

Basin Report:

Questionnaire + Addendum

To review case study basins

with regard to their water governance regime contact and
performance

Okavango Basin

With focus on the Namibian part

Case Study from the TWINBAS project

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. The report only considers the national part of the basin.
- ❖ In general, you should check the GWP toolbox for papers, reports, etc. as data sources of your region, especially with regard to the water governance regime.

The questionnaire was completed by Twin2Go staff in collaboration with local experts previously involved in TwinBas.

Based on the preliminary synthesis results and discussion during the Twin2Go synthesis workshop (Stockholm, 01-02/09/10) an addendum was made with some additional parameters. This addendum has been filled by the same experts.

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	Namibian Water Resources Management Act 2004, Act no 24. A new Water Resources Management Bill has in principle been approved by the Parliament in 2010.
2.	Domestic Water Law: Public character of water and legal status of water use rights	A	The 2004 and 2010 water resources act and bill recognises that the water belong to the people of Namibia. The previous act from 1995 had the same clause.
3.	Domestic Water Law: Explicit recognition of traditional and indigenous water uses	B	Water for personal and domestic use is exempted from the requirement of having a license.
4.	Domestic Water Law: On flow availability, third party rights and ecological requirements	A	The 2004 act makes provisions to develop a national water management plan and to establish a revision period every five years. The Integrated Water Resources Management Strategy and Action Plan was developed in 2006.
5.	Integration of domestic water legislation	A	The 2004 act regulates all types of water use.
6.	Multilevel structure of domestic water legislation and subsidiarity	A	The 2004 Act delegates functions to regional and basin level.
7.	Existence of formal domestic administrative structure for water governance	A	A Water resources management agency and council exists as well as basin organisations and water user associations.
8.	National basin organisation or comparable arrangement	A	The Water resources management agency is the overall planning agency. Basin organisations are planned but not in operation in all basins.
9.	Formalised transboundary coordination organisation	A	Transboundary organisations exists for Okavango (OKACOM and ORANGE ORASECOM)

No.	Indicator	Score	Comments
10.	Formal institution (legislation) that prescribes the basin management principle	B	The Water Act 2004 prescribes the basin management principle.
11.	Water (basin) strategies, programmes and plans	B	Plans are in progress, and have been finalised for some basins like Orange.
12.	Financing mechanisms: Degree of investment from private sector/ public/ other sources (e.g. international)	B	Public sector in irrigation, private sector in some hydropower/reservoir schemes.
13.	Economic instruments Is water for irrigation priced?	C	A water abstraction fee is levied, however below cost recovery.
14.	Economic instruments Is water for households priced in urban areas?	B	A water abstraction fee is levied, however below cost recovery. NamWater is the parastatal organisations which abstracts bulk water and distributes to consumers with a user charge.
15.	Economic instruments Is water for industry priced?	B	A water abstraction fee is levied, however below cost recovery.
16.	Tradable permits related to water abstraction/use	C	No
17.	Polluter pays principle (related to water)	B	Polluter Pays Principle is in the act however implementation weak.
18.	Environmental subsidies (related to water)	C	No
19.	Payment for ecosystem services (related to water)	C	No
20.	Tradable permits (related to water quality, maximum, allowable loads etc.)	C	No
21.	Environmental tax (related to water)	C	Environmental taxes exists however not related to water
22.	Presence of substituting informal institutions for management of water	A	Stakeholders are engaged however under formal institutions.
23.	Presence of complementary informal institutions for water management	B	Does not play a significant role.

No.	Indicator	Score	Comments
23.a	<i>Case-specific indicator(s)...</i>		
b) Formalisation of IWRM principles & Millennium Development Goals			
24.	Formalised IWRM principles	A	The act and water management strategy is based on IWRM principles
25.	State of implementation of IWRM principles	B	Basin management plans exists for some basins implementation lagging behind for some basins.
26.	Capacity to implement IWRM	B	Capacity building activities are supported by government and international donors.
27.	Is universal and non-discriminatory access to safe drinking water and sanitation a goal?	A	Yes, its even a criteria that the access should be affordable.
28.	Integration of wetlands in IWRM and IRBM*	B	Yes for the Okavango basin
28.a	<i>Case-specific indicator(s)...</i>		
c) Decision making regarding uncertainties			
29.	General practices for dealing with uncertainties	B	Not specifically mentioned in the act of management strategies.
30.	Dealing with uncertainties: Reversible and flexible options	B	Not specifically mentioned in the act of management strategies
31.	Dealing with uncertainties: Safety margins	B	Not specifically mentioned in the act of management strategies
32.	Are scenarios used for decision making?	A	Scenarios are sometimes used in basin planning however depending on the situation.
33.	Climate risks: Climate variability and change	A	Climate variability and change is being assessed as part of donor funded projects
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			

No.	Indicator	Score	Comments
34.	Vertical coordination (governmental)	A	Vertical coordination is established and functional
35.	Horizontal coordination (governmental)	C	Horizontal coordination exists (WASCO) however this coordination body never meets.
36.	Role of local governments	B	Local governments participate as a stakeholder in basin management organisations where these exists
<i>36.a</i>	<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	
38.	Access to information => about expert knowledge and management plans	B	Information is accessible
<i>38.a</i>	<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	The ministry is the dominant partner
40.	Degree of centralisation	B	Decentralisation has taken place, with the ministry being still in control
41.	Technical capacity and economies of scale	B	There is limited capacity a lower levels.
42.	Legal obligations and responsibility	A	Well defined in the act- 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	64.9	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	C (0.686)	Human Development Index Source: UNDP: Human Development Report Values for 2009 http://hdrstats.undp.org/en/countries/country_fact_sheets/cty_fs_SWE.html
45.	Social sustainability (Gini Index)	E (74.3)	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)	D (4,547)	GDP per capita (US-\$, PPP-corrected) Source: World Bank, http://siteresources.worldbank.org/ICPINT/Resources/icp-final-tables.pdf Values for 2005 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) GDP per capita (US-\$, PPP-corrected) Source: World Bank, http://siteresources.worldbank.org/ICPINT/Resources/icp-final-tables.pdf Values for 2005

No.	Indicator	Score	Comments
47.	Effectiveness of formal institutions	C (4.5)	Corruption Perception Index Source: Transparency International, http://www.transparency.org/policy_research/surveys_indices/cpi/2009/cpi_2009_table Values for 2009
48.	Trustworthiness of economic institutional setting - degree of risk for foreign direct investment	No data	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	A (9.00)	Press Freedom Index Source: Reporters without Borders, http://www.rsf.org/en-classement1003-2009.html Values for 2009
49.a	<i>Case-specific indicator(s)...</i>		
II) Good Governance Principles at the national level – legal basis at the national level			
50.	Participatory regarding decision making in the water sector	B	There is no platform for stakeholder interaction at national level. Stakeholder interaction takes place at lower levels – at basin and local level.
51.	Transparency regarding water allocation	B	
52.	Effectiveness and efficiency regarding decision making in the water sector	B	
53.	Equitable and inclusive	B	Based on IWRM principles
54.	Predictability – with regard to IWRM and climate change	B	
54.a	<i>Case-specific indicator(s)...</i>		

No.	Indicator	Score	Comments
III) Environmental dimension			
55.	Köppen-Geiger climate classification (river basin)	BWk BWh	Source: Kottek, M., J. Grieser, C. Beck, B. Rudolf, and F. Rubel (2006), http://koeppen-geiger.vu-wien.ac.at/present.htm#maps
56.	Climate Moisture Index	A	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
57.	Climate Moisture Index Coefficient of Variation	A	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
58.	Per Capita Equivalent of TARWA	C (8810)	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)	Source: University of Kassel, WaterGAP 2.0, http://www.env-edu.gr/Documents/World%20Water%20in%202025.pdf
60.	Annual renewable water supply per person by river basin (1995)	E	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)	E	Source: World Resources Institute, EarthTrends 2001, http://earthtrends.wri.org/pdf_library/maps/2-4_m_WaterSupply2025.pdf
62.	Relative Water Stress Index	E	Source: UNESCO, World Water Development Report II, http://wwdrii.sr.unh.edu/download.html
63.	Climate Vulnerability Index	D	Source: Oxford Centre for Water Research (OCWR), 2008-2010, http://ocwr.ouce.ox.ac.uk/research/wmpg/cvi/

No.	Indicator	Score	Comments
64.	Degree to which water quality status restricts usability of users' types	A	WFD RBMP
65.	Extent of flow and channel modification	B	Significant flow and channel modification
66.	Impact of land-use changes on hydrological processes	B	Land use changes has a significant effect on hydrological processes.
67.	Uncertainty associated to climate change predictions regarding precipitation for the basin	D	Source: Illustration from MAGICC-SCENGEN
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)	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	C (92%)	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	C (88%)	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)	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	E (33%)	Source: UN statistics of MDG progress, http://mdgs.un.org/unsd/mdg/Data.aspx Values for 2006
73.	Proportion of rural population with access to improved sanitation facilities	E (17%)	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	A	Stakeholder participation practices in decision making.

No.	Indicator	Score	Comments
75.	Transparency regarding water allocation	B	
76.	Effectiveness and efficiency regarding decision making in the water sector	B	
77.	Equitable and inclusive	B	
78.	Predictability – with regard to IWRM and climate change	C	
78.a	<i>Case-specific indicator(s)...</i>		
III) Stakeholder participation			
79.	Deliberative engagement opportunities	B	
80.	Inclusiveness of stakeholder participation	A	All relevant stakeholder groups are included.
80.a	<i>Case-specific indicator(s)...</i>		
IV) Response to climate change			
81.	Strategy for adaptation to climate change in the water sector	C	Namibia has not developed a NAPA. A second communication to UNFCCC (planned for 2011) is in progress. This communication will also address water resources.
82.	Availability of specific knowledge enabling adaptation	B	Knowledge on impacts on climate change impacts on water resources in Namibia is being established- primarily through internationally supported activities.
83.	Awareness of water managers regarding adaptation to climate change	B	Awareness raising activities has been undertaken as parts of national and international activities.
84.	Coordinated implementation process regarding adaptation to climate change: Program / Plan of activities and measures	C	No coordinated implementation.

No.	Indicator	Score	Comments
85.	Operational activities (measures)	E	No operational measures.
86.	Ways to deal with climate variability (floods and droughts)	B	
<i>86.a</i>	<i>Case-specific indicator(s)...</i>		

Context

No.	Indicator	Score	Comments
I) Basin Characteristics			
67a	Sub-Basin Size	153.783 km ² (37% of the basin)	
67b	Transboundary	Yes	Riparian countries Angola, Namibia and Botswana

Performance

No.	Indicator	Score	Comments
I) Environmental sustainability			
a) State of the water resources and the environment			
87	Aquatic biodiversity	A	EPSMO project, Technical Diagnostic study, Okavango Environmental Flow Assessment, fish study, 2009
88	Invasive exotic species	A	EPSMO project, Technical Diagnostic study, Okavango Environmental Flow Assessment, fish study, 2009
89	Surface and groundwater quality	A	EPSMO project, Technical Diagnostic study, Okavango Environmental Flow Assessment, Water Quality study, 2009
90	Groundwater use	B	Groundwater use has intensified
91	Water Exploitation Index (WEI)		

No.	Indicator	Score	Comments
b) Management practices			
92	Water allocated for aquatic ecosystem	B	EPSMO project, Technical Diagnostic study, Okavango Environmental Flow Assessment Water resources and hydrology study, 2009
93	Water pollution incidents	A	Water Quality good with no specific pollution incidents, EPSMO project, Technical Diagnostic study, Okavango Environmental Flow Assessment, Water Quality study, 2009
94	Water quality monitoring	C	No systematic water quality monitoring, only research level, EPSMO project, Technical Diagnostic study, Okavango Environmental Flow Assessment, fish study, 2009
95	Hydrometeorological monitoring – levels	B	Hydrological monitoring network exists, with time series, however network is not very dense. EPSMO project, Technical Diagnostic study, Okavango Environmental Flow Assessment Water resources and hydrology study, 2009
96	Level of understanding of groundwater resources	B	Groundwater management committees have been established at least for two basins in Namibia