TCTA Investor Update:

Vaal River System Water Resources Development Projects ("VRS" – LHWP and AMD) Funding Strategy

January 2018

30 Years Unqualified

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- Why TCTA Receives Government Guarantees
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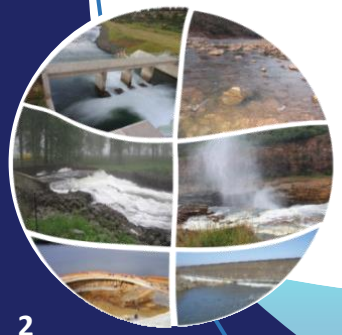
- VRS Funding Strategy



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What is TCTA, what does it do?

Who are we?

- TCTA is a Schedule 2 PFMA, State-Owned Entity. But it is not a corporate entity. There's no TCTA Balance Sheet.
- It is Non profit-making, it has no reserves and it operates on a cost recovery/break-even basis.
- It reports to the Minister of Water and Sanitation (quarterly as per the PFMA) and to Parliament.
- Established in 1986, by Notice 2631 in Government Gazette No. 10545, dated 12 December 1986 ("Notice of Establishment"), to finance and build Delivery Tunnel North of the Lesotho Highlands Water Project ("LHWP").
- In 1994 its Mandate was expanded to include undertaking the financial obligations (in terms of the Treaty) of RSA on LHWP.

What is TCTA, what does it do?

Who are we?

- In March 2000, the Notice of Establishment was amended by Notice 277 in Government Gazette No. 21017, to allow for Minister of Water Affairs to issue additional water infrastructure directives to TCTA in terms of Section 103(2) of the National Water Act (Act No. 36 of 1998).
- Since then further mandates have been received to implement:
  - *Berg Water Project (BWP); directive received in 2002*
  - *Vaal River Eastern Sub-System Augmentation Project (VRESAP): 2004*
  - *Mooi-Mgeni Transfer Scheme-Phase 2 (MMTS-2): 2008*
  - *Komati Water Scheme Augmentation Project (KWSAP): 2008*
  - *Mokolo Crocodile River (West) Water Augmentation Project (MCWAP): 2010*
  - *Acid Mine Drainage on the Witwatersrand Goldfields Short-Term Intervention (AMD STI): 2011*
  - *Acid Mine Drainage on the Witwatersrand Goldfields Long-Term Solution (AMD LTS): 2016*

What is TCTA, what does it do?

Governance

- **The (amended) Notice of Establishment of March 2000 is TCTA's founding document – it governs:**
  - The functions and powers of the TCTA
  - the appointment of a Board of Directors, its powers and responsibilities, it's term in office, and the qualifications of board members;
  - the appointment of a CEO, their powers and responsibilities.
- **Related to this…. TCTA currently has an acting CEO - when will a permanent CEO be appointed?**

Official Answer:

"The appointment of the CEO is at an advanced stage. Recommendations have been made to the Executive Authority, and we expect the matter to be finalized soon"

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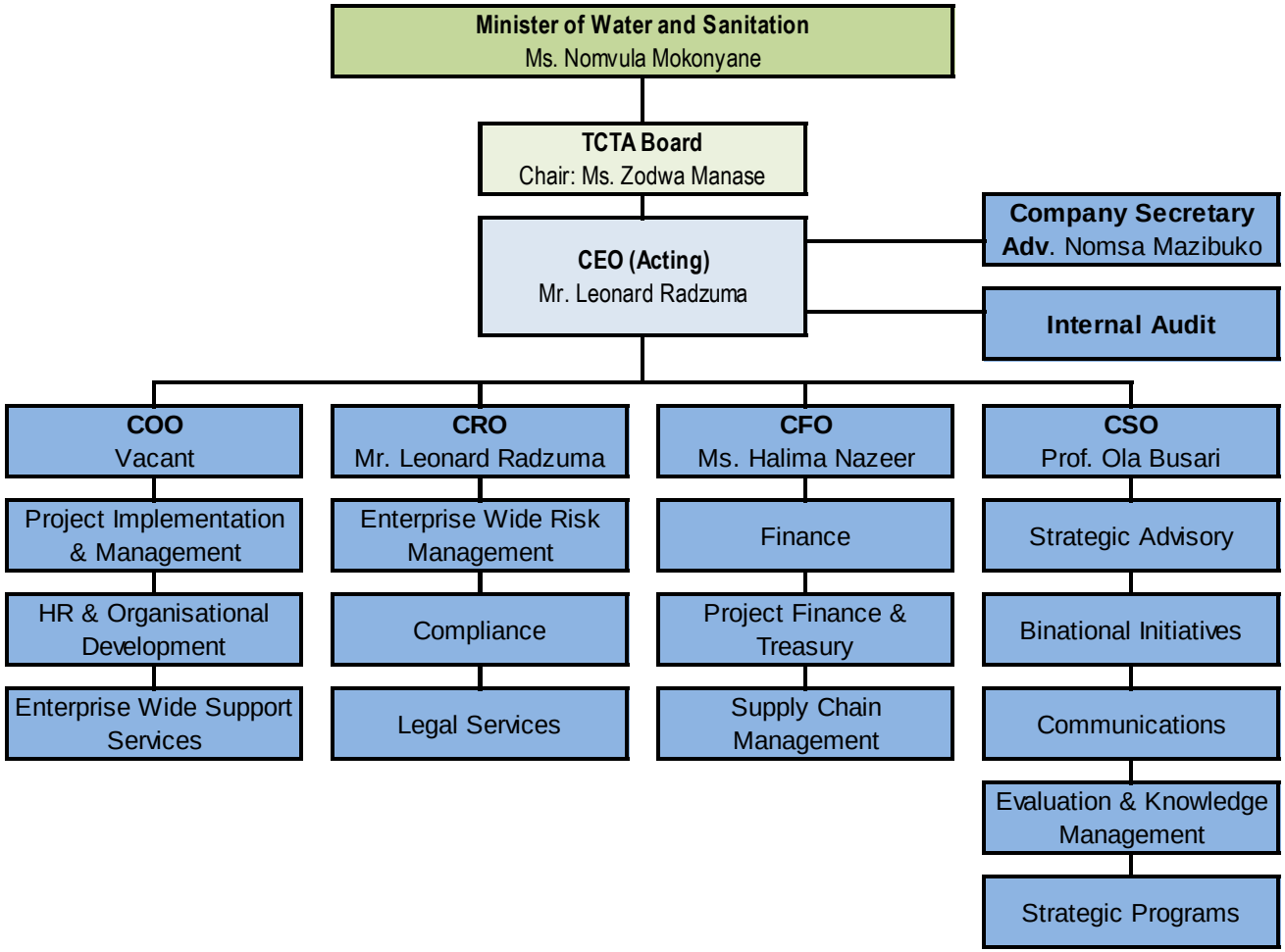
What is TCTA, what does it do?

Governance Structure & High Level Organogram



What is TCTA, what does it do?

Governance Structure: TCTA's Board

Name	Other Responsibilities & Boards	Qualifications
Ms. Zodwa Manase CA(SA) **Board Chairperson** **Chair Risk & Finance Committee** *(African, Female)*	**Current Position:** CEO (Manase & Associate) **Other Directorships:** Nelson Mandela Children's Hospital Trust Fund PRASA State Diamond Trader Department of International Relations and Cooperation (Audit Committee Chairperson)	BCom; B Compt (Hons) (UNISA); HDipTax (KwaZulu Natal); CA(SA);
Mr. Jacob Modise CA(SA) **Deputy Chairperson,** **Chair Audit Committee** *(African, Male)*	**Current Position:** Executive Chairman (Batsomi Investments) **Other Directorships:** NERSA ArcelorMittal Altron Nelson Mandela Children's Fund (Trustee)	BCom, BAcc; MBA (Wits), CA(SA); AMP (Stanford); AMP (Harvard)
Ms. Tshepiso Moahloli **National Treasury Representative** *(African, Female)*	**Current Position:** Chief Director Liability Management – National Treasury **Other Directorships:** None	BSc; BEconSci (Hons); MEconSci (Wits):
Mr Satish Roopa **Chair HR Committee** *(Indian, Male)*	**Current Position:** Owner (S Roopa Consultants) **Other Directorships:** Gautrain Management Agency iDimangaliso Wetland Park Authority	B.Luris, LLB (UNISA); M.Phill (Stell); Cert in Executive programme for Leaders in Government (Harvard); Cert in Negotiating International Contracts & Development Finance (UCT); Cert in Transformation of Institutes of Higher Education (Stell)

What is TCTA, what does it do?

Governance Structure: TCTA's Board

Name	Other Responsibilities & Boards	Qualifications
Mr. Simphiwe Kondlo *(African, Male)*	**Current Position:** CEO (East London Industrial Development Zone) **Other Directorships:** Buffalo City Development Agency Johannesburg Water	Dip Civil Eng (DUT); BSc Agric. Eng (KZN); Masters in Engineering Management (Pretoria)
Ms. Sijabulile Makhathini CA(SA) *(African, Female)*	**Current Position:** Founding Director (Ubambo Consulting) **Other Directorships:** Health Professional Council of South Africa National Library of South Africa - Audit and Risk Committee Gauteng Department of Health - Audit Committee National Department of Economic Development -Audit Committee Mpumalanga Tourism and Parks Agency	BCom (Wits); PGDip in Accounting Science; CTA; BAS(Hons) (Unisa); CA(SA)
Dr. Michael Ellman *(Coloured, Male)*	**Current Position** Executive Director (Siyadingana Consulting (Pty) Ltd) **Other Directorships:** Advisory Board, Department of Chemical Engineering University of Pretoria (honourary) Bloem Water SABS	BSc (Hons)(Chem Eng) (UCT); MSc (ChemEng) (Netherlands); MBA (Wits); Doctorate of INPL (Ecole Nationale Superieure des Industries Chimques, Nancy France)
Mr. Muziwandile Chonco *(African, Male)*	**Current Position:** Executive (Anheuser-Busch InBev, Africa Zone) **Other Directorships:** Trustee (SAB Provident Fund) National Business Initiative	BSc (Hons)(Hydrogeology)(UWC) PDBA; MBA (GIBS)

What is TCTA, what does it do?

Governance Structure: TCTA's Executive Management

Name	Position	Qualifications
Mr. Leonard.Radzuma *(African, Male)*	**Chief Executive Officer** (Acting)	BCom (Venda); MBL (Unisa)
Ms. Halima Nazeer CA(SA) *(Indian, Female)*	**Chief Financial officer**	BCom (Wits), BCompt (Unisa), CA(SA) EDP (Stell)
Mr. Leonard.Radzuma *(African, Male)*	**Chief Risk Officer**	BCom (Venda); MBL (Unisa)
Prof. Ola Busari *(African, Male)*	**Chief Strategy Officer**	BSc Eng (Civil) (Lagos); MSc Eng (Hydro Geology); PhD Water Resource Management (Ibadan); MBA (Henley) Advanced (Env) Isotopes Program (Chicago)
Mr. Nhlanhla Nkabinde *(African, Male)*	Executive Manager: Project Finance & Treasury	BSc Eng (Electrical & Electronic) (UCT); MSc Eng (Waterloo Ontario) Post Graduate Course in Mathematics & Finance (Wits)
Ms. Johan Claasens CA(SA) *(White, Male)*	Executive Manager: Project Management & Implementation	BCompt (Free State); BCompt (Hons) (Unisa); CA(SA) EDP (Stell)
Ms. Hanje Botha *(White, Female)*	Executive Manager: Human Resource Management & Organisational Development	BA Economics & Geography; BA (Hons) GIS (Stell); MPhil Professional & Leadership Coaching (Middlesex) Development Program (Pretoria – GIBS)
Mr. Lindani Gumede *(African, Male)*	Executive Manager: Enterprise Wide Support Services	National Diploma in Information Technology

What is TCTA, what does it do?

Regulatory Environment: The National Pricing Strategy for Raw Water

The Water Pricing Strategy is set out in *"A Pricing Strategy For Raw Water Use Charges"*, *Notice No 201, Government Gazette No 29697, 6 March 2007.*

- It sets out government policy for the pricing of water use in terms of the National Water Act (Act no 36 of 1998).
- Contains objectives, methodology and implementation strategy for setting water use charges for purposes of:
  - funding water resource management;
  - funding water resource development;
  - achieving equitable and efficient allocation of water; and
  - providing for a differential rate for waste discharges.

What is TCTA, what does it do?

Regulatory Environment: The National Pricing Strategy for Raw Water

The Strategy provides for the following water charges under these different circumstances:

Water Charges that apply under different circumstances	Existing Schemes	New Projects		
	Fiscally Funded or where off Budget debt has been repaid	Fiscal (government) Funding	Initially Funded by Government then recouped from end users	Off-Budget Funding
Operations and Maintenance (O&M)	Yes	Yes	Yes	Yes
Depreciation	Yes	Yes	No	No
Refurbishment	No	No	Yes	Yes
Return on Assets (ROA)	Yes	Yes	No	No
Water Resource Development Charge (WRDC)	Yes	No	No	No
Betterment	No	No	Yes	Yes
Capital Unit Charge (CUC)	No	No	Yes	Yes

*Source: "**A Pricing Strategy For Raw Water Use Charges**", Notice No 201, Government Gazette No 29697, 6 March 2007, page 18.*

TCTA implements Government Water works and receives a Capital Unit Charge to repay the debt and meet its costs.

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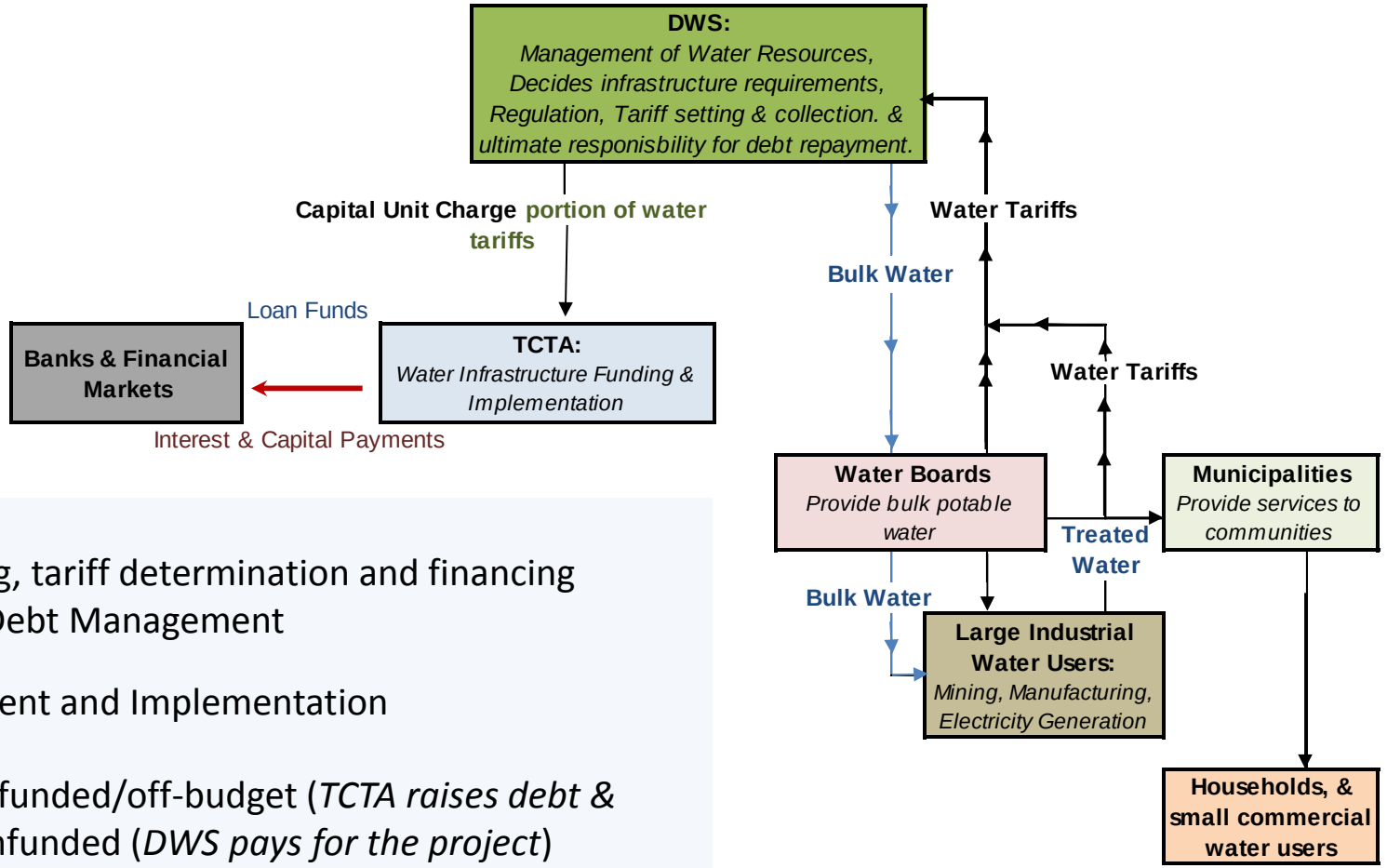
What is TCTA, what does it do?

TCTA's Place in the Water Supply Value Chain



- Project structuring, tariff determination and financing arrangements & Debt Management
- Project Management and Implementation
- Mandates can be funded/off-budget (*TCTA raises debt & implements*) or unfunded (*DWS pays for the project*)

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What is TCTA, what does it do?

Summary: What does TCTA do

- **TCTA borrows funds to implement off-budget bulk water projects for the department**
  - The Projects implemented by TCTA are Government Water works (i.e. the infrastructure belongs to the state, not to TCTA).
  - and receives a Capital Unit Charge to repay the debt and meet its costs.
  - TCTA's asset is the right to receive the CUC.
- **Projects are strictly ring-fenced**
  - Each has its own financial assets & liabilities.
  - No cross-funding is allowed.
  - It can happen that one project has large cash surpluses while another has a deficit – funds cannot be transferred from surplus project to the deficit project.
- **Only a Directive from the ministers of Water & Sanitation (with the concurrence of the Minister of Finance) can change this**
  - For instance in April 2014 the Minister directed that the short term solution to AMD – previously funded by direct transfers from the fiscus – be funded through LHWP, with the tariff to be adjusted accordingly to recover the funds from the Vaal River users.
- **Borrowing Limits**
  - Debt must remain within DWS and National Treasury approved borrowing limits.

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Government Guarantees

Why does TCTA receive Government Support?

In the popular narrative government guarantees have lately been associated with financial and operational inefficiencies at SOEs – so this is an important question to answer.

TCTA has government support both as a legal requirement and because it funds and implements infrastructure on behalf of DWS.

TCTA Receives Government Support:

1. **For LHWP as a consequence of the Lesotho Highlands Water Project Treaty - Subsection 6 of Article 11 – "Financing Arrangements" of the Treaty states:**

(6)	**South Africa shall, with respect to all loans, credit facilities or other borrowings procured by the Lesotho Highlands Development Authority or the Trans-Caledon Tunnel Authority for the implementation, operation and maintenance of that part of the Project relating to the delivery of water to South Africa, provide such guarantees as the lenders of such loans, credit facilities or other borrowings, may require.**

- The LHWP guarantees for bonds and Commercial Paper are currently R25 billion
- In April 2014 National Treasury agreed a joint guarantee of R43 billion for LHWP, AMD STI and AMD LTS *(Jointly the Vaal River System Water Resources Development Projects (VRS)*)
- The documentation for this new guarantee is being finalised with the new VRS Programme Memorandum.

Government Guarantees

Why does TCTA receive Government Support?

2. The second form of Government Support (sometimes called “Implicit Guarantees” to distinguish them from the LHWP guarantees, even though they’re quite explicit) is contained in the Implementation Agreements between TCTA and DWS for the other projects.

   These make it clear that TCTA is the implementation agent for DWS in these projects but DWS retains all the risk:

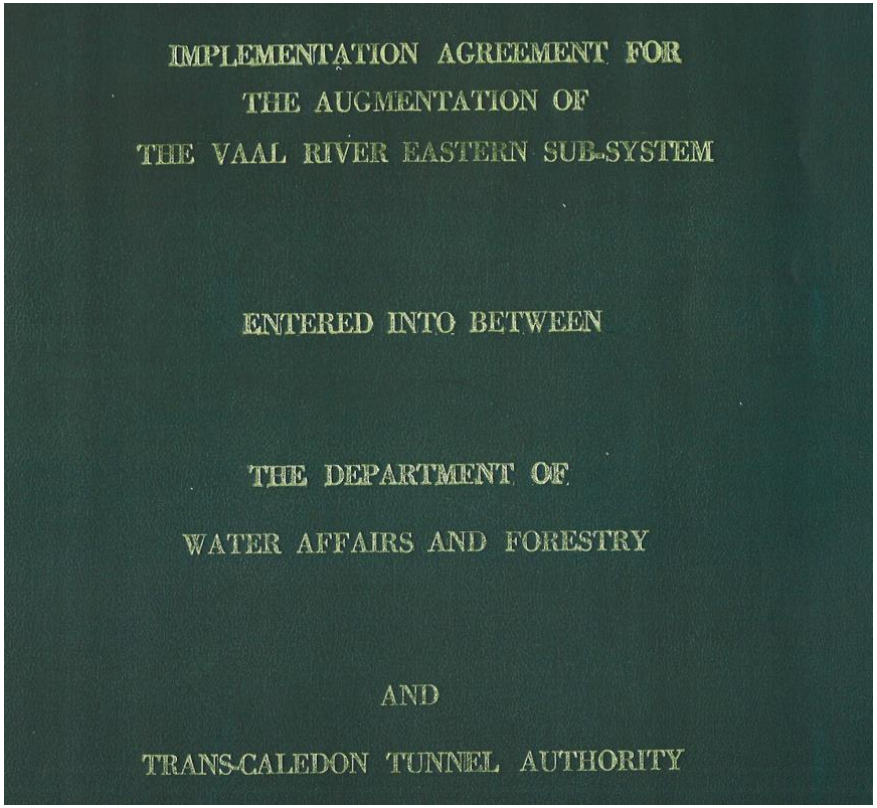
RISK	METHOD
Construction risk – design, delay etc.	Liquidated damages, insurance, performance bonds and retentions. Project failure is ultimately DWS risk
Revenue collection	Off taker default is DWS risk – TCTA is entitled to CUC from DWS regardless
Yield of the system	Tariff trigger – TCTA is entitled to request a tariff that will repay debt on time
Demand risk	Tariff trigger – TCTA is entitled to request a tariff that will repay debt on time

This is because:

- Government (DWS) retains ownership of the Infrastructure; and
- TCTA has no balance sheet, profit or reserves and is thus in no position to shoulder the risk.

Government Guarantees

Why does TCTA receive Government Support?



IMPLEMENTATION AGREEMENT FOR
THE AUGMENTATION OF
THE VAAL RIVER EASTERN SUB-SYSTEM

ENTERED INTO BETWEEN

THE DEPARTMENT OF
WATER AFFAIRS AND FORESTRY

AND

TRANS-CALEDON TUNNEL AUTHORITY

8. INCOME

8.1 VRESAP Water User Tariffs

8.1.1 The purpose for establishing the VRESAP Water User Tariffs is, *inter alia*, to ensure the recovery of the VRESAP Costs from DWAF within a payment period of 20 (twenty) years. TCTA shall calculate the VRESAP Water User Tariffs in accordance with the principles described in Annexure E.

8.1.2 The VRESAP User Tariffs shall be levied by DWAF on the USERS in terms of the VRESAP Water Supply Agreements and paid to TCTA in terms of this Agreement. The VRESAP Water User Tariffs shall be applied to the Outstanding Amount in accordance with the terms of this Agreement and allocated in terms of Annexure E.

8.1.3 Failure on the part of DWAF to timeously pay the VRESAP Water User Tariffs shall entitle TCTA to recover against DWAF the amounts outstanding, plus interest.

8.1.4 TCTA shall advise DWAF forthwith once the Outstanding Amount has been fully redeemed and TCTA's financial obligations have been met in terms of all contracts that it has entered into to perform its obligations as contained in this Agreement; whereafter TCTA's rights to the payments of the VRESAP Water User Tariffs shall terminate.

8.1.5 DWAF shall ensure that provision is made for the inclusion of the VRESAP Water User Tariffs when water use tariffs are made in accordance with the Act and any pricing strategy for water use tariffs established by the Minister from time to time. In the event that the tariffs calculated in accordance with section 57 of the Act are less than the VRESAP Water User Tariffs determined in accordance with clause 8.1.1 above, DWAF shall be responsible for ensuring that TCTA is sufficiently funded to enable it to repay the Outstanding Amount in accordance with 8.1.1 above.

8.1.6 In the event that all or any of the VRESAP Water Supply Agreements between DWAF and the USERS are or is terminated prior to the redemption of the Outstanding Amount and no further payments are received by DWAF from the USERS, DWAF shall continue to pay TCTA the VRESAP Water User Tariffs as if the VRESAP Water Supply Agreement had not been terminated by either DWAF or the USER until the Outstanding Amount is repaid in full.

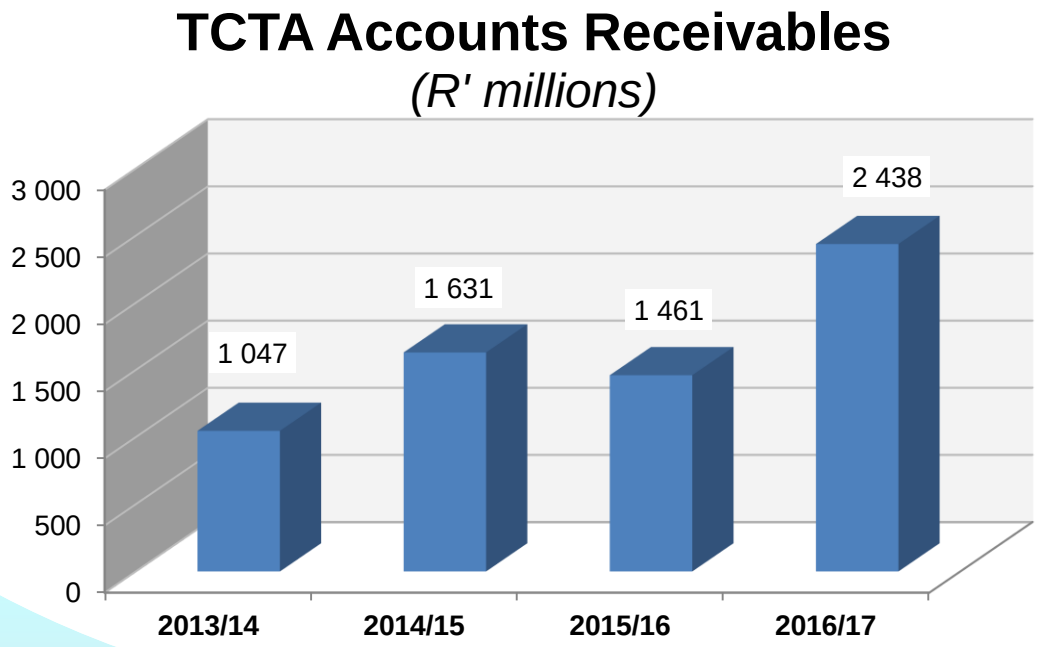
TCTA's Financial Position

DWS Accounts Receivables Challenges

Annexure A - Fiscal Risk Statement of the 2017 MTBPS says (p55):

Trans-Caledon Tunnel Authority

Government has issued a R25.7 billion guarantee to the TCTA. The agency relies on payments from the Department of Water and Sanitation's Water Trading Account to settle obligations with lenders. Weak financial management at the department threatens the ability of the TCTA to meet its commitments, raising the likelihood of a call on the guarantee. In the long term, government's ability to deliver water infrastructure could be compromised.



This is a comment on the effects of DWS's current financial challenges on TCTA's ability to collect water tariffs from the Department:

- The DWS receivable went up by R1 billion in year to March 2017

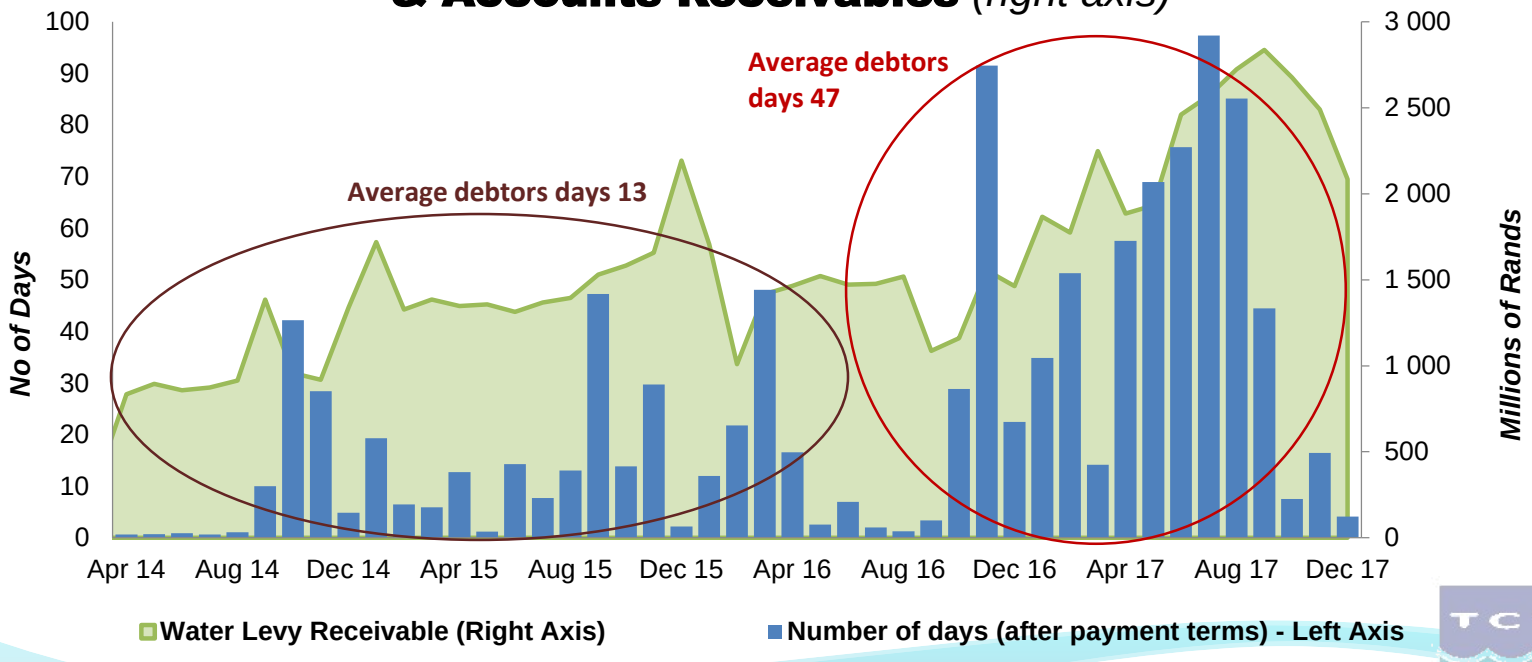
TCTA's Financial Position

DWS Accounts Receivables Challenges

The Department has been experiencing financial stress & the peak in receivables (Sept 2017) was the highest we've had. Debtors days have been significantly higher than previously.

- Since Oct 2016 invoices are paid 42 days after the agreed payment terms (30 days).
- The average for Apr 2014-Sep 2016 is 13 days.

Weighted Average Debtors Days *(left axis)*
& Accounts Receivables *(right axis)*



TCTA's Financial Position

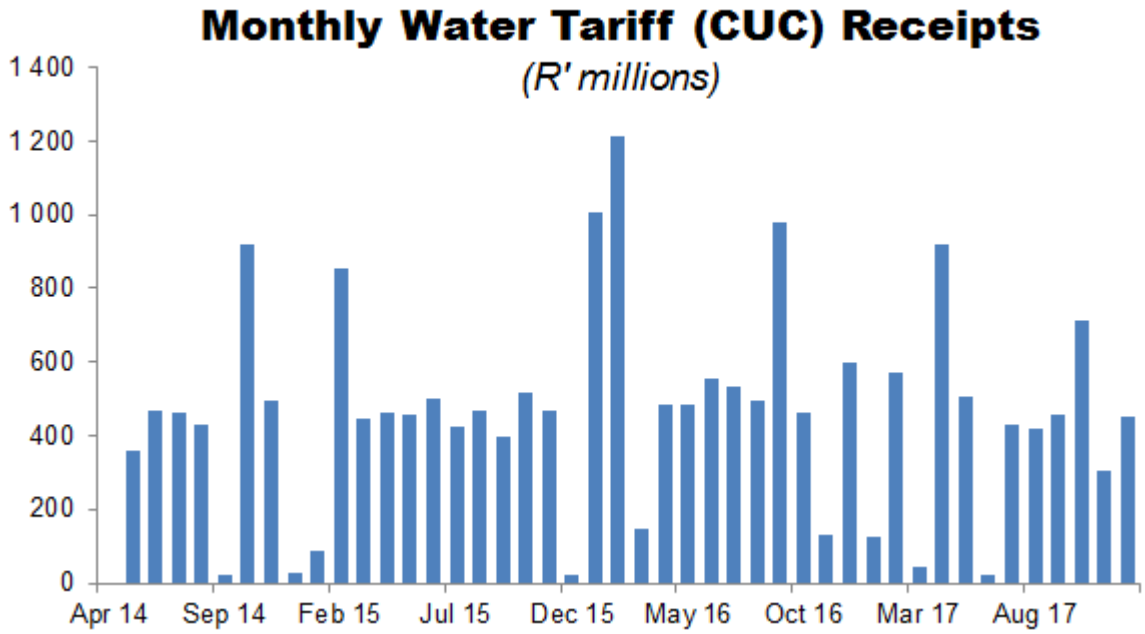
DWS Accounts Receivables Challenges

The situation is serious but not critical:

- TCTA continues to receive payments from the Department, even if the regularity is reduced, the payments are lumpier, and the arrears are larger;
- The ratio of receipts to invoices for the current year is the lowest since we started tracking the data, but not much lower than 2015/16:

Amounts Invoiced & Received by Financial Year *(R' millions)*

	Invoices	Receipts	Receipts % Invoices
2014/15	5 038	4 565	90.6
2015/16	6 976	6 083	87.2
2016/17	5 405	5 460	101.0
2017/18	**4 922**	**4 220**	**85.7**



TCTA's Financial Position

DWS Accounts Receivables Challenges: TCTA's Responses

Operational Level:

- More concentration on Liquidity and Accounts Receivables Management and the early identification of risks to liquidity.
- More communications with DWS officials – i.e more robust collections.

Strategic Level

- Regular Communications between Board & Minister and CEO & DG on resolving the issues.

TCTA's Financial Position

DWS Accounts Receivables Challenges: TCTA's Responses

Liquidity Position:

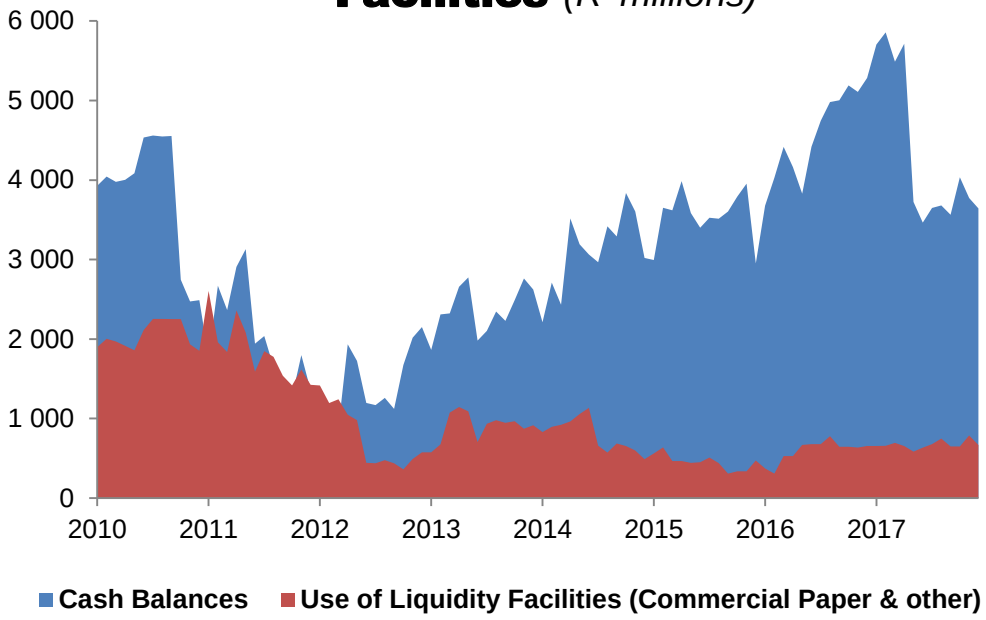
- Most projects are in a healthy liquidity position - cash on hand would cover over 2 months of projected expenditure without cash inflows & before recourse to committed liquidity facilities.

Cash on hand relative to Projected Expenditure *(R' millions)*

Project	Cash Balances	# Days Liquidity remaining	Undrawn Liquidity Facilities*
VRESAP	173	49	112
BWP	65	77	750
MMTS-2	273	162	360
LHWP	2 490	201	3 923
KWSAP	191	261	750
MCWAP	441	442	200

*plus a R250 million global liquidity facility available to all projects

Cash Balances & Use of Liquidity Facilities *(R' millions)*



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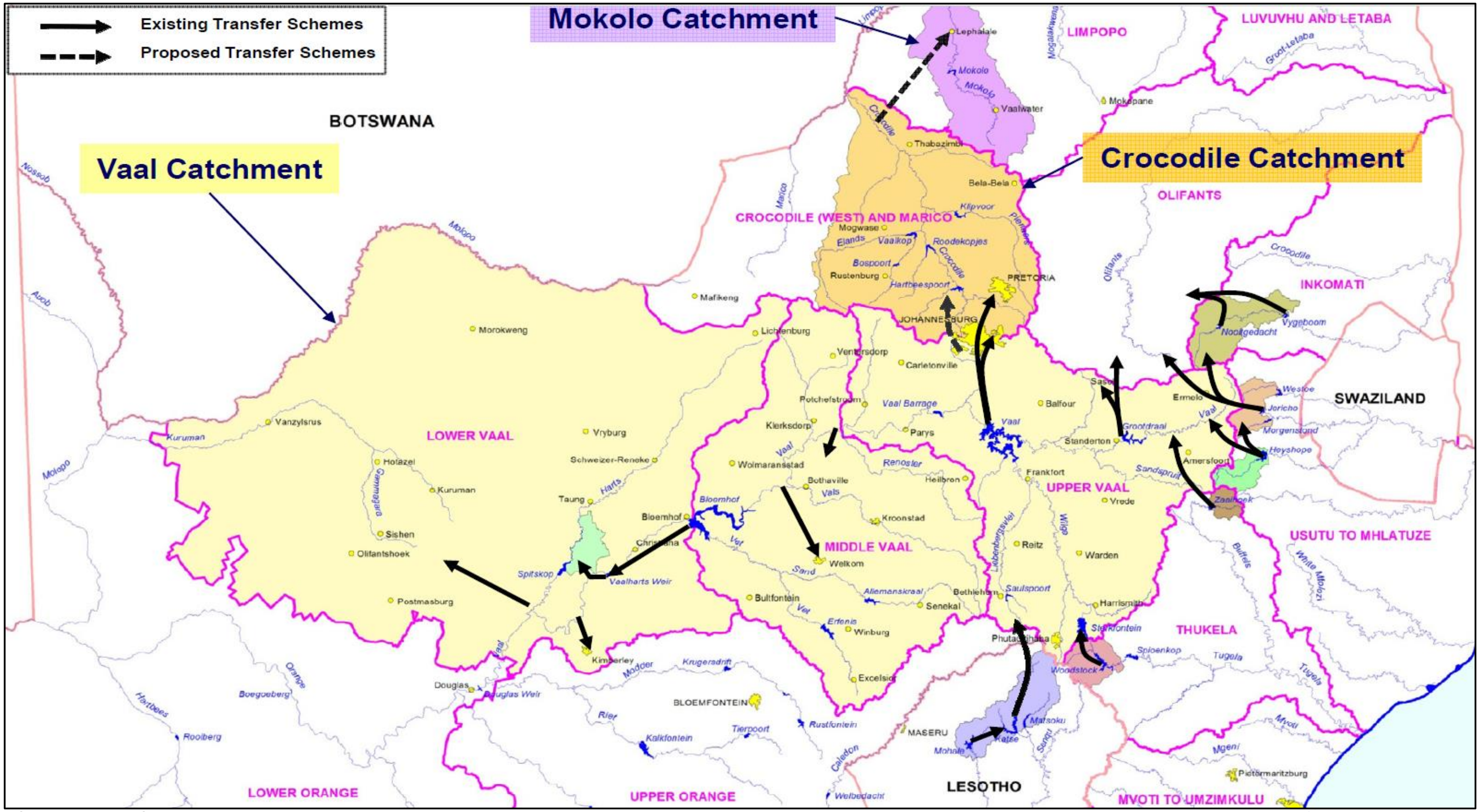
VRS Funding Strategy

Vaal River System Water Resources Development Projects (VRS)

Map of the Integrated Vaal River System



Source: DWS.

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VRS Funding Strategy

Vaal River System Water Resources Development Projects (VRS)

Vaal River System Water Resources Development Projects (VRS) is the name given to the projects funded by TCTA's Vaal River Tariff (approx R4.5 billion per annum):

- **Lesotho Highlands Water Project (LHWP)**; and
- **Acid Mine Drainage (AMD)**;

LHWP

- Joint project between the Republic of South Africa and the Kingdom of Lesotho.
- Governed by the Treaty on the Lesotho Highlands Water Project entered into in October 1986
- The Purpose of the Project is to provide additional water to the Vaal River System in the South Africa and to generate hydro-electric power in the Lesotho.
- The Project consists of various proposed phases of which Phase 1 was completed in 2004 and Phase 2 is expected to commence construction soon.

AMD

- AMD seeks to implement solutions to the problem of Acid Mine Drainage in the Witwatersrand Goldfields.
- In 2011 TCTA received the Directive to implement the Short-Term and Emergency Intervention (AMD STI) to prevent acid mine water from decanting in the Western, Central and Eastern Basins of the Witwatersrand Goldfields.
- In 2016 TCTA received the Directive to implement the long-term solution (AMD-LTS) for the construction of desalination plant/s in the Central and Eastern basins to is based on the feasibility study undertaken by the DWS.
- The treated water will be put to beneficial use as either industrial or potable water thereby increasing the yield of the Vaal System.

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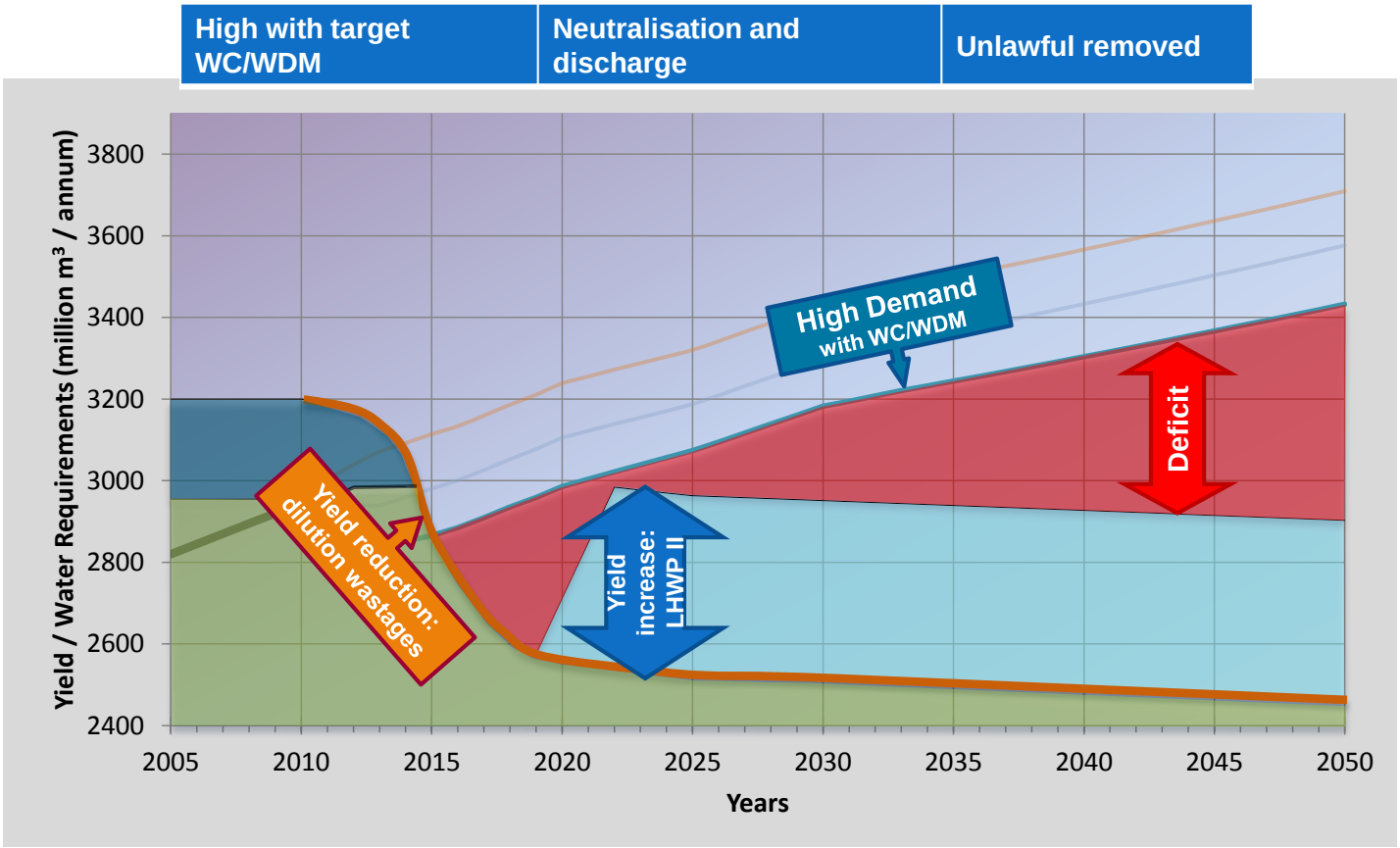
VRS Funding Strategy

The Need to Augment the Yield of the Vaal River System

Upper Vaal River System Demand & Yield Scenarios: *With LHWP II but without AMD-LTS*



**WC/WDM = Water Conservation & Water Demand Management*

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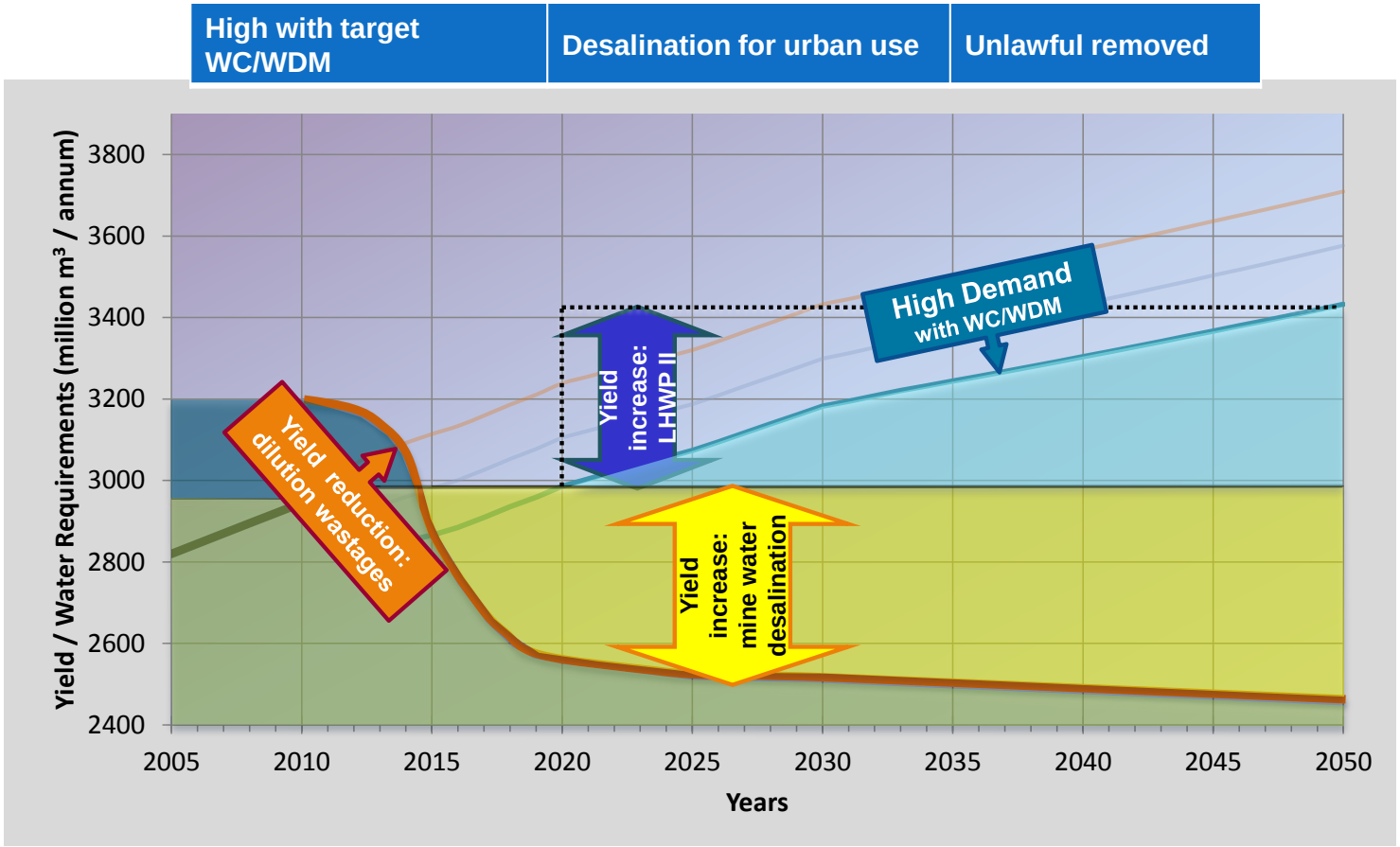
VRS Funding Strategy

The Need to Augment the Yield of the Vaal River System

Upper Vaal River System Demand & Yield Scenarios: ***With LHWP II and AMD-LTS***



**WC/WDM = Water Conservation & Water Demand Management*

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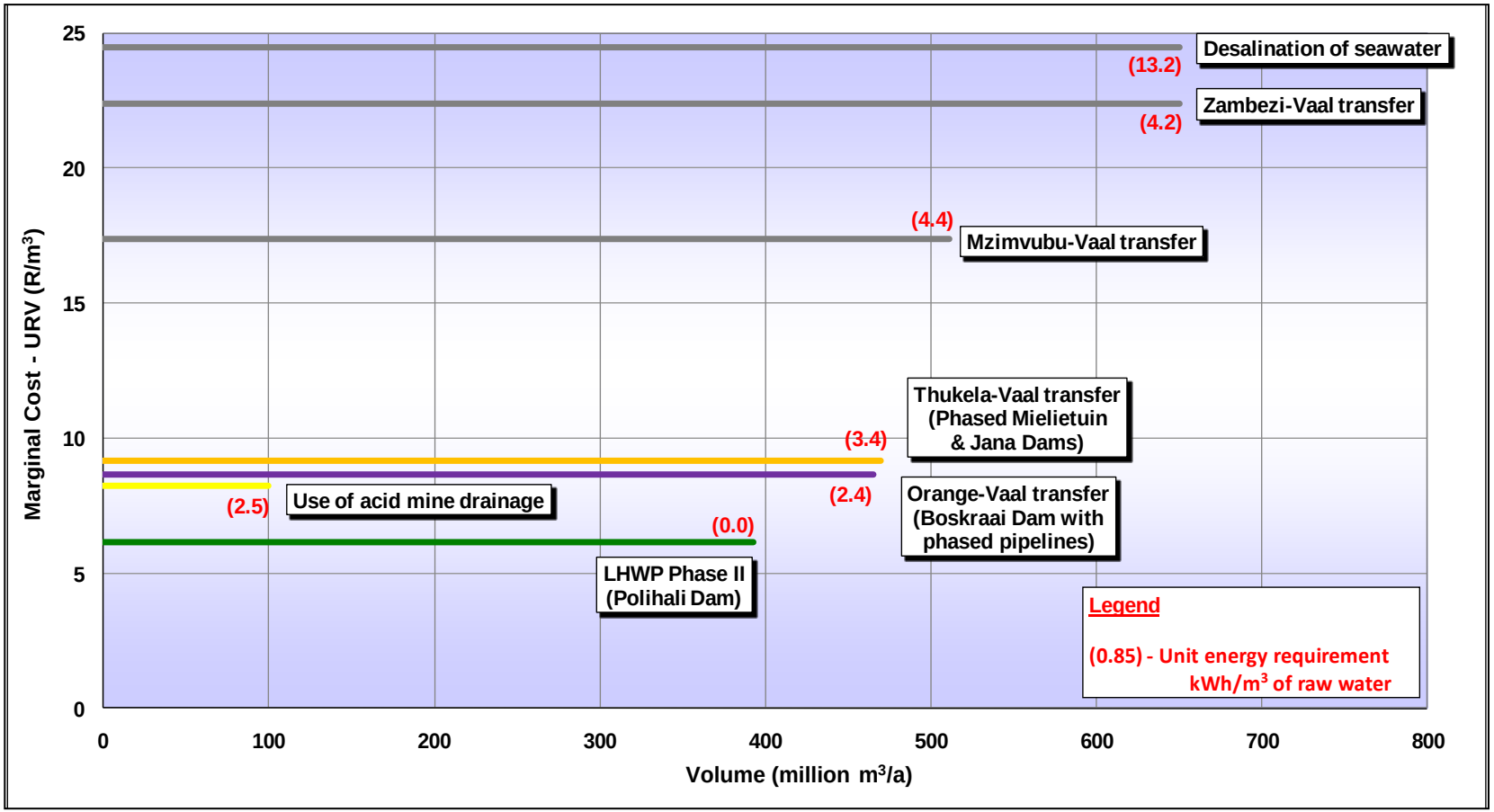
VRS Funding Strategy

Comparison of Vaal River Augmentation Options

LHWP II and AMD LTS are the cheapest augmentation options at this stage



VRS Funding Strategy

Lesotho Highlands Water Project (LHWP)

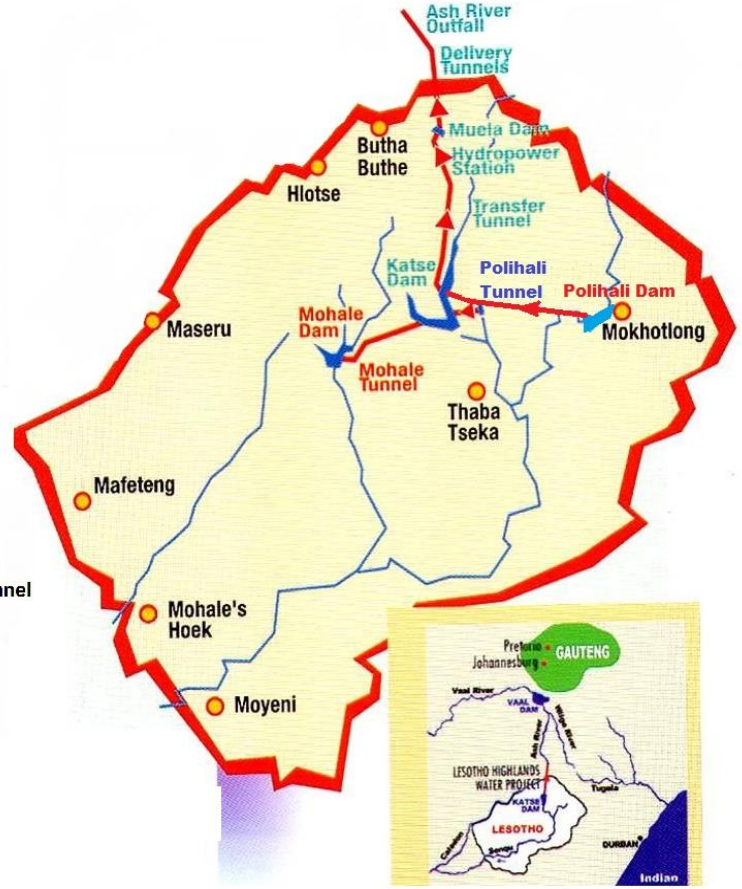
Phase 1A (completed 1998): Katse Dam

Phase 1B (completed 2004): Mohale Dam

PHASE IA
- Katse Dam (1 950 million m³)
- Transfer Tunnel (45km)
- Muela Power-station (72MW)
- Muela Dam
- Delivery Tunnel (36km)

PHASE IB
- Mohale Dam (958 million m³)
- Interconnecting Tunnel (30km)
- Matsoku Wier and Transfer Tunnel (6.4km)

PHASE II
- Polihali Dam (2 322 million m³)
- Interconnecting Tunnel (38km)



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VRS Funding Strategy

Lesotho Highlands Water Project (LHWP)

Phase 1A (completed in 1998)

Katse Dam (185m high concrete double-curvature arch dam) on the Malibamatso River; an intake structure capable of handling 70m^3/second; a 45km long transfer tunnel from the Katse reservoir to the Muela reservoir; the Muela Dam and hydro-power station; the 37km long delivery tunnel from the Muela reservoir to the Ash River outfall outside Clarens .

Phase 1B (completed in 2004)

Mohale Dam (145m high concrete faced rock-fill embankment dam) on the Senqunyane River, a 32km long transfer tunnel from the Mohale reservoir to upstream of the Katse Dam; the 15m high Matsoku Diversion Weir; a 5.7km long transfer tunnel from the Matsoku Weir to the Katse reservoir.

Phase 2 (planned to commence construction)

Polihali Dam: a 163.5 metres high concrete faced rock-fill embankment dam planned for downstream of the confluence of the Senqu and Khubelu Rivers. A 49.5 metres high saddle dam will also be constructed as well as a side channel spillway.

Polihali to Katse Tunnel: a 38.2 kilometres long, 5 metres diameter tunnel to transfer water from the Polihali Reservoir to Katse Dam. The tunnel is sized to convey a peak power generation flow of 35 m^3/s. Water will be abstracted from the Polihali Reservoir through two separate concrete bell-mouth intakes on the western side of the Polihali Reservoir in the Khubelu River, 3 kilometres upstream of the confluence with the Senqu.

Hydropower Features: A pump storage scheme of approximately 1 000 megawatt utilizing Katse Reservoir as the lower reservoir and a new upper reservoir near the Kobong headwaters may be built as part of Phase II.

South Africa is responsible for the costs of the water transfer components, Lesotho is responsible for the hydropower scheme costs.

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VRS Funding Strategy

Lesotho Highlands Water Project (LHWP)

Polihali Dam	
Dam Type	Concrete Faced Rockfill Dam
Non-overspill Crest Level	2 083 masl*
Full Supply Level	2 075 masl
Lowest Foundation Level	1 918.0 masl
Crest Width	10 m
Crest Length	915 m
Embankment Volume	12.3 million m^3
Excavation Volume	40 000 m
Length of Plinth	1 150 m
Area of Facing Slab	12 343 m^3
**metres above sea level*	

Polihali – Katse Tunnel	
Tunnel Capacity	18.8 m^3/s at Hydraulic Grade Line of 1:4776
Tunnel Length & Diameter	Total Length = 38.2 km @ 5.2m
Type of Lining	Partially Lined
Delivery Tunnel Upgrading	Increase Muela Dam FSL by 2.5m with Crest Radial Gates

Estimated Cost & Construction Time	
Capital Costs	R22 000 million
Construction Program	56 Months

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VRS Funding Strategy

Acid Mine Drainage

Background:

Gold mining in the Witwatersrand took place in three underground mining basins of the East, Central and West Rand situated in an arc stretching for over 70km, from Krugersdorp in the west to Nigel in the east in more than 120 mines, some over 2 000 metres deep.

The mines were interconnected within each basin so flooding in any mine has an impact on adjacent mines.

When the mines were operating they pumped out the water that entered the mine voids (tunnels, drives and shafts).

But, as mines closed the pumping became the responsibility of fewer and fewer mines, and the voids started filling with water.

Acid Mine Drainage is produced when sulphate bearing minerals found in all reefs mined for gold, are exposed to oxygen. The process, termed pyrite oxidation, is enhanced when water moves through and over the surfaces of the rock.

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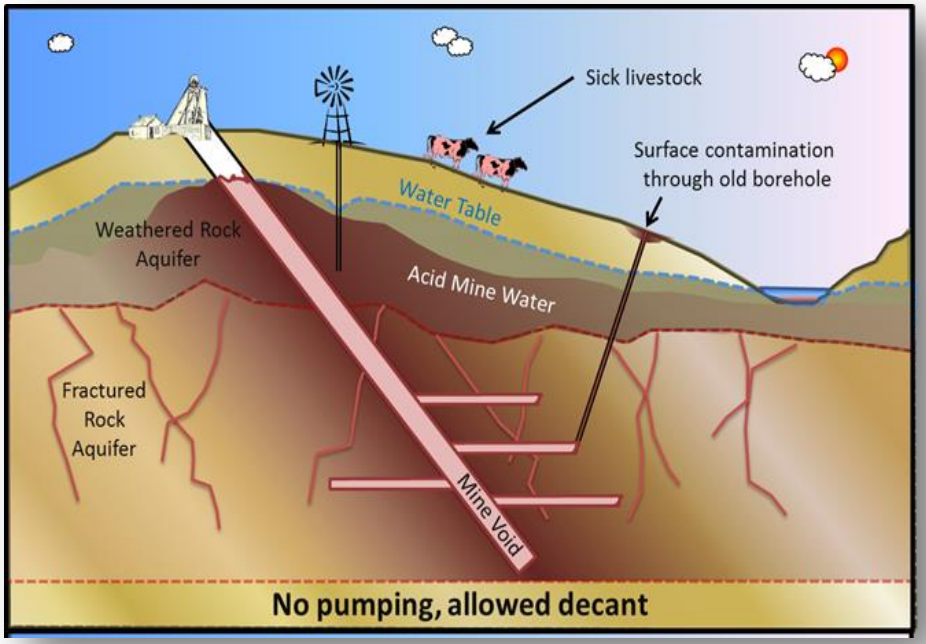
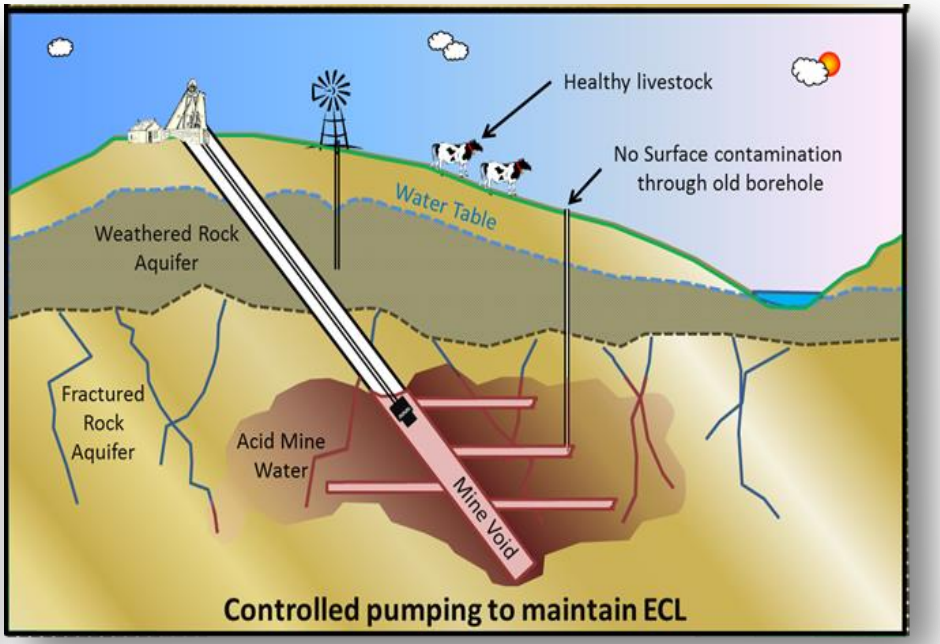
Acid Mine Drainage

Problem



- Mine voids fill with water, which becomes acidic due to exposure to acid bearing rocks.
- The acid water fills the voids and then contaminates ground water and seeps to the surface and into the Vaal River System through boreholes and springs.
- Reduces the yield of the system because fresh water needs to be released from dams to dilute the effects of the contaminated water.

Solution



- Pump acid mine water to the surface to maintain its level below the Environmental Critical Level (ECL) [the level at which it threatens the water table]
- Treat the water and pump it into the Vaal River System.
- Increases, rather than reduces the yield of the system

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Acid Mine Drainage – Short-Term Intervention (AMD STI)

Purpose

- TCTA was Directed to implement AMD STI in April 2011.
- AMD STI is aimed at implementing short term emergency works for the Western, Central and Eastern Basins to stop decant in the Western Basin and protect the Environmental Critical Level (ECL) in the Central and Eastern Basins.
- Operate STI works until its integration with the long-term solution

Description

- **Western Basin** comprises of an upgrade of the existing Rand Uranium water treatment plant and associated infrastructure. The upgrade was successfully completed and increased the treatment capacity from 12 Ml/pd to 30Ml/pd.
- **Central Basin** entailed construction of a High Density Sludge Water Treatment plant. Treatment Capacity 84 Ml/pd. RFO was in Dec 2014.
- **Eastern Basin** entails construction of a High Density Sludge Water Treatment plant similar to Central Basin. Treatment capacity 110Ml/pd. RFO was Sept 2016.

Cost

Original Budget	R2 592 million
Cumulative to Date	R1 869 million
Forecast at Completion	R2 444 million

Central Basin: Completed High Density Sludge Treatment Plant

Eastern Basin: Reactors under Construction

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Acid Mine Drainage – Long-Term Solution (AMD LTI)

Purpose

- TCTA received the Directive to implement AMD LTI in May 2016.
- AMD-LTS is based on the feasibility study undertaken by DWS which has proposed the construction of desalination plant/s in the Central and Eastern basins.
- Western Basin water consisting of both treated and untreated water will be used in pilot studies to test new and more cost effective technologies for future implementation.
- The treated water will be put to beneficial use as either industrial or potable water thereby increasing the yield of the Vaal System.

Engineering Strategy - The design philosophy will be based on the following assumptions:

- Provide treatment plants that will incorporate the short-term solution infrastructure.
- Design lifespan – 15 to 20 years.
- Provide ancillary infrastructure required to deliver treated water to users – low maintenance high lifespan.
- Develop and implement a sustainable sludge disposal solution for all basins.
- Plant capacity – sufficient to maintain ECL levels even during high flows, aligned with the capacity of the short term infrastructure.
- Site selection of treatment works– taking short-term solution into consideration.
- Due-diligence to determine final scope and strategy.

VRS Funding Strategy

Acid Mine Drainage – Long-Term Solution (AMD LTI)

Status

- **Initiated process with possible off-takers (to reduce cost of the scheme to the users and fiscus)**
- **Initiated process to conclude the Implementation Agreement with DWS**
- **Concluding following tenders processes:**
  - *PSP for optimisation and treatment plant*
  - *EIA consultant*

Funding as per Directive

- **Vaal River System users tariff will cover 33% of the construction costs and O&M**
  - *Feedback from the tariff consultations is that the Vaal River System users accept that they will bear the costs of AMD even though AMD is not of their own making, with the proviso that any available fiscal funds, funds clawed back from the mining industry and any revenue earned from sales of AMD water will be applied towards reduction of the tariff.*
- **The Fiscus will cover 67% - to be recovered from the mines as a levy**

Cost	
Total Capital Budget	R11 810 million
Annual Operating (O&M) Budget (per annum over 15 years)	R1 300 million

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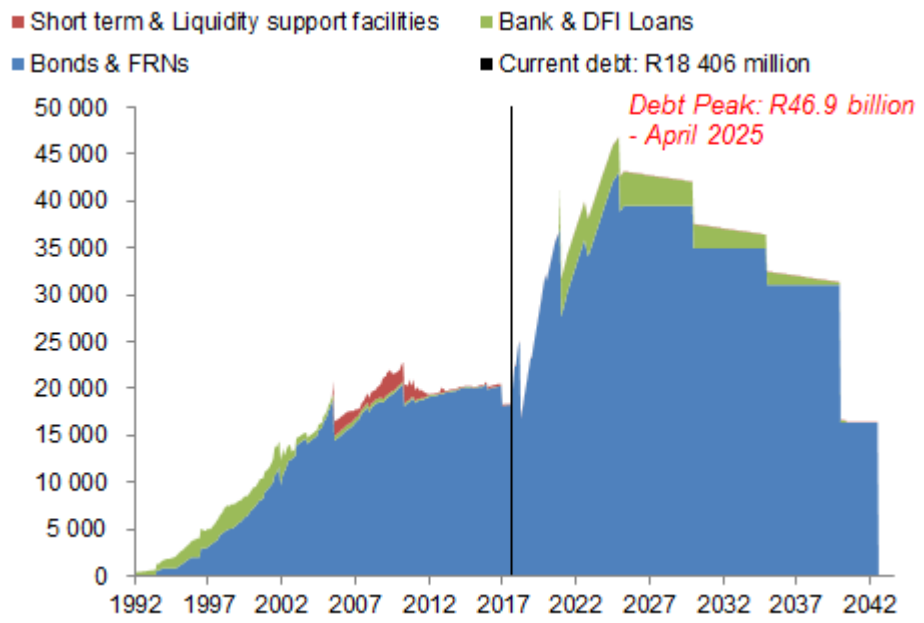
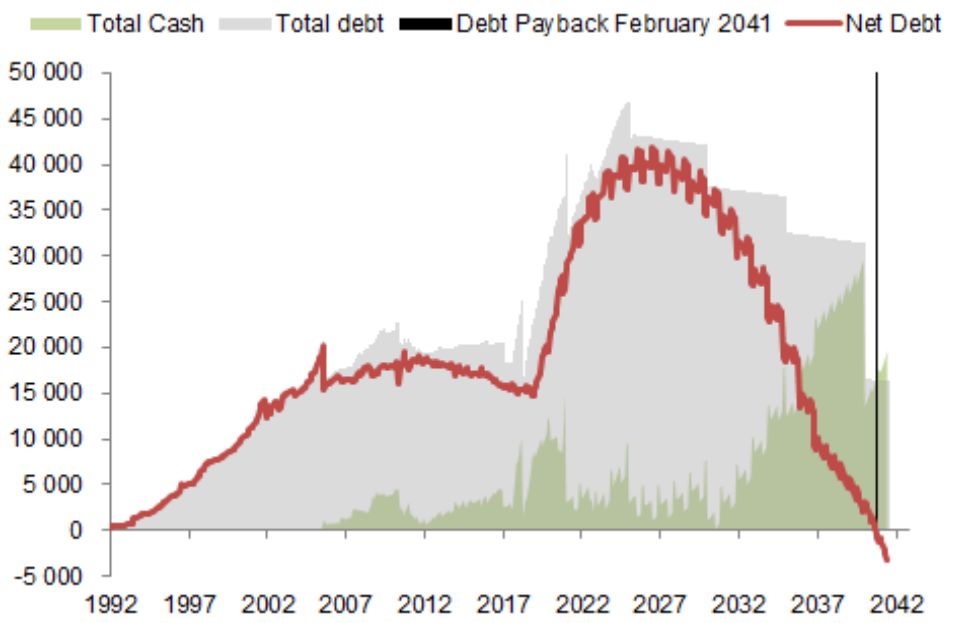
Vaal River System Water Resources Development Projects (VRS)

Capital Components		
Sub-Phase	**Capital Cost**	**Status**
LHWP-1	R 20 billion *(approx)*	*Complete*
LHWP-2	R 22 billion	Initial Stages
AMD Short Term Intervention	R 2.1 billion	Near Completion
AMD Long Term Solution	R 11.8 billion	Initial Stages

Liability Curve Projections (millions of rands)

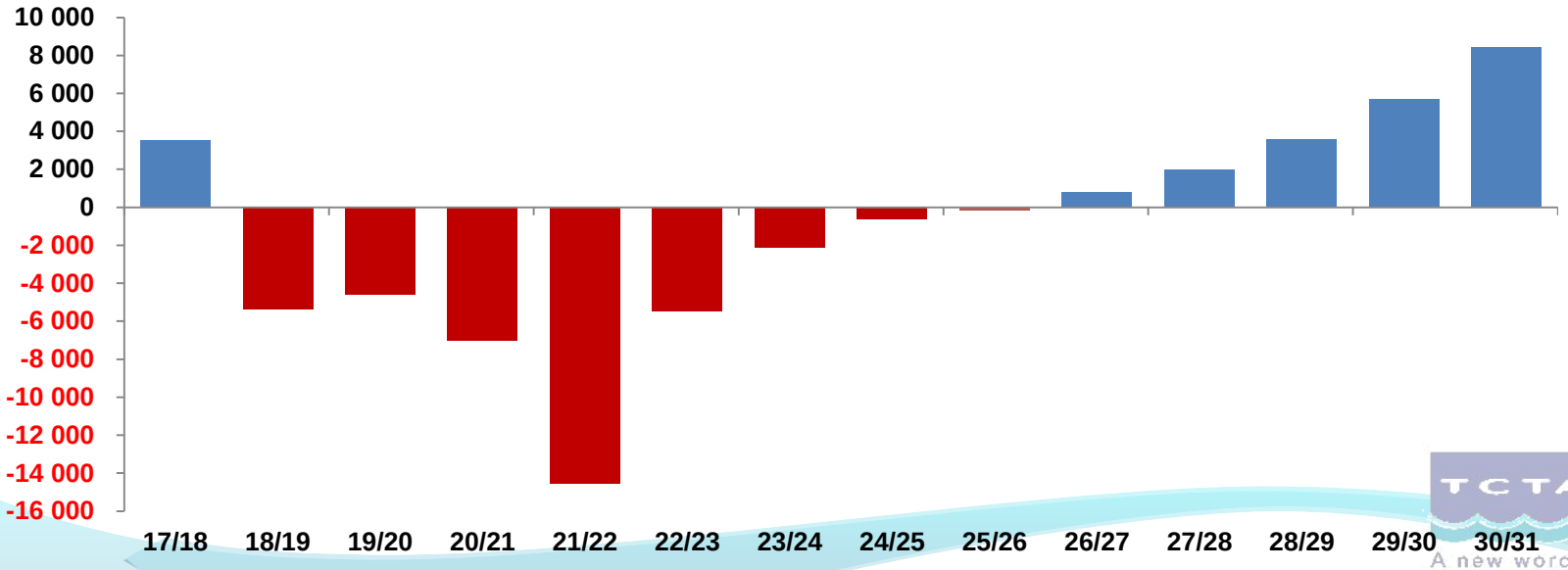




VRS Funding Strategy

Funding Requirements *(R' millions)*

	Opening Cash Balances	Vaal River Tariff Revenue	AMD Fiscal Transfers	Operating Costs	LHWP Capex	AMD Capex	Debt Service Costs	Funding Requirement
Rest of 2017/18	2 517	1 552	500	-511	-349	-40	-165	3 504
2018/19	3 503	4 846	454	-1 764	-1 884	-411	-10 005	-5 261
2019/20	100	5 352	1 037	-2 212	-3 991	-3 857	-915	-4 486
2020/21	100	5 615	2 645	-3 574	-4 902	-4 213	-2 571	-6 900
2021/22	100	6 034	2 782	-4 018	-4 137	-2 884	-12 346	-14 469
2022/23	100	5 738	2 863	-4 371	-3 029	-497	-6 178	-5 374
2023/24	100	6 052	2 947	-4 669	-2 322	-12	-4 145	-2 049
2024/25	100	6 557	3 036	-4 967	-840	-	-4 399	-513
2025/26	100	7 094	3 130	-5 286	-619	-	-4 483	-64
2026/27	100	7 659	3 230	-5 628	-105	-	-4 479	777
2027/28	777	8 249	3 336	-5 996	-	-	-4 421	1 945



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Funding Strategy Update

- **Funding to begin in 2018 – refinancing of the WS05 (CPI Aug 2018 – est R9.1 billion after inflation accretion)**
- **New JSE Program is delayed because of delays in the finalisation of Project Documents:**
  - ***The new Guarantee and Guarantee Framework Agreement*** *– submitted to DWS & National Treasury in Nov 2016.*
  - ***The AMD Implementation Agreement (between DWS & TCTA)*** *– submitted to DWS in 2017. To reduce delays, the Program will suspend this agreement as a project document (and delay funding for AMD LTS) until it is concluded.*
- **To reduce the refinancing risk for the WS05 redemption, an interim funding program will be put in place using the current program under the existing R25 billion Guarantee:**
  - ***JSE listed Bonds:*** *R2.7 billion is available of a R21 billion program*
    - *WSP3 (May 2019)*
    - *WSP4 (May 2020)*
    - *WSP5 (May 2021)*
  - ***Unlisted Commercial Program*** **:** *R3.9 billion is available of a R4 billion program*
- **The old bonds and Commercial Paper are incorporated by reference in the new Program & holders will have the option to be covered under the new guarantee.**
- **Holders of the, currently unlisted, Commercial Paper are given the option of exchanging their CP for listed notes (of the same value & tenor) under the new Program.**

VRS Funding Strategy

Proposed Funding Program

Short-Term (to Aug 2018)

Instruments	Nominal Amounts *(R' millions)*
JSE Listed Bonds	
WSP3 (May 2019)	600
WSP4 (May 2020)	1 400
WSP5 (May 2021)	700
Total Bonds	**2 700**
Unlisted Commercial Paper Program	
3 year FRNs (maturing Feb 2021 onwards)	1 000
5 year FRNs (maturing Feb 2023 onwards)	2 900
Total FRNs	**3 900**
Total Short-Term Funding Plan	**6 600**

Issuance of FRNs and short dated bonds from February to July 2018

Note: We are also open to requests to switch the WS05 to WSP3/WSP4/WSP5.

VRS Funding Strategy

Proposed Funding Program

Long-Term (after registration of Program Memorandum)

- Envisage new bond maturities: 2025; 2030; 2035; 2040; 2043.
- Issuance from 2018 to 2025.
- Funding mix envisaged as mainly bonds but with significant amount of bank and/or DFI loans and also, depending on investor demand, FRNs.
- **There will be a VRS Funding Strategy Roadshow when the new JSE Program is launched.**

Thank you

Questions ….

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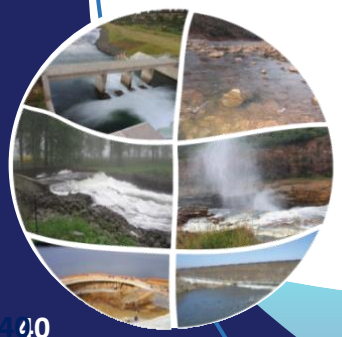

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