

Coordinating twinning partnerships towards more
adaptive governance in river basins

Basin Report:

Questionnaire + Addendum

To review case study basins with regard to their water
governance regime, context and performance

Orange Basin

With focus on the South-African part

Twin2Go Case Study Review Workshop

Loskop Dam, April 2010

The questionnaire was post-processed after the workshop.

About this questionnaire

This questionnaire was developed within the scope of the Twin2Go project. It serves to record case study data about a river basin's water governance regime, its context and its performance. An explanation of the indicators, pre-defined scores and potential data sources is provided in the guidance on this questionnaire (Twin2Go, Guidance on the Questionnaire of the Twin2Go Case Study Review Workshops. 13/03/10).

Scores to each of the indicators are assigned according the suggested score scheme proposed in the guidance. In the case of numerical indicators like indices, the numerical values are added in brackets after the score, e.g. "B (0.178)" or "C (12,534)". For a better understanding of the recorded issue, additional information is added in the "comments" column.

If not specified differently, the indicators refer to the national part of the basin of interest, i.e. the South-African part of the Orange basin.

The questionnaire was sent to the invited experts prior to the Case Study Review Workshop in Loskop Dam, South-Africa (April 2010).

It was completed by the three case study experts who participated in the workshop. Missing scores were added in a subsequent email exchange. The draft results were evaluated by another **case study expert (SH)**. In a few cases judgements differed. These differences were assessed by a **second expert (EH)**. A final score **S** was then assigned by the Twin2Go partner CPW. All comments were included to preserve the discussion and diverging assessments.

Based on the preliminary synthesis results and discussion during the Twin2Go synthesis workshop (Stockholm, September 1-2 2010) an addendum was made with some additional parameters.

The resulting data will be post-processed and added to the Twin2Go database. Should you feel these scores do not reflect the situation of the basin accurately, or want to contest any of the information included, you may contact the project organisers. Contact information as well as additional information regarding the project and the results can be found on www.twin2go.eu.

Names of participating experts have been removed for confidentiality purposes.

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A) Water governance regime

No.	Indicator	Score	Comments
I) Characteristics of environmental governance regimes			
a) Water policy, institutional & legal framework (formal and informal)			
1.	Domestic water legislation (laws, by-laws, etc.) in place?	A(-) A(-) B B	Water Services Act, 1997 (water supply, treatment, discharge, waste treatment,...), fairly well implemented National Water Act, 1998 (river basin management), not fully implemented Alternative suggestion (Sabine SH) due to lack of implementation of National Water Act EH: Agree to SH: B
2.	Domestic Water Law: Public character of water and legal status of water use rights	A	
3.	Domestic Water Law: Explicit recognition of traditional and indigenous water uses	A	the WRCS makes provisions for recognizing any indigenous use, including sacred sites
4.	Domestic Water Law: On flow availability, third party rights and ecological requirements	A A(-)	the National Water Resources Strategy has the national water supply versus demand, revised every 5 years Sabine SH: This is only in written law, first revision should have been done last year (2009) apparently even not started as yet. EH: agree to SH → A-
5.	Integration of domestic water legislation	A(-)	2 main acts are implemented by a single department, and are fairly well integrated although certain implementation problems persist Sabine SH: Again my expert interviews show that a variety of ambiguities exist that have been characterised as relatively problematic. EH: My field research also suggests a lack of cooperation at all levels even though this lack is acknowledged by water managers
6.	Multilevel structure of domestic water legislation and subsidiarity	A	A from the design perspective, but implementation is lagging behind

No.	Indicator	Score	Comments
7.	Existence of formal domestic administrative structure for water governance	A	Department of Water Affairs is autonomous
8.	National basin organisation or comparable arrangement	C	currently in the planning phase, in other SA basins already implemented
9.	Formalised transboundary coordination organisation	A	ORASECOM
10.	Formal institution (legislation) that prescribes the basin management principle	B+	subscribed at both national and supranational level, but not implemented at national level Post-processing comment: The score was changed from "A/B" to "B+". As the basin principle has not been fully implemented, a "B" is more justified than "A".
11.	Water (basin) strategies, programmes and plans	B	
12.	Financing mechanisms: Degree of investment from private sector/ public/ other sources (e.g. international)	A	well balanced -not donors- at the national level, predominantly donor-funded at the transboundary level
13.	Economic instruments Is water for irrigation priced?	B	real consumption not monitored in a volumetric way, pricing corresponds to assumption of complete consumption of allocation, so use efficiency is not promoted > currently a revision is on the way
14.	Economic instruments Is water for households priced in urban areas?	B	good level of cost recovery from infrastructure perspective, but not environmental costs; system caters for those that are not able to pay (6kiloliters per household per month are free - cross-subsidising applies) Sabine SH: Experts have in clear majority stated that water pricing is by far from a good level of cost recovery. funding is even not sufficient for simple maintenance.
15.	Economic instruments Is water for industry priced?	B	price paid by industry is grossly inadequate, especially for mining (reason: amount of revenue generated is not commensurate with what is being paid for water, damage/environmental costs is not reflected in the costs, especially in the absence of the waste discharge charge system)
16.	Tradable permits related to water abstraction/use	B(-)	although the law allows for it, the administrative system is not in place, putting it in place would mean an additional burden; trading happens in a limited, informal way; this will become a function of the CMAs
17.	Polluter pays principle (related to water)	C	it is allowed for in the legislation; a framework is under development, but implementation/enforcement is still to come
18.	Environmental subsidies (related to water)	C	

No.	Indicator	Score	Comments
19.	Payment for ecosystem services (related to water)	A	has been investigated; provisions are there; is going into the implementation stage
20.	Tradable permits (related to water quality, maximum, allowable loads etc.)	B(-)	although the law allows for it, the administrative system is not in place, putting it in place would mean an additional burden; trading happens in a limited, informal way; this will become a function of the CMAs
21.	Environmental tax (related to water)	A	water resource management charge; from all uses incl. Forestry sector; translates into the amount of mitigating the effects of the use; new charge, only started in 2003 (?); among the main sources of \$ for CMAs
22.	Presence of substituting informal institutions for management of water	A	exceptions exist, but are not common* additional check; catchment management forums are not considered as substituting, they are complementary although informal
23.	Presence of complementary informal institutions for water management	B	
23.a	<i>Case-specific indicator(s)...</i>		
b) Formalisation of IWRM principles & Millennium Development Goals			
24.	Formalised IWRM principles	A	
25.	State of implementation of IWRM principles	C(+) B C(+)	Sabine SH: this question relates to no. 11 and hence, in my opinion should be rated as B. EH: disagree: no 11 is merely about the existence of such plans not about their content (IWRM). C+ (is then also consistent to no 26)
26.	Capacity to implement IWRM	C	well deserved C; main problem is decentralization requires more human capacity - we don't have the right people in terms of numbers and skills
27.	Is universal and non-discriminatory access to safe drinking water and sanitation a goal?	A	
28.	Integration of wetlands in IWRM and IRBM*	A	
28.a	<i>Case-specific indicator(s)...</i>		

No.	Indicator	Score	Comments
c) Decision making regarding uncertainties			
29.	General practices for dealing with uncertainties	B B(-), C(+) B(-)	Water planners often operate on worst case scenarios and use of climate projections has potential to refine their plans. Sabine SH: Most of the uncertainties are ignored, only very limited and mostly risk based parameters used, EH: agree with SH: my research also suggests that climate projections do not play a significant role (however this is data from 2006 and might have changed recently)
30.	Dealing with uncertainties: Reversible and flexible options	B	from the policy/planning site it is a target (good review loop), but in practice more difficult; in case of crises response however can be quite quick...so it's somewhere in between
31.	Dealing with uncertainties: Safety margins	A	
32.	Are scenarios used for decision making?	B B(-), C(+) B(-)	national scenarios (not water) exist, but do not result in strong concrete action on the ground Sabine SH: scenarios are used in the context of the National Water Ressources Strategy which has - as alluded to under 4 - not been updated yet. Furthermore, the scenarios are rather questionable in my opinion.
33.	Climate risks: Climate variability and change	B	current focus on climate variability, slow shift to incorporate also CC
33.a	<i>Case-specific indicator(s)...</i>		
II) Actor networks with emphasis on the role and interactions of state and non-state actors and power relationships			
a) Cooperation and coordination structures			
34.	Vertical coordination (governmental)	D D (+) D(+)	coordination between regional and head offices frequently lacking Sabine SH: In my opinion and based on expert interviews D(+) EH: agree to SH
35.	Horizontal coordination (governmental)	C(-)	tasks fairly well defined, limited degree of overlap, certain lack of coordination, a policy of cooperative governance exists (is in the constitution)

No.	Indicator	Score	Comments
36.	Role of local governments	A B B	SabineSH: In my opinion B and based on expert interviews EH: agree to SH
36.a	<i>Case-specific indicator(s)...</i>		
b) Information sharing via formal rules, dependency relationships etc.			
37.	Kinds of knowledge included => Role of experts/ science, local/traditional knowledge	B	mostly the technical information is taken into account Sabine SH: local / traditional knowledge extremely seldomly taken in to account to what I have seen and heard hence,
38.	Access to information => about expert knowledge and management plans	A B B	open to everyone free of cost Sabine SH: access is very difficult and information not actively disseminated (again expert interviews, my own experience and the example of Umgeni Water, which has a person employed that specifically is dedicated to finden data and knowledge)
38.a	<i>Case-specific indicator(s)...</i>		
III) Multi-level interactions across administrative boundaries and vertical integration across levels and horizontal integration across sectors			
a) Centralisation			
39.	One level one actor?	A	in the SA setup there are disparities and very strong invested interests; the state is trying to perfect the implementation of the law EH: do not understand this rating. In my view DWA is a dominant actor at the national level, hence the degree of centralisation (cf. no 40)
40.	Degree of centralisation	B B(-), C(+) B(-)	Due to the above, there is considerable reluctance to devolve IWRM be it implementation or decision making. Sabine SH: The example of the CMA creation and implememtation process shows a strong tendency towards centralisation.
41.	Technical capacity and economies of scale	A	serious consideration has been given to this; this could explain why there is slow development at lower levels (because the lack of available tech human capacity is acknowledged)

No.	Indicator	Score	Comments
42.	Legal obligations and responsibility	A(-)	well defined in law, but not well implemented (yet)
<i>42.a</i>	<i>Case-specific indicator(s)...</i>		

B) Context

No.	Indicator	Score	Comments
I) Societal dimension			
43.	Proportion of the population living in rural areas	ZA: 43.7% LS: 76.7% NAM: 64.9% RB: 42.7%	Source: United Nations Population Division (2008): World Urbanization Prospects: The 2007 Revision Population Database, http://esa.un.org/unup/ Values for 2005
44.	State of societal development	ZA: C (0.683) LS: C (0.514) NAM: C (0.686) RB: C (0.694)	Human Development Index Source: UNDP: Human Development Report, online at http://hdr.undp.org/en/statistics/ Values for 2007
45.	Social sustainability (Gini Index)	ZA: D (57.8) LS: D (52.5) NAM: E (74.3) RB: E (61.0)	Gini Index Source: UNDP: Human Development Report 2009, http://hdr.undp.org/en/media/HDR_2009_EN_Complete.pdf - Values were calculated based on data by World Bank (2009d)
46.	Economic sustainability (e.g. GDP)	ZA: C (8,477 \$) LS: D (1,415 \$) NAM: D (4,547 \$) RB: C (12,057 \$)	GDP per capita (US-\$, PPP-corrected) Source: World Bank, http://siteresources.worldbank.org/ICPINT/Resources/icp-final-tables.pdf Values for 2005
47.	Effectiveness of formal institutions	ZA: C (4.7) LS: D (3.3) NAM: C (4.5) RB: C (5.6)	Corruption Perception Index Source: Transparency International, http://www.transparency.org/policy_research/surveys_indices/cpi/2009/cpi_2009_table Values for 2009

No.	Indicator	Score	Comments
48.	Trustworthiness of economic institutional setting - degree of risk for foreign direct investment	ZA: B (A- to AA+) LS: n/a NAM: n/a RB: B (A- to AA+)	Rating by the rating agency "Standards & Poor Source: The Guardian (article from 22.05.2009), http://www.guardian.co.uk/business/2009/may/22/recession-government-borrowing#zoomed-picture
49.	Presence of avenues of dissent – press freedom, freedom of speech	ZA: A (8.50) LS: C (27.50) NAM: A (9.00) RB: C (15.50)	Press Freedom Index Source: Reporters without Borders, http://www.rsf.org/en-classement1003-2009.html Values for 2009
49.a	Case-specific indicator(s)...		
II) Good Governance Principles at the national level – legal basis at the national level			
50.	Participatory regarding decision making in the water sector	A A(-) A(-)	Laws are in place and numerous guidelines on how to do it but there implementation is not institutionalised albeit on a project level scale. The national Water resources Strategy was the best consulted document where stakeholders inputs were dealt with in a transparent way. Other initiatives exist which were also very good. It is not yet a norm. Sabine SH: Again the law is very good but implementation lacking. EH: agree to SH: A-
51.	Transparency regarding water allocation	A B A	There is a law on Access to Information law. Water Allocation is a highly political issue is still very centralised. Even regional offices do not allocate water leave alone any other institution. The right formula for how to do it is not there and maybe this is why it is not happening. Sabine SH: Some of my experts had stories on clearly vested interest of water allocation. (comment CPW – this relates more to performance and not legal provision).

No.	Indicator	Score	Comments
52.	Effectiveness and efficiency regarding decision making in the water sector	B-	All regulations, controls and supporting laws are in place. They are just not enforced.
53.	Equitable and inclusive	C+ A A	Equity is not defined only through water pricing and the rights of access. The role of the state in making equity happen in the South African example should be very important; water allocation reform requires compensation, land reform requires buying expensive land, etc... The score is because we have the Pricing strategy and the guaranteed access and very good policies and partly implementation on gender equity. Sabine SH – without comment EH: do not understand the explanation for C+; Agree with SH
54.	Predictability – with regard to IWRM and climate change	B A A	Maybe more implicit rather than explicit (Chris can elaborate) Sabine SH – without comment
54.a	Case-specific indicator(s)...		
III) Environmental dimension			
55.	Köppen-Geiger climate classification (river basin)	Cwb (source) Cfb BSk BSh BWh BWk (mouth)	Source: Kottek, M., J. Grieser, C. Beck, B. Rudolf, and F. Rubel (2006), http://koeppen-geiger.vu-wien.ac.at/present.htm#maps For period from 1951 to 2000 Values are ordered from the source to the mouth

No.	Indicator	Score	Comments
56.	Climate Moisture Index	SA, semi-arid (upstream) A, arid (mid- & downstream)	Source: GWSP Digital Water Atlas (2008), GWSP Digital Water Atlas (2008), http://atlas.gwsp.org/index.php?option=com_wrapper&Itemid=53&id_desc=98&itemId_desc=63&id_ds=146&itemId_ds=52&header=Climate%20Moisture%20Index&site=b1_cmi_anWSAG1_0 Reported are the dominant values in the Orange-Senqu basin
57.	Climate Moisture Index Coefficient of Variation	B, moderate (upstream) A, low (mid- & downstream)	Source: GWSP atlas (2008), http://atlas.gwsp.org/index.php?option=com_wrapper&Itemid=53&id_desc=126&itemId_desc=63&id_ds=171&itemId_ds=52&header=Coefficient%20of%20Variation%20for%20Climate%20Moisture%20Index&site=b2_cmi_annual_cv Reported are the dominant values in the Orange-Senqu basin
58.	Per Capita Equivalent of TARWA	ZA: D (1,110 m ³ /yr) LS: D (1,680 m ³ /yr) NAM: C (8,810 m ³ /yr) RB: C (6,820 m ³ /yr)	Source: UNESCO, UN World Water Development Report, http://www.greenfacts.org/en/water-resources/figtableboxes/3.htm Values for 2005
59.	Average water availability at the river basin level (1995)	E (1-5 mm/yr) D (5-10 mm/yr)	Source: University of Kassel, WaterGAP 2.0, http://www.env-edu.gr/Documents/World%20Water%20in%202025.pdf The source excludes the Kalahari catchment (D, 5-10 mm/yr) from the rest of the Orange-Senqu basin (E, 1-5 mm/yr)
60.	Annual renewable water supply per person by river basin (1995)	C (1,000-1,700 m ³ /yr)	Source: World Resources Institute, EarthTrends 2001, http://earthtrends.wri.org/pdf_library/maps/2-4_m_WaterSupply1995.pdf
61.	Projected annual renewable water supply per person by river basin (2025)	D (500-1,000 m ³ /yr)	Source: World Resources Institute, EarthTrends 2001, http://earthtrends.wri.org/pdf_library/maps/2-4_m_WaterSupply2025.pdf

No.	Indicator	Score	Comments
62.	Relative Water Stress Index	B, (low, upstream) E (very high, midstream) C (medium, downstream)	Source: UNESCO, World Water Development Report II, http://wwdrii.sr.unh.edu/download.html Downstream is average value <i>The illustration (I4) has bad quality. Please check if the judgement is appropriate, especially with regard to the downstream score.</i>
63.	Climate Vulnerability Index	ZA: D (medium-high) LS: D (medium-high) NAM: D (medium-high) RB: D (medium-high)	Source: Oxford Centre for Water Research (OCWR), 2008-2010, http://ocwr.ouce.ox.ac.uk/research/wmpg/cvi/
64.	Degree to which water quality status restricts usability of users' types	B- (medium)	The Orange basin has so many different areas, some of them A others B others C. The majority is B in my opinion, but we cannot ignore the heavy impact of especially mining and also highly technical agriculture. Therefore, the minus attached.
65.	Extent of flow and channel modification	B	Some areas are A, some areas include massive dams and water infrastructure which influence the extent of flow and channel modification.
66.	Impact of land-use changes on hydrological processes	B	mining and commercial agriculture show their impacts
67.	Uncertainty associated to climate change predictions regarding precipitation for the basin	D (0.2-0.4)	Source: Illustration from MAGICC-SCENGEN tool at the end of the guidance document
67.a	<i>Case-specific indicator(s)...</i>		

C) Performance

No.	Indicator	Score	Comments
I) Progress towards stated Goals			
68.	Progress towards sustainable access to safe drinking water (MDG drinking water target)	ZA: A LS: B NAM: A RB: A	Source: WHO & UNICEF (2008), Progress on Drinking Water and Sanitation: Special Focus on Sanitation, http://www.wssinfo.org/en/40_MDG2008.html Values for 2006
69.	Proportion of population with access to improved drinking water	ZA: B (93%) LS: C (78%) NAM: B (93%) RB: B (96%)	Source: UN statistics of MDG progress, http://mdgs.un.org/unsd/mdg/Data.aspx Values for 2006
70.	Proportion of rural population with access to improved drinking water	ZA: C (82%) LS: D (74%) NAM: C (90%) RB: C (90%)	Source: UN statistics of MDG progress, http://mdgs.un.org/unsd/mdg/Data.aspx Values for 2006
71.	Progress towards sustainable access to basic sanitation (MDG sanitation target)	ZA: C LS: C NAM: C RB: C	Source: WHO & UNICEF (2008), Progress on Drinking Water and Sanitation: Special Focus on Sanitation, http://www.wssinfo.org/en/40_MDG2008.html Values for 2006
72.	Proportion of population with access to improved sanitation facilities	ZA: D (59%) LS: E (36%) NAM: E (35%) RB: E (47%)	Source: UN statistics of MDG progress, http://mdgs.un.org/unsd/mdg/Data.aspx Values for 2006

No.	Indicator	Score	Comments
73.	Proportion of rural population with access to improved sanitation facilities	ZA: E (49%) LS: E (34%) NAM: E (18%) RB: E (30%)	Source: UN statistics of MDG progress, http://mdgs.un.org/unsd/mdg/Data.aspx Values for 2006
73.a	<i>Case-specific indicator(s)...</i>		
II) Good governance principles as indicators for the process dimension			
74.	Participatory regarding decision making in the water sector	C B C+	Please check my comments above (Eiman Karer) Sabine SH: at least in the water sector EH: between obligation and binding consequences: B-C <u>Post-processing comment:</u> The score was changed from “B-C” to “C+”, because according to the original score, results of actual consultation processes are not necessarily binding. This justifies a “C” more than a “B”.
75.	Transparency regarding water allocation	B A	Sabine SH – without comment
76.	Effectiveness and efficiency regarding decision making in the water sector	C	
77.	Equitable and inclusive	C A B B	Sabine SH – without comment EH: considerable progress has been made (a C does not apply especially if compared to other cases such as UZ, which is a clear C)

No.	Indicator	Score	Comments
78.	Predictability – with regard to IWRM and climate change	B B/C B-	<p>The Legislation that informs water governance is anchored on IWRM principles, but degree to which effect is given to governance due to poor coordination is a challenge. Climate change is taken note of but still needs to be mainstreamed into planning and management</p> <p>Sabine SH: B for IWRM and C for Climate Change (only indirect references)</p> <p>EH: agree to SH</p> <p>Post-processing comment: The score was changed from “B-C” to “B-“, because according to the preliminary scores and the comments, the situation tends more to the “B” side.</p>
78.a	Case-specific indicator(s)...		
III) Stakeholder participation			
79.	Deliberative engagement opportunities	B+ B	<p>Discussions are common, not necessarily leading to changing decisions in a direct predictable way</p> <p>Sabine SH: if the law would be fully implemented it would be an A</p> <p>EH: cf. no 74: B-C</p>
80.	Inclusiveness of stakeholder participation	C+ B B	<p>Few vested interests and majority who are not aware of the processes in the water sector</p> <p>Sabine SH: for the moment, but once law fully implemented and CMAs created A</p>
80.a	Case-specific indicator(s)...		
IV) Response to climate change			
81.	Strategy for adaptation to climate change in the water sector	B(-)	<p>draft strategy is there ("zero version"), but not approved yet; the water-specific one is still in development</p>
82.	Availability of specific knowledge enabling adaptation	B C C	<p>it was done nationally, for each basin in the country (all quaternally and queneries)</p> <p>Sabine SH: not sure what data the experts are referring to here, but in my opinion what has been done up to now are impact assessments, hence, a C</p>

No.	Indicator	Score	Comments
83.	Awareness of water managers regarding adaptation to climate change	B	There has been fair degree of awareness raising lately among water managers
84.	Coordinated implementation process regarding adaptation to climate change: Program / Plan of activities and measures	C	The draft water related climate change response strategy is in place but needs to be finalized and then implemented
85.	Operational activities (measures)	C	
86.	Ways to deal with climate variability (floods and droughts)	A	Implementation of both flood and drought management is very good. The National Disaster Management Centre and Hydrology section at the Dept of Water Affairs ensures this.
86.a	<i>Case-specific indicator(s)...</i>		

Additional case-specific indicators

Please briefly define all case-specific indicators, which you have added, in the following table.

No.	Indicator	Definition	Hypothesis/ statement on relationship	Scoring scheme	How to assign scores (i.e. which indicators/ on which basis are scores allocated)	Comment on data source
	<i>Case-specific indicator 1</i>			- A	(A)	
	<i>Case-specific indicator 2</i>			- A	(A)	
	<i>Case-specific indicator 3</i>			- A	(A)	
	<i>Case-specific Indicator 4</i>			- A	(A)	
	<i>Case-specific Indicator 5</i>			- A	(A)	

Addendum - Context

No.	Indicator	Score	Comments
I) Basin Characteristics			
67a	Sub-Basin Size	528,857 km ²	Total Basin Area 896,368 km ² 100% Lesotho 26,891 km ² 3% South Africa 528,857 km ² 59% Namibia 242,019 km ² 27% Botswana 98,600 km ² 11% Total River Length 2,300 km (Source: NeWater Baseline Report Orange)
67b	Transboundary	Yes	Lesotho and South Africa (basin boarder to Botswana and Namibia)

Addendum - Performance

No.	Indicator	Score	Comments
I) Environmental sustainability			
a) State of the water resources and the environment			
87	Aquatic biodiversity	A	While most fish are still present their distribution may be negatively impacted. This index also does not consider other biota.
88	Invasive exotic species	C	Invasive fish and aquatic plants impact on many parts of the catchment.

No.	Indicator	Score	Comments
89	Surface and groundwater quality	D	Large parts of the basin have severely impacted water quality in particular in the Vaal tributary.
90	Groundwater use	C	Much of the basin is reliant on groundwater for domestic use as well as irrigation. Many areas are over-exploited.
91	Water Exploitation Index (WEI)	C (30%)	Score at basin level (national part). Calculated on the basis of data from Orange River Water Resources Plan. http://www.orasecom.org/publications/iwrm+plan.aspx (2009)
b) Management practices			
92	Water allocated for aquatic ecosystem	B	While there is legislation requiring this – the ecological requirements are not fully documented and thus are not yet operational.
93	Water pollution incidents	C	Response to pollution of the water resource has almost collapsed with the main culprits being the municipalities.
94	Water quality monitoring	B	Monitoring extent has deteriorated in recent years.
95	Hydrometeorological monitoring – levels	B	SA's Hydrometeorological monitoring network used to be very good and in majority has been operated for many decades. But in the last 15 years it is degrading more and more. Less data is delivered and the quality is also more and more problematic. There is even no proper quality control preformed by the SA Meteorological Service.
96	Level of understanding of groundwater resources	B	Groundwater information has become more prominent over the last few years.