




Sasfin Public Sector Funding Workshop 2017

A 10 year view on infrastructure: Requirements vs funding options

Unyielding commitment to

REJUVENATION REVIVAL RENAISSANCE TRANSFORMATION

May 2017

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TCTA
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Contents

- Brief introduction/Update on TCTA
- Current Projects
- **New Projects**
- **Potential Projects**
- **Funding Requirements**
- **Survey of Funding Environment**

TCTA the Organisation

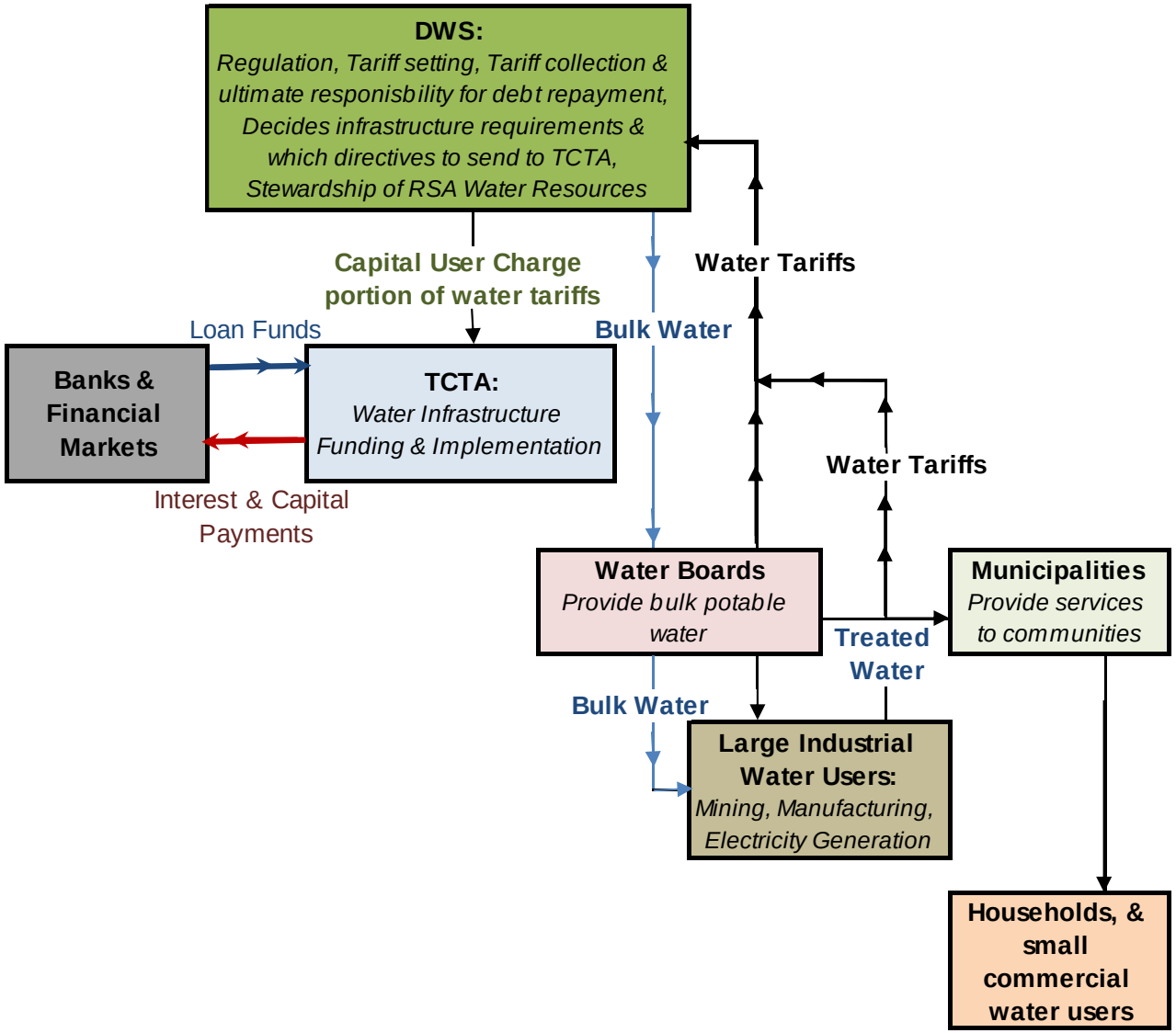
Who are we?

- State-Owned Entity
- Established in 1986 to fund and implement RSA portion of LHWP
- Mandate expanded to undertake liability management on LHWP and fund & implement bulk raw water infrastructure in RSA
- TCTA is NOT a corporate entity
- Non profit-making, no reserves and operate on cost recovery/break-even basis
- Schedule 2 PFMA Public Entity
- Reports to the Minister of Water and Sanitation and to Parliament

What do we do?

- Project structuring, tariff determination and financing arrangements
- Project Management and Implementation
- Debt management
- Mandates can be funded/off-budget (*TCTA raises debt & implements*) or unfunded (*DWS pays for the project*)
- Financial advisory services
- Knowledge and Strategic Programmes
  - Coordination of SIP-3 and 18
  - Knowledge Management
- Transfer of risk to parties and sectors best suited to manage it

TCTA's Place in the Water Supply Value Chain



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TCTA funding and implementation model

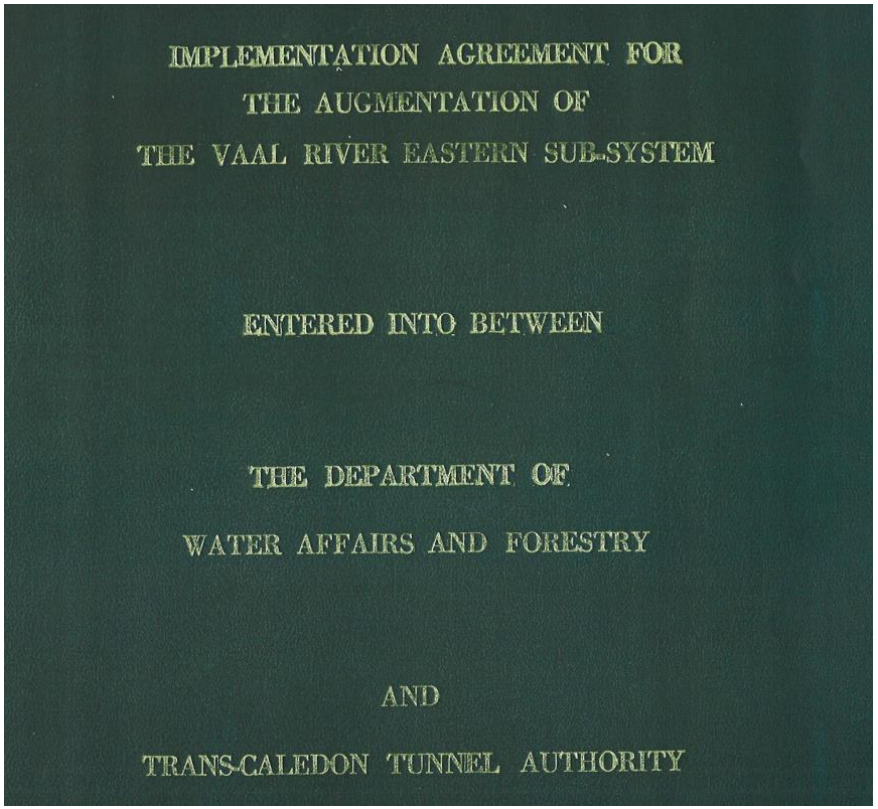
- **Projects are strictly ring-fenced**
  - Each has its own financial assets & liabilities
  - No cross-funding – *except for TCTA overheads, which are paid from LHWP and then allocated monthly to the relevant projects*.
  - It can happen that 1 project has large cash surpluses & another has a deficit – funds will not be transferred from one to the other.
- **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.
  - The minister is still to decide whether LHWP should fund the long term solution to AMD.
- **Borrowing Limits**
  - Debt must remain within DWS and National Treasury approved borrowing limits.

TCTA funding and implementation model

DWS is ultimately responsible for debt repayment

- Project Implementation agreements with DWS make it clear that DWS retains the income risks for the projects.
- In the event the project fails or Water Supply Agreements with Off-takers are terminated – DWS will keep servicing debt

Example: VRESAP extract – s8.1.6



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 funding and implementation model

RISK	TRANSFERRED?	METHOD
Revenue collection	✓	Income agreements – DWS risk
Funding risk	✓	Income agreements – Strength of Income Agreements i.e. Central Government off-taker Income agreements – DWS step-in
Operations and Maintenance	✓	Income agreements – DWS risk
Yield of the system	✓	Income agreements – trigger
Construction risk – design, delay etc.	✓	Liquidated damages, insurance, performance bonds and retentions
Base case data change	✓	Income agreements – trigger
Inflation	✓	Income agreements – trigger
Demand risk	✓	Income agreements – trigger (pay on licensed volume)

CURRENT PROJECTS

Funded Mandates (*TCTA funds/implements*)

- Lesotho Highlands Water Project (**LHWP**)
- Acid Mine Drainage Short Term Intervention (**AMD-STI**)
- Berg Water Project (**BWP**)
- Vaal River Eastern Sub-System Augmentation Project (**VRESAP**)
- Mooi Mgeni Transfer Scheme phase 2 (**MMTS-2**)
- Komati Water Scheme Augmentation Project (**KWSAP**)
- Mokolo Crocodile Water Augmentation Project phase 1 (**MCWAP-1**)

Other Implementation Mandates (*DWS funds, TCTA implements*)

- Olifants River Water Resource Development Project sub phase 2C (**ORWRDP-2C**)

CURRENT PROJECTS

Lesotho Highlands Water Project (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 Republic of South Africa and to generate hydro-electric power in the Kingdom of Lesotho. The Project consists of various proposed phases of which Phase 1 was completed during November 2003 and Phase 2 is expected to commence construction in 2016.

Users/Off-takers	Vaal River System Users
Status	Operational
Source of Funding	Bonds (>95%) & Bank & DFI loans
Current Debt (Dec 15)	R20 billion
Debt Peak	R22.25 billion (August 2010)
End of Debt	2043 with LHWP2 (LHWP1 only 2023)
Annual Volumes	1,600 million m^3
Annual Revenue	R4 billion

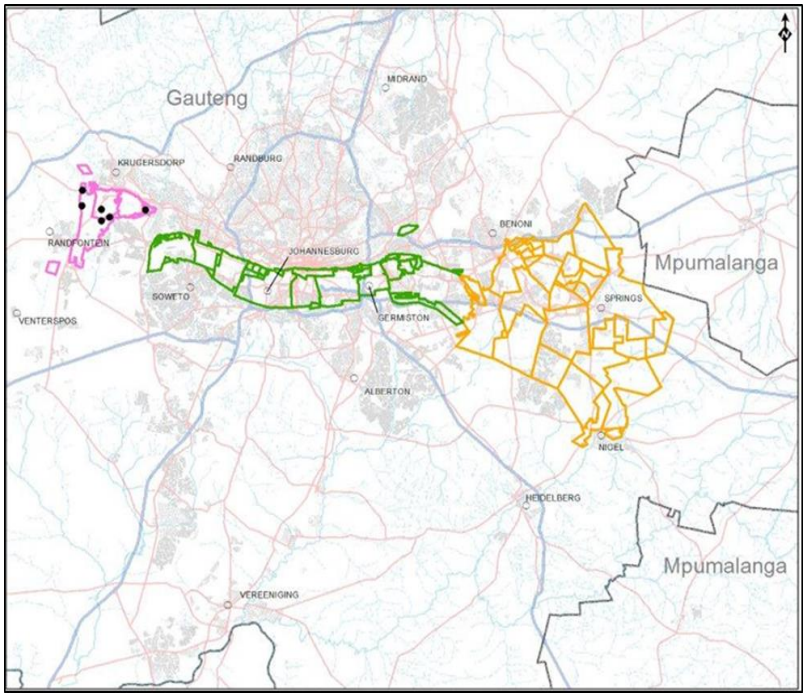
Katse Dam (185m high)

CURRENT PROJECTS

Acid Mine Drainage (AMD) – Short Term Intervention

Purpose

- Acid Mine Drainage (AMD) is aimed at implementing the short term emergency works for the Western, Central and Eastern Basins of the Witwatersrand Goldfields as recommended to the Inter-Ministerial Committee by a panel of experts
- Short term action plan was to stop decant in the Western Basin and protect the Environmental Critical Level (ECL) in the Central and Eastern Basins



Description

- Immediate solution (**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.
- **Eastern Basin** entails construction of a High Density Sludge Water Treatment plant similar to Central Basin. Treatment capacity 110Ml/pd.

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

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CURRENT PROJECTS

Berg Water Project (BWP)

Description

- A 130 million cubic metre (m^3) dam and supplement scheme on the Berg River outside Franschhoek.
- Berg Water Project augments the yield of the Western Cape Water Supply System by 18% (86 million m^3/pa) to 523 million m^3/pa.

Berg River Dam

Supplement Scheme

Users/Off-takers	City of Cape Town
Status	Operational
Source of Funding	Bank & DFI loans
Current Debt (Dec 15)	R886 million
Debt Peak	R1.33 billion (December 2010)
End of Debt	2029
Annual Volumes	300 million m^3
Annual Revenue	R185 million

CURRENT PROJECTS

Vaal River Eastern Sub-System Augmentation Project (VRESAP)

Description

- A 120 km pipeline from the Vaal Dam to the Knoppiesfontein diversion structure near Secunda to augment the Vaal River Eastern Sub-system.
- VRESAP forms part of the Vaal River Eastern Sub System (VRESS), which supplies water to the coal fields of Eastern Mpumalanga, through a complex system of interconnected water transfer schemes. Most of Eskom's thermal power stations and Sasol's petrochemical installations are strategic users of water from this system.

Pump Station

Surface River Crossing

Users/Off-takers	Eskom and Sasol
Status	Operational
Source of Funding	Bank & DFI loans
Current Debt (Dec 15)	R3.87 billion
Debt Peak	R3.96 billion (March 2016)
End of Debt	2029
Annual Volumes	346 million m^3
Annual Revenue	R396 million

CURRENT PROJECTS

Mooi Mgeni Transfer Scheme Phase 2 (MMTS-2)

Project Description

- To augment water supply to the KZN economic hub by 60 million m^3 per annum.
- Improve the security of water supply to 98% level of assurance.
- Provide over 5 million people with water: eThekweni and Pietermarizburg areas.

Description: Springrove Dam

Spring Grove Dam is 37.7m high with a storage capacity of 139.5 million m^3

Progress: Dam

- Construction completed and dam handed over to DWS for O&M. Dam is full and spilling (139.5 million m3 of stored water available for transfer)

Spring Grove Dam

Intake Tower

Users/Off-takers	Umgeni Water & Mgeni System Users
Status	Construction
Source of Funding	DFI loans
Current Debt (Dec 15)	R1.70 billion
Debt Peak	R1.88 billion (March 2016)
End of Debt	2032
Annual Volumes	394 million m^3
Annual Revenue	R190 million

CURRENT PROJECTS

Komati Water Scheme Augmentation Project (KWSAP)

Purpose & Description

To augment the Komati Water Scheme from the Vaal Eastern Sub-system and supply water for the Duvha and Matla power stations and ultimately to the new Kusile power station.

The additional yield to the Komati Water Scheme is 57 million m³ per year

- An additional pump station at the Rietfontein Weir with a total capacity of 2,16 m³/s;
- 1 100 mm nominal diameter steel pipeline to the Duvha Power Station over a distance of 58,4 km with a capacity of up to 1,684 m³/s; and
- 800 mm nominal diameter steel pipeline to the Matla Power Station over a distance of 12, 9 km with a capacity of 0,474 m³/s.

Pump Station

Pipeline construction

Users/Off-takers	Eskom
Status	Operational
Source of Funding	Bank loans
Current Debt (Dec 15)	R1.24 billion
Debt Peak	R1.42 billion (June 2018)
End of Debt	2033
Annual Volumes	100 million m³
Annual Revenue	R130 million

CURRENT PROJECTS

Mokolo Crocodile Water Augmentation Project Phase 1 (MCWAP 1)

Purpose

- Water augmentation project to supply raw water demands in the Waterberg area to Eskom (Medupi and Matimba Power Station) and Exxaro for National Power Generation, and Lephalale Municipality for the expected domestic growth.
- This project will use the Mokolo dam as the source, and it will deliver 30million m^3 water at completion.

Rising Main Pipe Laying

Pump Station & Electrical Sub Station

Users/Off-takers	Eskom and Exxaro
Status	Operational
Source of Funding	Bank loans
Current Debt (Dec 15)	R1.28 billion
Debt Peak	R1.55 billion (June 2016)
End of Debt	2033
Annual Volumes	22 million m^3
Annual Revenue	R250 million

Other Implementation Mandates

Olifants River Water Resource Development Project 2C (ORWRDP-2C)

TCTA is currently implementing Phase 2C of ORWRDP through fiscal transfers from DWS.

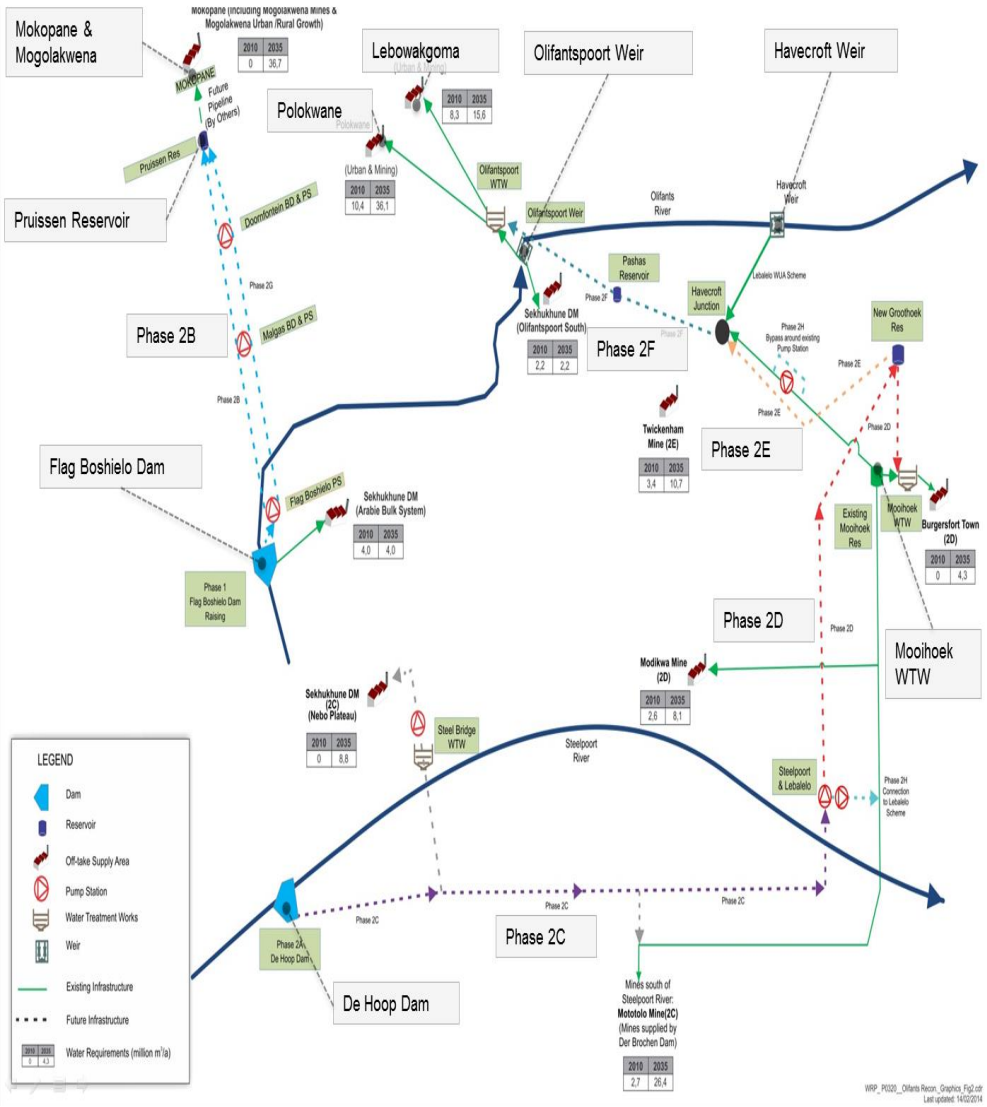
Planning is carrying on to implement further phases as a funded project.

Description (ORWRDP 2C)

- Sub-phase 2C: A 40 km pipeline from De Hoop Dam to Steelpoort which is under construction; and pumpstation at Steelpoort

Purpose (ORWRDP 2C)

- **ORWRDP-2 bulk distribution system** will transfer water from the De Hoop and Flag Boshielo dams for municipal and mining needs in the middle Olifants river catchment area, unlocking significant social and economic development.
- **Phase 2C** will improve water supply to Jane Furse / Nebo Plateau and for mining activities in the Steelpoort - Burgersfort area.
- **Phase 2C** implemented by TCTA via revised Ministerial Directive, BDS configuration reconfirmed Nov 14 following technical review



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Other Implementation Mandates

Olifants River Water Resource Development Project (ORWRDP 2C)

Progress

- Land acquisition for Phase 2C completed
- Construction of 1st 10 Km tie-in achieved in Jan 2014 - enables supply of water to Nebo Plateau
- 39.6 Km of 40 Km pipeline laid
- Construction delays incurred lately due to Steelpoort river crossing, where grouting strength has resulted in a slower progress in crossing the river with pipe-jacking

Program

- **Project start March 2012**
- **Expected completion: July 2016**

Steelpoort River Crossing

Pump Station

Costs

Approved Budget	R 2 267 million
Cumulative to Date	R 1 900 million
Forecast at Completion	R 2 120 million

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New Projects

- **Vaal River Augmentation Schemes**
  - **Lesotho Highlands Water Project Phase 2 (LHWP 2)**
  - **AMD Long-Term Solution (AMD-LTS)**
- **Mokolo Crocodile Water Augmentation Project Phase 2 (MCWAP 2)**
- **Mzimvubu Water Project (MWP)**

New Projects

Lesotho Highlands Water Project Phase 2 (LHWP 2)

Purpose

Objective is to provide infrastructure for the growing water requirements in the Vaal River System – covering SA's industrial and economic heartland, and hydro-power generation (to benefit Lesotho)

Description

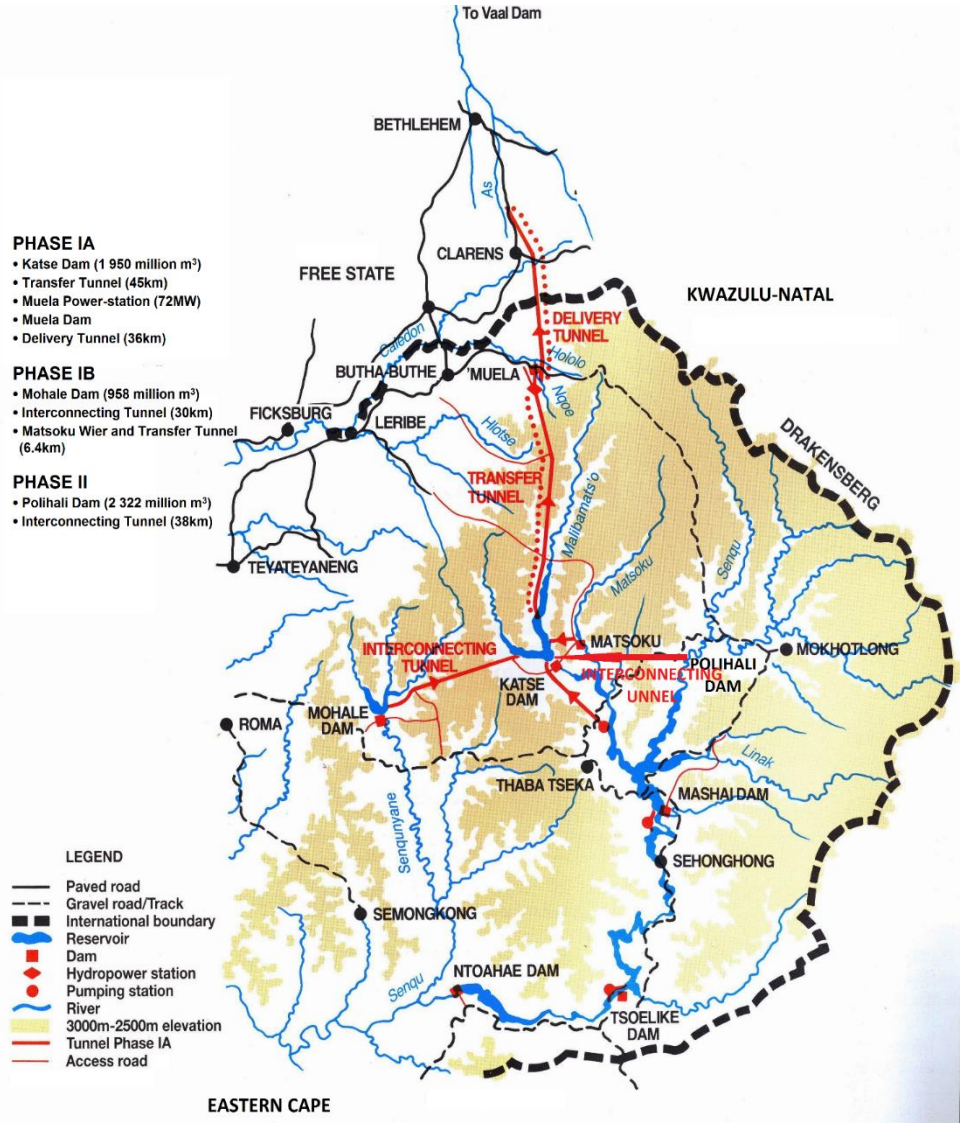
implemented in terms of the Agreement on Phase II of the LHWP between Lesotho and South Africa entered into on 11 August 2011 in two distinct systems:

- a water delivery system to augment the delivery of water to South Africa, comprising:
  - *the Polihali Dam downstream of the confluence of the Senqu and Khubelu Rivers,*
  - *A 49.5 metres high saddle dam as well as a side channel spillway.*
  - *a 38.2 kilometres long, 5 metres diameter, water conveyance tunnel to transfer water from the Polihali to the Katse Reservoir.*

  ;and
- a hydropower generation system to raise Lesotho's electricity generation capacity to beyond self-sufficiency.

- Construction to commence in 2016
- Water delivery is anticipated in 2022

The LHWP treaty requires that South Africa pay for the water delivery system, the hydropower scheme will be paid for by Lesotho.



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New Projects

Lesotho Highlands Water Project Phase 2 (LHWP 2)

Description

Polihali Dam	
Dam Type	Concrete Faced Rockfill Dam
Non-overspill Crest Level	2083 masl*
Full Supply Level	2075 masl
Lowest Foundation Level	1918.0 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

New Projects

Lesotho Highlands Water Project Phase 2 (LHWP 2)

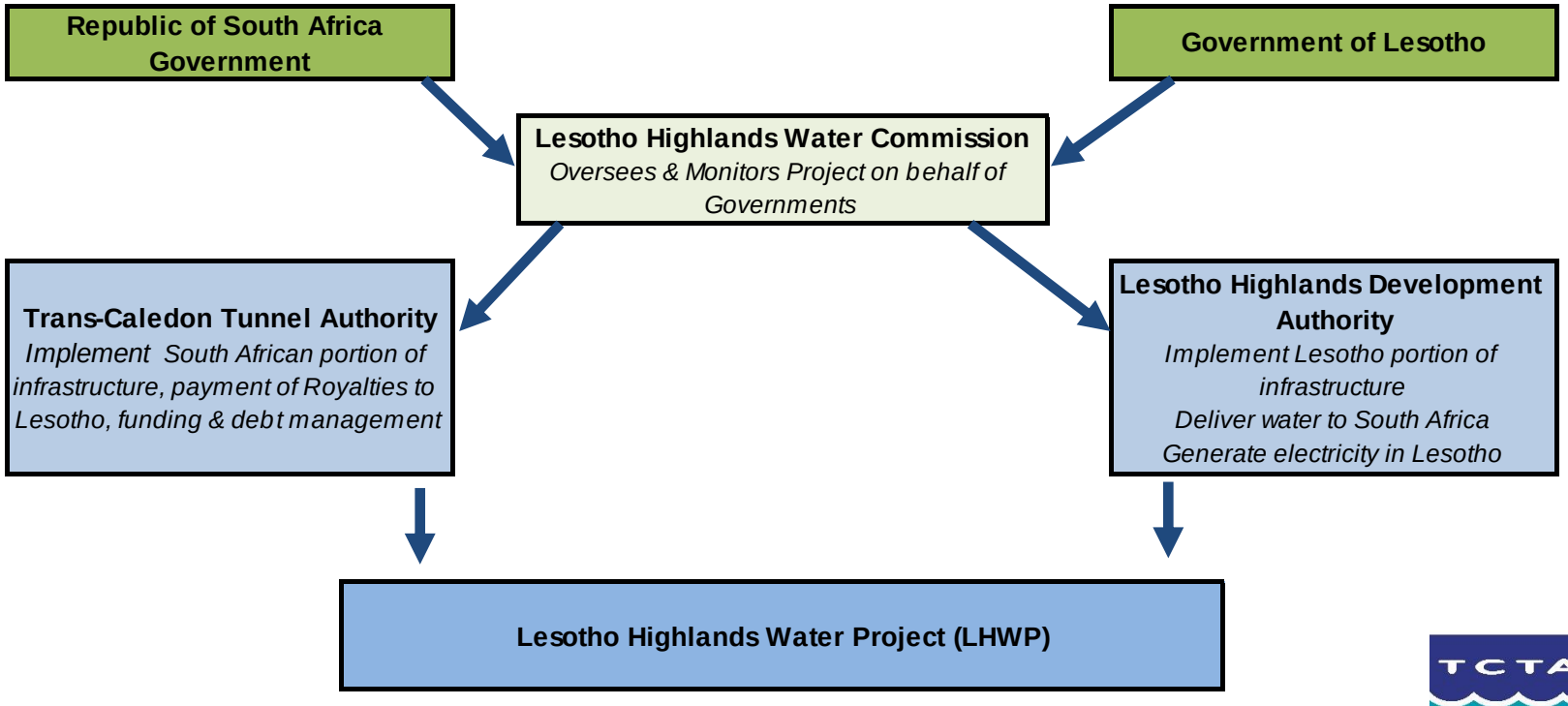
Governance Structure

As per the Treaty and/or the LHWP II Agreement

LHWC represents the Lesotho & RSA governments, each appoints delegates to it. Oversees & monitors LHDA & TCTA's work on the project.

LHDA is the Implementing Agent for the project in Lesotho (will appoint consulting engineers, contractors etc.)

TCTA is the agent of the RSA for the project, will make cost related payments to LHDA after approval by LHWC



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New Projects

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

Purpose

- Acid Mine Drainage (AMD) is aimed at implementing the short term emergency works for the Western, Central and Eastern Basins of the Witwatersrand Goldfields as recommended to the Inter-Ministerial Committee by a panel of experts.
- AMD-LTS is based on the feasibility study undertaken by the DWS which has proposed the construction of desalination plant/s in the Central and Eastern basins. The 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.

Status

- A draft Directive was submitted to the Ministers' office for consideration. The Minster indicated in her Budget speech (11 May 2016) that she would give TCTA the mandate to implement. The projects now awaits a final directive.

Estimated Cost & Construction Time	
Capital Costs	R10 500 million
Environmental Assessment	12 Months
Construction Program	21 Months

Vaal River Schemes (LHWP & AMD) Funding Strategy

Long Term Strategy

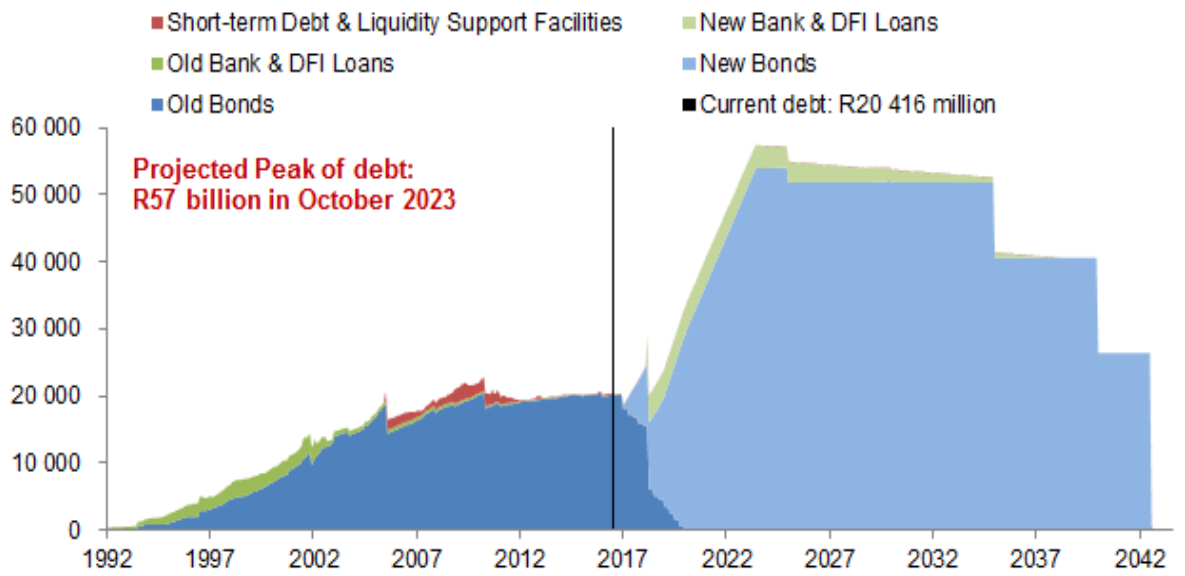
- Expect to issue bonds out of new JSE Program from Q3 2017
- Envisage new bond maturities: 2025; 2030; 2035; 2040; 2043.
- Issuance from 2017 to 2022/23
- Funding mix envisaged as mainly bonds but with significant amount of bank and/or DFI loans
- Debt Peak projected at R57 billion, October 2023

Vaal River Schemes Capital Components

Sub-Phase	Capital Cost	Status
LHWP-1	R 20 billion§	*Complete*
LHWP-2	R 22 billion	Initial Stages
AMD Short Term Intervention	R 2.1 billion	Near Completion
AMD Long Term Solution	R 10.5 billion	Initial Stages

**Cost at Completion §Current outstanding debt*

Liability Curve (millions of rands)



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New Projects

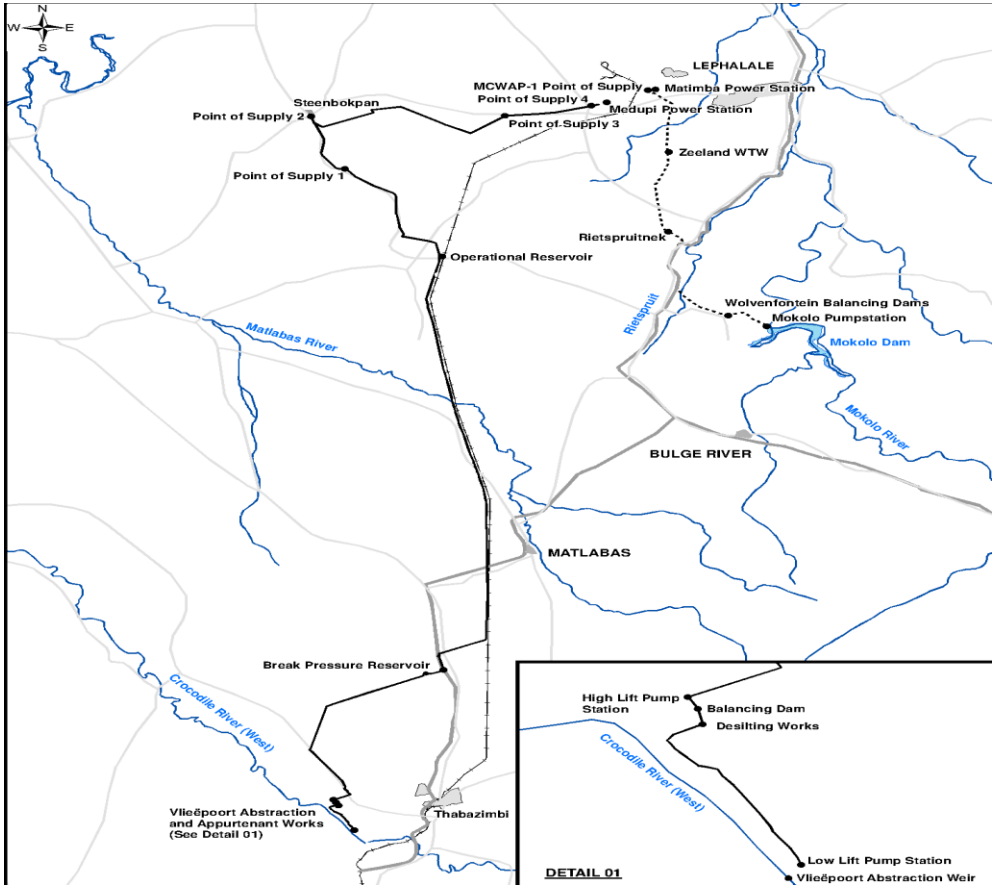
Mokolo Crocodile Water Augmentation Project Phase 2 (MCWAP 2)

Purpose

To augment the water supply to Lephalale area for social use, power generation and associated coal mining; and to unlock economic development in the Waterberg Coal Fields:

Energy sector (water and coal)

- Eskom's water demand for Medupi over and above provided from MCWAP-1
- Eskom's coal requirement for Mpumalanga power stations
- Future coal fired power stations in Waterberg (IRP-2010 and beyond)
- **Social:** Lephalale Municipality's demand over and above MCWAP-1
- **Coal for export**
  - Water required by coal mines to export a portion of their coal whilst mining coal for energy
  - Increases viability of mine and reduces coal prices to Eskom
- **Other industrial developments**
  - Other mining, e.g. metallurgical coal
  - IPP's for own use (not providing to national grid)



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New Projects

Mokolo Crocodile Water Augmentation Project Phase 2 (MCWAP 2)

Description

Phase 2 of MCWAP comprises of an abstraction weir, pump stations and a 160 km pipe line to transfer 75 million m^3/annum of water from the Crocodile River to the Lephalale area

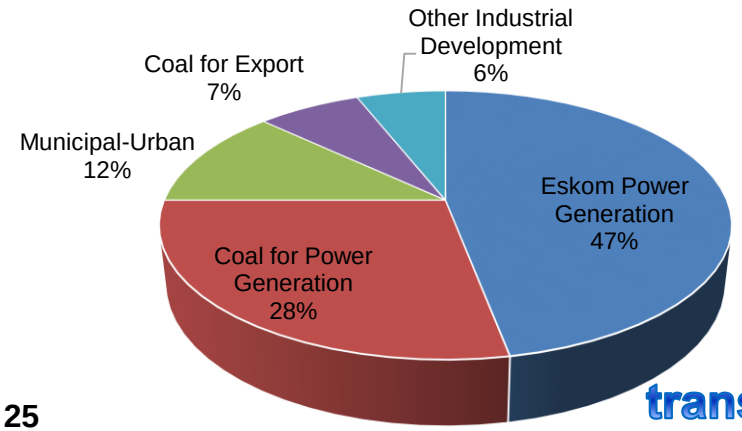
Program

- **EIA process will start in 2017**
- **Construction scheduled to start 2019**
- **Combined funding with MCWAP-1**

Costs

Total Project Cost	R 10 300 million

Demand Composition (April 2013)



Progress

- TCTA mandate in terms of the Ministerial Directive issued on 19 May 2010 extends to the implementation and co-funding of both MCWAP 1 and MCWAP 2, but the implementation of MCWAP-2 was postponed following the Department of Energy's IRP2010. Subsequent developments and future coal demands require the implementation of MCWAP-2 to start

- Water Supply Agreements to be updated and negotiated with the major users based on the design capacity of 100 million m^3/annum

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New Projects

Olifants River Water Resources Development Project Phase 2B (ORWRDP-2B)

Description

ORWRDP-2B entails developing and configuring a 70km pipeline from Flag Boshielo Dam to Mokopane, with 3 pump stations to supply water to mines and municipalities.

The project will have a transfer capacity of 50 million m^3/annum.

Program

- **Construction scheduled to start 2017-2018**
- **Water delivery scheduled for 2020-2021**

Costs

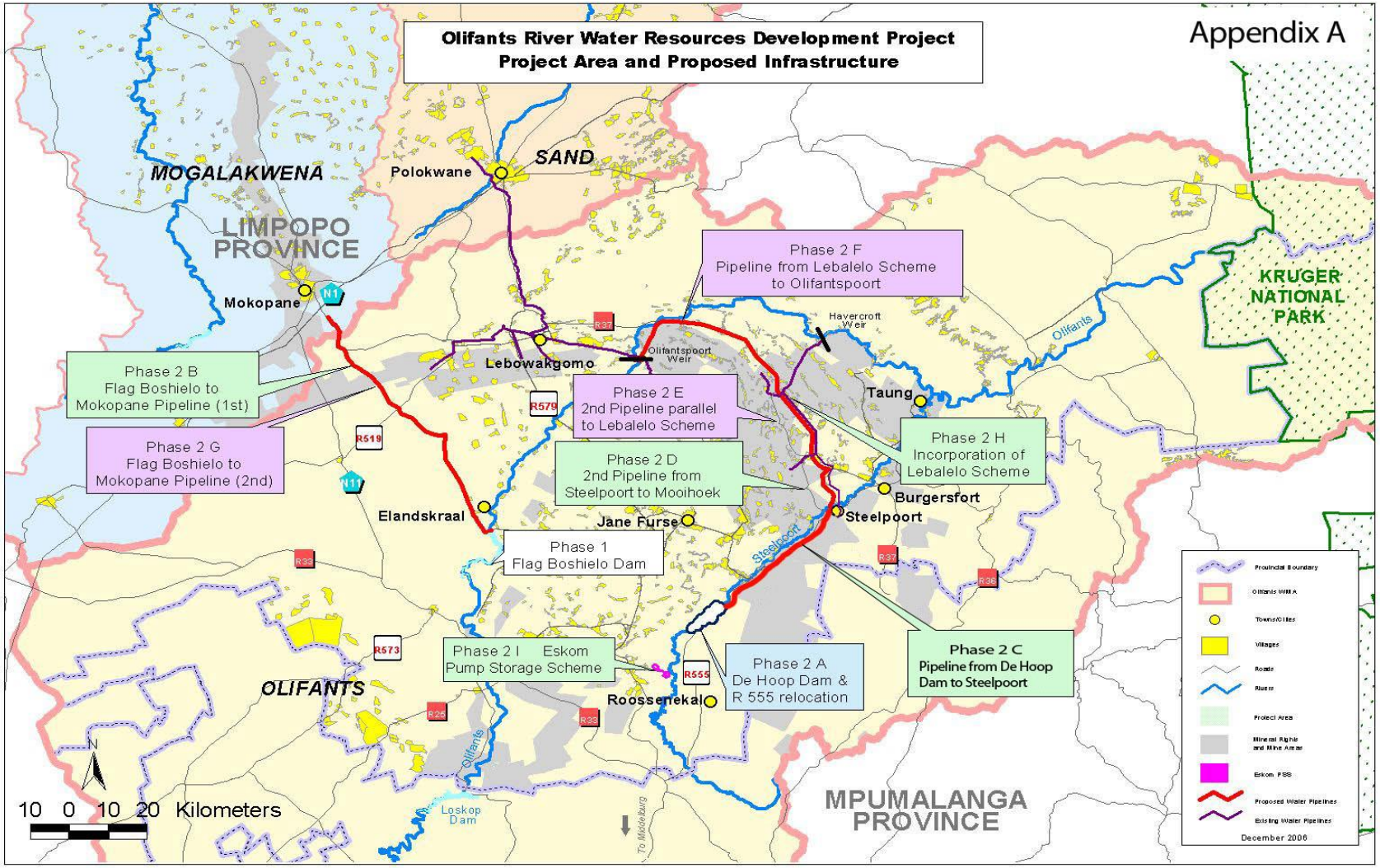
Total Project Cost	R 7 500 million

Progress

- TCTA is currently assessing the bankability of the project without committed off-take agreements and the funding strategy would be concluded towards end of 2017.
- Should bankability be confirmed, funding will be raised towards the end of 2018.

New Projects

Olifants River Water Resources Development Project Phase 2B (ORWRDP-2B)



New Projects

Mzimvubu Water Project (MWP)

The Mzimvubu Water Project aims to develop the water resources in the Mzimvubu river catchment to provide a stimulus for the regional economy, in terms of domestic water , irrigation, and hydropower generation amongst others.

This will be achieved by the construction of two multi purpose dams (Ntabelanga Dam & Lalini Dam), a hydropower station, a potable water treatment plant, primary and secondary water distribution systems with reservoirs and ancilliary infrastructure.

New Projects

Mzimvubu Water Project (MWP)

The TCTA Directive for MWP was issued by the Minister on 7 February 2017

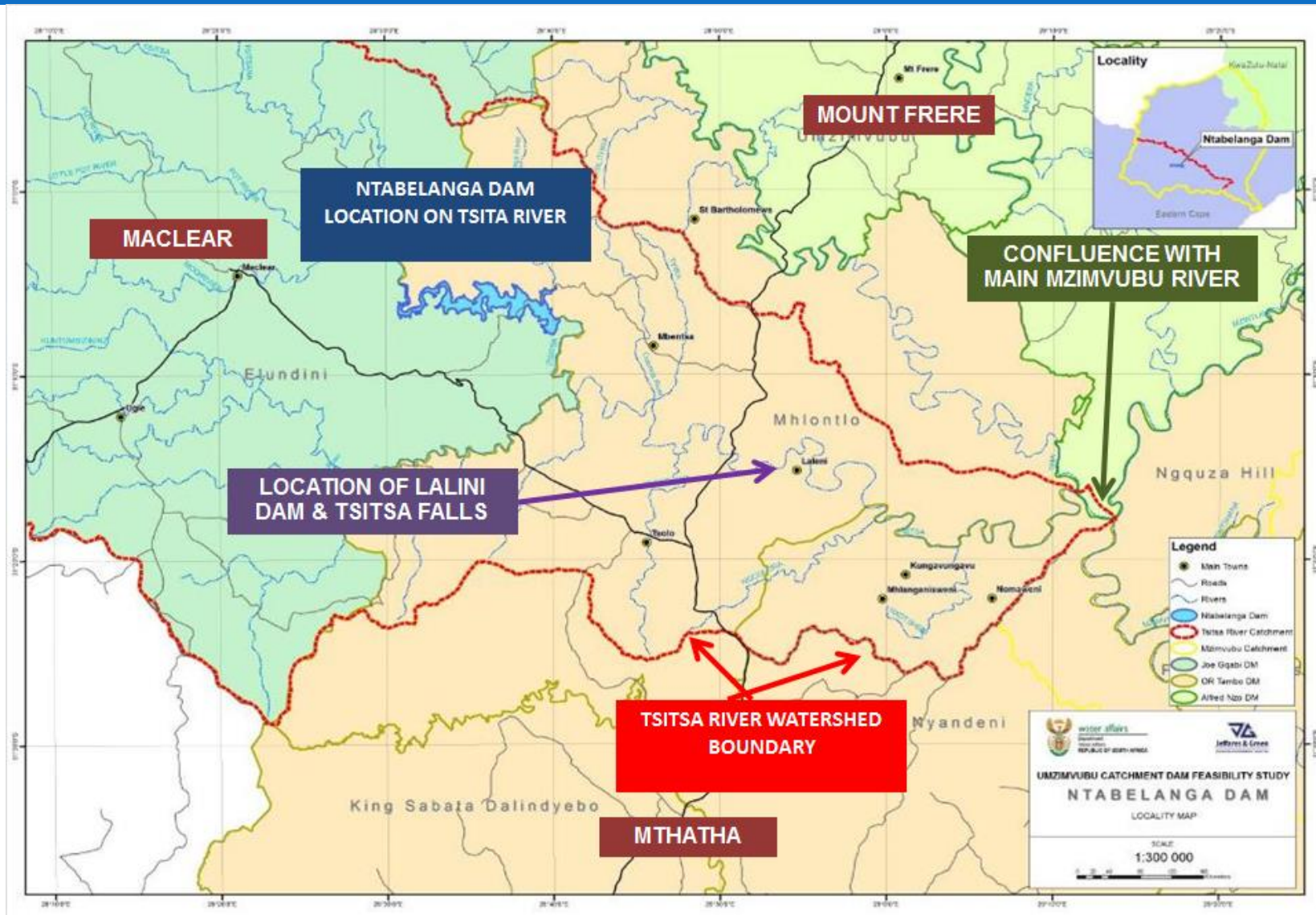
Phased Implementation Approach

- 1st phase: Prioritize Ntabelanga Dam and associated works for social needs.
- 2nd phase: Lalini Hydropower scheme and associated works will be implemented after further investigations into commercial viability

TCTA has prepared an initial funding strategy & borrowing limit with is currently being discussed with DWS/National Treasury

New Projects

Mzimvubu Water Project (MWP)



New Projects

Mzimvubu Water Project (MWP)

Technical Specifications

	Ntabelanga Dam	Lalini Dam
Storage Capacity	490 million m^3	232 million m^3
Area of Dam Basin	31.5 km^2	14.5 km^2
Length of Dam Basin	15.5 km	22.5 km
Dam Type	Roller compacted concrete (RCC) gravity dam	Roller compacted concrete (RCC) gravity dam
Wall Height	66.1 m	53.4 m

New Projects

Mzimvubu Water Project (MWP)

Budget

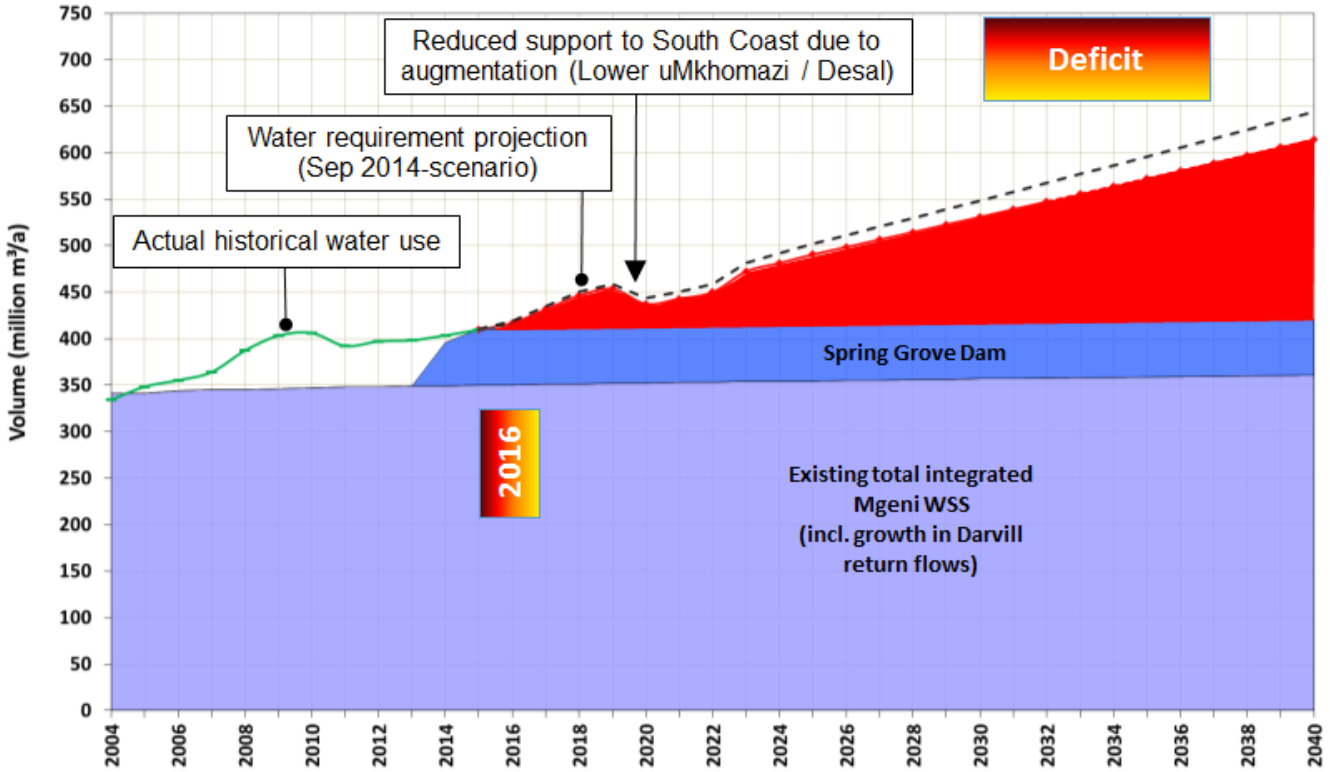
Component	Cost Estimate (2016) (R Million)
Ntabelanga Dam	1,785
Associated Buildings	88
Ntabelanga Dam Access Roads and Bridges	518
Water Treatment Works (WTW)	980
Ntabelanga Bulk Distribution Supply	7,059
Irrigation system	730
Lalini Dam Hydro-Power Scheme	2,980
Laleni Access Roads and Bridges	650
Total estimated cost of project	**R14 ,790**

Note: ***1. Budget is based on DWS estimates***
2. Budget only include construction costs at a base date of 2016
3. TCTA currently reviewing the overall project budget

Project Pipeline: Potential Projects

uMkhomazi Water Project (UWP)

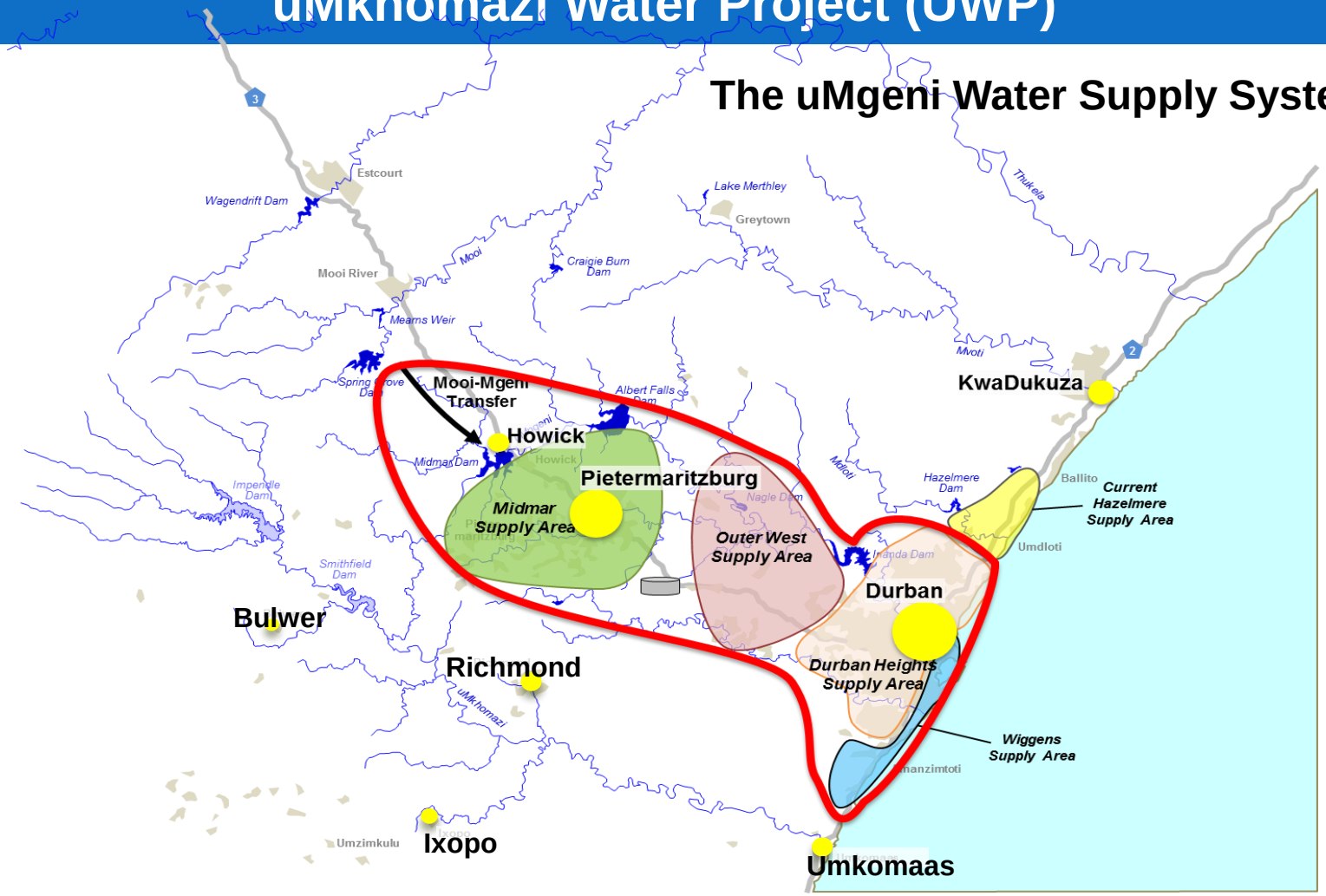
Water requirements projections indicate that the Mgeni System will be vulnerable to deficits from 2016



The long-term water requirements of eThekwini MM, Msunduzi LM (Pietermaritzburg), iLembe DM, Ugu DM and surrounding areas exceed the yield of the water resources of the integrated Mgeni WSS *(Midmar, albert Falls, Nagle, Inanda and Spring Grove)*

Project Pipeline: Potential Projects

uMkhomazi Water Project (UWP)



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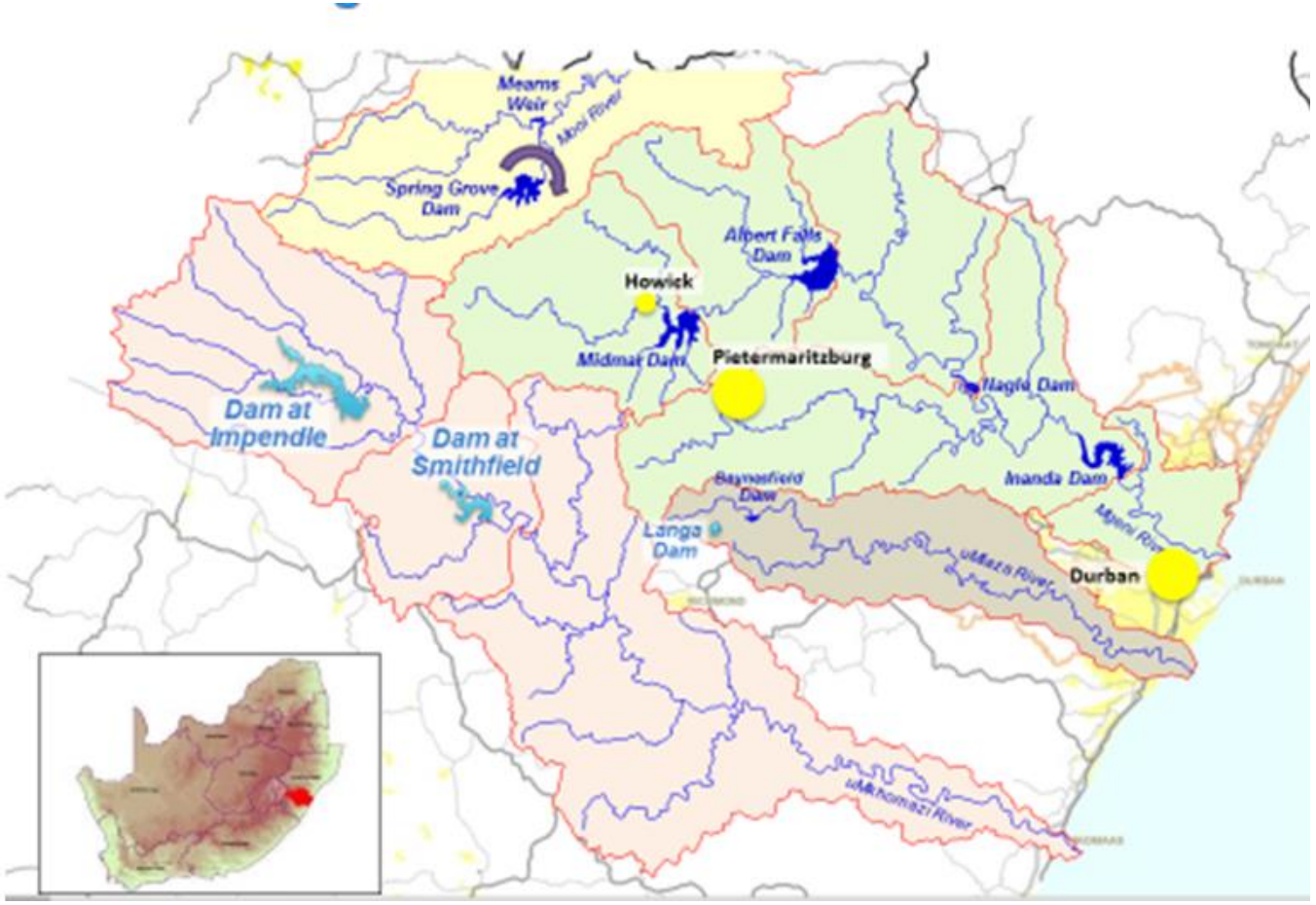
Project Pipeline: Potential Projects

uMkhomazi Water Project (UWP)

UWP would build dams at Impendle and Smithfield on the uMkhomazi River and a transfer scheme (tunnel) from Smithfield Dam to Langa Dam in the uMgeni System



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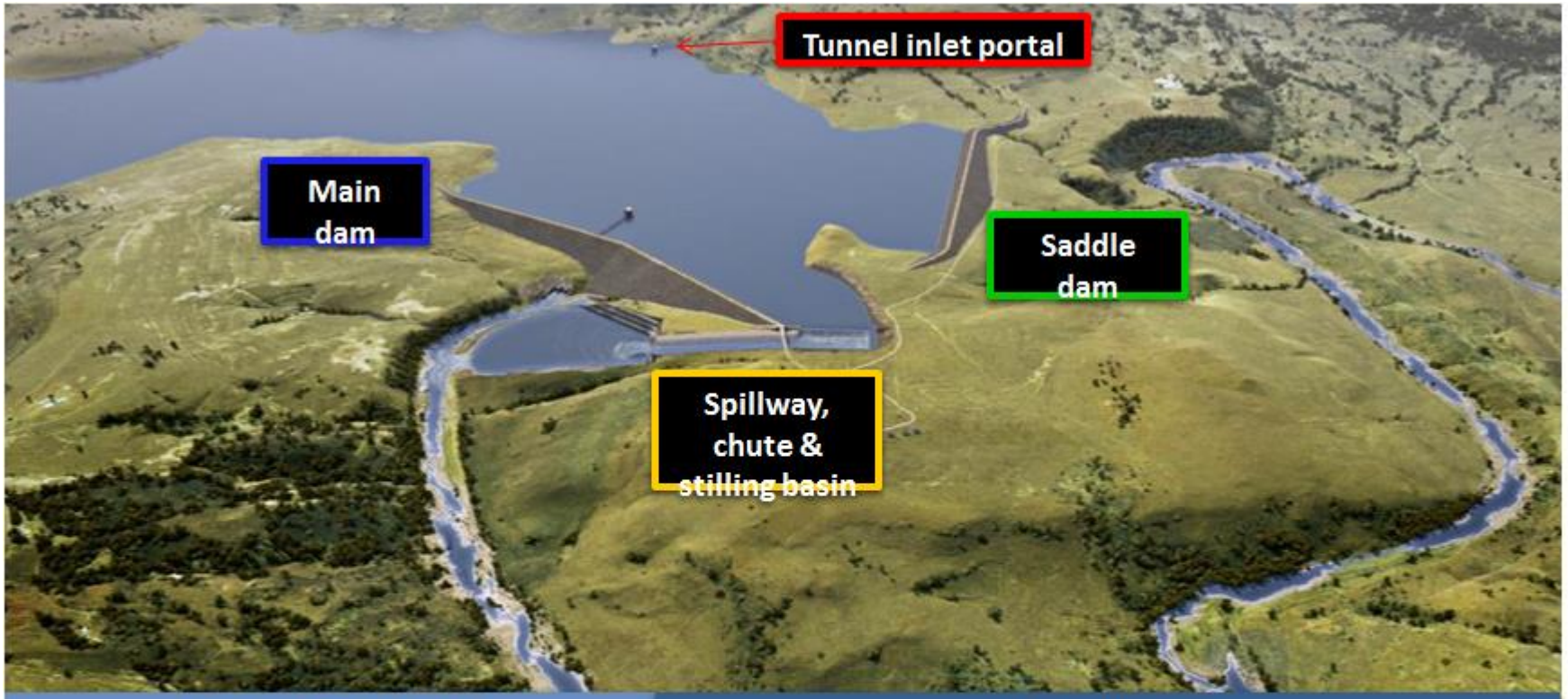
Project Pipeline: Potential Projects

uMkhomazi Water Project (UWP)

Smithfield Dam – Artist‘s Impression



Dam at Smithfield:	
Volume:	251 million m³
Max wall height:	81 m
FSL:	930 masl
Yield:	215 million m³/a

In comparison:

Dam:	Midmar	Spring Grove
Volume (million m³):	235.5	142
Height (m):	24.5	37
Yield (million m³/a):	66	60

Project Pipeline: Potential Projects

uMkhomazi Water Project (UWP)

NB: This is not a TCTA mandate – only a potential one, the Minister could decide on a different implementation strategy.

- **Cost would be R16 billion (in 2014 terms)**
- **EIA Process is still not done – appeals are expected given the environmental sensitivity of the area**
- **Off-takers would be the same as for MMTS-2**

Medium-Term Funding Requirements

For Existing Mandates Only

Aggregate Projected Cash Flows for all TCTA Projects						
	Water Levies	**Capex & Admin**	**Debt Service Payments**	**Net Cash flows**	**Intended Funding**	**Cash Balances**
				2017/18 Opening Cash Balances		5 655
2017/18	5 568	-3 757	-7 299	-5 488	**6 896**	7 063
2018/19	5 921	-5 959	-14 648	-14 686	**11 327**	3 704
2019/20	6 487	-9 767	-7 953	-11 233	**9 212**	1 683
2020/21	6 904	-903	-5 580	421	**3 757**	5 861
2021/22	7 310	-869	-6 058	383	**2 843**	9 087

Survey of Funding Environment

- **Domestic Bank Funding – Impact of Basel III on Project Finance**
- **Foreign Funding**
- **Is the Bond Market still accessible to SOEs?**
- **Bond Market Funding Costs**
- **Survey of Funding Environment**

Survey of Funding Environment

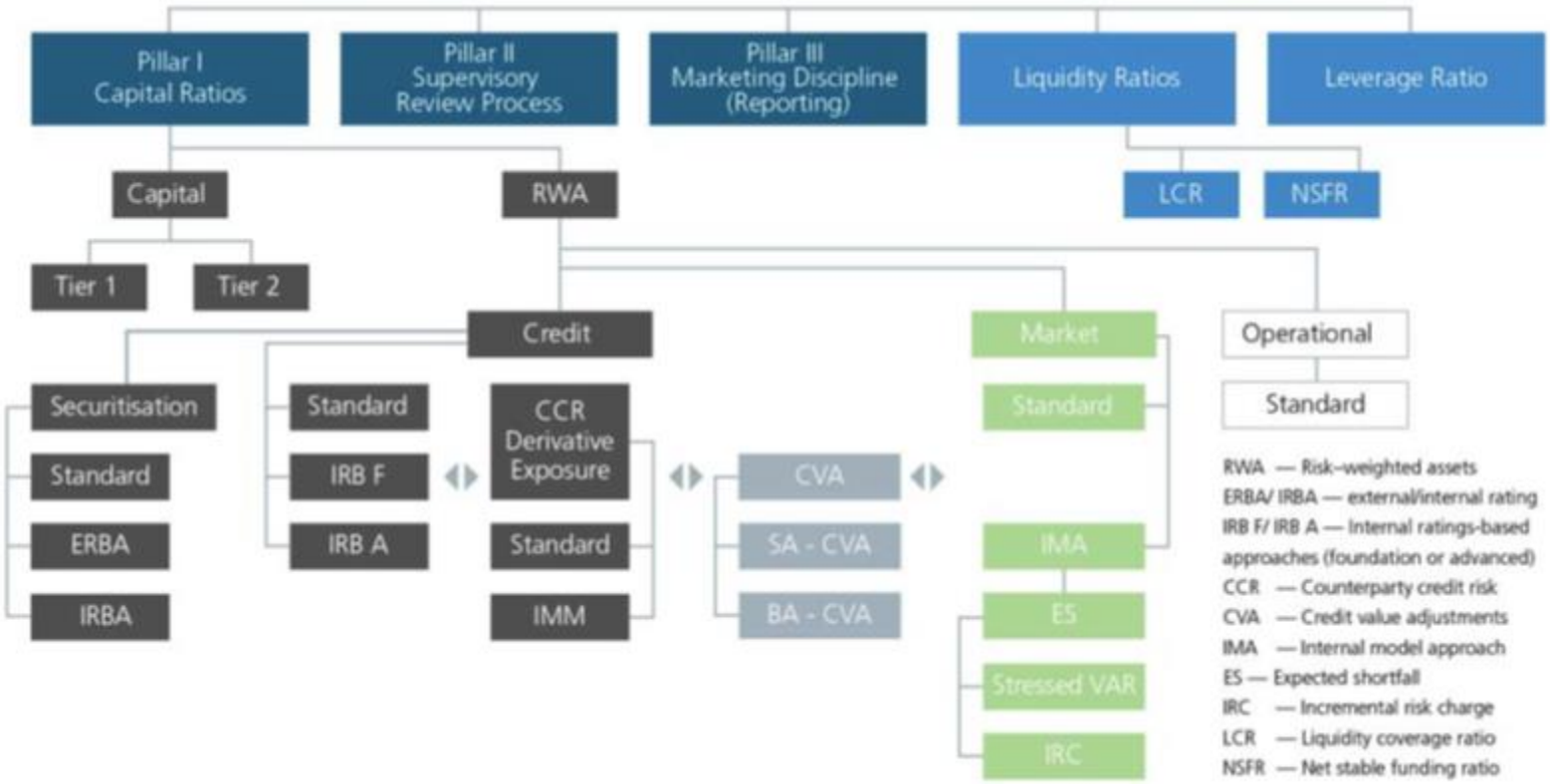
Basel III and the Project Finance Market

Background:

- Released by the Basel Committee on Banking Supervision in December 2010, as a response to the Global Financial Crisis.
- Aims to reinforce regulation of capital and liquidity to improve stability of banks and of the banking system as a whole.
- To be phased in between 2013 and 2019

Survey of Funding Environment

Basel III and the Project Finance Market



Source: RMB Global Markets Research, "*Basel III rules: Summary of the State of Play*" 7 April 2017

Survey of Funding Environment

Basel III and the Project Finance Market

Main Impacts:

- Raised capital requirements in general & for specific exposures.
  - *E.g. Risk weightings for Project Finance can be as high as 120% (against 20% for SOEs in Basel I).*
- Net Stable Funding Ratio (NSFR) requirements reduce banking system's maturity transformation ability (to turn short term liabilities [deposits] into long term assets [loans].
  - *TCTA's Funding Model works on 20 year debt, banks now typically want 3-7 year lending.*
- **Bank Funding has become more difficult to source and more expensive**

Survey of Funding Environment

Basel III and the Project Finance Market

TCTA Project Bank Loan Pre and Post Basel II & III Credit Margins

	Number of Funded Mandates	Total Facility Sizes (R'mn)	Weighted Average Margins (Bps)*
Pre 2010	2	3 776	65
Post 2010	3	5 437	206

Survey of Funding Environment

Basel III and the Project Finance Market

Other Impacts include:

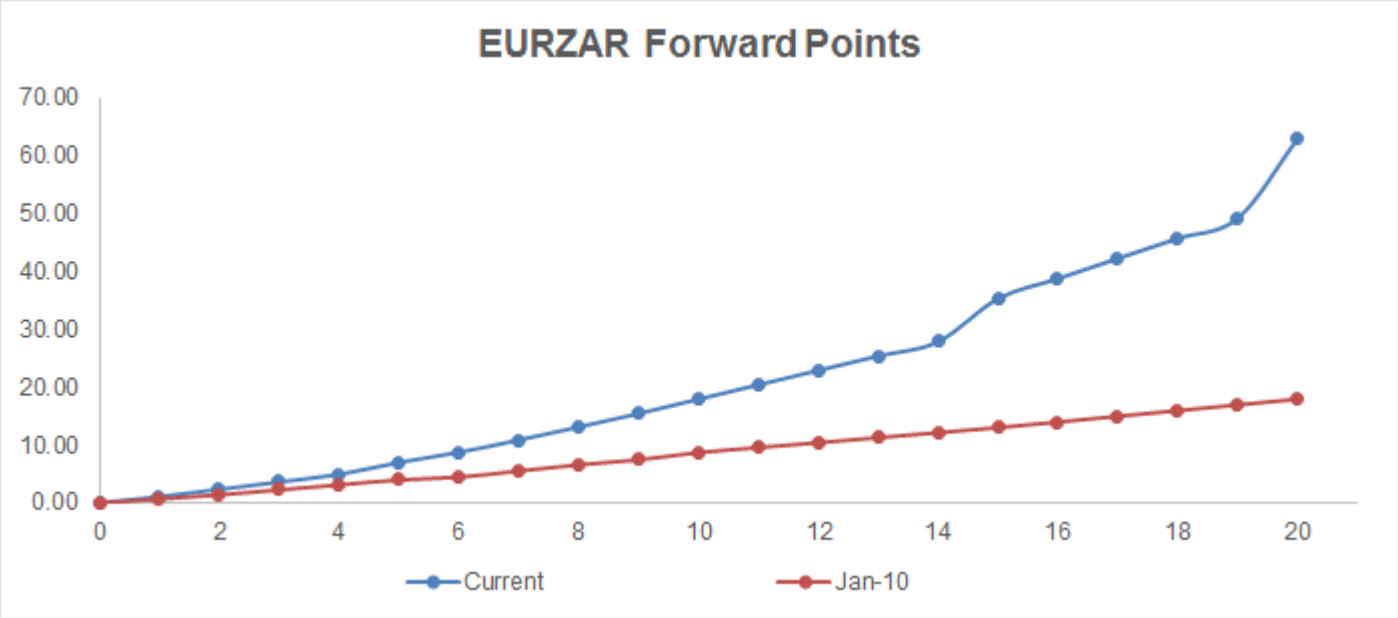
- Restrictions on Revolving Credit Facilities – *not as open ended, will more readily be regarded as term funding and reprice*.
- Cost of hedging is higher due to the introduction of the CVA charge (*the Credit Valuation Adjustment is the market value of counterparty credit risk*).

Survey of Funding Environment

The Cost & Availability of Foreign Funding

- Ratings downgrades threaten availability of foreign funding (& could lead to compulsory pre-payment of existing loans)

- As SA yield curves have risen & Euro and USD curves have flattened & even fallen, USDZAR & EURZAR FX Forward points have risen, especially at the long end, resulting in higher FX Hedging costs.
  - *Example, a Euribor + 100bps loan swapped into just over Jibar + 100bps in 2011, it would swap into around Jibar + 200-400bps now.*



Source: Bloomberg, TCTA.

Survey of Funding Environment

Bond Market Funding

- **SOE bond market funding challenges have become topical**

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Futuregrowth shocked markets with plans to cut lending money to six state owned entities.

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Bond issues in doubt as downgrade bites

Ratings downgrade knocks wind out of lively first quarter, as Sanral joins corporates in postponing auction

20 APRIL 2017 - 05:09 *by* KARL GERNETZKY AND HANNA ZIADY

BL Premium BusinessDay

S OPINION NATIONAL POLITICS COMPANIES ECONOMY BUSINESS

Downgrade will have 'material impact' on SOEs ability to raise funding

10 MAY 2017 - 10:17 *by* LINDA ENSOR

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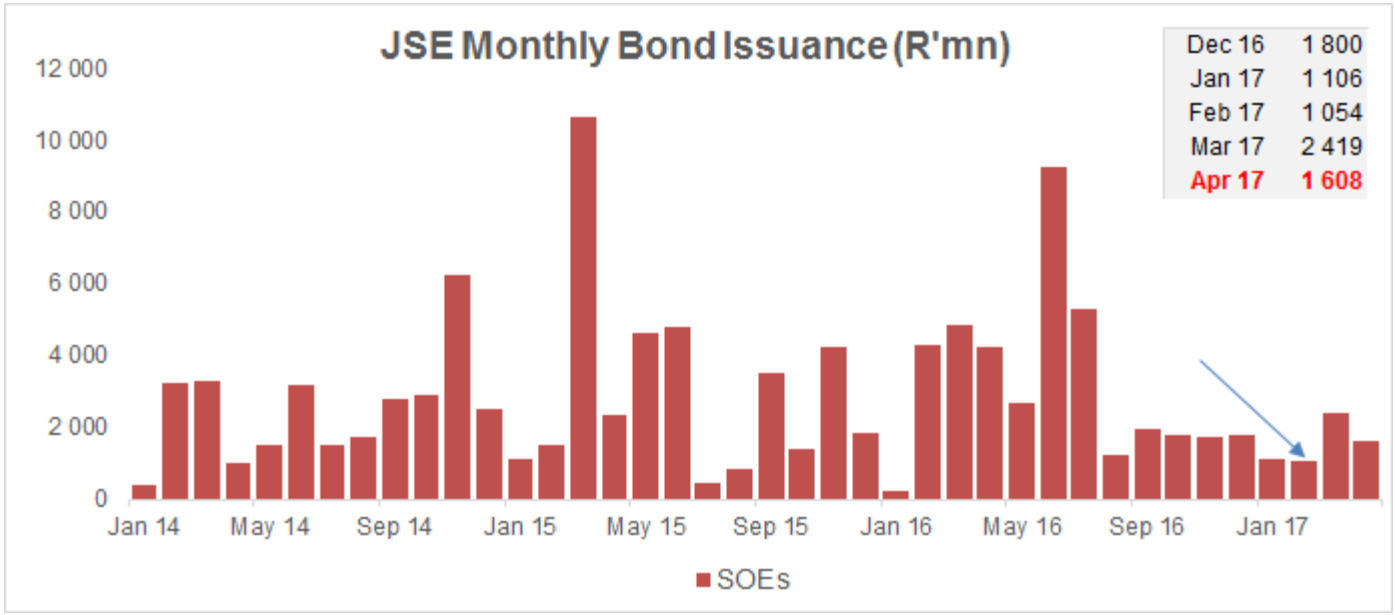
Survey of Funding Environment

Bond Market Funding

The Immediate Concern: *Is the bond market broken for SOEs?*

Primary issuance fell sharply post the ratings actions and we saw failed SOE auctions in April & May.



Source: RMB Global Markets Research

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Bond Market Funding

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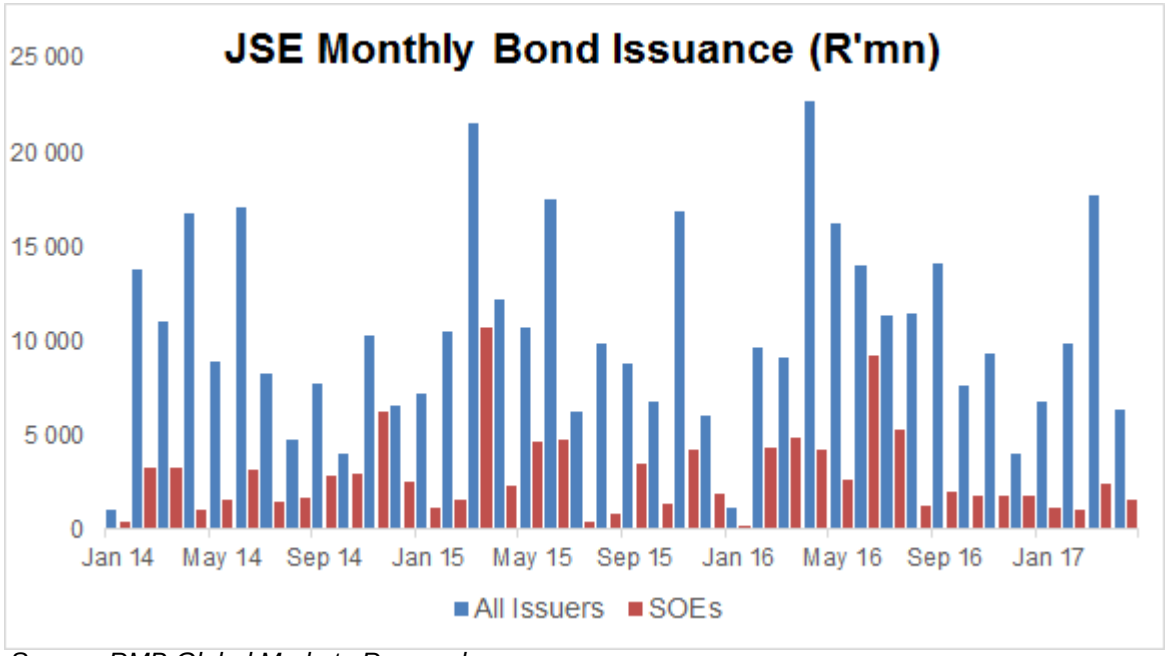


Source: RMB Global Markets Research

Monthly Average Issuance

	All Issuers	SOEs
2014	9 181	2 527
2015	11 181	3 111
2016	10 890	3 273
2017	10 205	1 547

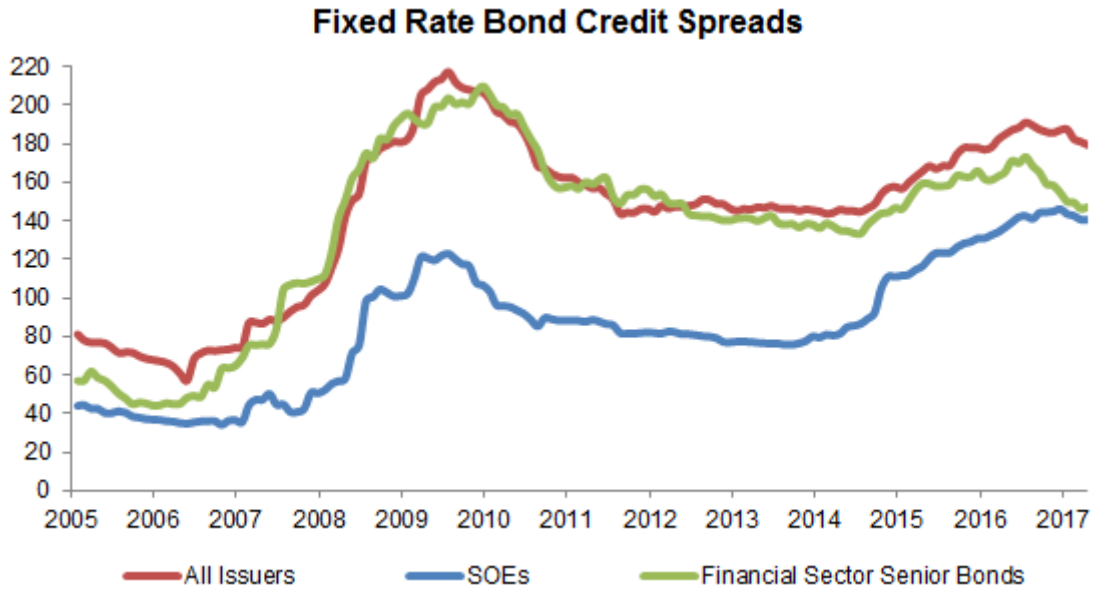
So far in 2017, issuance levels have held for the market as a whole, but fallen for SOEs.

Probably too early to say if there's a long term problem, panic around ratings could subside, but it is concerning.

Survey of Funding Environment

Bond Market Funding Costs

Longer Term: *Deterioration in pricing of SOE bonds relative to other credit issuers, especially since 2014/2015*



Annual Average Credit Spreads (Bps)

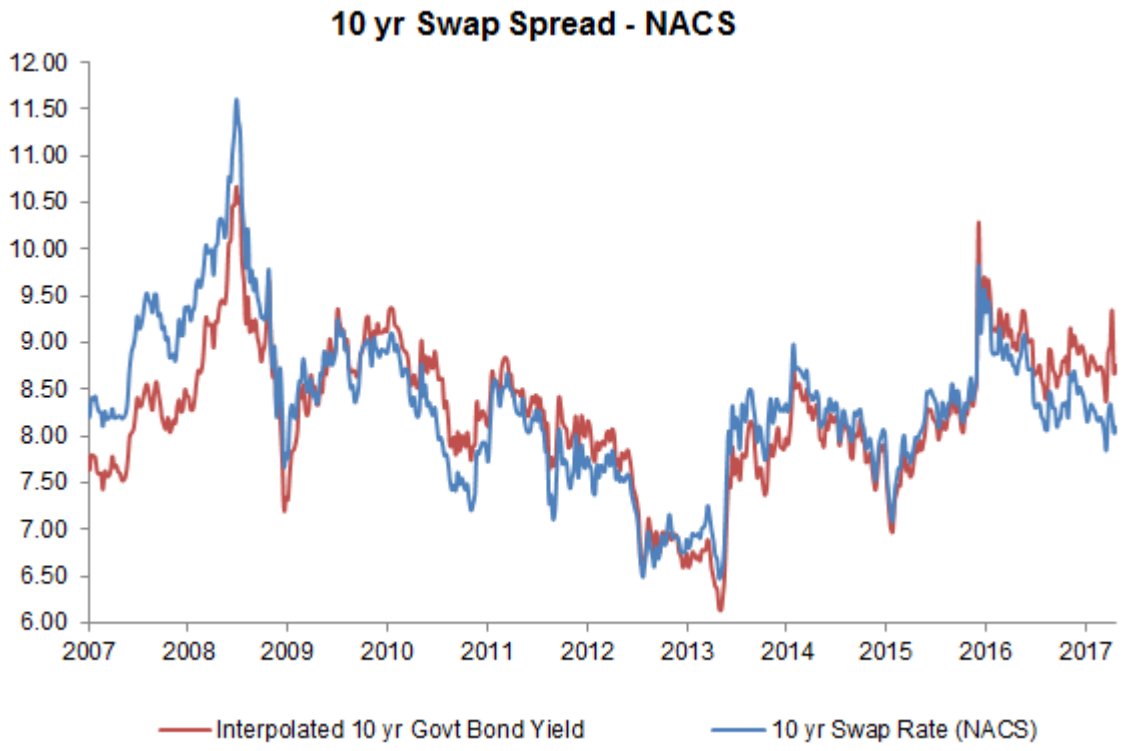
	All Issuers	SOEs	Senior Financial
2007	90	44	90
2012	148	81	146
2016	185	140	164
2017	183	143	150

Source: RMB Global Markets Research

Survey of Funding Environment

Bond Market Funding Costs

Longer Term: *Semi-persistent negative swap spreads – prolonged periods where bonds issue & trade above swaps.*



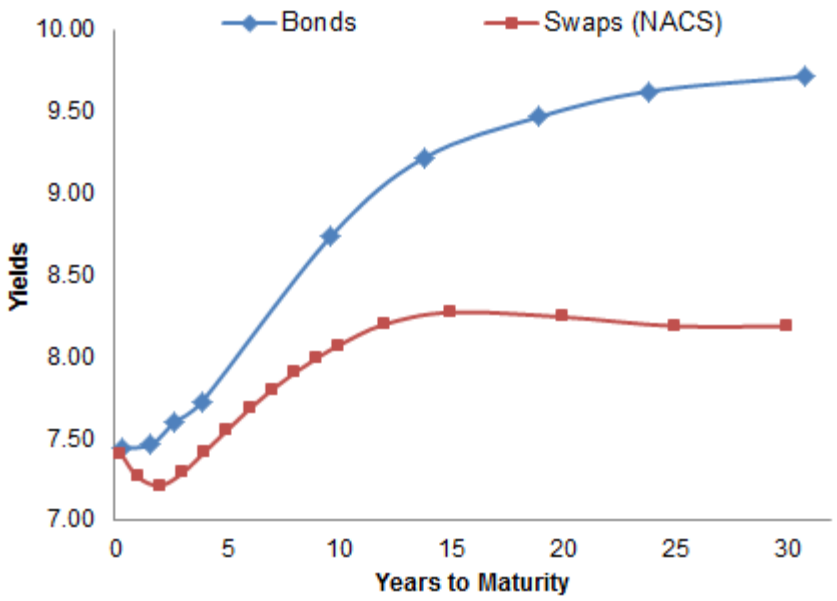
Annual Average 10yr Swap-Bond Spread (Bps)	
2007	77
2008	62
2009	0
2010	-39
2011	-25
2012	-15
2013	35
2014	17
2015	11
2016	-34
2017	-59

Source: Bloomberg, Inet Bridge, TCTA.

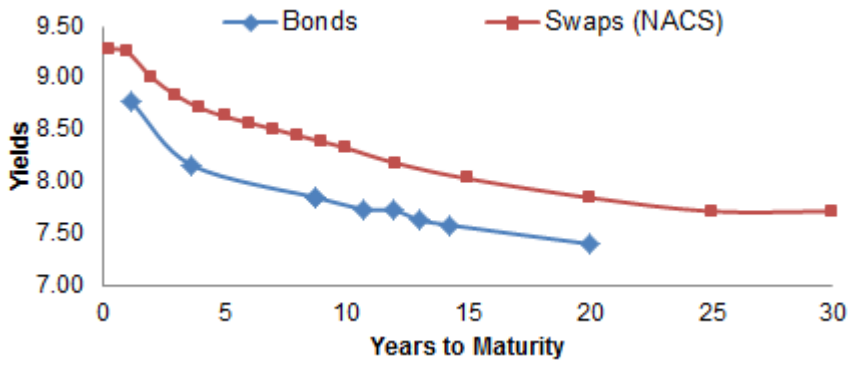
Survey of Funding Environment

Bond Market Funding Costs

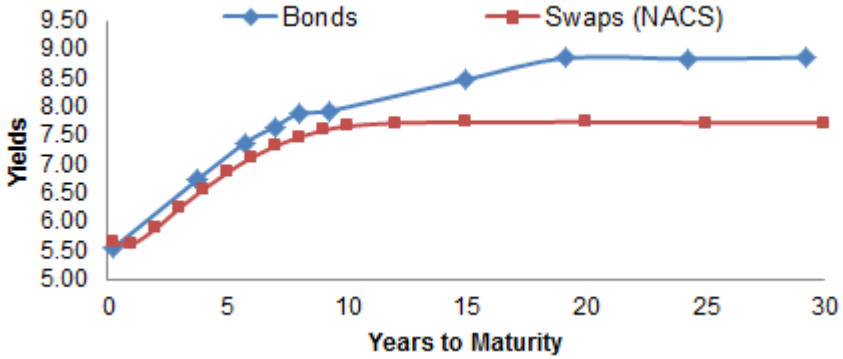
2017



2007



2012



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Survey of Funding Environment

Summary

SOEs face a more challenging funding environment

- Long tenor bank loans are more expensive due to Basel III
- Long tenor foreign loans are more expensive due to Basel III and higher hedging costs, and are potentially subject to sovereign ratings triggers
- Availability of funding in the bond market is arguably not as certain as before 2010
- SOEs are being repriced in the bond market relative to other issuers.

It's not a crisis, but these trends do render the environment for public sector infrastructure development more difficult.

Thank you

TCTA

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