Cross border risks and transboundary risk governance in West Africa

Case study of the Volta River Basin
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Front Cover Image: Bridge over Volta River, Volta River Basin. (iStock/Peeter Viisimaa)
## Acronyms

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<tr>
<td>ACMAD</td>
<td>African Center of Meteorological Application for Development</td>
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<td>AGHRHYMET</td>
<td>AGRometeorology, HYdrology, and METeorology for CILSS states</td>
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<td>CILSS</td>
<td>Permanent Interstate Committee for Drought control in the Sahel</td>
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<td>DRM</td>
<td>Disaster Risk Management</td>
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<td>DRR</td>
<td>Disaster Risk Reduction</td>
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<td>DSS</td>
<td>Decisions Support System</td>
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<td>GVP</td>
<td>GLOWA Volta Project</td>
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<td>ECOWAS</td>
<td>The Economic Community of West African States</td>
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<td>EU</td>
<td>The European Union</td>
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<td>HFP</td>
<td>Humanitarian Futures Programme</td>
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<td>IPCC</td>
<td>Intergovernmental Panel on Climate Change</td>
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<td>IUCN</td>
<td>International Union for Conservation of Nature</td>
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<td>IWMI</td>
<td>Integrated Water Management Institute</td>
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<td>IWRM</td>
<td>Integrated Water Resource Management</td>
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<td>MFR</td>
<td>Making Futures Real</td>
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<td>NADMO</td>
<td>National Disaster Management Organisation, Ghana</td>
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<td>RRI</td>
<td>Risk Reduction Index</td>
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<td>RTU</td>
<td>Representative Territorial Unit</td>
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<td>SIDA</td>
<td>Swedish International Development Cooperation</td>
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<tr>
<td>SP-CONASUR</td>
<td>National Council for Emergency Relief and Rehabilitation, Burkina Faso</td>
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<tr>
<td>UEMOA</td>
<td>Union Economique et Monétaire Ouest Africaine</td>
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<td>UNDP</td>
<td>United Nations Development Program</td>
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<td>UNEP</td>
<td>United Nations Environment Program</td>
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<td>UNEP-GEF</td>
<td>United Nations Environment Program Global Environment Facility Coordination</td>
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<td>UNISDR</td>
<td>United Nations Office for Disaster Risk Reduction</td>
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<td>VBA</td>
<td>Volta Basin Authority</td>
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<td>VRA</td>
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<td>WRCC</td>
<td>Water Resource Coordination Centre</td>
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Disasters and disaster risks do not recognise national borders. This will become increasingly true over the coming decades, as natural hazards combine increasingly with ‘man-made’ hazards, leading to risks that are increasingly complex and cascading. This places great importance on strengthening effective cross-border risk governance. Yet, the political and governance systems used to manage disaster preparedness, reduce disaster risk and respond to the aftermath of a disaster remain deeply entrenched in the traditional conceptions of national sovereignty and are thus executed within national borders.

This paper looks at the Volta River Basin as a case study for the challenges facing West African societies with respect to transboundary and long-term humanitarian risk. It has been undertaken as part of a broader collaboration between King’s College, London, DARA, and the ECOWAS Commission to enhance disaster risk reduction (DRR) efforts in the region through the technical support and capacity building of regional organisations.

Part I provides an overview of the current governance systems in place for managing transboundary risk in the Volta Basin and notes several key transboundary aspects of risk that have been identified in prior research. Part II presents the findings from a survey undertaken with policy-makers and planners to understand how long-term risk is being considered and planned for in the Volta Basin. The key findings from this section are:

**Finding 1**
Long-term risk is shaped by the tension between the benefits of development activities and their negative impacts.

**Finding 2**
Governments are doing little to plan for disasters that might impact multiple countries at the same time.

**Finding 3**
Most of the drivers for risk identified by planners and policy-makers are ‘human-made’ or based on human behaviour.

**Finding 4**
Risk preparedness and management strategies appear to be driven by previous experiences of crisis and therefore do not include potential new risks such as those with transboundary impacts.

**Finding 5**
There is a wealth of research and information on the Basin, but processes for sharing this across national institutions are weak.

**Finding 6**
Information sharing between Burkina Faso and Ghana on the Volta River for immediate risk is considered to be strong, yet it occurs primarily through relationships between technical institutes than political bodies.

**Finding 7**
Information is passed to communities and local institutions through intermediary organisations rather than national institutions.

**Finding 8**
Information sharing with and through the VBA could be more effective, pointing to the need for more horizontal and vertical channels for information collection and dissemination.

**Finding 9**
National institutions try to adapt their plans based on what other countries are doing, but there is no centralised coordination.
Finding 10
The VBA provides the platform for dealing with coordination problems, however many countries continue to use a unilateral or bilateral approach.

Finding 11
Risk assessment and planning in the Basin does not appear to involve participation at the local level.

Finding 12
There is a lack of political will to support the Volta Basin Authority, as governments prefer to pursue their own national interests.

Finding 13
However, the impacts of the 6 countries acting in isolation will likely result in increased disaster risk and more severe impacts in the Volta Basin over the long-term.

Finding 14
Many policy-makers and planners feel that risk is accelerated by the actions of those who live in the Volta Basin.

Finding 15
It is not clear who should be accountable for transboundary disasters.

Part III explores the implications of long-term risk for governance systems in the Volta Basin. The approach to addressing transboundary issues in the Basin has been largely informed by the principles of Integrated Water Resource Management (IWRM). While there are many complementarities between IWRM and long-term DRR, these need to be identified and addressed explicitly in order to ensure that systems designed for IWRM do not take appropriate consideration of disaster risk and humanitarian impacts related to shared water resources.

The paper concludes by recommending that the ECOWAS Commission reconsider its hands-off policy with respect to river basin authorities, on the basis that a more engaged approach would be conducive. Engagement would afford the ECOWAS Commission a new type of partner – one that is more locally focused, but still itself transnational in mandate – with different advantages and capabilities than member state institutions. It would also provide the Volta Basin Authority and other basin authorities additional supranational weight that is needed in these early years of basin-level management to overcome disincentives for collaboration amongst riparian countries.

Finally, models of engagement at the community level with scientists and decision-makers, piloted in the FOREWARN Initiative, should be scaled out for use in the Volta Basin to improve local understandings of risk drivers and impacts as well as improve regional scientists’ awareness of the communication channels needed to reach end users at the local level.
This paper looks at the Volta River Basin as a case study for the challenges facing West African societies with respect to transboundary and long-term humanitarian risk. Risk is commonly defined as the expected value (probability multiplied by impact) of an event. In this paper, humanitarian risk is often used interchangeably with ‘threat’ or ‘hazard’, to reflect colloquial use. Humanitarian risk pertains to an event which, should it occur, would create a need for humanitarian assistance or response. Long-term humanitarian risk pertains to threats in which either i) the expected value (i.e. the risk) will increase over a 20+ year period of time or ii) the threat reoccurs over time and its probability is resistant to human efforts to reduce it. For example, the increased use of nuclear power may point to poisoning from nuclear waste pollution as a long-term risk, on the basis that the probability of such pollution leading to human health effects will increase over the coming decades. Climate change-induced severity in weather patterns is an example of a threat with a long-term risk in which the probability of weather patterns occurring might remain the same but their severity, or impact, is expected to increase. These are both examples of type (i) long-term humanitarian risks; type (ii) risks refer to threats which are perpetual, such as seasonal typhoons. These risks are long-term in the sense of reoccurring in perpetuity; human efforts to reduce this risk need to focus primarily on reducing impact, as reducing the probability of their occurrence is difficult if not impossible.

There are three components of humanitarian risk that can be transboundary or crossborder: First, the underlying cause or driver for the threatening phenomenon can be collectively created by the actions of multiple individual countries. Climate change is a primary example of a transboundary risk in this sense of the term. The second component of risk that can be transboundary is a risk’s impact, when an event affects more than one sovereign nation simultaneously. For example, pollution generated by one country may have significant health impacts on individuals living in bordering countries. Another risk where impact is transboundary is the migration of vulnerable people or victims of disaster, which can trigger cascading problems such as conflict and increased vulnerability as local populations cope with an influx of new migrants. Finally, risk can be trans-

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**Figure 1 // Transboundary aspects of humanitarian risk**

**DRIVERS**

Multi-state contribution to risk factor

**IMPACT**

Multi-state impact of threat

**MITIGATION**

Multi-state coordination needed for risk reduction

Create higher risk factor

Face impact from same source

Collaborate to reduce risk
boundary in terms of its mitigation, that is, the actions needed to reduce and manage it. Flood risk along transboundary rivers requires regulation and proactive measures by actors on all sides of the river’s border in order to prevent the loss of life and infrastructure in all countries through which the river flows.

As the planet becomes ever more interconnected, many humanitarian risks are increasingly transboundary in each of these three ways, especially so in sub-regions characterised by high vulnerability and a high rate of dynamic change, such as West Africa.4 The importance of supranational approaches to preparing for and responding to these long-term risks is one of the key assumptions of the FOREWARN Initiative, which has sought to strengthen approaches to disaster risk reduction (DRR) in West Africa through a series of capacity-building activities undertaken at the regional level with the Economic Community of West African States (ECOWAS) Commission.

Regional organisations possess a number of advantages with respect to addressing risks, most significant amongst these being the potential to transcend sovereign self-interest and broker solutions that serve the collective best interests of citizens in multiple states. In support of exploring how the ECOWAS Commission can play a leading role in helping its member states address transboundary risk, the Humanitarian Futures Programme, King’s College, London, and DARA facilitated a workshop on crossborder risk in Abuja, Nigeria, in April 2013. During the workshop, ECOWAS staff and representatives from partner organisations including the World Bank, the United Nations Office for Disaster Risk Reduction (UNISDR) and United Nations Development Programme (UNDP), discussed key transboundary risks in the region, the kinds of processes and capacities that the ECOWAS Commission would need to address these, and the comparative advantages it would have in doing so.

One of the outcomes of this event was the recognition that more information on transboundary risk relating to shared water resources was needed at the Commission.

Based on this recognition, a four-month study of transboundary risk in the Volta River Basin was undertaken by King’s College, London, in order to serve as a case study to understand how ECOWAS member states are planning for and reducing long-term transboundary humanitarian risk concerning shared water resources, and what, if any, challenges or gaps exist which the ECOWAS Commission could seek to address.

Part I provides a background to the Volta River Basin and its primary transnational governing mechanism, the Volta Basin Authority.

Part II discusses the results of the Making Futures Real survey, which was used to interview fourteen members of staff from national institutions and relevant transnational organisations on future risks and current practices pertaining to risk preparedness, planning and governance in the Basin. Part II concludes by contrasting these findings against the community-based risk assessments carried out by FOREWARN partner organisation DARA in Volta Basin communities in Ghana and Burkina Faso.

In Part III, the paper critically assesses the current governance system in the Volta River Basin from the standpoint of long-term humanitarian risk, asking: ‘What institutional arrangements are best suited to govern humanitarian risk in the Volta Basin into the 22nd century?’ It examines the basin authority model that has been supported and applied in the region by the ECOWAS Commission and other supporting partners and discusses ways in which this model might support a network of alliances and actors aimed at long-term risk governance.
Covering over 400,000 km², the Volta River Basin (VRB) extends across six West African countries that feature varying percentages of land coverage in the basin (See Table 1). The basin contains four sub-basins, and is served by at least three large tributaries, the White Volta, the Black Volta and the Oti rivers. Several dozen dams of varying size have been constructed within the VRB, the largest of which is the Akosombo dam (8,502 sq. km.) in Ghana, which holds back the Black Volta, White Volta and Oti rivers to sustain the Volta Lake, the largest human constructed lake in the world. The basin is divided into 3 main climatic zones: the wetlands south, characterised by two distinct rainy seasons, a tropical transition, with two rainy seasons closely spaced in time, and the tropical north, which covers most part of the basin. It is home to over 18.6 million people who depend on the river basin as their primary source of water and energy; in 2025 the population is projected to reach 33.9 million.

| Table 1 // The six riparian countries in the Volta basin and their coverage (reproduced from Barry et al, 2007, pp.6–7). |
|-----------------|-----------------|
| Country         | Percentage of Basin contained in country | Percentage of the country covered by the Basin |
| Ghana           | 40.18%          | 70%            |
| Burkina Faso    | 42.65%          | 63%            |
| Togo            | 6.4%            | 47.3%          |
| Mali            | 3.69%           | 15.2%          |
| Benin           | 4.1%            | 3.9%           |
| Cote d'Ivoire   | 2.99%           |                |

History of Transboundary Coordination in the Volta Basin

Coordinated water management amongst the six riparian countries is fairly recent; until the early 2000s, coordination occurred primarily on a bilateral basis and between Ghana and Burkina Faso, the countries featuring the largest land coverage in the basin. The broader trend in establishing basin-level governance structures, as part of the global move towards Integrated Water Resource Management (IWRM) in the 1990s and 2000s, arrived at the Volta River Basin comparatively late. Consultations and meetings to establish a transnational body for integrated water resource management began in the 1990s and resulted in the adoption of an agreement protocol establishing the Volta Basin Authority in 2005. The Volta Basin Authority, however, was not fully realised until 2009, after the signing of the Convention on the Status of the Volta River and the Establishment of the Volta Basin Authority by all six heads of state in 2007. The Convention came into force in 2009.

ECOWAS, through its Water Resource Coordination Centre (WRCC) based in Ouagadougou, Burkina Faso, played a major role in this process through its financial support for the establishment and first three years of operation of the Volta Basin Authority. The WRCC itself was established in 2004 simultaneously with the ECOWAS Permanent Framework for the Coordination and Management of Integrated Water Resources Management in West Africa. Under its current strategic plan from 2007–2015 the WRCC has two main strategic aims:

- Provide support to cross-border basin organisations and assistance with IWRM processes in different basins; and
- Advance regional integration in the water sector.
The WRCC's support to the Volta Basin Authority was therefore provided as part of this broader ECOWAS strategy to strengthen IWRM in West Africa, by concentrating on ‘affirming the crucial role of basin organisations in developing and implementing transboundary projects.’

Volta Basin Authority: Structure and mandate

The VBA is comprised of five main organs: The Conference of Heads of State and Government, which operates as the highest decision-making body in the VBA and meets on an annual basis; the Council of Ministers which develops and agrees sectoral policies for the Authority; the Forum of Parties Involved in the Development of the Volta Basin and Committee of Experts, which provide technical and advisory services to inform decision-making; and the Executive Directorate which oversees the daily activities of the VBA. This Executive Directorate is further comprised of six departments: the Executive Directorate, Operations Department, Department of Administration and Finance, Financial Control, Department of Planning and IWRM, and the Basin Observatory.

The stated mandate of the VBA is to ‘promote permanent consultation and sustainable development of the water and related resources of the Volta Basin for equitable distribution of benefits towards poverty alleviation and better socioeconomic integration.’

The VBA pursues this mandate through five key tasks:

1. Promote permanent consultation tools among the parties for the development of the basin;
2. Promote the implementation of integrated water resources management and the equitable distribution of the benefits resulting from their various utilizations;
3. Authorize the development of infrastructure and projects planned by the stakeholders and which could have substantial impact on the water resources of the basin;
4. Develop joint projects and works;
5. Contribute to poverty alleviation, the sustainable development of the Parties in the Volta basin, and for better socioeconomic integration in the sub-region.

The mandate of the VBA is therefore geared towards supporting the integrated socio-economic development of the six riparian countries, coordinating the construction of new infrastructure that might impact on the water resources of the basin, and ensuring integrated water resources management. Neither the mandate nor the defining tasks
mention humanitarian roles or responsibilities, nor is risk or disaster risk management referenced in the VBA’s founding documents. However, as demonstrated in Part II’s reporting of the survey findings, certain risks, such as flooding or drought, play a major role in framing IWRM and socio-economic development in the region, and the VBA as an emerging actor may begin to undertake a stronger role in the monitoring, preparation for, prevention of, and response to, humanitarian risk as a means to its broader mission.

Current state of transboundary risk: Drivers and impacts

There are currently no transboundary efforts to coordinate and reduce flood risk in the sub-region. The strongest forms of coordination to manage flood risk in the basin have occurred bilaterally between Burkina Faso and Ghana. These include the following bilateral agreements:

2004: Joint statement between Burkina Faso and Ghana on the valuation of natural resources of the Volta Basin
2005: The Agreement on the establishment of a Joint Technical Committee on IWRM for Burkina Faso and Ghana
2008: The Burkina Faso-Ghana Agreement on the Conservation of Shared Natural Resources
2008: The Agreement of the Burkina Faso-Ghana Border Committee on the Management of Water Resources

Further coordination was accelerated after 2007 when, due to heavy rains in Burkina Faso, officials at Bagre Dam opened the gates to prevent the dam from bursting, but failed to provide notice to their Ghanaian counterparts. As a result, several Ghanaians were killed and, based on varying estimates, 200–300,000 people were displaced as a result of the flooding.15 As discussed further in Part II, the recent memory of this disaster has had the positive effect of improving coordination between Burkina Faso and Ghana, however, these lessons do not appear to have been applied to preventative measures for other dams that pose a threat to another riparian state’s citizens. For example, Kompienga Dam in Burkina Faso poses similar flood risks in Togo while Bui Dam in Ghana has impact on Côte d’Ivoire upstream.

However, when it comes to general perceptions of transboundary risk drivers and impacts in the basin today, most view dams favourably as a crucial form of energy production and as central to the development of the riparian countries.16 Recent studies have highlighted the importance of soil erosion, overuse of water for agriculture, and weak institutional coordination for the communication and mitigation of risk as key drivers for crises such as drought, flooding and water scarcity.17

Current state of transboundary risk: Mitigation efforts18

In terms of the regulatory environment for IWRM and DRR, all six riparian states are in some progress of adopting national action plans for IWRM, however legal structures have yet to catch up with these approaches, resulting in ‘legal vacuums in management plans.’19 With regards to DRR and disaster management policies, only Burkina Faso and Ghana have specific government institutions dedicated to disaster management: the National Council for Emergency Relief and Rehabilitation (SP/CONASUR) in Burkina Faso, and the National Disaster Management Organisation (NADMO) in Ghana. In the remaining four countries, risk prevention and management is divided across several institutions despite current efforts to develop dedicated departments for DRR. Primary contact points for disaster risk management in Côte d’Ivoire, Benin, Togo and Mali rest within their Ministries for Civil Protection.20 Across all countries, dam construction and management rests with separate authorities, typically state-owned power companies.

Burkina Faso, Ghana, Togo and Mali have developed Disaster Risk Management (DRM) country plans, but are still struggling to fully implement these plans. National Platforms for DRR have been established in all six countries, however capacity for operation varies widely and tends to be quite low due to lack of financial and human resources, as well as political commitment.21
Figure 2 // Map of Volta Basin, provided by Volta Basin Authority 2014
This research set out to understand the current practices and processes for governing long-term and transboundary humanitarian risk in the Volta River Basin. To achieve this, a desk-based review of relevant research and documents was undertaken, and fourteen interviews were conducted with a range of planners and decision-makers in the Volta Basin. The interview sample focused on representatives from national institutions in Ghana, Togo and Burkina Faso whose mandate covered water-related risk in the Volta basin, as well as the Volta Basin Authority and the ECOWAS Water Coordination Centre, based in Ouagadougou, Burkina Faso.

Interviews were undertaken using a modified version of the Making Futures Real survey. The Making Futures Real (MFR) tool is an interview protocol developed by the Humanitarian Futures Programme and the UK-based social research company IPSOS Mori for use by international organisations such as the UNISDR in monitoring and assessing the dimensions of policy-making around long-term DRR issues. Results from the first iteration of the survey were published as part of the UNISDR Global Assessment Report 2013. Split into five sections, the survey aims ‘to capture the ways that interviewees perceived longer-term risks, the sorts of actions that they felt were necessary to deal with them and the sources that were used to identify such longer-term risks.’ Repeating the survey over time thus provides a tool for monitoring key changes in government attitudes and policies on disaster risk, and identifying gaps or challenges to be addressed.

The MFR survey is focused on understanding the current practices and thinking around policy-making and planning for long-term humanitarian risk. For the purposes of this research project, which is concerned with the governance of long-term and transboundary risk (as opposed to planning for long-term risk), only a selection of the MFR survey questions were used from four of the five sections. A new, fifth set of questions was added around accountability for long-term disaster risk, in order to address policy-makers’ perceptions of institutional responsibilities as a key component of transboundary risk governance.

Interviews for this research covered five main areas:

- Risk Perception: How policy-makers in three of the riparian Volta nations conceptualised risk and what they identified as key long-term risks;
- Data and Information Sharing: What kinds of information sources and information-sharing practices are available for managing risk;
- Assessing and Planning for Risk: How the riparian countries in the Volta have set themselves up institutionally for sharing information and planning for long-term risk;
- Governance: What institutional arrangements or changes policy-makers feel are needed in order to improve risk governance in the Volta basin;
- Governance: How responsibilities should be allocated and what accountabilities should be enforced for long-term risk reduction and prevention.

Making Futures Real survey results

Following the five sections of the MFR survey, the findings from the fourteen interviews are organised below under five main areas. Together, these provide a picture of how policy makers and planners in the Volta Basin are conceiving of and addressing long-term transboundary risk at present.
Risk perception

**Finding 1**
Long-term risk is shaped by the tension between the benefits of development activities and their negative impacts.

**Finding 2**
Governments are doing little to plan for disasters that might impact multiple countries at the same time.

**Finding 3**
Most of the drivers for risk identified by planners and policy-makers are ‘human-made’ or based on human behaviour.

**Finding 4**
Risk preparedness and management strategies appear to be driven by previous experiences of crisis and therefore do not include potential new risks such as those with transboundary impacts.

The cascading risk of climate change-induced increases in flooding and drought were the most commonly mentioned hazards when survey participants discussed long-term risk. Water availability was also mentioned as a key threat, both for its impact on agriculture in the basin and for its potential to lead to inter-state conflict.

Outside of these ‘natural’ hazards, most respondents focused primarily on the underlying drivers for risk in the basin, in particular the dynamics of human behaviour affecting the natural environment in the basin. These drivers for long-term risk included:

- Overuse of the basin’s water supply for agricultural purposes;
- Poverty-related drivers, including lack of education on appropriate water use and evacuation protocols;
- Chemical pollution from mines and other industries;
- Pesticide pollution from individuals and communities;
- Overuse of the basin’s water supply through the building of dams.

Other issues mentioned were:

- Water-borne disease;
- Soil erosion;
- Deforestation;
- Loss of native plants and fish.

Across many interviews, the picture for long-term risk in the basin emerged as a tension between the many benefits and opportunities arising out of the development of the riparian nations and the collective impact of these development activities on the shared basin. For example, one interviewee from a Ghanaian institution named fossil fuels and climate change as significant long-term risks while also noting that these ‘are our saviours’, in so far as fossil fuels drive economic development and climate change may lead to greater rates of rainfall which would support the hydropower in the dams. In this sense, the understanding of long-term risk for most participants was characterised by the first type of transboundary risk mentioned in the introduction risks that are collectively created by drivers that sit within multiple individual countries.

Few respondents, outside those working for the VBA, appeared to consider long-term risk in the second transboundary sense, i.e. in terms of risk that would impact multiple countries severely and simultaneously. This may be understandable, as cross-boundary impacts in, for example, Côte d’Ivoire or Benin, could be viewed as outside the remit of planners and decision-makers in Ghana or Burkina Faso. However, given the potential increase in the probability of humanitarian crises affecting multiple basin countries simultaneously, planners in individual countries may need to consider how such crises would affect their ability to respond effectively to crisis within their own country. For example, how might a multi-country crisis impact the ability of an individual country to move aid supplies or mobilise rescue teams when surrounding states are attempting to draw on similar resources and lines of international support? This supports the conclusion that, among the potential benefits of a transnational organisation such as the VBA there is a unique and important policy perspective a transnational organisation can possess that goes beyond what national institutions or bilateral initiatives are capable of achieving. Two interviewees at national institutions acknowledged this comparative advantage, indicating that they hoped the VBA would take a leading role in looking at 50–100 year projections for climate and meteorology in the basin to help the six basin countries improve their risk prevention and mitigation efforts.

Many policy-makers discussed the mindsets of Ghanaian, Burkinabe, and Togolese people as a key factor in dealing with long-term risk in the basin. While some felt that overuse and degradation of the water supply and failure to respond effectively to flood warnings was caused by the refusal of
communities to listen to or obey the recommendations and regulations of their governments, other policy-makers described community-outreach as a key component of risk reduction activities that they were either already undertaking or felt would be valuable to undertake over the following decade (see more on this below under ‘Data and information sharing’). This reflects the recognition amongst policy-makers that community-based approaches should be prioritised in order to cope effectively with disaster risk.

In connection to this, one planner described the ‘social’ versus ‘technical’ aspects of risk when working with communities on risk management. ‘Technical’ risk referred to the management of dams to prevent and mitigate disaster. ‘Social’ risk referred to the social aspects of people’s lives and livelihoods that, if not addressed, would inhibit the success of risk prevention and risk mitigation efforts. For instance, when relocating people to higher grounds in order to lower the impact of future floods, this planner mentioned that they needed to consider the new kind of life people would lead if they changed houses and how to secure a similar or better quality of life.

Interestingly, the views of policy-makers and planners in the Volta Basin are largely consistent with the risk assessments of those living within the Basin, as indicated by the findings from FOREWARN partner DARA in its Risk Reduction Index (RRI) country studies. From 2011, DARA had conducted community-based risk profiles of seven ECOWAS countries, including Ghana and Burkina Faso. DARA’s RRI methodology draws on three Representative Territorial Units (RTUs) for each county to create its profile. For both Ghana and Burkina Faso, one RTU was based in the Volta River Basin. RTUs within the Volta Basin list deforestation, soil erosion, and lack of adequate drainage facilities as key drivers for risk. Because of the reliance on the Basin for water for agricultural purposes, water scarcity is viewed as a significant issue, with food insecurity being considered an important risk driver. In Burkina Faso, the efforts of local government to address risk drivers is viewed as less effective than the efforts of national government or international organisations, however this may be due to the closer proximity and thus knowledge of local government initiatives.

Within the context of long-term risk, an interesting aspect to this coherence between community-level and national-level understandings of risk is that both tend to focus on immediate term risks and risk drivers. For example, both communities in Burkina Faso and Ghana are supportive of the building of more dams, but it is not clear that the associated risks with dam construction are being considered.

Data and information sharing

Finding 5
There is a wealth of research and information on the Basin, but processes for sharing this across national institutions are weak.

Finding 6
Information sharing between Burkina Faso and Ghana on the Volta River for immediate risk is considered to be strong, yet it occurs primarily through relationships between technical institutes than political bodies.

Finding 7
Information is passed to communities and local institutions through intermediary organisations rather than national institutions.

Finding 8
Information sharing with and through the VBA could be more effective, pointing to the need for more horizontal and vertical channels for information collection and dissemination.

There is a wealth of information and research pertaining to the physical and socio-economic environment of the basin. However, channels for sharing this information can be greatly improved. In interviews, planners and policy-makers discussed two main pathways through which data and information passes from one actor to another: horizontal pathways running at the institutional level from one institution or institutional system to another, and top-down/bottom-up pathways for data and information running between the community/local level and the national or transnational institutional level.

Horizontal pathways for information collection and dissemination

Based on the interviews, we can distinguish further between two types of horizontal pathways for information sharing: pathways that facilitate the development of long-term knowledge and sensitivity to external risk factors, and pathways that serve the purpose of transferring information rapidly from one actor to another to aid immediate
decision making in the face of an impending emergency. Both pathways are crucial for multi-institutional governance of long-term transboundary risk: while the first kind of knowledge is essential for informing long-term strategic planning across multiple institutions, the second remains essential for fast and effective crisis prevention, mitigation and response from multiple actors when a sudden onset disaster occurs. In short, the first pathway aids the ability of actors to anticipate, and thus prepare for, humanitarian risks, while the second pathway supports the agility required across multiple institutions to act effectively to rapidly changing contexts.

In terms of horizontal pathways for information sharing that support the creation of anticipatory knowledge, these appear to be rather weak, impeding the wider impact of the many existing high-quality and relevant pieces of research on long-term environmental and socio-economic dynamics of the Basin. Several of the riparian countries have funded their own studies on flooding or drought risk affecting their country, which includes of course their portion of the Basin. Some respondents said that, while they knew of their own country’s research, they did not have access to any studies or research being undertaken across the border by counterpart institutions.

Many interviewees discussed several research projects and studies that their organisation was involved in, typically in partnership with an international organisation. The Water Research Institute in Ghana, for example, partnered with the International Water Management Institute (IWMI) to produce a study on the long-term implications of climate change on the basin. This report uses Intergovernmental Panel on Climate Change (IPCC) climate models to project scenarios for three different paths of development in order to understand expected rainfall in the Basin, all the way up to 2100.28

‘Addressing Transboundary Concerns in the Volta River Basin and its Downstream Coastal Area’ is an ongoing UNEP-Global Environment Facility Coordination (UNEP-GEF) project, undertaken in partnership with the International Union for Conservation of Nature (IUCN), aimed at supporting ‘the integrated management, sustainable development and protection of natural resources of the Volta River Basin within the six riparian countries of Benin, Burkina Faso, Côte d’Ivoire, Ghana, Mali and Togo.’29 In 2013, this project finalised a detailed Transboundary Diagnostic Analysis of the Volta Basin which surveys and assesses the threats to the basin’s resources and its underlying causes. The final report includes summaries of the physio-chemical analysis of surface water, water quality, and status of threatened fauna and flora. Using a participatory and scientific methodology, the report focuses on water quantity, water quality and the degradation of ecosystems as three top challenges, and explores the socio-economic and governance dynamics that need to be addressed strategically in order to support the sustainable use of resources over the long term. This report builds on prior extensive research including reports on information sharing, institutional structures and diagnostic analyses for each of the six riparian countries.

There remains a significant dependence upon international organisations and donor countries to fund studies such as these. While international partners have disseminated the findings of their individual pieces of research, there have been few internationally-funded efforts to address and strengthen the information sharing practices of the national institutions in the Volta Basin and the VBA. In addition to this blind spot, some international studies seem to intersect with the institutional system in the Volta Basin in different parts, leading to a lack of consistency in which national planners and policy makers are aware of which studies. Presumably, the VBA would serve as the ideal starting point for coordinated research in the Basin, however it is not clear that external parties are consistently treating the VBA as their entry point.

If these pathways were to be strengthened, this pre-existing knowledge could be better drawn upon to improve the strategic planning processes of the national institutions and thus bring them into better alignment. However, some gaps in information remain, including historical meteorological data as well as accurate estimates for per capita water usage in the region at the individual level over the coming decades. Several respondents indicated that these gaps were particularly significant given the transboundary nature of disaster risk in the Basin. For example, one interviewee said,

‘When it’s raining in Burkina, it might not have consequences for us, but it might be dangerous for the other countries. So that’s why we need to share information to deal with the consequences. So 100mm of rain in Burkina, depending on the way the rain goes, it can go quickly to other countries.’

With regards to sharing the shorter-term information that is necessary to aid quick and agile responses to developing risk situations, as discussed below
in reference to the institutional arrangements for risk in the Basin, coordination is still primarily undertaken at a bilateral rather than multilateral level. Most respondents from national level institutions stated that they felt or knew that the VBA and its Observatory were collecting and sharing information, however, when asked whether they had received or sent reports or documents themselves, the answer was in most cases negative. While the pool of interviewees is limited, this indicates that some planners and policy-makers at the national level believe the VBA is performing an information sharing function while having little experience of receiving or sharing information directly through the VBA themselves.

The strongest pathway for agile multi-actor action is currently the bilateral arrangements between Ghana and Burkina Faso. The Volta River Authority (VRA) (Ghana) maintains a close relationship with SONABEL, the national electric company of Burkina Faso which oversees the management of Bagre dam. SONABEL sends regular updates to Ghana via the VRA on rainfall and water levels at the dam. SONABEL also provides a 2-week notice to the VRA if they expect they will need to open the dam gates, and VRA staff have travelled to the dam to observe the levels themselves, at SONABEL’s invitation. Primarily, information is shared by SONABEL through an email list, an approach that is viewed by many to be highly effective and an improvement over the poor communication channels that existed prior to the 2007 disaster. Several interviewees mentioned this arrangement as an example of good coordination in the basin, and it demonstrates the importance of informal institutional contacts and relationships.

**Top-down/Bottom-up pathways for information collection and dissemination**

Disseminating information at the community or local level involves the use of further intermediary organisations and structures. For example, the VRA does not work or share information directly with Ghanaian citizens living in the Basin, but instead works through Net Co. and Grid Co., the two electric companies that manage the electricity generated for Ghana from the Basin. Other interviewees, explaining how they communicate information to citizens, said that they made reports available on their websites but did not engage in any further dissemination activities. The VBA currently has no direct contact with citizens in the six riparian countries, but acts through its National Focal Points. However, the VBA Observatory has initiated an outreach programme to civil society actors in the region to support its connections to the grassroots level.

From the perspective of many planners and policy-makers interviewed for this study, information sharing between their institutions and the community level is challenging. Several interviewees felt that, when risk-relevant information is communicated at the local level, citizens fail to take the appropriate decisions or heed the advice of their national authorities. For example, when told to evacuate during the disastrous 2007 floods in Ghana, one interviewee reported that people disobeyed these recommendations and ran towards the flooding, in the hopes of catching more fish.

Other interviewees reported being challenged by citizens, both on the basis of their status as an ‘outsider’ to the community as well as the conflict between the message they were conveying about risk and the beliefs that community members held about their local environment:

‘People are always thinking about the past – they have survived until now without people coming to tell them anything. And now here we are, coming from the city, and telling them what to do, and they think, “Why are these people coming here?”’

One interviewee whose organisation provides technical and scientific expertise to national policy-makers felt that information dissemination to communities was

‘a gap that needs to be filled: how the knowledge from science can be communicated to communities... For the scientific community, we are trained to communicate with the scientists, so it is difficult to communicate with the communities.’

**Assessing and planning for risk**

**Finding 9**

National institutions try to adapt their plans based on what other countries are doing, but there is no centralised coordination.

**Finding 10**

The VBA provides the platform for dealing with coordination problems, however many countries continue to use a unilateral or bilateral approach.

**Finding 11**

Risk assessment and planning in the Basin does not appear to involve participation at the local level.
Approaches to risk strategising

The three countries visited for this study – Togo, Burkina Faso and Ghana – vary in their approaches to risk assessment and planning. The VRA uses scenario planning to identify possible likely futures and carries out risk assessments of those scenarios using the At Risk® software. The VRA also draws on a ten-year plan to extract three-year outlooks which are adjusted on the basis of updated information on drivers expected to affect the energy supply over that period of time. The newly established office of the Director General for Hydrological Basins (Direction Générale des bassins Hydrographiques) in Burkina Faso is currently developing a fifty-year plan which will form the basis for subsequent ten- and five-year plans. This is being developed through consultants who will meet with relevant organisations one-on-one, as opposed to convening a joint planning session.

Aside from these exceptions mentioned above, many interviewees reported working from, at most, five- or ten-year strategies, including the VBA which currently works from a five-year strategy. However, there are several initiatives from which the VBA may draw in seeking to extend its time horizon for strategic planning. For example, the recent UNEP-GEF Transboundary Diagnostic Assessment, mentioned previously, has made a recognised contribution to a cross-sectoral understanding of the immediate and long-term risks facing the Volta river basin and is intended to form the basis for a Strategic Action Programme for the VBA.30

The German-funded GLOWA Volta Project (GVP) in the Volta Basin, which completed in 2010, aimed at the ‘development of a scientifically sound Decision Support System (DSS) to assist decision-makers within the Volta region.’ Descriptions of the DSS in the literature produced during the lifespan of this project indicate that it would be highly supportive of long-term risk planning. Such a system, GVP team members wrote, would assist decision-makers and planners within the Volta region ‘(a) in anticipating the potential consequences of global climate change as manifested within the Basin; (b) in identifying and, where appropriate, in implementing avoidance strategies to pre-empt such consequences; finally (c) in identifying and preparing to implement adaptation strategies, where avoidance strategies are unavailable or unlikely to succeed.’31 However, the current status of implementation of the DSS is not clear, and interviewees from the individual government institutions did not seem to be aware of this system. This may be due to the heavy focus in the GLOWA-Volta project on Ghana and on developing outputs, including the DSS, in English when the remaining five riparian nations are Francophone.32

Moving from timescale to how institutions plan for risk, an interviewee at a Ghanaian institution discussed how they approached the constraints for long-term planning caused by the lack of sufficient transboundary institutional arrangements for dealing with risk (see below). Given the lack of control that Ghanaian institutions have over the decisions taken in other countries that can lead to an increase in risk, the interviewee discussed an adaptive approach to planning for risk in which planners first asked what issues can be assessed and addressed drawing only on what can be achieved within Ghana, and then turning externally to identify how Ghanaian institutions might need to adapt around external factors in neighbouring nations that they cannot change or control: Explaining the delicate balance that this entails, between internal/external drivers for risk and short-term/long-term perspectives, the interviewee goes on:

‘It is not that we are not conscious of the external risks, but for the short term our own demand is quite big. But we definitely have to factor in the element of the external. So for instance, if we want to build a dam...in order to examine the profitability of the investment, you have to factor in the external influence and that has to look at, as I’ve said, both “the now” and the long-term in terms of the resource use in Burkina Faso. Internally, we look at the effects of climate change on certain things, in terms of economic evaluation, whether it is a no regret or low cost form of investment. But we should not forget in the long run the influence of the external factors.’

In Togo, interviewees indicated that they engage in long-term planning, but that plans were difficult to execute due to lack of financial and political support. Long-term risk planning is developed primarily in consultation with international donors such as USAID, the European Union (EU) or the French Government, however ECOWAS and Union Economique et Monétaire Ouest Afrique (UEMOA) were also mentioned as key planning partners. It was felt that other basin countries, particularly Ghana, are not as cooperative as they could be in collaborating around shared risk planning.
Institutional arrangements for dealing with risk

While there is engagement and coordination with other institutions within the same country around water issues, it is evident that coordinated planning across the six riparian countries does not currently take place. Where they exist, linkages between national disaster management authorities and the authorities responsible for water resources and IWRM within the same country do not seem to include joint planning processes, let alone planning processes that include counterparts in other basin countries. For example, the Water Resources Commission in Ghana, which is mandated to oversee IWRM, has a holistic approach to water resource development and management that is supported by a Board on which all Ghanaian institutions that hold a mandate with respect to water resources are represented. However, the agency for disaster management in Ghana (NADMO) is not included on the WRC board. This exemplifies a common pattern in which disaster risk and humanitarian policy makers and planners are rarely represented in IWRM platforms and fora.

Perhaps the strongest bilateral structure for dealing with risk is the Joint Technical Committee established between Ghana and Burkina Faso. However, the focus of this Committee is on IWRM and therefore considers, at most, immediate term flooding risks pertaining to dam management rather than a broader range of potential humanitarian risks and their drivers.

At the transnational level, the VBA is the primary institution responsible for the sustainable management and development of the resources of the Volta river basin. The ECOWAS Water Resources Coordination Centre exists to support integrated water resource management at the subregional level as well as the cross-sectoral and participatory management of water resources, primarily through support for basin authorities. However, the WRCC as a distinct ECOWAS unit operates in a manner that is largely cut off from the policy cohesion and regional strategic development activities that take place at the ECOWAS Commission which could be of relevance to the work of the WRCC and the basin authorities it has supported. At present, the WRCC does not engage in collaborative strategic planning processes with the relevant directorates (Environment, Humanitarian Affairs, Agriculture) at the ECOWAS Commission, thus exposing a gap in ECOWAS’ approach to harmonising policies and strategies for IWRM and DRR across member state institutions in the region.

Governance

Finding 12
There is a lack of political will to support the Volta Basin Authority, as governments prefer to pursue their own national interests. Progress in developing a legal instrument, such as a Water Charter for the basin, should be prioritised to address this.

Finding 13
However, the impacts of the six countries acting in isolation will likely result in increased disaster risk and more severe impacts in the Volta Basin over the long term.

Finding 14
Many policy-makers and planners feel that risk is accelerated by the actions of those who live in the Volta Basin.

Finding 15
It is not clear who should be accountable for transboundary disasters.

Transboundary risk governance and the Volta Basin Authority

Previous research on water management in the Volta basin has indicated that institutional arrangements for management of the basin are characterised by complexity and overlap in institutional mandates. While advances are being made to improve legal instruments for IWRM, there remains a high level of sectoralisation in the planning and work programmes of national institutions that have responsibilities pertaining to water resources.

Interviewees’ views on governance systems in the Volta Basin largely paralleled the findings from several pieces of research on the Volta Basin over the past decade: as one interviewee phrased it, ‘The water problem in the Volta basin is a governance issue: people are not consulted.’ Many interviewees agreed that good governance needed to be strengthened in order to support more coordinated and effective approaches to long-term risk planning. However, there were divergent opinions as to the diagnosis for this problem, and for the responsibilities of different actors involved. Some blamed other basin country governments for acting on their own initiative without consulting the VBA or other countries; others felt that responsibility for the lack of coordination was more equally shared and caused by political pressures.
As described in Part 1, the VBA was established in order to improve coordination in water management of the Volta Basin amongst the six countries. One of its most important tasks from the standpoint of long-term risk reduction is task number 3: **Authorize the development of infrastructure and projects planned by the stakeholders and which could have substantial impact on the water resources of the basin.** And yet, all interviewees agreed that the basin countries at present continue to plan and implement significant infrastructure projects without the consultation or approval of the VBA. Interviews indicated that while there was overall strong individual support for the VBA as the appropriate institutional structure to deal with long-term risk in the Basin, there are several key challenges facing the VBA’s ability to bring about more effective transboundary governance of water resources.

A second challenge lies in the fact that, though the Volta Basin countries agree with the principles of IWRM, water management remains in practice highly sectoralised in the basin countries’ national governance systems, meaning that the VBA has a wide ranging array of institutions with whom it needs to coordinate:

> ‘The most important challenge is that the institutions are not in the same sector. So the VBA is trying to deal with the question of how to coordinate the institutions with different mandates. It is difficult for the VBA to apply its directives.’

This challenge is further complicated by the fact that existing action plans for IWRM do not sufficiently take account of transboundary issues or encourage a supranational approach to IWRM.

A third and perhaps most fundamental challenge, noted by several interviewees and corroborated by several studies on water management and governance systems in the Volta Basin, is the lack of political will to follow through on giving the VBA the authority it needs to execute its mandate effectively:

> ‘From the governments’ perspectives, they need to take into consideration the VBA and ask them [for permission to build, for information, etc.], but governments do not respect or accept the VBA.’

> ‘There are a number of reasons why there are political challenges to strengthening transboundary coordination through the VBA, for instance, every country looks at itself as sovereign and has the right, if you like, to develop and use a resource, even though we accept that the VBA is there. So you need more of a

### Figure 3 // The Volta Basin’s participatory Multi-Scale Governance Framework piloted for the PAGEV project, 2009–2011

<table>
<thead>
<tr>
<th>Regional/Basin level</th>
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</thead>
<tbody>
<tr>
<td>VOLTA BASIN AUTHORITY</td>
</tr>
<tr>
<td>BENIN</td>
</tr>
<tr>
<td>BURKINA FASO (Water Directorate)</td>
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<tr>
<td>GHANA (Water Resources Commission)</td>
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<tr>
<td>COTE D’IVOIRE</td>
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<tr>
<td>MALI</td>
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<table>
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<tr>
<th>Sub-Basin level</th>
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<tbody>
<tr>
<td>Local Trans-boundary Committee</td>
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<tr>
<td>Code of Conduct</td>
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<tr>
<td>Knowledge products – WEAP-Volta</td>
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</table>

<table>
<thead>
<tr>
<th>National level</th>
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</thead>
<tbody>
<tr>
<td>Nakambé Water Agency</td>
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<tr>
<td>BURKINA FASO and GHANA National-level Committees</td>
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<tr>
<td>White Volta Basin Board</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Local level</th>
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</thead>
<tbody>
<tr>
<td>BURKINA FASO and GHANA Local Grassroot Community Pilots</td>
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</table>
Finally, there may be discrepancies between what planners and decision-makers within national institutions view as part of the VBA’s mandate on the one hand, and the wide range of processes and activities the VBA needs to be involved in to execute its mandate effectively. For example, when asked whether the VBA should be in a position to tell basin countries how to operate their dams to mitigate flood risk, one interviewee said that he did not feel this was an area for the VBA to be involved in as it is a ‘technical issue.’ Presumably there are many areas of monitoring and analysis that can be construed as ‘technical’ in nature, yet are also fundamental to effective long-term risk governance; it will therefore be a challenge for the VBA to carve out a role for itself in these processes.

Very little, if any, engagement with citizens or communities in the Volta River Basin takes place as an approach to risk assessment or planning. However, there have been significant projects recently that have sought to address the participatory gap in Basin governance that could provide the basis for creating more participatory approaches to risk assessment and planning. Many interviewees mentioned the successful PAGEV project which ran from 2005–2010 and was involved in supporting several milestones in water governance in the Basin, including the establishment of the VBA. Funded by SIDA and implemented through the International Union for the Conservation of Nature (IUCN), different phases of this project supported the piloting of local-level and multi-stakeholder basin boards, and created ‘multi-scale participatory governance frameworks for joint management of water resources.’ (See Figure 3) While successful, these ended after the pilot phase and many respondents expressed a desire to see new funding to keep these structures for participatory and multi-stakeholder governance in place.

Review: Transboundary risk now and in the future

Returning to the three transboundary components of humanitarian risk described in the Introduction, Table 2 outlines present day transboundary aspects to risk in the Volta Basin based on current literature, as well as the longer-term transboundary aspects identified in interviews and further literature.

One of the most important and troubling findings here is the disconnect in the perceptions that Basin residents and policy-makers have of climate change and dam construction. While many recognise climate change as a key driver for crisis, there is still strong support, from a national interest perspective, for the construction of dams in order to meet national and local development and energy needs. However, the long-term implications of climate change may include lower rainfall and runoff which would ‘significantly undermine the technical performance of existing and planned reservoirs’ with ‘dire consequences for economic development, food security and poverty in the region’ and point to the need to develop alternative and innovative solutions for long-term water storage in the Basin.
Table 2 // Transboundary Components of risk in the Volta Basin, at present and in the long-term

<table>
<thead>
<tr>
<th>Transboundary component of risk</th>
<th>Present day</th>
<th>Long-term (predicted/desired)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drivers</td>
<td>Soil erosion, overuse of water for agriculture, weak institutional coordination for the communication and mitigation of risk</td>
<td>Pollution, Climate Change, Overuse of water, Overdevelopment (dam construction), Lack of good governance</td>
</tr>
<tr>
<td>Impact</td>
<td>Drought</td>
<td>Energy crisis, Cascading crisis of flooding and water-borne illness from pollution, Conflict, Food insecurity</td>
</tr>
<tr>
<td>Mitigation</td>
<td>Unilateral approaches to DRR and DRM</td>
<td>Strong basin-level coordination of national risk mitigation strategies, and inclusion of multi-country risk assessment in countries' development plans that encompass Basin resources</td>
</tr>
</tbody>
</table>
Much of the research and activity around improving transboundary coordination in the Volta River Basin has focused on the sustainable development of the basin’s resources through IWRM. IWRM, as described in Box 1, is aimed at supporting a holistic approach to the sustainable use and management of water resources. It is “undoubtedly the most popular concept for water management existent in the global rhetoric at the moment.”

However, as indicated by the interviews undertaken with the MFR survey, the focus on IWRM has not explicitly included attention to the long-term and transboundary disaster risks associated with the Volta basin, and there exist many challenges to how the basin, and thus risks pertaining to the basin, is being governed. Specifically, the MFR survey results point to two questions that this final section seeks to answer:

1. To what extent do the governance structures prescribed by IWRM align with the governance structures necessary for effective long-term risk reduction and management?
2. How can the progress being made towards IWRM in the Volta Basin also include progress towards an integrated approach to reducing and preparing for humanitarian risk?

To what extent do the governance structures prescribed by IWRM align with the governance structures supportive for effective long-term risk reduction and management?

Characterising long-term risk governance systems

In order to address this question sufficiently, there is a need to identify what kinds of governance structures are supportive for effective long-term risk reduction and management. For seven years, the Humanitarian Futures Programme undertook a series of projects to articulate a futures approach to humanitarian risk and crisis. These projects sought to understand the success criteria for humanitarian organisations seeking to be fit for the future, i.e. ready for effective action in new, complex and changing environments. This research identified elements and capacities conducive to effective long-term risk reduction and management in humanitarian organisations, eight of which can be extrapolated and applied to governance systems for humanitarian risk:

- **Adaptation**: Like organisations, governance systems for humanitarian risk will need to be adaptive to changes in the external environment, changing policies and approaches when necessary to perform effectively in dynamic or uncertain circumstances.
- **Anticipation**: The capacity to anticipate refers to an organisation’s capability to monitor trends and carry out robust and relevant strategic planning to prevent threats from developing into crises and take advantage of opportunities in dynamic environments.
- **Collaboration**: Governance systems for long-term risk will need to support collaboration both within and outside their institutions.
- **Innovation**: Innovation refers to the processes through which an organisation creates a culture of experimentation and identifies new practices and solutions for both old and emerging problems. Governance systems can put in place incentives and platforms to encourage innovation across institutions and actors.
- **Strategic Leadership**: This refers to the ability of an organisation to align policy, operations and management systems around a common purpose that responds to long-term in addition to short-term objectives. This is an absolutely crucial function of a governance system for long-term risk.
- **Diffusion**: In order to anticipate and respond quickly to new humanitarian crises, the governance systems responsible for humanitarian risk may need to become more diffused, taking an approach that looks less like siloed institutions and more like a ‘mission-focused network’: open-sourced transactions across a
network of actors coordinated around defined, time-bound objectives.37

- **Cross-sectoral**: By its very nature, such diffused systems will also be cross-sectoral, addressing the processes and methods for long-term risk reduction as mainstreamed and cross-cutting priorities.

- **Process focused**: Accountability and oversight procedures will be focused more on processes than on outcomes, seeking to hold actors responsible for how they plan, prepare, and innovate rather than on outcomes that may be influenced greatly by luck.

Many elements of IWRM are in alignment with the above characteristics of a ‘future fit’ governance system for disaster risk management (See Box 2 for the core principles of IWRM). As discussed in Part I, IWRM is characterised by a holistic and integrated approach to water management. The IWRM emphasis on cross-sectoral policy making is harmonious with HFP’s findings that cross-sectoral planning and coordination are crucial to anticipating and preparing for long-term disaster risks, which often cut across multiple departmental mandates and sectoral issues. IWRM also looks at sustainability of resources over time as a core issue and therefore maintains the same long-term temporal outlook as ‘future fit’ disaster risk governance.

**Divergences between IWRM and governance systems for long-term risk reduction**

However, these similarities begin to diverge around the separate aims of the two systems (long-term sustainable water resource management for IWRM, long-term disaster risk reduction and anticipation for future-fit disaster risk governance). For example, while there are similar overlaps between the participatory approach emphasised in IWRM and

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**Box 2 // Principles of IWRM**

### The Dublin Principles:38

**Principle No. 1 – Fresh water is a finite and vulnerable resource, essential to sustain life, development and the environment.** Since water sustains life, effective management of water resources demands a holistic approach, linking social and economic development with protection of natural ecosystems. Effective management links land and water uses across the whole of a catchment area or groundwater aquifer.

**Principle No. 2 – Water development and management should be based on a participatory approach, involving users, planners and policy-makers at all levels.** The participatory approach involves raising awareness of the importance of water among policy-makers and the general public. It means that decisions are taken at the lowest appropriate level, with full public consultation and involvement of users in the planning and implementation of water projects.

**Principle No. 3 – Women play a central part in the provision, management and safeguarding of water.** This pivotal role of women as providers and users of water and guardians of the living environment has seldom been reflected in institutional arrangements for the development and management of water resources. Acceptance and implementation of this principle requires positive policies to address women’s specific needs and to equip and empower women to participate at all levels in water resources programmes, including decision-making and implementation, in ways defined by them.

**Principle No. 4 – Water has an economic value in all its competing uses and should be recognised as an economic good.** Within this principle, it is vital to recognise first the basic right of all human beings to have access to clean water and sanitation at an affordable price. Past failure to recognise the economic value of water has led to wasteful and environmentally damaging uses of the resource. Managing water as an economic good is an important way of achieving efficient and equitable use, and of encouraging conservation and protection of water resources.

A further fifth principle adopted by many IWRM mainstream approaches post-Dublin: Integrated water resources management is based on the equitable and efficient management and sustainable use of water.39
the principle of collaboration in ‘future fit’ risk governance systems, these two approaches deviate in a significant way. While both the IWRM and long-term risk governance perspectives identify the involvement of other actors an important success criterion, this involvement serves distinct purposes in the two cases. For IWRM, the aim is to make water resource management more democratically accountable and thus more equitable. Here, participation is virtually an end in itself; the quality of the information or beliefs that stakeholders bring to the process is less important than the fact that they are present in the process. While it is implied by IWRM that participatory decisions will be in line with appropriate and sustainable water management, there is the possibility that these come apart in some instances. In those cases, an IWRM approach may still advocate for participation in order to ensure fair stakeholder involvement. In governance systems for long-term risk, while the importance of participation of at-risk groups is acknowledged, the focus is placed more on collaborating with groups with special technical or operational expertise relevant to risk governance. The purpose of involving multiple other actors in this approach is to ensure that better decisions are made about long-term risk by bringing in valued external perspectives to highlight risk blindspots and help encourage a move from the ‘here and now’ dynamic that often consumes stakeholders and their elected officials to a more long-term perspective.

As a second gap, future-fit disaster risk governance does not explicitly address resource management as a strategy for reducing risk over the long term, and likewise IWRM does not explicitly address water-related disaster risk as a key factor to address or consider in the management of water resources. While there are clear potential points of synergy between the two, these links at present have not been developed explicitly.

A final concern lies in the incentive structures for successful IWRM. Studies have indicated that effective transboundary IWRM often requires the presence of a pressing and shared concern in order to force governments to come to the table and work on a collective solution. Writing on the helpful role of severe water resource problems in motivating multiple sovereign states to work together on shared water management, the authors of the comparative study refer to this as a ‘“good news-bad news” finding – the “bad news” is that problems such as flooding, pollution, scarcity and/or inter-sectoral conflict have to reach a threshold of severity in order to stimulate collective action; the “good news” is that once they reach that

<table>
<thead>
<tr>
<th>Factors crucial to the effectiveness of a river basin authority or institution</th>
<th>Factors conducive to organisational systems for long-term risk reduction</th>
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<tbody>
<tr>
<td>Basin-level coordinating structure</td>
<td>Diffusive ‘networked’ structure</td>
</tr>
<tr>
<td>Government support for the creation of stakeholder-based organisations</td>
<td>Adaptation</td>
</tr>
<tr>
<td>Presence or prospect of valuable infrastructure investments to achieve buy-in from stakeholders</td>
<td>Anticipation</td>
</tr>
<tr>
<td>Absence of significant cultural conflicts among basin stakeholders</td>
<td>Collaboration</td>
</tr>
<tr>
<td>Presence of a ‘champion’ to engage entrepreneurially to lead a basin-level organisation</td>
<td>Innovation</td>
</tr>
<tr>
<td>Sustainable financial mechanisms</td>
<td>Strategic Leadership</td>
</tr>
<tr>
<td>Ensuring appropriate mechanisms for stakeholder accountability are in place</td>
<td>Cross-sectoral</td>
</tr>
<tr>
<td>Presence and influence of supra-national entities</td>
<td></td>
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</tbody>
</table>
threshold, collective action often follows. While this may be closer to the reality of how national governments respond to collective action problems around risk, it is exactly this form of short-termism and immediate crisis response approach that a futures approach to risk reduction seeks to change. This shift will become fundamentally important over the coming decades, as such crises occur more regularly and with greater severity and complexity; otherwise, there may only be ‘bad news’ and no ‘good news’ as delayed collaborative efforts prove to be too little, too late.

**IWRM and long-term risk reduction: Identifying shared aims**

To summarise, the conducive factors for IWRM and conducive structures for long-term risk reduction are listed in Table 3. The factors in the left hand column were taken from two reviews, one looking at multiple river basin authorities worldwide, and another examining decentralised decision-making across multiple non-water related sectors with the aim of informing the design of decentralised water management structures. These factors can be clearly seen as relevant to the VBA, in particular the need to establish a sustainable financial mechanism to support the necessary human resources for an effective Authority. In the next sub-section, recommendations are outlined for how both sets of conducive conditions can be pursued by the VBA, and what opportunities for support and collaboration might exist with the ECOWAS Commission and WRCC.

How can the progress being made towards IWRM in the Volta Basin also include progress towards an integrated approach to reducing and preparing for humanitarian risk?

Despite challenges, the VBA is making progress to deliver its mandate for improved IWRM in the Volta Basin. This sub-section offers a set of recommendations, both for the VBA and for relevant ECOWAS structures, on how this journey can also include a more explicit focus on the transboundary risks faced by the riparian countries and can enhance planning and preparedness for these risks through stronger coordination. These recommendations address three main issues: Institutional structures; Complementarities between regional and basin level organisations; Accountability for long-term transboundary risk.

**Institutional structures**

While in the long-term, the VBA may find it appropriate to centralise risk planning, preparedness, and reduction activities within one of its organs, for the immediate term a more diffused network approach would be ideal. Such a networked approach has been advocated in certain applications of IWRM and would be supportive at least of a risk management function of the VBA, should the VBA choose to pursue this in its new five year strategy.

Currently, there are many bilateral relationships and coordinating partnerships that are viewed as working well within the region. Similar efforts exist at the local level within the six countries, where some citizens have not yet heard of the VBA. A networked approach to risk monitoring, reduction and management could therefore see the VBA Observatory playing a facilitative role across these efforts. Rather than being seen as a ‘hub’ primarily responsible for collecting and disseminating all information to Basin stakeholders (as some interviewees suggested should be the case), the VBA Observatory could function as a monitor of a broad network of relationships, pointing actors to relevant information sources, brokering and facilitating new partnerships, and building a broader picture of risk analysis based on the risk analysis activities undertaken by various national and local actors across the network.

Such a mission-focused network around risk analysis and reduction could be pursued as a follow-up activity to the ongoing stakeholder engagement project being undertaken by the VBA Observatory. For this project, the Observatory is enlisting over one hundred civil society organisations in the basin to act as environmental monitors. It is therefore recommended that the Observatory hire a member of staff to act as coordinator or relationship manager for a mission-focused network around long-term risk identification and mitigation in the Volta Basin. Rather than perform a centralised oversight or control function, this role would operate more like a forum moderator, posing objectives or requests to a network of local, district, and national actors and platforms, and engaging with them to identify key relevant analyses and learning.

This network could be given further support through a series of focused strategic planning sessions or long-term risk scenario exercises, facilitated through the VBA, which would serve to sensitise actors to risk drivers and to the actions required for risk mitigation and monitoring (see more of this below under Accountability).
Recognising complementarities between regional and basin-level organisations

From the interviews and ECOWAS strategic documents, it is clear that ECOWAS’ strategic approach to river basin management has been to support the establishment of basin-level authorities and follow this with a largely hands-off approach, allowing the basin authorities to operate as the primary transnational actors at the basin level. While this deference to decentralisation is important both for IWRM and for long-term risk governance, there are questions as to whether ECOWAS’ total withdrawal has occurred too quickly, and whether there would be advantages enjoyed by both ECOWAS and the VBA were ECOWAS to re-engage in a prolonged period of partnership with the VBA on issues outlined below.

Addressing incentive structures

A central challenge will be to tackle the incentive problem mentioned above, namely, how to bring countries to the table for stronger collaboration before a crisis becomes imminent. While the VBA is a transnational organisation, it does not exercise a strong supranational mandate: that is, it does not exercise veto power over the actions of its member states. ECOWAS, in contrast, can and has exercised such power. Its continued partnership with and symbolic support to the VBA could provide the kind of supranational perspective needed in order to entice riparian countries to respect the VBA as a coordinating authority.

More specifically, ECOWAS can provide more ‘carrots’ to incentivise collaboration with and through the VBA, by, for example, funding infrastructure projects or capacity building support on environmental and developmental issues that is tied to national and local institutions’ engagement in collaborative strategic planning sessions for risk with the VBA. In terms of priority-setting, supporting the VBA to establish a Water Charter for the six riparian countries should be a key objective for ECOWAS’ reengagement and could serve as a model for other river basins in the sub-region.

Supporting regional and local strategic priorities

The strategic priorities of the Directorates for Environment and for Humanitarian and Social Affairs at the ECOWAS Commission, and the strategic priorities for the VBA, provide the grounds for several key areas of collaboration to strengthen transboundary water management and risk reduction.

In its Strategic Framework for DRR Policy 2013–2015, The Directorate for Humanitarian and Social Affairs has outlined five main priority areas, including Improving Risk Information and Early Warning in West Africa. Within this priority, the DRR unit is seeking to establish, in partnership with UNISDR, a regional early warning mechanism for flooding, a risk that has strong relevance for the Volta basin countries. A second priority for the ECOWAS Commission DRR unit is Using Knowledge to Build Safer and More Resilient Societies to Natural Hazards at National and Community Levels. Within this priority area, the ECOWAS Commission is seeking to enhance local capacities to mitigate risk and cope with disasters, in part by enhancing scientific knowledge and the two-way communication between the scientific community and at-risk communities. This, again, is in alignment with stakeholder interests in the Volta Basin, and corresponds to the VBA’s strategic priority 2: Strengthen the Knowledge Base of the Volta Basin and priority 4: Communication and Capacity Building for all Stakeholders.

Specifically, both the ECOWAS Commission and the VBA have identified the need to enhance communication channels between scientific and academic sources of information and local-level understandings. The aim of doing so is to improve the behaviour of individuals at the local level for sustainable water use and risk reduction as well as improve scientists’ and policy-makers’ understandings of the kind of information and forms of information delivery that are needed at the local level.

There are clear advantages for the ECOWAS Commission in engaging with the VBA across these shared strategic priorities. The ECOWAS Commission currently engages primarily with member state institutions or other region-wide institutions or groups, such as AGRHYMET, CILSS, or ACMAD. While there are some examples of the Commission engaging with smaller transboundary organisations as key actors in the pursuit of its environmental, humanitarian or agricultural policies, primarily the Commission works with member state institutions and international agencies instead of these smaller multistate bodies.

A key lesson from this paper, however, is that in order for ECOWAS to engage effectively in reducing transboundary risk in West Africa, it will need to make better use of relationships and linkages with smaller transboundary organisations such as river basin authorities. ECOWAS itself remains too large to engage in detailed risk reduction and management strategies on transboundary issues,
and crossborder risks such as those discussed in this paper remain beyond the capacity of individual member state institutions to address on their own. Just as the VBA will need to rely on a network of bilateral and local level risk monitoring and reduction practices across its riparian states, so will ECOWAS require a similar network of small transboundary organisations and initiatives, each possibly spanning only a handful of ECOWAS member states, as an infrastructural basis through which it can monitor information and coordinate a response to transboundary disasters. Forming a strategic partnership with the VBA, therefore, could be an initial step to exploring the kind of fluid and polycentric approach to risk governance that will be needed to address transboundary risk in the region over the coming decades.

**Accountability for long-term transboundary risk**

Accountability is a crucial component of any governance system or institutional relationship, as it ensures that those affected by decisions have some recourse in holding decision-makers responsible for how they make decisions and the outcomes of those decisions. However, it is well documented that accountability mechanisms and practices can often lead to rigidity, top-down bureaucratic blockages, and box ticking. As Part II illustrated, there was some agreement that, in an ideal governance arrangement, the Volta Basin Authority would have greater coordinating and regulatory powers and thus be the primary actor accountable for risk governance. However, in absence of this enhanced role, there is widespread disagreement across decision-makers in the Volta Basin as to who should be accountable for crossborder disasters affecting more than one country, or caused by one country and affecting another.

Compounding this issue, if the VBA were to adopt the networked approach to risk governance advocated above, it would need to employ a different framework for assigning and holding actors responsible. Moving from more static, centralised and institutional approaches to a looser, network-type arrangement will necessarily involve a very different kind of relationship between decision-makers and ‘stakeholders’: those affected by their decisions. Accountability practices will need to fit within three main constraints: 1) negotiate multinational responsibilities, impacts and stakeholder communities; 2) be suitable to a fluid and dynamic network of actors working around shared objectives; 3) still serve accountability’s core purpose of supporting equitable, respectful and consensual interactions between those exercising power and those affected by it.

Research on networks in the economic sector has yielded concepts that could be useful for understanding a more networked and flexible approach to accountability in risk governance systems. One such concept is that of ‘embeddedness’: the embedding of economic transactions and activity within a non-economic and more relational social structure. Embeddedness can explain how, in some instances, economic actors interact without needing the kind of formal accountability mechanisms, such as contracts or formal oversight, normally mandated in a principal-agent economic relationship. These networks also tend to be more adaptive and thus more successful in complex and changing economic environments, a feature that would translate well to the risk governance sector. These networks of ‘embedded ties’ are characterised by three main features: trust, fine-grained and continuous information transfer, and joint problem-solving arrangements.

The approach to accountability for long-term humanitarian risk in the Volta Basin should aim to encompass fewer formal accountability mechanisms and instead take a more intimate and relational approach to accountability as suggested by these characteristics of successful embedded networking. A mission-focused network for humanitarian risk, coordinated but not centralised through the VBA, will feature an intimate approach to accountability that precludes the application of formal mechanisms. It would do so by ensuring that the kind of equitable and transparent relationships that these formal mechanisms seek to create are already existing and part of the daily functioning of the network itself. Certain major events, such as a disaster or the decision-making process for approving a new dam project, would trigger more formal accountability procedures. Central to these accountability procedures would be a ‘stakeholder scenario’ exercise in order to broaden the accountability perspective over a longer time horizon. In this approach, formal mechanisms operate more as a ‘safety net’ when the trust-focused relationships within the network falter or when significant impacts requiring accountability occur.

**Concluding remarks**

Returning to the issues presented at the close of Part II, Table 4 below contains targeted recommendations for addressing each transboundary and long-term component of risk.
### Table 4 // Cross border risks and transboundary risk governance in the Volta River Basin: present day, the future, and the path forward

<table>
<thead>
<tr>
<th>Present day</th>
<th>Long-term</th>
<th>Recommendations for Governance</th>
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<tbody>
<tr>
<td><strong>Drivers</strong></td>
<td></td>
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<tr>
<td>Soil erosion</td>
<td>Pollution</td>
<td>The Volta Basin Authority should seek to facilitate a diffusive network of actors and partnerships that monitors and analyses risk drivers, rather than seek to centralise this function within its own organisation.</td>
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<td>Overuse of water for agriculture</td>
<td>Climate Change</td>
<td>The ECOWAS Commission should, in partnership with the VBA and as deemed appropriate, seek to invest more significantly in incentivising effective transnational cooperation at the lower multistate ‘neighbourhood’ level to support lower-level transnational bodies such as the VBA.</td>
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<tr>
<td>Weak institutional coordination for the communication and mitigation of risk</td>
<td>Overuse of water</td>
<td>The VBA’s pursuit of its strategic objectives around communication at the local level should include proven strategies and methods such as knowledge exchange exercises, which create multiple benefits for scientists, decision-makers and communities and are effective at improving how local citizens approach natural resource management. See, for example, previous work done with these exercises by HFP.</td>
</tr>
<tr>
<td><strong>Impact</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Drought</td>
<td>Energy crisis</td>
<td>In pursuit of its objective to establish humanitarian depots across the West African sub-region, the ECOWAS Commission should seek to make use of pre-existing transnational bodies that operate in areas prone to high risk, such as the Volta Basin Authority. This could include partnering with the VBA to host and manage such depots for use in the event of crisis in the six riparian countries of the Volta Basin.</td>
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<tr>
<td>Flooding</td>
<td>Cascading crisis of flooding and water-borne illness from pollution</td>
<td>The ECOWAS Commission should also seek to ensure that river basin authorities, the VBA included, benefit from its regional early warning system for flooding which is currently in development. Specific and targeted consultations with the VBA on what types of information are available and still needed, and what kind of flooding analysis would be of greatest use, are highly recommended.</td>
</tr>
<tr>
<td>Water scarcity</td>
<td>Conflict</td>
<td>Communities living within the Basin should be sensitised to the potential long-term impacts of their countries’ development strategies, potentially through ‘long-term accountability’ scenario exercises, sponsored by the VBA and led by an external facilitator.</td>
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<tr>
<td><strong>Mitigation</strong></td>
<td>Strong basin-level coordination of national risk mitigation strategies, and inclusion of multi-country risk assessment in countries’ development plans that encompass Basin resources</td>
<td>In line with the above recommendations, the need for multinational efforts for risk mitigation can be initially addressed through a workshop, attended by the VBA Council of Ministers, which focuses on each country’s work on risk assessment and analysis, and attempts to reach a cohesive and long-term picture of risk based on each country’s current development plans.</td>
</tr>
<tr>
<td>Unilateral approaches to DRR and DRM</td>
<td>Radio programming, targeted at the local level in multiple riparian countries, should be utilised to communicate target messages from the VBA on risk mitigation strategies that can be adopted by citizens.</td>
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<tr>
<td>Strong basin-level coordination of national risk mitigation strategies, and inclusion of multi-country risk assessment in countries’ development plans that encompass Basin resources</td>
<td>Donors seeking to fund DRR and risk mitigation strategies in the riparian countries should consider in each case how their funding incentivises or dis-incentivises a multilateral approach to risk mitigation in the Volta Basin and seek to support cohesion around the VBA.</td>
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While the UNISDR defines risk in quantitative terms, across the literature the term ‘risk’ is often used to refer to threats or hazards themselves, not only the quantitative value assigned to them. Even some of the UNISDR literature seems to move across both understandings, see for example ‘Second, projects that address specific risks, including improving infrastructure to control floods, retrofitting buildings, or the construction of safe schools, were cited as the next most important component of resilience building…’ UNISDR Making Cities Resilient 2013.

Long-term humanitarian risk is therefore distinct from ‘black swan’ events, which have also been a point of focus for the Humanitarian Futures Programme. Black swan events are characterised by their unpredictability, and therefore constitute risks with high probability and impact that are unknown (and unknowable).


See: Volta Basin Authority website: www.abv-volta.org:10000/abv2/about/le-bassin-de-la-volta/cadre-geographique


Ibid. p. 2–3.


For more information please see: www.humanitarian-futures.org/projects/making-futures-real-2/

See: www.unisdr.org/we/inform/gar

For more on accountability futures, or, accountability for future humanitarian contexts, see: https://www.humanitarianfutures.org/wp-content/uploads/2014/01/Discussion-Pack.pdf

The Ghana country study was finalised and published in 2013, see: http://www.humanitarianfutures.org/publications/in-depth-climate-change-adaptation-country-studies-in-ghana-and-senegal/. The Burkina Faso country study is still underway and the findings discussed here are preliminary, based on the author’s participation in the RTU findings workshop in Leo, Burkina Faso, 08 July 2014.


The Dublin Statement on Water and Sustainable Development. Available at: https://www.wmo.int/pages/prog/hwrp/documents/english/swedeces.html#p1. The Dublin Statement, as it is known in shorthand, was adopted at the International Conference on Water and Environment (Dublin Conference) in 1992. This event was organised in preparation for the United Nations Conference on Environment and Development (UNCED) and featured expert participants rather than government representation. Despite the absence of formal governmental representation, the Dublin Statement, or Dublin Principles, are widely considered to be the ‘definitive international water policy statement’ (Cullet, P. (2013). Governing the Environment without CoPs: The Case of Water. International Community Law Review 15: 123-35; p.132).

Available at: www.gwp.org/en/The-Challenge/What-is-IWRM/IWRM-Principles/


For instance, in these exercises, participants might consider a similar disaster or dam approval that has occurred in the past, and reflect on how this has impacted them as stakeholders who can no longer hold those decision-makers to account. The exercise would then take participants forward in time to try to consider the impact of their decisions on future generations and what kinds of long-term interests are at risk in the present decision.
