Appendix 1 to the Water Charter for the Volta River Charter related to the procedure for producing, collecting, exchanging and utilising data and information

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Appendix 1 to the Water Charter for the Volta River Basin related to the procedure for producing, collecting, exchanging and utilising data and information

Part 1. General provisions

Article 1. Purpose

This Appendix to the Water Charter for the Volta River Basin establishes the procedure for producing, collecting, exchanging and utilising data and information in the basin.

It specifically aims to:

i) Create an obligation for the State Parties to produce and collect data and information on water resources and ecosystems of the river basin;

ii) Harmonize data and information production and collection methodologies;

iii) Develop and institutionalise the exchange of data and information among the State Parties on all the various aspects related to the water resources, the environment and the socio-economic conditions in the Basin thanks to the Volta Basin Database;

iv) Establish rules for the collection, verification and supply of data and information by the State Parties;

v) Define the role of the Executive Directorate in receiving, verifying and providing access to the Database;

vi) Establish rules for access to the data in the Database.

This Appendix is enacted pursuant to Articles 97 to 101 and 162 of the Volta Basin Water Charter.

Article 2: Scope of the obligation to produce, collect, exchange and utilise data and information

The obligation to produce, collect, exchange and utilise data and information concerns data and information necessary to acquire better knowledge about the condition of the water resources, the environment and the socio-economic conditions in the Basin.

Defence and national security information are not concerned under the obligation to exchange data and information.

In the event of a request for data and information that are vital to national defence and security, the State Parties shall cooperate in good faith to provide as much information and data as the circumstances permit, in accordance with the preceding paragraph.

Article 3: Role of the Executive Directorate

Within the Executive Directorate, the Database shall be managed by the Volta Basin Observatory.

The Executive Directorate shall be responsible for organising the Database, namely its structure, the receipt of data from the National Focal Structures, data integration in a uniform, accessible manner, and the validation, interpretation and dissemination of the data.

The Executive Directorate, in consultation with the States Parties, shall harmonise the methods of production, collection and processing of data and information. It provides methodological support to States Parties.

The Executive Directorate shall contribute, through projects, to the capacity-building of technical staff in the States Parties responsible for the collection, production and processing of data and information.

It periodically produces an atlas of water resources.

Article 4: Role of the National Focal Structures

The National Focal Structures ensure coordination between the Volta Basin Observatory and the State Parties throughout the process of producing, collecting, exchanging and utilising information and data.

Part 2. Production, collection and transmission of data and information to the Authority

Article 5: Information and data required

The information and data to be produced, collected, exchanged and utilised in order to build up the Volta Basin Database shall include, at least the following:

i) Information about climate/meteorological conditions and observations in the Basin;

ii) Qualitative and quantitative data on surface and ground water resources in the Basin;

iii) Information about consumptive uses, including drinking water supply, irrigated agriculture, cattle water supply, industrial activities, and about non-consumptive uses such as pollutant discharges, hydropower production, navigation, fishing and aquaculture, tourism, etc;

iv) Characteristics of existing and planned water-providing facilities and hydraulic infrastructure;

v) Information about the use and condition of the soils in the Basin (soil, vegetation, erosion);

vi) Data on ecosystems of the basin, such as protected areas, forests, and biodiversity in general;

vii) Information about the socio-economic conditions in the basin countries such as demography, agriculture, industry and energy;

viii) Information about international policies, legislation and conventions on water and the environment.

Table n°1: Information and data to be provided

TYPE OF INFORMATION	DATA FOR TRANSMISSION	LOCATION	TIME STEPS	TRANSMISSION FREQUENCY
Water resources	River and stream flows	Gauging station measurements	Instantaneous or daily	Quarterly
	Piezometric readings	Existing piezometers	Weekly or at least monthly	Quarterly
Abstractions (domestic, agricultural, pastoral, industrial)	Location, volume, authorized flow, owner,...	Abstraction points subject to authorization	Monthly	Quarterly
Meteorology	Temperature Evapotranspiration Humidity	Climate stations	Daily	Quarterly
	Rainfall	Rain gauging stations	Daily	Quarterly
Lessons learnt about floods	Description of major floods, their impacts and associated emergency management	Recordings by States Parties	Depending on the event	Annually
Quality	Parameters and characteristics (physical, chemical and bacteriological quality, sedimentation and solid transport data)	Authorized discharge points and other points	At least annually	Quarterly

TYPE OF INFORMATION	DATA FOR TRANSMISSION	LOCATION	TIME STEPS	TRANSMISSION FREQUENCY
Discharge	Parameters and characteristics	Discharge subject to authorization	At least monthly	Annually
Irrigation schemes	Equipped area, cropped area during the dry season and rainy season, cropping patterns	Schemes authorized to abstract water	Quarterly	Annually
Land occupancy and soil conditions	Maps and documents on vegetation, erosion, soils...	Technician will verify these data in the field	Annual	Annually
Environmental issues	Data and documents (including characteristics and condition of wetlands and protected areas)	State Party administrative authorities	Annual	Annually
Water providing facilities	Characteristics, inflows, outflows, storage capacity and level	State Party administrative authorities	Daily or weekly	Annually
Navigation	Type of boat, number of passengers, tonnage of goods carried	Records at boarding points	Quarterly	Quarterly
Policies and legislation	Policy documents and strategies, legislative and regulatory instruments, international conventions, on water and the environment	Official Journals	Annual	Annually
Socio-economic conditions	Surveys on household living standards, demographic and socio-economic data	State Party administrative authorities	Every two years	As soon as the data are available

Article 6: Production of data and information

The State Parties produce the data and information necessary for better understanding of the basin, within the limits of their available resources.

Data and information shall be produced in such a way as to facilitate their use by the Authority, other States and third-party institutions.

In pursuit of this aim, the Authority shall ensure that the collection and processing of data and information on the Basin is harmonized.

Article 7: Collection of data and information

The National Focal Structures shall collect data from various national and regional entities.

They shall validate the data collected and format it as specified by the Authority. This format is specified in Annex 1 to the present Appendix.

In pursuit of this aim, the Authority shall ensure that the collection and processing of data and information on the Basin is harmonized.

Article 8: Transmission of data

Data from the State Parties shall be delivered to the Observatory by the National Focal Structures.

They are transmitted via the Internet and physically.

Transmissions shall take place at the frequency indicated in the table detailed in Article 5.

Article 9. Compiling transmitted data and information

Data and information are compiled by the Observatory within the Volta Basin Database.

Article 10: Restrictions on the dissemination of information and data

With reference to the data and information transmitted to the Observatory, the State Parties shall be entitled to place restrictions on the dissemination of certain data and information to third parties.

Such restrictions may either consist of prohibiting the access to the data and information concerned or of disseminating it subject to prior consent from the State concerned.

The sole justification for imposing restrictions on the use of data shall be national security considerations and prior notice of such shall be given to the Observatory.

Article 11: Expenses for the production, collection and transmission of data

The costs of producing, collecting and transmitting data and information to the Observatory shall be borne by the State Parties.

To this end, the Authority may provide technical and financial support to States Parties for the production, collection, exchange, use and transmission of data and information, in particular in terms of capacity building of actors in this field.

The Council of Ministers approves an annual budget covering the costs of establishing and operating the Database.

Part 3. Access to and utilisation of the Volta Basin Database

Article 12: Access to the Regional Database

Access to and use of the Database are controlled by the Observatory.

It shall determine, in cooperation with the States Parties, the conditions for access to and use of the Database.

When the data sought are subject to restrictions, access and use shall comply with the conditions defined by the National Focal Structure submitting the restricted data.

When a State requests access to data provided by another State, the Authority shall inform the supplying State; and the recipient State shall in return be obliged to make available to it any document produced on the basis of the data provided.

Under no circumstances may the raw data contained in the Database be accessible to third parties.

Third parties shall be allowed access to the data and information in the Database in accordance with the terms and conditions defined by the Authority.

Article 13: Procedure for data and information not available in the Database

Whenever a State Party requires data and information on the sustainable management of the basin that is not available in the Database, it shall formulate a request to the Authority, indicating, as appropriate, the countries likely to provide the information and data required.

The Authority shall inform the State Parties of the request for data and information. It shall invite the States mentioned by the requesting State or any other State it considers able to answer the request to supply the data and information.

In the request, a timeframe shall be set for the supply of the data and information to the Authority, which shall duly communicate the information to the requesting State and inform the other States.

A State receiving a request for data and information shall, if it deems necessary and via the Authority, solicit additional details from the requesting State in order to deliver the best possible response to the original request.

Failure to supply data and information by a State Party upon request shall be duly justified.

Part 4. Miscellaneous

Article 14: Bilateral agreements for the exchange of information

The present Appendix shall not prevent the State Parties from committing to any other bilateral agreements to exchange data and information on other areas than those covered by the present Appendix.

Article 15: Annual report

The Executive Directorate shall establish an annual report to the Council of Ministers on the management of the Database.

Article 16. Sub-regional cooperation

The Authority shall cooperate with West African basin and intergovernmental organizations with water and environmental observatories for the purpose of sharing and exchanging data and information.

Part 5. Final provisions

Article 18: Amendments

Any State Party shall, insofar as it deems necessary, propose amendments to the present Appendix.

Such proposals of amendments shall be addressed to the Chairman of the Council of Ministers, who shall forward them to the State Parties no later than sixty (60) days after receipt and at least thirty (30) days before the meeting during which the proposed amendment(s) are due to be examined.

The State Parties shall use best endeavours to reach a consensus on any proposed amendment.

Amendments shall come into force under the same conditions as the present Appendix.

Article 19: Date of coming into force

This Appendix shall enter into force upon its adoption by the Council of Ministers.

Annex n°1: Data and information transmission format

Hydrological timeseries

REGIONAL HYDROMETRIC STATIONS

At the date of signature of the present Appendix, data and information to be transmitted rely to the Volta-HYCOS porject stations, as follows:

Bénin

N°	Rivière	Stations	Caractéristiques des stations				Classe	Equipement prévu	SHN
			Superficie BV en km²	Lat.	Long.	Date de création			
1	Pendjari	Porga	22 280	10°58' N	00°58' E	1952	1	E (PCD avec télétransmission Météosat)	
2	Magou	Tiele	836	10°43' N	01°12' E	1961	3	G (PCD sans télétransmission)	
3	Koumongou	Korontiere					3	A (Echelles + lecteur)	

Burkina Faso

N°	Rivière	Stations	Caractéristiques des stations				Classe	Equipement prévu	SHN
			Superficie BV en km²	Lat.	Long.	Date de création			
1	Mouhoun	Samandéni	4 580	11°28' N	04°28' W	1955	1	E (PCD avec télétransmission Météosat)	
2	Mouhoun	Nwokuy	14 800	12°31' N	03°33' W	1955	1	E (PCD avec télétransmission Météosat)	
3	Mouhoun	Lahirasso		11°51' N	01°36' W	A créer	1	G (PCD sans télétransmission)	
4	Sourou	Yaran	10 000	12°58' N	03°27' W	1955	1	D (Transmission radio)	
5	Sourou	Barrage du Sourou (Pont de Léry)	27 000	12°45' N	03°26' W	1952	1	D (Transmission radio)	
6	Mouhoun	Ténado	23 700			1975	2	G (PCD sans télétransmission)	
7	Mouhoun	Boromo	62 000	11°47' N	02°55' W	1955	2	G (PCD sans télétransmission)	
8	Mouhoun	Ouessa	78 000	11°01' N	02°49' W	1969	1	G (PCD sans télétransmission)	

9	Bougouribga	Diébougou	12 200	10°55' N	03°39' W	1955	2	G (PCD sans télétransmission)	
10	Mouhoun	Dapola	94 000	10°34' N	02°55' W	1951	1	G (PCD sans télétransmission)	
11	Bambassou	Batié		9°59' N	02°54' W			G (PCD sans télétransmission)	
12	Mouhoun	Noumbiel		9°41' N	02°46' W		1	E (PCD avec télétransmission Météosat)	
13	Nakambé	Rambo					2	A (Echelles + lecteur)	
14	Nakambé	Barrage de Toessé-Kanazoé	8 000				3	A (Echelles + lecteur)	
15	Nakambé	Kongoussi	2 560	13°20' N	01°31' W	1966	2	G (PCD sans télétransmission)	
16	Nakambé	Tampelga					1	E (PCD avec télétransmission Météosat)	
17	Nakambé	Wayen	20 800	12°23' N	01°05' W	1965	1	G (PCD sans télétransmission)	
18	Nakambé	Aval Bagré barrage	33 140			A créer	1	E (PCD avec télétransmission Météosat)	
19	Sissili	Kounou					1	G (PCD sans télétransmission)	
20	Noaho	Bittou	4 050	11°11' N	00°17' W	1973	1	G (PCD sans télétransmission)	
21	Pendjari	Arly	10 260	11°26' N	01°34' E	1976	2	G (PCD sans télétransmission)	
22	Kompienga	Aval Kompienga barrage	5 700	11°10' N	00°38' E		1	E (PCD avec télétransmission Météosat)	
23	Nazinon	Dakaye	4 540	11°47' N	01°346 W		2	G (PCD sans télétransmission)	
24	Nazinon	Ziou	10 700	11°05'46"N	00°42' W	1990	1	G (PCD sans télétransmission)	

Côte d'Ivoire

N°	Rivière	Stations	Caractéristiques des stations				Classe	Equipement prévu	SHN
			Superficie BV en km²	Lat.	Long.	Date de création			
1	Volta Noire	Tagadi		8° 47 N	2°36 W	1986	1	E (PCD avec télétransmission Météosat)	
2	Niangala	Rte Tagadi				A créer	3	G (PCD sans télétransmission)	
3	Koulda	Pouon				1983	3	G (PCD sans télétransmission)	

Ghana

	GHANA									
31	GHANA	White Volta	Yarugu	41 550	1962	1		1	E (DCP with tele-transmission via meteosat)	Monitoring of transboundary flows from the White Volta in Burkina into Ghana
32	GHANA	White Volta	Pwalagu	63 350	1951	1		1	G (DCP without teletransmission)	Monitoring of the combined flows from the Red and White Volta basins in Ghana
33	GHANA	White Volta	Nawuni	92 950	1953	1	-	2	A (Staff gauges + Gauge reader)	Management of the Akosombo dam: Forecast of flows from the White Volta into the lake. Tamale water Supply.
34	GHANA	White Volta	Daboya	93 320	1962	1	OTT X	1	E (DCP with tele-transmission via meteosat)	Management of the Volta Lake. Flow forecasts of the contributions of the White Volta into the Volta Lake.
35	GHANA	Sissili	Wiase	9 500	1961	1		2	E (DCP with tele-transmission via meteosat)	Monitoring of local contribution form the Sissili to the White Volta.
36	GHANA	Kulpawn	Yagaba	10 600	1958	1		2	E (DCP with tele-transmission via meteosat)	Monitoring of local contribution form the Kulpawn to the White Volta.
37	GHANA	Red Volta	Nangodi	11570	1958	1		1	A (Staff gauges + Gauge reader)	Monitoring flows from the Red Volta into Ghana from Burkina. Station is of regional interest
38	GHANA	Black Volta	Lawra	93 820	1951	1	OTT X	1	E (DCP with tele-transmission via meteosat)	Monitoring of transboundary flows from the Black Volta in Burkina into Ghana. Station is of regional Interest
39	GHANA	Black Volta	Chache		1963	1	OTT X	1	E (DCP with tele-transmission via meteosat)	Management of the Akosombo dam: Forecast of flows from the Black Volta into the lake
40	GHANA	Black Volta	Bui Dam	123 000	1965	1	OTT X	1	E (DCP with tele-transmission via meteosat)	Management of the Akosombo dam: Forecast of flows from the Black Volta into the lake
41	GHANA	Black Volta	Bamboï	134 200	1950	1		2	G (DCP without teletransmission)	Management of the Akosombo dam: Forecast of flows from the Black Volta into the lake
42	GHANA	Oti	Saboba	53 090	1963	1	-	1	E (DCP with tele-transmission via meteosat)	Management of the Akosombo dam: Forecast of flows from the Oti into the lake
43	GHANA	Pru	Asubende	6 355	1957	1	-	2	G (DCP without teletransmission)	Management of the Akosombo dam: Forecast of flows from the Pru into the lake
44	GHANA	Afram	Afram			1		1	G (DCP without teletransmission)	Management of the Akosombo dam: Forecast of flows from the Afram into the Volta Lake
45	GHANA	Volta	Akosombo Dam		1956	-	-	1	E (DCP with tele-transmission via meteosat)	Management of the Akosombo dam
46	GHANA	Volta	Akosombo D/S		1962	-	-	1	B (Gauge reader equipped with GSM cell phone)	Monitoring of flows from the Lower Volta into the sea.

Mali

N°	Rivière	Stations	Caractéristiques des stations				Classe	Equipement prévu	SHN
			Superficie BV en km²	Lat.	Long.	Date de création			
1	Sourou	Baï		13°39' N	03°23' W	1955 / 1996	3	A (Echelles + lecteur)	
2	Sourou	Goéré		13°30' N	03°27' W	1956 / 1996	3	D (Transmission radio)	
3	Sourou	Pléto		13°22' N	03°28' W	A créer	1	E (PCD avec télétransmission Météosat)	

Togo

N°	Rivière	Stations	Caractéristiques des stations				Classe	Equipement prévu	SHN
			Superficie BV en km²	Lat.	Long.	Date de création			
1	Oti	Mango	35 650	10°18' N	00°28' E	1955	1	E (PCD avec télétransmission Météosat)	
2	Oti	Mandouri	29 100	10°50' N	00°51' E	1959	2	G (PCD sans télétransmission)	
3	Sansargou	Borgou	2 240	10°45' N	00°34' E		2	A (Echelles + lecteur)	
4	Koumongou	Koumongou	6 730	10°12' N	00°27' E	1959	2	G (PCD sans télétransmission)	
5	Kéran	Titira	3 695	10°00' N	01°07' E	1962	2	A (Echelles + lecteur)	
6	Binah	Pouda					3	A (Echelles + lecteur)	
7	Kara	N'Naboupi	5 200	09°54' N	00°34' E	1972	2	A (Echelles + lecteur)	
8	Kara	Kara	1 560	09°32' N	01°11' E	1954	2	G (PCD sans télétransmission)	
9	Kpélou	Kpéssidé	2 790	09°37' N	00°57' E	1961	3	A (Echelles + lecteur)	
10	Mô	Bongoulou	2 630	09°01' N	00°41' E	1965	2	E (PCD avec télétransmission Météosat)	
11	Wawa	Kessibo					2	G (PCD sans télétransmission)	

TYPE OF DATA TO BE TRANSMITTED TO VBA

HYDROLOGICAL TIMESERIES :

a) Water level (daily)

b) Daily flows

DATA CARACTERISING THE STATIONS

For the Volta-Hycoas stations or for existing stations to be modified, the following data are to transmitted :

a) Station name

b) Station code (WMO code or national code)

c) River

d) Area of the basin drained at the station

e) Longitude (dd°mm'ss")

f) Latitude (dd°mm'ss")

g) Altitude (m)

h) Date of first operation

DATA TRANSIMISSION FORMAT

Data shall be transmitted in text format *.csv or Excel format, through any appropriate electronic communication channel.

QUALITY OF TRANSMITTE DATA

For every data, including those collected through teletransmission, the data producer shall confirm the validity of the dataset based on the following criteria:

a) Validated and reliable data

b) Validated but doubtful data

c) Not validated data

It will be specified whether data were measured or reconstituted.

TRANSMISSION FREQUENCY

Data are transmitted at least once a month for teletransmitted stations and twice a year for other stations.

SPÉCIFICATIONS RELATED TO THE TRANSMISSION OF HYDROLOGICAL DATA

1. Type of data to be transmitted : Daily water level and daily water flows

2. Please specify :
- **Whether data are measured (M) or reconstituted (R)**
- **Data quality:**
  * Validated and reliable data: 'OK'
  * Validated but doubtful: 'D'
  * Non validated data: 'NV'

3. Data format (1 file per station) : Excel or text .csv format

Date (dd/mm/yyyy)	WLdaily (m)	Daily flow(m3/s)	Measured data ('M') ou Reconstituted data ('R')	Data quality * Validated and reliable data: 'OK' * Validated but doubtful: 'D' * Non validated data: 'NV'

Climate and rainfall data

Hydraulic infrastructure data

Data about consumptive and non-consumptive uses

IRRIGATED AGRICULTURE

Name	Is abstracted water coming from a dam or other regulation infrastructure?			Flow measurement	Type de scheme	Irrigated area	Type and area of crops	Type of water resource	Annual abstracted volume m3/ha	Monthly distribution of the annual abstracted volume (%)											
Pomping?	no	yes	Name of the dam	Type of measurement	Full control or not	(ha each year)	(ha per crop and per year)	Surface WR or Groundwater ?		J	F	M	A	M	J	J	A	S	O	N	D

WATER SUPPLY

CATTLE

INDUSTRIAL ACTIVITIES

HYDROPOWER

Data about exosystems

Data about land cover

Socio-economic data

Institutionnal and legal data

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