



# Volta River Basin Ghana & Burkina Faso

Transboundary water management through multi-level participatory governance and community projects



IUCN WATER PROGRAMME – DEMONSTRATION CASE STUDY NO.4



# WATER AND NATURE INITIATIVE (WANI) CASE STUDY

## VOLTA RIVER BASIN: GHANA AND BURKINA FASO

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In the Volta basin, WANI and partners have worked with riparian states to improve water governance and water management practices. This has resulted in multi-scale participatory governance frameworks for joint management of water resources and improvement of livelihoods through riverbank protection schemes. This has complemented and helped to facilitate large scale government and donor initiatives that have supported the establishment the Volta Basin Authority. The Volta Basin now has a number of legal tools, knowledge and capacity to sustainably manage its shared water resources at local to transboundary levels.

As a response to development challenges in the Volta Basin, WANI launched the project 'Improving Water Governance in the Volta River Basin' to demonstrate change in water governance and management. WANI and partners aimed to improve water governance through consensus on key water management principles and to institutionalise coordination mechanisms. Livelihood projects were also supported with the aim of both demonstrating integrated management of water resources at the local level and building trust and capacity for developing governance mechanisms.

Important lessons have been learned and among these is the understanding that stakeholders and partners are more willing to participate when they see tangible results and improvements in their everyday lives. It has also been shown that community-level participation in transboundary water resource management is achievable and adds value to conventional transboundary approaches. It is also clear that with government backing of a structured framework, multi-level governance can be achieved across large river basins.

Experience in the Volta Basin has created new opportunities and partnerships with other basins in West and South Africa. There are partnerships with the river basin commissions in West and Central Africa, such as in the Lake Chad Basin, the Congo and Obangui and in Senegal and Niger which are under discussion.

### Highlights

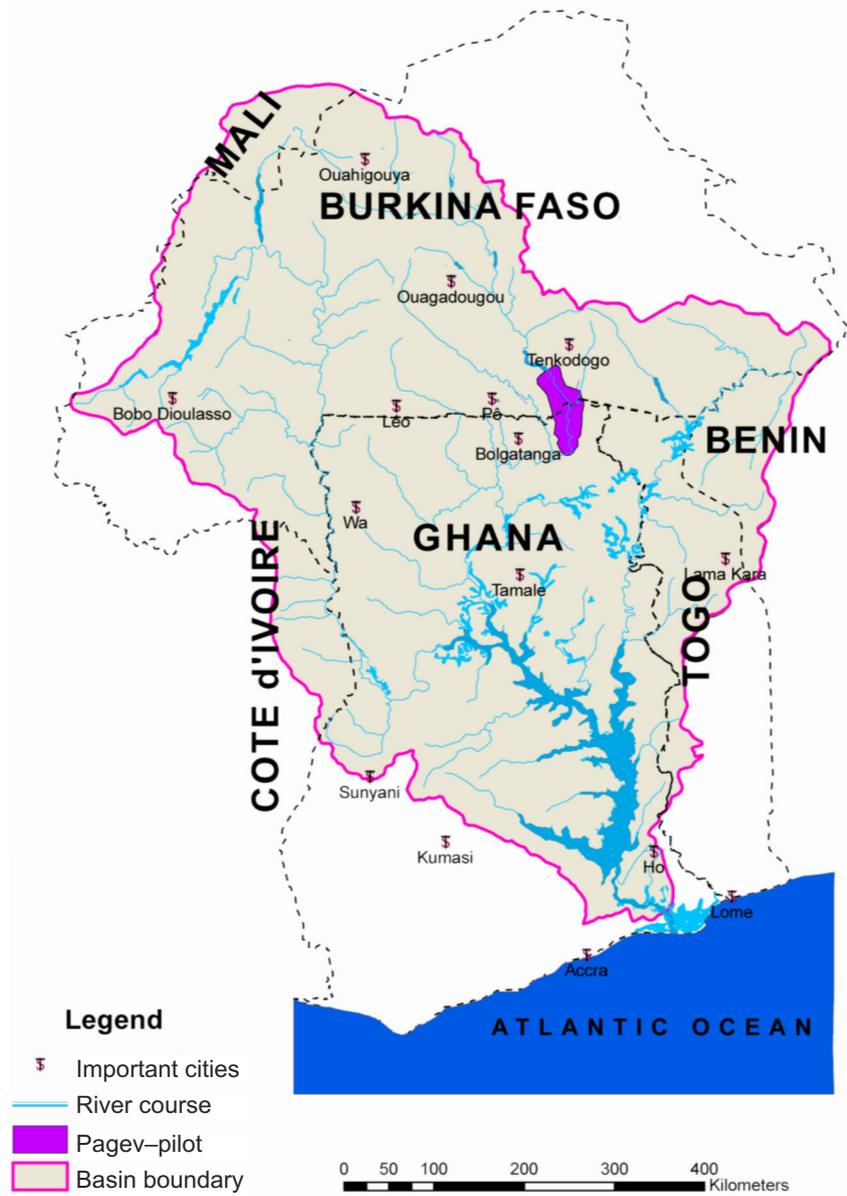
- Code of Conduct established between Ghana and Burkina Faso providing a framework for cooperation on the management of shared water resources in the basin.
- Supporting the establishment of the Volta Basin Authority to coordinate management of the water resources in the Basin across all 6 riparian states.
- Joint Transboundary Committee established for the coordination of joint activities and conflict resolution between Ghana and Burkina Faso.
- Development of an integrated governance framework to link local to national governance structures.
- Pilot projects linked livelihood benefits to IWRM and water governance mechanisms.
- Knowledge and information about the basin gathered through surveys and studies to provide data for decision-making.
- Water management planning and mapping using knowledge tools.

# 1. ENVIRONMENTAL AND INSTITUTIONAL CHALLENGES IN THE VOLTA BASIN

## 1.1 Transboundary waters

The Volta River Basin in West Africa has a surface area of approximately 400,000 km<sup>2</sup> across six countries: Benin, Burkina Faso, Côte d'Ivoire, Ghana, Mali, and Togo. It is the ninth largest river basin in sub-Saharan Africa.

About 85% of the Volta basin is located in Burkina Faso and Ghana while Togo, Benin, Cote d'Ivoire and Mali share the remaining 15%. The basin is divided into four major sub-basins: the Black Volta, the White Volta, the Oti and the Lower Volta. The Volta Basin is home to nearly 19 million people who depend directly or indirectly on the resources of the river. Therefore the Volta Basin is an important asset for the development of the riparian countries.



**Figure 1.** Map of the Volta River Basin  
(Source: Final evaluation, PAGEV project, IUCN)



*The Volta River*

## 1.2 Environmental and institutional challenges

The Volta River Basin faces enormous development challenges. Poverty and increasing population pressure have led to the extensive exploitation of natural resources contributing to water scarcity, land degradation and the siltation of river channels.

Despite the fact that most of these challenges call for basin-wide responses, the Volta River remained one of the main transboundary watercourses in Africa without an international treaty and without a basin-wide coordination mechanism. Limited consultation and coordination between Burkina Faso and Ghana combined with uncoordinated policies and development initiatives were serious threats to the sustainable management of Volta Basin.

For many years the basin had no formal legal and institutional arrangements to manage disputes over resources. Tensions between Burkina Faso and Ghana stemmed from misconceptions about

the causes of climate variability and changes in flow patterns of water resources. For example, downstream floods in Ghana were attributed to spillage from dams in Burkina Faso and at times when the amount of water in the dams in Ghana was low (due to climate variability and changes in flow patterns of the river) water consumption in Burkina Faso was suspected of being the main reason for the reduced water levels.

## 1.3 Water laws and institutions

In 1996, Ghana adopted a Water Resources Act that established the Water Resources Commission (WRC), an umbrella institution responsible for the regulation and management of water resources. In Burkina Faso, a new Water Framework Law was adopted in 2001 and under this legislation, the Directorate of Water Resources (DGRE) is responsible for managing the country's water resources. With these laws and institutions in place, both Ghana and Burkina Faso had plans to pilot test their water policies in selected sub-basins.

## 2. TOWARDS SOLUTIONS: ACTIONS AND RESULTS

### 2.1 Demonstration approach

As a response to these challenges, WANI and partners established a demonstration site in the Volta Basin and launched the pilot project 'Improving Water Governance in the Volta River Basin' (or PAGEV – *Projet d'Amélioration de la Gouvernance de l'Eau dans le bassin de la Volta*). PAGEV was based on three key areas of WANI's vision: knowledge, capacity building (at all scales) and good governance. In partnership with national partners, including the Directorate of Water Resources in Burkina Faso, the Water Resources Commission in Ghana and community municipal assemblies, the project aimed to improve water governance through consensus on key water management principles and to institutionalise coordination mechanisms. To ensure political and institutional changes, PAGEV facilitated public participation, dialogue and negotiation between the government and civil society. This built consensus on a set of key principles to guarantee equitable and sustainable water resources management.

Simultaneously, PAGEV supported the strengthening of institutions at all levels and the inter-connections between these institutions through the creation of a decision-support information base. This was created to inform constructive dialogues and collaboration on water management between Burkina Faso and Ghana. The project also integrated water resources management and the protection of the environment with poverty alleviation through riverbank restoration and pilot projects aimed to improve local livelihoods.

### 2.2 Improving water governance

#### Multi-level governance mechanism

By 2000, Ghana and Burkina, unlike most countries in the sub-region, had significantly advanced on the development of their water policies,

based on the principles of Integrated Water Resources Management (IWRM). These policies recognized the need for collaboration and agreements on internationally shared watercourses. If effectively and fully taken into consideration, these policies offered a good basis for reaching an agreement for the equitable and sustainable management of the Volta River. In both Ghana and Burkina Faso, the adopted legal and institutional frameworks for the management of water resources promoted integrated basin management, equitable access, water for nature and international cooperation. That said, none of these policies had yet reached a full implementation stage, which is among the

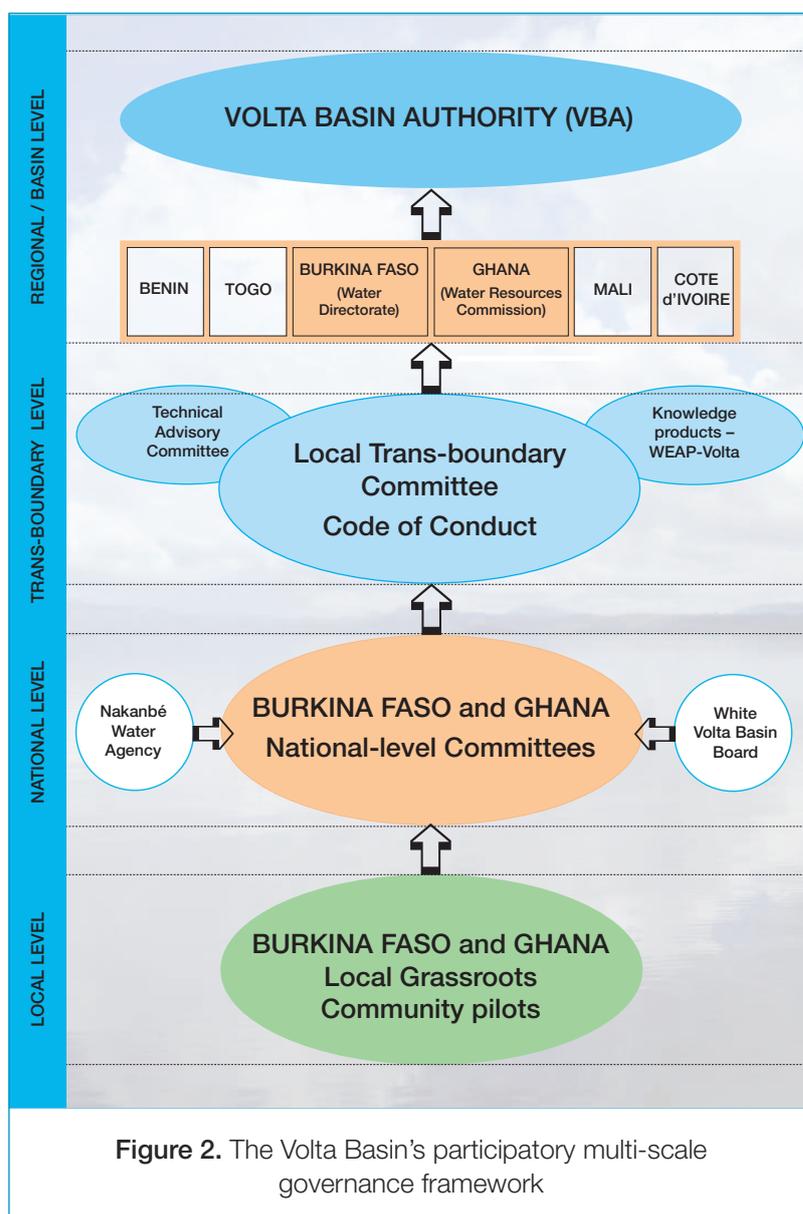


Figure 2. The Volta Basin's participatory multi-scale governance framework

reasons why they had not strongly influenced collaboration of the two countries on the Volta River. However, the countries had planned to pilot-test their water policies in selected sub-basins, which is where WANI and partners were able to play a role in demonstrating the results of effective water governance on water resource management in the Volta basin.

WANI, through the PAGEV project, supported the setting up of local, national, transboundary and regional governance frameworks to improve the management of water resources in the Volta Basin focused on Burkina Faso and Ghana as they share most of the waters. As Figure 2 shows, the framework of the decision-making process is multi-scale and participatory, involving local grass roots committees, national level committees, the Local Transboundary Committee at the cross-national level and finally, regional level planning is coordinated through the Volta Basin Authority. These multi-level connections facilitate communication between all stakeholders and help to build trust and capacity across the basin. In the section below, this framework is unpacked and the linkages between the local, national and regional levels are explained.

### **REGIONAL LEVEL: Volta Basin Authority**

As a result of processes facilitated in part by PAGEV, commitments to joint approaches to water governance in the basin were further strengthened in December 2005 when Ministers from the six riparian states (Ghana, Burkina Faso, Benin, Togo, Mali and Cote d'Ivoire) agreed a protocol on formation of the Volta Basin Authority (VBA). The VBA was established to manage the water resources and other related resource in the Volta Basin in a holistic manner, with each country working together to manage the shared resources. Assisted by PAGEV, in 2007 the six basin countries signed a Convention on the Status of the Volta River and the Establishment of the Volta Basin Authority. With the ratification process underway and the Volta Basin Authority in its formative phase, a series of actions were undertaken by a joint initiative of WANI, the Directorate of Water Resources of Burkina Faso, and the Water Resources Commission of Ghana.

By 2010, 5 countries of the Volta Basin had ratified the agreement, including Mali, Ghana, Togo, Benin and Burkina Faso bringing the Convention into effect. Information about the Volta Basin Authority is available on the dedicated website: [www.abv-volta.org](http://www.abv-volta.org).

### *Regional forums: VBA in action*

The VBA has been active in facilitating workshops and forums at the regional level, as it hosted the first regional forum on water for agriculture and first regional forum on the Volta basin sustainable underground water resources management in 2009. With a clear Strategic Plan in place by 2009, PAGEV supported the VBA to conduct studies to develop Pre-investment and Strategic Plans for the Volta Basin. The VBA Convention in August 2009 presented an opportunity to foster stronger collaboration and scaling up PAGEV experiences to other riparian countries of the Volta Basin by reinforcing capacities of experts from all the riparian countries and supporting the development of VBA's plans.

These workshops and forums facilitated by the VBA have enabled key issues in the basin to be highlighted and have showed countries how to respond to these challenges and what help is needed to do so. These platforms for dialogue and discussion have also supported stakeholders to reconcile national problems through regional approaches.

### *Strengthening the VBA*

WANI has continued to play a supporting role to the VBA. Under the second phase of WANI, the project is working closely with the VBA to support both strategic development of the institution and implementation. In 2010, WANI supported the finalization and stakeholder endorsement of the VBA Strategic Plan, including collaboration agreements for joint actions between the focal institutions of VBA and local stakeholders. WANI has also supported the establishment of a basin-wide information system by the VBA and has continued to support the VBA in establishing the decentralized institutional framework needed for consensus building and implementation.

## TRANSBOUNDARY LEVEL: Code of conduct and the Transboundary Committee

### Code of conduct

In order to manage water resources across national boundaries, a management tool was needed which could clarify the roles and responsibilities of different actors. This would enable conflict resolution and build a collective understanding of how to manage water resources and respond to environmental problems. A 'Code of Conduct' for the Volta Basin was therefore required to enable various stakeholders to come together to create a common goal which is founded on accepted knowledge and information. Burkina Faso and Ghana agreed to develop a Code of Conduct between their two countries.

At the national level, WANI supported the development of the Code of Conduct by the

- *Management principles of the Basin's shared natural resources* related to sustainable development, integrated water resources management, cooperation and governance;
- *Guidelines* on environmental flows, integrated strategies, harmonization of laws and policies, good environmental practices, and steps to create a multilateral convention for coordinated management of the Basin;
- *Joint actions* including the development and implementation of policies and strategies;
- *Implementation institutional mechanisms* including the Secretariat and the Consultative Commission;
- *International assistance and Conflict resolution* including diplomatic negotiations and peaceful resolutions.



*The border between Ghana and Burkina Faso on a tributary of the Volta River in dry season – the river is the border*

Burkina-Ghana 'Joint Technical Committee on IWRM' (JTC-IWRM). This initiative was launched in 2005 with the aim of providing assistance to the two States on the development and management of shared water resources in the basin. In 2006, national validation workshops were convened in each country to ensure input was received from government agencies, NGOs and civil society groups.

Consisting of eight sections and 59 articles, the Code of Conduct outlines a framework for decision-making and action as follows:

Development of the Code was part of a series of joint actions by the Directorate of Water Resources of Burkina Faso and the Water Resources Commission of Ghana. With support from WANI, the JTC-IWRM hosted a harmonization workshop with representation from both countries that led to finalization of the Code in June 2006. The Code of Conduct is now being used as the model for developing a Water Charter for the Volta Basin that can be signed by all six riparian States, with support from the project under a cooperation agreement between IUCN and the Volta Basin Authority.

## NATIONAL LEVEL: Forums to consolidate partnerships for water management

National Forum meetings were held to consolidate the local partnerships in Burkina Faso and Ghana in 2006. Participants at the meetings included the executives of the Riverbanks Protection Committees, District Chief Executives, Technical Services of the local administration, and NGOs. In 2008, the 5th national forum for communities of the White Volta sub-basin in Ghana was held. The gathering validated its Strategic Plan for implementation in 2009. The forum was an integral part of the project and fostered participatory planning towards a concerted management of the White Volta basin resources.

In 2011, two national learning workshops were organized in Bolgatanga in Ghana and Tenkodogo in Burkina Faso on adaptive capacity to climate change. A total of 96 participants from 15 communities in PAGEV sites attended to discuss and validate data collected on climate hazards and local communities' capacity to adapt to a changing climate. These national forums develop plans that harmonize the local initiatives and react to local and national priorities. This is essential to enable the scaling up from local to transboundary arenas, linking local communities into decisions-making processes which scale right up to the regional level governance mechanisms.



*Village chief Kwame Ludovic working with the communities on the local level pilot projects*

### **LOCAL LEVEL: Local Transboundary Committee**

Supported by WANI, in 2008, the Statutes and Statutory regulations of the Local Transboundary Committee of the White Volta sub-basin were signed by Ghana and Burkina Faso, creating the first local structure of its kind. The Joint Transboundary Committee coordinates joint activities across the border, solves any local level water use problems and disputes, and strengthens cooperation between the two countries. This is transboundary water governance at the local community level, whereas the Volta Basin Authority operates at the higher governmental levels.

In order to address the challenges of linking the local and the conventional transboundary structures in view of the establishment of the Volta Basin Authority, a model for coordinating the forums was proposed. PAGEV commissioned a study to prepare guidelines for the operations of the joint transboundary forum in 2007 which led to the establishment of a Local Transboundary Committee for the management of the White Volta sub basin.

This facilitated the development of a strategic action plan for implementation in 2009. The forums also provided platforms for the local communities to share their concerns with the heads of local authorities. In 2010, the 1st General Assembly of the Local Transboundary Committee of the White Volta sub-basin (CTGEN) was held. This was the first General Assembly since the protocol was signed in 2008. This transboundary

committee was jointly agreed by Ghana and Burkina Faso for the management of the Nakambé sub-basin water resources and aims to rationalize the use of water and prevent water-related conflicts between the two countries. The 14-member committee has equal representation with 7 representatives from both Ghana and Burkina Faso.

### **2.3 Ecosystems and livelihoods**

#### **Livelihoods and reforestation**

WANI supported the implementation of livelihood projects which aimed to demonstrate integrated water resources management at the local level and build trust and capacity through establishing the linkages between livelihood benefits and water governance. Through these livelihood pilot projects, PAGEV provided the knowledge, technical advice and funding to help communities combat environmental degradation and provide income opportunities (See Box 1).

### **2.4 Knowledge and information**

#### **Creating baseline data: Surveys and assessments**

Without crucial information about the nature of the water resources in the basin, key decisions could not be taken on how to manage these resources. Therefore, to improve water governance in the basin, essential baseline data was gathered to inform decision-making processes at all levels (see Box 2).

### *Socio-economic surveys*

Key knowledge and information systems were created to support planning, decision making and monitoring of interventions. Detailed socio-economic surveys of the pilot communities on the banks of the White Volta were completed in August 2006. The surveys were also conducted mid-way through the project and have provided good baseline information in terms of socio-economic conditions and problem analysis and insight into the priority needs in the communities while at the same time keeping a focus on IWRM issues. The studies were carried out with the communities to encourage support, ownership and participation. As a result of this work, areas in the basin were identified where water scarcity was a problem.

### *Water audit*

In 2007, a water audit was conducted by a team of experts from Burkina Faso and Ghana and aimed at improving the understanding of the dynamics of water availability and demand and

predicting the impacts of various uses under different scenarios. Preliminary results showed that climate change would impact dry season water availability and put increasing pressure on the scarce availability of water during these times. The water audit has been made available to the implementation institutions in both countries to inform decision-making on water resources management. In addition, situation analyses of Ghana and Burkina Faso were carried out in 2008 which provided further information.

This report was validated at a workshop in 2007 in Ghana which added value to the findings of the study. This process forms an important aspect of the Decision Support Knowledge Base component of PAGEV that WANI promoted towards data and information exchange between Burkina Faso and Ghana. This workshop helped to inform decision makers for improved water governance of the shared water resources on the one hand, whilst strengthening bilateral cooperation on the other.

## **Box 1. Ecosystem rehabilitation for livelihood improvements**

- 7 communities (4 in Burkina and 3 Ghana) were mobilized to form river bank protection committees;
- A small dam at Sakom in the Bawku West District of Ghana, which was breached in 1998, has been rehabilitated to ensure that water is available in the floodplain for dry season vegetable farming and rice cultivation. An estimated 1,137 people now have access to water for dry-season farming;
- Approximately 16 kilometres of river banks in the pilot zone have been planted with approximately 27,000 trees seedlings to stabilise the banks and provide fuel wood;
- 6,500 imported fruit seedlings (mangoes and guavas) were planted to provide alternatives for income generation to support livelihoods;
- 6 farmers' groups (5 per group) from Burkina and 13 groups (5 per group) from Ghana were supported with 19 water pumps to expand dry season farming in December 2009;
- 4 communities in Burkina Faso were supported to dig 3 wells each to supplement their domestic water supply and support dry season gardening. Two wells were constructed and one old well rehabilitated in 2 communities in Ghana;
- In 2011, a total of 19 communities across Burkina Faso, Ghana and Togo were participating in community level joint actions;
- River Bank Protection Committees were set up to ensure environmental sustainability and support agricultural activities through reforestation of banks;
- Farmers received awareness raising, financial and management training and were introduced to alternative farming techniques;
- 36 women were provided with support to increase their household incomes. In Burkina Faso, a 26-member women's group were supported with seedlings to cultivate on the river banks after flooding in 2007. The group reported harvesting onions worth 631,000 FCFA (nearly 962 Euros), which enabled each woman to contribute about of 23,000 FCFA (35 Euros) to the group's savings account;
- 20 women benefited from support with livestock rearing, receiving at least 2 sheep or goats each.

### Knowledge tools: Water management planning for climate change

The Water Evaluation and Planning system, or WEAP, developed by the Stockholm Environment Institute's U.S. Center, aims to incorporate freshwater management challenges into a practical, robust tool for integrated water resources planning. In 2008, PAGEV and partners set up a single application of the WEAP model for the Volta Basin (WEAP-Volta). The WEAP-Volta model was presented at the 5th meeting of the Technical Advisory Committee on IWRM in West Africa organised by the Water Resources Coordinating Centre of ECOWAS. As a result, around 40 experts from Burkina Faso, Ghana and Benin received training on the use of the WEAP as a water resources management planning tool in 2009 and 2010. The training is supporting the establishment of a network of expertise which the

### Box 2. GLOWA-Volta project

Funded by German Government, the project was already underway when WANI and partners initiated the PAGEV project in the region and it provided vital research on water resources management to PAGEV activities. The GLOWA-Volta partnership aimed to develop a scientifically sound decision support system for the assessment, sustainable use and development of water resources in the Volta Basin.

can be drawn upon for water management in the basin. In addition, the scenarios formulated with the WEAP also contribute to managing risks from climate change and promote dialogue.

### Box 3. Mapping tools and water quality checks

Valuable baseline and thematic maps have been produced using satellite and high resolution IKONOS imagery under a collaborative arrangement with VIASAT Geo-Technologies of Canada. These maps have been used as monitoring tools to determine the impact of the project activities and as tools to support communities' education and awareness campaigns.

WANI and partners provided support for assessments of water quantity and quality discharge and to rehabilitate gauging stations. Fourteen samples comprising 11 well water and 3 river water were collected from the PAGEV pilot zone in Ghana and Burkina Faso and analyzed to categorise the quality of water from wells provided to communities by the PAGEV Project and of selected hotspots along the river channel.



*Water quality tests in the Volta Basin*

## 3. RESULTS AND LESSONS LEARNED

### 3.1 Synopsis of results

While water laws and institutions for managing water resources were in place in both Ghana and Burkina Faso, the implementation of IWRM principles were not fully demonstrated and there was a lack of regulatory processes or mechanisms to manage basin water resources. While the willingness to discuss transboundary issues was present, the lack of baseline knowledge of the basin and the absence of major water users in decision-making processes and governance frameworks limited the riparian countries' ability to manage the water resources sustainably. This situation was compounded by environmental degradation, adversely affecting livelihoods of communities in the basin.

The PAGEV project and partners efforts contributed to turning this situation around through strengthening communication between Ghana and Burkina Faso, creating multi-scale participatory governance frameworks for joint management of water resources and improving livelihoods through riverbank protection schemes.

Sub-basin knowledge collection and consolidation through the water audit and other studies has helped to build capacity and supported decision-making processes. Legal tools, including the Code of Conduct, the Local Transboundary Committee and the Volta Basin Authority have now been established to tackle basin-wide issues, resolve conflicts and to provide the framework to manage share water resources sustainably.

### 3.2 Lessons learned

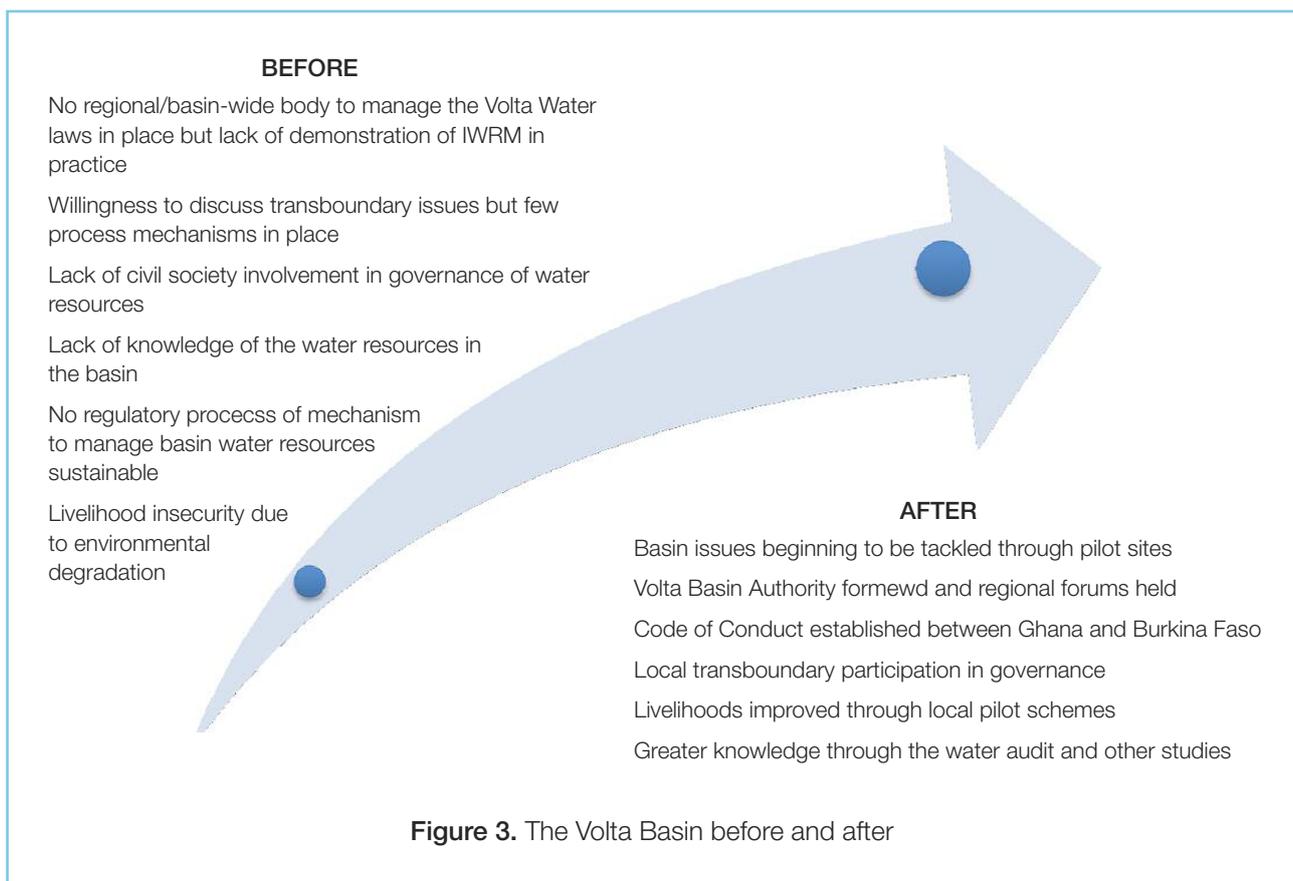
Many lessons have been identified from WANI's work carried out in the Volta basin. The main lessons are:

1. Alignment of activities with national priorities and linkages with government policy processes are needed for larger-scale impacts. When national interests are positioned with regional initiatives such as basin authorities, which have the political hardware and infrastructure to support transboundary collaboration, water resources governance can become a reality at multiple scales and across national boundaries.



*Community preparation session for reforestation activities*

2. Stakeholders and partners are more willing to participate when they see tangible results and improvements in their everyday lives such as income generation schemes, water supply facilitation and conflict reduction. Addressing some of the issues that are important to the community will help considerably in gaining trust and a commitment to engage in wider governance issues and initiatives.
3. Community-level participation in transboundary water resource management is achievable and adds value to conventional transboundary approaches. Facilitation of community-based management actions have demonstrated that planning and implementation of IWRM can be successfully shared between communities across boundaries.
4. Building a local knowledge base with good data and information systems is important in deciding the most efficient allocation of resources. Such a tool allows a thorough understanding of the relationships and scenarios within the basin such as water availability, trends, demands and conflicts, and can then lead to better management decision making. Improving the technical abilities of stakeholders and water managers increases understanding of the environment in which they are working and the issues that affect them and develops better capacity for planning and management of water resources.



## 4. NEXT STEPS

### 4.1 Basin Authorities

The Volta Basin Authority has been successfully established with a comprehensive structure, led by a strategic plan. With this framework in place, the VBA has now begun to carry out coordination activities at the regional level and will continue to strengthen its capacity to do so in the future. One such activity involves bringing stakeholders together to share information and knowledge, which the VBA did in 2010 through a workshop to present and validate hydrometeorological study data from the Volta Basin.

### 4.2 Cross-country experience sharing

WANI's experience in the Volta Basin has created new opportunities and partnerships with other basins in West and South Africa. Cross regional experience sharing has taken place between the Volta Basin, the Komadugu-Yobe Basin in Nigeria and Hennops River basin in South Africa. Collaboration with WANI projects in Latin American has also seen the exchange of knowledge and governance tools as the Tacana Watersheds project has incorporated the principles of the

Code of Conduct from the Volta basin into basin planning and management. Another example of region-wide approaches is the region-wide dialogue on dams (see Box 4).

As a result of WANI experience and expertise in basin wide IWRM governance processes of facilitating and developing in the Volta and Komadugu-Yobe basins, further partnerships are being formed in West and Central Africa (Lake Chad Basin), the Congo and Oubangui and in Senegal and Niger.

### 4.3 PAGEV: Towards the start of a third phase of the project

A third phase of intervention is currently being planned. This aims to focus on governance through building institutional capacity in the Volta Basin as well as continuing to support the VBA in implementation of its activities. Finally, the project will aim to support the restoration of ecosystems and building adaptive capacity to combat the adverse effects of climate change.

#### Box 4. Region-wide dialogue on dams 2009–11

At the regional level in West Africa, WANI co-invested in a major Economic Community of West Africa (ECOWAS)-led region-wide dialogue on dams (the 'Regional Dialogue on Large Hydraulic Infrastructure in West Africa'). The goal of this process is for recommendations from the dialogue to be adopted by the ECOWAS member States, regional institutions and regional River Basin Organizations in their energy and water policies. WANI was tasked with convening and facilitating a civil society platform for knowledge exchange and dialogue with governmental and regional institutions.

Two fora for civil society were held in Mauritania and Mali. Training in advocacy was conducted for civil society participants from 15 countries, enabling strong civil society participation in three ECOWAS-led workshops which brought together civil society representatives, basin organizations and States. Civil society participated in the development of recommendations to an independent expert-review panel in 2011.

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