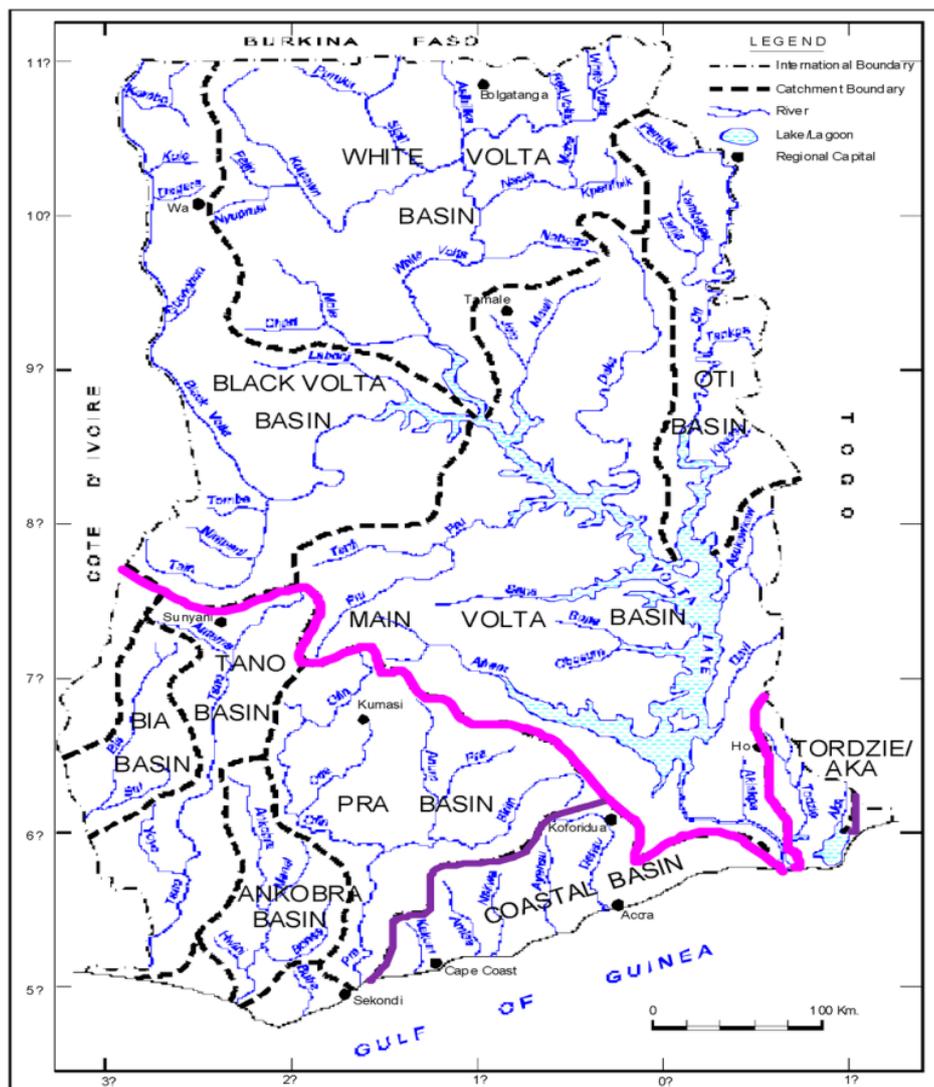


## PROFILE OF MAJOR RIVERS IN GHANA

Ghana is drained by the Volta, South-Western and Coastal Rivers Systems covering 70%, 22% and 8% respectively of the total area of the country. The Volta River System comprises the White, Black and Red Volta and Oti Rivers. The South-Western Rivers System comprises the Bia, Tano, Ankobra and Pra Rivers. The Coastal Rivers System comprises the Kakum/Bruku, Ochi-Nakwa, Ayensu, Densu, Odaw and Tordzie/Aka Rivers. Ghana shares the Volta River basin with Burkina Faso, Togo, Cote d'Ivoire and Mali. It also shares the Bia and Tano River basins with Cote d'Ivoire.

The total annual runoff for Ghana is about 54.4 billion m<sup>3</sup> out of which the Volta, South-western and Coastal Rivers Systems contribute a total of 38.3 billion m<sup>3</sup> in the proportions of 64.7%, 29.2% and 6.1% respectively (WARM Study, 1998).

## BASIC DISCRPTION OF SOME MAJOR RIVER BASINS IN GHANA



## **PRA BASIN**

The Pra Basin is located between Latitudes 5° 30' N and 7° 30' N, and Longitudes 2° 30' W, and 0° 30' W, in south-central Ghana. The Pra River, together with its tributaries, forms the largest river basin of the three principal south-western basins systems of Ghana (i.e. Ankobra, Tano and Pra). Its total basin area of approximately 23,200 km<sup>2</sup> extends through almost 55% of Ashanti, 23% of Eastern, 15% of Central and 7% Western Regions (Figure 2.1). The main Pra River and its major tributaries—(Rivers Anum, Birim, Offin and Oda), takes its source from the highlands of Kwahu Plateau in the Eastern Region and flows for some 240km before entering the Gulf of Guinea near Shama in the Western Region.

## **DENSU BASIN**

The Densu River Basin is located between latitude 5°30'N - 6°17'N and longitude 0°10'W - 0°37'W. The river takes its source from the Atewa range and flows from its upstream sections in an easterly direction towards the Akwadum -Koforidua area, from where the river gradually changes its course and flows in a southerly direction into the Weija reservoir - one of the two main sources of water supply for the Accra metropolitan area. When the Weija reservoir is full excess flow discharges into the Densu delta (Sakumo) lagoon and salt pans complex, which constitutes one of Ghana's internationally recognized protected areas (Ramsar sites), before discharging into the Bay of Guinea (Atlantic Ocean) some 10 km west of Accra.

The Densu River belongs to the Coastal River System group and the basin encompasses an area of about 2,600 km<sup>2</sup>. The total length of the Densu River is about 120 km, and its main tributaries are the Pompon, Kuia, Adeiso, Dobro and Nsaki rivers.

## **ANKOBRA BASIN**

The Ankobra River Basin is located between latitude 4° 50' N and 6° 30' N and longitude 1° 50' W and 2° 30' W. It belongs to the Western River System and covers an area of about 8,460 km<sup>2</sup>. The river takes its source from the hills north of Basin dare (near Bibiani) and flows for about 260 km mostly due south before it enters the Gulf of Guinea at Asanta a few kilometres west of Axim.

## **WHITE VOLTA BASIN**

The White Volta River Basin in Ghana is located between latitudes 8°50'N -11°05'N and longitudes 0°06'E - 2°50'W. The basin is bounded to the east by the Oti River Basin, to the west by the Black Volta River Basin and to the south by the Main/Lower Volta sub-basins. The

drainage area of the basin is about 50,000 km<sup>2</sup>. The River and its main tributaries in the northern part, the Red Volta (Nazinon) and the Kulpawn/ Sissili Rivers, take their sources in the central and north-eastern portions of Burkina Faso. The river first flows south on entering Ghana, turns west to be joined by the Red Volta, continues westwards through the Upper East Region and then turns south, where it is joined by several tributaries, including the Kulpawn/Sissili and Nasia Rivers. It continues southwards to Nawuni, flows westwards to Daboya and then southwards again where it is joined by the Mole river before entering the Volta Lake.

### **TANO BASIN**

The Tano Basin is located in the south western part of Ghana and lies between Latitudes 5° N and 7° 40' N, and Longitudes 2° 00' W and 3° 15' W. The main tributaries of the Tano River system are the Abu, Amama, Bo, Disue, Soro, Atronie, Sabom, Gaw, Kwasa, Sumre, and Totua. The Tano River System has a total catchment area of about 15,000 Km<sup>2</sup> shared between Ghana and Cote D'Ivoire.

## **WATER RESOURCES MANAGEMENT PROBLEMS**

Water resource development in Ghana is intensifying with increasing focus on the need to supply water to the urban and rural population, enhance food production, ensure environmental protection and increase hydropower production. However, the water resources base is under threat. Increased population associated with urban and industrial development, and increased exploitation of land resources are putting pressure on the nation's water resources resulting in conflicting water demands, water pollution and environmental degradation across the country.

A summary of the major water resource management problems in the river basin systems in Ghana are as shown in table 1 and figure 1.

Table 1: Water Resource Management Issues in River Basins of Ghana

<b><u>BASINS</u></b>	<b><u>WRM ISSUES</u></b>
<b>PRA BASIN</b>	<ul style="list-style-type: none"><li>• Water pollution and improper land-use</li><li>• Water shortage</li><li>• Weak institutional capacity in terms of human, financial, logistics, data, information.</li><li>• Flooding</li><li>• Waterweeds</li><li>• High iron concentrations in groundwater</li><li>• Seawater intrusion</li><li>• Inadequate water supply to meet demand for domestic, commercial, agricultural, and industrial purposes (including mining).</li><li>• Insufficient response to climate variability and change.</li></ul>

ANKOBRA BASIN	<ul style="list-style-type: none"> <li>• Water pollution and improper land-use</li> <li>• Regulatory, administrative and institutional aspects.</li> <li>• Seawater intrusion</li> <li>• High iron concentrations in groundwater</li> <li>• socio-cultural conditions,</li> <li>• economic and financial aspects</li> </ul>
TANO BASIN	<ul style="list-style-type: none"> <li>• Waterweeds</li> <li>• Flooding</li> <li>• Regulatory, administrative and institutional aspects</li> <li>• High iron concentrations in groundwater</li> </ul>
ODAW BASIN	<ul style="list-style-type: none"> <li>• Water pollution and improper land-use</li> <li>• Flooding</li> <li>• Regulatory, administrative and institutional aspects.</li> <li>• Waterweeds</li> </ul>
DENSU BASIN	<ul style="list-style-type: none"> <li>• Water pollution and improper land-use</li> <li>• Water shortage</li> <li>• Regulatory, administrative and institutional conditions.</li> <li>• Waterweeds</li> <li>• Flooding</li> <li>• High salinity of groundwater</li> <li>• High iron concentrations in groundwater</li> <li>• Women's participation in water</li> </ul>

	<p>management</p> <ul style="list-style-type: none"> <li>• Fishing and fishing methods</li> </ul>
AYENSU BASIN	<ul style="list-style-type: none"> <li>• Water shortage</li> <li>• Regulatory, administrative and institutional conditions.</li> <li>• Water pollution and improper land-use</li> <li>• Flooding</li> <li>• Seawater intrusion and high salinity of groundwater.</li> <li>• High iron concentrations in groundwater</li> </ul>
OCHI-NAKWA BASIN	<ul style="list-style-type: none"> <li>• Regulatory, administrative and institutional conditions.</li> <li>• Flooding</li> <li>• Water pollution and improper land-use</li> <li>• Waterweeds</li> <li>• Seawater intrusion and high salinity of groundwater.</li> </ul>
KAKUM/BRUKU BASIN	<ul style="list-style-type: none"> <li>• Water shortage</li> <li>• Water pollution and improper land-use</li> <li>• High salinity of groundwater</li> <li>• Regulatory, administrative and institutional conditions.</li> <li>• Flooding</li> </ul>
BLACK VOLTA BASIN	<ul style="list-style-type: none"> <li>• Regulatory, administrative and institutional conditions.</li> <li>• Flooding</li> <li>• Water pollution and improper land-use</li> <li>• Water shortage</li> </ul>
WHITE VOLTA BASIN	<ul style="list-style-type: none"> <li>• Flooding</li> <li>• Water shortage</li> </ul>

	<ul style="list-style-type: none"> <li>• Regulatory, administrative and institutional conditions.</li> <li>• High fluoride concentrations in groundwater</li> <li>• Water pollution and improper land-use</li> <li>• High salinity of groundwater</li> <li>• socio-cultural conditions,</li> <li>• economic and financial aspects</li> </ul>
<p>OTI/DAKA BASIN</p>	<ul style="list-style-type: none"> <li>• Flooding</li> <li>• Water shortage</li> <li>• Waterweeds</li> <li>• Regulatory, administrative and institutional conditions.</li> <li>• Water pollution and improper land-use</li> </ul>
<p>MAIN VOLTA BASIN</p>	<ul style="list-style-type: none"> <li>• Water shortage</li> <li>• Waterweeds</li> <li>• Regulatory, administrative and institutional conditions.</li> <li>• Flooding</li> <li>• Water pollution and improper land-use</li> <li>• High iron concentrations in groundwater</li> </ul>
<p>LOWER VOLTA BASIN</p>	<ul style="list-style-type: none"> <li>• Regulatory, administrative and institutional conditions.</li> <li>• Waterweeds</li> <li>• Seawater intrusion and high salinity of groundwater</li> <li>• Flooding</li> <li>• Water pollution and improper land-use</li> <li>• High iron concentrations in groundwater</li> <li>• Water shortage</li> </ul>

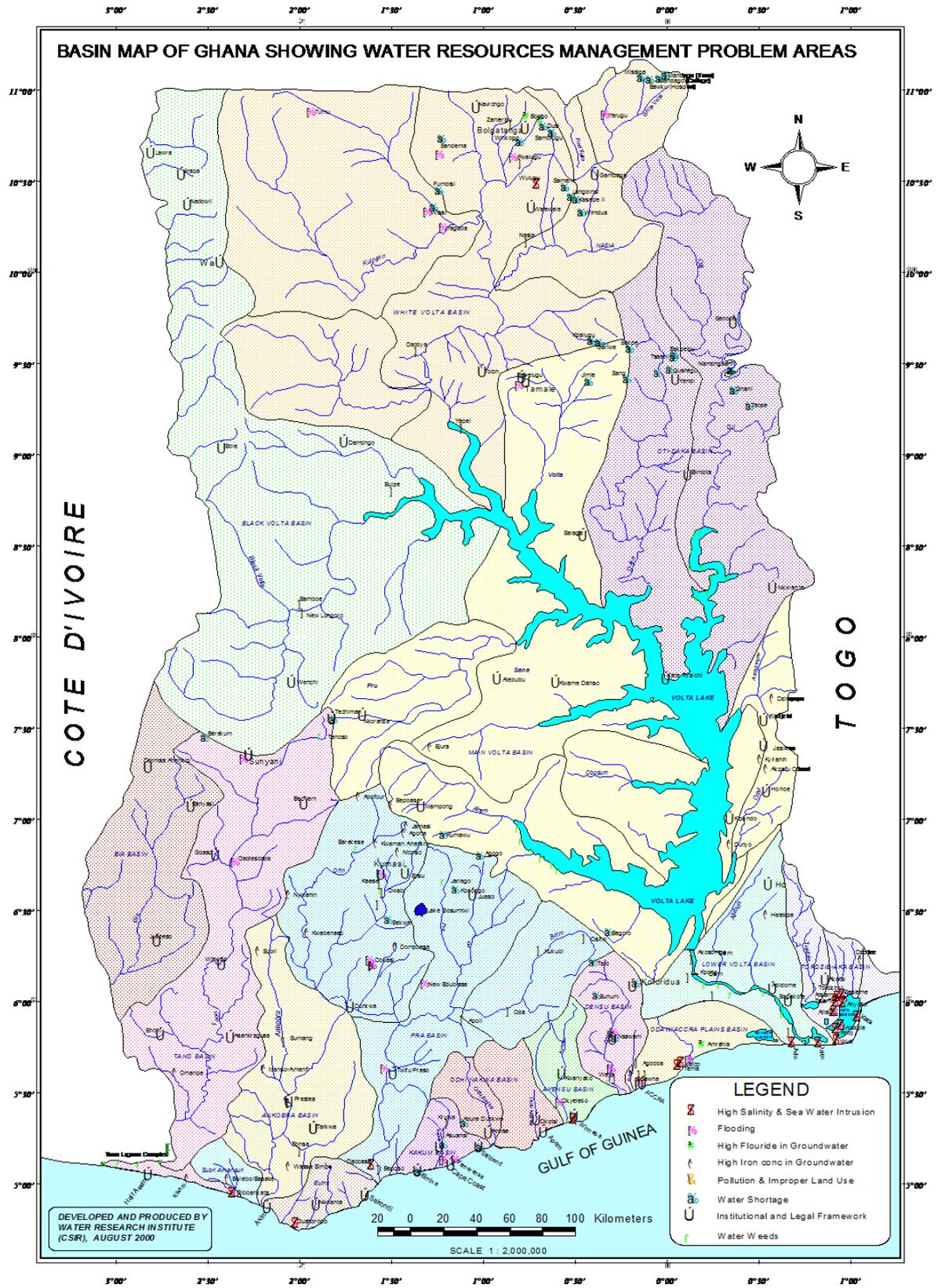


Figure 1: Map of WRM Problem areas