

46468

## The Niger River Basin: A Vision for Sustainable Management

The Niger River Basin Authority (NBA) brings together nine countries to promote integrated water resources management across political borders. The nine—Benin, Burkina Faso, Cameroon, Chad, Cote d'Ivoire, Guinea, Mali, Niger and Nigeria—have embraced a shared vision to build institutional capacity, political agreement, and public support for cooperation. The countries agree that sustainable management and development of the basin's water resources are necessary to meet natural and man-made threats to their shared resources, and that progress can be achieved by integrating technical data on the hydrology and geography of the river system with judicious political and economic policy.

The Niger River Basin, home to 100 million people, is a vital and complex asset of West and Central Africa. The continent's third-longest river, the Niger is more than just a source of water. For the people of the nine countries it is a source of identity, a route for migration and commerce, a source of conflict, and now a catalyst for cooperation.

### The Niger River Basin Authority: Membership and mission

The Niger River holds tremendous development potential for the nine Basin countries, which are among the poorest in the world. Opportunities range from those directly related to the river, such

as power, irrigation, and navigation, to those "beyond the river," such as increases in trade, communication investments, and enhanced exchanges of labor.

The Niger River's hydrologically active basin covers a surface area of nearly 1.5 million square kilometers. Of the total, Mali holds about 30 percent; it also contains the longest segment of the river. Mali has irrigated farming along the river, and rain-fed crops that include millet, sorghum, corn, groundnuts, and Africa's largest cotton crop. The Inland Delta is an undeveloped, flooded ecosystem with abundant freshwater fishing areas and pastureland for more than 2 million head of cattle.

Niger, with about 23 percent of the Basin within its borders, depends on river navigation (through Nigeria) to reach the sea. Nigeria, a major food grower on rain-fed and irrigated land, is the final downstream country. Its borders enclose some 80 percent of the Basin's population and about 28 percent of its territory.

The Niger River Commission was established in 1964, under an agreement on agricultural and industrial use of water, water resources development, navigation, and transportation. In 1980, the heads of state of the Basin countries replaced the Niger River Commission with the NBA. The transition was meant to bolster the organization's effectiveness and self-sufficiency. But insufficient financial com-

This note reports key findings from *The Niger River Basin: A Vision for Sustainable Management* by Inger Andersen, Ousmane Dione, Martha Jarosewich-Holder, Jean-Claude Olivry, and Katherin George Golitzen (World Bank, 2005). Readers may download the complete paper from [www.worldbank.org/water](http://www.worldbank.org/water).

mitments on the part of member countries led to a gradual loss of credibility.

Ministers from the member states assembled in 1998 to address the progressive degradation of the environment and water resources of the Basin. In 2002 the nine heads of state renewed their political commitment to manage the Basin's water resources in a sustainable manner and to maximize development opportunities. They agreed on the concept of a "Shared Vision" bolstered by a program of action. The leaders confirmed their commitment in the Paris Declaration of April 2004. The Niger Basin Council of Ministers, reporting directly to the heads of state, was established as a supervision mechanism. The Sustainable Development Action Program (SDAP), the operational instrument through which the countries have chosen to address the challenges of the Basin, is responsible for devising an innovative approach to defining and planning development opportunities.

The NBA must promote engagement of a wide range of stakeholders with diverse interests. A small and modestly funded organization is limited in what it can achieve, but with cooperation and transparency, the NBA can set an example of leadership and nurture a culture of openness, consultation, involvement, and inclusion.

## The Basin's physical geography and water resources

Along its course, the Niger River traverses almost all of the possible ecosystem zones in West Africa—high-altitude moist forests, woody savannas, short-grass savannas, dense woods, flooded grasslands, wetlands and lakes, mangrove forests, and swamp vegetation. The river encompasses six regions.

*The Upper Niger River Basin and the Bani Watershed.* The headwaters of the Niger have an extensive network of steep-sloped tributaries originating in Haute Guinée. The Bani tributary network originates in the low-altitude plateaus of southern Mali and Côte d'Ivoire. In this region, the rainfall pattern creates a large seasonal variation in flows. More than 80 percent of the annual flow is between August and November. The highest flood level generally occurs during late September.

*Inland Delta and Lakes District.* With its system of lakes on both banks of the Niger River, the Inland Delta is the result of the immense discharge from the Upper Niger Basin and Bani tributary. The result is an immense, fertile floodplain with an extensive tributary network and shallow lakes. The lakes and floodplains dissipate the power of the river through evaporation. The Delta thus provides a cushion during the annual floods by slowing the river's flow.

*The Middle Niger, Malian-Nigerien, and Beninese-Nigerien Right-Bank Segment.* This is a low-altitude plateau with a series of tributaries flowing into the Niger from their origins in Burkina-Faso, southern Mali, and Benin. Here, the flow rises at two times of the year. The first high-water discharge, the white flood, occurs in September after the rainy season sends water down tributaries from Burkina Faso. A second rise, the black flood, occurs in December, and corresponds to the delayed flood from the Upper Niger. Frequently, the floods caused by the input from the semi-arid tributaries in September are higher than the delayed flood from upstream on the Niger.

*The Middle Niger Left-Bank Tributaries.* This region is characterized by a wadi network in the upstream reach of the segment, with little contribution to the Niger River, and an increased inflow from the tributary network in the lower reaches of the segment. In Nigeria, the Niger River continues to grow with the contributions from its rain-fed tributaries. Flow peaks in September for the white flood. The black flood is muted but noticeable.

*The Benue River.* This is a major tributary to the Lower Niger River originating in the high-altitude Adamawa Plateau in Cameroon. There is only one high-water season on the Benue. It normally occurs between May and October, earlier than on the Middle Niger. In Nigeria, a web of tributaries flows into the Niger River.

*The Lower Niger River and the Niger Delta.* These two regions have high rainfall. A few small tributaries feed into the Lower Niger River, which empties into the Niger Delta, an area characterized by swamps, lagoons, and navigable channels. The Lower Niger's high-water period begins in May or June, caused by high rainfall in the Benue Basin. The flow increases until it reaches its maximum level in October.

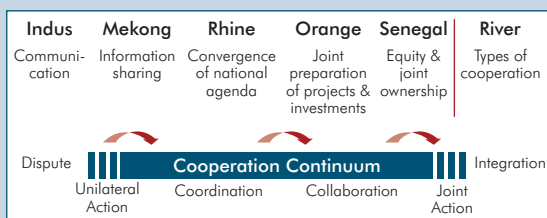
The availability of groundwater in the region varies with rainfall rates and soil permeability. The Upper Basin has little groundwater. The Inland Delta has huge groundwater aquifers that are widely used, particularly in Niger. Groundwater in the Lower Delta is variable. Cumulative dry periods reduce the base groundwater flow, and a return to sustained river flow requires replenishment of the aquifers over several successive rainy years.

More and more of what the Niger River carries is pollution. The growth of large cities along the river's banks has not been accompanied by development of wastewater collection and treatment plants. Industries in Bamako discharge metallic elements into the water. Fertilizer use affects water quality in some parts of the river. The exploitation of coal, iron, gold, and other mineral resources is also an environmental threat in the Basin.

## Cooperative development of the Niger River Basin

For many years the trend in the Niger River Basin has been for unilateral development of the river's resources. But for the nations of the Basin, the only way to secure sustainable win-win benefits—more water, more food, more power, and more transport—is to cooperate, as the nations bordering other major rivers have managed to do (see figure). The alternative of unilateral development will most likely produce lose-lose outcomes, including lost opportunities, rising tensions, and conflict.

**Figure 1. Examples of Types of River Basin Cooperation**



Source: Data from C. Sadoff and D. Grey, "A Continuum of Securing and Sharing Benefits," *Water International* 30, no. 4 (2005): 6.

Specific opportunities for investment identified by the countries are:

- food production;
- energy production;
- access to markets through navigation of the Niger River;
- environmental management and water resource development;
- flood and drought mitigation;
- livestock and fisheries; and
- ecotourism.

Investments will inevitably be driven by a variety of factors, including local and national priorities, diplomacy, political compromise, availability of and access to investment finance, and, perhaps most important, the extent of broad ownership of, and commitment to, development priorities.

Because the nine basin countries are among the poorest in the world, development of the tremendous potential of the Niger River is vital to reducing poverty in the region. Opportunities such as power, navigation, and irrigation are directly linked to the river. As trust and cooperation grow, benefits "beyond the river" should follow: communications, trade, and the exchange of labor and ideas.

## Criteria for success and ways forward

Provided the authority that emerged from the 2002 summit of the heads of state of the nine countries in the basin is strong enough to allow the NBA to broker major development investments, the nine countries have an opportunity to move a significant, common agenda forward, to reduce poverty, promote regional cooperation and integration, and enhance the lives of 100 million people.

The degree to which the NBA can recapture both legitimacy and relevance will largely determine whether the institution will meet expectations. At the national level, the NBA's agenda must be owned by many stakeholders, including the min-

istries of water resources, finance, foreign affairs, energy, agriculture, transportation, and the environment. Local governments, agencies, farmers, and communities are equally important. The NBA will be financially secure only if each constituency sees the relevance and benefits of the institution. But above all, tangible results will depend on strong political leadership and commitment to the Shared Vision on the part of the heads of state and councils of ministers.

The NBA's objectives can be met only if the countries adhere to their financial commitments, thus allowing the NBA to be financially sustainable and autonomous, to attract highly skilled staff, and

to continue to work on its core mandate of river basin management and development.

Several donors, including the World Bank, have committed to supporting the member states and the NBA as they reform the institution and implement the SDAP. It is important that the donor community now put aside any individual preferences for national investments, in an effort to let optimal regional solutions emerge through the Shared Vision process. With the donors' determined support, the Niger Basin countries and the NBA could unleash the river's development potential for the benefit of the 100 million people living in its huge domain.

The Water Sector Board Practitioner Notes (P-Notes) series is published by the Water Sector Board of the Sustainable Development Network of the World Bank Group. P-Notes are available online at [www.worldbank.org/water](http://www.worldbank.org/water). P-Notes are a synopsis of larger World Bank documents in the water sector.

