72.70 m Total Storage 1551.4 x 10⁶ m³ Dead Storage 60.0 x 10⁶ m³ 10% Yield 380x10⁶ m³/annum Crest width 8.00 m Crest Length 860.00 m</p>	<p>US\$ 288 million.</p>	<p>Project Financing</p>	<p>PPP</p>
<p>10. Muda Dam</p> <p>Purpose: Water Supply and Irrigation</p> <p>Scope of Works: The project comprises the construction of a 2.1km long earthfill dam about 500m downstream of the Muda confluence with the Mupfure River.</p>	<p>US\$60 million</p>	<p>Project Financing</p>	<p>PPP</p>

<p>Beneficiaries:Chegutu town, Mubayira Growth point and commercial farming areas around Beatrice.</p> <p>Technical Details: Full Supply Capacity 98 000ML 10% Yield 31 600ML Maximum Height of Dam 31.50m Crest Length 2115m Total Volume of Materials 1. 684X10⁶ m³</p>			
<p>11. Nyatsime Dam</p> <p>Purpose: Water Supply</p> <p>Scope of Works: The project comprises the construction of a 3.91km long earth Dam across the Nyatsime River, a tributary of the Manyame River.</p> <p>Beneficiaries: City of Harare and City of Chitungwiza</p> <p>Technical Details: Full Supply Capacity 75.316x10⁶ m³ 4% Yield 22.383x10⁶ m³ Maximum Height of Dam 22.84m Crest Length 3.91km Total Volume of Materials 1 694 460 m³</p>	<p>US\$60 million</p>	<p>Project Financing</p>	<p>PPP</p>
<p>12. Chitse Dam</p> <p>Purpose: Irrigation water supply</p> <p>Scope of Works: The project involves the construction of a conventional zoned earthfill dam with a downstream rockfill toe on the Ruya river in Mount Darwin District, Mashonaland Central Province</p> <p>Beneficiaries:Chitse Dam will be used for irrigating 10 000ha in the Chesa small scale farming area and Kandeya Communal lands of Mount Darwin. Crops that thrive in this area are cotton, sugar cane, citrus, wheat, potatoes, maize, sugar beans and tomatoes.</p> <p>Technical Details: Full Supply Capacity 273 x 10⁶ m³ 10% Yield 136.5 x 10⁶ m³ Maximum Height of Dam 48.3 m Crest Length 1,250.0 m Total Volume of Material 5,850,000.0 m³</p>	<p>US\$160 million</p>	<p>Project funding</p>	<p>PPP</p>
<p>13. Glassblock Dam</p> <p>Purpose: Water Supply</p> <p>Scope of Works: Glassblock Dam project consists of a conventional zoned earthfill embankment with a downstream rockfill toe across the Mzingwane River.</p> <p>Beneficiaries: Bulawayo City</p> <p>Technical Details: Total Capacity 126.0x10⁶m³ Live Capacity 124.3x10⁶m³ 4% Yield 24.5x10⁶m³ Depth of Water 34.4m Surface Area at F.S.L. 1100ha</p>	<p>US\$88 million</p>	<p>Project Financing</p>	<p>PPP</p>

Embankment Volume 1.4x10 ⁶ m ³ Spillway 5 770m ³ /sec			
14. Silverstream Dam Purpose: Water Supply and Irrigation of 2000ha Scope of Works: Silverstream Dam will comprise of a concrete arch dam with a storage capacity of 140 000 x 10 ⁶ m ³ . The dam is located on the Musengezi River, Centenary District, Mashonaland Central. Beneficiaries: Centenary Growth Point, ARDA Muzarabani and surrounding farming areas. Technical Details: Full Supply Capacity 273 x 10 ⁶ m ³ 10% Yield 136.5 x 10 ⁶ m ³ Maximum Height of Dam 48.3 m Crest Length 1,250.0 m Total Volume of Material 5,850,000.0 m ³	US\$ 148 million	Project Financing	PPP
15. Lubongo Dam Purpose: Water Supply Scope of Works: The proposed dam will be a conventional zoned earthfill structure with initial estimated embankment volume of 1383 million cubic metres. Beneficiaries: The City of Gweru and Shurugwi Town	US\$125 million.	Project Financing	PPP
16. Aberfoyle Dam Purpose: Irrigation in Midlands Province Scope of Works: Construction of a 40m high earth dam across the Runde River (UTM grid ref. is RJ015212 on Map No. 1929D2). The total earthworks volume is estimated at 900,000m ³ . The project also includes putting in place 30,000m ³ of concrete. The water storage capacity will be 25 million m ³ . Beneficiaries: Midlands Farming Communities.	US\$70 million.	Project Financing	PPP
17. Runde-Tende Dam Purpose: Irrigation in Masvingo Province Scope of Works: This is a proposed rock fill dam on the Runde River in the Masvingo Province under Runde Catchment. Its UTM grid ref. is TM577964 on Map No. 1929D2. The dam is about 90m high. It will have a total volume of rock fill of about 2,000,000m ³ and a central core volume of about 520,000 m ³ . Beneficiaries: Masvingo Farming Communities and Sugar Estates. The water storage capacity will be about 1 billion m ³ .	US\$200 million	Project Financing	PPP