



DAMS AND AGRICULTURE IN AFRICA

Prepared by the

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Dams

According to ICOLD (International Commission on Large Dams), a large dam is a dam with the height of 15 m or more from the foundation. If dams are 5-15 metres high and have a reservoir volume of more than three million m³, they are also classified as large dams. Using this definition, there are more than 45 000 large dams around the world, almost half of them in China. Most of them were built in the 20th century to meet the constantly growing demand for water and electricity. Hydropower supplies 2.2% of the world's energy and 19% of the world's electricity needs and in 24 countries, including Brazil, Zambia and Norway, hydropower covers more than 90% of national electricity supply. Half of the world's large dams were built exclusively or primarily for irrigation, and an estimated 30-40% of the 277 million hectares of irrigated lands worldwide rely on dams. As such, dams are estimated to contribute to 12-16% of world food production.

Regional inventories include almost 1 300 large and medium-size dams in Africa, 40% of which are located in South Africa (517) (Figure 1). Most of these were constructed during the past 30 years, coinciding with rising demands for water from growing populations. Information on dam height is only available for about 600 dams and of these 550 dams have a height of more than 15 m. Information on reservoir capacity is available for all inventoried dams and more than half have a capacity of more than three million m³. Less than 5% of the dams has a reservoir capacity of more than 1 billion m³, 10% between 0.1 – 1 billion m³, 20% between 0.01 – 0.1 billion m³, and 35% between 0.001 – 0.01 billion m³. The majority of dams in Africa have been constructed to facilitate irrigation (52%) and to supply water to municipalities (20%). Almost 20% of dams have multiple purposes, of which irrigation is almost always one of the purposes. Although only 6% of dams were built primarily for electricity generation, hydroelectric power accounts for more than 80% of total power generation in 18 African countries, and for more than 50% in 25 countries. Only 1% of African dams have been constructed to provide flooding control, according to the World Commission on Dams.

Considering dams with a reservoir capacity of over 1 billion m³, Africa counts 54 of such dams with a total reservoir capacity of about 726 billion m³, or almost 90% of the capacity of all dams in the inventory (Annex 1). Of these dams, 20 are multipurpose dams, mainly used for both hydroelectricity and irrigation, 22 are used mainly for hydroelectricity and 12 mainly for irrigation. Eight of these large dams have a reservoir capacity of over 10 billion m³ each and three of over 100 billion m³ each (Kariba on the Zambezi River with 188 billion m³, Aswan on the Nile River with 162 billion m³ and Akosombo on the Volta River with 148 billion m³). The reservoir capacity of these three dams represents almost 70% of the total capacity of the 54 dams. While the Kariba Dam and the Akosombo dam have been built for hydroelectricity, the Aswan Dam was built for irrigation in Egypt. The distribution of the large dams within the different river basins is given in Table 1. Figure 2 shows the major river basins in Africa.

Large-scale irrigation schemes

The most recent survey indicates that the total area under irrigation in Africa is about 13.4 million ha, of which almost 70 percent are located in five countries only (Egypt, Madagascar, Morocco, South Africa and Sudan) (Annex 2). The total area under irrigation in ten large international river basins is about 7 million ha, which is just over half of the total area under irrigation in Africa (Table 2).

The definition of large-scale irrigation schemes varies from country to country. In most cases, they can be considered as “formal irrigation schemes”, mostly developed from public investments, and managed through irrigation agencies. Schemes larger than 1 000 ha exist in about two thirds of the 53 countries. Schemes of more than 10 000 ha exist in about one quarter of the countries, representing almost half of the total area under irrigation (Table 3 and Annexes 2 and 3). The only real large-scale scheme in Africa is the Gezira-Managil scheme in Sudan with an area of about 870 000 ha, which is irrigated with water from the Blue Nile through the Sennar Dam. Several schemes of more than 100 000 ha exist in Egypt, Morocco and Sudan. Schemes of around 50 000 ha exist in Algeria, Egypt, Mali, Morocco, Sudan and Tunisia.

Inter-basin water transfers

Inter-basin transfers in Africa are limited to southern Africa. Transfers into the Orange/Vaal basin from adjacent basins within South Africa and from Lesotho and Swaziland feed the industrial heartland of South Africa and have necessitated a set of transboundary water sharing agreements. Proposals for inter-basin transfers out of the Congo and Niger systems into drier Sahelian and southern Africa basins are at pre-feasibility stage and include proposals for a transfer from the Oubangi sub-basin of the Congo into the Chari-Logone sub-basin of Lake Chad.

Future prospects

Although Africa is, after Oceania, the driest continent in the world, it uses few of its renewable water resources: 5.5% against 20.4% in Asia (Table 4). Looking at sub-Saharan Africa, it uses only 2.9% of its renewable water resources, against 62.5% in the Near East & North Africa region and 52.1% in South Asia.

Sub-Saharan Africa is also the region where irrigated agriculture is least developed. Just 3.5% of its cultivated area is irrigated, against 42.2% in South Asia and 33.6% in the Near East & North Africa region (Table 5).

Potential for increasing irrigation still exists, especially in sub-Saharan Africa. However, if irrigated production is to make a significant contribution to food security and economic growth in sub-Saharan Africa, it will have to be restructured across the region as a whole: the structure of the irrigation sub-sector should be matched to the structure of demand; existing supply chains, storage and processing should be concentrated to address specific, well-identified markets; prior to new public expenditure or the encouragement of private investment, the full implications of price impacts must be taken into account; costs of supplying into specific crop markets will need to be addressed.

If after a thorough analysis increasing the irrigation area is a preferred option, one of the options could be increasing the water storage for irrigated agriculture. However, if dam construction is envisaged, then not only should be considered whether this is a technically feasible option, but also whether this is an economically viable, a socially acceptable and, above all, an environmentally sustainable option.

More information

<http://www.fao.org/nr/aquastat>

<http://www.fao.org/nr/water/aquastat/dams/index.stm>



FIGURE 1
Dams in Africa

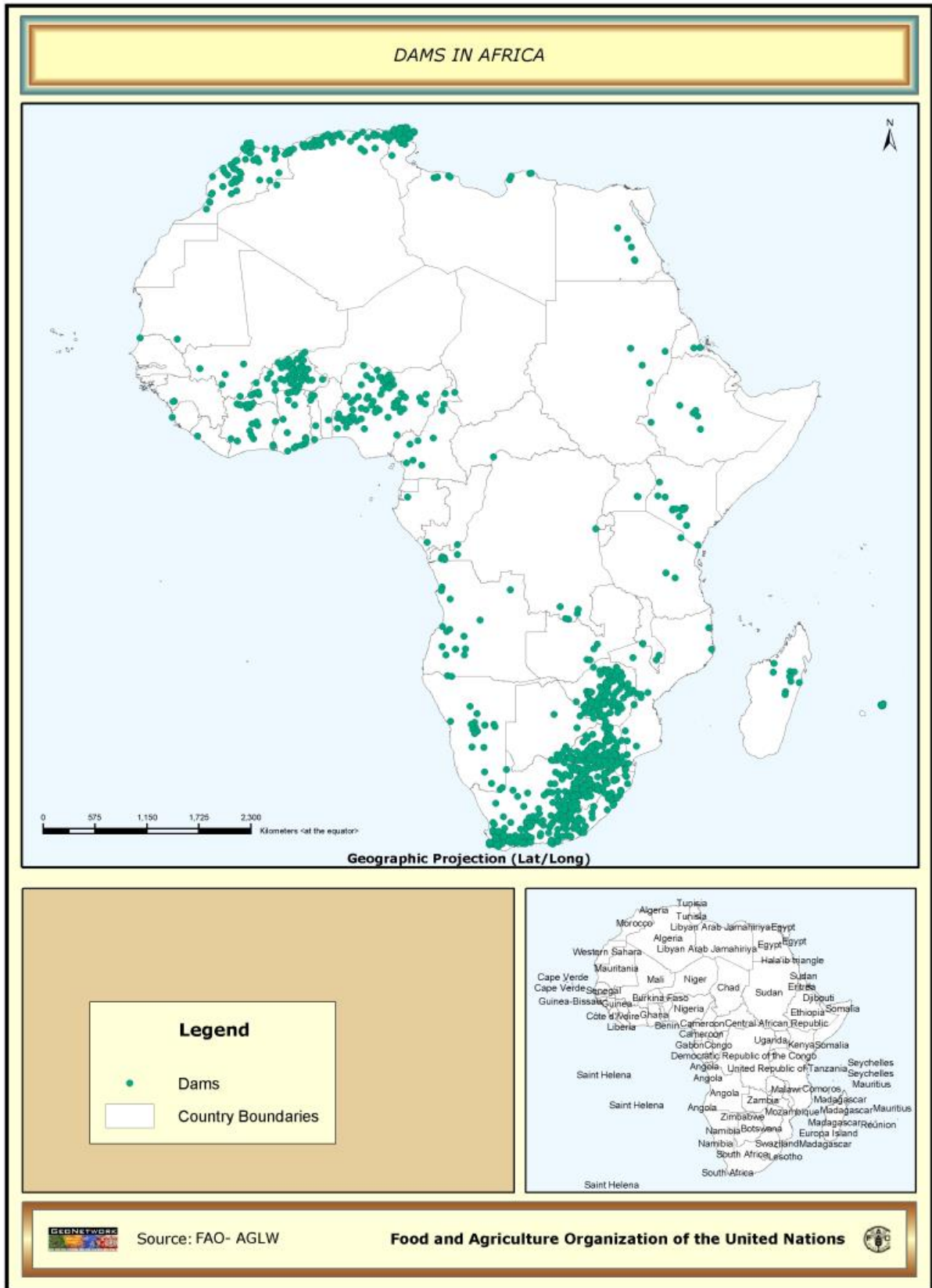


FIGURE 2
Major river basins in Africa

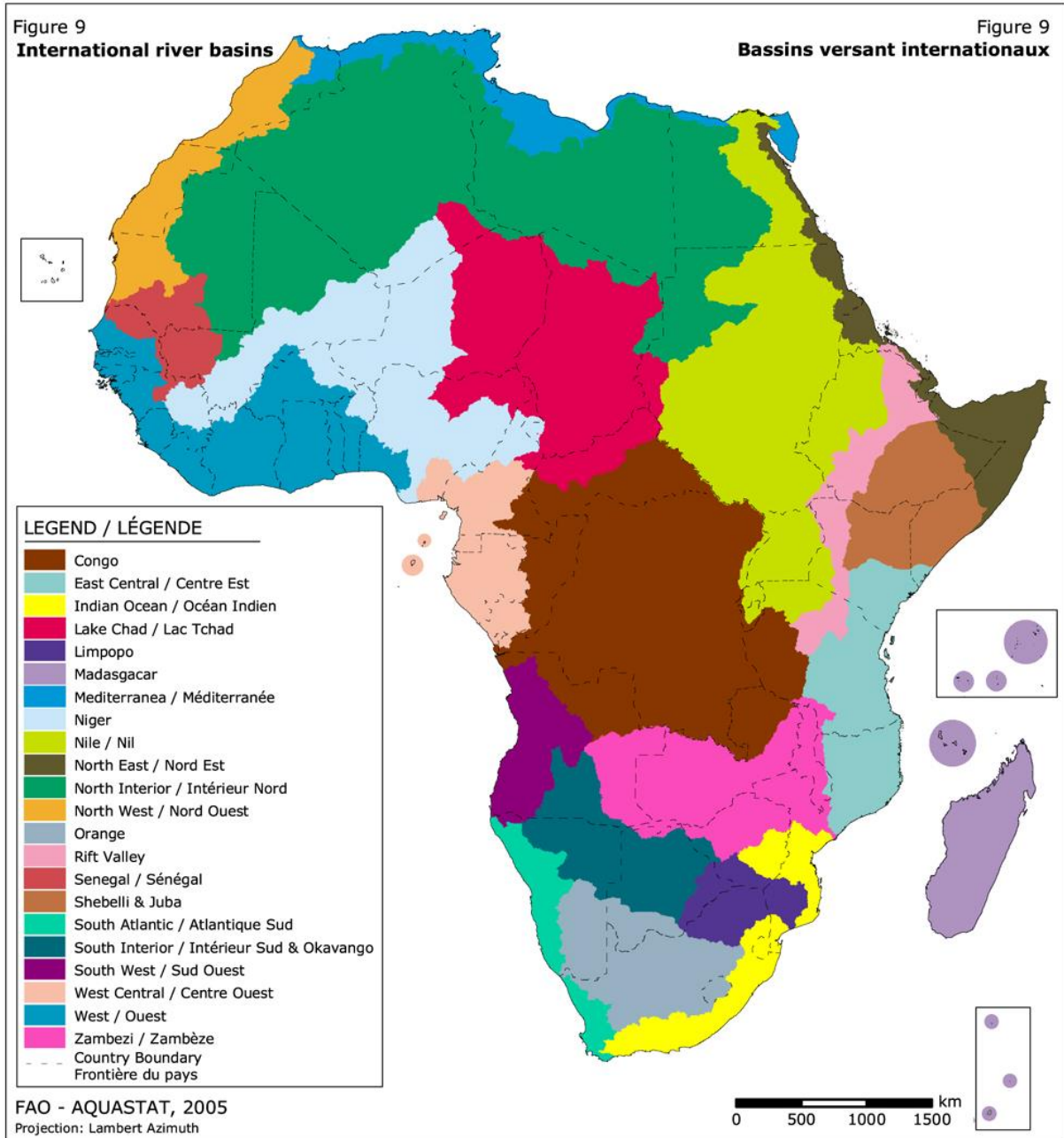




TABLE 1
Large dams by river basin in Africa (Source: FAO-AQUASTAT)

River Basin	Countries in basin	Number of existing large dams (> 1 billion m ³)	Height of dams (m)	Reservoir capacity range (billion m ³)	Total reservoir capacity (billion m ³)	Main purpose*
Senegal	Guinea, Mali, Mauritania, Senegal	1	70	11.3	11.3	I
Niger	Algeria, Benin, Burkina Faso, Cameroon, Chad Côte d'Ivoire, Guinea, Mali, Niger, Nigeria	6	23 - 79	2.2 – 15.0	31.4	I, H
Lake Chad	Algeria, Cameroon, Central African Republic, Chad, Niger, Nigeria, Sudan	4	14 - 48	1.9 – 6.5	16.6	I
Volta	Benin, Burkina Faso, Côte d'Ivoire, Ghana, Mali, Togo	2	? - 134	1.4 – 148.0	149.4	H
Nile	Burundi, DRC, Egypt, Eritrea, Ethiopia, Kenya, Rwanda, Sudan, Tanzania, Uganda	6	22 - 111	0.9 – 162.0	174.9	I, H
Zambezi	Angola, Botswana, Malawi, Mozambique, Namibia, Tanzania, Zambia, Zimbabwe	3	70 - 171	4.9 – 188.0	231.9	I, H
Orange	Botswana, Lesotho, Namibia, South Africa	5	? - 185	1.3 – 5.7	14.2	I, H
Limpopo	Botswana, Mozambique, South Africa, Zimbabwe	2	48 - 65	2.3 – 11.2	13.5	I, H
Congo	Angola, Burundi, Cameroon, Central African Rep, Congo, DRC, Rwanda, Tanzania, Zambia	2	50 - 58			H
Rift Valley	Djibouti, Eritrea, Ethiopia, Kenya, Sudan, Tanzania, Uganda	2	42 - 155	1.6 – 1.9	3.5	I, H
Save	Mozambique, Zimbabwe	1	67	1.4	1.4	I
Incomati	Mozambique, South Africa, Swaziland	1	46	1.3	1.3	I, H
Cunene	Angola, Namibia	1	58	2.6	2.6	I, H
Mono	Benin, Togo	1	44	1.7	1.7	I, H
Other basins:						
Bengo,	Angola	2	41	1.5	1.5	I
Djerem, Mape, Noun	Cameroon	3	17 - 34	1.8 – 3.2	7.6	H
Bandama, Sassandra	Côte d'Ivoire	2	37 - 58	8.3 – 27.7	36.0	
Tana	Kenya	1	70	1.6	1.6	H
El Abid, Inaouene, Ouergha, Oum R'Bia	Morocco	4	72 - 133	1.2 – 2.8	9.1	I, H
Lurio, Pungué, Revué	Mozambique	3	40 - 75	1.2 – 2.5	5.3	H
Nuvejaarspruit, Pongola	South Africa	3	?	2.5 – 3.2	8.3	I
Great Ruaha/Rufiji	Tanzania	1	45	3.2	3.2	H
TOTAL		53	14 - 171	0.9 – 188.0	726.3	

* I = Irrigation, H = Hydropower



TABLE 2
Area under irrigation by river basin in Africa (Source: FAO-AQUASTAT)

River basin	Area of river basin (1 000 ha)	Countries	Area under irrigation (1 000 ha)	Large dam capacity (> 1 billion m ³) (billion m ³)
Congo	378 905	Angola, Burundi, Cameroon, Central African Rep, Congo, DRC, Rwanda, Tanzania, Zambia	40	
Nile	311 237	Burundi, DRC, Egypt, Eritrea, Ethiopia, Kenya, Rwanda, Sudan, Tanzania, Uganda	5 200	174.9
Lake Chad	238 164	Algeria, Cameroon, Central African Republic, Chad, Niger, Nigeria, Sudan	150	16.6
Niger	227 395	Algeria, Benin, Burkina Faso, Cameroon, Chad Côte d'Ivoire, Guinea, Mali, Niger, Nigeria	300	31.4
Zambezi	135 137	Angola, Botswana, Malawi, Mozambique, Namibia, Tanzania, Zambia, Zimbabwe	250	231.9
Orange	89 637	Botswana, Lesotho, Namibia, South Africa	310	14.2
Rift Valley	63 759	Djibouti, Eritrea, Ethiopia, Kenya, Sudan, Tanzania, Uganda	250	3.5
Senegal	48 318	Guinea, Mali, Mauritania, Senegal	150	11.3
Limpopo	40 186	Botswana, Mozambique, South Africa, Zimbabwe	250	13.5
Volta	39 420	Benin, Burkina Faso, Côte d'Ivoire, Ghana, Mali, Togo	50	149.4
Total for 10 basins	1 572 158		6 950	646.7
Total for Africa	3 029 021		13 403	726.3
10 basins as % of Africa	52		52	89

TABLE 3
Countries in Africa with large irrigation schemes (> 10 000 ha) (Source: FAO-AQUASTAT)

Country	Area under irrigation (1 000 ha)		Area of large schemes as % of total area
	Total	Large schemes (> 10 000 ha)	
Algeria	569	150	26
Côte d'Ivoire	73	10	14
Egypt	3 422	2 800	82
Ethiopia	290	50	17
Libya	470	40	9
Madagascar	1 086	70	6
Mali	236	130	55
Morocco	1 443	650	45
Mozambique	118	50	42
Nigeria	293	30	10
South Africa	1 498	500	33
Sudan	1 863	1 700	91
Tunisia	394	100	25
Zambia	156	20	13
Zimbabwe	174	20	11
Total	12 085	6 320	52
Total for Africa	13 403	6 320	47



TABLE 4
Freshwater withdrawal by sector, year 2000 (Source: FAO-AQUASTAT)

World/Continent/Region	Renewable freshwater resources km ³ /year	Total volume of freshwater withdrawal km ³ /year	Freshwater withdrawal by sector						Utilization as % of resources
			Domestic		Industrial		Agricultural		
			km ³ /year	%	km ³ /year	%	km ³ /year	%	
WORLD	43 659	3 830.0	381.2	10.0	784.8	20.5	2 664.0	69.5	8.8
Developed countries	13 829	1 236.9	166.3	13.4	508.3	41.1	562.3	45.5	8.9
Industrialized countries (a)	8 782	890.7	132.4	14.9	394.7	44.3	363.6	40.8	10.1
Transition economies	5 047	346.2	33.9	9.8	113.6	32.8	198.7	57.4	6.9
Developing countries	29 830	2 593.1	214.9	8.3	276.5	10.7	2 101.7	81.0	8.7
Latin America and the Caribbean	13 570	265.4	50.5	19.0	27.5	10.3	187.4	70.6	2.0
Near East and North Africa (b)	514	321.5	25.5	7.9	14.1	4.4	281.9	87.7	62.5
Sub-Saharan Africa (c)	3 844	110.6	9.0	8.1	2.9	2.6	98.7	89.2	2.9
East and Southeast Asia (d)	8 654	977.6	71.2	7.3	192.4	19.7	714.0	73.0	11.3
South Asia	1 761	917.8	58.7	6.4	39.6	4.3	819.6	89.3	52.1
Oceania developing	884	0.1	0.1	35.5	0.0	28.4	0.1	36.2	0.0
North America developing	603			-		-			0.0
Continental groupings	43 659	3 830.0	381.3	10.0	784.8	20.5	2 664.0	69.5	8.8
Africa	3 936	217.0	21.7	10.0	9.1	4.2	186.2	85.8	5.5
Asia	11 594	2 377.9	171.6	7.2	270.3	11.4	1 936.0	81.4	20.5
Latin America	13 477	251.9	47.4	18.8	26.2	10.4	178.3	70.8	1.9
Caribbean	93	13.4	3.1	23.1	1.3	9.4	9.1	67.5	14.4
North America	6 253	525.3	69.8	13.3	252.3	48.0	203.2	38.7	8.4
Oceania	1 703	26.2	4.6	17.5	2.6	10.1	19.0	72.4	1.5
Europe	6 603	418.3	63.0	15.1	223.0	53.3	132.3	31.6	6.3

(a) Including Japan, South Africa, Israel

(b) Excluding Israel

(c) Excluding South Africa

(d) Excluding Japan

TABLE 5
Percentage of cultivated land irrigated (Source: FAO-FAOSTAT)

World/Continent	Irrigation					
	Area (1000 ha)			As % of arable land		
	1980	1990	2003	1980	1990	2003
WORLD	210 222	244 988	277 098	15.7	17.6	19.8
Developed countries	58 926	66 286	69 133	9.1	10.2	11.4
Industrialized countries	37 355	39 935	43 563	9.9	10.5	12.0
Transition economies	21 571	26 351	25 570	7.9	9.8	10.5
Developing countries	151 296	178 702	207 965	21.9	24.1	26.1
Latin America & the Caribbean	13 811	16 794	18 616	10.8	12.5	13.0
Near East & North Africa	17 982	24 864	29 312	21.8	28.8	33.6
Sub-Saharan Africa	3 980	4 885	5 572	3.2	3.7	3.5
East & Southeast Asia	59 722	65 624	73 735	37.0	33.9	34.7
South Asia	55 798	66 529	80 716	28.6	33.9	42.2
Oceania developing	3	6	14	0.7	1.2	2.4
North America developing
Continental groupings			277 098			19.8
Africa	9 491	11 235	13 370	6.0	6.7	6.7
Asia	132 377	155 009	193 890	31.3	33.8	38.3
Caribbean	1 074	1 269	1 304	22.0	23.3	24.5
Latin America	12 737	15 525	17 312	10.4	12.0	12.6
North America	21 178	21 618	23 170	9.1	9.3	10.6
Oceania	1 686	2 118	2 844	3.6	4.2	5.7
Europe	14 479	17 414	25 208	11.5	14.0	8.9



ANNEX1

Large dams (> 1 billion m³ or > 1 BCM) by river basin in Africa

River Basin	Status	Name of dam	Dam located in river	Dam located in country	Dam properties Capacity (billion m ³)	Height (m)	Use*
SENEGAL	Existing	Manantali	Bafing	Mali	11.270	70	I, N
	Planned	<ul style="list-style-type: none"> - Irrigation potential from Manantali Dam: 10 000 ha in Mali, 125 000 ha in Mauritania, 240 000 ha in Senegal (incl. Diama dam with 0.250 BCM capacity) - Irrigated from Manantali Dam: 300 ha in Mali, 20 000 ha in Mauritania, 50 000 ha in Senegal - According to integrated development master plan of left bank of Senegal river (1990) 131 500 ha is expected to be irrigated in 2025: 33 000 ha flood recession cropping, 10 500 ha irrigated industrial crops, 88 000 ha food crops - In Mauritania is Fom Gleita Dam on the Gorgoil noir with 0.5 BCM capacity, for irrigation purposes 					
GAMBIA	Existing						
	Planned	Kekreti Dam in Senegal for hydropower and irrigation of 15 000 ha in Senegal and 55 000 ha in Gambia					
NIGER	Existing	Sélingue	Sankarani	Mali	2.170	23	I, H, F, N
		Sotuba & Markala	Niger	Mali			I
		Lagdo	Benue	Cameroon	7.800	40	H, F, N, R
		Jebba	Niger	Nigeria	3.600	40	H
		Kainji	Niger	Nigeria	15.000	79	H, F
		Dadin Kowa	Gongola	Nigeria	2.855	42	I, H, S
	Planned	<ul style="list-style-type: none"> - Sélingue Dam is mainly used for hydropower and 60 000 ha irrigation - Diversion dams used to irrigate 56 000 ha of Office du Niger (Markala Dam of 0.175 BCM for rice) - Lagdo Dam is mainly used for hydropower, but could also be used for irrigation of about 20 000 ha About 1 000 ha is at present irrigated in Cameroon from this dam - Fomi Dam on the Niandan River in Guinea for irrigation and hydropower However, negative environmental impact expected. - Tala & Djenné Dam on the Bani River in Mali for irrigation However, drying up of water resources requires re-examination - Tossaye Dam on Niger River in Mali for irrigation - Kandadji Dam on Niger River in Niger for multi-purpose use, including about 140 000 ha irrigation - In Nigeria, two proposals exist for water transfer schemes from Niger basin to Lake Chad basin 					
LAKE CHAD	Existing	Tiga	Kano	Nigeria	1.874	48	I, F
		Mohammadu Abuya	Kano	Nigeria	5.535	16	I, S
		Jekara	Kano	Nigeria	6.519	14	I, O
		Kafin Zaki	Bonga	Nigeria	2.700	40	I
	Planned	<ul style="list-style-type: none"> - Two sites for dams on upstream branches of Logone in Cameroon and Chad planned for irrigation However, this would be to the detriment of water use for hydro-electric power generation and for irrigation outside Yaéré lowlands. - Due to lowering of Lake Chad plans exist to transfer water from Congo basin by 170 km long canal in CAR 					
VOLTA	Existing	Akosombo	Volta	Ghana	147.960	134	H
		Kompienga	Oualé	Burkina Faso	1.400		H
	Planned						
NILE	Existing	Roseires	Blue Nile	Sudan	2.200	60	I, H, F
		Sennar	Blue Nile	Sudan	0.930	48	I, H
		Jebel Aulia	White Nile	Sudan	3.500	22	I, H, F, N, R
		Khashm el Girba	Atbara	Sudan	1.300	35	I, H
		High Aswan	Nile	Egypt	162.000	111	I, H, F
		Old Aswan	Nile	Egypt	5.000	53	I, H
	Planned	<ul style="list-style-type: none"> - Plans exist to increase the height of Roseires dam in order to have an additional capacity of 4 BCM. - The Sennar Dam is used for irrigation of the large Gezira Managil scheme (870 750 ha) - About 152 280 ha is irrigated in Sudan from the Jebel Aulia Dam - Over 2.9 million ha is irrigated in Egypt using water from the Aswan Dam - In Tanzania, plans dating back from the German colonial period exist to transfer water from Lake Victoria to the Vembere Plateau to irrigate 88 000 -230 000 ha of cotton. Project is still at planning stage, but costs expected to be high - In Kenya plans exist to transfer water from Lake Victoria to drier areas, such as Kerio (in Rift Valley) 					
ZAMBEZI	Existing	Kariba	Zambezi	Zambia, Zimbabwe	188.000	128	H
		Itezihitezi	Kafue	Zambia	4.925	70	H
		Cahora Bassa	Zambezi	Mozambique	39.000	171	I, H, F
		Many small dams are located in Zimbabwe, mainly for irrigation purposes					
	Planned	Series hydropower cascade dams on mainstream Zambezi (Batoka Gorge, Devil's Gorge and Muputa Gorge)					



ORANGE	Existing	Bloemhof Gariep (H. Verwoerd) P.K. Le Roux Vaal Katse (LHWP)	Vaal Orange Orange Vaal Malibamatso	South Africa South Africa South Africa South Africa Lesotho	1.264 5.674 3.237 2.122 1.950	185	I, S I, H, S I, H H
	Planned	<ul style="list-style-type: none"> - Mashai Dam (3.3 BCM), Tsoelike Dam (2.22 BCM) and Ntoahae Dam in Lesotho within framework of the Lesotho Highlands Water Project (LHWP) - Due to Lesotho's commitments through the LHWP, its water resources will have reduced from 5.23 BCM/yr to 3.03 BCM/yr in 2020 - LHWP transfers 2.2 BCM/yr water to South Africa (Vaal River), while providing Lesotho with facilities to generate its own electricity 					
LIMPOPO	Existing	Mapai Massingir	Limpopo Elefantas	Mozambique Mozambique	11.200 2.256	65 48	I I, H, F
	Planned	<ul style="list-style-type: none"> - In South Africa plans exist for water transfer from Incomati to Limpopo, Usutu to Limpopo, and Orange to Limpopo - In Botswana plans exist for north-south water carrier from Shashe river to Notwane river (both located in the Limpopo basin) 					
CONGO	Existing	Inga I Inga II	Nkokolo/Congo Nkokolo/Congo	DRC DRC		50 58	H H
	Planned	<ul style="list-style-type: none"> - Due to lack of maintenance during the civil war, these dams are heavily silted and operate on only 30% of their capacity - Inga III on the Nkokolo/Congo, with a height of 60 m, for hydropower - Grand Inga on the Congo, with a height of 150 m, for hydropower 					
RIFT VALLEY	Existing	Koka Turkwel	Awash Turkwel	Ethiopia Kenya	1.900 1.645	42 155	I, H H
	Planned						
SAVE	Existing	Kyle	Mutirikwi	Zimbabwe	1.425	67	I
	Planned						
INCOMATI	Existing	Corumana	Sabié	Mozambique	1.273	46	I, H, F
	Planned	Driekoppes Dam in Komati River in South Africa and Maguga Dam (0.332 BCM) in Komati in Swaziland					
CUNENE	Existing	Gove	Cunene	Angola	2.574	58	I, H
	Planned	<ul style="list-style-type: none"> - The Gove Dam Also provides water to Namibia for water supply to population - Epupa Dam between Angola and Namibia for hydropower with capacity of 7.3 BCM 					
MONO	Existing	Nangbeto	Mono	Togo	1.710	44	I, H
	Planned						
ANGOLA Coastal basin	Existing	Quiminha	Bengo	Angola	1.560	41	I, S
	Planned						
CAMEROON Several coastal basins	Existing	Mape	Mape	Cameroon	3.200	34	H
		M. Bakaou	Djerem	Cameroon	2.600	30	H
		Bamendjin	Noun	Cameroon	1.800	17	H
	Planned						
CÔTE D'IVOIRE Several coastal basins	Existing	Bandama	Bandama	Côte d'Ivoire	27.675	58	H
		Buyo	Sassandra	Côte d'Ivoire	8.300	37	H
	Planned						
KENYA Coastal basin	Existing	Masinga	Tana	Kenya	1.560	70	H, F
	Planned						
MOROCCO Several coastal basins	Existing	Bin El Ouidane	El Abid	Morocco	1.384	133	I, H
		Idriss 1	Inaouene	Morocco	1.186	72	I, H
		Al Massira	Oum R'Bia	Morocco	2.760	82	I, H, S
		Al Wahda	Ouergha	Morocco	3.730	88	I, H
	Planned	<ul style="list-style-type: none"> - Thirteen structures exist in Morocco for water transfer between basins, total quantity over 2.7 BCM 					





MOZAMBIQUE Several coastal basins	Existing	Chicamba Real	Revué	Mozambique	1.538	75	H, F
		Monte Hombe	Pungué	Mozambique	1.248	60	H
		Lurio o Cua	Lurio	Mozambique	2.500	40	H
	Planned						
SOUTH AFRICA Several coastal basins	Existing	Sterkfontein	Nuvejaarspruit	South Africa	2.817		S
		Pongolapoort	Pongola	South Africa	2.501		I
		VanderKloof		South Africa	3.237		
	Planned						
TANZANIA Coastal basin	Existing	Mitera	Great Ruaha/Rufiji	Tanzania	3.200	45	H
	Planned						
Total large dam capacity (> 1 billion m³)					726	billion m³	
Total dam capacity in Africa is ±					785	billion m³	

Use * I = Irrigation, H = Hydroelectricity, S = Water supply, F = Flood control, N = Navigation, R = Recreation, O = Other

Source: FAO-AQUA STAT, Geo-referenced database on African dams



ANNEX 2
Area under irrigation and dam capacity by country in Africa

Country	Area under irrigation (1 000 ha)		Dam capacity (billion m ³)	
	Total	Large schemes (>10 000 ha)	Total	Large dams (>1 billion m ³)
Algeria	569.4	150.0	6.0	
Angola	80.0		4.5	4.1
Benin	12.3		0.0	
Botswana	1.4		0.3	
Burkina Faso	25.0		5.1	1.4
Burundi	21.4			
Cameroon	25.7		15.4	15.4
Cape Verde	2.8			
Central African Republic	0.1			
Chad	30.3			
Comoros	0.1			
Congo DR	10.5		0.1	
Congo PR	2.0		0.0	
Côte d'Ivoire	72.8	10.0	37.2	36.0
Djibouti	1.0			
Egypt	3 422.2	2 800.0	167.0	167.0
Equatorial Guinea	0.0			
Eritrea	21.6		0.0	
Ethiopia	289.5	50.0	3.5	1.9
Gabon	4.5		0.2	
Gambia	2.1			
Ghana	30.9		148.3	148.0
Guinea	94.9		0.2	
Guinea Bissau	22.6		0.0	
Kenya	103.2		4.1	3.2
Lesotho	2.6		2.8	2.0
Liberia	2.1			
Libya	470.0	40.0	0.3	
Madagascar	1 086.3	70.0	0.5	
Malawi	56.4		0.0	
Mali	235.8	130.0	13.6	13.4
Mauritania	45.0		0.5	
Mauritius	21.2		0.1	
Morocco	1 442.6	650.0	16.1	9.1
Mozambique	118.1	50.0	64.5	59.0
Namibia	7.6		0.7	
Niger	73.7			
Nigeria	293.1	30.0	44.2	38.1
Rwanda	8.5			
Sao Tome & Principe	9.7			
Senegal	119.7		0.3	
Seychelles	0.3			
Sierra Leone	29.4		0.2	
Somalia	200.0			
South Africa	1 498.0	500.0	28.3	20.7
Sudan	1 863.0	1 700.0	8.7	7.9
Swaziland	49.8		0.6	
Tanzania	184.3		4.2	3.2
Togo	7.3		1.7	1.7
Tunisia	394.0	100.0	2.6	
Uganda	9.2		0.0	
Zambia	155.9	20.0	99.8	98.9
Zimbabwe	173.5	20.0	99.0	95.4
TOTAL	13 403.4	6 320.0	780.7	726.4

Note:

While the large dam is written behind the country in which it is located, the water from the dam is shared between several countries that are located within the basin

Source: FAO-AQUASTAT



Food and Agriculture Organization
of the United Nations

FAO AQUASTAT Dams Africa – 070524

ANNEX 3

Largest irrigation schemes in Africa (area under irrigation refers to 1986, South Africa excluded)



#	COUNTRY	REGION (when available)	NAME OF SCHEME	NAME OF RIVER (when available)	AREA (Hectares)	MAIN CROPS (when available)
1	Egypt		Old Land	Nile River	2,400,000	cotton / rice / wheat / sugarcane / berseem / maize
2	Sudan	<i>Blue Nile</i>	Gezira-Main	Blue Nile River	476,860	cotton / groundnut / wheat / sorghum
3	Egypt		New Land	Nile River	400,000	orchards / vegetables / fodder
4	Sudan	<i>Blue Nile</i>	Managil Extension	Blue Nile River	397,440	cotton / groundnut / wheat / sorghum
5	Sudan	<i>Atbra River</i>	New Halfa Pro. Corp.	Atbra River	151,200	cotton / wheat / groundnuts
6	Sudan	<i>White Nile</i>	Agr. Pro. Corp.	White Nile River	151,030	cotton
7	Sudan	<i>Blue Nile</i>	Rahad Corp.	Blue Nile River	126,000	cotton / groundnut / sorghum
8	Sudan	<i>Blue Nile</i>	Blue Nile Agr. Pro. Corp.	Blue Nile River	122,640	cotton
9	Morocco		Ormva of Tadia	Oam Er Rbia River	122,100	cotton / wheat / fodder / vegetables
10	Morocco		Ormva of Gharb	Zelouane River	102,800	cereals / vegetables / sugar beets / citrus fruits
11	Morocco		Ormva of Souss-Massa	Souss-Massa River	95,900	citrus fruits / vegetables / cereals
12	Morocco		Ormva of Ouarzazate	South Atlas	66,200	wheat / fodder / vegetables
13	Morocco		Ormva of Moulouya	Moulouya River	64,600	wheat / vegetables / fodder
14	Morocco		Ormva of Doukkala	Oum Er Rbia River	59,400	wheat / maize / fodder / sugar
15	Morocco		Ormva of Tafilalet	Gheris-Ziz River	50,000	wheat / fodder / vegetables
16	Sudan	<i>Main Nile</i>	North Agr. Prod. Corp.	Nile River	43,260	cotton / fruits / vegetables
17	Algeria			Biskra	40,965	
18	Mali	<i>Riz Mopti</i>	Others	Niger River	38,555	rice
19	Tunisia	<i>OMV Medjerda</i>	Tébourba		53,010	
20	Sudan	<i>Blue Nile</i>	El Suki	Blue Nile River	36,500	cotton / groundnut / sorghum
21	Morocco		Ormva of Haouz	Tensift River	34,700	wheat / fodder / vegetables
22	Sudan	<i>White Nile</i>	Kenana	White Nile River	34,020	sugarcane
23	Sudan	<i>Outside Nile System</i>	Gash	Gash River	33,600	cotton / sorghum
24	Tunisia	<i>OMV Kairouan</i>	Others		31,410	
25	Mozambique		Chokwe	Limpopo River	25,000	rice / maize / dry beans / vegetables
26	Libya		Sarir North and South		23,000	wheat
27	Madagascar		B. Betsiboka	Betsiboka River	20,000	rice
28	Sudan	<i>Blue Nile</i>	Guneid Extension	Blue Nile River	19,070	cotton / groundnut
29	Morocco		Ormva of Loukkos	Loukkos River	18,800	wheat / forage / sugarcane / vegetables
30	Algeria		Blida		18,065	
31	Algeria		Tipaza		17,655	
32	Sudan	<i>Atbra River</i>	Halfa Sugar Co.	Atbra River	17,640	sugarcane
33	Sudan	<i>Main Nile</i>	Basins	Nile River	16,800	cotton / fruits / vegetables
34	Sudan	<i>Blue Nile</i>	Guneid Sugar Co.	Blue Nile River	16,250	sugarcane
35	Algeria		Mostaganem		15,535	
36	Mali	<i>Riz Segou</i>	Right Bank	Niger River	15,140	rice
37	Mali	<i>Riz Segou</i>	Dioro	Niger River	15,100	rice
38	Madagascar		Antananarivo Plain		15,000	rice
39	Ethiopia		Tendhao (Dubte-Dit-Bahari)	Awash River	14,900	cotton
40	Nigeria	<i>Chad Rbrda</i>	South Chad	Lake Chad	14,500	wheat / rice / cotton