

In case of reply, the number  
and date of this letter  
should be quoted

Telephone: 0302 630907

MY REF. NO. TA.330/547/01/004

YOUR REF. NO.: .....



REPUBLIC OF GHANA

**MINISTRY OF SANITATION  
AND WATER RESOURCES**

PRIVATE MAIL BAG 60  
MINISTRIES, ACCRA

GA - 298 - 2662

DATE: 29<sup>th</sup> JUNE 2020

**RE: SUBMISSION OF SECOND REPORTING ON SDG  
INDICATOR 6.5.2 ON TRANSBOUNDARY WATER COOPERATION**

I kindly submit, herewith, for your attention, the attached completed second report on Ghana's progress on transboundary water cooperation.

3. Please accept, Excellency, the assurances of my highest consideration.

NOAH TUMFO  
CHIEF DIRECTOR

for: MINISTER

THE DIRECTOR GENERAL ✓  
UNESCO  
FRANCE

ATTN: AUDREY AZOULAY

THE EXECUTIVE SECRETARY  
UNECE  
SWITZERLAND

ATTN: OLGA ALGAYEROVA

cc: The Executive Secretary, WRC



**Reporting on global SDG indicator 6.5.2**  
**TEMPLATE of the second cycle for reporting**

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**Content of the template**

The template is divided into four parts:

- Section I - Calculation of SDG indicator 6.5.2
- Section II - Information on each transboundary basin or group of basins
- Section III - General information on transboundary water management at the national level
- Section IV - Final questions

Country name: [[Ghana](#)]

## I. Calculation of Sustainable Development Goal indicator 6.5.2

### *Methodology*

1. Using the information gathered in section II, the information gathered in this section allows for the calculation of Sustainable Development Goal global indicator 6.5.2, which is defined as the proportion of transboundary basin area with an operational arrangement for water cooperation.
2. The step-by-step monitoring methodology for indicator 6.5.2, developed by UNECE and UNESCO in the framework of UN-Water, should be referred to for details on the necessary data, the definitions and the calculation.<sup>a</sup>
3. The value of the indicator at the national level is derived by adding up the surface area in a country of those transboundary basins (river and lake basins and aquifers) that are covered by an operational arrangement and dividing the area obtained by the aggregate total area in a country of all transboundary basins (both river and lake basins, and aquifers).
4. Transboundary basins are basins of transboundary waters, that is, of any surface waters (notably rivers, lakes) or groundwaters which mark, cross or are located on boundaries between by two or more States. For the purpose of the calculation of this indicator, for a transboundary river or lake, the basin area is determined by the extent of its catchment. For groundwater, the area to be considered is the extent of the aquifer.
5. An “arrangement for water cooperation” is a bilateral or multilateral treaty, convention, agreement or other formal arrangement among riparian countries that provides a framework for cooperation on transboundary water management.
6. For an arrangement to be considered “operational” all the following criteria need to be in place in practice:
  - (a) There is a joint body, joint mechanism or commission (e.g., a river basin organization) for transboundary cooperation (criterion 1);
  - (b) There are regular (at least once per year) formal communications between riparian countries in form of meetings (either at the political or technical level) (criterion 2);
  - (c) Joint objectives, a common strategy, a joint or coordinated management plan, or an action plan have been agreed upon by the riparian countries (criterion 3);
  - (d) There is a regular (at least once per year) exchange of data and information (criterion 4).

### *Calculation of indicator 6.5.2*

7. Please list in the tables below the transboundary basins (rivers and lakes and aquifers) in your country’s territory and provide the following information for each of them:
  - (a) The country/ies with which the basin is shared;
  - (b) The surface area of the basin (the catchment of rivers or lakes and the aquifer in the case of groundwater) within the territory of your country (in square kilometres (km<sup>2</sup>));
  - (c) Whether a map and/or a geographical information system (GIS) shapefile of the basin has been provided;
  - (d) Whether there is an arrangement in force for the basin;
  - (e) The verification of each of the four criteria to assess operability;

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<sup>a</sup> Available from the UN-Water website: <https://www.sdg6monitoring.org/indicators/target-65/indicators652/> (updated version “2020”).

(f) The surface area of the basin within the territory of your country which is covered by a cooperation arrangement that is operational according to the above criteria.

8. In case an operational arrangement is in place only for a sub-basin or a portion of a basin, please list this sub-basin just after the transboundary basin it is part of. In case there is an operational arrangement for the whole basin, do not list sub-basins in the table below.

Table 1  
**Transboundary river or lake basin (please add rows as needed)**

| Name of transboundary river or lake basin/sub-basin   | It is a basin or a sub-basin? <sup>b</sup> | Countries shared with                          | Surface area of the basin/sub-basin (in km <sup>2</sup> ) within the territory of the country | Map and/or GIS shapefile provided (yes/no) | Covered by an arrangement (entirely, partly, no) (Ref. to questions in sect. II) | Criterion 1 applied (yes/no) (Ref. to questions in sect. II) | Criterion 2 applied (yes/no) (Ref. to questions in sect. II) | Criterion 3 applied (yes/no) (Ref. to questions in sect. II) | Criterion 4 applied (yes/no) (Ref. to questions in sect. II) | Surface area of the basin/sub-basin (in km <sup>2</sup> ) covered by an operational arrangement within the territory of the country |
|---|--|--|---|--|--|--|--|--|--|---|
| Volta River   | Basin                                      | Mali, Togo, Benin, Burkina Faso, Cote d'Ivoire | 165,830   | Yes  | Yes  | Yes  | Yes  | Yes  | Yes  | 165,830   |
| Tano River  | Basin                                      | Cote d'Ivoire                                  | 14,872  | Yes  | No   | No   | No   | No   | No   | 0   |
| Bia   | Basin                                      | Cote d'Ivoire                                  | 6,965   | Yes  | No   | No   | No   | No   | No   | 0   |
| <b>(A)</b><br>Total surface area of transboundary basins/sub-basins of rivers and lakes covered by operational arrangements within the territory of the country (in km <sup>2</sup> )<br>(do not double count sub-basins) |  |  |   |  |  |  |  |  |  | 165,830   |
| <b>(B)</b><br>Total surface area of transboundary basins of rivers and lakes within the territory of the country (in km <sup>2</sup> )<br>(do not double count sub-basins)  |  |  | 187,667   |  |  |  |  |  |  |   |

<sup>b</sup> List sub-basins after the basin they belong to.

Table 2

**Transboundary aquifers (please add rows as needed)**

| <i>Name of the transboundary aquifer</i>   | <i>Countries shared with</i>     | <i>Surface area of the aquifer<sup>c</sup> (in km<sup>2</sup>) within the territory of the country</i> | <i>Map and/ or GIS shapefile provided (yes/no)</i> | <i>Covered by an aquifer specific arrangement (entirely, partly, no) (Ref. to questions in sect. II)</i> | <i>Covered within an arrangement not specific to the aquifer<sup>d</sup> (entirely, partly, no) (Ref. to questions in sect. II)</i> | <i>Criterion 1 applied (yes/no) (Ref. to questions in sect. II)</i> | <i>Criterion 2 applied (yes/no) (Ref. to questions in sect. II)</i> | <i>Criterion 3 applied (yes/no) (Ref. to questions in sect. II)</i> | <i>Criterion 4 applied (yes/no) (Ref. to questions in sect. II)</i> | <i>Surface area of the aquifer (in km<sup>2</sup>) covered by an operational arrangement within the territory of the country</i> |
|--|----------------------------------|--|--|--|---|---|---|---|---|--|
| Volta Basin  | Benin, Burkina Faso, Togo, Niger | 104,468  | Yes  | Yes  | Yes   | Yes   | Yes   | Yes   | Yes   | 104,468  |
| Tano Basin   | Ivory Coast                      | 1,572  | Yes  | No   | No  | No  | No  | No  | No  | No   |
| Keta Dahomey/Cotier  | Togo, Benin, Nigeria             | 3148.36  | Yes  | No   | No  | No  | No  | No  | No  | No   |
| <b>(C)<br/>Sub-total: surface area of transboundary aquifers covered by operational arrangements (in km<sup>2</sup>)</b> |                                  |  |  |  |   |   |   |   |   | 104,468  |
| <b>(D)<br/>Total surface area of transboundary aquifers (in km<sup>2</sup>)</b>  |                                  | 109,188.36   |  |  |   |   |   |   |   |  |

<sup>c</sup> For a transboundary aquifer, the extent is derived from the aquifer system delineation which is commonly done relying on information of the subsurface (notably the extent of geological formations). As a general rule, the delineation of aquifer systems is based on the delineation of the extent of the hydraulically connected water-bearing geological formations. Aquifer systems are three-dimensional objects and the aquifer area taken into account is the projection on the land surface of the system. Ideally, when different aquifer systems not hydraulically connected are vertically superposed, the different relevant projected areas are to be considered separately, unless the different aquifer systems are managed conjunctively.

<sup>d</sup> In the text of the agreement or arrangement or in the practice.

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**Indicator value for the country**

**Surface waters:**

Percentage of surface area of transboundary basins of rivers and lakes covered by an operational arrangement:

$$A/B \times 100 = 165,830/187,667 \times 100 = 88.36$$

**Aquifers:**

Percentage of surface area of transboundary aquifers covered by an operational arrangement:

$$C/D \times 100 = 104,468/109,188.36 \times 100 = 95.68$$

**Sustainable Development Goal indicator 6.5.2:**

Percentage of surface area of transboundary basins covered by an operational arrangement:

$$((A + C)/(B + D)) \times 100 = (165,830 + 104,468)/(187,667 + 109,188.36) \times 100 = 91\%$$

**Spatial information**

If a map (or maps) of the transboundary surface water catchments and transboundary aquifers (i.e., “transboundary basins”) is available, please consider attaching them. Ideally, shapefiles of the basin and aquifer delineations that can be viewed in GIS should be sent.

**Additional information**

If the respondent has comments that clarify assumptions or interpretations made for the calculation, or the level of certainty of the spatial information, please write them here:

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Does your country have transboundary agreements or arrangements for the protection and/or management of transboundary waters (i.e., rivers, lakes or groundwater), whether bilateral or multilateral?

Yes /No

*If yes, list the bilateral and multilateral agreements or arrangements (listing for each of the countries concerned):* [[Convention on the Status of the Volta River and the Establishment of Volta Basin Authority, 2009](#)]

## II. Questions for each transboundary basin, sub-basin, part of a basin, or group of basins (river, lake or aquifer)

Please complete this second section for each transboundary basin (river or lake basin, or aquifer), sub-basin, part of a basin or a group of basins covered by the same agreement or arrangement where conditions are similar.<sup>1</sup> In some instances, you may provide information on both a basin and one or more of its sub-basins or parts thereof, for example, where you have agreements<sup>2</sup> or arrangements on both the basin and its sub-basin. You may coordinate your responses with other States with which your country shares transboundary waters, or even prepare a joint report. General information on transboundary water management at the national level should be provided in section III and not repeated here.

Please reproduce this whole section with its questions for each transboundary basin, sub-basin, part of a basin or group of basins for which you will provide a reply.

**Name of the transboundary basin,-sub-basin, part of a basin or group of basins:** [[Volta River Basin](#)]

List of the riparian States: [[Ghana, Benin, Burkina Faso, Cote d'Ivoire, Mali and Togo](#)]

**In the case of an aquifer, what is the nature of the aquifer and its relation with the river or lake basin:**

Unconfined aquifer connected to a river or lake

Unconfined aquifer with no or limited relation with surface water

Confined aquifer connected to surface water

Confined aquifer with no or limited relation with surface water

Other

Please describe: [fill in]

Unknown

**Percentage of your country's territory within the basin, sub-basin, part of a basin or group of basins:** [[42%](#)]

1. Is there one or more transboundary (bilateral or multilateral) agreement(s) or arrangement(s) on this basin, sub-basin, part of a basin or group of basins?

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<sup>1</sup> In principle, section II should be submitted for every transboundary basin, river, lake or aquifer, in the country, but States may decide to group basins in which their share is small or leave out basins in which their share is very minor, e.g., below 1 per cent.

<sup>2</sup> In section II, "agreement" covers all kinds of treaties, conventions and agreements ensuring cooperation in the field of transboundary waters. Section II can also be completed for other types of arrangements, such as memorandums of understanding.



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One or more agreements or arrangements exist and are in force

Agreement or arrangement developed but not in force

Agreement or arrangement developed, but not in force for all riparians

*Please insert the name of the agreement(s) or arrangement(s) [Convention on the Status of the Volta River and the Establishment of Volta Basin Authority, 2009]*

Agreement or arrangement is under development

No agreement or arrangement

*If there is no agreement or arrangement or it is not in force, please explain briefly why not and provide information on any plans to address the situation: [fill in]*

**If there is no agreement or arrangement and no joint body or mechanism for the transboundary basin, sub-basin, part of a basin or group of basins then jump to question 4; if there is no agreement or arrangement, but a joint body or mechanism then go to question 3.**

**Questions 2 and 3 to be completed for each bilateral or multilateral agreement or arrangement in force in the transboundary basin, sub-basin, part of a basin or group of basins.**

2. (a) Does this agreement or arrangement specify the area subject to cooperation?

Yes /No

If yes, does it cover the entire basin or group of basins and all riparian States?

Yes /No

Additional explanations? [fill in]

Or, if the agreement or arrangement relates to a sub-basin, does it cover the entire sub-basin?

Yes /No

Additional explanations? [fill in]

Which States (including your own) are bound by the agreement or arrangement?  
(Please list): [Ghana, Mali, Togo, Benin, Burkina Faso, Cote d'Ivoire]

(b) If the agreement or arrangement relates to a river or lake basin or sub-basin, does it also cover aquifers?

Yes /No

If yes, please list the aquifers covered by the agreement or arrangement: [Volta Basin]

(c) What is the sectoral scope of the agreement or arrangement?

All water uses

A single water use or sector

Several water uses or sectors

*If one or several water uses or sectors, please list (check as appropriate):*

**Water uses or sectors**

Industry

Agriculture

- 
- Transport (e.g., navigation)
  - Households
  - Energy: hydropower and other energy types
  - Fisheries
  - Tourism
  - Nature protection
  - Other (*please list*): [fill in]

(d) What topics or subjects of cooperation are included in the agreement or arrangement?

**Procedural and institutional issues**

- Dispute and conflict prevention and resolution
- Institutional cooperation (joint bodies)
- Consultation on planned measures
- Mutual assistance

**Topics of cooperation**

- Joint vision and management objectives
- Joint significant water management issues
- Navigation
- Human health
- Environmental protection (ecosystem)
- Water quality
- Water quantity or allocation
- Cooperation in addressing floods
- Cooperation in addressing droughts
- Climate change adaptation

**Monitoring and exchange**

- Joint assessments
- Data collection and exchange
- Joint monitoring
- Maintenance of joint pollution inventories
- Elaboration of joint water quality objectives
- Common early warning and alarm procedures
- Exchange of experience between riparian States
- Exchange of information on planned measures

**Joint planning and management**

- Development of joint regulations on specific topics

- 
- Development of international or joint river, lake or aquifer basin management or action plans
  - Management of shared infrastructure
  - Development of shared infrastructure
  - Other (*please list*): [fill in]

(e) What are the main difficulties and challenges that your country faces with the agreement or arrangement and its implementation, if any?

- Aligning implementation of agreement or arrangement with national laws, policies and programmes
- Aligning implementation of agreement or arrangement with regional laws, policies and programmes
- Lack of financial resources
- Insufficient human capacity
- Insufficient technical capacity
- Tense diplomatic relations
- Non-participation of certain riparian countries in the agreement
- No significant difficulties
- Other (*please describe*): [fill in]

(f) What are the main achievements in implementing the agreement or arrangement and what were the keys to achieving such success? [i. [Improved the level of cooperation among the member States](#);

ii. [Developed Transboundary Diagnostic Analysis](#)

iii. [Developed Strategic Action Programme to improve scientific and technical comprehension and institutional arrangements in the Volta Basin](#)

iv. [Strengthening the Institutional framework](#)

[Success was achieved through strong leadership and facilitation by the Volta Basin Authority secretariat as well as strong support from Development Partners, and willingness to cooperate by all stakeholders](#)]

(g) Please attach a copy of the agreement or arrangement or provide the web address of the document (*please attach document or insert web address, if applicable*): [[www.abv.int](http://www.abv.int)]

3. Is your country a member of any joint body or mechanism for this agreement or arrangement?

Yes /No

*If no, why not? (please explain):* [fill in]

**Where there is a joint body or mechanism**

(a) If there is a joint body or mechanism, which kind of joint body or mechanism (*please tick one*)?

- Plenipotentiaries
- Bilateral commission

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Basin or similar commission

Expert group meeting or meeting of national focal points

Other (*please describe*): [fill in]

(b) Does the joint body or mechanism cover the entire transboundary basin, sub-basin, part of a basin or group of basins?

Yes /No

(c) Which States (including your own) are members of the joint body or mechanism? (*Please list*): [Ghana, Mali, Togo, Benin, Burkina Faso, and Cote d'Ivoire]

(d) Are there any riparian States that are not members of the joint body or mechanism? (*please list*): [fill in]

(e) If not all riparian States are members of the joint body or mechanism how does the joint body or mechanism cooperate with them?

No cooperation

They have observer status

Other (*please describe*): [fill in]

(f) Does the joint body or mechanism have any of the following features (*please tick the ones applicable*)?

A secretariat

*If the secretariat is a permanent one, is it a joint secretariat or does each country host its own secretariat? (Please describe): [Joint secretariat]*

A subsidiary body or bodies

*Please list (e.g., working groups on specific topics): [fill in]*

Other features (*please list*): [fill in]

(g) What are the tasks and activities of this joint body or mechanism?<sup>3</sup>

Identification of pollution sources

Data collection and exchange

Joint monitoring

Maintenance of joint pollution inventories

Setting emission limits

Elaboration of joint water quality objectives

Management and prevention of flood or drought risks

Preparedness for extreme events, e.g., common early warning and alarm procedures

Surveillance and early warning of water related disease

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<sup>3</sup> This may include tasks according to the agreement or tasks added by the joint body, or its subsidiaries. Both tasks which joint bodies coordinate and tasks which they implement should be included.

- 
- Water allocation and/or flow regulation
  - Policy development
  - Control of implementation
  - Exchange of experience between riparian States
  - Exchange of information on existing and planned uses of water and related installations
  - Settling of differences and conflicts
  - Consultations on planned measures
  - Exchange of information on best available technology
  - Participation in transboundary EIA
  - Development of river, lake or aquifer basin management or action plans
  - Management of shared infrastructure
  - Addressing hydromorphological alterations
  - Climate change adaptation
  - Joint communication strategy
  - Basin-wide or joint public participation and consultation of, for example, basin management plans
  - Joint resources to support transboundary cooperation
  - Capacity-building
  - Any other tasks (*please list*): [fill in]

(h) What are the main difficulties and challenges that your country faces with the operation of the joint body or mechanism, if any?

- Governance issues   
*Please describe, if any:* [fill in]
- Unexpected planning delays   
*Please describe, if any:* [fill in]
- Lack of resources   
*Please describe, if true:* [untimely payment of annual financial contributions]
- Lack of mechanism for implementing measures   
*Please describe, if true:* [fill in]
- Lack of effective measures   
*Please describe, if true:* [fill in]
- Unexpected extreme events   
*Please describe, if any:* [unexpected flooding]
- Lack of information and reliable forecasts   
*Please describe, if any:* [fill in]

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Others (please list and describe, as appropriate): [fill in]

(i) Does the joint body or mechanism, or its subsidiary bodies meet regularly?

Yes /No

If yes, how frequently does it meet?

More than once per year

Once per year

Less than once per year

(j) What are the main achievements with regards to the joint body or mechanism?

[i. Improved the level of cooperation among the member States;

ii. Developed Transboundary Diagnostic Analysis

iii. Developed Strategic Action Programme to improve scientific and technical comprehension and institutional arrangements in the Volta Basin

iv. Strengthening the institutional framework]

(k) Did the joint body or mechanism ever invite a non-riparian coastal State to cooperate?

Yes /No

*If yes, please give details. If no, why not, e.g. are the relevant coastal States also riparian States and therefore already members of the joint body or mechanism? [All the coastal states are members of the joint body]*

4. Have joint objectives, a common strategy, a joint or coordinated management plan or action plan been agreed for the basin, sub-basin, part of a basin or group of basins?

Yes /No

*If yes, please provide further details: [Strategic Action Programme for the Volta Basin]*

5. How is the transboundary basin, sub-basin, part of a basins or group of basins protected, including the protection of ecosystems, in the context of sustainable and rational water use?

Regulation of urbanization, deforestation, and sand and gravel extraction.

Environmental flow norms, including consideration of levels and seasonality

Water quality protection, e.g. nitrates, pesticides, faecal coliforms, heavy metals

Water-related species and habitats protection

Other measures (please describe): [Wetlands protection, creation of biodiversity conservation zones, development of biodiversity inventory and monitoring system, development of surfacewater allocation models for sustainable water use]

6. (a) Does your country regularly exchange information and data with other riparian States in the basin, sub-basin, part of a basin or group of basins?

Yes /No

(b) If yes, how often:

- 
- More than once per year
  - Once per year
  - Less than once per year

(c) Please describe how information is exchanged (e.g. in connection with meetings of joint bodies): [[Exchanged electronically e.g. emails](#)]

(d) If yes, on what subjects are information and data exchanged?

- Environmental conditions
- Research activities and application of best available techniques
- Emission monitoring data
- Planned measures taken to prevent, control or reduce transboundary impacts
- Point source pollution sources
- Diffuse pollution sources
- Existing hydromorphological alterations (dams, etc.)
- Flows or water levels (including groundwater levels)
- Water abstractions
- Climatological information
- Future planned measures with transboundary impacts, such as infrastructure development

Other subjects (*please list*): [fill in]

Other comments, e.g. spatial coverage of data and information exchange: [fill in]

(e) Is there a shared database or information platform?

Yes /No

(f) Is the database publicly available?

Yes /No

*If yes, please provide the web address:* [fill in]

(g) What are the main difficulties and challenges to data exchange, if applicable?

- Frequency of exchanges
- Timing of exchanges
- Comparability of data and information
- Limited spatial coverage
- Inadequate resources (technical and/or financial)

Other (*please describe*): [[data inadequacy at the country level](#)]

Additional comments: [fill in]

(h) What are the main benefits of data exchange on the basin, sub-basin, part of a basin or group of basins? (*please describe*): [[It presents a broader picture of the](#)]

issue(s) such as floods, and droughts, under consideration; Assist to correct national data after comparing with data from neighbouring countries, if necessary.]

7. Do the riparian States carry out joint monitoring in the transboundary basin, sub-basin, part of a basin or group of basins?

Yes /No

(a) If yes, what does the joint monitoring cover?

|  | <i>Hydrological</i>      | <i>Ecological</i>        | <i>Chemical</i>          |
|--|--------------------------|--------------------------|--------------------------|
| Border surface waters  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Surface waters in the entire basin   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Surface waters on the main watercourse   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Surface waters in part of the basin<br>please describe [fill in]                                     | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Transboundary aquifer(s) (connected or unconnected)  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Aquifer(s) in the territory of one riparian hydraulically connected to a transboundary river or lake | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

(b) If joint monitoring is carried out, how is this done?

National monitoring stations connected through a network or common stations

*Please describe:* [fill in]

Joint and agreed methodologies

*Please describe:* [fill in]

Joint sampling

*Please describe:* [fill in]

Common monitoring network

*Please describe:* [fill in]

Common agreed parameters

*Please describe:* [fill in]

(c) Please describe the main achievements regarding joint monitoring, if any: [fill in]

(d) Please describe any difficulties experienced with joint monitoring: [fill in]

8. Do the riparian States carry out joint assessment of the transboundary basin, sub-basin, part of a basin or group of basins?

Yes /No



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*If yes, please provide the date of the last or only assessment, the frequency and scope (e.g., surface waters or groundwaters only, pollution sources, etc.) of the assessment, and assessment methodology applied: [fill in]*

9. Have the riparian States agreed to use joint water quality standards?

Yes /No

*If yes, what standards have been applied, e.g. international or regional standards (please specify which), or have national standards of the riparian States been applied? [fill in]*

10. What are the measures implemented to prevent or limit the transboundary impact of accidental pollution?

Notification and communication

Coordinated or joint early warning or alarm system for accidental water pollution

Other (please list): [fill in]

No measures

*If not, why not? What difficulties does your country face in putting in place such measures?: [fill in]*

11. What are the measures implemented to prevent or limit the transboundary impact of extreme weather events and climate change?

Notification and communication

Coordinated or joint alarm system for floods

Coordinated or joint alarm system for droughts

Joint climate change adaptation strategy

Joint disaster risk reduction strategy

Other (please list): [fill in]

No measures

*If not, why not? What difficulties does your country face in putting in place such measures?: [fill in]*

12. Are procedures in place for mutual assistance in case of a critical situation?

Yes /No

*If yes, please provide a brief summary: [fill in]*

13. Are the public or relevant stakeholders involved in transboundary water management in the basin, sub-basin, part of a basin or group of basins?

Yes /No

*If yes, how? (please tick all applicable)*

Stakeholders have observer status in a joint body or mechanism

Stakeholders have an advisory role in the joint body

Stakeholders have a decision-making role in the joint body

*If yes, please specify the stakeholders for the joint body or mechanism:*

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[The Forum of Parties is an advisory body of the VBA which provides opinions on all matters. It consists of water users, civil society; decentralized local authorities; neighboring trans-boundary basin organizations; and research centers operating in the water and environment sector.]

- |   |                                     |
|---|-------------------------------------|
| Intergovernmental organizations   | <input checked="" type="checkbox"/> |
| Private sectors organizations or associations                                 | <input type="checkbox"/>            |
| Water user groups or associations   | <input checked="" type="checkbox"/> |
| Academic or research institutions   | <input checked="" type="checkbox"/> |
| Other non-governmental organizations  | <input checked="" type="checkbox"/> |
| General public  | <input type="checkbox"/>            |
| Other (please specify): [Media]   |                                     |
| Availability of information to the public                                     | <input checked="" type="checkbox"/> |
| Consultation on planned measures or river basin management plans <sup>4</sup> | <input checked="" type="checkbox"/> |
| Public involvement  | <input checked="" type="checkbox"/> |
| Other (please specify): [fill in]   |                                     |

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<sup>4</sup> Or, where applicable, aquifer management plans.

**Please remember to complete section II for each of the transboundary basins, sub-basin, part of a basin or group of basins. Please also remember to attach copies of agreements or arrangements, if any.**

### III. Water management at the national level

In this section, you are requested to provide general information on water management at the national level as it relates to transboundary waters. Information on specific transboundary basins, sub-basins, part of basins and groups of basins, should be presented in section II and not repeated here.

1. (a) Does your country's national legislation, policies, action plans and strategies refer to measures to prevent, control and reduce any transboundary impact?

Yes /No

*If yes, please briefly describe the main national laws, policies, action plans and strategies [National Water Policy, National IWRM Plan, Water Sector Strategic Development Plan]*

- (b) Does your country's legislation provide for the following principles?

Precautionary principle Yes /No

Polluter pays principle Yes /No

Sustainable development Yes /No

User pays principle Yes /No

*If yes, please briefly describe how these principles are implemented at the national level: [Through the administration of water use regulations, payment of water user and borehole drilling charges, and enforcement of riparian buffer zone protection measures]*

- (c) Does your country have a national licensing or permitting system for wastewater discharges and other point source pollution? (e.g., in industry, mining, energy, municipal, wastewater management or other sectors)?

Yes /No

*If yes, for which sectors?*

Industry

Mining

Energy

Municipal

Livestock raising

Aquaculture

Other (please list): [fill in]

*Please briefly describe the licensing or permitting system, indicating whether the system provides for setting emission limits based on best available technology?*

*If yes, for which sectors? (please list): [fill in]*

*If not, please explain why not (giving the most important reasons) or provide information if there are plans to introduce a licensing or permitting system: [There are Effluent Standards*

(used to be guidelines). Effluent Discharge and Pollution Control Legislative Instrument is being developed]

(d) Are the authorized discharges monitored and controlled?

Yes /No

*If yes, how? (Please tick the ones applicable):*

- |  |                          |
|--|--------------------------|
| Monitoring of discharges                             | <input type="checkbox"/> |
| Monitoring of physical and chemical impacts on water | <input type="checkbox"/> |
| Monitoring of ecological impacts on water            | <input type="checkbox"/> |
| Conditions on permits                                | <input type="checkbox"/> |
| Inspectorate   | <input type="checkbox"/> |

Other means (*please list*): [fill in]

*If your country does not have a discharge monitoring system, please explain why not or provide information if there are plans to introduce a discharge monitoring system: [A discharge monitoring system is planned after the Effluent Discharge and Pollution Control L.I.]*

(e) What are the main measures which your country takes to reduce diffuse sources of water pollution on transboundary waters (e.g., from agriculture, transport, forestry or aquaculture)? The measures listed below relate to agriculture, but other sectors may be more significant. Please be sure to include these under "others": (*The measures are implemented through the Ghana's Plant Protection and Regulatory Services (PPRS)*)

**Legislative measures**

- |  |                                     |
|--|-------------------------------------|
| Norm for uses of fertilizers             | <input checked="" type="checkbox"/> |
| Norms for uses of manure                 | <input type="checkbox"/>            |
| Permitting system                        | <input type="checkbox"/>            |
| Bans on or norms for use of pesticides   | <input checked="" type="checkbox"/> |
| Others ( <i>please list</i> ): [fill in] |                                     |

**Economic and financial measures**

- |  |                          |
|--|--------------------------|
| Monetary incentives                            | <input type="checkbox"/> |
| Environmental taxes (such as fertilizer taxes) | <input type="checkbox"/> |
| Others ( <i>please list</i> ): [fill in]       |                          |

**Agricultural extension services**

**Technical measures**

*Source control measures*

- |  |                          |
|--|--------------------------|
| Crop rotation                            | <input type="checkbox"/> |
| Tillage control                          | <input type="checkbox"/> |
| Winter cover crops                       | <input type="checkbox"/> |
| Others ( <i>please list</i> ): [fill in] |                          |

*Other measures*

- |                      |                                     |
|----------------------|-------------------------------------|
| Buffer/filter strips | <input checked="" type="checkbox"/> |
|----------------------|-------------------------------------|

- 
- Wetland reconstruction
  - Sedimentation traps
  - Chemical measures
  - Others (*please list*): [fill in]
  - Other types of measures**

*If yes, please list:* [Sedimentation ponds, effluent treatment ponds, reuse and recycling]

(f) What are the main measures which your country takes to enhance water resources allocation and use efficiency?

*Please tick as appropriate (not all might be relevant)*

- A regulatory system regarding water abstraction
- Monitoring and control of abstractions
- Water rights are defined
- Water allocation priorities are listed
- Water-saving technologies
- Advanced irrigation techniques
- Demand management activities
- Other means (*please list*)

(g) Does your country apply the ecosystems approach?

Yes /No

*If yes, please describe how:* [i. Conservation and protection of ecosystem functions and services through formulation and implementation of policies, regulations, awareness creation and education at national, regional, basin and community levels;

ii. Analysing the actual and potential effects that activities have or may have on other water bodies and adjacent ecosystems;

iii. Regularly sharing relevant information on policies, strategies, regulations, with stakeholders and the general public;

iv. Involving relevant stakeholders in water management decision-making processes, and development of strategies and technical guidelines]

(h) Does your country take specific measures to prevent the pollution of groundwaters?

Yes /No

*If yes, please briefly describe the most important measures:* [A person who undertakes construction activity in the nature of manual digging of a pit, or an activity that may result in contact with or access to groundwater shall ensure that the activity is carried out in a manner that avoids contamination or pollution of groundwater or aquifer. Ref: Drilling Licence And Groundwater Development Regulations, 2006 (LI 1827)]

2. Do your national laws require transboundary environmental impact assessment (EIA)?

Yes /No

*If yes, please briefly describe the legislative basis, and any related implementing procedures.* [Environmental Assessment Regulations, 1999 LI 1652 Section 12 (o)]

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*If not, do other measures provide for transboundary EIA? [fill in]*

**IV. Final questions**

1. What are the main challenges your country faces in cooperating on transboundary waters?

- Differences between national administrative and legal frameworks
- Lack of relevant data and information
- Difficulties in data and information exchange
- Sectoral fragmentation at the national level
- Language barrier
- Resource constraints
- Environmental pressures, e.g. extreme events
- Sovereignty concerns

Please list other challenges and/or provide further details: [Different sectoral/institutional setups in riparian countries; insufficient funds/budget allocation for transboundary engagements including payments for the maintenance of the cooperation; and inadequate relevant data and information]

2. What have been the main achievements in-cooperating on transboundary waters?

- Improved water management
- Enhanced regional integration, i.e. beyond water
- Adoption of cooperative arrangements
- Adoption of joint plans and programmes
- Long-lasting and sustained cooperation
- Financial support for joint activities
- Stronger political will for transboundary water cooperation
- Better knowledge and understanding
- Dispute avoidance
- Stakeholder engagement

Please list other achievements, keys to achieving success, and/or provide concrete examples: [a. Joint presidential meetings on water cooperation initiatives

[Improved cooperation on data/information sharing and water governance at the bilateral level:

- i. Institutionalised exchange of information has improved flood management from spillage of the Bagre Dam (Ghana and Burkina Faso)
- ii. Sharing of experiences at the national and river basin levels through visits and media engagements between Ghana and Burkina Faso
- iii. Bilateral meetings and field tours between Ghana and Cote d'Ivoire on interventions to restore the degraded shared Black Volta Basin.
- iv. Development of Flood Early Warning System for Ghana and Togo on the Oti sub-basin

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v. A joint Presidential meeting and the 12<sup>th</sup> Session of the Permanent Joint Commission for Cooperation (PJCC) held in October and December 2018 respectively, between Ghana and Burkina Faso. Both parties agreed to strengthen capacities and cooperation to manage shared water resources]

3. Please indicate which institutions were consulted during the completion of the questionnaire

- |   |                                     |
|---|-------------------------------------|
| Joint body or mechanism   | <input type="checkbox"/>            |
| Other riparian or aquifer countries   | <input checked="" type="checkbox"/> |
| National water management authority   | <input checked="" type="checkbox"/> |
| Environment agency/ authority   | <input type="checkbox"/>            |
| Basin authority (national)  | <input checked="" type="checkbox"/> |
| Local or provincial government  | <input type="checkbox"/>            |
| Geological survey (national)  | <input type="checkbox"/>            |
| Non-water specific ministries, e.g. foreign affairs, finance, forestry and energy | <input type="checkbox"/>            |
| Civil society organizations   | <input checked="" type="checkbox"/> |
| Water user associations   | <input type="checkbox"/>            |
| Private sector  | <input type="checkbox"/>            |

Other (please list): [Water Resources Commission, Ghana; Ministry of Sanitation and Water Resources, Ghana; White Volta Basin Secretariat; Black Volta Basin Secretariat; Ministry of Water, Rural Infrastructure and Village Hydraulics, Togo]

Please briefly describe the process by which the questionnaire was completed: [Through consultations and exchanges with institutions]

4. If you have any other comments please add them here (*insert comments*): [fill in]

5. Name and contact details of the person(s) who filled out the questionnaire (*please insert*): [Water Resources Commission of Ghana, represented by:

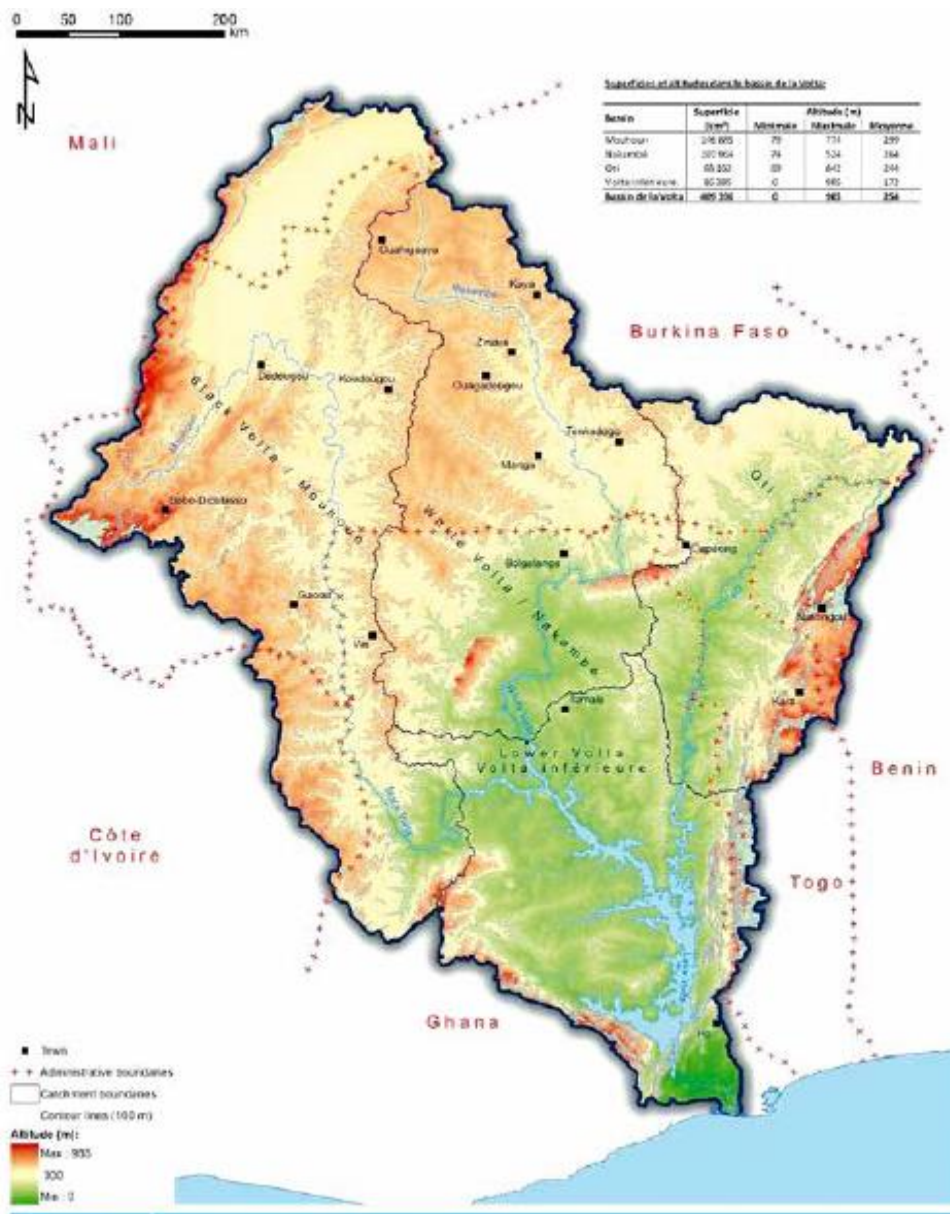
- (i) Ben Ampomah (byampomah@yahoo.com)
- (ii) Dorcas Adwoa Paintsil (himapaintsil@yahoo.com)
- (iii) Esi Biney (zbiney@yahoo.com)
- (iv) Maxwell Boateng Gymah (boatgymax2@gmail.com)
- (v) Aaron Aduna (aaronaduna@gmail.com)
- (vi) Joachim A. Abungba (joachimayiwe@yahoo.com)
- (vii) Eric Muala (ericmuala25@gmail.com)
- (viii) Bernadette Adjei (Bernadette.adjei@gmail.com)

Date: [25 June, 2020]      Signature: [  ]

Thank you very much for taking the time to complete this report.

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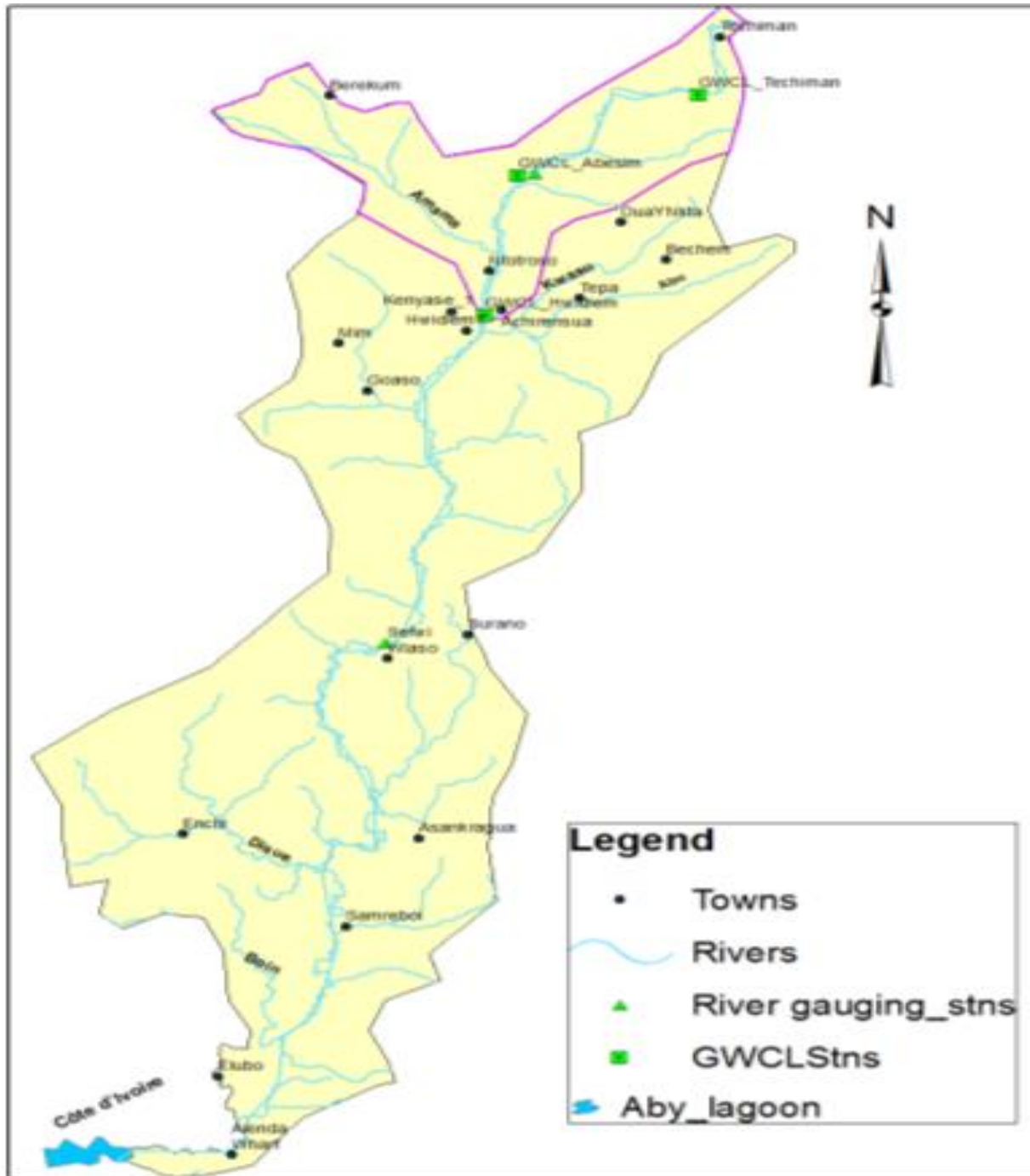
**Volta River Basin** lies between latitudes 5°30' N and 14°30' N and longitudes 2°00' E and 5°30' W



(Ghana, Burkina Faso, Benin Cote d'Ivoire, Mali and Togo)

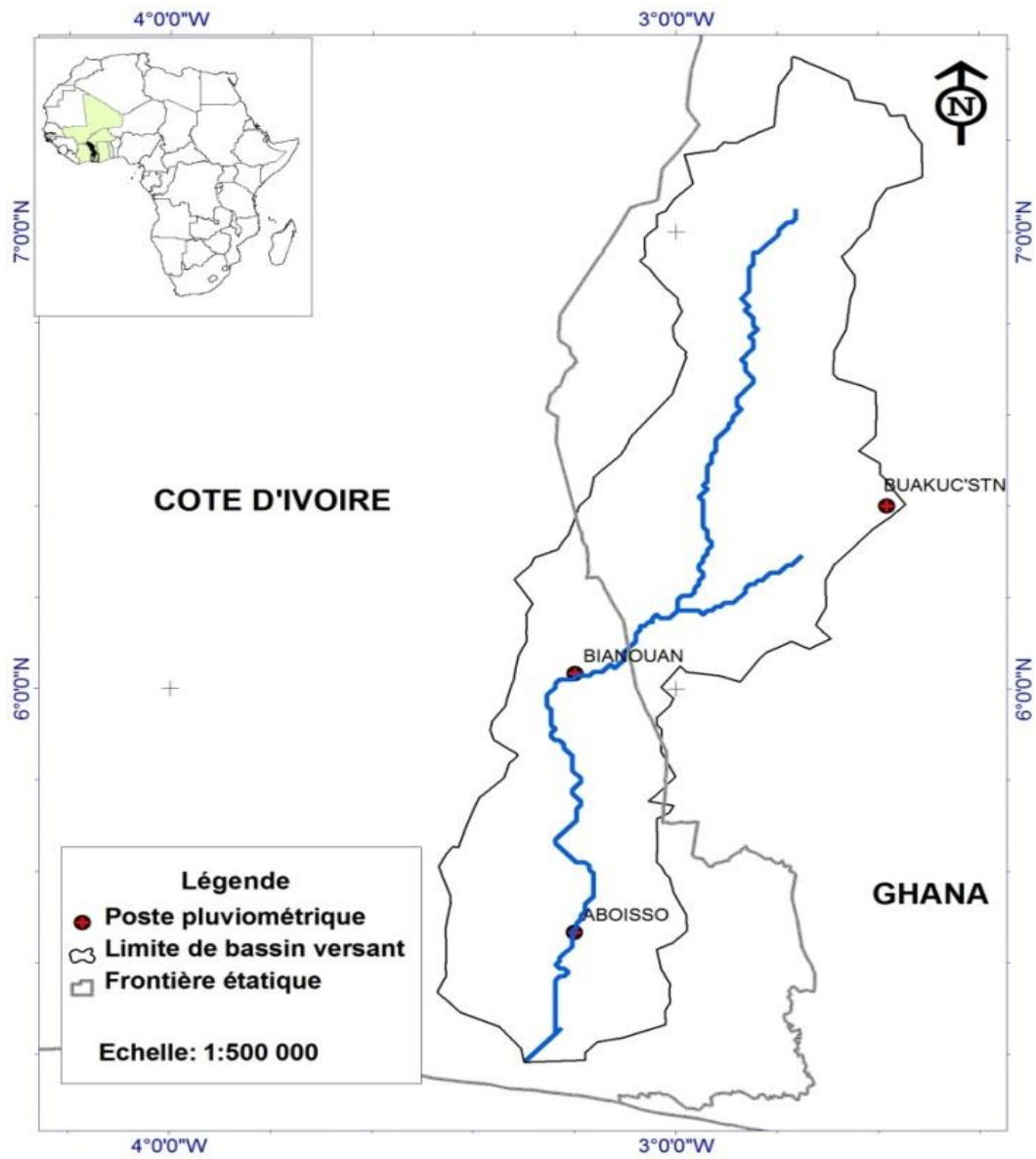


**Tano River Basin** lies between latitudes 5° 3' 00'' - 7° 38' 52'' North and longitudes 3° 16' 33'' - 1° 46' 44'' West.



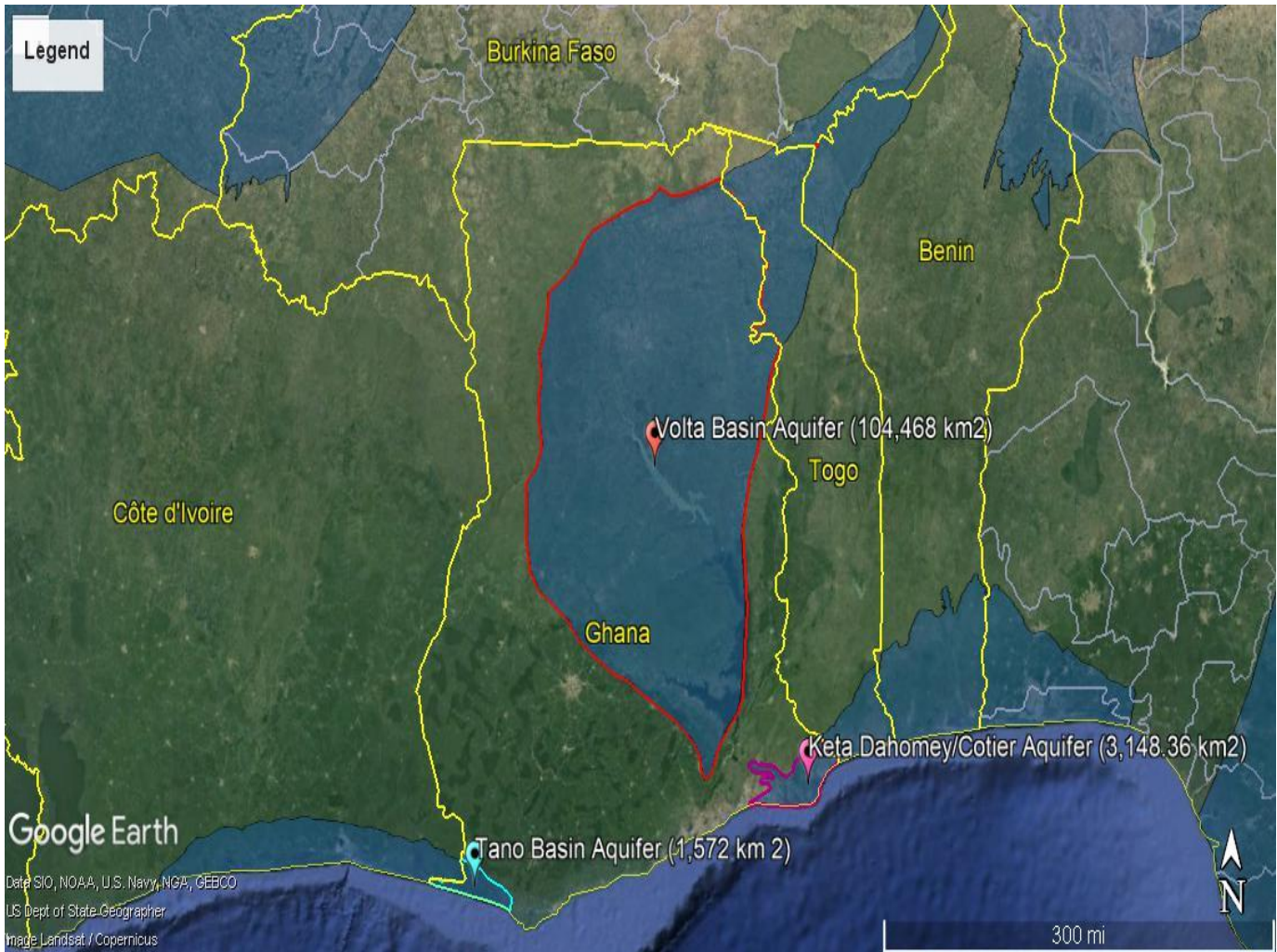
Ghana and Cote d'Ivoire

**Bia River Basin** is located between latitudes  $5^{\circ} 21' 22''$  -  $7^{\circ} 23' 42''$  North and between longitudes  $3^{\circ} 28' 30''$  -  $2^{\circ} 32' 20''$  West



Ghana and Cote d'Ivoire

|  |   |   |
|--|---|---|
| <b>Volta Basin Aquifer:</b><br>Latitude: 7.755513°, Longitude:<br>-0.766207° | <b>Tano Basin Aquifer:</b><br>Latitude: 5.080610°, Longitude:<br>-2.630738° | <b>Keta Dahomey/Cotier Aquifer:</b><br>Latitude: 5.937912°, Longitude:<br>0.875859° |
|--|---|---|



**Transboundary Aquifer map of Ghana**