

# Annexes

## Annex I How to quantify the international character of a hydrographic basin

Apparently, the simplest criterion for quantifying the international character of a basin seems to be its number of countries. But it turns out that for some of the basins the largest part of their superficial area is in fact situated in one country. In case of two basins covering the same number of countries it has been considered that the one having the most international character is the basin which is most equally divided between the riparian countries. In order to quantify this character, a numerical indicator has been invented, taking into consideration not only the number of countries of a basin but also the average and the standard deviation of the superficial areas occupied by each country of the basin.

International character of the basin:

$$ICB = n \times S_m / (S_m + \sigma)$$

where:

- $n$  is the number of countries of the basin
- $S_m$  is the average area by country (= the total area of the basin divided by  $n$ )
- $\sigma$  is the standard deviation of the areas  $S_m$  in each country  $m$ , compared to the average value.

The quantity without dimension  $S_m / (S_m + \sigma)$  is always lower than 1. Therefore **ICB** is always lower than the real number of countries in the basin. The more the basin area is divided equally between the riparian countries, the smaller  $\sigma$  becomes and the closer to the real number of countries of the basin **ICB** will get.

The calculations of **ICB** for the major basins give the following results.

### Major basins of the Guinea Current region (more than 50 000 km<sup>2</sup>) classified in decreasing ICB order:

Niger Basin	2 113 200 km <sup>2</sup>	11 countries	ICB = 5.21
Congo Basin	3 691 000 km <sup>2</sup>	13 countries	ICB = 4.19
Volta Basin	412 800 km <sup>2</sup>	6 countries	ICB = 2.94
Comoe Basin	78 100 km <sup>2</sup>	4 countries	ICB = 1.83
Ogooue Basin	223 000 km <sup>2</sup>	4 countries	ICB = 1.67
Oueme Basin	59 500 km <sup>2</sup>	3 countries	ICB = 1.45
Cross Basin	52 800 km <sup>2</sup>	2 countries	ICB = 1.31
Sassandra Basin	68 200 km <sup>2</sup>	2 countries	ICB = 1.14

One notes the inversion of the classification compared to a calculation based only on the number of countries of the basin. Thus, the Niger Basin is equally divided between the main riparian countries while the Congo Basin is mostly situated in the D.R. Congo. As a consequence, the Niger Basin (11 countries) has an **ICB** of 5.21, which is more than the Congo Basin (13 countries) for which the **ICB** is 4.19.

The same observation applies to Oueme Basin and Cross Basin compared to the Sassandra Basin.

# Annex II

## Detailed scoring tables: Congo Basin

### I: Freshwater shortage

Environmental issues	Score	Weight %	Environmental concern	Weight averaged score
1. Modification of stream flow	1	25	Freshwater shortage	1.5
2. Pollution of existing supplies	2	50		
3. Changes in the water table	1	25		

Criteria for Economic impacts	Raw score	Score	Weight %
Size of economic or public sectors affected	Very small  Very large	2	80
Degree of impact (cost, output changes etc.)	Minimum  Severe	1	20
Frequency/Duration	Occasion/Short  Continuous	0	0
<b>Weight average score for Economic impacts</b>			<b>1.8</b>
Criteria for Health impacts	Raw score	Score	Weight %
Number of people affected	Very small  Very large	2	60
Degree of severity	Minimum  Severe	2	30
Frequency/Duration	Occasion/Short  Continuous	1	10
<b>Weight average score for Health impacts</b>			<b>1.9</b>
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	38
Frequency/Duration	Occasion/Short  Continuous	0	22
<b>Weight average score for Other social and community impacts</b>			<b>0.8</b>

### II: Pollution

Environmental issues	Score	Weight %	Environmental concern	Weight averaged score
4. Microbiological	2	15	Pollution	2.4
5. Eutrophication	3	19		
6. Chemical	2	14		
7. Suspended solids	2	12		
8. Solid wastes	3	23		
9. Thermal	0	0		
10. Radionuclide	0	0		
11. Spills	2	17		

Criteria for Economic 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	10
Frequency/Duration	Occasion/Short  Continuous	3	60
<b>Weight average score for Economic impacts</b>			<b>2.6</b>
Criteria for Health impacts	Raw score	Score	Weight %
Number of people affected	Very small  Very large	3	45
Degree of severity	Minimum  Severe	2	30
Frequency/Duration	Occasion/Short  Continuous	2	25
<b>Weight average score for Health impacts</b>			<b>2.6</b>
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	0	20
<b>Weight average score for Other social and community impacts</b>			<b>0.8</b>

### III: Habitat and community modification

Environmental issues	Score	Weight %	Environmental concern	Weight averaged score
12. Loss of ecosystems	2	60	Habitat and community modification	1.6
13. Modification of ecosystems or ecotones, including community structure and/or species composition	1	40		

Criteria for Economic 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	0	30
Frequency/Duration	Occasion/Short  Continuous	0	30
<b>Weight average score for Economic impacts</b>		<b>0.4</b>	
Criteria for Health impacts	Raw score	Score	Weight %
Number of people affected	Very small  Very large	1	40
Degree of severity	Minimum  Severe	0	30
Frequency/Duration	Occasion/Short  Continuous	0	30
<b>Weight average score for Health impacts</b>		<b>0.4</b>	
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	0	30
Frequency/Duration	Occasion/Short  Continuous	0	30
<b>Weight average score for Other social and community impacts</b>		<b>0.4</b>	










### IV: Unsustainable exploitation of fish

Environmental issues	Score	Weight %	Environmental concern	Weight averaged score
14. Overexploitation	3	50	Unsustainable exploitation of fish	2.8
15. Excessive by-catch and discards	3	30		
16. Destructive fishing practices	2	15		
17. Decreased viability of stock through pollution and disease	1	3		
18. Impact on biological and genetic diversity	1	2		

Criteria for Economic impacts	Raw score	Score	Weight %
Size of economic or public sectors affected	Very small  Very large	1	10
Degree of impact (cost, output changes etc.)	Minimum  Severe	2	30
Frequency/Duration	Occasion/Short  Continuous	3	60
<b>Weight average score for Economic impacts</b>		<b>2.5</b>	
Criteria for Health impacts	Raw score	Score	Weight %
Number of people affected	Very small  Very large	0	0
Degree of severity	Minimum  Severe	0	0
Frequency/Duration	Occasion/Short  Continuous	0	0
<b>Weight average score for Health impacts</b>		<b>0</b>	
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	0	0
Frequency/Duration	Occasion/Short  Continuous	2	60
<b>Weight average score for Other social and community impacts</b>		<b>1.6</b>	

## V: Global change

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

Criteria for Economic impacts	Raw score	Score	Weight %
Size of economic or public sectors affected	Very small  Very large 0 1 2 3	1	60
Degree of impact (cost, output changes etc.)	Minimum  Severe 0 1 2 3	2	30
Frequency/Duration	Occasion/Short  Continuous 0 1 2 3	0	10
<b>Weight average score for Economic impacts</b>			
Criteria for Health impacts	Raw score	Score	Weight %
Number of people affected	Very small  Very large 0 1 2 3	1	40
Degree of severity	Minimum  Severe 0 1 2 3	1	50
Frequency/Duration	Occasion/Short  Continuous 0 1 2 3	0	10
<b>Weight average score for Health impacts</b>			
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	20
Degree of severity	Minimum  Severe 0 1 2 3	1	20
Frequency/Duration	Occasion/Short  Continuous 0 1 2 3	3	60
<b>Weight average score for Other social and community impacts</b>			<b>2.2</b>

## Comparative environmental and socio-economic impacts of each GIWA concern

Types of impacts									
Concern	Environmental score		Economic score		Human health score		Social and community score		Overall score
	Present (a)	Future (b)	Present (c)	Future (d)	Present (e)	Future (f)	Present (g)	Future (h)	
Freshwater shortage	1.5	2	1.8	2	1.9	2	0.8	1	1.6
Pollution	2.4	3	2.6	3	2.6	3	0.8	1	2.3
Habitat and community modification	1.6	2	0.4	1	0.4	1	0.4	0	0.8
Unsustainable exploitation of fish and other living resources	2.8	3	2.5	3	0	3	1.6	2	2.2
Global change	0	2	1.2	0	0.9	0	2.2	0	0.8

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 (%)
40	60	100

Environmental (k)	Economic (l)	Health (m)	Other social and community impacts (n)	Total (%)
30	25	25	20	100

Types of impacts						
Concern	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	Rank
	$(a)x(i)+(b)x(j)$	$(c)x(i)+(d)x(j)$	$(e)x(i)+(f)x(j)$	$(g)x(i)+(h)x(j)$	$(o)x(k)+(p)x(l)+(q)x(m)+(r)x(n)$	
Freshwater shortage	1.8	1.9	2.0	0.9	1.7	3
Pollution	2.8	2.8	2.1	0.9	2.4	1
Habitat and community modification	1.8	0.8	0.8	0.2	1.1	4
Unsustainable exploitation of fish and other living resources	2.9	2.8	1.8	1.8	2.2	2
Global change	1.2	0.5	0.4	0.9	0.8	5

# Annex II

## Detailed scoring tables: Guinea Current LME

### II: Pollution

Environmental issues	Score	Weight %	Environmental concern	Weight averaged score
4. Microbiological	2	18	Pollution	2.1
5. Eutrophication	1	7		
6. Chemical	1	10		
7. Suspended solids	2	13		
8. Solid wastes	3	27		
9. Thermal	1	5		
10. Radionuclide	0	0		
11. Spills	2	20		

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

N/a=Not applied

### III: Habitat and community modification

Environmental issues	Score	Weight %	Environmental concern	Weight averaged score
12. Loss of ecosystems	2	50	Habitat and community modification	2.0
13. Modification of ecosystems or ecotones, including community structure and/or species composition	2	50		

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

N/a=Not applied

## IV: Unsustainable exploitation of fish

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	2	25		
16. Destructive fishing practices	2	15		
17. Decreased viability of stock through pollution and disease	0	10		
18. Impact on biological and genetic diversity	0	10		

Criteria for Economic impacts	Raw score	Score	Weight %
Size of economic or public sectors affected	Very small  Very large	N/a	N/a
Degree of impact (cost, output changes etc.)	Minimum  Severe	N/a	N/a
Frequency/Duration	Occasion/Short  Continuous	N/a	N/a
<b>Weight average score for Economic impacts</b>		<b>2</b>	
Criteria for Health impacts	Raw score	Score	Weight %
Number of people affected	Very small  Very large	N/a	N/a
Degree of severity	Minimum  Severe	N/a	N/a
Frequency/Duration	Occasion/Short  Continuous	N/a	N/a
<b>Weight average score for Health impacts</b>		<b>2</b>	
Criteria for Other social and community impacts	Raw score	Score	Weight %
Number and/or size of community affected	Very small  Very large	N/a	N/a
Degree of severity	Minimum  Severe	N/a	N/a
Frequency/Duration	Occasion/Short  Continuous	N/a	N/a
<b>Weight average score for Other social and community impacts</b>		<b>1.5</b>	

N/a=Not applied

## V: Global change

Environmental issues	Score	Weight %	Environmental concern	Weight averaged score
19. Changes in the hydrological cycle	0	25	Global change	0.25
20. Sea level change	1	25		
21. Increased UV-B radiation as a result of ozone depletion	0	25		
22. Changes in ocean CO <sub>2</sub> source/sink function	0	25		

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

N/a=Not applied

## 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)	
Pollution	2.1	3	2	3	2	3	2	3	<b>2.5</b>
Habitat and community modification	2.0	3	2	1	1	1	2	1	<b>1.4</b>
Unsustainable exploitation of fish and other living resources	2.0	3	2	3	2	3	1.5	2	<b>2.3</b>
Global change	0.3	0	1	0	0	0	0	0	<b>0.2</b>

# Annex II

## Detailed scoring tables: Niger Basin

### I: Freshwater shortage

Environmental issues	Score	Weight %	Environmental concern	Weight averaged score
1. Modification of stream flow	2	40	Freshwater shortage	1.9
2. Pollution of existing supplies	1.5	20		
3. Changes in the water table	2	40		

Criteria for Economic impacts	Raw score	Score	Weight %
Size of economic or public sectors affected	Very small  Very large	N/a	N/a
Degree of impact (cost, output changes etc.)	Minimum  Severe	N/a	N/a
Frequency/Duration	Occasion/Short  Continuous	N/a	N/a
<b>Weight average score for Economic impacts</b>		<b>2.0</b>	
Criteria for Health impacts	Raw score	Score	Weight %
Number of people affected	Very small  Very large	N/a	N/a
Degree of severity	Minimum  Severe	N/a	N/a
Frequency/Duration	Occasion/Short  Continuous	N/a	N/a
<b>Weight average score for Health impacts</b>		<b>2.0</b>	
Criteria for Other social and community impacts	Raw score	Score	Weight %
Number and/or size of community affected	Very small  Very large	N/a	N/a
Degree of severity	Minimum  Severe	N/a	N/a
Frequency/Duration	Occasion/Short  Continuous	N/a	N/a
<b>Weight average score for Other social and community impacts</b>		<b>2.0</b>	

N/a = Not applied

### II: Pollution

Environmental issues	Score	Weight %	Environmental concern	Weight averaged score
4. Microbiological	0.5	3	Pollution	1.7
5. Eutrophication	1	30		
6. Chemical	1.5	30		
7. Suspended solids	0.5	2		
8. Solid wastes	1	5		
9. Thermal	0	0		
10. Radionuclide	0	0		
11. Spills	3	30		

Criteria for Economic impacts	Raw score	Score	Weight %
Size of economic or public sectors affected	Very small  Very large	N/a	N/a
Degree of impact (cost, output changes etc.)	Minimum  Severe	N/a	N/a
Frequency/Duration	Occasion/Short  Continuous	N/a	N/a
<b>Weight average score for Economic impacts</b>		<b>1.9</b>	
Criteria for Health impacts	Raw score	Score	Weight %
Number of people affected	Very small  Very large	N/a	N/a
Degree of severity	Minimum  Severe	N/a	N/a
Frequency/Duration	Occasion/Short  Continuous	N/a	N/a
<b>Weight average score for Health impacts</b>		<b>1.9</b>	
Criteria for Other social and community impacts	Raw score	Score	Weight %
Number and/or size of community affected	Very small  Very large	N/a	N/a
Degree of severity	Minimum  Severe	N/a	N/a
Frequency/Duration	Occasion/Short  Continuous	N/a	N/a
<b>Weight average score for Other social and community impacts</b>		<b>1.9</b>	

N/a = Not applied

### III: Habitat and community modification

Environmental issues	Score	Weight %	Environmental concern	Weight averaged score
12. Loss of ecosystems	2.5	30	Habitat and community modification	2.7
13. Modification of ecosystems or ecotones, including community structure and/or species composition	2.8	70		

Criteria for Economic impacts	Raw score	Score	Weight %
Size of economic or public sectors affected	Very small  Very large	N/a	N/a
Degree of impact (cost, output changes etc.)	Minimum  Severe	N/a	N/a
Frequency/Duration	Occasion/Short  Continuous	N/a	N/a
<b>Weight average score for Economic impacts</b>		<b>2.2</b>	
Criteria for Health impacts	Raw score	Score	Weight %
Number of people affected	Very small  Very large	N/a	N/a
Degree of severity	Minimum  Severe	N/a	N/a
Frequency/Duration	Occasion/Short  Continuous	N/a	N/a
<b>Weight average score for Health impacts</b>		<b>2.2</b>	
Criteria for Other social and community impacts	Raw score	Score	Weight %
Number and/or size of community affected	Very small  Very large	N/a	N/a
Degree of severity	Minimum  Severe	N/a	N/a
Frequency/Duration	Occasion/Short  Continuous	N/a	N/a
<b>Weight average score for Other social and community impacts</b>		<b>2.2</b>	

N/a = Not applied

### IV: Unsustainable exploitation of fish

Environmental issues	Score	Weight %	Environmental concern	Weight averaged score
14. Overexploitation	2	50	Unsustainable exploitation of fish	2
15. Excessive by-catch and discards	0	2		
16. Destructive fishing practices	2.5	40		
17. Decreased viability of stock through pollution and disease	0	3		
18. Impact on biological and genetic diversity	1.5	5		

Criteria for Economic impacts	Raw score	Score	Weight %
Size of economic or public sectors affected	Very small  Very large	N/a	N/a
Degree of impact (cost, output changes etc.)	Minimum  Severe	N/a	N/a
Frequency/Duration	Occasion/Short  Continuous	N/a	N/a
<b>Weight average score for Economic impacts</b>		<b>1.7</b>	
Criteria for Health impacts	Raw score	Score	Weight %
Number of people affected	Very small  Very large	N/a	N/a
Degree of severity	Minimum  Severe	N/a	N/a
Frequency/Duration	Occasion/Short  Continuous	N/a	N/a
<b>Weight average score for Health impacts</b>		<b>1.7</b>	
Criteria for Other social and community impacts	Raw score	Score	Weight %
Number and/or size of community affected	Very small  Very large	N/a	N/a
Degree of severity	Minimum  Severe	N/a	N/a
Frequency/Duration	Occasion/Short  Continuous	N/a	N/a
<b>Weight average score for Other social and community impacts</b>		<b>1.7</b>	

N/a = Not applied

## V: Global change

Environmental issues	Score	Weight %	Environmental concern	Weight averaged score
19. Changes in the hydrological cycle	1.5	25	Global change	0.4
20. Sea level change	0	25		
21. Increased UV-B radiation as a result of ozone depletion	0	25		
22. Changes in ocean CO <sub>2</sub> source/sink function	0	25		

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

N/a=Not applied

## 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	1.9	3	2.0	3	2.0	3	2.0	3	<b>2.5</b>
Pollution	1.7	2	1.9	3	1.9	3	1.9	3	<b>2.3</b>
Habitat and community modification	2.7	3	2.2	3	2.2	3	2.2	3	<b>2.7</b>
Unsustainable exploitation of fish and other living resources	2.0	2.5	1.7	3	1.7	3	1.7	3	<b>2.3</b>
Global change	1.5	N/a	N/a	N/a	N/a	N/a	N/a	N/a	<b>0.3</b>

N/a = Not applied

# Annex II

## Detailed scoring tables: Volta Basin

### I: Freshwater shortage

Environmental issues	Score	Weight %	Environmental concern	Weight averaged score
1. Modification of stream flow	2.8	70	Freshwater shortage	2.2
2. Pollution of existing supplies	0.6	10		
3. Changes in the water table	1.4	20		

Criteria for Economic impacts	Raw score	Score	Weight %
Size of economic or public sectors affected	Very small  Very large	2.3	45
Degree of impact (cost, output changes etc.)	Minimum  Severe	2	33
Frequency/Duration	Occasion/Short  Continuous	2.6	22
<b>Weight average score for Economic impacts</b>		<b>2.3</b>	
Criteria for Health impacts	Raw score	Score	Weight %
Number of people affected	Very small  Very large	1.8	45
Degree of severity	Minimum  Severe	2	33
Frequency/Duration	Occasion/Short  Continuous	2.3	22
<b>Weight average score for Health impacts</b>		<b>2</b>	
Criteria for Other social and community impacts	Raw score	Score	Weight %
Number and/or size of community affected	Very small  Very large	1.6	34
Degree of severity	Minimum  Severe	2.5	32
Frequency/Duration	Occasion/Short  Continuous	2.5	34
<b>Weight average score for Other social and community impacts</b>		<b>2</b>	

### II: Pollution

Environmental issues	Score	Weight %	Environmental concern	Weight averaged score
4. Microbiological	1.7	35	Pollution	1.3
5. Eutrophication	1	16		
6. Chemical	1	9		
7. Suspended solids	1	13		
8. Solid wastes	1.3	27		
9. Thermal	-	0		
10. Radionuclide	-	0		
11. Spills	-	0		

Criteria for Economic impacts	Raw score	Score	Weight %
Size of economic or public sectors affected	Very small  Very large	1	34
Degree of impact (cost, output changes etc.)	Minimum  Severe	1.2	36
Frequency/Duration	Occasion/Short  Continuous	1.7	30
<b>Weight average score for Economic impacts</b>		<b>1.28</b>	
Criteria for Health impacts	Raw score	Score	Weight %
Number of people affected	Very small  Very large	1.3	28
Degree of severity	Minimum  Severe	1.5	38
Frequency/Duration	Occasion/Short  Continuous	2	34
<b>Weight average score for Health impacts</b>		<b>2</b>	
Criteria for Other social and community impacts	Raw score	Score	Weight %
Number and/or size of community affected	Very small  Very large	1.2	38
Degree of severity	Minimum  Severe	1.2	29
Frequency/Duration	Occasion/Short  Continuous	1.5	33
<b>Weight average score for Other social and community impacts</b>		<b>1.3</b>	

### III: Habitat and community modification

Environmental issues	Score	Weight %	Environmental concern	Weight averaged score
12. Loss of ecosystems	1.9	37	Habitat and community modification	2.4
13. Modification of ecosystems or ecotones, including community structure and/or species composition	2.7	63		

Criteria for Economic impacts	Raw score	Score	Weight %
Size of economic or public sectors affected	Very small  Very large	2	33
Degree of impact (cost, output changes etc.)	Minimum  Severe	2.5	40
Frequency/Duration	Occasion/Short  Continuous	2.5	27
<b>Weight average score for Economic impacts</b>		<b>2.3</b>	
Criteria for Health impacts	Raw score	Score	Weight %
Number of people affected	Very small  Very large	1.5	42
Degree of severity	Minimum  Severe	2	34
Frequency/Duration	Occasion/Short  Continuous	2.2	24
<b>Weight average score for Health impacts</b>		<b>1.8</b>	
Criteria for Other social and community impacts	Raw score	Score	Weight %
Number and/or size of community affected	Very small  Very large	2	39
Degree of severity	Minimum  Severe	2.2	35
Frequency/Duration	Occasion/Short  Continuous	2.2	26
<b>Weight average score for Other social and community impacts</b>		<b>2.1</b>	

### IV: Unsustainable exploitation of fish

Environmental issues	Score	Weight %	Environmental concern	Weight averaged score
14. Overexploitation	2.4	49	Unsustainable exploitation of fish	2.4
15. Excessive by-catch and discards	-	0		
16. Destructive fishing practices	2.4	51		
17. Decreased viability of stock through pollution and disease	-	0		
18. Impact on biological and genetic diversity	-	0		

Criteria for Economic impacts	Raw score	Score	Weight %
Size of economic or public sectors affected	Very small  Very large	2	36
Degree of impact (cost, output changes etc.)	Minimum  Severe	1.8	40
Frequency/Duration	Occasion/Short  Continuous	1.8	24
<b>Weight average score for Economic impacts</b>		<b>1.9</b>	
Criteria for Health impacts	Raw score	Score	Weight %
Number of people affected	Very small  Very large	2	50
Degree of severity	Minimum  Severe	1.2	28
Frequency/Duration	Occasion/Short  Continuous	2	22
<b>Weight average score for Health impacts</b>		<b>1.8</b>	
Criteria for Other social and community impacts	Raw score	Score	Weight %
Number and/or size of community affected	Very small  Very large	1.4	41
Degree of severity	Minimum  Severe	1.2	30
Frequency/Duration	Occasion/Short  Continuous	1.6	29
<b>Weight average score for Other social and community impacts</b>		<b>1.4</b>	

## V: Global change

Environmental issues	Score	Weight %	Environmental concern	Weight averaged score
19. Changes in the hydrological cycle	1.2	100	Global change	1.2
20. Sea level change	0	0		
21. Increased UV-B radiation as a result of ozone depletion	0	0		
22. Changes in ocean CO <sub>2</sub> source/sink function	0	0		

Criteria for Economic impacts	Raw score	Score	Weight %
Size of economic or public sectors affected	Very small  Very large	1.2	44
Degree of impact (cost, output changes etc.)	Minimum  Severe	1.2	25
Frequency/Duration	Occasion/Short  Continuous	2	31
<b>Weight average score for Economic impacts</b>		<b>1.4</b>	
Criteria for Health impacts	Raw score	Score	Weight %
Number of people affected	Very small  Very large	1.4	36
Degree of severity	Minimum  Severe	1.6	34
Frequency/Duration	Occasion/Short  Continuous	1.2	30
<b>Weight average score for Health impacts</b>		<b>1</b>	
Criteria for Other social and community impacts	Raw score	Score	Weight %
Number and/or size of community affected	Very small  Very large	1	37
Degree of severity	Minimum  Severe	1	31
Frequency/Duration	Occasion/Short  Continuous	1.2	32
<b>Weight average score for Other social and community impacts</b>		<b>1</b>	

## 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	2.2	3	2.3	2.	2.0	2	2.0	2	<b>2.3</b>
Pollution	1.3	2	1.3	2	2.0	2	1.3	1	<b>1.6</b>
Habitat and community modification	2.4	2	2.3	1	1.8	1	2.1	1	<b>1.7</b>
Unsustainable exploitation of fish and other living resources	2.4	3	1.9	3	1.8	1	1.4	2	<b>2.1</b>
Global change	1.2	1	1.4	1	1.0	1	1.0	0	<b>1.0</b>

# Annex III

## GDP and other economic indicators in the countries of the Guinea Current region

HDI rank	Country	GDP		GDP per capita 2000 (PPP USD) <sup>a</sup>		GDP per capita annual growth rate			GDP per capita highest value		Average annual change in consumer price index	
		2000 (billion USD)	PPP 2000 (billion USD)			1975-2000	1990-2000	1975-2000 (PPP USD) <sup>a</sup>	Year of highest value	1990-2000	1999-2000	
106	Algeria	53.3	161.3	5 308		-0.3	-0.1	5 997	1985	19.5	b	ND
161	Angola	8.8	28.7	2 187		-1.9	b -1.8	3 016	b 1980	708.7		325.0
158	Benin	2.2	6.2	990		0.5	1.8	990	2000	8.7	b	4.2
169	Burkina Faso	2.2	11.0	976		1.4	2.4	980	1999	5.5		-0.3
135	Cameroon	8.9	25.3	1 703		-0.6	-0.8	2 574	1986	6.5		1.2
165	Central African Republic	1.0	4.4	1 172		-1.6	-0.5	1 646	1977	5.9	b	ND
166	Chad	1.4	6.7	871		ND	-0.8	1 025	1977	8.1		3.8
136	Congo, Rep. of the	3.2	2.5	825		ND	-3.4	1 326	1984	9.2	b	-0.9
155	Congo, Dem. Rep. of the	5.6	c 36.9	c 765	c	-4.7	b -8.2	b ND	ND	2 089	b	ND
156	Côte d'Ivoire	9.4	26.1	1 630		-2.1	0.4	2 717	1978	7.2		2.5
117	Gabon	4.9	7.7	6 237		-1.5	0.1	12 112	1976	5.7	b	ND
129	Ghana	5.2	37.9	1 964		0.1	1.8	1 989	1978	28.4		25.2
159	Guinea	3.0	14.7	1 982		1.4	b 1.7	1 987	b 1999	ND		ND
167	Guinea-Bissau	0.2	0.9	755		0.4	-1.1	965	1997	34.0		8.6
111	Guinea-Equatorial	1.3	6.9	15 073		10.4	b 18.9	15 073	b 2000	ND		ND
	Liberia	ND	ND	ND		ND	ND	ND	ND	ND		ND
164	Mali	2.3	8.6	797		-0.5	1.3	904	1979	5.2		-0.7
172	Niger	1.8	8.1	746		-2.1	-1.0	1 267	1979	6.1		2.9
148	Nigeria	41.1	113.7	896		-0.7	-0.4	1 160	1977	32.5		6.9
119	São Tomé and Príncipe	ND	ND	ND		-0.9	b -0.8	ND	ND	ND		ND
154	Senegal	4.4	14.4	1 510		-0.2	0.9	1 584	1976	5.4		0.7
173	Sierra Leone	0.6	2.5	490		-2.6	-6.5	1 002	1982	29.3		-0.8
139	Sudan	11.5	55.9	1 797		0.6	5.6	1 797	2000	81.1	b	ND
141	Togo	1.2	6.5	1 442		-1.2	-0.4	2 059	1980	8.5		1.9
150	Uganda	6.2	26.8	1 208		2.5	b 3.8	1 208	b 2000	10.5		2.8
153	Zambia	2.9	7.9	780		-2.3	-2.1	1 389	1976	80.8	b	ND

a. In theory, for the United States the value of GDP in PPP US dollars should be the same as that in US dollars, but practical issues arising in the calculation of the PPP US dollar GDP prevent this.

b. Data refer to a period shorter than that specified. c. Data refer to 1998. d. Data refer to 1999.

Column 1-3: World Bank 2002. World Development Indicators 2002. CD-ROM. Washington, DC.; aggregates calculated for the Human Development Report Office by the World Bank.

Column 4-5: World Bank 2002. Correspondence on GDP per capita annual growth rates. March. Washington, DC.; aggregates calculated for the Human Development Report Office by the World Bank.

Column 6-7: calculated on the basis of data on GDP at market prices (constant 1995 USD), population and GDP per capita (PPP USD) from World Bank 2002. World Development Indicators 2002. CD-ROM. Washington, DC.

Column 8: calculated for the Human Development Report Office by the World Bank on the basis of data on the consumer price index from World Bank 2002. World Development Indicators 2002. CD-ROM. Washington, DC.

Column 9: calculated on the basis of data on the consumer price index from World Bank. 2002. World Development Indicators 2002. CD-ROM. Washington, DC.

Note: ND = No Data.

(Source: UNDP 2002)

# Annex IV

## HDI and other socio-economic indicators in the countries of the Guinea Current region

HDI rank <sup>a</sup>	Country	Life expectancy at birth 2000 (years)	Adult literacy rate 2000 (% age 15 and above)	Combined 1, 2 and 3 gross enrolment ratio 1999 (%) <sup>b</sup>	GDP per capita 2000 (PPP USD)	Life expectancy index	Education index	GDP index	Human development index (HDI) value 2000	GDP per capita (PPP USD) rank minus HDI rank <sup>c</sup>				
106	Algeria	69.6	66.7	72	5 308	0.74	0.69	0.66	0.697	-22				
161	Angola	45.2	42.0	j,t	2 187	0.34	0.36	0.51	0.403	-36				
158	Benin	53.8	37.4	45	990	0.48	0.40	0.38	0.420	-4				
169	Burkina Faso	46.7	23.9	23	976	0.36	0.23	0.38	0.325	-14				
135	Cameroon	50.0	75.8	43	1 703	0.42	0.65	0.47	0.512	0				
165	Central African Republic	44.3	46.7	24	1 172	0.32	0.39	0.41	0.375	-15				
166	Chad	45.7	42.6	31	871	0.35	0.39	0.36	0.365	-7				
136	Congo, Rep. of the	51.3	80.7	63	825	0.44	0.75	0.35	0.512	27				
155	Congo, Dem. Rep. of the	51.3	61.4	31	765	k	0.51	0.34	0.431	11				
156	Côte d'Ivoire	47.8	46.8	38	1 630	0.38	0.44	0.47	0.428	-17				
117	Gabon	52.7	71.0	i,j	6 237	0.46	0.76	0.69	0.637	-44				
129	Ghana	56.8	71.5	42	1 964	0.53	0.62	0.50	0.548	1				
159	Guinea	47.5	41.0	i,j	1 982	0.38	0.37	0.50	0.414	-30				
167	Guinea-Bissau	44.8	38.5	37	755	0.33	0.38	0.34	0.349	0				
111	Guinea-Equatorial	51.0	83.2	64	15 073	0.43	0.77	0.84	0.679	-73				
	Liberia	ND	ND	ND	ND	ND	ND	ND	ND	ND				
164	Mali	51.5	41.5	28	797	0.44	0.37	0.35	0.386	0				
172	Niger	45.2	15.9	16	746	0.34	0.16	0.34	0.277	-4				
148	Nigeria	51.7	63.9	45	896	0.44	0.58	0.37	0.462	9				
119	São Tomé and Príncipe	65.1	u	83.1	o	58	o	1 792	q,v	0.67	0.75	0.48	0.632	14
154	Senegal	53.3	37.3	36	1 510	0.47	0.37	0.45	0.431	-11				
173	Sierra Leone	38.9	36.0	i,j	27	490	0.23	0.33	0.27	0.275	0			
139	Sudan	56.0	57.8	34	1 797	0.52	0.50	0.48	0.499	-7				
141	Togo	51.8	57.1	62	1 442	0.45	0.59	0.45	0.493	5				
150	Uganda	44.0	67.1	45	1 208	0.32	0.60	0.42	0.444	-1				
153	Zambia	41.4	78.1	49	780	0.27	0.68	0.34	0.433	12				

Note: As a result of revisions to data and methodology, Human Development Index values are not strictly comparable with those in earlier Human Development Reports. a. The HDI rank is determined using HDI values to the sixth decimal point. b. Preliminary UNESCO estimates, subject to further revision. c. A positive figure indicates that the HDI rank is higher than the GDP per capita (PPP USD) rank, a negative the opposite. j. Data refer to year or period other than that specified, differ from the standard definition or refer to only part of a country. k. Data refer to 1998. q. Aten, Bettina, Alan Heston and Robert Summers. 2001. "Penn World Tables 6.0." University of Pennsylvania, Center for International and Interarea Comparisons, Philadelphia. Data differ from the standard definition. t. UNICEF (United Nations Children's Fund). 2000. The State of the World's Children 2001. New York: Oxford University Press. u. World Bank. 2002. World Development Indicators 2002. CD-ROM. Washington, DC. v. Data refer to 1997.

Column 1: calculated on the basis of data on life expectancy from UN (United Nations) 2001. World Population Prospects 1950-2050: The 2000 Revision. Database. Department of Economic and Social Affairs, Population Division. New York. Column 2: unless otherwise noted, UNESCO (United Nations Educational, Scientific and Cultural Organization) 2002. Correspondence on adult and youth literacy rates. January. Montreal. Column 3: unless otherwise noted, UNESCO (United Nations Educational, Scientific and Cultural Organization) 2001. Correspondence on gross enrolment ratios. March. Paris. Column 4: unless otherwise noted, World Bank 2002. World Development Indicators 2002. CD-ROM. Washington, DC.; aggregates calculated for the Human Development Report Office by the World Bank. Column 5: calculated on the basis of data in column 1. Column 6: calculated on the basis of data in columns 2 and 3. Column 7: calculated on the basis of data in column 4. Column 8: calculated on the basis of data in columns 5-7; see technical note 1 for details. Column 9: calculated on the basis of data presented in columns 4 and 8. ND = No Data. (Source: UNDP 2002)

# Annex V

## Statistics related to water access and water use in the countries of the Guinea Current region

Country	Physical area (ha)				Population			Water resources								
	Total area in 2000 (ha)	Arable & permanent crops in 2000 (ha)	Arable area in 2000 (ha)	Permanent crops in 2000 (ha)	Total population in 2000 (inv)	Rural population in 2000 (inv)	Urban population in 2000 (inv)	Average precipitation 1961-1990 IPCC (mm/year) <sup>1</sup>	Average precipitation 1961-1990 IPCC (km <sup>3</sup> /year) <sup>1</sup>	Total internal renewable water resources (km <sup>3</sup> /year) 1=2+3-4	Groundwater: produced internally (km <sup>3</sup> /year) 2	Surface water: produced internally (km <sup>3</sup> /year) 3	Overlap: Surface and groundwater (km <sup>3</sup> /year) 4	Total renewable water resources (natural) (km <sup>3</sup> /year)	Total renewable water resources (actual) (km <sup>3</sup> /year) <sup>2</sup>	Dependency ratio (%)
Algeria	238 174 000	8 195 000	7 675 000	520 000	30 291 000	12 033 000	18 258 000	89	211.50	13.90	1.70	13.20	1.00	14.32	14.32	3
Angola	124 670 000	3 300 000	3 000 000	300 000	13 134 000	8 643 000	4 492 000	1 010	1 258.79	184.00	72.00	182.00	70.00	184.00	184.00	0
Benin	11 262 000	2 215 000	1 950 000	265 000	6 272 000	3 621 000	2 651 000	1 039	117.05	10.30	1.80	10.00	1.50	24.80	24.80	58
Burkina Faso	27 400 000	3 850 000	3 800 000	50 000	11 535 000	9 405 000	2 130 000	748	204.92	12.50	9.50	8.00	5.00	12.50	12.50	0
Cameroon	47 544 000	7 160 000	5 960 000	1 200 000	14 876 000	7 599 000	7 277 000	1 604	762.46	273.00	100.00	268.00	95.00	285.50	285.50	4
Central African Republic	62 298 000	2 020 000	1 930 000	90 000	3 717 000	2 186 000	1 531 000	1 343	836.66	141.00	56.00	141.00	56.00	144.40	144.40	2
Chad	128 400 000	3 550 000	3 520 000	30 000	7 885 000	6 010 000	1 876 000	322	413.19	15.00	11.50	13.50	10.00	43.00	43.00	65
DR Congo	234 486 000	7 880 000	6 700 000	1 180 000	50 948 000	35 521 000	15 427 000	1 543	3 618.12	900.00	421.00	899.00	420.00	1 283.00	1 283.00	30
Rep. Congo	34 200 000	220 000	175 000	45 000	3 018 000	1 131 000	1 888 000	1 646	562.93	222.00	198.00	222.00	198.00	832.00	832.00	73
Cote d'Ivoire	32 246 000	7 350 000	2 950 000	4 400 000	16 013 000	8 590 000	7 423 000	1 348	434.68	76.70	37.70	74.00	35.00	81.00	81.00	5
Gabon	26 767 000	495 000	325 000	170 000	1 230 000	229 000	1 001 000	1 831	490.00	164.00	62.00	162.00	60.00	164.00	164.00	0
Ghana	23 854 000	5 809 000	3 609 000	2 200 000	19 306 000	11 901 000	7 405 000	1 187	283.19	30.30	26.30	29.00	25.00	53.20	53.20	43
Guinea	24 586 000	1 485 000	885 000	600 000	8 154 000	5 482 000	2 672 000	1 651	405.94	226.00	38.00	226.00	38.00	226.00	226.00	0
Guinea-Bissau	3 612 000	350 000	300 000	50 000	1 199 000	914 000	285 000	1 577	56.97	16.00	14.00	12.00	10.00	31.00	31.00	48
Guinea-Eq.	2 805 000	230 000	130 000	100 000	457 000	236 000	220 000	2156	60.48	26.00	10.00	25.00	9.00	26.00	26.00	0
Liberia	11 137 000	595 000	380 000	215 000	2 913 000	1 605 000	1 308 000	2391	266.29	200.00	60.00	200.00	60.00	232.00	232.00	14
Mali	124 019 000	4 674 000	4 630 000	44 000	11 351 000	7 941 000	3 410 000	282	349.61	60.00	20.00	50.00	10.00	100.00	100.00	40
Niger	126 700 000	4 500 000	4 490 000	10 000	10 832 000	8 604 000	2 228 000	151	190.81	3.50	2.50	1.00	0.00	33.65	33.65	90
Nigeria	92 377 000	30850 000	28200 000	2 650 000	113862 000	63775 000	50 086 000	1 150	1 062.34	221.00	87.00	214.00	80.00	286.20	286.20	23
São Tomé and Príncipe	96 000	47 000	4 000	43 000	138 000	73 000	65 000	2 169	2.08	2.18	ND	ND	ND	2.18	2.18	0
Senegal	19 672 000	2 400 000	2 362 000	38 000	9 421 000	4 951 000	4 469 000	687	135.05	26.40	7.60	23.80	5.00	39.40	39.40	33
Sierra Leone	7 174 000	550 000	490 000	60 000	4 405 000	2 791 000	1 614 000	2 526	181.22	160.00	50.00	150.00	40.00	160.00	160.00	0
Sudan	250 581 000	16 433 000	16 233 000	200 000	31 095 000	19 863 000	11 232 000	417	1 043.67	30.00	7.00	28.00	5.00	149.00	64.50	77
Togo	5 679 000	2 630 000	2 510 000	120 000	4 527 000	3 021 000	1 506 000	1 168	66.30	11.50	5.70	10.80	5.00	14.70	14.70	22
Uganda	24 104 000	6 960 000	5 060 000	1 900 000	23 300 000	20 002 000	3 298 000	1 180	284.50	39.00	29.00	39.00	29.00	66.00	66.00	41
Zambia	75 261 000	5 279 000	5 260 000	19 000	10 421 000	6 293 000	4 128 000	1 020	767.44	80.20	47.00	80.20	47.00	105.20	105.20	24

Notes: <sup>1</sup> For some countries large discrepancies exists between national and IPCC data on rainfall average. In these cases, IPCC data were modified to ensure consistency with water resources data.

<sup>2</sup> Aggregation of data can only be done for Internal renewable water resources and not the Total renewable water resources, as that would result in double counting of shared water resources.

ND = No Data

(Source: FAO AQUASTAT 2003b)

## Annex V (continued)

### Statistics related to water access and water use in the countries of the Guinea Current region

Country	Water use (FAO estimates 2000)							Irrigation					
	Agricultural water use (km <sup>3</sup> /year)	Agricultural water use <sup>1</sup> (%)	Domestic water use (km <sup>3</sup> /year)	Domestic water use <sup>1</sup> (%)	Industrial water use (km <sup>3</sup> /year)	Industrial water use <sup>1</sup> (%)	Total water use in 2000 (km <sup>3</sup> /year)	Irrigation potential (ha)	Year of irrigation data	Full/partial control irrigation (ha)	Equipped wetland <sup>2</sup> (ha)	Total irrigation <sup>3</sup> (ha)	Other cultivated wetland <sup>4</sup> (ha)
Algeria	3.94	65	1.33	22	0.80	13	6.07	730 000	1992	445 500	0	555 500	0
Angola	0.21	61	0.08	22	0.06	16	0.34	6 700 000	1974	75 000	0	75 000	350 000
Benin	0.19	74	0.04	15	0.03	11	0.25	300 000	1994	9 786	450	10 236	6 988
Burkina Faso	0.69	88	0.09	11	0	0	0.78	164 460	1992	15 430	8 900	24 330	21 400
Cameroon	0.73	74	0.18	18	0.08	8	0.99	240 000	1987	20 970	0	20 970	0
Central African Republic	0.001	4	0.02	77	0.004	19	0.02	1 900 000	1987	135	0	135	500
Chad	0.19	80	0.04	19	0.00	1	0.23	935 000	1988	14 020	0	14 020	21 400
DR Congo	0.11	31	0.19	52	0.06	16	0.36	4 000 000	1995	10 000	500	10 500	2 000
Rep. Congo	0.004	10	0.02	59	0.01	30	0.04	40 000	1993	217	0	217	0
Cote d'Ivoire	0.60	65	0.22	23	0.11	12	0.93	475 000	1994	47 750	25 000	72 750	16 250
Gabon	0.05	40	0.06	48	0.01	11	0.13	440 000	1987	3 150	1 300	4 450	0
Ghana	0.25	48	0.19	37	0.08	15	0.52	1 900 000	1994	6 374	0	6 374	0
Guinea	1.36	90	0.12	8	0.03	2	1.52	520 000	1994	15 541	77 339	92 880	0
Guinea-Bissau	0.10	91	0.01	9	0.0006	1	0.11	281 290	1994	5 110	12 005	17 115	25 322
Guinea-Equatorial	0.001	1	0.09	83	0.017	16	0.11	ND	ND	ND	ND	ND	ND
Liberia	0.06	56	0.03	28	0.02	15	0.11	600 000	1987	100	2 000	2 100	18 000
Mali	6.87	99	0.05	1	0.02	0	6.93	560 000	1994	78 620	0	78 620	3 826
Niger	2.08	95	0.09	4	0.01	1	2.19	270 000	1989	66 480	0	66 480	0
Nigeria	5.51	69	1.69	21	0.81	10	8.00	3 137 000	1991	219 621	13 200	232 821	0
São Tomé and Príncipe	ND	ND	ND	ND	ND	ND	ND	ND	1991	9 700	0	9 700	0
Senegal	1.43	90	0.10	6	0.06	4	1.59	400 000	1994	71 400	0	71 400	37 000
Sierra Leone	0.35	93	0.02	5	0.01	2	0.38	807 000	1992	1 000	28 360	29 360	126 000
Sudan	36.07	97	0.99	3	0.26	1	37.31	2 784 000	1995	1 900 000	0	1 946 200	0
Togo	0.08	47	0.07	45	0.01	8	0.17	180 000	1990	2 008	5 000	7 008	0
Uganda	0.12	39	0.13	45	0.05	15	0.30	202 000	1987	5 550	3 570	9 120	0
Zambia	1.32	76	0.29	16	0.13	8	1.74	520 000	1992	46 400	0	46 400	100 000
Average percentage use in the different sectors		62		28		9							
Median percentage use in the different sectors		69		21		10							

Notes: <sup>1</sup> The average and median calculations of water use in the different sectors do not include Algeria, Chad, Malawi, Senegal, Sudan and Uganda. <sup>2</sup> Assumed zero if no value has been given for those countries where information on irrigation have been available. <sup>3</sup> Total irrigation (full partial control) are updated from FAOSTAT for those countries where no data existed. <sup>4</sup> Assumed zero if no value has been given for those countries where information on water use have been available. ND= No Data

(Source: FAO 2003b)

## Annex VI

### Status of international conventions regarding waters in the Guinea Current region

River basin	Date	Treaty basin	Signatories	Treaty name
Congo	July 20, 1927	Pozo	Belgium, Portugal	Convention regarding various questions of economic interest.
	February 26, 1885	Congo, Niger	Austria-Hungary, Belgium, Denmark, France, Germany, Great Britain, Italy, Netherlands, Norway, Portugal, Russia, Spain, Sweden, Turkey, United States of America	General act of the conference of Berlin respecting: 1) freedom of trade in the basin of the Congo; 2) the slave trade; 3) neutrality of the territories in the basin of the Congo; 4) navigation of the Congo; 5) navigation of the Niger; and 6) rules for future occupation of the coast of the African continent.
Corubal	October 21, 1978	Koliba-Korubal	Guinea, Guinea-Bissau	Protocol of the agreement between the Republic of Guinea and the Republic of Guinea-Bissau on the management of the Koliba-Korubal River, signed at Conakry.
Niger	January 14, 1999	Mékrou	Benin, Niger	Decree No. 99-120/PCR/N/MAE/IA pertaining to publication of the agreement between the Republic of Niger and the Republic of Benin relative to the realisation of the hydroelectric management of the Dyondyonga site on the Mékrou river, signed at Contonou.
	July 18, 1990	Gada/Goulbi, Komadougou-Yobe, Maggia/Lamido, Tagwai/El Fadama	Niger, Nigeria	Agreement between the Federal Republic of Nigeria and the Republic of Niger concerning the equitable sharing in the development, conservation and use of their common water resources.
	July 12, 1988	Niger	Mali, Niger	Protocol of the agreement between the Republic of Niger and the Republic of Mali relative to cooperation in the utilisation of resources in water of the Niger River.
	October 29, 1987	Niger	Benin, Burkina Faso, Cameroon, Chad, Côte d'Ivoire, Guinea, Mali, Niger, Nigeria	Revised convention pertaining to the creation of the Niger Basin Authority, signed at N'Djamena.
	October 27, 1987	Niger	Algeria, Benin, Cameroon, Chad, Guinea, Côte d'Ivoire, Mali, Niger, Nigeria, Burkina Faso	Revised financial procedures of the Niger Basin Authority, done at N'Djamena.
	November 21, 1980	Niger	Benin, Cameroon, Chad, Côte d'Ivoire, Guinea, Mali, Niger, Nigeria	Upper Volta Convention creating the Niger Basin Authority and protocol.
	November 25, 1964	Niger	Benin, Burkina Faso, Cameroon, Chad, Côte d'Ivoire, Guinea, Mali, Niger, Nigeria	Agreement concerning the River Niger Commission and the navigation and transport on the Niger River.
	October 26, 1963	Niger	Cameroon, Chad, Côte d'Ivoire, Dahomey, Guinea, Mali, Niger, Nigeria, Upper Volta	Act regarding navigation and economic cooperation between the states of the Niger Basin.
	April 20, 1921	Niger	France, Great Britain (among others)	Convention of Barcelona.
	February 26, 1885	Congo, Niger	Austria-Hungary, Belgium, Denmark, France, Germany, Great Britain, Italy, Netherlands, Norway, Portugal, Russia, Spain, Sweden, Turkey, United States of America	General act of the conference of Berlin –respecting: 1) freedom of trade in the basin of the Congo; 2) the slave trade; 3) neutrality of the territories in the basin of the Congo; 4) navigation of the Congo; 5) navigation of the Niger; and 6) rules for future occupation of the coast of the African continent.
Volta	July 19, 1906	Frontier or shared waters	France, Great Britain	Exchange of notes between France and Great Britain relative to the boundary between the Gold Coast and French Sudan.

(Source: UNEP 2002b)

# Annex VII

## Regional projects in the fields of environment and water management

Key: (A) Active project; (P) Project under preparation or waiting for a next phase.

Status	Title	Country	Funding / execution
(P)	Water Pollution Control and Biodiversity Conservation in the Guinea Current Large Marine Ecosystem (Active 1994-2000; 2 <sup>nd</sup> Phase in preparation)	Coastal: Guinea-Bissau to Angola	GEF/UNIDO + NOAA + UNEP RAF/92/G34
(A)	Developing Effective Integrated Management of the Volta basin	Benin, Burkina Faso, Côte d'Ivoire, Ghana, Mali and Togo	GEF / UNEP
(P)	West Africa Regional Action Plan for Integrated Water Resources Management (WARAP-IWRM)	ECOWAS Member States and Mauritania	Danida, EU et al.
(P)	Reversing land and water degradation trends in the Niger basin	Niger Basin Authority (NBA) Member Countries	GEF, World Bank, UNDP, AfDB, Netherlands, Norway, WWF
(P)	Integrated Control of Aquatic Weeds in ECOWAS Member States and Cameroon (2 <sup>nd</sup> Phase)	ECOWAS Member States and Cameroon	AfDB/ECOWAS

### Development and Protection of the Marine and Coastal Environment in sub-Saharan Africa:

(P)	1) Mitigation of coastal erosion and restoration of degraded areas in sub-Saharan Africa	Côte d'Ivoire, Gambia, Ghana, Kenya, Mauritius, Mozambique, Nigeria, Senegal, Seychelles, South Africa, Tanzania	GEF/UNEP ACOPS with IOC, UNESCO and GPA
(P)	2) Supporting the Development and Implementation of Integrated Coastal Area Management (ICAM) in Sub-Saharan Africa	Côte d'Ivoire, Gambia, Ghana, Kenya, Mauritius, Mozambique, Nigeria, Senegal, Seychelles, South Africa, Tanzania	d°
(P)	3) Assessment of vulnerability of sub-Saharan coastal zone to the different impacts of climate changes (including sea level rise)	Côte d'Ivoire, Gambia, Ghana, Kenya, Mauritius, Mozambique, Nigeria, Senegal, Seychelles, South Africa, Tanzania	d°
(P)	4) Conservation of biodiversity through the enhancement and/or establishment of marine protected areas in sub-Saharan Africa	Côte d'Ivoire, Ghana, Mozambique, Nigeria, Seychelles, South Africa	d°
(P)	5) Promoting the establishment of Ramsar sites and developing participatory and integrated approaches for river basin management in sub-Saharan Africa	Gambia, Ghana, Kenya, Mozambique, Nigeria, Senegal, South Africa, Tanzania	d°
(P)	6) Mangrove management in sub-Saharan Africa	Côte d'Ivoire, Gambia, Ghana, Kenya, Mozambique, Nigeria, Senegal, Tanzania	d°

### Selection of specific projects in Central Africa:

(A)	Conservation et utilisation rationnelle des écosystèmes forestiers en Afrique centrale (ECOFAC)		EU (6 <sup>th</sup> FED)
(A)	Regional Programme of Environmental Information Management (PRGIE)		GEF/World Bank, FAO, USAID
(A)	Conference on Humid Forest Ecosystems in Central Africa (CEFDHAC)		
(A)	Tropical Forestry Action Plans (PAFT) and National components (PAFN)		OIBT+Various donors
(P)	Central Africa Regional Project on Environment (CARPE)	Congo Basin countries	USAID
(A)	Sustainable Management of Rainforest Ecosystems in Central Africa		GEF, IUCN
(?)	Marine Fishing in Central Africa		FAO (in the frame of COREP)



