Annexes

Annex I
List of contributing authors and organisation involved

Name	Institutional affiliation	Country	Field of work
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Annex II
Detailed scoring tables

I: Freshwater shortage

Environmental issues	Score	Weight %	Environmental concern	Weight averaged score
1. Modification of stream flow	2	45	Freshwater shortage	2.0
2. Pollution of existing supplies	2	20		
3. Changes in the water table	2	35		

Criteria for Economic impacts	Raw score	Score	Weight %
Size of economic or public sectors affected	Very small – Very large 0 1 2 3	2	50
Degree of impact (cost, output changes etc.)	Minimum – Severe 0 1 2 3	2	30
Frequency/Duration	Occasion/Short – Continuous 0 1 2 3	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 1 2 3	2	50
Degree of severity	Minimum – Severe 0 1 2 3	1	30
Frequency/Duration	Occasion/Short – Continuous 0 1 2 3	1	20
Weight average score for Health impacts		**1.5**	
Criteria for Other social and community impacts	**Raw score**	**Score**	**Weight %**
Number and/or size of community affected	Very small – Very large 0 1 2 3	1	50
Degree of severity	Minimum – Severe 0 1 2 3	1	30
Frequency/Duration	Occasion/Short – Continuous 0 1 2 3	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	2	20	Pollution	2.1
5. Eutrophication	2	10		
6. Chemical	2	10		
7. Suspended solids	3	15		
8. Solid wastes	2	25		
9. Thermal	1	2		
10. Radionuclide	1	2		
11. Spills	2	16		

Criteria for Economic impacts	Raw score	Score	Weight %
Size of economic or public sectors affected	Very small – Very large 0 1 2 3	2	50
Degree of impact (cost, output changes etc.)	Minimum – Severe 0 1 2 3	2	25
Frequency/Duration	Occasion/Short – Continuous 0 1 2 3	3	25
Weight average score for Economic impacts		**2.3**	
Criteria for Health impacts	**Raw score**	**Score**	**Weight %**
Number of people affected	Very small – Very large 0 1 2 3	2	50
Degree of severity	Minimum – Severe 0 1 2 3	2	25
Frequency/Duration	Occasion/Short – Continuous 0 1 2 3	2	25
Weight average score for Health impacts		**2.0**	
Criteria for Other social and community impacts	**Raw score**	**Score**	**Weight %**
Number and/or size of community affected	Very small – Very large 0 1 2 3	2	50
Degree of severity	Minimum – Severe 0 1 2 3	3	25
Frequency/Duration	Occasion/Short – Continuous 0 1 2 3	3	25
Weight average score for Other social and community impacts		**2.5**	

III: Habitat and community modification

Environmental issues	Score	Weight %	Environmental concern	Weight averaged score
12. Loss of ecosystems	2	60	Habitat and community modification	2.0
13.Modification of ecosystems or ecotones, including community structure and/or species composition	2	40		

Criteria for Economic impacts	Raw score	Score	Weight %
Size of economic or public sectors affected	Very small – Very large 0 1 2 3	2	50
Degree of impact (cost, output changes etc.)	Minimum – Severe 0 1 2 3	3	25
Frequency/Duration	Occasion/Short – Continuous 0 1 2 3	3	25
Weight average score for Economic impacts		**2.5**	
Criteria for Health impacts	**Raw score**	**Score**	**Weight %**
Number of people affected	Very small – Very large 0 1 2 3	2	50
Degree of severity	Minimum – Severe 0 1 2 3	1	25
Frequency/Duration	Occasion/Short – Continuous 0 1 2 3	1	25
Weight average score for Health impacts		**1.5**	
Criteria for Other social and community impacts	**Raw score**	**Score**	**Weight %**
Number and/or size of community affected	Very small – Very large 0 1 2 3	2	50
Degree of severity	Minimum – Severe 0 1 2 3	2	25
Frequency/Duration	Occasion/Short – Continuous 0 1 2 3	3	25
Weight average score for Other social and community impacts		**2.3**	

IV: Unsustainable exploitation of fish and other living resources

Environmental issues	Score	Weight %	Environmental concern	Weight averaged score
14. Overexploitation	3	40	Unsustainable exploitation of fish	2.0
15. Excessive by-catch and discards	1	20		
16. Destructive fishing practices	2	20		
17. Decreased viability of stock through pollution and disease	1	10		
18. Impact on biological and genetic diversity	1	10		

Criteria for Economic impacts	Raw score	Score	Weight %
Size of economic or public sectors affected	Very small – Very large 0 1 2 3	1	50
Degree of impact (cost, output changes etc.)	Minimum – Severe 0 1 2 3	2	25
Frequency/Duration	Occasion/Short – Continuous 0 1 2 3	3	25
Weight average score for Economic impacts		**1.8**	
Criteria for Health impacts	**Raw score**	**Score**	**Weight %**
Number of people affected	Very small – Very large 0 1 2 3	1	50
Degree of severity	Minimum – Severe 0 1 2 3	1	25
Frequency/Duration	Occasion/Short – Continuous 0 1 2 3	2	25
Weight average score for Health impacts		**1.3**	
Criteria for Other social and community impacts	**Raw score**	**Score**	**Weight %**
Number and/or size of community affected	Very small – Very large 0 1 2 3	1	50
Degree of severity	Minimum – Severe 0 1 2 3	3	25
Frequency/Duration	Occasion/Short – Continuous 0 1 2 3	2	25
Weight average score for Other social and community impacts		**1.8**	

V: Global change

Environmental issues	Score	Weight %	Environmental concern	Weight averaged score
19. Changes in the hydrological cycle	2	35	Global change	1.4
20. Sea level change	1	35		
21. Increased UV-B radiation as a result of ozone depletion	1	15		
22. Changes in ocean CO_2 source/sink function	1	15		

Criteria for Economic impacts	Raw score	Score	Weight %
Size of economic or public sectors affected	Very small Very large 0 1 2 3	3	34
Degree of impact (cost, output changes etc.)	Minimum Severe 0 1 2 3	3	33
Frequency/Duration	Occasion/Short Continuous 0 1 2 3	2	33
Weight average score for Economic impacts		**2.7**	
Criteria for Health impacts	**Raw score**	**Score**	**Weight %**
Number of people affected	Very small Very large 0 1 2 3	2	34
Degree of severity	Minimum Severe 0 1 2 3	2	33
Frequency/Duration	Occasion/Short Continuous 0 1 2 3	1	33
Weight average score for Health impacts		**1.7**	
Criteria for Other social and community impacts	**Raw score**	**Score**	**Weight %**
Number and/or size of community affected	Very small Very large 0 1 2 3	1	34
Degree of severity	Minimum Severe 0 1 2 3	3	33
Frequency/Duration	Occasion/Short Continuous 0 1 2 3	2	33
Weight average score for Other social and community impacts		**2.0**	

Comparative environmental and socio-economic impacts of each GIWA concern

Concern	Types of impacts								Overall score
	Environmental score		Economic score		Human health score		Social and community score		
	Present (a)	Future (b)	Present (c)	Future (d)	Present (e)	Future (f)	Present (g)	Future (h)	
Freshwater shortage	2.0	2.5	2	2.5	1.8	2.0	1.5	1.8	**2.0**
Pollution	2.1	2.4	2.3	2.5	2.0	2.5	2.5	2.8	**2.4**
Habitat and community modification	2.0	1.6	2.5	2.5	1.5	1.3	2.3	2.0	**2.0**
Unsustainable exploitation of fish and other living resources	2.0	2.2	1.8	2.0	1.3	1.6	1.8	2.2	**1.8**
Global change	1.4	1.5	2.7	3.0	1.7	2.0	2.0	2.0	**2.0**

If the results in this table were not giving a clear prioritisation, the scores were weighted by assigning different relative importance to present/future and environmental/socio-economic impacts in the following way:

Weight averaged environmental and socio-economic impacts of each GIWA concern

Present (%) (i)	Future (%) (j)	Total (%)
50	50	100

Environmental (k)	Economic (l)	Health (m)	Other social and community impacts (n)	Total (%)
25	25	25	25	100

Concern	Types of impacts					Rank
	Time weight averaged Environmental score (o)	Time weight averaged Economic score (p)	Time weight averaged Human health score (q)	Time weight averaged Social and community score (r)	Time weight averaged overall score	
	(a)x(i)+(b)x(j)	(c)x(i)+(d)x(j)	(e)x(i)+(f)x(j)	(g)x(i)+(h)x(j)	(o)x(k)+(p)x(l)+(q)x(m)+(r)x(n)	
Freshwater shortage	2.25	2.25	1.90	1.65	**2.0**	**2**
Pollution	2.26	2.38	2.25	2.65	**2.4**	**1**
Habitat and community modification	1.80	2.50	1.40	2.13	**2.0**	**4**
Unsustainable exploitation of fish and other living resources	2.10	1.88	1.43	1.98	**1.8**	**5**
Global change	1.43	2.84	1.84	2.00	**2.0**	**3**

Annex III
List of conventions and specific laws that affect water use in the region

Global environmental conventions relating to marine and coastal environment of special importance to the Caribbean

- Basel Convention on the Control of Transboundary Movements of Transboundary Wastes and their Disposal: Basel, 22 March 1989.
- Convention on Biological Diversity (CBD): Nairobi, 22 May 1989.
- Convention on International Trade In Endangered Species of Wild Fauna and Flora (CITES): Washington , 3 March 1973.
- International Convention on Civil Liability for Oil Pollution Damage (CLC): Brussels, 29, November 1969. (With amendments in 1976, 1984)
- International Convention for the Prevention of Pollution of the Sea by Oil (OILPOL): London, 12, May 1954 (with amendments in 1962 and 1969)
- International Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter: Convention on the prevention of marine pollution due to discharge of waste and other materials (London Convention): London, Mexico City, Moscow, Washington DC, 29 December 1972. (And its protocol of 1996).
- International Convention for the Prevention of Pollution from Ships (MARPOL 73/78): London, 2, November, 1973, as modified by the Protocol of 1978 relating thereto.
- Convention on Wetlands of International Importance especially as Waterfowl Habitat (Ramsar): 2, February, 1971.
- International Convention for the Safety of Life at Sea (SOLAS): 1 November, 1974.
- United Nations Convention on the Law of the Sea (UNCLOS): Montego Bay, 10, December, 1982.
- Central America: Regional agreement on the transfrontal movement of dangerous waste; adopted at the XIII Summit of Presidents of the Central American Isthmus (1992); it prohibits the import and transit of waste considered dangerous for Central America from countries that do not comprise in the Agreement, as well as the spill of dangerous waste in the sea and inner waters.

Convention for the Protection and Development of the Marine Environment of the Wider Caribbean Region and its protocols

The Cartagena Convention

The Convention was adopted in 1983 and constitutes the only legal regional agreement related to the protection of the environment in the Wider Caribbean Region and has been ratified by twenty one (21) countries. The convention calls for the achievement of regional, sub regional, bilateral and multilateral agreements for the protection of the marine environment. The Contracting Parties shall, individually or jointly, take all appropriate measures in conformity with international law and in accordance with this Convention and those of its protocols in force to which they are parties to prevent, reduce and control pollution of the Convention area and to ensure sound environmental management, using for this purpose the best practicable means at their disposal and in accordance with their capabilities.

Protocol Concerning Co-operation in Combating Oil Spills in the Wider Caribbean Region

The 21 contracting parties to the Cartagena Convention ratified the protocol in 1983 and shall, within their capabilities, co-operate in taking all necessary measures, both preventive and remedial, for the protection of the marine and coastal environment of the Wider Caribbean Region, particularly the coastal areas of the islands of the region, from oil spill incidents. The contracting Parties shall, within their capabilities, establish and maintain, or ensure the establishment and maintenance of, the means of responding to oil spill incidents and shall endeavor to reduce the risk thereof.

Protocol Concerning Pollution from Land-Based Sources and Activities in the Wider Caribbean Region (LBS)

The adoption of this Protocol took place on 6 October 1999 in Aruba. Sixteen Member States signed the Final Act to adopt the Protocol, six have now signed the Protocol and two have ratified it. Each Contracting Party shall, in accordance with its laws, the provisions of this Protocol, and international law, take appropriate measures to prevent, reduce and control pollution of the Convention area from land-based sources and activities, using for this purpose the best practicable means at its disposal and in accordance with its capabilities. The Contracting Party shall further on national, regional and sub regional levels develop and implement appropriate plans, programs and measures for means of preventing, reducing or controlling pollution of the Convention area from land-based sources and activities on its territory.

Protocol Concerning Specially Protected Areas and Wildlife to the Convention for the Protection and Development of the Marine Environment of the Wider Caribbean Region (SPAW)

It was adopted in 1990, the SPAW protocol entered into force in 1999. Each Party to this Protocol shall, take the necessary measures to protect, preserve and manage in a sustainable way, areas of the Wider Caribbean Region in which it exercises sovereignty, or sovereign rights or jurisdiction, areas requiring special needs for protection to safeguard their special values and where there are threatened or endangered species of flora and fauna. Each Party shall regulate and where necessary, prohibit activities having adverse effects on these areas and species. Each Party shall endeavor to co-operate in the enforcement of these measures, without prejudice to the sovereignty, or sovereign rights or jurisdiction of other Parties. Each Party shall, to the extent possible, consistent with each Party's legal system, shall manage species of fauna and flora with the objective of preventing species from becoming endangered or threatened.