

Annexes

Annex I List of contributing authors and organisations

Name	Institutional affiliation	Country	Field of work
Lead author and coordinator			
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Notes: ¹ Mhammed Taya coordinated all the work and prepared the Scaling and Scoping part as well as the Causal chain and Policy options for the Souss Massa River. With contribution from Tayeb Ameziane and Abdelaziz Sbai in the preparation of the Causal chain and Policy options for the Souss Massa River.

² Prepared the Causal chain and Policy options analyses for the marine fisheries. With contributions from Moustapha DEME and Mika Samba DIOP.

³ Gora Ndiaye prepared the Causal Chain analysis and Policy options of the Streamflow modification of the Senegal River.

Annex II

Detailed scoring tables: Canary Current North

I: Freshwater shortage

Environmental issues	Score	Weight	Environmental concern	Weight averaged score
1. Modification of stream flow	1	30	Freshwater shortage	1.5
2. Pollution of existing supplies	1	40		
3. Changes in the water table	2	40		

Criteria for Economics impacts	Raw score	Score	Weight %
Size of economic or public sectors affected	Very small Very large	2	30
Degree of impact (cost, output changes etc.)	Minimum Severe	2	40
Frequency/Duration	Occasion/Short Continuous	2	30
Weight average score for Economic impacts		2.0	
Criteria for Health impacts	Raw score	Score	Weight %
Number of people affected	Very small Very large	1	40
Degree of severity	Minimum Severe	1	40
Frequency/Duration	Occasion/Short Continuous	0	20
Weight average score for Health impacts		0.8	
Criteria for Other social and community impacts	Raw score	Score	Weight %
Number and/or size of community affected	Very small Very large	1	40
Degree of severity	Minimum Severe	1	40
Frequency/Duration	Occasion/Short Continuous	1	20
Weight average score for Other social and community impacts		1.0	

II: Pollution

Environmental issues	Score	Weight	Environmental concern	Weight averaged score
4. Microbiological	0	10	Pollution	1.0
5. Eutrophication	1	40		
6. Chemical	1	20		
7. Suspended solids	2	10		
8. Solid wastes	1	10		
9. Thermal	0	0		
10. Radionuclides	0	0		
11. Spills	1	10		

Criteria for Economics impacts	Raw score	Score	Weight %
Size of economic or public sectors affected	Very small Very large	1	40
Degree of impact (cost, output changes etc.)	Minimum Severe	1	40
Frequency/Duration	Occasion/Short Continuous	1	20
Weight average score for Economic impacts		1.0	
Criteria for Health impacts	Raw score	Score	Weight %
Number of people affected	Very small Very large	1	40
Degree of severity	Minimum Severe	1	40
Frequency/Duration	Occasion/Short Continuous	1	20
Weight average score for Health impacts		1.0	
Criteria for Other social and community impacts	Raw score	Score	Weight %
Number and/or size of community affected	Very small Very large	1	40
Degree of severity	Minimum Severe	1	20
Frequency/Duration	Occasion/Short Continuous	1	40
Weight average score for Other social and community impacts		1.0	

III: Habitat and community modification

Environmental issues	Score	Weight	Environmental concern	Weight averaged score
12. Loss of ecosystems	3	50	Habitat and community modification	2.0
13. Modification of ecosystems or ecotones, including community structure and/or species composition	1	50		

Criteria for Economics impacts	Raw score	Score	Weight %
Size of economic or public sectors affected	Very small Very large	2	2
Degree of impact (cost, output changes etc.)	Minimum Severe	1	3
Frequency/Duration	Occasion/Short Continuous	2	3
Weight average score for Economic impacts			1.6
Criteria for Health impacts	Raw score	Score	Weight %
Number of people affected	Very small Very large	0	40
Degree of severity	Minimum Severe	0	40
Frequency/Duration	Occasion/Short Continuous	0	20
Weight average score for Health impacts			0
Criteria for Other social and community impacts	Raw score	Score	Weight %
Number and/or size of community affected	Very small Very large	0	40
Degree of severity	Minimum Severe	0	40
Frequency/Duration	Occasion/Short Continuous	0	20
Weight average score for Other social and community impacts			0

IV: Unsustainable exploitation of fish and other living resources

Environmental issues	Score	Weight %	Environmental concern	Weight averaged score
14. Overexploitation	3	30	Unsustainable exploitation of fish	2.3
15. Excessive by-catch and discards	2	25		
16. Destructive fishing practices	2	20		
17. Decreased viability of stock through pollution and disease	0	0		
18. Impact on biological and genetic diversity	2	25		

Criteria for Economics impacts	Raw score	Score	Weight %
Size of economic or public sectors affected	Very small Very large	2	30
Degree of impact (cost, output changes etc.)	Minimum Severe	2	50
Frequency/Duration	Occasion/Short Continuous	2	20
Weight average score for Economic impacts			2.0
Criteria for Health impacts	Raw score	Score	Weight %
Number of people affected	Very small Very large	0	30
Degree of severity	Minimum Severe	0	50
Frequency/Duration	Occasion/Short Continuous	0	20
Weight average score for Health impacts			0
Criteria for Other social and community impacts	Raw score	Score	Weight %
Number and/or size of community affected	Very small Very large	2	40
Degree of severity	Minimum Severe	1	40
Frequency/Duration	Occasion/Short Continuous	2	20
Weight average score for Other social and community impacts			1.6

V: Global change

Environmental issues	Score	Weight	Environmental concern	Weight averaged score
19. Changes in the hydrological cycle	1	70	Global change	0.8
20. Sea level change	1	10		
21. Increased UV-B radiation as a result of ozone depletion	0	10		
22. Changes in ocean CO ₂ source/sink function	0	10		

Criteria for Economics impacts	Raw score	Score	Weight %
Size of economic or public sectors affected	Very small Very large	1	40
Degree of impact (cost, output changes etc.)	Minimum Severe	1	40
Frequency/Duration	Occasion/Short Continuous	1	20
Weight average score for Economic impacts		1.0	
Criteria for Health impacts	Raw score	Score	Weight %
Number of people affected	Very small Very large	0	40
Degree of severity	Minimum Severe	0	40
Frequency/Duration	Occasion/Short Continuous	0	20
Weight average score for Health impacts		0	
Criteria for Other social and community impacts	Raw score	Score	Weight %
Number and/or size of community affected	Very small Very large	1	40
Degree of severity	Minimum Severe	1	40
Frequency/Duration	Occasion/Short Continuous	1	20
Weight average score for Other social and community impacts		1.0	

Comparative environmental and socio-economic impacts of each GIWA concern

Concern	Types of impacts								Overall score	Rank
	Environmental score		Economic score		Human health score		Social and community score			
	Present (a)	Future (b)	Present (a)	Future (b)	Present (a)	Future (b)	Present (a)	Future (b)		
Freshwater shortage	1.5	3.0	2.0	3.0	0.8	2.0	1.0	2.0	1.9	1
Pollution	1.0	2.0	1.0	1.0	1.0	1.0	1.0	1.0	1.1	3
Habitat and community modification	2.0	1.0	1.6	1.0	0	0.0	0	0.0	0.7	5
Unsustainable exploitation of fish and other living resources	2.3	1.0	2.0	1.0	0	2.0	1.6	1.0	1.4	2
Global change	0.8	2.0	1.0	2.0	0	1.0	1.0	1.0	1.1	4

Detailed scoring tables: Canary Current South

I: Freshwater shortage

Environmental issues	Score	Weight	Environmental concern	Weight averaged score
1. Modification of stream flow	2	30	Freshwater shortage	1.8
2. Pollution of existing supplies	2	40		
3. Changes in the water table	1	40		

Criteria for Economics impacts	Raw score	Score	Weight %
Size of economic or public sectors affected	Very small Very large	2	30
Degree of impact (cost, output changes etc.)	Minimum Severe	2	40
Frequency/Duration	Occasion/Short Continuous	2	30
Weight average score for Economic impacts			2.0
Criteria for Health impacts	Raw score	Score	Weight %
Number of people affected	Very small Very large	2	40
Degree of severity	Minimum Severe	2	40
Frequency/Duration	Occasion/Short Continuous	3	20
Weight average score for Health impacts			2.2
Criteria for Other social and community impacts	Raw score	Score	Weight %
Number and/or size of community affected	Very small Very large	2	40
Degree of severity	Minimum Severe	1	40
Frequency/Duration	Occasion/Short Continuous	1	20
Weight average score for Other social and community impacts			1.4

II: Pollution

Environmental issues	Score	Weight	Environmental concern	Weight averaged score
4. Microbiological	1	10	Pollution	1.8
5. Eutrophication	2	40		
6. Chemical	2	20		
7. Suspended solids	2	10		
8. Solid wastes	2	10		
9. Thermal	0	0		
10. Radionuclides	0	0		
11. Spills	1	10		

Criteria for Economics impacts	Raw score	Score	Weight %
Size of economic or public sectors affected	Very small Very large	1	40
Degree of impact (cost, output changes etc.)	Minimum Severe	1	40
Frequency/Duration	Occasion/Short Continuous	1	20
Weight average score for Economic impacts			1.0
Criteria for Health impacts	Raw score	Score	Weight %
Number of people affected	Very small Very large	1	40
Degree of severity	Minimum Severe	1	40
Frequency/Duration	Occasion/Short Continuous	1	20
Weight average score for Health impacts			1.0
Criteria for Other social and community impacts	Raw score	Score	Weight %
Number and/or size of community affected	Very small Very large	2	40
Degree of severity	Minimum Severe	1	20
Frequency/Duration	Occasion/Short Continuous	2	40
Weight average score for Other social and community impacts			1.8

III: Habitat and community modification

Environmental issues	Score	Weight	Environmental concern	Weight averaged score
12. Loss of ecosystems	3	50	Habitat and community modification	3.0
13. Modification of ecosystems or ecotones, including community structure and/or species composition	3	50		

Criteria for Economics impacts	Raw score	Score	Weight %
Size of economic or public sectors affected	Very small Very large	2	40
Degree of impact (cost, output changes etc.)	Minimum Severe	3	40
Frequency/Duration	Occasion/Short Continuous	3	20
Weight average score for Economic impacts			2.6
Criteria for Health impacts	Raw score	Score	Weight %
Number of people affected	Very small Very large	2	40
Degree of severity	Minimum Severe	2	40
Frequency/Duration	Occasion/Short Continuous	1	20
Weight average score for Health impacts			1.8
Criteria for Other social and community impacts	Raw score	Score	Weight %
Number and/or size of community affected	Very small Very large	1	40
Degree of severity	Minimum Severe	1	40
Frequency/Duration	Occasion/Short Continuous	1	20
Weight average score for Other social and community impacts			1.0

IV: Unsustainable exploitation of fish and other living resources

Environmental issues	Score	Weight %	Environmental concern	Weight averaged score
14. Overexploitation	3	30	Unsustainable exploitation of fish	2.5
15. Excessive by-catch and discards	2	25		
16. Destructive fishing practices	3	20		
17. Decreased viability of stock through pollution and disease	0	0		
18. Impact on biological and genetic diversity	2	25		

Criteria for Economics impacts	Raw score	Score	Weight %
Size of economic or public sectors affected	Very small Very large	2	30
Degree of impact (cost, output changes etc.)	Minimum Severe	3	50
Frequency/Duration	Occasion/Short Continuous	2	20
Weight average score for Economic impacts			2.5
Criteria for Health impacts	Raw score	Score	Weight %
Number of people affected	Very small Very large	1	30
Degree of severity	Minimum Severe	1	50
Frequency/Duration	Occasion/Short Continuous	2	20
Weight average score for Health impacts			1.2
Criteria for Other social and community impacts	Raw score	Score	Weight %
Number and/or size of community affected	Very small Very large	3	40
Degree of severity	Minimum Severe	2	40
Frequency/Duration	Occasion/Short Continuous	2	20
Weight average score for Other social and community impacts			2.4

V: Global change

Environmental issues	Score	Weight	Environmental concern	Weight averaged score
19. Changes in the hydrological cycle	1	70	Global change	0.8
20. Sea level change	1	10		
21. Increased UV-B radiation as a result of ozone depletion	0	10		
22. Changes in ocean CO ₂ source/sink function	0	10		

Criteria for Economics impacts	Raw score	Score	Weight %
Size of economic or public sectors affected	Very small Very large	1	40
Degree of impact (cost, output changes etc.)	Minimum Severe	1	40
Frequency/Duration	Occasion/Short Continuous	1	20
Weight average score for Economic impacts		1.0	
Criteria for Health impacts	Raw score	Score	Weight %
Number of people affected	Very small Very large	1	40
Degree of severity	Minimum Severe	1	40
Frequency/Duration	Occasion/Short Continuous	1	20
Weight average score for Health impacts		1.0	
Criteria for Other social and community impacts	Raw score	Score	Weight %
Number and/or size of community affected	Very small Very large	1	40
Degree of severity	Minimum Severe	1	40
Frequency/Duration	Occasion/Short Continuous	1	20
Weight average score for Other social and community impacts		1.0	

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Concern	Types of impacts								Overall score	Rank
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	Present (a)	Future (b)	Present (a)	Future (b)	Present (a)	Future (b)	Present (a)	Future (b)		
Freshwater shortage	1.8	3.0	2.0	3.0	2.2	3.0	1.0	2.0	2.3	1
Pollution	1.8	3.0	1.0	2.0	1.0	2.0	1.8	3.0	2.0	4
Habitat and community modification	3.0	2.0	2.6	2.0	1.8	1.0	1.0	1.0	1.8	3
Unsustainable exploitation of fish and other living resources	2.5	1.0	2.5	2.0	1.2	1.0	2.4	2.0	1.8	2
Global change	0.8	2.0	1.0	2.0	1.0	2.0	1.0	2.0	1.5	5

