water & sanitation
Department:
Water and Sanitation
REPUBLIC OF SOUTH AFRICA

aurecon

MINUTES OF MEETING

Algoa WSS Reconciliation Strategy Continuation: ATSG Meeting 14 held on 1 March 2017 @09h00at the offices of Aurecon, Port Elizabeth

Item			Action
1.	**WELCOME** The chairperson, Ms Isa Thompson welcomed everybody to the fourteenth meeting of the Administrative and Technical Support Group of the Algoa Water Supply System Reconciliation Strategy Continuation. She introduced Mr Patrick Mlilo, the newly appointed Director of National Water Resources Planning to the team.		
2.	**ATTENDANCE AND APOLOGIES**		
	Attendance		
	Patrick Mlilo	DWS: NWRP	PM
	Menard Mugumo	DWS: CE: OA	MM
	Isa Thompson	DWS: D: NWRP CE: South	IT
	Jenny Pashkin	DWS: D: WRPS	JP
	Richard Martin	DWS: WRPS SO	RM
	Neville Lawry	DWS:	NGL
	Paul du Plessis	NMBM	DT
	Pierre Joubert	Gamtoos IB	PJ
	Ilse Chilton	DWS: Proto CMA, Catchment Management	IV
	Rienette Colesky	Gamtoos IB	RC
	Nick Chapman	VWSA – Business Chamber	NC
	Andrew Lucas	DWS ECape: D: Water Regulation and Use	AL
	Harms du Plessis	LSRWUA	HdP
	Barry Martin	NMBM	BM
	Sieg Rousseau	Amatola Water	SR
	Thelani Grant	Living Lands	TG
	Liz Metcalfe	Living Lands	LM
	Reina Zastron	Aurecon	RZ
	Maxine Botha	Aurecon	MB
	Apologies		
	Tony Moore	DWS: CE: OA	TM
	Stephen Mullineux	DWS ECape: DCE: Water regulation and use	SMu
	Graham Taylor	Coega IDZ	GT
	Paul Chilton	DWS: CE: Proto CMA CM	PC
	Pieter Viljoen	DWS: D: WRPS	PV
	Nico Lombard	Cacadu District Development Agency	NL
	Martin Labuschagne	DWS ECape: WR&U-WUE	ML
	Kobus Ferreira	DWS ECape: WR&U-WUE	KF

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	Fanus Fourie	D: WRPS	FF
	Erik van der Berg	Aurecon	EvdB
	Robert Higgins	PetroSA	RH
	Dup van Reenen	AfriCoast Engineers SA	DvR
3.	**ADOPTION OF AGENDA** The agenda was adopted without any changes.		
4	**APPROVAL OF PREVIOUS MINUTES** The minutes of the meeting held on11 October 2016 were accepted with the following changes: Page 1: The abbreviation for Neville Lawry was changed to NGL. Page 1: Kevin McRae was added as an attendee of the meeting. Page 3 point 6.1 last sentence: "*JP indicated that AECOM also has a map that was used*" was changed to "*IT indicated that AECOM also has a map that was used*". Page 3 point 6.2: "*10% restriction on water use for Domestic and Industrial supply from the main stem of the Orange River, Irrigation Schemes and Transfer Schemes supplied from the Orange River*", has been replaced by "*10% restriction on water use for Domestic and Industrial supply from the main stem of the Orange River*". Page 3 point 6.7: "*The following summary was received from SG after the meeting*" has been replaced by "*The following summary was received from SR after the meeting*". Page 8 point 17.1:"*JP indicated that she was concerned about the accuracy of the yield determined for the Kouga-Loerie sub-system as part of the Bridging Study, which was too high*" to be replaced by"*JP indicated that she was concerned about the accuracy of the yield determined for the Kouga-Loerie sub-system as part of the Bridging Study, which was questionable*".		
5	**MATTERS ARISING FROM PREVIOUS MINUTES** No matters arising as all items were covered by the agenda.		
6. **6.1**	**RELEVANT PROJECTS AND INITIATIVES UNDERTAKEN BY OTHER RESPONSIBLE ENTITIES** **AWSS Annual Operating Rules** JP indicated that the Development of the Operating Rules for Stand-alone Dams: Southern Cluster project has been completed and no new appointment is made up to date. The level of the Kouga Dam is low and this needs to be monitored closely. The level of the Impofu Dam is higher than is expected; the reason could be that there was some rain in the catchment. JP noted that she has checked some old reports and did some analysis on rainfall. There is no prominent rainfall pattern (wet and dry seasons) for the area, but statistically the highest average rainfall occurred in March and in October-November months. BM responded that NMBM abstracted more water from the Churchill Dam, as some maintenance work had to be done at Impofu Dam, which could be partly responsible for the higher water level of the Impofu Dam. He said that the abstraction is still higher than the allocation, but the consumption in January was as predicted. He also indicated that a decision by the council about restrictions will be made in the following week. According to BM it is of great concern that the stand-alone dams project has been completed and that no provision is made for the Annual Operating Analysis for the Algoa WSS for 2017-		

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	2018. JP said that it has to be elevated to the higher management level as the Sub-Directorate: Systems Operation did everything possible to let it happen but to no avail. BM asked JP to send him the TOR to try to get a project team from the NMBM to do a similar project. IT promised assistance from DWS as far as possible. JP will first need to get approval to send the information to BM, but does not see it as problem. PJ indicated that the Gamtoos IB could also possibly assist in such a project. JP said that she is not yet throwing in the towel but will still try from other angles to by able to do the AOA and provide the appropriate defendable recommendations. As previously reported, Dr Pieter Wessels from DWS's Stream Flow Hydraulics sub-directorate did a study on designing an optimum measuring weir. AECOM is also busy with a study to design an optimum national hydrological monitoring network, for both surface and groundwater. EvdB still need to follow up on the measuring issue - he has to speak to either Gerald de Jager or Jeremy Naidoo of AECOM on the matter.	EvdB
6.2	**Orange River Annual Operating Rules** JP reported that the appointment for the Development of the Operating Rules for Stand-alone Dams: Central Cluster is valid until mid-May 2017, after which the Sub-Directorate: Systems Operation will be in the same predicament as with the Algoa WSS Annual Operating Analysis.. The *status quo* stays, but the lifting of restrictions is being considered. One has to evaluate the whole system, and not only the Gariep Dam before restrictions can be lifted. A decision is usually made by performing the AOA using dam levels on the first of May of each year for the summer rainfall areas. The restrictions could possibly be lifted for the moment, but all will be reconsidered on 1 May of this year.	
6.3	**OFS Real-time model** JP said that DWS has consolidated different existing DHI licences into one enterprise licence for the DWS and the Orange Fish Sundays real-time operational model is transferred to the new platform. Two years of missing data was recently populated. JP stated that the Sub-Directorate: Systems Operation together with Sub-Directorate: Systems Analysis maintain the platform. IT asked JP to include the Little Fish River if possible. JP indicated that if a water quality monitoring point is available, it can be included. AL indicated that at the Great Fish River, DWS is looking closely at the water usage by the farmers and checking whether they are adhering to the restrictions. IC mentioned that there are many illegal abstraction points in the area and the WUA struggles to implement restrictions where abstractions are illegal. PJ was of the opinion that there must be a focus on addressing illegal abstractions as the volume is significant. HdP explained that farmers' water use is restricted for a year and not on a monthly basis. Farmers are allowed to use their allocation when they need it and legal farmers adhere to the restrictions. IT stressed that this is not only about the drought, but about effectively managing our water and systems on a continuous basis.	JP
6.4	**Establishment of the upper Kouga/Kromme Irrigators WUA** No discussion as the DWS post is vacant.	
6.5	**Verification & Validation (V&V) of water use** IC reported that 3 000 section 35 letters have been sent and another 5 000 letters still need to be sent. A copy of the PSP's report is attached to the minutes.	
6.6	**Working for Waterand Working for Wetlands** PJ of GIB reported that in the period 1 Oct2016 to date, the amounts spent on follow-up clearing	

<table>
<tr><th>Item</th><th></th><th>Action</th></tr>
<tr><td></td><td>work are R1.85m and R1.80m, on Kouga and Kromme catchments respectively. The total area that has been cleared (follow-up component) is 3650ha. R0.85m was spend on wetlands rehabilitation works (weirs).</td><td></td></tr>
<tr><td>6.7</td><td>Water Quality Strategy
PV did not attend the meeting. IT reported that DWS drafted a Water Quality Management Strategy and Policy which was rolled out in all the provinces. The draft strategy has been updated with all comments after the road shows took place and has recently been distributed for further comments.</td><td></td></tr>
<tr><td>6.8</td><td>Amatola Water Study on additional storage for Kirkwood
The following summary was received from ML after the meeting:

The Final Draft Design Report summarises the projected raw water and potable water storage requirements for Kirkwood, Aqua Park, Bergsig, Moses Mabida and Msengeni.

The objective of this project is to:
• Design and construct reservoirs to meet the 48-hours potable water storage requirements; and
• Design and construct infrastructure that allows for the 4-days maintenance periods of the irrigation canal to be done annually.

The above-mentioned two objectives have been achieved with the construction of:
• Two 3.0 Mℓ potable reservoirs at Kirkwood WTW and Moses Mabida respectively; and
• One additional raw water dam with a capacity of 7.6Mℓ.

Additional Raw Water Storage (Contract 2)
DWS indicated that the maintenance period for the section of the canal upstream of the raw water dams is 4 days. It is thus necessary to store sufficient raw water for this period. Taking into account that the current available storage is 20.2Mℓ, the table below shows the required additional storage in Ml.
<table><tr><th></th><th>2016</th><th>2031</th><th>2046</th></tr><tr><td>Demand</td><td>4,076</td><td>5,940</td><td>8,656</td></tr><tr><td>4 days of storage</td><td>16,304</td><td>23,759</td><td>34,624</td></tr><tr><td>15% added for losses at the raw water dams</td><td>18,750</td><td>27,323</td><td>39,818</td></tr><tr><td>Additional storage required</td><td>-1,450</td><td>7,123</td><td>19,618</td></tr></table>The additional raw water dam is designed based on the water requirement in the next 15 years. There is sufficient space available adjacent to the existing raw water dams. The dimensions of the new raw water dam are as follows:
• Length 70m
• Width 55m
• Depth 2.2m (average)
• Side slopes 1:2
• Volume 7,345kℓ</td><td></td></tr>
<tr><td>7

7.1</td><td>STATUS REPORT

Progress Report (Status Report 5)

The draft Status Report will be distributed for comments before the SSC meeting on 19 April 2017.</td><td></td></tr>
</table>

Item		Action
8	**OPERATIONAL EFFICIENCY**	
8.1	**Darlington Dam Operating capacity and dam safety rehabilitation programme** IT reported that, although the project is going ahead, it has not yet progressed. RZ will request G Daniels for an updated progress report before the next SSC meeting.	RZ
8.2	**Additional balancing storage in the LSRGWS** IT reported that Objective 3 of the Algoa Reconciliation Strategy Support Study is to investigate the provision of additional balancing storage in the LSRGWS as well as any bulk conveyance infrastructure required. MB presented the options that are being considered and indicated that a shortlisting decision will be made soon. The current identified options are as follows: <u>Option 1: Balancing storage on right bank near WTW and raising Scheepersvlakte Dam</u> • A small valley to the north-west of the WTW in combination with on-site channel storage was considered. • Total storage available is limited due to limited land on the Nooitgedagt WTW site. There is potential for approximately 150 Ml storage in a cut-to-fill dam at the WTW site and a possible 250 to 300 Ml in the valley with developed irrigation farm land around. • Raising of Scheepersvlakte Dam by 1 to 1.5m could add approximately 160 Ml of storage to achieve a total of 850 Ml storage. • The maximum combined effective storage is estimated at 1000 to 1100 Ml, which may offer about 6 to 7 x ADD storage with a complex set of operating rules and pumping combinations. <u>Option 2: Increased balancing capacity at Korhaansdrift Weir and gravity pipeline to the WTW</u> • 3500 to 4000 Ml additional capacity to be created by raising present weir by 6 to 7 metres. • A 36 km x 1.6 m diameter pipeline to be constructed to link into the existing 1.4 m diameter gravity pipeline from Scheepersvlakte Dam, including a take-off at Korhaansdrift Weir. • Advantages: – Reduction of risk during operations in loss of supply to NMBM and risk of weir overflows. – Improved water quality supplied to the WTW (direct supply from Korhaansdrift). – Simplification of operations to LSRWUA (release times from Darlington Dam). • Disadvantages: – High capital cost to construct pipeline and raise Korhaansdrift Weir. – Construction work to raise the weir will come with high risk to irrigators and the NMBM. In spite of methodology planning, interruptions of supply from the weir outlet sluices into the canal could involve long spells of running dry during construction. <u>Option 3: Increased balancing capacity at Korhaansdrift Weir and pump stations downstream</u> • 3500 to 4000 Ml additional capacity to be created by raising present weir by 6 to 7 metres. • A pump station to be constructed on the right bank upstream of the present 1.4 m diameter gravity pipeline from Scheepersvlakte Dam. • Water to be abstracted from an existing “hippo pool” (including scour and flooding protection at the “hippo pool”). • Advantages: – Reduction of risk during operations in loss of supply to NMBM and risk of weir overflows.	

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	– Simplification of operations to LSRWUA (release times from Darlington Dam). – Large cost savings compared to Option 2 (no pipeline). • Disadvantages: – Flooding of irrigated lands could occur if the in-river structure is not carefully designed. – The quality of water abstracted after 34 km of in-river flow while collecting irrigation return flows could be problematic to the NMBM. – Construction work to raise the weir will come with high risk to irrigators and the NMBM. In spite of methodology planning, interruptions of supply from the weir outlet sluices into the canal could involve long spells of running dry during construction. – Potential for high risk of water losses due to small weir structure (to avoid flooding of land). <u>Option 4: Construction of a larger dam near Scheepersvlakte Dam site</u> • A valley north-east of the present Scheepersvlakte Dam site was identified with a larger dam basin, which could potentially be used to construct a dam at a TWL 3 to 5 m higher than Scheepersvlakte Dam. • The site falls on land being planned for development by the Scheepersvlakte 98 Citrus Development Trust (Scheepersvlakte Farms (Pty) Ltd). The developer has completed an EIA and geotechnical study for the construction of a smaller dam. • A meeting was held with the Trustees and Engineers of the Trust in December 2016. The Trust agreed to co-operate with the DWS study and future works, should Option 4 be pursued further. • The developer has received a water use licence for the abstraction of 5 850 000 m^3/a, with a programmed development of 650 ha over 5 years. • An EIA for only 60 ha has been processed, however, a new EIA application process must be lodged for the total 650 ha. This will delay development by about 300 days. • The developer is prepared to delay start of construction of their dam until year 3 of their development programme to allow DWS to finalise its decisions and design. • This would be subject to the developer being allowed to pump water for 5 years from the present Scheepersvlakte Dam or its outlet structure for 5 days per week (allowing full balancing over weekends for NMBM). An urgent answer on this matter was requested by the developer by March 2017. • Advantages: 1. Larger balancing capacity will remove the risk of supply failures to NMBM. 2. The location is close to the existing Scheepersvlakte Dam, which will simplify integration into existing pipelines. 3. Cost of dam and pipelines will be shared with the developer. • Disadvantages: 1. The proposed dam will be shared with an irrigator, which will require co-ordination between the parties for operation and maintenance. 2. Water will be stored for longer periods (due to size) which could increase the quantities of algae transferred to the WTW. 3. Compensation for loss of land to be developed may apply. BM indicated that the risk of disruptions at a raised Korhaansdrift Weir is too high and that, of the options presented, option 4 seems to be the best option. He is however concerned about the 5-year agreement with the private developer. HdP confirmed that it will have no effect on the water supply to the Metro. After the meeting, the following clarification on the issue was received from Dup van Reenen: The proposal to which the Scheepersvlakte Trust [ScVT) has in principle agreed is: • ScVT will delay the development of own dam (on same site as Larger Dam) as part of	DWS

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	their new EIA application for 265 Ha irrigation development, subject to confirmation by end-March that they be allowed to abstract water for 5 years, as an interim period, from Scheepersvlakte Dam. • ScVT has agreed to abstract only Mon to Fri when irrigation water is released from Scheepersvlakte Dam into the Coerney Canal downstream of the dam wall. • ScVT plans to build a temporary pump station with pumping equipment which they will relocate to the larger dam (or their own dam if applicable) at a future date. • ScVT will therefore not have any impact on the available NMBM balancing storage over weekends in the Scheepersvlakte Dam. • The 5 year interim period will allow the present parties (DWS, NMBM, LSRWUA) until year 3 to finalise a decision on the larger new balancing dam, failing which the ScVT will then submit a new EIA for their smaller dam (or earlier if the larger dam does not become an option of preference). The developer must indicate, as part of the EIA, how the water will be stored and applied to the land for which irrigation water rights have been allocated. PJ mentioned an issue with regard to refurbishment of the Gamtoos main canal, which is the responsibility of DWS. GIB pays an annual levy to the Department as "insurance" for refurbishment. The specific part of the main canal which is currently the biggest concern, is the Buffelshoek siphon, which is in a bad state and will cause huge disruption in the water supply should it burst.	Glen Daniel
9	**WATER REQUIREMENTS AND USE**	
9.1	**NMBM water requirements and use** BM reported that the NMBM requirements will be updated at the end of the NMBM water year. He also indicated that the NMBM Water Masterplan will be updated in the following 24 months. IT asked about water availability for the new planned housing development, but BM assured her that there is provision for the development in the current Water Master Plan. JP reminded PdP to ensure that she gets the NMBM water use numbers on a weekly basis.	PdP
9.2	**Coega IDZ water requirements** No discussion as GT was unable to attend the meeting. After the meeting the following report was received from GT: The Coega IDZ has Aquaculture and Chemicals clusters within Zones 7 and 10 respectively. Provision is also made in the Development Framework Plan for a Combined Cycle Gas Turbine (CCGT) which is currently the subject of an IPP process for a 999MW plant being managed through the Department of Energy. Different alternatives are available for the cooling of the plant, including potable water and marine water. An environmental process for the CCGT is currently in preparation and is being undertaken by SRK Consulting. The seawater requirements for aquaculture are being addressed within an environmental process. This process is underway for a marine pipeline servitude which is being undertaken by CEN and is at draft scoping report stage. The environmental process for the aquaculture development zone is being undertaken by Ethical Exchange and the draft Scoping Report was completed in October 2015. It is proposed that provision is made on the agenda of the next meeting for a progress report on these three projects and the impact on the water requirements of the Coega IDZ.	RZ
9.3	**Kouga LM water requirements** VF did not attend the meeting. IT asked SR to please follow up and report back, especially on the higher than expected growth of water use.	SR

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9.4	**WUE Fish and Sundays catchments** MB reported as follows: The hydrological modelling of the Fish and Sundays rivers has been completed, and the team is currently updating and extending the existing WRYM and the WRPM. A long-list of 27 potential water saving interventions was identified to potentially improve irrigation WUE in the Fish and Sundays river catchments. This long-list was assessed with inputs from committee members, and a short-list of six of the potential water saving interventions with the highest potential for savings was selected for further investigation, as given below: a) Lining of earth canals and storage ponds to reduce seepage losses in the GFRWUA b) Improve measurement/monitoring of releases into canals to reduce overtopping c) Reed clearing along river banks and aquatic weed clearing to improve river flow d) Reduction of allocation for freshening releases in the Great Fish River e) Improvement in water measurement and control structures to ensure correct allocations and abstractions f) Refurbish leaking release gates at Darlington Dam. This short-list of interventions was discussed with relevant stakeholders at the Study Management Meeting (WUE Component) on 28th February 2017, and it was agreed that all six of the short-listed interventions be taken to the next phase of the study, and that more detailed investigations and quantifications be carried out for each intervention. JP asked MB to provide her with the data configuration and data sets when finalised.	MB
9.5	**Thyspunt NPP** No discussion as GT and VF did not attend the meeting. After the meeting GT provided the following on progress of the project: "We have been receiving very positive signals that there will be progress on the Thyspunt project. A number of synergies exist between the development of the Coega IDZ and the proposed Thyspunt Nuclear project. In different forums, the CDC has been requested to contribute knowledge and expertise from the process of developing the Coega IDZ. The documentation in respect of the Environmental Assessments associated with the Thyspunt project, give an overview of utilities requirements. These are available at https://projects.gibb.co.za/NUCLEAR_1_-_Final_EIRwith the project description being available at https://projects.gibb.co.za/DesktopModules/Bring2mind/DMX/Download.aspx?Command=Core_Download&EntryId=3070&language=en-US&PortalId=3&TabId=452 "	
10 10.1	**IMPROVING THE CONFIDENCE OF WATER AVAILABILITY** **Proposed water availability assessment study – Kromme and Kouga rivers** IT said that this study is still on the radar and should start in the following year. No further discussion.	DWS
11 11.1	**WC/WDM** **Report by NMBM** BM stated that it seems that non-revenue water is declining. A water audit will be conducted at the end of the financial year. He said that it seems that all interventions and efforts are now reaping benefits. NMBM and the City of Cape Town had a meeting on WC/WDM and it seems that both Metros are implementing similar interventions. AL suggested that a more intensive publicity campaign could perhaps be considered. IT suggested making more use of local radio stations.	

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11.2	**Report on progress of other municipalities** No discussion	
12	**ORANGE RIVER INTER-BASIN TRANSFER SCHEME**	
12.1	**Nooitgedagt Low-Level Scheme Implementation and Financing** BM reported that the planned completion date for phase 2 is now July 2017. Only certain portions of the work (mechanical and electrical) still need to be completed. When the phase 2 is completed the total production of the WTW will be up to 50 million m^3/annum (without peaking capacity) to the system. JP indicated that this volume will be taken into account for modelling. BM announced that NMBM received a regional bulk infrastructure grant of R437 million over 3 year for the completion of the Nooitgedagt Bulk Water Supply Scheme. He also confirmed that the site has not yet been handed over to the contractor.	
12.2	**Potential further future allocation** This could potentially form part of future phases of the Nooitgedagt Low-Level Scheme, but this will be determined by the Feasibility Study.	
12.3	**Desalination of Sundays River irrigation return flows** BM requested that this option be given further attention. He is of the opinion that more information is needed to explore this scheme further as it could be a cheaper option for water augmentation. A pre-feasibility study can be considered. After a long discussion on who should be doing the study, IT indicated that she will ask EvdB and MM to check if it will be possible to do a recognisance type of investigation as part of this study. They could consider evaluating a location near the hippo pool. Brine will also have to be taken into account.	IT/Aurecon
13	**RE-USE OF WATER**	
13.1	**Re-use of water treated to industrial standards –Fish Water Flats and Coega WWTWs** BM reported as GT did not attend the meeting. The CDC needs to procure additional funds to complete the reservoir as NMBM does not have the funds. The implementation of the remainder of the scheme is dependent on water requirements from large water users / investorsestablishing in the IDZ. The construction will take 18-24 months to complete and R600 million is needed to bring the bulk supply conveyance infrastructure to the Coega IDZ boundary. Coega is aware of the situation. BM also mentioned that the option will be added to the next Water Master Plan.	
14	**GROUNDWATER**	
14.1	**NMBM Coegakop implementation** BM indicated that the planned date for augmenting the system with groundwater is 2019. The cost of the infrastructure at Coegakop is R200 million.	
14.2	**Other groundwater studies** No discussion	
15	**SEAWATER DESALINATION**	
15.1	**NMBM Desalination Scheme** The Coega harbour desalination scheme was stopped mainly because the tenders were of poor quality. BM indicated that they will rather concentrate on the desalination of the Lower Sundays River irrigation return flows.	

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16	**LOCAL SURFACE WATER DEVELOPMENT**	
16.1	**Kouga Dam 'raising' and GuernakopDam** IT indicated that a dam in the Kouga River (either a new dam at Guernakop or a 'raised' Kouga dam) could possibly be assessed by the PSP with money saved from the feasibility study.	EvdB
17	**IMPACTS ON YIELDS OF EXISTING DAMS:ECOLOGICAL RESERVE& CLIMATE CHANGE**	
17.1	**Implementing the Reserve for existing dams** Nothing to report.	
17.2	**Climate change** IT mentioned that current indications are that the area should not be seriously affected by climate change.	
18	**COMMUNICATION**	
18.1	**News Release** The News Release will be drafted at the end of the year.	
18.2	**Webpage Update** No discussion.	
19.	**GENERAL** Living Lands gave a short summary on the work they do. A document with the summary of their projects is being distributed with the minutes.	
20.	**NEXT MEETING** Wednesday 11 May 2017 @ 09h00 Next SSC Meeting: Wednesday 19 April 2017 @ 09h00	
21.	**CLOSURE** The meeting was closed at 14h00.	

Chairperson: Ms Isa Thompson (DWS)Signed: _____ Date: _____

Study Leader: Mr E vd Berg (Aurecon) Signed: _____ Date: _____