Service Delivery at Inxuba Yethemba

04 November 2015

CHRIS HANI
DISTRICT MUNICIPALITY
SUSTAINING GROWTH
THROUGH OUR PEOPLE

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DISTRICT MUNICIPALITY

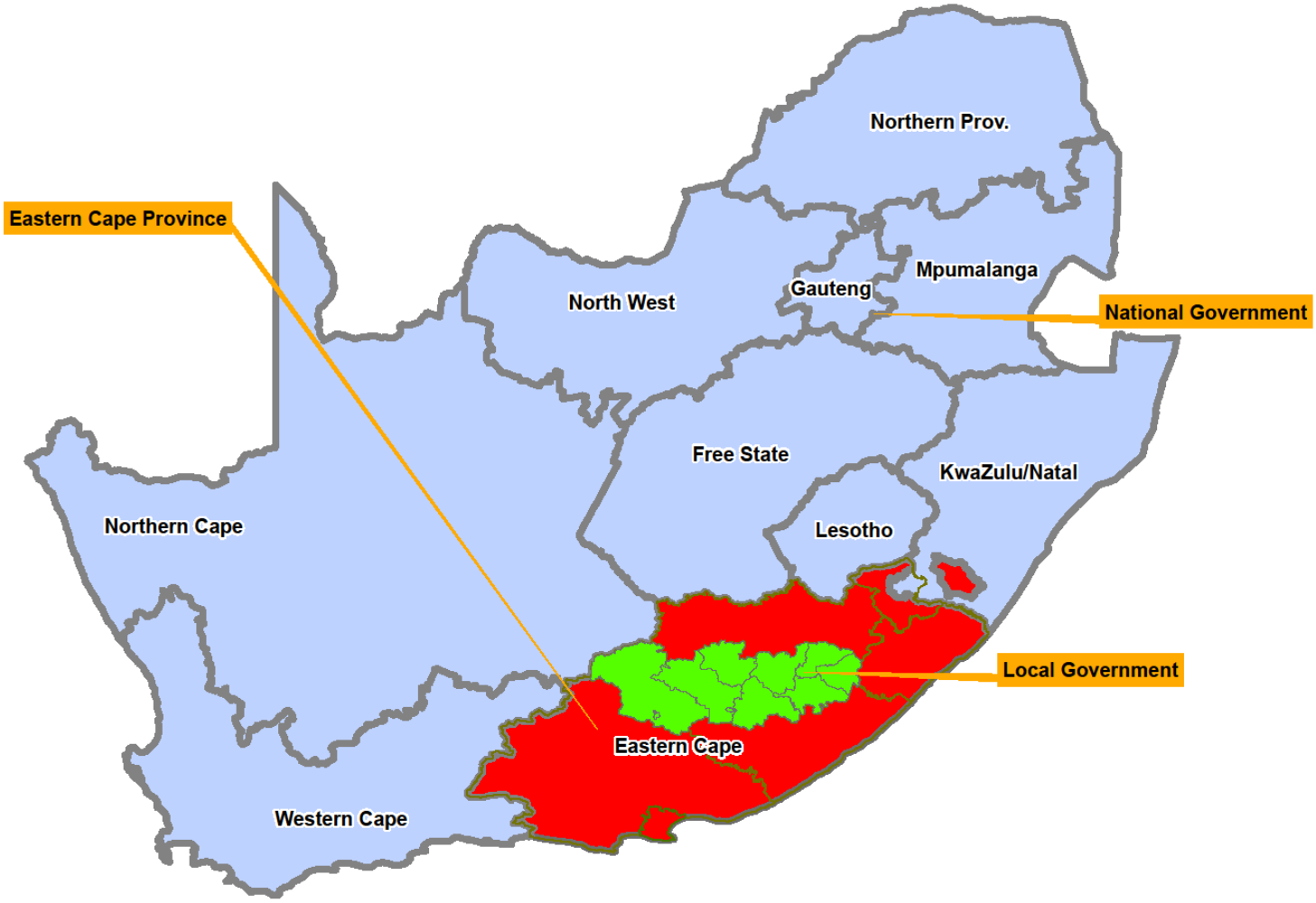
Presentation Content

- Locality
- Council Representation
- CHDM Developmental Agenda
- Evolution of Water Service
- Challenges faced with the WSA / WSP arrangement
- Projects undertaken in the last 5 years at Inxuba Yethemba
- Planned projects in the 15 /16 financial year
- State of our infrastructure assets
- Water Quality (Inxuba Yethemba)
- Conclusion

SOUTH AFRICAN PROVINCES

Eastern Cape Province

Chrishani DM



Contact Details
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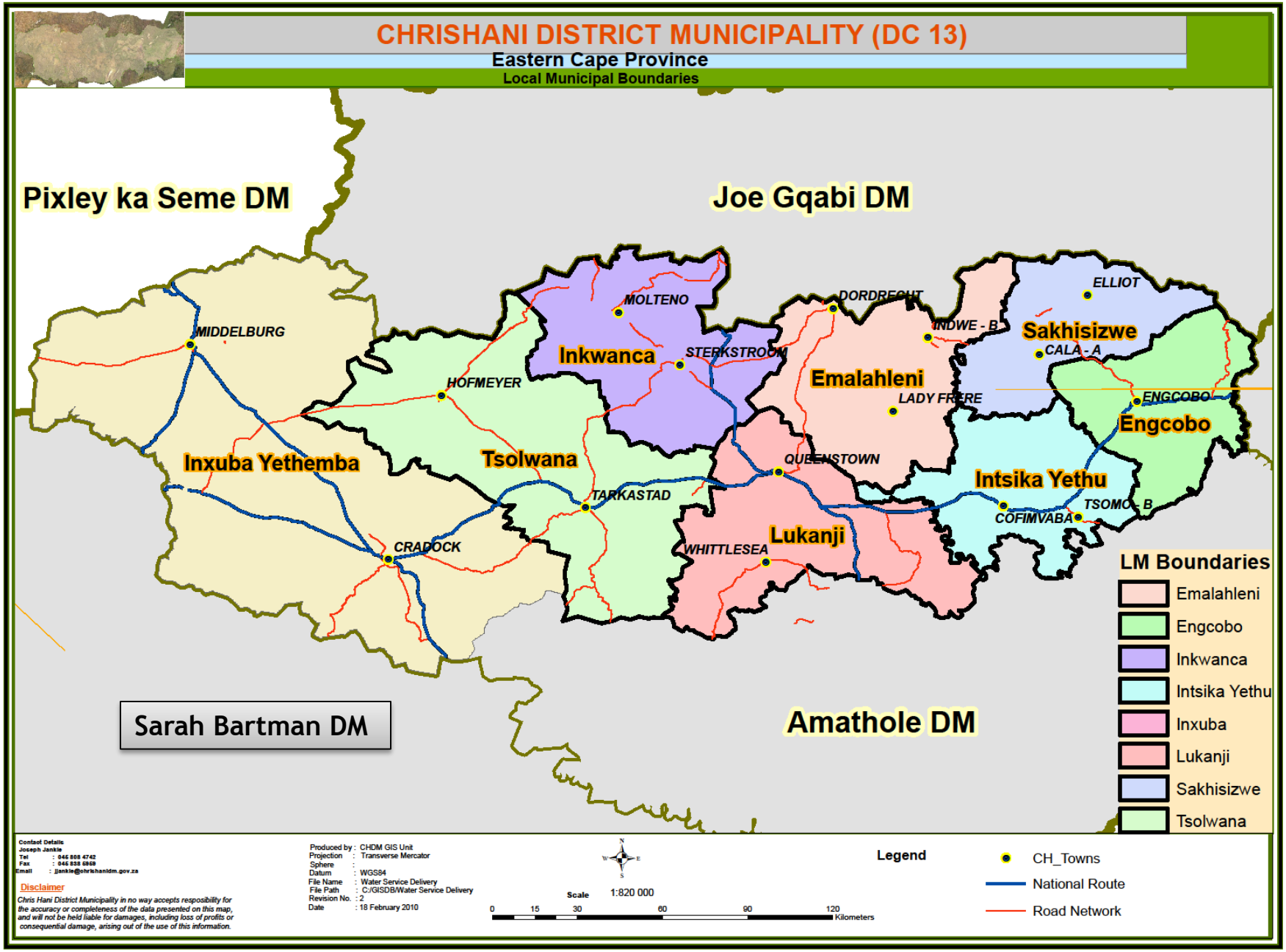
N W E S

Scale 1:4 500 000

0 85 170 340 510 680 Kilometers

Legend

- Chrishani District Municipality
- Eastern Cape Province
- SA Provinces


CHRISHANI DISTRICT MUNICIPALITY (DC 13)
Eastern Cape Province
Local Municipal Boundaries
Pixley ka Seme DM
Joe Gqabi DM
Sarah Bartman DM
Amathole DM
Inkwanca
Emalahleni
Sakhisizwe
Engcobo
Tsolwana
Inxuba Yethemba
Intsika Yethu
Lukanji
MOLTENO
STERKSTROOM
DORDRECHT
INDWE - B
ELLIOT
CALA - A
ENGCOBO
LADY FREERE
MIDDELBURG
HOFMEYER
QUEENSTOWN
TARKASTAD
CRADOCK
WHITTLESEA
COFIMVABA
TSOMO - B
LM Boundaries
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Scale 1:820 000
0 15 30 60 90 120 Kilometers
Legend
CH_Towns
National Route
Road Network

CHRIS HANI DISTRICT MUNICIPALITY (DC 13)

Eastern Cape Province

Inxuba Yethemba

Contact Details
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N W E S

Scale 1:390 000

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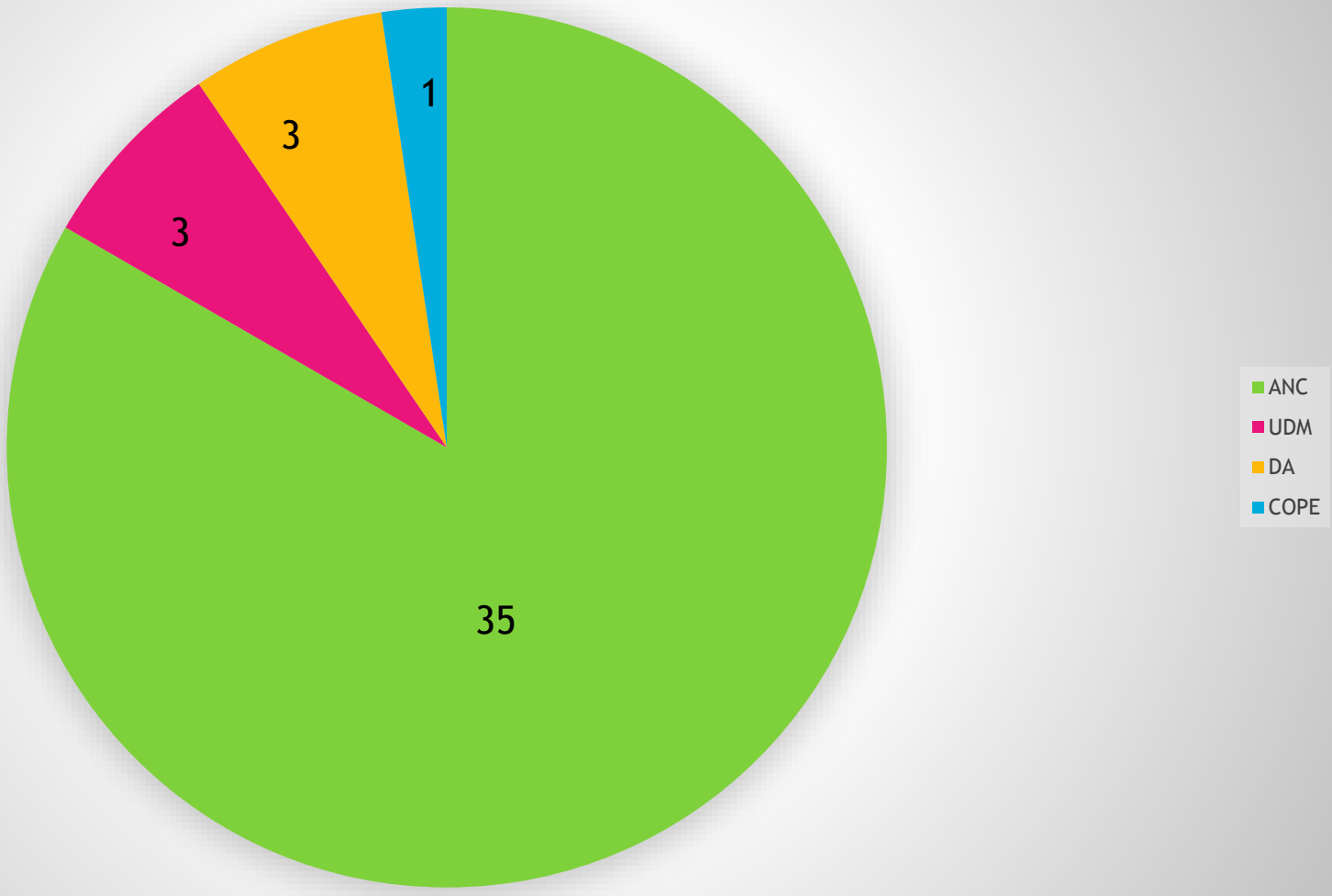
Party Representation in Council



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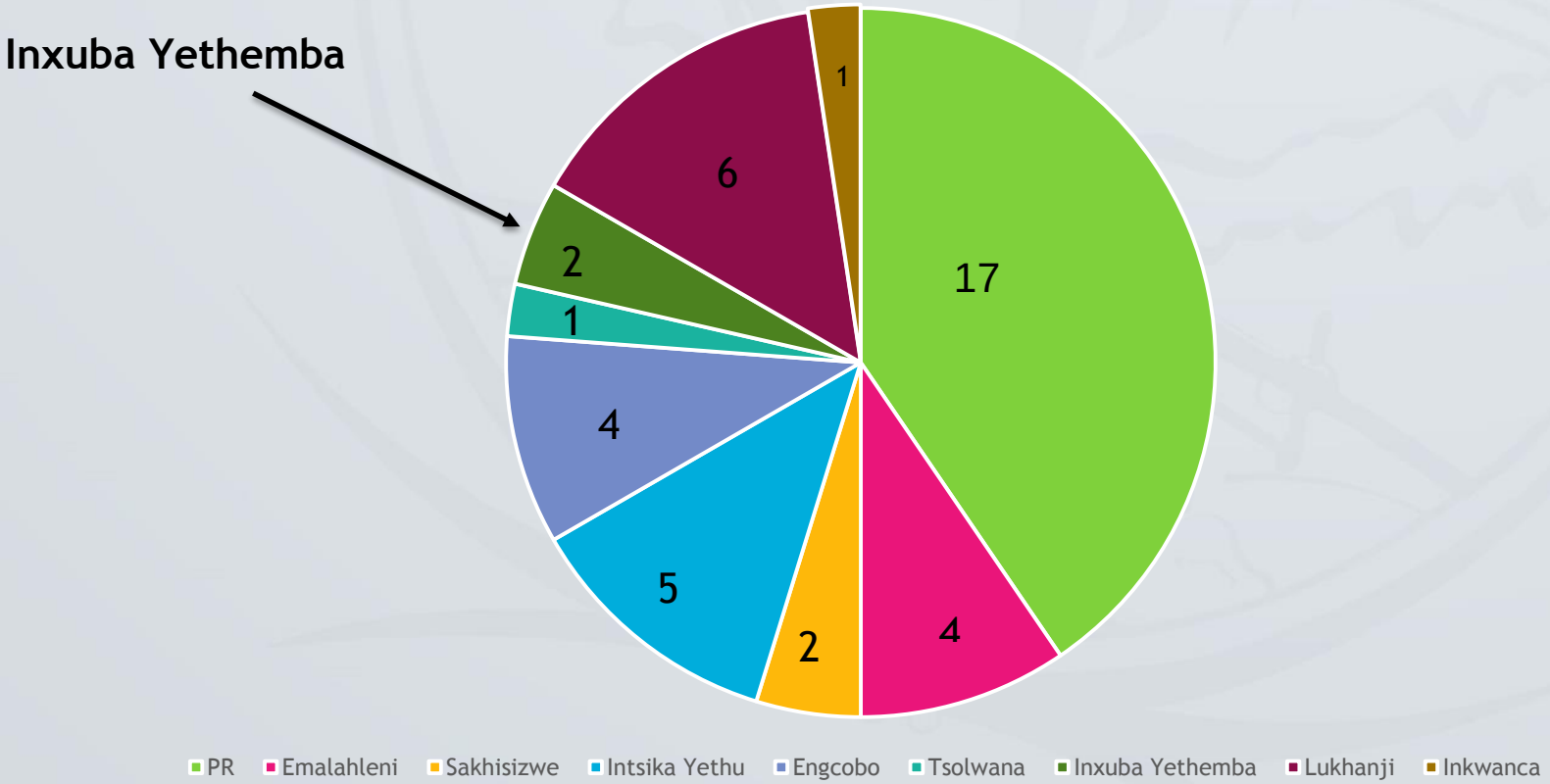
DISTRICT MUNICIPALITY

PR & REP Representation in Council



Chris Hani - District Development Agenda

Engcobo
Crop Production
Forestry

Inkwanca
Tourism
Industrial expansion

Emalahleni
Coal Mining
Tourism

Chris Hani Special Economic Zone

Local Beneficiation *is the cornerstone of the Agenda*
Water Infrastructure *backlogs must be eradicated*
Energy Security *needs to be addressed*
Transport Linkages *needs to be maximised*

- *Resource mobilisation is a key determinant*
- *Practical IGR must be made non-negotiable*
- *Institutional Capacity needs to be enhanced*
- *Research and Planning must be the base of DDA*
- *Skills Development & Capacity Building program*
- *Communicating the Agenda must be prioritised*

Lukhanji
Industrialisation
Regional Economic Hub

Sakhisizwe
Crop Production
Livestock Improvement

Inxuba-Yethemba
Bio-Fuels
Heritage Tourism

Tsolwana
Tourism
Game Reserves

Intsika Yethu
Crop Production
Irrigation Schemes

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Background Information

- Number of settlements - 1200
- Population - 210852 households
- Number of towns - 16
- Water supply sources – springs, boreholes, dams

- Inxuba Yethemba
- Number of settlements - 2
- Population – 15896 households (8% of the DM population)
- Number of towns - 2
- Water Supply Source - Boreholes, Fish river abstraction
- Waste water treatment – aerators & activated sludge process, Pond system

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Evolution of Water Services

- CHDM is a Water Service Authority as of 2003
- 78 process concluded in 2006
- Amatola Water contracted from 2006 till 2009
- Local Municipalities contracted from 2009 - June 2015
- CHDM – Provider and Authority – 2015

Challenges faced with WSA / WSP arrangement

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- Accountability and risk in terms of the service
  - (Death of babies at Joe Gqabi)
- Exposed to qualification by the Auditor General
- Non-ringfencing of water services revenue
- Benefit of scale is limited (Human capital)
- Non implementation of tariffs

Projects completed in the last 5 years

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- Cradock Reservoir
- Lusaka bucket eradication
- Rehabilitation of storage reservoir
- Road resealing of internal streets - Cradock
- Rosemead water supply and associated bulk services
- Midros Resevoir – increase storage capacity
- Middleburg bulk water supply (new water treatment works)

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Projects completed in the last 5 yrs

- Cradock – Hillside paving - ongoing from previous fy
- Middleburg (Lusaka) paving - ongoing from previous fy
- Liberation Heritage route sites

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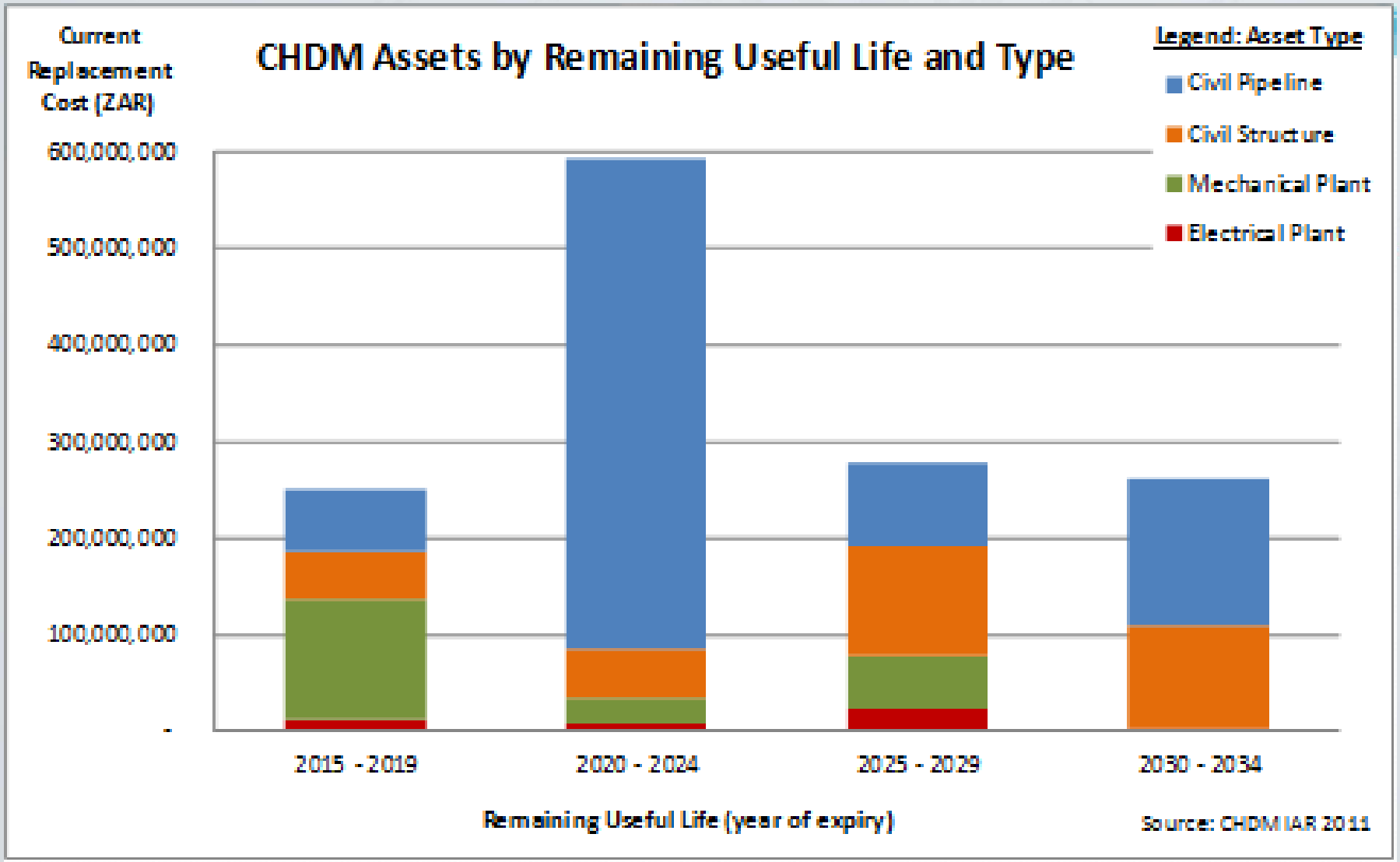
Projects Planned in the 15/16 fy

- Middleburg water Provision - 5 million
- Cradock Bulk Water Services – 14.5 million
- Revitalise Cradock Spa - R500 000
- Cramtour local torism organization (technical assistance to all tourism businesses)
- Assisting farmers for the primary production technical assistance -(Sugar beet and biofuel) in partnership with rural development and land reform)- link with agripark



- There is a spike in the value of assets expected to require renewal between 2020 and 2024, largely of Civil Pipelines

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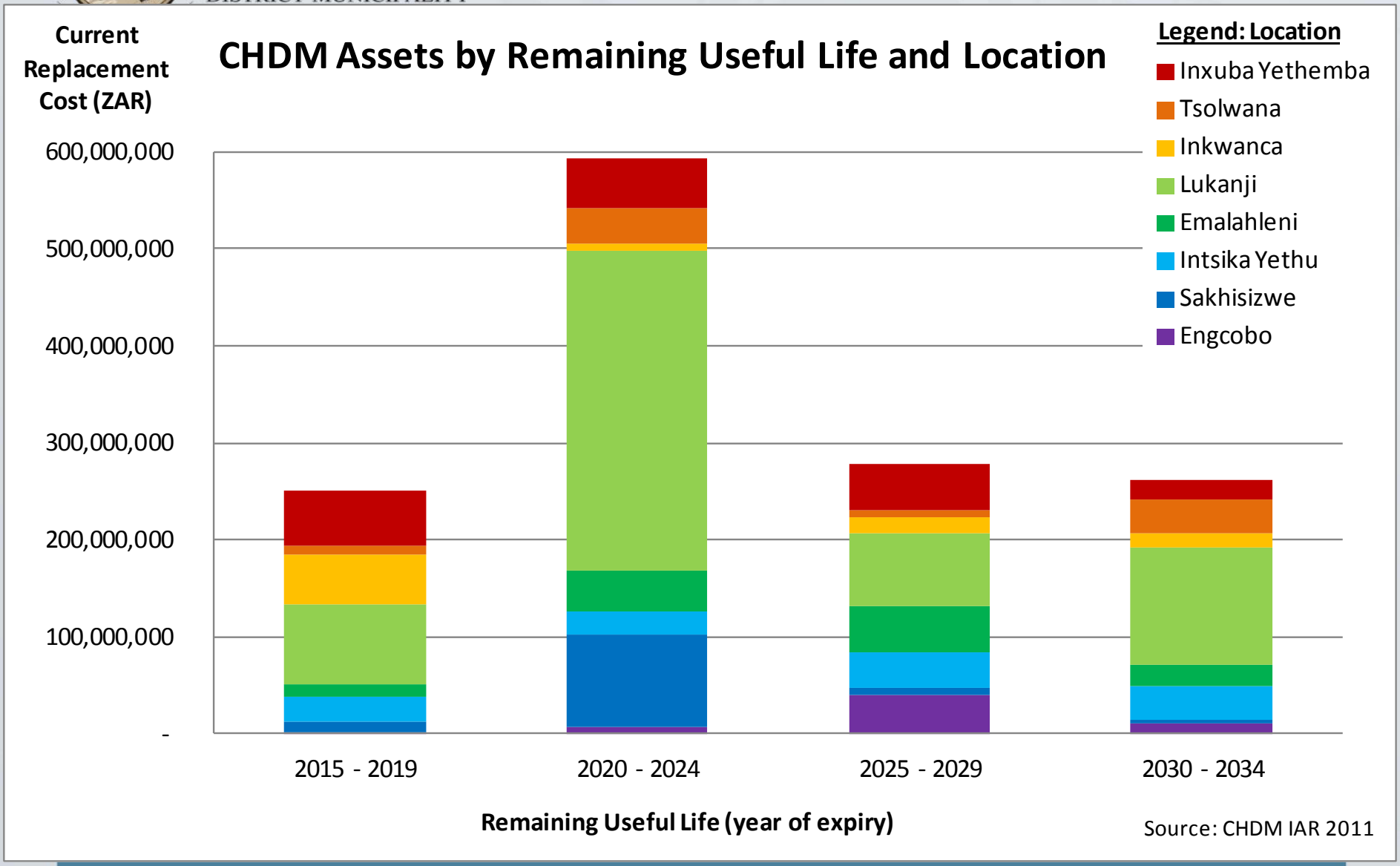

Priority Renewals

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MFMA[1] Condition Ratings	CHDM Condition Ratings	Remaining Useful Life	
		Low (Old)	High (New)
Very Poor	No life	First Priority	First Priority
	Approaching Life End	Second Priority	Other Priority
Poor	Poor	Other Priority	Other Priority
Fair	Fair	Other Priority	Other Priority
Good	Good	Other Priority	Other Priority
Very Good	Very Good	Other Priority	Other Priority

- All very well to do the analysis but CHDM has to implement processes to deal with this

Priority Renewals

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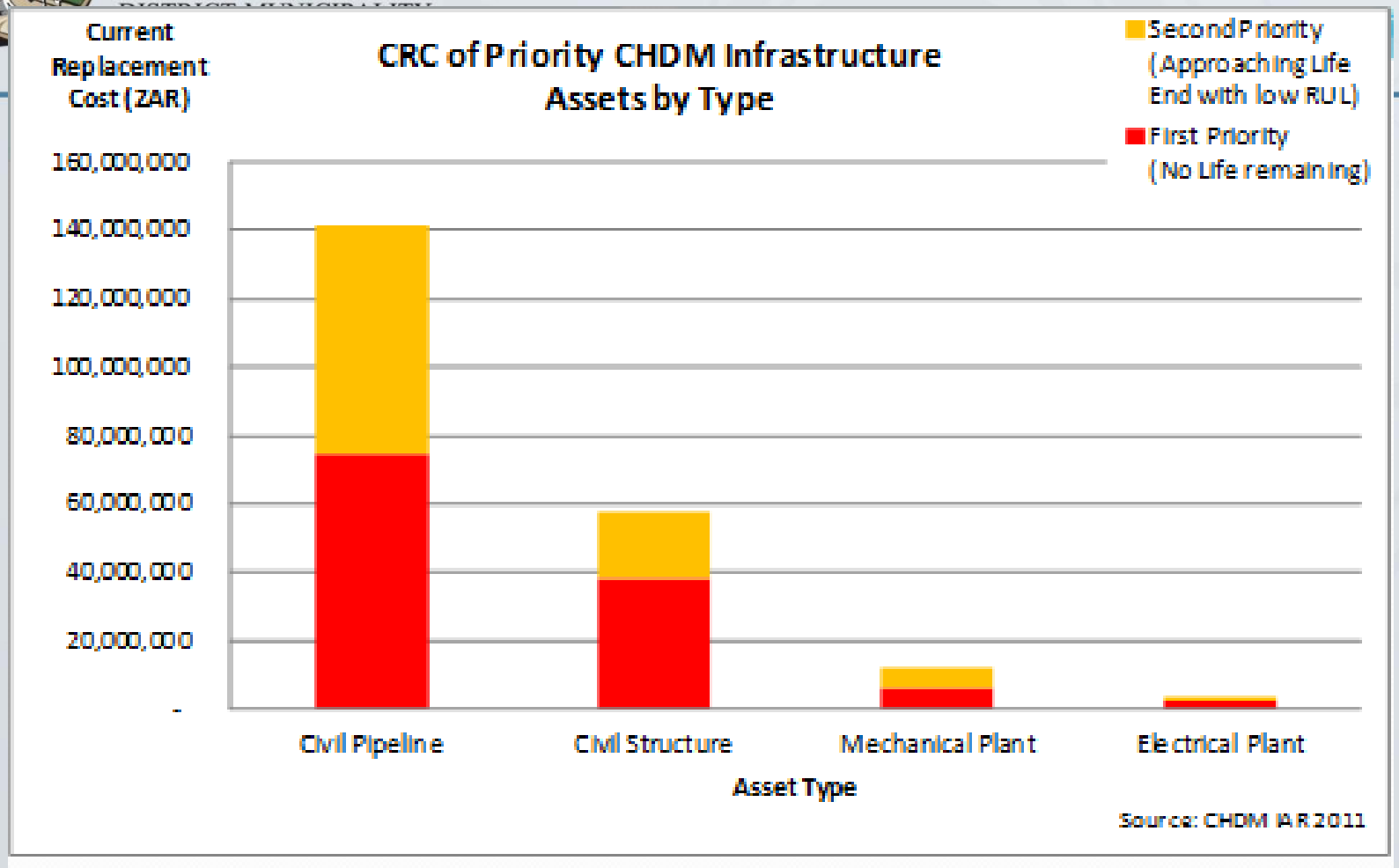

- All very well to do the analysis but CHDM has to implement processes to deal with this

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Water Quality

CHRIS HANI DISTRICT MUNICIPALITY (DC 13)

Eastern Cape Province

Cradock

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N W E S

Scale 1:14 569

0 0.2 0.4 0.8 1.2 1.6 Kilometers

CHRIS HANI DISTRICT MUNICIPALITY (DC 13)

Eastern Cape Province

Middleburg

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GIS Unit
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Email : jjankie@chrishanidm.gov.za

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N W E S

Scale 1:14 000

0 0.2 0.4 0.8 1.2 1.6 Kilometers

SANAS ACREDITED LABORATORY RESULTS – DRINKING WATER BACTERIA ANALYSIS

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2015/10/20

ANALYTICAL REPORT

OUR REF:	WATER TECHNOLOGY CAPE (PTY) LTD 17479/15 (O/N: PO005076)
COMPANY NAME:	WATER TECHNOLOGY CAPE (PTY) LTD
CONTACT ADDRESS:	P.O. BOX 28120, SUNRIDGE PARK, PORT ELIZABETH, 6008
CONTACT PERSON:	DEBBIE STUBBS
PROJECT:	CRADOCK
SAMPLE TYPE:	WATER SAMPLES
DATE SUBMITTED:	2015/10/16

Determinand	Units	Method No	Results		
			17479/15	17480/15	17481/15
			MIDDELBURG MATJIESKLOOF BOREHOLES 14.10.15 11:40	GROOTFONTEIN BOREHOLES 14.10.15 12:45	MIDDELBURG TOWN RESERVOIR 14.10.15 10:50
E. coli	colonies per 100ml	31	0	0	0
Standard plate count	colonies per ml	31	163	>10 000	>10 000
Total coliforms	colonies per 100ml	31	0	0	4

Determinand	Units	Method No	Results		
			17482/15	17483/15	17484/15
			MIDDELBURG KWANONZAME RESERVOIR 14.10.15 11:20	MIDDELBURG MIDROS CLINIC 14.10.15 13:24	MIDDELBURG NO. 1 KORT STREET 14.10.15 12:18
E. coli	colonies per 100ml	31	0	0	0
Standard plate count	colonies per ml	31	5	>10 000	>10 000
Total coliforms	colonies per 100ml	31	0	0	0

Determinand	Units	Method No	Results		
			17485/15	17486/15	17487/15
			CRADOCK CUSTOMS MOTORS 15.10.15 08:237	CRADOCK NO.4 DEARY AVENUE 15.10.15 08:55	CRADOCK WTW FINAL 15.10.15
E. coli	colonies per 100ml	31	0	0	0
Standard plate count	colonies per ml	31	1 200	62	212
Total coliforms	colonies per 100ml	31	0	0	0

SANAS ACREDITED LABORATORY RESULTS – DRINKING WATER CONTINUES…

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Table 1 : Bacteria analysis – Cradock drinking water results

Sampling point	Determinant	Period (Month)	Value	Numerical limit
Cradock WTW outlet/ final	E.coli	August 2015	0	0/100ml
		September 2015	0	
		October 2015	0	
	Total coliforms	August 2015	0	
		September 2015	0	
		October 2015	0	
Cradock 6 & 10 ML Reservoir	E.coli	August 2015	0	0/100ml
		September 2015	0	
		October 2015	0	
	Total coliforms	August 2015	0	
		September 2015	0	
		October 2015	0	

SANAS ACREDITED LABORATORY RESULTS – DRINKING WATER CONTINUES…

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Table 1 : Bacteria analysis – Cradock drinking water results

Sampling point	Determinant	Period (Month)	Value	Numerical limit
Cradock 2 ML Reservoir	E.coli	August 2015	0	0/100ml
		September 2015	0	
		October 2015	0	
	Total coliforms	August 2015	0	
		September 2015	0	
		October 2015	0	

Results indicate that water samples complied with **SANS 241** in terms of **e.coli** and **total coliforms** as non of these determinand was detected

All water samples collected during the period under review have also complied with **SANS 241** (Bacteria analysis results attached)

SANAS ACREDITED LABORATORY RESULTS – DRINKING WATER CONTINUES…

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Inxuba(Credock)cradock water treatment works outlet

ATE SAMPLED : 2015/10/19
ATE RECEIVED : 2015/10/19
ATE ANALYSIS OMMENCED : 2015/10/19

OUR REF. : 2015/10/19/21255
REPORT NO . : 3877

	Sample Number	21255	
Mthd ALA No.	Analyses	Results	SANS 241-1:2015
9	Conductivity (mS/m) (at 25 °C)	42.0	≤170 Aesthetic
19	pH (at 25 °C)	8.35	≥5 - ≤9.7 Operational
92	Calcium (mg/l as Ca)	25.9	N/A
92	Magnesium (mg/l as Mg)	14.5	N/A
7	Total Dissolved Solids (mg/l)	272	≤1200 Aesthetic
98	Fluoride (mg/l as F)	0.54	≤1.5 Chronic Health
96	Chloride (mg/l as Cl)	41.4	≤300 Aesthetic
102	Sulphate (mg/l as SO4)	34.5	≤250 Aesthetic ≤500 Acute Health
92	Manganese (µg/l as Mn)	<19	≤100 Aesthetic ≤400 Chronic Health
92	Iron (µg/l as Fe)	<24	≤300 Aesthetic ≤2000 Chronic Health

SANAS ACREDITED LABORATORY RESULTS – DRINKING WATER CONTINUES…

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Table 2.1: Chemical analysis – Cradock drinking water results for October 2015

	Sample points				
Parameter	WTW final	2 ML reservoir	6 & 10 ML reservoir	Limits	Remarks
pH	8.35	8.34	8.32	5 – 9.7	Complied
E.C (mS/m) at 25°C	42.0	43.0	40.0	170	Complied
TDS (mg/l)	272	280	258	≤1200	Complied
Fluoride (mg/l as F)	0.54	0.47	0.45	≤1.5	Complied
Chloride (mg/l as Cl)	41.4	20.4	19.5	≤300	Complied
Sulphate (mg/l as SO_4)	34.5	21.1	20.5	≤250	Complied
Manganese (µg/l as Mn)	<19	<19	<19	≤100	Complied
Iron (µg/l as Fe)	<24	<24	32	≤300	Complied

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SANAS ACREDITED LABORATORY RESULTS – DRINKING WATER CONTINUES…

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Table 2.1: Chemical analysis – Cradock drinking water results for September 2015

	Sample points				
Parameter	WTW final	2 ML reservoir	6 & 10 ML reservoir	Limits	Remarks
pH	7.93	7.97	8.00	5 – 9.7	Complied
E.C (mS/m) at 25°C	41.0	41.5	41.5	170	Complied
TDS (mg/l)	287	294	281	≤1200	Complied
Fluoride (mg/l as F)	0.43	0.46	0.47	≤1.5	Complied
Chloride (mg/l as Cl)	20.3	21.0	20.3	≤300	Complied
Sulphate (mg/l as SO_4)	23.0	23.7	22.8	≤250	Complied
Manganese (µg/l as Mn)	<19	<19	<19	≤100	Complied
Iron (µg/l as Fe)	<24	<24	32	≤300	Complied

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SANAS ACREDITED LABORATORY RESULTS – DRINKING WATER CONTINUES…

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Table 2.2: Chemical analysis – Cradock drinking water results for August 2015

	Sample points				
Parameter	WTW final	2 ML reservoir	6 & 10 ML reservoir	Limits	Remarks
pH	8.39	8.42	8.43	5 - 9.7	Complied
E.C (mS/m) at 25°C	44.0	46.5	43.5	170	Complied
TDS (mg/l)	286	300	280	≤1200	Complied
Fluoride (mg/l as F)	0.56	0.56	0.49	≤1.5	Complied
Chloride (mg/l as Cl)	23.6	25.8	23.6	≤300	Complied
Sulphate (mg/l as SO_4)	25.4	28.9	26.3	≤250	Complied
Manganese (µg/l as Mn)	<19	<19	<19	≤100	Complied
Iron (µg/l as Fe)	<24	<24	32	≤300	Complied

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OPERATIONAL MONITORING - CRADOCK WTW FLOW (RAW WATER

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Flow (ML/h)	August 2015	September 2015	October 2015
Average	0.53	0.58	0.62
Minimum	0.00	0.00	0.52
Maximum	0.66	0.71	0.70

Design capacity of 1ML per hour not exceeded

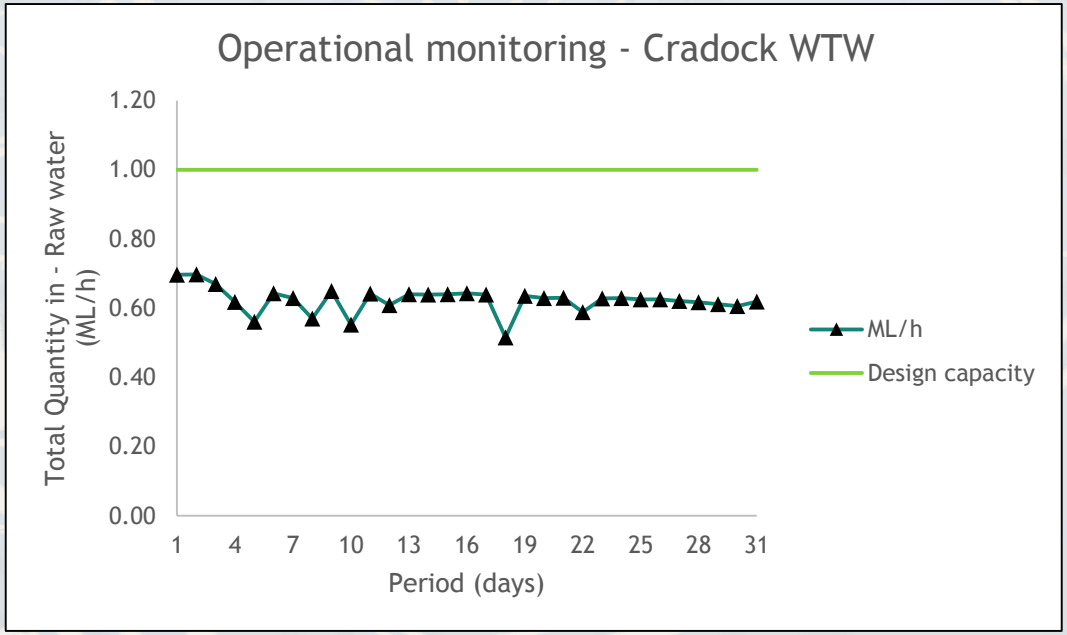

Figure: operational monitoring – average raw water treated per hour at Cradock WTW for November 2015

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OPERATIONAL MONITORING - CRADOCK WTW FLOW (RAW WATER

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Turbidity(NTU)	August 2015	September 2015	October 2015
Max	2.41	1.56	1.53
Min	0.48	0.45	0.47
% comp - operational	46.7	96.7	97

Operational results indicate that drinking water from Cradock wtw is fit for human consumption – this was also confirmed by Laboratory analysis from an independent SANAS accredited

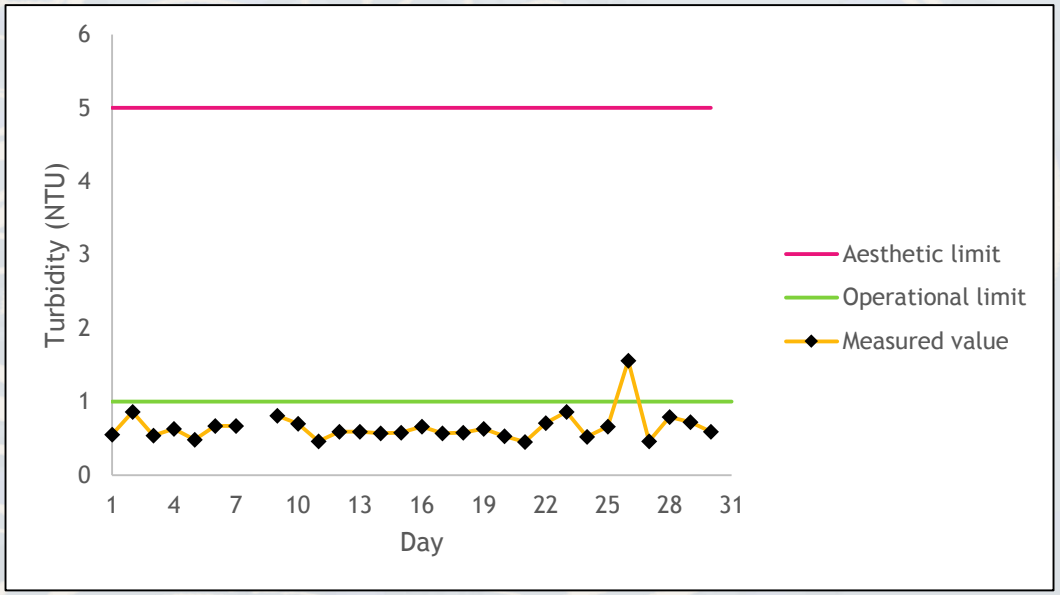

Figure: operational monitoring – daily average turbidity at Cradock WTW for November 2015

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OPERATIONAL MONITORING - CRADOCK WTW FLOW (RAW WATER

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Turbidity (NTU)	August 2015	September 2015	October 2015
Max	1.0	0.87	0.68
Min	0.14	0.15	0.04
% comp - operational	93.1	97	90.3

An average of 93.5% compliance in terms of free available chlorine was achieved during the period under review (i.e August to October 2015)

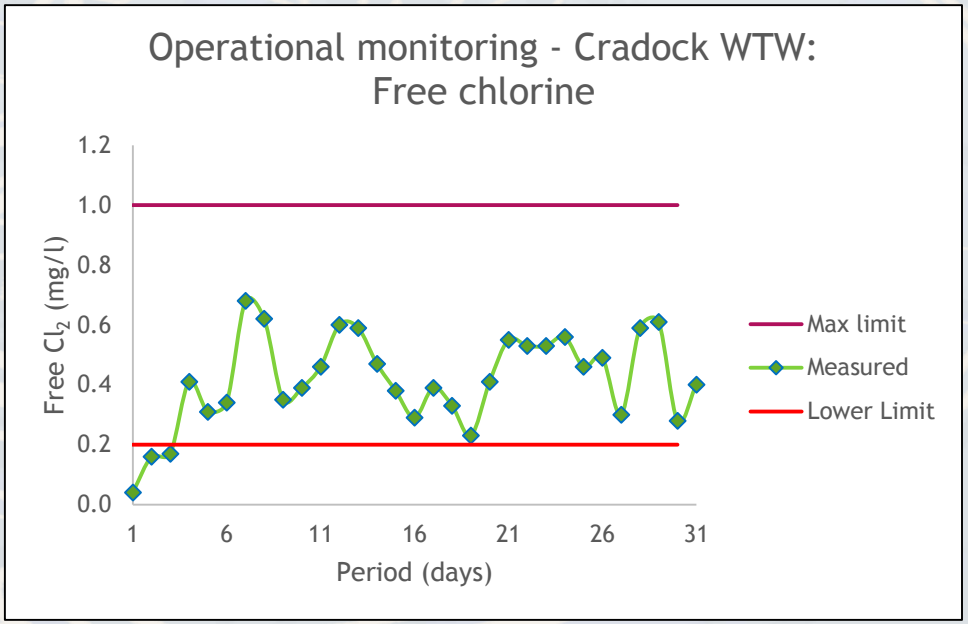

Figure: operational monitoring – free chlorine at Cradock WTW for November 2015

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CRADOCK WWTW RESULTS

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2015/10/20

ANALYTICAL REPORT

OUR REF:	WATER TECHNOLOGY CAPE (PTY) LTD 17475/15 (O/N: PO005076)
COMPANY NAME:	WATER TECHNOLOGY CAPE (PTY) LTD
CONTACT ADDRESS:	P.O. BOX 28120, SUNRIDGE PARK, PORT ELIZABETH, 6008
CONTACT PERSON:	DEBBIE STUBBS
PROJECT:	CRADOCK
SAMPLE TYPE:	WATER SAMPLES
DATE SUBMITTED:	2015/10/16

Determinand	Units	Method No	Results	
			17475/15	17476/15
			CRADOCK FISH RIVER UPSTREAM 15.10.15 08:40	CRADOCK FISHRIVER DOWNSTREAM 15.10.15 09:45
E. coli	colonies per 100ml	31	320	5 200
Total coliforms	colonies per 100ml	31	600	9 700

Determinand	Units	Method No	Results	
			17477/15	17478/15
			CRADOCK MIDDELBURG WASTE WATER TREATMENT WORKS FINAL EFFLUENT 15.10.15 13:45	CRADOCK WASTEWATER TREATMENT WORKS FINAL EFFLUENT 15.10.15 08:12
E. coli	colonies per 100ml	31	86	470 000
Total coliforms	colonies per 100ml	31	1 050	3 000 000

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CRADOCK WASTEWATER TREATMENT WORKS - FLOWS

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Sample Point	Paramenter	Aug 2015	Sep 2015	Oct 2015
Fish river upstream	E.Coli	90	380	320
	Total coliforms	98	380	600
Fish river down stream	E.Coli	79 000	26 000	5 200
	Total coliforms	620 000	36 000	9 700

Wastewater results depicted on the table above indicate that effluent discharged over the period under review did not comply with relevant regulation

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CRADOCK WASTEWATER TREATMENT WORKS - FLOWS

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	Inflow	Sludge	Outflow
High	3997	4336	2418
Low	1054	0	138
Av.	2583	2304	935

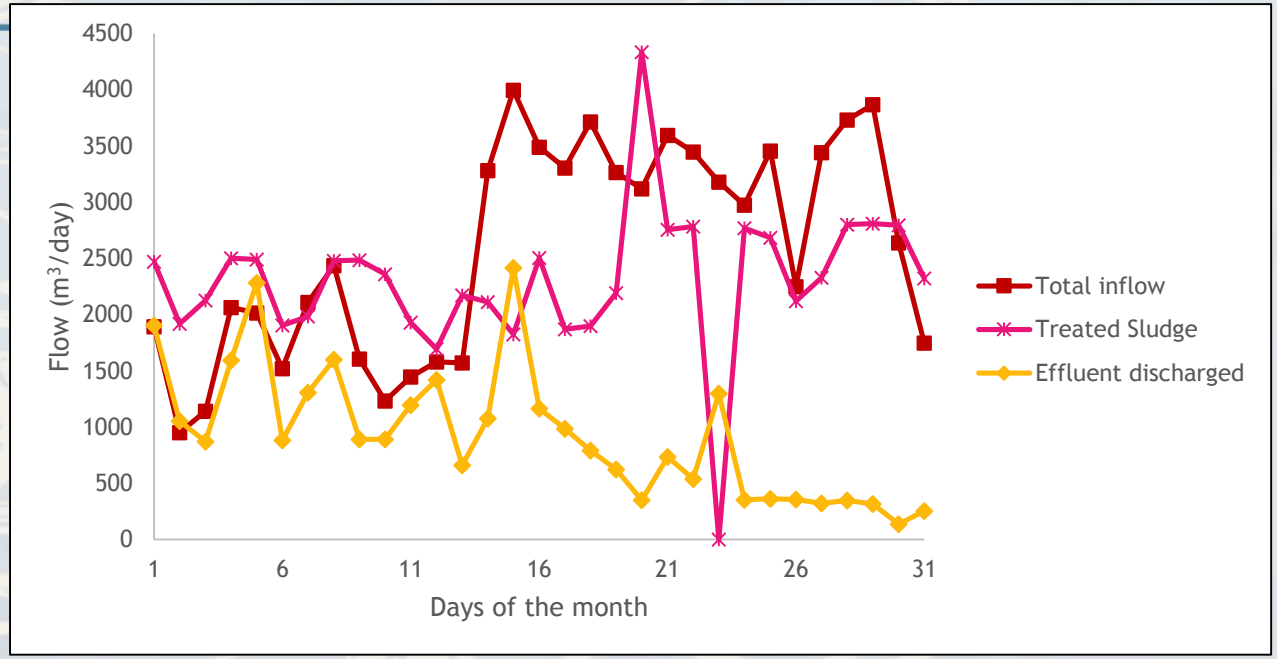

Figure 1: Total daily flows in cubic meters – incoming raw wastewater, amount of treated sludge and the effluent discharged

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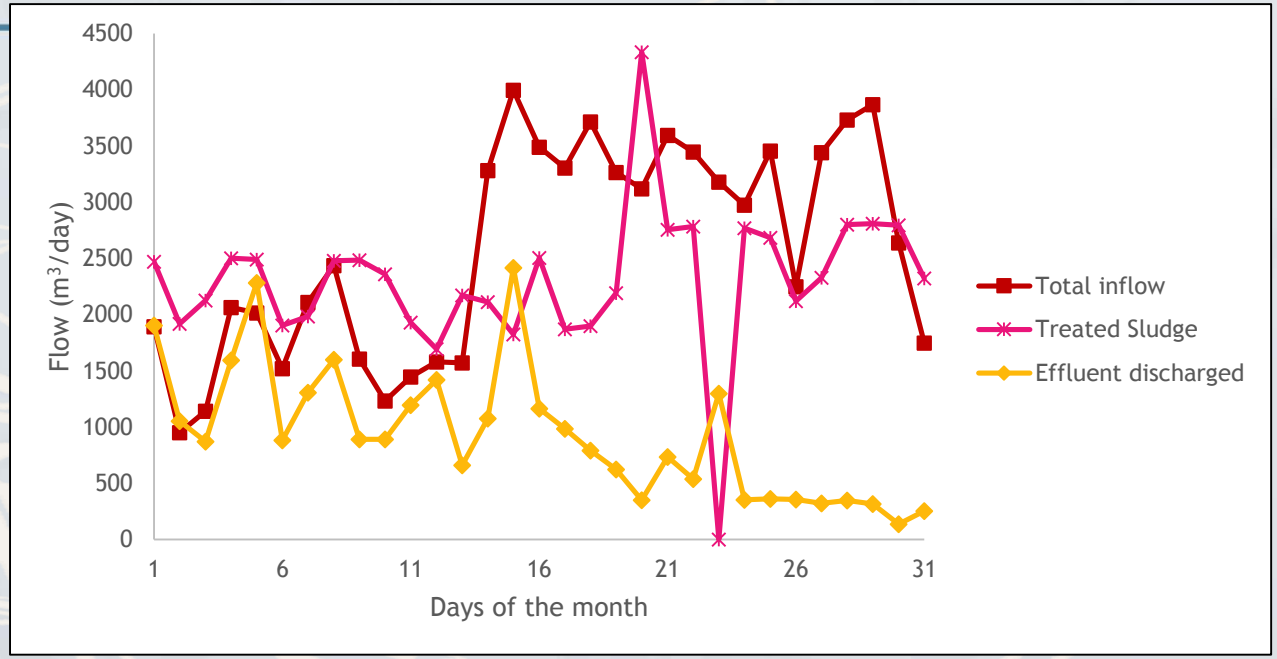

Figure 1: Total daily flows in cubic meters – incoming raw wastewater, amount of treated sludge and the effluent discharged

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CRADOCK WWTW RESULTS

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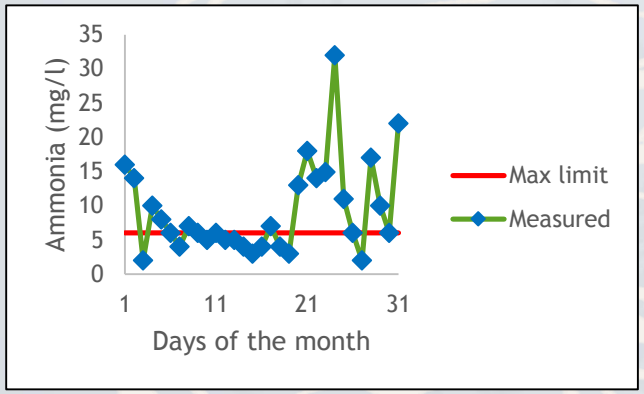

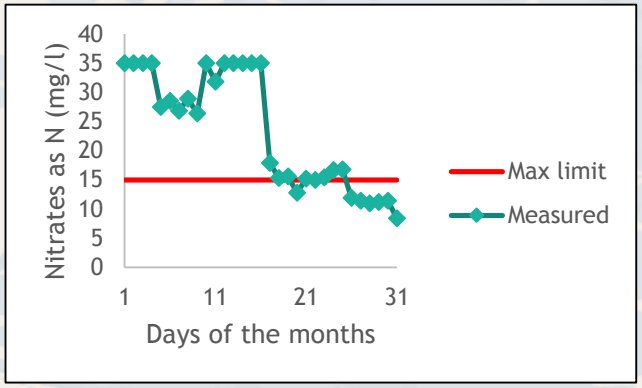

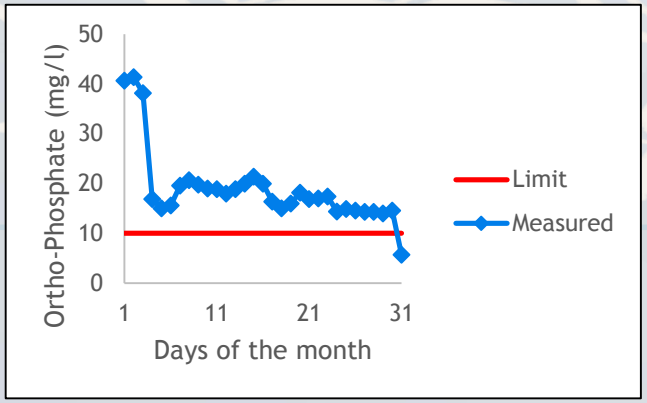

	NH_3-N	NO_3-N	P
Highest	32	35	41.4
Lowest	2	8.4	5.7
% Compliance	51.6	35.5	3.2

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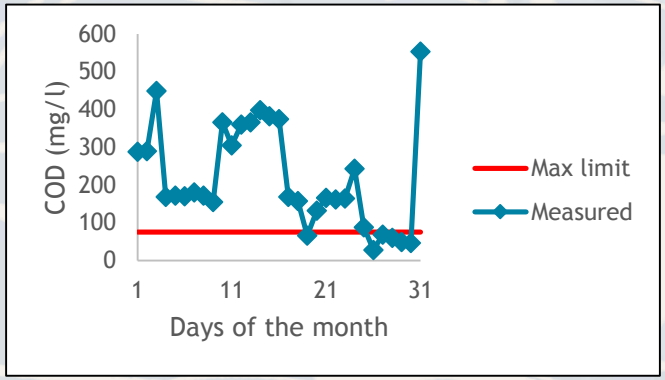
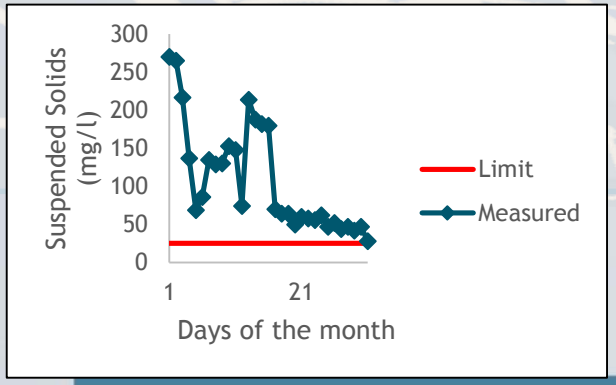
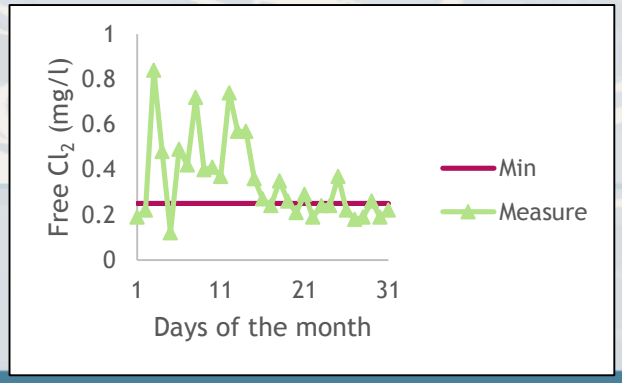
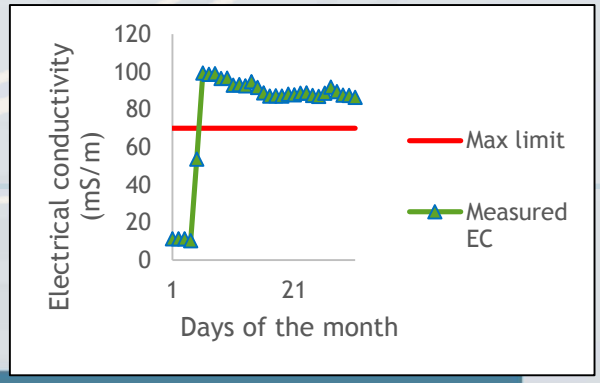
CRADOCK WWTW RESULTS



	COD	SS	EC	Free Cl_2
Highest	553	270	99.2	0.84
Lowest	28	28	11.2	0.12
% Compliance	19.4	0	16.1	58.1



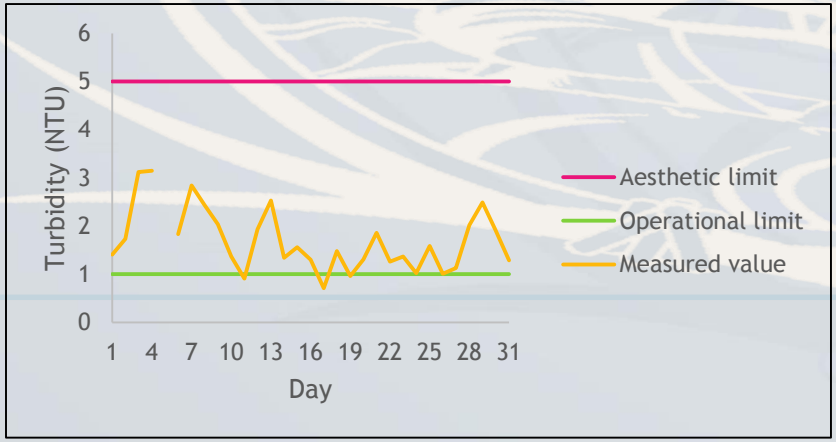




CRADOCK WTW RESULTS

	A (Jul. 2015)	B (Aug. 2015)
Highest	3.15	2.41
Lowest	0.71	0.48
% Compl - Operational	16.7	46.7
% Compl - Aesthethic	100	100

A



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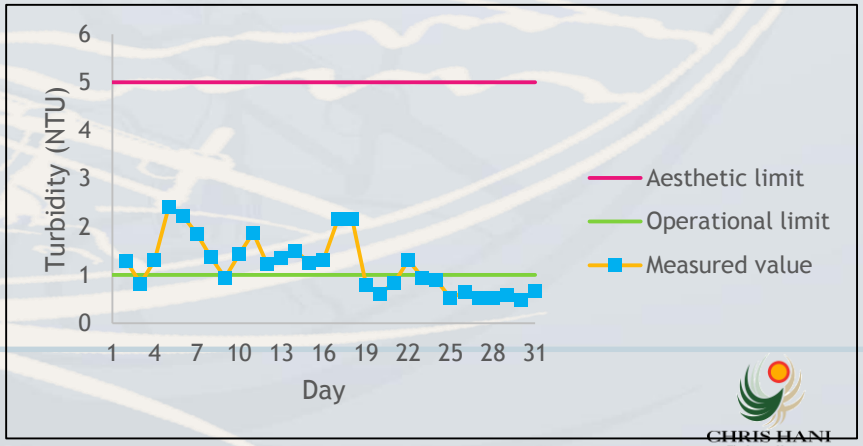

DRINKING WATER COMPLIANCE - MIDDLEBURG

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	Sampling points							
Parameter	A	B	C	D	E	F	Limits	Remarks
pH	8.00	8.01	8.31	8.21	8.21	8.48	5 – 9.7	Complied
E.C (mS/m) at 25ºC	67.0	108	106	107	68.5	115	170	Complied
Calcium (mg/l as Ca)	47.8	59.9	58.7	133	129	57.5	N/A	Complied
Magnesium (mg/l as Mg)	31.3	43.6	43.1	68.5	49.5	54.9	N/A	Complied
TDS (mg/l)	428	738	726	720	432	798	≤1200	Complied
Fluoride (mg/l as F)	0.58	0.93	0.91	0.74	0.57	0.79	≤1.5	Complied
Chloride (mg/l as Cl)	21.1	77.4	91.2	98.4	32.9	95.6	≤300	Complied
Sulphate (mg/l as SO_4)	28.7	76.4	86.3	73.6	37.2	80.7	≤250	Complied
Manganese (µg/l as Mn)	251	<19	<19	35	459	77	≤100	A & E exceeded limit
Iron (µg/l as Fe)	<24	98	<24	<24	<24	<24	≤300	Complied
E.coli	0	0	0	0	0	0	0/100 ml	Complied

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WORK UNDERTAKEN TO IMPROVE QUALITY

Figure 2: refurbishment of seven filters at Cradock water treatment plant

WORK UNDERTAKEN TO IMPROVE EFFLUENT QUALITY AT CRADOCK WWTW

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During cleaning

Before

After

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Conclusion

- Infrastructure refurbishment and upgrade remains our biggest threat
- At least an amount of R50 million must be set aside to deal with aging infrastructure over the next 5 years
- CHDM is now able to totally ring-fencing water service since the service had evolved back to the DM
- Our audit opinion has improved ever since the service had taken back the service
- Given the challenges faced by the DM there has been huge improvement of the service
- CHDM is currently untangling legal matters i.r.t debt owed Inxuba Yethemba LM to service providers
- Vandalism and foreign objects entering our system is a challenge

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THANK YOU FOR YOUR ATTENTION !