

Basin Risk Indicators - Descriptions, Sources and Links

Risk type	Risk category	#	Risk indicator	Description	Source	Link	
Physical Risk	1. Water Scarcity	1.0	Aridity Index	The aridity index expresses the amount of fresh water available by month for the basins in Brazil (ottobacias level 6) for the year 2012. The index was calculated by the ratio of evapotranspiration and precipitation accumulated by month. The input data was based on the product MOD16A2 collected from the Geoprocessing and Remote Sensing Lab from the Universidade Federal de Goiás – Brazil.	Laboratório de Processamento de Imagens e Geoprocessamento (LAPIG) - Universidade Federal de Goiás	https://www.lapig.iesa.ufg.br/lapig/	
		1.1	Quantitative Water Balance	The annual average monthly net water depletion is the ratio between the consumptive uses and the water availability, in other words, the difference between the amount of water availability and its demand. The consumptive water demands considered in the water balance are the industrial and irrigation (updated until 2014), the urban water supply and animal water (updated until 2013). Water availability was updated in 2015 for some of the country's hydrographic basins and in the regularization reservoirs.	National Water Resources Information System	http://www.snirh.gov.br	
		1.2	Baseline Water Stress	See Global Documentation on Indicators, Sources and Description			
		1.3	Blue Water Scarcity	See Global Documentation on Indicators, Sources and Description			
		1.4	Available Water Remaining (AWARE)	See Global Documentation on Indicators, Sources and Description			
		1.5	Estimated Drought Occurrence	This indicator is based on raw data for the number of reported droughts by county from 2003 to 2015 (no year is distinguished). The data is expressed in integer numbers ranging from 1 to 25.	National Water Resources Information System	http://www.snirh.gov.br	
		1.6	Projected Change in Drought Occurrence	See Global Documentation on Indicators, Sources and Description			
	2. Flooding	2.1	Estimated Flood Occurrence	This indicator is based on raw data for the number of reported floods by county from 2003 to 2015 (no year is distinguished). The data is expressed in integer numbers ranging from 1 to 16.	National Water Resources Information System	http://www.snirh.gov.br	
		2.2	Projected Change in Flood Occurrence	See Global Documentation on Indicators, Sources and Description			
	3. Water Quality	3.1	Surface Water Quality Index	This indicator is expressed by the Brazilian Water Quality Index (IQA), which consists of contamination parameters and their weight coefficients (w) according to their importance on water quality, obtained from average variation curves (http://portalpnqa.ana.gov.br/indicadores-indice-aguas.aspx).	National Water Resources Information System	http://www.snirh.gov.br	

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		3.1.1	Nitrogen loading	<i>This indicator was produced to inform the Surface Water Contamination Index.</i>	Vörösmarty, C. J., McIntyre, P. B., Gessner, M. O., Dudgeon, D., Prusevich, A., Green, P., ... & Davies, P. M. (2010). Global threats to human water security and river biodiversity. <i>Nature</i> , 467(7315), 555.	https://www.nature.com/articles/nature09440
		3.1.2	Phosphorus loading	<i>This indicator was based on the average of phosphorus gauged for monitored basins.</i>	National Water Resources Information System	http://www.snirh.gov.br
		3.1.3	Pesticide loading	<i>This indicator was produced to inform the Surface Water Contamination Index.</i>	Vörösmarty, C. J., McIntyre, P. B., Gessner, M. O., Dudgeon, D., Prusevich, A., Green, P., ... & Davies, P. M. (2010). Global threats to human water security and river biodiversity. <i>Nature</i> , 467(7315), 555.	https://www.nature.com/articles/nature09440
		3.1.4	Soil salination	<i>This indicator was produced to inform the Surface Water Contamination Index.</i>	Vörösmarty, C. J., McIntyre, P. B., Gessner, M. O., Dudgeon, D., Prusevich, A., Green, P., ... & Davies, P. M. (2010). Global threats to human water security and river biodiversity. <i>Nature</i> , 467(7315), 555.	https://www.nature.com/articles/nature09440
		3.1.5	Organic loading (BOD)	<i>This indicator was based on the BOD average.</i>	National Water Resources Information System	http://www.snirh.gov.br
		3.1.6	Sediment loading (Turbidity)	<i>This indicator was based on the average of turbidity gauged in 2014.</i>	National Water Resources Information System	http://www.snirh.gov.br
		3.1.7	Mercury loading	<i>This indicator was produced to inform the Surface Water Contamination Index.</i>	Vörösmarty, C. J., McIntyre, P. B., Gessner, M. O., Dudgeon, D., Prusevich, A., Green, P., ... & Davies, P. M. (2010). Global threats to human water security and river biodiversity. <i>Nature</i> , 467(7315), 555.	https://www.nature.com/articles/nature09440
		3.1.8	Potential Acidification	<i>This indicator was produced to inform the Surface Water Contamination Index.</i>	Vörösmarty, C. J., McIntyre, P. B., Gessner, M. O., Dudgeon, D., Prusevich, A., Green, P., ... & Davies, P. M. (2010). Global threats to human water security and river biodiversity. <i>Nature</i> , 467(7315), 555.	https://www.nature.com/articles/nature09440
		3.1.9	Thermal alteration	<i>This indicator was produced to inform the Surface Water Contamination Index.</i>	Vörösmarty, C. J., McIntyre, P. B., Gessner, M. O., Dudgeon, D., Prusevich, A., Green, P., ... & Davies, P. M. (2010). Global threats to human water security and river biodiversity. <i>Nature</i> , 467(7315), 555.	https://www.nature.com/articles/nature09440

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	4. Ecosystem Services Status	4.1	Fragmentation Status of Rivers	See Global Documentation on Indicators, Sources and Description		
		4.2	Catchment Ecosystem Services Degradation Level	See Global Documentation on Indicators, Sources and Description		
		4.3	Projected Impacts on Freshwater Biodiversity	See Global Documentation on Indicators, Sources and Description		
Regulatory Risk	5. Enabling Environment	5.1	Freshwater Policy Status (SDG 6.5.1)	See Global Documentation on Indicators, Sources and Description		
		5.2	Freshwater Law Status (SDG 6.5.1)	See Global Documentation on Indicators, Sources and Description		
		5.3	Implementation Status of Water Management Plans (SDG 6.5.1)	See Global Documentation on Indicators, Sources and Description		
	6. Institutions & Governance	6.1	Corruption Perceptions Index	See Global Documentation on Indicators, Sources and Description		
		6.2	Freedom in the World Index	See Global Documentation on Indicators, Sources and Description		
		6.3	Business Participation in Water Management (SDG 6.5.1)	See Global Documentation on Indicators, Sources and Description		
	7. Management Instruments	7.1	Management Instruments for Water Management (SDG 6.5.1)	See Global Documentation on Indicators, Sources and Description		

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		7.2	Groundwater Monitoring Data Availability and Management	See Global Documentation on Indicators, Sources and Description		
		7.3	Density of Runoff Monitoring Stations	See Global Documentation on Indicators, Sources and Description		
	8. Infrastructure & Finance	8.1	Access to Safe Drinking Water	The underlying data for this risk indicator comes from the conditions of access of drinking water structure by county. It is a qualitative assessment obtained from the National Water Resources Information System.	National Water Resources Information System	http://www.snirh.gov.br
		8.2	Access to Sanitation	See Global Documentation on Indicators, Sources and Description		
		8.3	Financing for Water Resource Development and Management (SDG 6.5.1)	See Global Documentation on Indicators, Sources and Description		
Reputational Risk	9. Cultural Importance	9.1	Cultural/Religious Water Roles	The main input for this risk indicator is the official indigenous lands across the country from the official organization National Indian Foundation (http://www.funai.gov.br/index.php/shape). This parameter assumes that on the basins with indigenous lands within their boundaries, the water is considered somehow important to cultural and/or religious activities.	FUNAI - National Indian Foundation	http://www.funai.gov.br/index.php/shape
	10. Biodiversity Importance	10.1	Freshwater Endemism	See Global Documentation on Indicators, Sources and Description		
		10.2	Freshwater Biodiversity Richness	See Global Documentation on Indicators, Sources and Description		
	11. Media Scrutiny	11.1	National Media Coverage	See Global Documentation on Indicators, Sources and Description		
		11.2	Global Media Coverage	See Global Documentation on Indicators, Sources and Description		
	12. Conflict	12.1	Conflict News Events	See Global Documentation on Indicators, Sources and Description		

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		12.2	Hydro-political Likelihood	See Global Documentation on Indicators, Sources and Description		