

Equivalence Assessment of National Water Laws among Riparian States in the Zambezi River Basin

Contract No: ZRBP/CS/231/2013

Final Options Paper for Harmonisation of Water Law and
Policy across the Zambezi River Basin

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PROJECT BACKGROUND

This Options Paper for Harmonisation of Water Law and Policy Across the Zambezi River Basin has been prepared by OneWorld Sustainable Investments and Edward Nathan Sonnenbergs Inc. (ENSAfrica), for the Zambezi Watercourse Commission (ZAMCOM), on the assignment: An Equivalence Assessment of National Water Laws Among Riparian States in the Zambezi River Basins project.

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Abbreviations and acronyms

DSS	Decision Support System
EIA	Environmental Impact Assessment
ERU	Equitable and Reasonable Utilisation
EU	European Union
HEP	Hydroelectric power
ICJ	International Court of Justice
IFA	Okavango River Basin Integrated Flow Assessment
ILA	International Law Association
IR	Inception Report
IWRM	Integrated Water Resource Management
NCCRS	National Climate Change Response Strategy
NP	Notification of Planned Measures
OKACOM	Permanent Okavango River Basin Water Commission
PNA	Parallel National Action
RBO	River Basin Organisation
RVAA	Regional Vulnerability Assessment and Analysis
SADC	Southern African Development Community
SDG	Sustainable Development Goal
SP	Strategic Plan for the Zambezi Watercourse
TDA	Okavango River Basin Transboundary Diagnostic Assessment
UN	United Nations
UNFCCC	United Nations Framework Convention on Climate Change
WRM	Water Resource Management
ZAMCOM	Zambezi Watercourse Commission
ZAMSEC	Zambezi Watercourse Commission Secretariat
ZAMTEC	Zambezi Watercourse Technical Committee
ZAMWIS	Zambezi Watercourse Information System
ZRA	Zambezi River Authority
ZRB	Zambezi River Basin

Key Policies: Full and shortened titles

Full title	Short title
ZAMCOM Rules and Procedures for Data and Information Sharing (2016)	Data Sharing Rules
ZAMCOM Procedures for Notification of Planned Measures (2017)	Notification Procedures
ZAMCOM Integrated Water Resources Management (IWRM) Strategy and Implementation Plan for the Zambezi Basin (ZAMSTRAT) (2008; 2016)	ZAMSTRAT
Zambezi Watercourse Information System	ZAMWIS
Decision Support System	DSS
Strategic Plan for the Zambezi Watercourse	SP
Zambezi Watercourse Commission (ZAMCOM) Agreement	ZAMCOM Agreement
Revised Protocol on Shared Watercourses in the Southern African Development Community (SADC, 2000)	SADC Revised Protocol
United Nations Convention on the Law of the Non-Navigational Uses of International Watercourses (UN, 1997)	UN Convention

Previous Reports and Supporting Documents

Del	Deliverable	Supporting Documents
1	Inception Report Outlines the project approach as informed by initial research and stakeholder interviews, including a schedule of laws and policies for analysis.	Annexures: - Workplan - Overview of Stakeholder Interviews - Schedule of Laws and Policies to Review
2	Database of Legislation & Gap Analysis A repository of laws and policies for analysis organised according to the dimensions of water security identified in the Inception Report, including an assessment of gaps in national regulatory frameworks.	Register: Register of Laws and Policies (incl. gap analysis)
3	Draft Comparative Analysis: covering each of the areas, detailing the form and character of stated aspects of water resources management: The Dimensions of Water Security <i>Referred to as: Draft Comparative Analysis</i> Details, in the form of a good practice review of the dimensions of water security identified in the Inception Report, a set of indicators of good practice for further comparative assessment.	Annexures: - Legal Review - Stakeholder Interview Notes - Table of Indicators - Research Questions - Database: Register of Laws
4.	ZAMCOM Agreement Comparative Assessment & Gap Analysis Summarises the results of the comparative assessment of the laws and policies of Member States against the indicators of good practice and the requirements of the ZAMCOM Agreement.	Supplementary Report: Methodology and Assessment Framework Annexures: - Stakeholder Interview Notes - Database: Register of Laws and Database Gap Analysis - Detailed National Water Law Assessments & Gap Analysis
5.	Regional and International Comparative Assessment & Gap Analysis Summarises the results of the comparative assessment of the laws and policies of Member States against the indicators of good practice and the requirements of regional and international agreements and water law.	Supplementary Reports to the Regional & International Comparative Assessment & Gap Analysis: - Stakeholder Engagement Report - Methodology Report
6.	Draft Options Paper Presents a set of Options for the harmonisation of water law and policy across the Zambezi River Basin and a process for undertaking such, informed by the outcome of the comparative assessment and gap analysis presented in Reports 4 & 5.	Supplementary Reports: - Inception Report - D1 - Compilation of National Legislation and Gap Analysis - D2 - Draft Comparative Analysis - D3 - ZAMCOM Agreement Comparative Assessment & Gap Analysis - D4 - Regional and International Comparative Assessment & Gap Analysis - D5 Annexure: - Examination of the Principle of Equitable and Reasonable Utilisation - Annexure B: Table of Comparison of National EIA Provisions
7.	Final Options Paper Presents a set of Options and priority clusters for the harmonisation of water law and policy across the Zambezi River Basin and a process for undertaking such, informed by the outcome of the comparative assessment and gap analysis presented in Reports 4 & 5. Incorporates ZAMSEC and ZAMCOM comments to the Deliverable reports and the Draft Options Paper (latter presented at ZAMTEC meeting in Harare, 16 th November 2017)	Supplementary Reports: - Inception Report - D1 - Compilation of National Legislation and Gap Analysis - D2 - Draft Comparative Analysis - D3 - ZAMCOM Agreement Comparative Assessment & Gap Analysis - D4 - Regional and International Comparative Assessment & Gap Analysis - D5 Annexure: - Examination of the Principle of Equitable and Reasonable Utilisation - Country Comparison Tables - Table of Aggregated Indicators

Dropbox digital repository

The supplementary reports and Annexure B to this report are stored online and are accessible via Dropbox at the following URL: <https://www.dropbox.com/home/ZAMCOM%20water%20laws%20deliverables>



Introduction

Planning for a water secure future for the Zambezi River Basin (ZRB) is central to the approach taken to presenting priorities for the harmonisation of water law and policy across ZRB. It is also an approach that resonated with all interviewed ZAMCOM stakeholders, across all eight riparian countries during the course of undertaking this project. As outlined in the Inception Report, and expanded upon in the subsequent Comparative Assessment and Gap Analysis reports, six dimensions of water security provide the overarching framework for the equivalence assessment and gap analysis of laws and policies of each riparian country, as assessed against a set of developed indicators of good practice. The laws and policies were particularly assessed against the provisions of three key instruments, namely:

- the United Nations Convention on the Law of the Non-Navigational Uses of International Watercourses 1997 (referred to hereafter as the UN Convention).
- the Revised Protocol on Shared Watercourses in the Southern African Development Community 2000 (referred to hereafter as the SADC Revised Protocol)
- the Agreement on the Establishment of the Zambezi Watercourse Commission 2011 (referred to hereafter as the ZAMCOM Agreement)

This Final Options Paper for Harmonisation of Water Law and Policy Across the Zambezi River Basin constitutes Deliverable 7 to the Equivalence Assessment of National Water Laws among Riparian States in the Zambezi River Basin (Equivalence Assessment) assignment undertaken on behalf of ZAMCOM. It acts as a summation of the entire study, summarizing the conclusions of a large number of reports (each with their own executive summary), and provides a framework and set of prioritised actions for harmonisation across the ZRB. In itself it is an executive summary of the entire project.

Note on the wording ‘Options’ for Harmonisation

The term ‘options’ has a number of meanings, one of which implies the existence of a choice between various items. However, ‘options’ here is used according to the Collins Dictionary definition: *‘An option is something that you can choose to do in preference to one or more alternatives’*. It therefore denotes the preferential (i.e. best) option for ZAMCOM to follow; rather than setting out an array of possible alternatives. It is important to note that the project team has used the term Priorities in preference to the term Options. This is done in order to avoid the misunderstanding that this Paper is suggesting that ZAMCOM choose between the various alternative possible clusters of actions.

This Paper for harmonisation for ZAMCOM therefore includes a set of four prioritised and sequenced clusters - the Priorities which ZAMCOM needs to consider - with a series of possible actions as a method of achieving them. These Priorities and concomitant recommended actions forms the Harmonisation Framework which underpins the entire paper and its policy proposals.

The Priorities presented herein are substantiated by the findings of the Comparative Assessment and Gap Analysis presented in Deliverables 4 and 5 of the assignment (provided hereto as Supplementary Reports 4 & 5). These priorities propose that harmonisation be done for policies and laws, as well as for the related regulations and institutional arrangements, depending on the priority under

consideration as well as the legal system of the Riparian States. The detailed country assessments available from this project, reflect how each Riparian State deals with a particular harmonisation priority action item within its regulatory framework. *The regulatory frameworks encompass water laws, policies, regulations and institutional arrangements pertinent to each Riparian State in the harmonisation assessment.* Notably, there are different legal systems in the Riparian States, with the most notable differences being in the two countries that were previously Portuguese colonies. These legal systems differ greatly from say those countries that derive their legal systems from Britain as the previous colonial power. The full methodology behind the abovementioned Assessment (Methodology Report and Assessment Framework) can be found in Supplementary Report 1 to the Deliverable 4 report: ZAMCOM Agreement Comparative Assessment & Gap Analysis.

During the project Inception Phase, six dimensions of water security were identified, and were subsequently used to develop the indicators of good practice against which national laws and policies were assessed in the Equivalence Assessment. This process made possible the identification of a number of interconnected and cross-cutting clusters of Priorities for harmonisation, presented in this Paper.

A draft of this Paper was presented at a ZAMTEC meeting in Harare, mid-November 2017 and circulated thereafter to all ZRB countries for comment, along with the Deliverable 4 report. Comments were invited to be submitted by the 8th December. Comments were accepted up until the 15th December 2017 and have contributed to the final Paper.

The Priorities, which are outlined fully in Part B, are contextualised by the discussion on the drivers and rationale for harmonisation, and the proposed approach to harmonisation. Briefly, the methodology involved the identification of the aforementioned six dimensions of water security, which in turn directed the assessment of laws and policies across Member States. The results of the detailed country assessments, pointing to gaps in national level law and policy for each Member State, is provided as an annexure to Supplementary Report 4. Part B provides a recommended process for harmonisation, while Section B3 summarises the key gaps underpinning the Priorities.

This Paper is structured as follows:

- **Part A – The Case for Harmonisation** presents the drivers, the rationale and the normative basis for harmonisation, which together informed the formulation of the Priorities for harmonisation. This section concludes with detail relating to the overall approach adopted towards implementation of the harmonisation process.
- **Part B – The Priorities and Process for Harmonisation**, presents the Harmonisation Framework, the harmonisation Priorities (in the form of clusters of Priority items, each with a set of related action items), which are closely related to the dimensions of water security. This provides an overview of how the various Action Items address each of the dimensions of water security. Part B also presents the features of the harmonisation process, such as details regarding the specific Working Groups envisaged as carrying out the various Priorities.
- **Part C – The Evidence for Harmonisation** provides the evidence base for the Harmonisation Framework presented in Part B. Part C summarises, at a high level, using graphic illustrations, the gaps in the regulatory frameworks in the countries across the Basin. These gaps were identified through the Comparative Assessment and Gap Analysis (the Comparative Assessment) of the national water laws in the ZRB, as presented in Supplementary Reports 4 and 5 to this Paper. Annexure C provides a table showing which indicators of good practice used in each of the country assessments, were combined to form

the nodes of aggregated indicators used in the graphs in this section.

Annexure A provides further detail on the principle of Equitable and Reasonable Utilisation (ERU). Annexure B provides an excerpt from a table of comparison of the provisions of national laws and policies assessed. This is illustrative of the information provided in the overall Comparative Assessment and Gap Analysis – but allows individual Member States to see how their laws and policies compare with those of others. The full table is available in the project Dropbox folder as an Excel spreadsheet.

Part A | The Case for Harmonisation

In proposing a set of Priorities for harmonisation of water law and policy (referred to as “regulatory frameworks”), in the ZRB, it has been important to establish a definition of harmonisation, and to understand what it implies in terms of compliance for the Member States and for ZAMCOM. There is currently no internationally accepted definition of harmonisation of the regulatory frameworks on international watercourses. Neither does the ZAMCOM Agreement define harmonisation, or set parameters for what this means. Through the various pieces of work done on this project, the project team has formulated a working definition of harmonisation, which is used in this Paper.

Definition of harmonisation used in this Paper

Harmonisation is defined as the act of making systems or laws the same or similar in different companies, or countries, etc., so that they can work together more easily (Cambridge English Dictionary).

The European Union (EU) for example sees harmonisation of law (harmonisation) as the process of creating common standards across the internal market and systems. However, each EU member state has the primary responsibility for the regulation of most matters within its jurisdiction and consequently each has its own laws. This is in line with the approach of Parallel National Action (PNA) outlined in this paper (see section A4).

Harmonisation is seen to be a product of the amalgamation of two drivers: alignment of national law and policies with good practice in water resource management; and alignment with international and regional agreements. This means that harmonisation takes place in two ways:

- horizontally: between the Member States of the ZRB; through best practice; and
- vertically: against the international and regulatory agreements, such as the ZAMCOM Agreement and the SADC Protocol.

Put simply, harmonisation is the twofold process of aligning national regulatory frameworks with best practice in water resource management; and with international and regional agreements. The process by which this takes place is outlined in detail in Section B.

A1 | Drivers for Harmonisation

This section outlines the key drivers for harmonisation of water-related law and policies within the ZRB, namely:

- the need to enhance water security in the ZRB;
- the need to align with good or best practice for water governance, as benchmarked against regional and international experience;
- the requirement for harmonisation of national law and policy within the ZAMCOM Agreement; and



- the need to harmonise with the various tools that ZAMCOM is developing or has developed, such as the Notification Procedures, the Strategic Plan, and the Data Sharing Rules.

A1.1 | Water security

Water security can be broadly defined as “the reliable availability of an acceptable quantity and quality of water for health, livelihoods and production, coupled with an acceptable level of water-related risks” (Grey & Sadoff, 2007).

Water scarcity is a driver for the cooperation processes between riparian countries to rivers that are shared between two or more riparian states (Dinar and Dinar, 2005). It is for this reason that cooperation, if measured by treaty formation, has increased significantly over the last two decades (Dinar, et al, 2013).

Water security can be defined in different ways. It is important to note that although it has been widely debated, there is no final agreement on what constitutes water security. The above risk-based definition has been applied in this study, firstly because it is widely used and has been widely cited. Secondly, applying this definition of water security provides ZAMCOM with the opportunity to collectively establish what constitutes an ‘acceptable level of risk’ in terms of the ZRB. It has been noted that this could be done for example by applying the Basin’s existing Integrated Water Resource Management (IWRM) Strategy (Phiri, Z. pers.comms., 24th October 2017).

A water security approach underpins this assignment and is central to the Priorities outlined in Part B, and thus to the harmonisation process proposed for ZAMCOM. The ZAMCOM Water Laws Equivalence Assessment identifies a series of gaps across six dimensions of water security (see Table 1 below; and Supplementary Reports 4 and 5). If these gaps are not coherently addressed, water security is at risk. These gaps are briefly summarised in Sections A2 and A3 below.

Further discussion on water security is available throughout the various Supplementary Reports to this Paper, with a set of indicators of good practice related to each dimension. The analytical process included measuring the laws and policies of Member States against these indicators as a common basis from which to assess equivalence and determine gaps. The good practice indicators inform the Action Items at each of the Priorities outlined in Part B, Tables 2, 3 and 4.

The dimensions of water security

The dimensions of water security as developed at the outset of this assessment are outlined in Table 1 below. These dimensions encompass aspects of water resource management that *underpin development*, as opposed to simply relating to water resource management. Addressing these dimensions paves the way for viewing the Basin as a coherent unit and managing its resources to support development. This makes possible the vision of a river basin that provides for the needs of all its people, and supports development, whilst respecting the sovereignty of the riparian states.

Table 1. The Dimensions of Water Security

Dimension	Definition
Equitable Access	Equitable Access to Water can be defined as the situation in which all riparian countries, and water users within each country, have the opportunities to take full advantage of the available water resources of the Basin.
Planned Development	Planned development means any planned measure, programme, project or activity that utilises or affects the shared Watercourse in a way that may adversely affect another riparian country (adapted from ZAMCOM 2017)

Regional Integration	Regional integration is the process by which two or more nation-states agree to cooperate and work closely together to achieve peace, stability and wealth.
Benefit Sharing	“In the context of transboundary watercourses, benefit sharing may be defined as the process where riparian countries cooperate in optimising and equitably dividing the goods, products and services connected directly or indirectly to the watercourse, or arising from the use of its waters” (SADC, n.d.).
Dispute Resolution	Dispute Resolution refers to one of several different processes used to resolve disputes between parties, including negotiation, mediation, arbitration, collaborative law and litigation.
Climate Change Planning	Climate Change Planning can be defined as a set of political initiatives, legislation and strategies intended to guide efforts for climate change responses at various levels: international, regional, national or local level (for example basin level).

If implemented, the Priorities for Harmonisation discussed in this paper hold the potential to address the key gaps identified in the regulatory frameworks of ZRB Member States. Moreover, they have the potential to enhance transboundary water resource management, and mitigate against identified risks to water security across the Basin.

Table 2 below summarises to what degree the water law and policies of each Member State address the indicators of a particular dimension of water security. It briefly reflects the achievements of the riparian countries in terms of the indicators of good practice applied in the country-level assessment framework. For example, to achieve a ranking of 100%, a country’s laws and policy must address particular indicators of water security in this dimension. Table 2 also reflects the gaps between the countries. A fuller analysis of this ranking is available in Part C, the Evidence for Harmonisation.

Table 2. Ranking countries against dimensions of water security and understanding the gaps

Dimension of Water Security	Angola	Botswana	Malawi	Mozambique	Namibia	Tanzania	Zimbabwe	Zambia
Equitable Access	82%	51%	75%	69%	67%	72%	82%	65%
Planned Development	79%	52%	87%	51%	79%	86%	83%	70%
Benefit Sharing	9%	27%	9%	5%	9%	9%	5%	9%
Regional Integration	17%	83%	75%	33%	42%	67%	83%	75%
Dispute Resolution	31%	31%	31%	31%	38%	38%	44%	44%
Climate Change Planning	43%	23%	45%	23%	43%	52%	39%	52%

Table 2 also reflects the generally poor scores or lack of achievement in the dimensions of Benefit Sharing and Climate Change Planning. For Benefit Sharing, half the countries score zero and, other than Botswana, all countries reflect low scores. This is not surprising, given how little progress has been made in understanding models for Benefit Sharing that can extend across a river basin or apply to more than two countries – worldwide. The range of scores for Regional Integration is better, reflecting progress arising from SADC’s drive on this issue while also paving the way for enhanced Benefit Sharing. Climate Change Planning is evenly addressed across the riparian countries, albeit poorly; reflecting only that this is a relatively new pressure that countries need to respond to. Nonetheless, all countries are signatories to the United Nations Framework Convention on Climate

Change (UNFCCC), and are therefore committed to complying with requirements for national submissions as required from time to time, which in turn, inform national policy.

A1.2 | Best practice in water resource management

The indicators of good practice, developed for each of the aforementioned dimensions as part of this assignment, are determined by the recognised principles of international water law, a comprehensive literature review of best practice of water management, and a review of relevant transboundary legal instruments. The gaps between current law and policy and the indicators of good practice identify priority areas for strengthening (and harmonising) Basin-level agreements and national-level law and policy. This review is available in Supplementary Report 3 to this paper.

In this report, the term best practice is also used, when referring to aspirational actions in terms of management of water resources. It will be important for the ZRB to aim for all Member States to aspire to achieve best practice in water resource management.

Building on existing laws and policies to achieve ***desired levels of best practice*** against all the dimensions of water security in each riparian country, is believed to be key to improving integrated water resource management between riparian countries. The ultimate goal, in line with the principle of equitable and reasonable utilisation, is that a shared river basin is treated as one resource that yields benefits that are shared by many. (The principle of equitable and reasonable utilisation is discussed in the section Normative Basis for Harmonisation below; and in Annexure A to this Paper.) Achieving this objective is dependent on achieving harmony across three aspects related to water law and policy:

- harmony between the policy and practice of the riparian countries
- harmony of riparian country policy and practice with Basin and regional treaties and protocols
- harmony with international water law principles.

A1.3 | The ZAMCOM Agreement, Plans and Policies

Article 11(6)(l) of the ZAMCOM Agreement requires the Secretariat to make recommendations to the Technical Committee on the harmonisation of Member States' national water policies and laws. As per the ZAMCOM Agreement and the subsequently developed implementation mechanisms (such as plans, guidelines and rules), Member States are required to follow certain procedures, comply with obligations or uphold certain standards. In order to do so, Member States need to develop their regulatory frameworks to create the national mandates required to implement or abide by their obligations. Thus, the ZAMCOM Agreement itself, as well as associated plans, policies, guidelines and rules, are drivers of Basin-wide harmonisation.

Relevant ZAMCOM instruments include:

- The Rules and Procedures for Sharing of Data and Information related to the Management and Development of the Zambezi Watercourse (Rules and Procedures), adopted by the ZAMCOM Council on 25 February 2016.
- The Procedures for Notification of Planned Measures (Notification Procedures or NPs) adopted by the ZAMCOM Council on the 23rd February 2017.
- The Strategic Plan for the Zambezi Watercourse (ZAMCOM Strategic Plan) is yet to be finalised.
- IWRM Strategy for the Zambezi River Basin at a Glance adopted in March 2016.
- The Decision Support System, currently under development.

A2 | Rationale for Harmonisation

A2.1 | Key messages

A key finding of the assessment conducted as part of this project is that, although much work has been done, most ZRB states have water laws that have yet to be brought into line with more recent trends in the development of international and regional regulatory frameworks, and the principles that underpin these. This is demonstrated by the fact that more recently developed, and progressive, policies have for the most part not been translated and operationalised into law. For example, both Malawi's progressive water and environmental policies and Zimbabwe's integrated water and environmental policies have still to be translated into an updated or amended Water Act. Moreover, although Namibia has ratified the UN Convention, related amendments to water policy and legislation, specifically the Namibian Water Resource Management Act 11 of 2013, have still to be brought into effect through the necessary promulgation processes. Although certain countries have undertaken governance reform and integration, these are not features of water governance in most of the countries. Thus, the process of Member States bringing their national regulatory frameworks in line with trends in international water law can be said to be both overdue and necessary across the ZRB to ensure that policy enforceability is possible. This positions Member States to enact reforms in legislation (policy informs law) and thus provides an opportunity for harmonising water law across the ZRB.

Message 1

Water law in the ZRB generally needs to be brought up to date with recent trends in international and regional regulatory frameworks. The need for legislative review and reform presents an opportunity for harmonisation across the Basin.

Thus, the recommended Priorities for Harmonisation presented in this Paper aims to advance equivalence in the broad sense of the term; where the laws and policies of Member States are aligned to a reasonable degree of compatibility, and importantly, are not at odds with one another, nor with the greater aim of promoting water security.

Message 2

Not all laws need to be harmonised, and not all gaps need to be addressed in the same way in each country. The gaps that pose the most critical risks to water security constitute the Priorities in the Harmonisation Framework.

The assessment further shows that, in the main, the water and related laws of Member States are not harmonised across the Basin, with varying degrees of equivalence between countries and across dimensions. Although the assessment identifies many gaps between good practice and the policy and legislative frameworks of each Member State, not all of these gaps need to be addressed in the same way in each country. In other words, not all laws need to be harmonised. In some instances, the overarching law or policy may require harmonisation in order to facilitate alignment with good practice, or compliance with international law or with the provisions of the ZAMCOM Agreement, whilst the accompanying national regulations can be specific to the country context and need not be harmonised.

One non-critical gap is the fact that only one of the eight Member States have ratified the UN Convention on the Law of the Non-Navigational Uses of International Watercourses (2007). This is considered non-critical because many of the provisions of the UN Convention are mirrored in the Revised Protocol on Shared Watercourses in the Southern African Development Community (2003), to which all Member States have assented. The gaps that pose the most critical risks to water security

constitute the Priorities for ZAMCOM outlined in Part B. First however, it is helpful to consider why harmonisation is important for the ZRB.

Some countries in the ZRB are considered to be water wealthy (Angola, Zambia). This notwithstanding, there is evidence that freshwater resources are in fact scarce and water stress has also become evident in the water wealthy countries (Mutembwa, 1998, Spalding-Fecher, 2014). In addition to the present uncertainty around how much water is available, there are a range of risks to water security in the ZRB, which drive water resource scarcity, and have transboundary and regional implications. These include climate change, population growth and urbanisation and expanded development. The ensuing challenges are likely to be significant and are already felt to some extent in parts of the ZRB.

Message 4

Population growth and urbanisation, climate change, and development, pose increasing risks to water security and drive the need for harmonisation of key water law and policy.

Among the greatest challenges the ZRB is likely to face is the increasing need for trade-off decisions to manage demand for water. A study carried out jointly by the University of Cape Town, OneWorld and the Stockholm Environment Institute analysed the development and climate futures of the ZRB, based on modelled energy and water demand (Spalding-Fecher, 2014). The results of the study

Message 5

The risks to water security drive the need for trade-offs in decision making, particularly around water related investments.

clearly demonstrate that trade-offs will increasingly be needed between irrigation, hydroelectric power (HEP) and livelihoods. Investment decisions in water resource management need to take into consideration the effects of climate change, while at the same time, they are subject to policy uncertainty, due to the fact that irrigation investment is mainly driven by political and economic priorities. Prioritising irrigation demand over hydropower demand for water is a political decision, which in the context of the ZRB is also an international political decision

(Spalding-Fecher, 2014). This increases the need for enhanced cooperative management of available fresh water resources across the Basin, building on the 30 years of cooperation and peace experienced in the ZRB.

Harmonisation of key water law and policy provisions is imperative, not least because enhanced cooperation is a continuous objective. The process of harmonising key aspects of the regulatory framework for water across a transboundary river basin enhances cooperation, while reducing the likelihood of disputes. As such, harmonisation processes and outcomes have the ability to build robust dispute resolution capabilities across the ZRB (and SADC), for instance through enhanced information management that facilitates consensus building on planned developments.

Message 6

Harmonised regulatory frameworks are a form of transboundary cooperation that reduces the likelihood of disputes and increases water security.

Message 7

Member States have agreed, through the provisions of the ZAMCOM Agreement, that ZAMCOM has an important role to play in facilitating harmonisation.

ZAMCOM has a mandated role to facilitate harmonisation of water laws in the ZRB. One of the objectives of the ZAMCOM Agreement, articulated in Article 5(b), is to promote, support, coordinate and harmonise the management and development of the water resources of the Zambezi Watercourse. Article 5(g) extends this objective by stating that one of the functions of ZAMCOM is to promote and assist in the harmonisation of national water policies and legislative measures. However, the Agreement gives no further direction as to what such harmonisation measures should entail, or the process for reaching such harmonisation.

IWRM and harmonisation in the ZRB

Most ZRB countries have published revised water laws and policies over the past two decades, and in so doing have aligned national legislation with some of the best practices stemming from the Integrated Water Resource Management (IWRM) approach. For example, decentralised water management, public participation, consideration of environmental impacts, and a focus on the provision of domestic water supply. In this way IWRM has contributed to the harmonisation of laws across the Basin. This is evidenced in the Equivalence Assessment, by the similarity in provisions such as those pertaining to Environmental Impact Assessments, and those devolving water resource management functions to catchment level.

IWRM in the transboundary setting is notably more challenging to implement, often constrained by a lack of national commitment and stakeholder ownership as well as the difficulties associated with harmonious decision-making (Jensen and Lange, 2013). Despite these difficulties, many of the practices developed in pursuit of the transboundary IWRM approach can be considered to be best practice, with water security being the overall goal of any such practices. For example, IWRM attempts “to ensure that **water security** is equitably enjoyed from national to subnational levels, as well as among the riparian countries in shared river basins” (Petrie; 2014). This is true to the extent that experts have indicated that IWRM may be used to define the term ‘water security’ (pers. Comms. Prof. Zebediah Phiri November 2017), and insofar as riparian countries have reached consensus on a set of IWRM practices that should be adopted at a basin level for the purposes of promoting water security. To this end, and through IWRM promoting the equitable enjoyment of **water security** by all riparian countries, IWRM can be seen as an attempt to advance the aims of benefit sharing beyond bilateral agreements and into the transboundary setting (Petrie; 2017).

There is however no single, internationally recognised definition of IWRM, nor is there a single set of practices that can be said to wholly encompass the concept. As a result, identifying best practices aligned with IWRM needs to follow a pragmatic approach. The ZAMSTRAT (2008; 2016) provides a useful guideline for determining the best practices that are aligned with the IWRM approach of the ZRB, and thus serve to advance benefit sharing across the basin. Thus, the recommended Priorities for Harmonisation make reference to the ZAMCOM IWRM Strategy and Implementation Plan as relevant, and aim to advance the goals thereof. The specific *Action Items* identified in Part B below are aligned with certain of the specific *Actions* contained in the ZAMSTRAT as relevant, and aim to advance to advance the goals thereof. Implementing these would thus advance IWRM in the ZRB. Whilst the ZAMSTRAT identifies key actions required, it does not offer detailed guidance as to how to go about implementing these actions. The recommended Priorities for Harmonisation present the tools and outputs needed in order to implement these actions in practice, both nationally, by riparian countries, and as well as at a basin level via ZAMCOM.

The recommended Priorities for Harmonisation further seek to enable best practice in transboundary water resource management whilst being cognisant of, and despite, the difficulties surrounding the implementation of IWRM. As such many of the Priorities for Harmonisation extend beyond the ambit of the ZAMSTRAT.

A3 | The Normative Basis for Harmonisation

The Regional and International Comparative Assessment and Gap Analysis reports to this study included an assessment of the compliance of Member States with the ZAMCOM Agreement and other international laws and conventions to which they are parties. Box 1 in Section A3.4 articulates the gaps between national water laws and the normative principles of water law found in the ZAMCOM Agreement, the SADC Protocol and the UN Convention. (Few national water laws of ZRB riparian countries make explicit provision for the principles of international water law.) Notably however, each of these instruments sought to codify principles that have been integral to customary international law, including in the ZRB riparian country legal systems, for decades. In developing a harmonisation strategy and action plan, ZAMCOM will need to consider how it intends to address these identified gaps, noting that these principles are the normative basis for the harmonisation approach proposed for ZAMCOM.

A3.1 | International Water Law Principles

Water security and transboundary water governance are closely intertwined. This is recognised by international water law, in that it sets out standards for the governance of water resources, from quality to distribution, placing related obligations on states sharing water resources. These obligations are articulated repeatedly in various sources of international water law, to which (signatory) riparian states must look for guidance. An example is the principle duty on a riparian ‘*not to cause significant harm*’ when using shared water resources. Such a principle was introduced by the Helsinki Rules, that codify the Latin maxim *sic utere tuo ut alienum non laedas*. This can be translated as “one should use his own property in such a manner as to not injure that of another”.

Part II of the UN Convention, applicable to international watercourses, which came into force on the 17th August 2014, codifies numerous other principles. These Principles are mirrored in Article 12 of the ZAMCOM Agreement, as well as in Article 3 of the SADC Revised Protocol. These Principles are comprehensively discussed in the Supplementary Reports to this Paper. However, two of the central principles of international water law, are discussed briefly below: 1) equitable and reasonable utilisation, and 2) the duty not to cause significant harm. These two principles inform the process of the Member States aligning national regulatory frameworks with trends in international water governance discussed in the next section. These principles have informed much of this study’s analysis of good, or best, practice for the ZRB.

A3.2 | Equitable and reasonable utilisation

The principle of equitable and reasonable utilisation is not to be confused with the *dimension* of Equal Access, as defined in Table 1, and outlined in earlier reports. The principle of ERU treats a shared watercourse as a shared resource subject to equitable and reasonable utilisation by riparian states. It reconciles territorial sovereignty with territorial integrity by introducing the notion of shared sovereignty by all states, in respect to the shared watercourse (Kituku, 2014). The principle was originally established by the UN Convention, and is used to reconcile conflicting interests across international borders, so as ‘to provide the maximum benefit to each basin state from the uses of the waters, with the minimum detriment to each’ (Article IV, Helsinki Rules).

The primary aim of this principle is to distribute the water of an international river basin in such a way as to satisfy all the co-riparian countries, resolving conflicting economic and social needs to the greatest extent possible. Consequently, there is a relative, rather than absolute, equality of the riparian countries, and the respective share for each basin state has to be identified on a case by case basis. The “reasonable” utilisation aspect looks at how water is used, in order to determine if the purpose for which it is used, and the amount used, are reasonable under the circumstances (Vick, 2012). In applying the principle, several factors must be taken into consideration (UN Convention, Article 6); however no use of an international watercourse has inherent priority over another (UN Convention, Article 10). Nonetheless, it has been argued that priority should be given to uses that satisfy basic human needs (Kituku, 2014). The principle of equitable and reasonable utilisation is explored in more detail in Annexure A to this report.

A3.3 | The duty not to cause significant harm

The scope of this principle is clarified in Article 7 of the UN Convention. The related obligation requires that states take all appropriate measures to ensure that significant harm to co-riparian states is prevented when utilising the shared watercourse. This means that no riparian state can use the watercourse in its sovereign territory in such a way as to cause significant harm to co-riparian states or to their environment. This is a widely recognised principle in water law and is also integral to broader multilateral environmental agreements. The duty not to cause significant harm, is derived

from the theory of limited territorial sovereignty (also widely recognised as a foundational principle of international water law), which in turn stipulates that all riparian states have an equal right to the utilisation of a shared watercourse while also respecting the sovereignty of other states to equal rights of use (UN Fact Sheet, Number 5).

Importantly, the duty “not to cause significant harm” is a due diligence obligation of prevention, rather than an absolute prohibition on transboundary harm. This means that a state’s compliance is determined by its conduct and preventative behaviour in avoiding harm, rather than being solely dependent on the harm in question (UN Fact Sheet, Number 5).

A state’s resources and capabilities are also a factor in determining whether it has exercised its obligation of “not to cause significant harm”. Appropriate measures are recognised as being constrained by a state’s capabilities. Moreover, “significant” is the defining factor in determining whether significant harm has been caused; significant being defined as the real impairment of a given use, and established by objective evidence. Thus, trivial harm does not qualify, and the UN Convention provides that this be determined on a case by case basis (UN Fact Sheet, Number 5).

It remains contentious which of the two principles, “equitable and reasonable utilisation” or the obligation “not to cause significant harm”, takes precedence. In the debate that underpinned the development of the text of the UN Convention, upstream countries, typically did not support the prioritisation of the “no significant harm rule”, fearing that this may lead to limitations in their future upstream developments. Conversely, most downstream states did not favour the principle of “equitable and reasonable utilisation” due to a perception that the far-reaching scope of such a principle may allow for downstream harm to occur from developments (UN FACT Sheet, Number 5). Given the lack of consensus, this remains a point for ZAMCOM to consider when weighing up different approaches, activities and actions, in the harmonisation process. This is in line with the duty of the Technical Committee (Article 13(2)) to develop rules of application for equitable and reasonable utilisation.

A3.4 | Water law and international principles in the ZRB

A number of ZRB Member States have begun a process of bringing their national regulatory frameworks into line with trends in international water governance, primarily through policy frameworks. As discussed, this process needs to continue (or commence, in cases where this has not yet happened). This process also presents an opportunity for harmonisation.

This assessment for harmonisation identified a number of key gaps across the Basin, which in turn inform the priorities for harmonisation in the ZRB, namely:

- i) a lack of alignment of national water laws with the principles of international water law, which are found in the ZAMCOM Agreement, the SADC Protocol and the UN Convention (see Box 1);
- ii) a lack of explicit relationship between national laws and international agreements, such as the ZAMCOM Agreement and the SADC Protocol (see Box 2);
- iii) unclear institutional arrangements for national and sub national agencies (see Box 3);
- iv) inadequate arrangements for addressing language barriers in the ZRB (see Box 4).

Each of the above is explored in more detail below.

Lack of alignment of national water laws with international water law

Norms or principles often form the foundation for the development of national policies. This leads to the drafting of relevant legislative instruments, which in turn informs the development of regulations. Through this process, norms trickle down through the policy and legislative frameworks

of Member States, lending coherence to these frameworks. Whilst Member States are obliged to uphold these principles between one another, by virtue of their membership of SADC and ZAMCOM (as well as through customary international law), it is important that the principles are domesticated into national law and policy to enable the trickle-down process.

Box 1. National water law regimes and the principles of international water law

National water law regimes have yet to be aligned with the principles of international water law

It is imperative that countries sharing a river basin subscribe to the same set of norms, to enable harmonisation of water resource management and law. National water laws in the ZRB in general do not make explicit provision for the principles of international water law, with the principles appearing more frequently in policy provisions, if not always explicitly. For the most part, these underlying principles are translated in national law and policy in the following ways: through the application of the precautionary principle; in sustainable development through operational mechanisms such as licensing (permitting) regimes for specified water uses; in the undertaking of environmental impact assessments (EIAs) to inform administrative decisions around water resource utilisation; and through prohibitions against polluting activities. Other important examples are the requirement for treatment of wastewater and/or effluent before discharge into a water resource, and provision for enforcement and compliance thereof; as well as the need to protect fundamental rights to water and/or rights to common usages and drinking water.

Those countries with more recent legislation tend to demonstrate the influence of current principles of water governance. However, none of the national water laws specifically provides for the incorporation of the principles contained in the UN Convention, the SADC Revised Protocol and/or the ZAMCOM Agreement. Only Namibia has ratified the UN Convention. It should be noted however, that some of the bilateral and trilateral agreements in operation across the ZRB do make specific reference to the international instruments, for example the SADC Revised Protocol.

It would be useful if any provisions made relating to the principles refer directly to the SADC Protocol and/or ZAMCOM Agreement for the interpretation thereof. *Thus, it would be useful for forthcoming and/or amended national policy and legislative frameworks to include the principles contained in Article 12 of the ZAMCOM Agreement, as well as in Article 3 of the SADC Revised Protocol, and refer to these Sections for interpretation thereof.*

Box 2. Lack of explicit relationship between national laws and international agreements

Lack of explicit relationship between national laws and international agreements

Although the principles of international law, as contained in the SADC Revised Protocol and the UN Convention, are present in the national policies of many of the Member States, specific reference is seldom to be found in the national laws in the ZRB. This means for example that although the precautionary principle or the principle of prevention of significant harm may be evident, there is seldom, if ever, provision for enforcing or enacting this at the national level. This has implications for example for planned development, as discussed later in this section. This hampers the ability of countries to explore harm-mitigating options such as benefit sharing, which need to be approached from a position of cooperation.

In most instances, the national laws and policies in place across the Basin do not give recognition to river basin organisations (RBOs), the role they play, or the relationship between RBOs and certain key national departments. Furthermore, stakeholders in the Basin have pointed out that there is low awareness of ZAMCOM in the riparian countries and that this is the real barrier to managing the watercourse as a single, shared resource.

Unclear institutional arrangements

Best practice in water resource management pivots on clearly articulated institutional arrangements at national and catchment/sub-basin levels. Thus, the process of bringing national regulatory frameworks into line with trends in international water governance across the ZRB needs to address key institutional gaps, identified in brief in Box 3 below.

Box 3. Institutional arrangements to support national laws and policies

National water laws do not establish clear institutional mandates

Across the ZRB, legislation requires more clearly defined responsibilities and stronger, more prescriptive mandates for water resource management functions at a national and catchment/sub-basin level. This includes for example, responsibilities for assessing EIAs, permitting and licensing functions, and monitoring and reporting functions. There are very few examples where the regulatory frameworks legally oblige ministers or officials to undertake such activities or to appoint agencies or offices to do so. The laws of many Member States enable (but do not oblige) the designated minister to develop regulations and strategies under the relevant Water Acts. However, these regulations and strategies have often not been published. For example, regulations relating to water pollution standards, monitoring requirements, alien and invasive species are often outstanding, as are the required National Water Management Strategies. With this, situations of multiple mandates and confusion of roles and responsibilities arise. Equally, there is a lack of specifics in

law or regulation as to the required scientific basis upon which certain key decisions, such as environmental reserves and flow assessments, should be based. Consequently, many important water resource management functions are not being fulfilled to the level of best practice.

Inadequate arrangements for addressing language barriers

Issues surrounding accessibility, specifically language barriers, manifested in various ways throughout this assignment. This highlights the need to strengthen existing approaches to working between English and Portuguese in the ZRB. Being able to communicate and understand each other well is a critical success factor to harmonised water resource management and law. These issues are explored in more detail in Box 4 below.

Box 4. Accessibility: Language barriers to water law harmonisation in the ZRB

Regional agreements and some national laws are not available in a universal language

Portuguese is the official language of two of the eight ZRB States. Very few laws contained in this project's database of water laws and policies for Angola and Mozambique are available as official English translations. This is likely to impede the basin-wide harmonisation processes proposed here. This is a difficult situation to resolve in its entirety.

Some critical, official documents are not available in Portuguese

The ZAMCOM Agreement is not available in an official Portuguese translation. A ZAMCOM-released official translation of the Agreement stands to advance the aims of ZAMCOM, including the objective under Article 5(e) of the Agreement, to 'foster greater awareness among the inhabitants of the Zambezi Watercourse of equitable and reasonable utilisation and the efficient management and sustainable development of the resources of the Zambezi Watercourse'. This could also serve to advance trust and cooperation among the riparian countries.

Translation of key documents and guidelines needs to become the norm for ZAMCOM. For example, the Procedures for Notification of Planned Measures (2017) (Notification Procedures), Data Sharing Rules, Draft and Final versions of the SP, Paper once finalised, and the forthcoming Governance Procedures (or the updates to the existing version) are among the documents considered important to translate. Article 13(1) of the Data Sharing Rules provides for the Rules being available in both English and Portuguese, with both being "equally authentic".

Official documents are not always easily accessible

Making official documentation, such as the ZAMCOM Agreement and associated rules, procedures and guidelines, available in a clear PDF format (converted from Word format, as opposed to being scanned in) would also greatly assist interpretation and translation processes. For example, the ZAMCOM Agreement is only available online as a poorly scanned in version of the original. This severely limits functionality of use and interpretation (for example, the scanned version does not allow the user to search within the document, making navigation of the Agreement laborious). It would be helpful for ZAMCOM to release all official documents in clear PDF formats that allow for the search function, and the "copy" function to be applied.

Gaps in specific national legislative and policy frameworks

The ZAMCOM National Water Law Assessment and Gap Analysis highlights numerous areas where the national water law and policy of each country needs to be updated in order to align with the Indicators of Good Practice (the Draft Comparative Assessment - Supplementary Report 3 - refers). The most critical of the gaps identified inform Part B, Priorities and Approach for Harmonisation. Part C of this Paper, The Evidence for Harmonisation, summarises, at a high level, the gaps in the regulatory frameworks in the countries across the Basin. (The detailed country assessments are available as an annexure to Supplementary Report 4, and summary country assessments are included in the body of Supplementary Report 4.) The result of the Assessment indicates that none of the Member States have legislative and policy frameworks that align closely with the majority of indicators of good practice. The need to undertake legal reforms is thus a key driver of harmonisation.

A4 | The Approach: Parallel National Action

The absence of harmonised key law and policy provisions, as identified in this Paper, is problematic primarily because economic growth and development across the ZRB (and SADC) is potentially constrained by the lack of available freshwater resources at a high level of assurance of supply (Ashton & Turton, 2008; Ashton & Turton, 2005). But, the problem is not as great as it might seem. Progress within Southern Africa shows that ZAMCOM is not starting from a zero base. When this project commenced, some of the gaps for harmonisation, such as effluent-related management, in Southern Africa were already understood. The SADC policy development initiatives also reveal that agreement exists in the region (of which the ZRB is a significant component), on the need for harmonisation (SADC, 2003a).

The key question is how to harmonise policy across the ZRB to an appropriate level for all aspects of water resource management (quality, quantity, assurance of supply) in a manner that promotes aspirations towards regional economic integration (Turton, 2010). This study's analysis and reports reflect in some detail the differences in legal systems and institutional capacities that result from ZRB countries each having a different colonial heritage. The underpinning research also shows that riparian countries recognise that each country has a different socio-economic development trajectory and status and that along with this, citizens have varying expectations of natural resource use. This places the question of law and policy harmonisation in the sensitive domain of sovereign interests. Acknowledging sovereign interests is important. Independence and liberation is recent and in some countries, came at a significant cost.

A4.1 | The parallel national action approach

To resolve this problem of achieving regional harmonisation in the context of national sovereign interests, we have drawn upon the principles of parallel national action (PNA), not previously discussed in this project's research. The PNA process was the foundation for achieving Nordic co-operation prior to the Scandinavian countries becoming members of the European Union, and it has a history of success in that region (Turton, 2010). PNA, as practiced by the Nordic Council organisations, was based on a number of fundamental normative principles (Turton, 2010). These are adapted to the context of the ZRB as follows:

- i) The ultimate premise is that Member States retain their national sovereign independence as individual nation states. In other words, the nation state remains the non-negotiable unit of engagement, thus always retaining the authority associated with sovereign independence of a nation state;
- ii) Regional cooperation (over water resource management) does not imply the creation of an overarching, bureaucratic regional structure or punitive regulatory measures. In other words, it does not impose a supranational authority overriding national sovereignty;
- iii) Consensus can be reached at the regional institutional level in the case of issues and areas of low conflict and this is incorporated in all national states regulatory frameworks. In other words, a building block approach is used to build trust and consensus through first tackling issues and areas which can be disassociated from national security;
- iv) Once regional integration and consensus is built through cooperation on low-conflict issues, the more divisive issues (e.g. when water security is linked to national security) are defused by being located in the developmental perspective, through coordinated notification procedures

and harmonised information management.

With this approach, space is created for non-threatening cooperative action that enables iterative learning or adaptive management, so as to reach the highest level of consensus possible. The principle of incrementality, adopted in the SADC policy harmonisation process (SADC, 2003a), is thus applied. Furthermore, this approach enables confidence and trust building through joint processes. Ultimately, with this approach, Member States are in control of outcomes that affect areas of national interest, giving them the confidence to continue with cooperative resource management.

This staged approach is proposed as being critical to moving toward benefit sharing as a developmental objective in the ZRB. In other words, PNA as a vehicle for harmonisation, provides Member States with the incentives to move towards benefit sharing (Turton, 2010). The Priorities outlined in Part B stem from the PNA approach.

A4.2 | An evolutionary and adaptive management approach

A further approach that underpins the Priorities and Harmonisation Framework in Part B is that international water law is an evolving body of norms, institutional arrangements and practices for cooperative resource management that are still to be fully defined in the specific context of the ZRB. The Priorities proposed for ZAMCOM are intended to contribute to the evolution of Basin-level water law. It is recognised that the evolutionary process requires certain types of provisions or processes to be in place before others can take hold. The Priorities are thus outlined, taking into consideration that ZAMCOM is still evolving as an institution, with a relatively short history since its foundation in 2011 after many years of consultation. Consequently, ZAMCOM is well positioned to adopt an adaptive management approach. This is critical: the growing pressures on available freshwater resources due to climate change, population growth and rapid urbanisation have introduced new uncertainties that require adaptive management in order to promote resilience and ensure water security. An adaptive management, or learning by doing approach, therefore underpins the proposed Priorities and Harmonisation Framework in the ZRB.

Flexibility and adaptability is also required because of the uneven nature and availability of accurate data and information from across the Basin. ZAMCOM has a critical role to play in facilitating the collection and dissemination of information between Member States. The first objective listed under Article 5(a) of the ZAMCOM Agreement is that of ZAMCOM's function to collect, evaluate, and disseminate all data and information on the Zambezi Watercourse as may be necessary for the implementation of the Agreement. ZAMCOM is already developing this function through the promulgation of the ZAMCOM Rules and Procedures for Data and Information Sharing of 2016 (the Data Sharing Rules), as well as the requirements of the Procedures for Notification of Planned Measures of 2017 (Notification Procedures). ZAMCOM has further developed the Zambezi Watercourse Information System (ZAMWIS), and is currently developing a Decision Support System (DSS) to further enhance this function.

Adaptability and flexibility, based on easily accessible, reliable data, thus underpins the proposed harmonisation strategy for ZAMCOM, outlined in Part B. As ZAMCOM adapts and implements this strategy, it is imperative that provisions are incorporated to promote the flexibility and adaptability of the processes themselves. While the ZAMCOM Agreement has little built-in flexibility and adaptability, ZAMCOM has shown recognition of the importance of this approach. This is evident in mechanisms such as the annual review process built into the ZAMCOM Data Sharing Rules (Section 7).

Adaptive management should be promoted through further development of ZAMCOM rules, policies

and guidelines, including at the national level. For instance, water laws and policies could build in obligatory regular review periods, forcing Parties to review and revise provisions as appropriate.

Part B | The Priorities and Process for Harmonisation

B1 | Strategic approach

The Parallel National Action (PNA) approach, as discussed, creates space for iterative cooperative action while protecting sovereign interests. This approach underpins the Priorities for ZAMCOM. The project analysis, which is continued in the supplementary reports to this paper, provides the detailed analytical framework for the identified Priorities and their related actions.

An important departure point of the harmonisation process is for ZAMCOM to develop a Strategy for Harmonisation as well as an Action Plan. Many of the elements for these are contained in this paper. This strategy and action plan could usefully be included in the Strategic Plan for the Zambezi Watercourse (SP) currently under development by ZAMCOM. In developing the strategy and action plan, ZAMCOM will need to consider how it intends to address the key identified gap of updating water laws, as noted in the rationale for harmonisation discussion, and in the underpinning assessments (Box 1). Thus, the reform of national water regulatory frameworks should be central to ZAMCOM's harmonisation strategy and action plan.

The strategic approach proposed in this paper builds on ZAMCOM's mandate to support Member States in the harmonisation process. There are two related needs to be addressed: updating water laws and policy in national states; and harmonising certain laws and policy across national states. Therefore, the proposed approach is twofold:

- ZAMCOM guides, informs, and coordinates the process of ***establishing best practice for updating water laws and policy*** across Member State, while also;
- ZAMCOM gets buy-in from Member States on using established and agreed good or best practice as the basis for ***harmonising certain laws and policies*** across the ZRB's Member States (i.e. particular laws and policies).

This twofold approach is important. Water laws in the main are generally lagging behind developments in international water law, and Member States are struggling to translate policy into law. *Agreeing on best practice as the basis for harmonisation is essential.* The alternative is that harmonisation is in accordance with the lowest common denominator, or the principle that the lowest level of compliance is adequate and provides the benchmark for harmonisation. Although harmonisation could be approached in terms of aligning with identified international best practice, this needs to be contextualised in terms of the conditions specific to the ZRB. ***It is thus recommended that best practice is identified, and located within the Basin, as the basis for harmonisation.***

B2 | The Harmonisation Framework and Process

B2.1 | The Harmonisation Framework

Achieving harmonisation in the ZRB, is a staged process that, underpinned by the PNA approach, recognises four key facts:

- i) **ZAMCOM is not starting the process of harmonisation from a zero base;** the SADC Policy harmonisation process and this project's Equivalence Assessment and Gap Analysis, demonstrated certain areas of existing alignment, meaning that there are precedents for alignment of laws and policies between countries.
- ii) **There are already pockets of good practice within some ZRB countries,** although the gaps between countries are significant. The equivalence assessment and gap analysis shows that some countries are in advanced stages of attaining international good practice status in some laws and policies. These instances of good practice can provide useful cornerstones for building the harmonisation framework.
- iii) **ZAMCOM has indicated where its immediate harmonisation priorities lie in terms of the six dimensions of water security.** The adoption of the Notification Procedures for Notification of Planned Measures in February 2017 and the stakeholder interviews conducted for this project, emphasise recognition of the urgency of addressing Planned Development and Equitable Access.
- iv) **Not all laws and policies need to be harmonised.** However, there are areas of law and policy that are critical to align so as to promote common Basin objectives, such as the aspect of information management which, although cross cutting, is central to Planned Development and Equitable Access.

Figure 1 below reflects and ranks the priorities, thus establishing the stages of harmonisation. As seen in this project's Equivalence Assessment and Gap Analysis, many, but not all, laws and policies across the eight Basin countries lag behind international best practice, which includes reference to international water law. This, coupled with the analysis that there are significant gaps between the ZAMCOM countries in terms of meeting good practice standards, means that the development of an overarching Guideline and Results Framework for Harmonisation is necessary to guide and inform the harmonisation process across all identified priorities, as and when these are implemented.

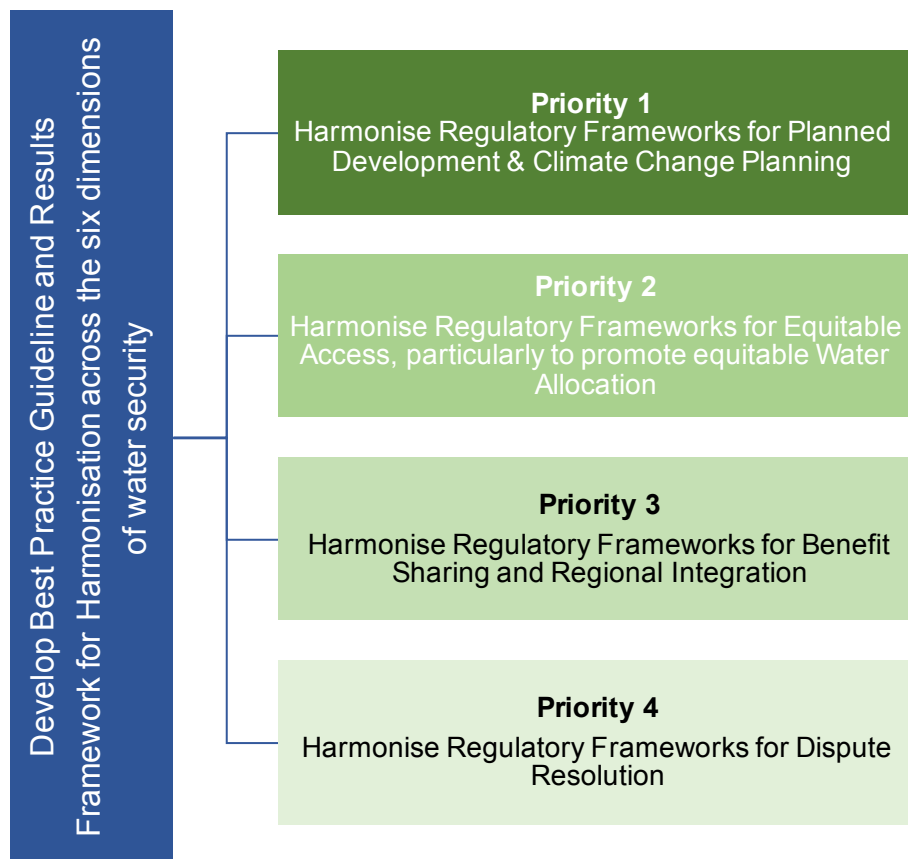
Climate Change Planning, although dealt with as a discrete dimension throughout the project, is an emergent priority and cross cuts all the dimensions of water security, to some or other extent. Climate change particularly impacts planned developments and is thus treated as a priority with Planned Development in Priority 1.

Benefit Sharing and Regional Integration are treated as a joint priority because of the cause and effect pathways between these two important, of more distant dimensions of water security. Benefit Sharing promotes and can be seen as an indicator Regional Integration.

Lastly, Dispute Resolution is prioritised for the end of the harmonisation process. As highlighted in this project, the southern African region prefers to deal with its disputes itself, rather than relying on international mechanisms. Foreign diplomacy is often deployed and disputes tend to be well-

resolved through this approach. Although this does not mean that this dimension should not receive attention, it requires focus because of what could happen in the absence of detailed Dispute Resolution processes in the regulatory frameworks, rather than because of what is happening now and in recent years.

Figure 1. Framework for Harmonisation



The Harmonisation Framework presented in this Paper outlines in greater detail, the steps and Action Items for the development of the Best Practice Guideline and Results Framework, as well as Priority 1 and Priority 2, in Tables 2, 3, 4 and 5 in Section B3.

Priorities 3 and 4 are not addressed in detail in this Options Paper. Unlocking benefit sharing and enhancing regional integration (priority 3) relies on the ZAMCOM Member States achieving a certain level of harmonisation as advanced by Priorities 1 and 2. This is in line with the PNA approach which seeks to obtain preliminary consensus as a basis for the development of further, more complex collaborative management. It is therefore important that Member States focus on achieving harmonisation in priority areas 1 and 2 by implementing the associated Actions, where after best practice for benefit sharing and regional integration can be explored, and the path forward determined through further joint planning and decision making.

Similarly, advanced dispute resolution (priority 4), results from the effective implementation of priorities 1, 2 and 3. These priorities aim to advance water security across the ZRB, thus enhancing cooperation and reducing the potential of disputes occurring in the Basin. Therefore, these priorities are viewed as the primary means for resolving disputes before they escalate to the stage of requiring third party intervention. Many of the Actions proposed in Priorities 1 and 2 above, such as enhancing data sharing, and making use of transboundary EIA assessments, advance these aims. The PNA approach purposefully avoids establishing an over-arching body with enforcement powers, at least at the outset of the harmonisation process. Through the PNA approach, and through implementing

Priorities 1, 2 and 3, Member States could, over time, reach a point where regulatory frameworks are well harmonised, and basin resources are jointly allocated for the benefit of all. Thus, implementing priorities 1 and 2, as well as 3, constitutes a dispute prevention mechanism.

Possible ways to implement the Framework are outlined in Section B3. The Framework can be implemented in a variety of ways, some of which are presented in Section B4 of this Paper.

B2.2 | Priorities for harmonisation

The project terms of reference stipulate the requirement for a Paper that “...outlines a menu of potential measures for discussion with Riparian States.” A further requirement is for recommended good practice provisions for each of the stated elements of national legislation, alongside the guidelines for ZAMCOM. The intention of the Paper is to facilitate the process of harmonising national laws and policies that have implications for Basin-wide cooperation, environmental management and sustainable development.

This Paper presents a menu, or framework of proposed measures, rather than alternative pathways for harmonisation. This takes into account Basin-wide circumstances (the need to treat the watercourse as a single unit shared by many, the growing pressure on water security, climate changes that occur across borders, development that is transparent and coordinated, etc.) as well as differentiated national circumstances (riparian countries are at different stages of national and sub national development and face differentiated pressures). Most importantly, the Harmonisation Framework is structured to respond to the fact that many countries lag behind many of the indicators. This sharpens the focus on countries harmonising with each other against international best practice, rather than on countries harmonising with each other against the current good practice identified within the Basin’s Riparian States.

A two-stage approach was also considered in harmonisation, and could still be an option if this is what ZAMCOM prefers.

The two stages considered are outlined as follows:

- Stage 1:** All Riparian States harmonise against ZRB good practice, for priority or necessary indicators only, identified within the ZRB in this project’s Assessment Framework. Once all countries are at that level, the process proceeds to Stage 2:
- Stage 2:** All Riparian States harmonise against international best practice identified for priority, or necessary indicators only, identified internationally in this project’s Good Practice Review and related indicators of Good Practice.

However, embarking immediately on stage 2, but working through each Priority, one at a time, is highly preferable. This could accelerate aligning national regulatory frameworks with trends already under way across the Basin and in the southern African region, while allowing Riparian States, and ZAMCOM, the space to attain success in dimensions of high priority before tackling other, more difficult dimensions, such as Benefit Sharing, or dimensions of lower priority, such as Dispute Resolution. Moreover, attaining success, against international best practice determined indicators, in Equitable Access and Planned Development (where these integrate Climate Change Planning), will create the enabling conditions for harmonising Benefit Sharing and Regional Integration, and Dispute Resolution. For instance, harmonised regulatory frameworks for key aspects of Equitable Access, are likely to establish a stronger basis for determining Benefit Sharing mechanisms, that in turn promote enhanced Regional Integration. Also, clear parameters for Planned Development, established for example through EIA legislation and regulations, will provide clear parameters for highlighting, and resolving inter-country disputes.

Lastly, the newly adopted Procedures for Notification of Planned Measures and the forthcoming Strategic Plan, add to the impetus for moving beyond the levels of good practice available within the ZRB, towards aligning with international best practice.

B2.3 | Features of the harmonisation process

The harmonisation process is based on the establishment of working groups in accordance with the institutional framework and structures provided for in the ZAMCOM Agreement. Broadly, working groups are tasked with informing, guiding, reviewing and monitoring the process and progress of harmonisation.

It is suggested that ZAMCOM establish **working groups** focused on the Priorities identified in Figure 1 to finalise the design of and to implement the harmonisation process, such as the proposed Harmonisation Strategy and Action Plan. This is discussed in more detail in the recommended Process for Harmonisation in Section B4.

Critically, the working group(s) would develop a **Best Practice Guideline and Results Framework for Harmonisation for ZAMCOM across the six dimensions of water security**. This crucially informs both the revision of national legislation and policy by Member States, as well as certain key basin-level action which ZAMCOM is positioned to facilitate. The harmonisation process of the Priority clusters in Figure 1 then takes place against this Guideline and progress is monitored against agreed indicators of good practice, to advance bringing national regulatory frameworks into line with trends in international water governance across the Basin. The guidelines can be drawn from the detailed good practices outlined in Supplementary Report 3: Draft Comparative Analysis covering each of the areas, detailing the form and character of stated aspects of water resources management.

B3 | The Priority Items and Actions

The Harmonisation Framework (Figure 1 above), identifies three sets of Action Items, starting with the overarching Good Practice Guideline and Results Framework, before focusing on Priority 1 (Planned Development) and Priority 2 (Equitable Access). The action items for Priority 1 and Priority 2, are outlined in Tables 2-5 below. For each Priority, a set of key identified gaps are noted, in a preceding box. The Framework and Actions for Harmonisation align with many of the actions identified in the ZAMCOM IWRM Strategy Implementation Plan (2016), these links are identified where relevant.

The Harmonisation Framework specifically address action 4.2.2 of the ZAMCOM IWRM Strategy Implementation Plan (2016), namely, to implement a well-designed plan to harmonise water resources management policies, legislation, and strategies of the basin states.

The assumptions that underpin the framework are the following:

- Each Priority includes a set of Action Items, which are detailed in Tables 3, 4 and 5.
- The Priorities do not represent alternatives to one another and are not mutually exclusive. Rather, each Priority clusters together a set of distinct Action Items.
- The Priorities can be implemented in a variety of ways, some of which are presented in Section B4 of this Paper. A proposed process for implementation is also outlined in Section B4.

B3.1 | Develop a Best Practice Guideline and Results Framework for Harmonisation

The Best Practice Guideline and Results Framework for Harmonisation (the Guideline) is intended to provide a blueprint for both guiding, or informing, the implementation of each Priority, while also providing a tool for monitoring and evaluating progress. The research and analysis conducted under this project, provides a detailed basis for establishing the Guideline. As discussed in section B4 below, it is strongly recommended that ZAMCOM establish a working group to tackle the development of the Guideline, at the outset of the harmonisation process. It is envisaged that the working group draw heavily on the good practice review and indicators developed in this project (Supplementary Report 4) to establish the Guideline, thus engaging thoroughly with this content in the context of the ZRB.

The following, iterative steps are necessary to the development of the Guideline:

i) Establish ZAMCOM as the custodian and leader of the harmonisation process.

An important first step in developing the Guideline will be articulation of ZAMCOM's role within the ZRB, as the leader and coordinator of the harmonisation process. As Tanzanian ZAMTEC Members have repeatedly pointed out through stakeholder consultations and workshops on this project, there is a lack of awareness of the ZAMCOM and its functions in the Riparian States. This in turn reduces ZAMCOM's ability to make an impact or to achieve its mandate for brokering information, coordinating planned developments, and guiding environmental and sustainable development safeguards in the Basin, among others.

ii) Establish an agreed definition of water security in the context of the Basin.

As discussed, various definitions of water security are available in the international water community, including through IWRM. Water security also has different meanings in different contexts. Noting that the drivers of water security in the Zambezi have altered in magnitude over the last 20 years (population, climate, development), a dynamic approach to defining water security in the Basin is needed. A ZRB contextualised definition would also inform a further important output of the guideline: determining and interpreting international water law principles in the context of the ZRB. This project has highlighted a number of related issues:

- The international water law principles, as defined in the UN Convention, are adopted in the ZRB through the adoption of the SADC Revised Protocol, which in many ways, mirrors the Convention.
- The SADC Revised Protocol does not codify these principles, leaving this to Basin and national level interpretation.
- Few countries explicitly refer to the international principles incorporated in the SADC Revised Protocol, although these have been implicit in customary law and in this way, are embedded in national regulatory frameworks. Updating laws and policies in accordance with the principles now explicit through the Revised Protocol, but in the context of national circumstances and overall regulatory frameworks, is a necessity. This also provides an opportunity of ensuring that national laws and policies are poised to enable Riparian States, and the Basin, to respond to modern and future challenges.

iii) Establish an explicit relationship between national laws and regional agreements.

Developing the Guideline is also an opportunity for ZAMCOM to establish the basis for an explicit relationship in national laws with transboundary cooperation. Few countries make

explicit the relationship between national laws and policy, and regional and transboundary agreements. Thus, it is not always clear at what point the transboundary or regional agreements apply, and although all Riparian States have agreed to the adoption of the procedures for Notification of Planned Measures, the national regulatory frameworks do not (yet) create pathways or guidance for the implementation thereof. This is a gap in both the regulatory frameworks, and the related institutional arrangements.

iv) Clarify institutional arrangements for national and sub national water management structures.

This project assessments have highlighted the great need **for** institutional capacity development and building for the various catchment management agencies. Most Riparian States have established, on paper, sub national structures for localised water resource management, displaying an intention that is common across the basin, to decentralise water resource management (in accordance with IWRM). Few countries have been able to implement this and none of the Riparian states have implemented this approach fully. Against indicators of good practice, ZAMCOM is well positioned to raise finance for and guide the capacity development processes required to advance the status quo, while ensuring that sub national level institutions are have trained against best practice and that good practice institutional arrangements are established.

v) Establish protocols and processes for improving accessibility of information

This includes addressing language barriers. For example, the ZAMCOM Agreement is not available in Portuguese, the language of two Riparian States. Although official meetings have the facility for translated discussion, pertinent documents are seldom made available in Portuguese, often placing these countries at a disadvantage. Also, the Agreement is only accessible in a scanned PDF format, making navigation cumbersome (for example the search/find function cannot be used). The Guideline could establish an agreed process and protocol for access to information between riparian countries, thus enabling processes such as harmonisation of water laws, or the implementation of the Procedures for the Notification of Planned Measures.

vi) Establish good practice guidelines and indicators for each Priority in Figure 1.

Good practice guidelines are available from this project's research and analysis, for harmonising the regulatory frameworks for each dimension of water security, as per the Priorities in the Harmonisation Framework (Figure 1):

- Planned Development and Climate Change Planning
- Equitable Access, particularly to promote equitable Water Allocation
- Benefit Sharing and Regional Integration
- Dispute Resolution

These good practice guidelines need to be reviewed and selected by ZAMCOM and adopted in an official ZAMCOM Guideline for Good Practice. They should be made available to Riparian States for the national water law and policy update and harmonisation process.

Similarly, indicators of good practice are available in the project reports and assessment framework. Again, these need to be reviewed and selected by ZAMCOM for adoption in an official ZAMCOM Results Framework for water law and policy harmonisation.

The guideline for good practice, and the indicators of good practice, together comprise the Guideline for Harmonisation.

vii) Establish a process for monitoring and evaluation of progress.

This process is made possible by the good practice guidelines and particularly the results framework. Monitoring, and reporting on, progress made at each stage of the harmonisation process is critical to: i) increasing the financial absorptive capacity of ZAMCOM; ii) ensuring that one success leads to another (e.g. success in Priority 1 leads to and informs success in Priority 2), and; iii) enabling adaptive management (i.e. learning by doing) throughout the harmonisation process.

To conclude, in the spirit of applying an adaptive management approach to the harmonisation process, it is recommended that the process for establishing the Guideline be implemented in parallel with Priority 1 (as outlined below), through an iterative process

B3.2 Priority 1 - Harmonise Regulatory Frameworks for Planned Development

ZRB Member States generally recognise that development is uneven across the Basin, that countries must be allowed to develop, and that fellow riparian countries are not in a position to prevent such developments outright. Riparian countries further acknowledge that riparian states are entitled to full information and data that allows them to assess the impact of proposed developments, and that mitigation and/or compensation options should be proposed by the developing and impacted riparian countries, in line with the principle of prevention of significant harm.

The Assessment of law and policy in the ZRB reveals a number of gaps pertaining to planned development, the key gaps are summarised in Box 5 below.

Box 5. Priority 1: Planned Development in the ZRB

Planned Development Gaps in the ZRB

i) EIA regulations are not standardised, providing an uneven regulatory environment for Notifications

Whilst the ZAMCOM Notification Procedures (in terms of the requirements of the ZAMCOM Agreement and Article 4 of the SADC Revised Protocol) aim to progress water security in the Basin, there is a recognised gap in terms of EIAs. The ZAMCOM Notification Procedures, acknowledge that in order to be meaningful, inter-State notification of planned measures should be accompanied by some form of EIA concerning the transboundary impacts of the planned programme, project or activity in question. Although all countries in the ZRB have EIA legislation in place, there is little consistency in approaches and requirements, particularly around the basis for comprehensiveness, measurements and timelines. These gaps were highlighted in the process and finalisation of the ZAMCOM Notification Procedures (Malzbender, D. pers.comms. 28th September 2017). Furthermore, the situation could lead to disputes around the potential impacts of a planned development, particularly in transboundary settings. Apart from Botswana, none of the ZRB Member States make provision in their EIA legislation for transboundary EIAs. It is noted that countries such as Malawi, Zambia and Zimbabwe require that domestic EIAs should indicate whether the environment of any neighbouring state is likely to be affected, however, the extent of such an effect does not need to be determined, and is not prescribed by any clear procedure. ([Action Item 1.1](#))

ii) Notification Procedures are not explicitly provided for in national legislation

The overarching approach to international law in the Basin requires domestication of the provisions of international agreements in order for these to take effect nationally (Shaw, 2008). Additionally, having domestic legal notification requirements in place will ensure that all relevant departments, including the environmental ministries, are aware of the requisite processes. This is particularly critical in situations where the EIA permitting process is led by the Environmental Ministry which is also required to provide the authorisation for the planned development. It would thus be useful to establish specific provisions for the relevant notification procedures to be followed within the relevant EIA regulations of each Member State, particularly for developments which have potential transboundary impacts. ([Action Item 1.2](#))

iii) Few Member States include public participation provisions under the relevant water laws

Provisions that do exist are typically in accordance with limited scenarios, such as the development of an outline plan, and are usually discretionary or absent in relation to the process for granting a water permit. The extent to which public participation is required prior to, during, and after a development, is not consistently addressed across the Basin. Moreover, most of the provisions that are in place, are open to interpretation, particularly with regards to timeframes, extent, and coverage required. The general lack of public participation provisions in the relevant water laws, is remedied to some degree by the fact that in addition to a water permit, developments also typically require an EIA and environmental certificate/authorisation. The EIA processes in most riparian states provide for comprehensive public participation processes. The situation however is complicated by the need for transboundary EIAs for planned developments, where uncertainty as to the degree of, and process for, conducting public consultation may lead to disputes. An issue such as distinguishing between “stakeholder” and “public” consultation may appear small, but can lead to substantial disputes if not addressed. Clarifying the requirements for public participation within basin level EIA procedures or guidelines would bring about much needed certainty in this regard. ([Action item 1.3](#))

iv) EIAs are not required to consider climate change impacts

All riparian countries' climate Risk and Vulnerability Assessments note the severe risks and impacts of climate change. However, national laws and regional agreements do not make explicit provisions for EIAs to consider the impacts of climate change. Integrating climate change planning into NPs and thus EIAs, in a standardised

manner, is critical for the future resilience of the ZRB. This, in line with lack of standards for sharing, monitoring and reporting of key information, is likely to compromise ZAMCOM's delivery against key aspects of its mandate. [\(Action Item 1.4\)](#)

v) A mechanism for costing and regulating shared benefits does not exist in the ZRB

Benefit Sharing is seldom an explicit provision of national laws and policies (Botswana is an exception). However, there are many precedents and examples in the Basin and the region. The bilateral agreements are premised on shared benefits; for example, the ZRA provides for energy benefit sharing between the two signatory countries of Zambia and Zimbabwe. There is certainly no precedent or mechanism for Benefit Sharing at a Basin-wide level, although most stakeholders believe this to be a critical requirement for advancing the water security agenda across the ZRB. In particular, a basis for costing and regulating shared benefits would be useful to ZAMCOM. The Benefit Sharing approach provides a useful negotiation mechanism in terms of mitigating harm in relation to planned developments. [\(Action Item 1.5\)](#)

To support Planned Development (and other dimensions of water security, such as Equitable Access and Benefit Sharing), accessing high quality, relevant information is vital to informing strategic and operational decisions with scientific information, at catchment and transboundary levels. Understanding national water stocks and consumption patterns is the departure point for strategic water resource management, without which strategic planning is baseless and is likely to fail in advancing water security. Also, ZAMCOM's role as the curator of basin-wide information is clearly identified in its objectives in Article 5 of the ZAMCOM Agreement. Thus, it is critical that the harmonisation process address these policy and legislative gaps identified in the assessments to this project, summarised in Box 6.

Lack of high quality available information poses a risk to national and Basin level resource planning. This has a significant knock-on effect in terms of basin-wide allocation. As articulated in the UN Convention, shared high-quality information is recognised as being indispensable to robust stakeholder dialogue between sectors and riparian countries and to agreeing to planned developments that have transboundary implications and could cause harm. Ultimately, water governance is about people and not just water; thus, good water governance pivots on joint decision making. Joint decision making is made possible by available and accurate data from all parties concerned. Inadequate, or unevenly available information poses a significant risk to the implementation of the forthcoming ZAMCOM Strategic Plan, where basin-wide allocation planning will need to be underpinned by joint decision making.

Box 6. Data and information sharing in the ZRB

Data Gaps in the ZRB

i) Inadequate or unmaintained monitoring stations, compromise standardised sharing of data

Except for Botswana, all ZRB states have legislation that clearly mandates the monitoring and reporting of water quantity and quality by specific government department. This notwithstanding, many monitoring station across the Basin need to be rehabilitated or constructed, as identified by the ZAMCOM Rules and Procedures for Sharing of Information and Data (2016). The unevenness or absence of monitoring stations prohibits the sharing of quality data, as there is either no, or poor data available to share. This has implications for evaluating Planned Developments. Riparian countries are likely to be evaluating developments of fellow riparian countries on the basis of incomplete or inadequate information necessary to informed decision making [\(Action Item 1.6\)](#)

ii) Discretionary, rather than mandated powers underpin information monitoring and sharing

In terms of the national legislation of most ZRB countries, bodies responsible for information monitoring, within the institutional arrangements of riparian states, are empowered to undertake this function *but are not mandated to do so by law*. This risk can be mitigated by strengthening the ZAMCOM Data Sharing Rules (see iii below). [\(Action Item 1.7\)](#)

iii) Specific direction and guidance on data measurement and reporting is lacking

Usefully, the ZAMCOM Rules and Procedures for Sharing of Data and Information Related to the Management and Development of the Zambezi Watercourse (ZAMCOM, 2016) (the Data Sharing Rules) adopts a Basin development approach in that it provides for monitoring and sharing of socio-economic and environmental data and is not limited to hydrological data. The Data Sharing Rules also provide for frequency of collection and reporting and it is noted as good practice that the Rules and Procedures provide for an annual review. *The ZRB*

countries, however, are not provided with specific guidance on what to measure and report. Furthermore, details regarding the types of information that should be gathered, and the methods for gathering such data are not explicitly stated in national water laws and policy. This leads to a situation of unevenness in both the **quality and flow of information** nationally and across the basin. Moreover, the Data Sharing Rules (Table 1, Section 3) do not yet oblige Members to share certain key pieces of information such as evaporation, temperature, sediment concentration, water quality, and rainfall. Although this can be amended during the Annual Review, it is notable that the Rules explicitly exclude provisions that **govern early warning systems** and the process for notifying other Member States of impending disasters. Furthermore, the Data Sharing Rules include ‘**groundwater**’ in the definitions of ‘watercourse’ and ‘hydrological data’. However, ‘groundwater’ is not mentioned anywhere else in the Rules, and it is not specifically listed in the types of data that should be shared. Groundwater is likely to play an increasingly important role as freshwater availability becomes more unpredictable. This makes it important for increased climate resilience and enhanced water security of the Basin as a whole; that countries monitor and report on this information. Doing so would greatly increase the Basin and regional understanding of groundwater availability, use, risks and opportunities. (*Action Items 1.8, 1.9, 1.10*)

iv) ZRB Catchment level agencies do not have the capacity to provide quality data to national agencies

In addition to the aforementioned Rules and Procedures, ZAMCOM has established the ZAMWIS information sharing system, and is in the process of augmenting this with a comprehensive Decision Support System (DSS). These platforms rely on the availability of quality, relevant data from the national level, which in turn relies on good quality and relevant data at the catchment level. This issue plays itself out most explicitly at the level of catchment management agencies, where these mostly embryonic, under-capacitated institutions, are unable to provide relevant, quality data to national agencies to factor into national planning, and to share with other Member States. (*Action Item 1.7*)

v) Management of pollution and alien and invasive species: is not harmonised across the Basin.

The transboundary nature of watercourses means that the way in which a country manages pollution has an impact on water beyond their borders. The need for a degree of uniformity is therefore recognised. A centrally maintained list of pollutants and alien and invasive species (biota and aquatic weeds) as well as associated standards for measurement (such as concentration levels) is necessary to enable harmonisation. (*Action Item 1.12*)

Action items for Priority 1: Harmonising legislation and regulations to support Planned Development

Important action items relate to the requirements to be addressed by both national and transboundary EIAs, public participation processes, climate change considerations, benefit sharing and information and data management.

Harmonised information and data management is already recognised as a necessity for the ZRB. This is evident in the ongoing development of the ZAMWIS Hydro-Met Database and the DSS, as well as at a regional level through the SADC-HYCOS project. It is further evidenced by the provisions of the ZAMCOM Agreement and the Rules and Procedures for Sharing of Data and Information Related to the Management and Development of the Zambezi Watercourse. For instance, Article 8(3) of the Data Sharing Rules states that:

“The Member States agree that harmonised quality standards will be developed if and when required. ZAMCOM will facilitate such harmonisation as stated in the ZAMCOM Agreement.”

The ZAMCOM Agreement provides more broadly for harmonised approaches to water resource management, as discussed in the section on the rationale for harmonisation. Urgent application of these provisions is suggested, given the critical information and data sharing gaps revealed through this assessment (Box 2 in Section A3.4). Taking these steps would send strong signals to Basin investors of ZAMCOM’s commitment to mitigating the risks associated with inadequate or inaccurate information. A number of action items are proposed under the Priority for Harmonised Regulatory Frameworks for Planned Development for the ZRB. These are outlined in Tables 3 and 4 below.

Priority 1 Action Items

Table 3. Action items for Priority 1: Harmonising Regulatory Frameworks to support Planned Development

#	Action Item – Priority 1	Description	Process and outcomes	Good practice reference
1.1	Develop transboundary EIA requirements and guidelines: A common set of EIA requirements, or guidelines, developed for the Basin, detailing specifics around transboundary impact assessments, would enhance the implementation of the ZAMCOM Notification Procedures, while also reducing the likelihood of disputes.	ZAMCOM develops a set of EIA requirements and guidelines that encourages basin-wide harmonisation, particularly regarding the necessary considerations for transboundary EIAs. Section 17(ix) of the ZAMCOM Notification Procedures requires that the Technical Notification addressed to the ZAMCOM Executive Secretary includes “an executive summary of an EIA report including the findings of an assessment of transboundary impact and containing, as a minimum, the contents outlined in Annex II of the 1991 Espoo Convention on Environmental Impact in a Transboundary Context.” Annex II of the Espoo (EIA) Convention sets out nine aspects for inclusion, however it does not describe detailed, transboundary water-specific processes to guide Member States in undertaking such an assessment. It also does not include specific measurables that need to be considered or the methods for determining such. <i>This aligns with action 2.6 of the ZAMCOM IWRM Strategic Framework (2016): Develop and implement guidelines for the use of proper EIAs and SEAs in development planning</i>	ZAMCOM establishes best practice under the <i>ZAMCOM Best Practice Guidelines for Harmonisation</i> to support Member States and develops a set of guidelines for Transboundary EIAs in accordance with best practice for the Basin. Outcome: Detailed transboundary EIA requirements and guidelines that encourage basin-wide harmonisation are established.	The Nile Basin is currently designing an Agreement that will oblige Member States to carry out EIAs for planned developments that might have adverse effects on other Member States, and to conduct environmental audits, where necessary (OneWorld, 2017. p.36).
1.2	National EIA legislation reflects ZAMCOM Notification Procedures.	Support Member States in a process to amend national EIA legislation such that it requires that developers follow the relevant RBO Notification Procedures and undertake transboundary EIAs where transboundary impacts are a possible outcome of a planned development, and mandates a procedure for doing so. This is critical to alerting developers of the notification requirements.	ZAMCOM facilitates a harmonisation process across the ZRB in accordance with the <i>ZAMCOM Best Practice Guidelines for Harmonisation</i>. Outcome: National EIA legislation within Member States reflects ZAMCOM Notification Procedures and guidelines.	Good practice is to be found in the Botswanan Environmental Assessment Act (2011), which includes a legislative duty for the Minister of Foreign Affairs to submit a notification, together with relevant information, to the affected country. Zambia’s Act has a similar provision. However, these provisions also need to be revised, with a specific duty to notify the relevant RBO and follow the prescribed procedures.
1.3	Establish best practice for public	Legislation defines and maps out public participation	ZAMCOM leads the process of mapping out	The EU Water Framework Directive (WFD)

#	Action Item – Priority 1	Description	Process and outcomes	Good practice reference
	participation processes; and reporting requirements are set up.	processes at national and basin level and in accordance with best practice, particularly for the undertaking of transboundary EIAs for planned development. <i>This aligns with action 4.4.1 of the ZAMCOM IWRM Strategy Implementation Plan (2016): Strengthen participation through policy and legislation review and revision throughout the basin states</i>	best practice for the Basin under the <i>ZAMCOM Best Practice Guidelines for Harmonisation</i>, drawing on existing good practice in the Basin. ZAMCOM amends the Rules for Data Sharing in the annual review process to require that information on public participation is shared between Member States in the case of transboundary developments, or developments that have transboundary impacts. Outcome: ZAMCOM Rules for Data Sharing require information on public participation is shared between Member States involved in transboundary developments. National legislation of Member States incorporates best practice for public participation process and reporting.	identifies public participation (PP) as a way to improve water management through improved planning and decision making. PP promotes accessibility leading to transparency and trust, resulting in more successful policy implementation (GWP, 2014, in Draft Comparative Analysis: Supplementary Report 3, p22). Good practice requires strong public participation and stakeholder involvement (Supplementary Report 3, p23). Malawian legislation imposes a blanket public participation requirement for any decision taken under the Act.
1.4	EIAs incorporate climate change.	ZAMCOM EIA requirements or guidelines specify how climate change be taken into consideration. <i>This aligns with action 3.4.1 ZAMCOM IWRM Strategy Implementation Plan (2016): Integrate strategies to deal with climate variability and climate change in national socio-economic development planning</i>	ZAMCOM includes guidelines for how to integrate climate change in EIAs in the <i>Best Practice Guidelines for Harmonisation</i>. Outcome: Best Practice Guidelines on how to integrate climate change in EIAs are established.	Indicator: National climate change policy aligns with Basin-wide stakeholder engagement approaches and procedures in the process of planning and implementing climate change adaptation measures (Supplementary Report 3, p46).
1.5	Benefit sharing mechanisms are incorporated into notifications of planned measures as a harm mitigation measure.	ZAMCOM Notification Procedures are amended to require that benefit sharing options are considered when proposing options for harm mitigation.	ZAMCOM, establishes benefit sharing mechanisms/provisions through updating the Notification Procedures, in-line with the requirements for transboundary EIAs. <i>The Best Practice Guidelines for Harmonisation</i> motivates for Member States to incorporate benefit sharing options into national legislation pertaining to transboundary EIAs. Outcome: ZAMCOM Notification Procedures are amended to require benefit sharing options are considered.	The Senegal River Basin Development Organisation (OMVS) provides a good practice example of benefit sharing, based on equitable sharing and joint ownership of the watercourse and its benefits. The 1978 Senegal River Convention declared that water and power infrastructure constructed under the OMVS would be “joint and indivisible properties of Member States” (Supplementary Report 3, p37; OneWorld, 2017, p32). The Member States share costs, relative to the benefits that they gain. Good Practice benefit sharing is available in the National Water Policy of Botswana details mechanisms for benefit sharing

Table 4 Action items specific to harmonising Regulatory Frameworks for Information and Data Management

#	Action Item – Priority 1	Description	Process & Outcome	Good practice reference
1.6	Establish a register of priority monitoring stations.	Develop a register of prioritised monitoring stations for construction and/or rehabilitation across the ZRB, interfacing with the ZAMWIS Hydro-Met Database and DSS projects where necessary <i>This aligns with action 4.3.3 of the ZAMCOM IWRM Strategy Implementation Plan (2016): Improve basin-wide data collection systems</i>	ZAMCOM develops this under the annual review of the ZAMCOM Data Sharing Rules, as per the function of the Technical Committee at Article 10(1)(c)(i) of the ZAMCOM Agreement. Outcome: A register of monitoring stations prioritised for construction and/or rehabilitation across the ZRB is established.	The ZAMCOM Rules and Procedures for Sharing of Data and Information (2016) oblige Member States to share certain key data and information from a catchment/sub-basin level. Certain gauging stations are identified as needing to be constructed or rehabilitated however, no prioritisation of key stations is made.
1.7	Mandate national and catchment level agencies to monitor and report, and the establishment of national focal points for cooperation on transboundary water information	Review and amend national legislation/regulations to mandate national and catchment level agencies to monitor and report on specific hydrological and meteorological data in a standard format, based on ZAMCOM issued guidelines. <i>This aligns with action 4.3.2 of the ZAMCOM IWRM Strategy Implementation Plan (2016): Harmonise data measurement and storage methods</i>	ZAMCOM establishes best practice under the <i>ZAMCOM Best Practice Guidelines for Harmonisation</i> to support Member States when revising national regulatory frameworks, leading to basin-wide harmonisation. Include the establishment of national focal points for cooperation on transboundary water information within the guidelines. Outcome: National and catchment level regulations mandating monitoring and reporting of specific hydrological and meteorological data are established and harmonised.	Mozambique's National Water Law 16/91 of 3 August 1991 Article 18 - Regional Water Administrations is responsible for "collecting and maintaining updated hydrological data necessary for the management of hydrographic basins." No specific information is listed. Similarly, Zambia's Water Resources Management Act 21 of 2011 provides that Catchment Councils have a duty to monitor hydrological, hydro-geological and water quantity data. No specifics are referred to.
1.8	Update the Data Sharing Rules and establish a timeline for delivery of key information	Update the Data Sharing Rules to include priority information such as specifics on socio-economic & environmental data, water quality/pollution monitoring requirements, as well as equipment standardisation. Develop a timeline as part of the annual review of the ZAMCOM Data Sharing Rules, that outlines when it will become obligatory to report on the various data types. <i>This aligns with action 4.3.1 of the ZAMCOM IWRM Strategy Implementation Plan (2016): Strengthen data and information sharing protocol for further operationalisation of ZAMWIS</i>	ZAMCOM leads the prioritisation process as part of the annual review of the Data Sharing Rules (Section 7). ZAMCOM develops a timeline as part of the annual review of the Data Sharing Rules (Section 7). Outcome: Data Sharing Rules are updated to include priority information and a timeline for delivery of information is established.	The Hydrological Data Sharing Protocol of the Permanent Okavango River Basin Water Commission (OKACOM) refers as a regional good practice example, where water quality parameters are set and where there is agreement to use standard sampling equipment and analytical methods (OneWorld, 2017).

#	Action Item – Priority 1	Description	Process & Outcome	Good practice reference
1.9	Explicitly include early warning and disaster monitoring and reporting in the Data Sharing Rules.	Explicitly include provisions for the governance of early warning and disaster monitoring & reporting processes. Agree standardised parameters and processes for notifying Member States as early warning of disasters and extreme events, in accordance with best practice. <i>This aligns with action 3.23 of the ZAMCOM IWRM Strategy Implementation Plan (2016): Strengthen and encourage collaboration of existing early warning institutions</i>	ZAMCOM includes this as an agenda item as part of the annual review of the ZAMCOM Data Sharing Rules (Section 7), as per the function of the Technical Committee at Article 10(1)(c)(ii) of the ZAMCOM Agreement. ZAMCOM establishes best practice under <i>ZAMCOM Best Practice Guidelines for Harmonisation</i> to support Member States in enacting the requisite legislation when revising their national laws. Outcome: Best practice guidelines are established to support Member States to include early warning and disaster monitoring and reporting in requisite regulations.	In the Dniester River Basin, measures aimed at improving flood prevention were implemented by installing automatic water level monitoring stations upstream so that the information is quickly available downstream, enabling downstream riparian countries to make timely flood protection decisions. Through the International Sava River Basin Commission; the Protocol on Flood Protection to the Framework Agreement sets the conditions for the planning and implementation of flood related measures. The Protocol acknowledged the need for adaptation measures and set up a pilot project linking flood risk management planning and climate change assessment in the river basin. In order to establish appropriate flood risk management objectives, a basin-level assessment was undertaken, which yielded valuable information on the impact of climate change on temperature and precipitation trends, and on the hydrologic regime of the Sava River.
1.10	Provide for groundwater data collection.	Determine and specify groundwater data collection requirements, as well as a timeline for when Member States are required to start providing such information. <i>This aligns with action 4.3.4 of the ZAMCOM IWRM Strategy Implementation Plan (2016): Priority improvement of data and knowledge base in groundwater resources</i>	Review the role of groundwater in terms of the mandate of ZAMCOM and include groundwater as an agenda item under the annual review of the Data Sharing Rules. ZAMCOM develops groundwater guidelines as part of the Best Practice for incorporation into national laws and policy included in the <i>ZAMCOM Best Practice Guidelines for Harmonisation</i>. Outcome: Ground water collection requirements and related timelines to reporting collection are established as part of the <i>ZAMCOM Best Practice Guidelines for Harmonisation</i>.	The UN Convention defines “Watercourse” as “a system of surface waters and ground waters”. The ZAMCOM Data Sharing Rules include groundwater in the definition of the Zambezi Watercourse; however, it does not address groundwater at any procedural or substantive provision in the document. The Bellagio Draft Treaty (Hayton and Utton, 1989), the Berlin Rules (ILA, 2004) and the Genevois Treaty (Genevois, 2008) provide the most comprehensive guidelines for management and allocation of both surface water and groundwater resources (Anon, 2013). Under the OKACOM Hydrological Data Sharing Protocol, the Commission recently identified that the Protocol needs to be amended to explicitly include groundwater (OneWorld, 2017).

#	Action Item – Priority 1	Description	Process & Outcome	Good practice reference
1.11	Develop a set of technical indicators for harmonised information and data management.	ZAMCOM develop and agree to a set of technical indicators for information and data management at a national level (including specific socio-economic & environmental data), and include such in the <i>ZAMCOM Best Practice Guidelines for Harmonisation</i> as well as within the <i>Data Sharing Rules</i>. Support Member States, through fund raising and technical support, to implement the technical indicators and to harmonise with best practice. <i>Aligns with action 4.3 ZAMCOM IWRM Strategy Implementation Plan (2016): Improve and expand basin-wide water resources data collection, processing and information transfer systems</i>	ZAMCOM agrees to this approach as an agenda item in the next annual review of the Data Sharing Rules and commences a process for contracting technical consultants to develop the Indicators under the auspices of the DSS development, or within the Data Sharing Rules as per Article 8(3) that provides for 'harmonised quality standards' to be developed if and when required, to 'facilitate such harmonisation as stated in the ZAMCOM Agreement. Outcome: An agreed upon set of technical indicators for information and data management at a national level is developed. Support mechanisms to assist Member States to implement technical indicators and harmonise with best practice are identified and considered.	The Hydrological Data Sharing Protocol of the Permanent Okavango River Basin Water Commission (OKACOM) refers as regional good practice example, where water quality parameters are set and where there is agreement to use standard sampling equipment and analytical methods (OneWorld, 2017).
1.12	Develop a guideline for harmonising management of prohibited substances and aquatic weeds.	ZAMCOM develops a guideline for prohibited substances, with a centrally maintained list of pollutants, alien & invasive species (biota & aquatic weeds), associated standards for measurement & reporting, appointing national focal points. A Basin-wide guideline for pollution, alien invasive species, & aquatic weeds would contribute significantly to the advancement of water quality in the Basin. Such a guideline is well within the ZAMCOM mandate, significantly enhancing harmonisation across the Basin. <i>Aligns with action 2.3.1 ZAMCOM IWRM Strategy Implementation Plan (2016): Harmonise legislation on control of aquatic weed control, and 2.3.2, set up national focal points on aquatic weed control, as well as, 2.3.4, initiate joint monitoring and survey of aquatic weeds proliferation</i> <i>Aligns with action 2.2.1 ZAMCOM IWRM Strategy Implementation Plan (2016): Set up integrated water quality monitoring systems, and 2.2.2, harmonise legislation and enforcement systems on water quality</i>	ZAMCOM develops this guideline, specifically to identify applicable thresholds, standards and quality objectives and to: (i) set joint water quality objectives and criteria; (ii) establish techniques and practices to address pollution from point and non-point sources; (iii) establish lists of substances, the introduction of which into the waters of a shared watercourse is to be prohibited, limited, investigated or monitored; and (iv) establish national focal points on aquatic weed and pollution control. This guideline and database could be stand-alone or form part of the <i>ZAMCOM Best Practice Guidelines for Harmonisation</i>. Outcome: A guideline for the management of prohibited substances and aquatic weeds, including joint water quality objectives and techniques to address pollution, is developed.	The transboundary Finnish Norwegian River Basin District (FNRBD) monitors and manages water quality, based on the EU's Water Framework Directive (WFD). FNRBD lists sources of pollution and alien & invasive species. Good practices include: i) decentralisation & public participation: county councils, with local stakeholders in a River Basin District Board (Draft Comparative Analysis, p16); ii) Riparian states coordinate measures and share water management plans; iii) monitoring, reporting and alignment of methods around M&R across all riparian countries; iv) ecological and chemical classification of water (by sampling); iv) protected areas; v) regular communication between riparian countries; vi) economic analysis of water (water pricing). Dublin Water Principles; v) National law/policy recognises the importance of integrated management of trans-boundary river basins

B3.3 Priority 2: Harmonise Regulatory Frameworks for Equitable Water Access and Allocation

With water scarcity likely to increase in the ZRB, Member States have recognised the importance of a basin wide water allocation strategy to mitigate against this risk, and have initiated the process of developing such. Key to this strategy is Member States' agreement on the most strategically advantageous allocation of water resources across the Basin, as the basis for prioritising the most beneficial use thereof for the collective, so as to enhance Basin-wide resilience.

Given the limited availability of water in the ZRB, achieving equitable allocation of such resources requires a basin-wide approach. Such a Basin-wide approach requires a thorough understanding of socioeconomic and environmental conditions across the basin, in order to inform the development of a basin-wide allocation strategy. For this reason, it is important that bringing national regulatory frameworks into line with trends in international water governance in the ZRB provide for the collecting and sharing of key socioeconomic and environmental data to inform the policies and plans for the ZRB. This means that Member States collect, and share socioeconomic and environmental data with ZAMCOM (As discussed in Priority 1), to underpin a basin wide approach and to facilitate a basin wide water allocation strategy.

Box 7 gives an overview of the factors affecting the current status of water allocation in the ZRB, based on the results of the aforementioned Assessment.

Box 7. Water allocation in the ZRB

Water allocation gaps in the ZRB

- i) **The ZAMCOM Agreement does not address the issue of water allocation**, and there is no agreed upon mechanism for determining equitable allocation across the ZRB. Internationally, there are differing views as to which factors should take precedence in determining equitable allocation. It remains to be determined whether the driving factor should be the population dependant on the resources, the portion of the basin within a particular territory, or where such allocation is likely to generate the most economic returns – or a combination of these. Whilst Member States have displayed a willingness to probe this question, through the commissioning the development of the Strategic Plan for the ZRB, it will be difficult for any consensus around this issue to be reached without an agreed upon basis for determining what would be considered equitable. Determining equitable allocation would need to address the question of what is considered to be equitable and reasonable utilisation (ERU). Hence, Member States need to work towards building a common definition, and understanding of ERU, including all the factors than need to be considered, and the how to apply them, thus paving the way for the Basin to understand and plan for current and future consumption patterns and scenarios, to include the climate change factor. The ZAMCOM Agreement foresees this need, and at Article 13(2) requires that ZAMCOM develops Rules of Application of the principle of Equitable and Reasonable Utilisation. These Rules have not yet been developed, and there is thus an imperative on Member States to work together to do so.
- ii) **There is no mechanism to guide cost and benefit sharing in the ZRB.** Water allocation is premised by benefit sharing approaches and is based on the principle of equitable and reasonable utilisation. Benefit sharing approaches recognise the economic value of water resources across a basin, thus providing the imperative for negotiation and collaboration between riparian countries for the sharing of both the costs and benefits associated with maximising the economic value of the water resources. However, benefit sharing is not explicitly evident in the laws, policies or plans of seven of the eight riparian countries. Only Botswana makes provision for 'guidelines' for applying a benefit sharing approach in a transboundary context; although these guidelines have not yet been developed. Thus, there is no precedent or mechanism for benefit sharing at a basin-wide level, other than the aforementioned provision of the Notification Procedures. This is in spite of the fact that stakeholders highlight that benefit sharing is a critical requirement for advancing the water security agenda. There are however, examples and precedents in the Basin and the region where the benefit sharing approach is followed at a bilateral level. Most bilateral agreements, and Memorandums of Understanding (MOUs) between two countries, are in fact predicated by shared benefits. An example thereof is an MOU between Mozambique and Swaziland on energy, mineral resources and water resources (2016). Other examples of good practice in bilateral benefit sharing-based agreements in southern Africa are: i) the

Zambezi River Authority (ZRA) which provides for energy benefit sharing between the Zambia and Zimbabwe, and; ii) the Lesotho Highlands Treaty between Lesotho and South Africa (1986) on the Orange-Senqu River Basin (also shared with Botswana and Namibia), designed to derive mutual benefits (particularly energy), for the two countries, through the “enhancement, conservation and equitable sharing of the water resources”. A good practice example of joint investment planning and management using a cost and benefit sharing approach is the Senegal River Basin, coordinated by its commission, the OVMS.

- i) **Despite some examples of agreements on shared benefits across Africa, co-benefits and trade-offs are not well understood** in the context of the ZRB. A consequence thereof is that trade-offs between water uses and riparian countries, i.e. where one use is explicitly prioritised over another, are often shied away from. Decision makers are reluctant to make trade-off decisions in the absence of justifiable arguments that rely on coherent information. This often results in lost opportunities for sharing the co-benefits that joined-up resource management of a shared river basin could others bring about. The co-benefits can include job creation, poverty alleviation and improved equality; central development issues in any African state (Petrie, 2017).

- ii) **Not all countries have national and sub-national water allocation policies in place, and national water allocation planning is inadequate.**

The laws of most of the countries reviewed require that the relevant minister develop a National Master Plan, Water Balance or Water Management Strategy, for the country. These national plans often are required to reflect various catchment management strategies and catchment supply and demand plans. The manner in which this is achieved is not uniform. For example, some countries have catchment level supply and demand strategies only (e.g. Zimbabwe), whilst other countries have only outline plan/master plan requirements (e.g. Botswana). It is important that countries have a legal requirement to develop a publicly available document that sets out national water supply and demand. Most of the countries reviewed do not have legislative requirements for the specific level of detail and content that a master plan/water balance should contain in terms of good practice. Few countries can provide sufficient information to determine the national water balance (stocks and demand) and related demand forecasts required to underpin allocation policies. Thus, the ability to plan and prioritise allocation of available water resources both nationally and across the Basin is compromised. Typically, the national water laws of riparian countries only require a focus on available supply at the national level and to then make a determination of demand. Where demand exceeds supply, there is a related requirement to propose technological, efficiency and other measures to ensure that supply is able to meet demand. (*Action Item 2.2*)

- iii) **Most countries do not take transboundary considerations into account in national allocation plans**

Zambia, for example, requires the Minister to take “international obligations” into account when formulating water allocation plans, however most countries lack such a provision. When assessing the available water supply and demand, decision makers need to know that they must also consider the agreed rights of existing water users of upstream and downstream states. Where a basin-wide allocation plan is in place, it will be vital that such a provision is contained within national laws or policies in order to give operational effect to the provisions of such a plan. (*Action item 2.2*)

- iv) **A developmental, basin-wide approach is needed in the ZRB**

The ZAMCOM Agreement (Articles 12, 13) incorporates the ‘principle of sustainable development’, and includes many basin-wide developmental considerations, such as social, economic and environmental needs. These are important considerations when developing further rules, procedures and strategies for the Basin. The view taken by the International Court of Justice in the Pulp Mills case (Argentina v. Uruguay) demonstrates that the interpretation of the principles of international law is moving to a wider developmental approach that considers the basin as a whole. The development of a transboundary water allocation plan, or strategic action plan for the basin would be greatly strengthened by Member States being obliged to share specifically agreed upon socio-economic and environmental information, fostering an understanding of national water priorities and development scenarios. A basin wide allocation strategy would need to be underpinned by such information, to be able to determine what constitutes equitable allocation. As a result of this pressing need, ZAMCOM needs to codify the evolving obligations for Member States when it comes to sharing data that unlocks basin-wide water allocation (*Action Item 2.3*)

Action items for Priority 2: Harmonise Regulatory Frameworks for Equitable Water Access and Allocation

Action items for Priority 2 include incorporation of benefit sharing and equitable allocation; national allocation policies and plans, that include taking transboundary /international obligations into account; and the duty to share socio-economic and environmental data in new policies/plans (Table 5). Notably, the Data Sharing Rules provide for sharing of socio-economic and environmental data.

Priority 2 Action Items

Table 5 Action items for Priority 2: Harmonising regulatory frameworks to support equitable water allocation

#	Action Item – Priority 2	Description	Process and outcome	Good practice reference
2.1	Incorporate equitable and reasonable utilisation (in addition to benefit sharing) into basin and national level regulatory frameworks.	Recognition of equitable and reasonable utilisation as a key principle and the basis for the allocation of water in the Basin, premised by benefit sharing mechanisms. <i>This aligns with action 3.4.1 of the ZAMCOM IWRM Strategy Implementation Plan (2016): Strengthen coordination with ongoing programmes in the basin</i>	ZAMCOM develops Rules of Application of the principle of Equitable and Reasonable Utilisation in line with Article 13(2) of the ZAMCOM Agreement. ZAMCOM develops guidelines for the incorporation of equitable and reasonable utilisation, and a benefit sharing mechanisms into national regulatory frameworks, including the associated considerations as per Article 13(2) and Article 13(3) of the ZAMCOM Agreement, incorporated into the <i>Best Practice Guidelines for Harmonisation</i>. The ZAMCOM Strategic Action Plan incorporates benefit sharing as a consideration for determining equitable allocation of water resources in the ZRB, and describes possible trade-offs. Outcome: Rules of Application of the principle of Equitable and Reasonable Utilisation are developed, as are guidelines for Member States to incorporate equitable and reasonable utilisation and benefit sharing into requisite regulatory frameworks.	The Zambezi River Agreement between Zambia and Zimbabwe is a good practice example of benefit sharing in action where neighbouring states share available water resources as well as the costs and benefits of constructing and operating a hydroelectric dam. The Lesotho Highlands Treaty between Lesotho and South Africa is another example of good practice in the region. The OVMS (Senegal River Basin) provides an excellent African model for structured planning, investment and benefit sharing. Botswana's National Water Policy (2012) at Paragraph 12.1.6 provides for guidance for the management of internationally shared boundary water resources including benefit sharing mechanisms. The Integrated Water Resource Management Water Efficiency Plan (IWRM-WE) makes mention of the need to share benefits of transboundary water resources. Specifically, the policy notes that there should be a guideline for benefit sharing mechanisms for multi-purpose hydraulic infrastructure.
2.2	Draw up water allocation policies and plans at the national level that address international/transboundary obligations.	Member States draw up and share national and subnational (catchment) water allocation plans, underpinned by reliable data on current and predicted future water availability and consumption. Allocation plans should include transboundary obligations, addressing the role and interface with Basin Allocation Strategies. <i>This aligns with action 2.5.2 of the ZAMCOM IWRM Strategy Implementation Plan (2016): Develop</i>	ZAMCOM draws up guidelines for national water allocation policies and plans within the <i>Best Practice Guidelines for Harmonisation</i>. Member States draw up water allocation policies and produce water allocation plans. ZAMCOM draws up a Guideline for addressing transboundary obligations in water allocation policies and plans within the <i>Best Practice Guidelines for Harmonisation</i>.	The Jordan Israel Peace Treaty is deemed successful, precisely because of the level of comprehensive detail it provides regarding allocations, including aspects of volumes, costs, responsibilities, timing and access. According to the "Johnston Accord" for the Jordan River; national allocations were based on the total in-basin agricultural need, irrespective of national borders, with the understanding that each country could then use the water as it wished, including to divert it out-

#	Action Item – Priority 2	Description	Process and outcome	Good practice reference
		<i>catchment management plans incorporating areas of tourism value such as game management areas and wetlands</i>	Outcome: Guidelines for the establishment of national water allocation policies and plans are developed and disseminated. Member States develop water allocation policies that address transboundary obligations.	of-basin.
2.3	Understand and plan for consumption patterns, future consumption scenarios, and climate change	Include current and projected water consumption patterns as related to national water stocks under future scenarios, including climate change into national and sectoral planning, including national allocation plans and strategies. Without quality information available, planning around national allocations becomes impossible to do with any accuracy. This in turn affects the ability of riparian states to agree on basin level allocations and prioritisation. What appears to be most lacking is an understanding of the consumption of water resources by the different economic sectors of riparian states, and projections of how consumption patterns are likely to change as a result of climate change, population growth, rapid urbanisation and economic development <i>This aligns with action 3.1 of the ZAMCOM IWRM Strategy Implementation Plan (2016): Improve the knowledge base on climate variability and climate change and their impacts on water resources, as well as action 3.4.1, namely, integrate strategies to deal with climate variability and climate change in national socio-economic development planning</i>	ZAMCOM facilitates the development of these scenarios through or supplementary to the SP, and particularly to be incorporated in, or inform the <i>ZAMCOM Best Practice Guidelines for Harmonisation</i>. Future basin-wide allocation plans need to be underpinned by national level information, to be able to determine what constitutes equitable allocation. ZAMCOM needs to codify the evolving obligations for Member States in this regard. There are four ways in which such codification could take place: i) include these obligations in the early renditions of the SAP, where basin-wide allocation of water resources is identified as a strategic imperative that requires that Member States share identified information in a specific manner; ii) include specific information relating to socio-economic, environmental, and development considerations in the ZAMCOM Data Sharing Rules; iii) develop such information sharing imperatives as part of the Rules of Application of the principle of Equitable and Reasonable Utilisation, which ZAMCOM has yet to develop as per Article 13(2) of the ZAMCOM Agreement, and; iv) ZAMCOM develops a separate Basin Allocation Policy that will inform the inclusion of a basin-wide allocation strategy in the SP Outcome: Projections of water consumption patterns that consider climate change and demographic and economic changes are developed in the ZRB and utilised for planning and equitable allocation.	The 2011 Okavango River Basin Transboundary Diagnostic Analysis (TDA) is based on specialist country reports, developed for each Member State. A set of scenarios for possible future water development pathways are premised on: i) a status quo assessment of the Basin (natural environment and people) coupled with a macro economic and governance structure overview; and ii) a comprehensive Integrated Flow Assessment (IFA), a major component of the TDA, that established the potential ecological, economic and social implications of each scenario, conducted by a multidisciplinary team of scientists drawn from each Member State. The data and knowledge gathered from the IFA are now housed in a custom-built repository which functions as a decision support tool for Basin management. The IFA also established a process for predicting change in the Basin.

B4 | A Process for Harmonisation

Operationalising the Framework for Harmonisation detailed in Part B requires an overarching strategy and plan. Such a Harmonisation Strategy and Action Plan could be a subset of the forthcoming SP, or it could be implemented as a stand-alone initiative. The strategy and plan would encompass a structured harmonisation process whereby ZAMCOM establishes specific working groups, as mentioned earlier, and in a process outlined below (Section B4.1). These working groups are mandated to review and develop the means of implementation for each Priority, such as the various policies and guidelines recommended in the Action Items above.

Approval of the working groups is necessary, and should follow the process outlined below. The findings and outcomes from each working group would likewise need to be approved by following a similar process.

B4.1 | Establishing the working groups

The Secretariat is empowered by Article 11(6)(l) of the ZAMCOM Agreement to make recommendations to the Technical Committee (ZAMTEC) on the harmonisation of national water policies and laws of Member States. In line with this provision, the Secretariat may request that ZAMTEC establish ad hoc or standing working groups, as per Article 10(2)(D), comprising representatives from Member States as may be necessary for the implementation of the Agreement. Specifically, this entails implementing the harmonisation objective at Article 5(g) of the Agreement. Once established, each working group would undertake its mandate and produce the outcomes detailed below, under the mandate of ZAMTECH, and directly reporting to this body.

The outcome(s) of the working group(s) would be in the form of a recommendation in accordance with Article 10(2) (b) regarding recommendations to the Council on the harmonisation of water laws and policies of Member States. The Council would then approve the recommendations, as per Article 8(a); “adopt policies and decisions, and provide other necessary guidance on the promotion, support and coordination of the efficient management, sustainable development, and reasonable and equitable utilisation of the water resources of the Zambezi Watercourse”.

The working groups should be established to focus on incorporating the relevant Priorities and Action Items into their recommendations.

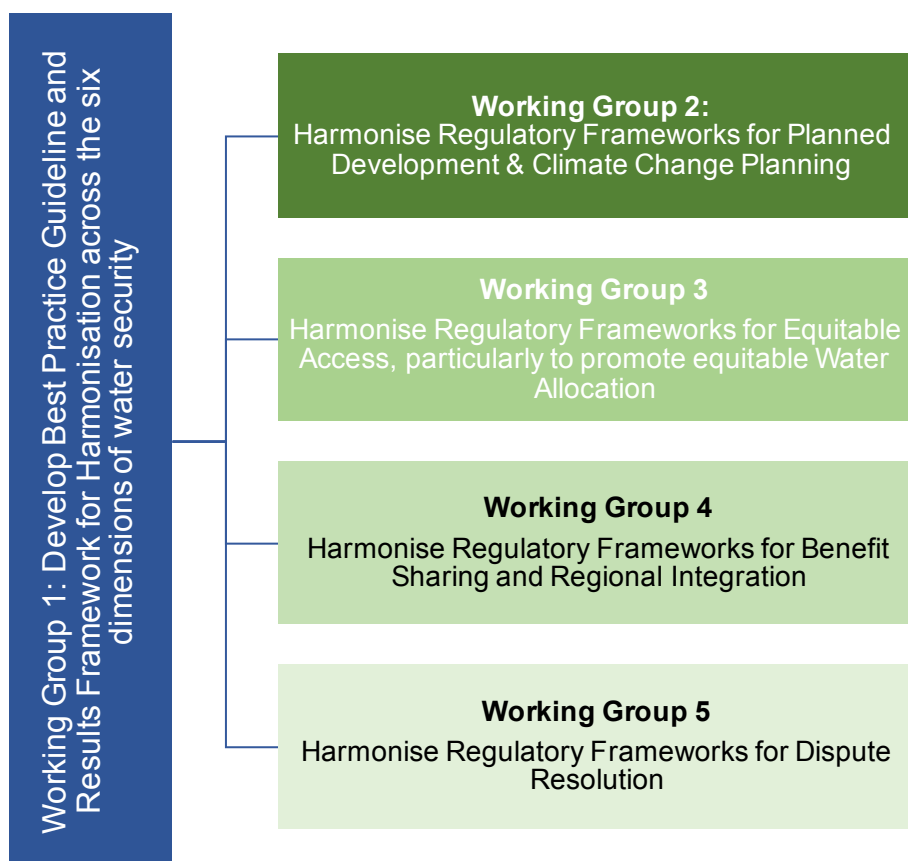
A Priority Cluster focus or an Outputs focus

The working groups could be structured in two different ways depending on the focus - either a Priority Cluster focus or an Outputs focus. Figure 2 below outlines a possible structure for the working groups with focus on the Priority Clusters, detailing the necessary functions. Figure 3 below outlines an alternative structure for the working groups, with the focus rather on the Outputs.

Working Group Structure A – Priority Cluster focus

In Structure A, four separate working groups are established, with each group aligned to one of the two Priority Clusters for Harmonisation proposed above. An additional Working Group develops the overarching Guideline for Harmonisation. In this structure, each working group focuses on developing the means for operationalising each of the Priority Clusters, through implementing the Action Items detailed for each Priority.

Figure 2. Working Group Structure in accordance with Priority Clusters



Working Group Structure B – Output focus

As an alternative to the above, working groups may be structured in terms of the desired outcomes/outputs of the harmonisation process as in Table 6 below. In this approach, working groups are set up in accordance with the guidelines, revisions to policies, etc. desired.

In addition to the recommendations of the working groups to ZAMTEC, a series of tools and guidelines and other outputs will be produced. These are outlined in Table 6.

Table 6 Action Items and Outputs, per Working Group

Working Groups	Action Items and Outputs
ZAMCOM Best Practice Guidelines and Results Framework for Harmonisation Develop: ● Interpretations of key international water law principles; and guidelines for codifying these in national laws and policy ● Guidelines for best practice of prioritised areas for aligning regulatory frameworks with trends in international water governance through harmonisation ● Guidelines for transboundary cooperation relationships with national laws ● Protocol for addressing language barriers ● Guidelines for institutional arrangements for national and sub nation water management structures	Priority 1: Harmonise Regulatory Frameworks for Planned Development & Climate Change Planning Develop: ● Transboundary EIA requirements and guidelines ● Guidelines for national EIA legislation to reflect ZAMCOM Notification Procedures ● Guidelines for public participation processes and reporting requirements ● Guidelines for incorporating climate change into EIAs ● Benefit sharing mechanisms/provisions ● Guideline for harmonising management of prohibited substances and aquatic weeds. Review the role of groundwater in terms of the mandate of ZAMCOM, and develop relevant groundwater guidelines, in accordance with the ZAMCOM IWRM Strategy and Action Plan ● Guidelines for mandating national and catchment level agencies, and include the establishment of national focal points for cooperation on transboundary water information within the guidelines. ● Standardised parameters and processes for notifying Member States as early warning of disasters and extreme events, as per the function of the Technical Committee at Article 10(1)(c)(ii) of the ZAMCOM Agreement. ● Technical indicators for harmonised information and data management ● Amended for reporting on public participation procedures ● Timeline for delivery of key information ● Register of priority monitoring stations, as per the function of the Technical Committee at Article 10(1)(c)(i) of the ZAMCOM Agreement, reviewing what has been done with the ZAMWIS Hydro-Met and DSS project, as well as the SADC-HYCOS where relevant ● Provision for a basin-wide database of alien invasive species and prohibited substances, with specifics around monitoring and reporting standards and processes ● Provision for monitoring and reporting on specific socio-economic and environmental data ● Review the role of groundwater in terms of the mandate of ZAMCOM and develop groundwater monitoring and reporting provisions ● Provision for a disaster risk early warning notification process Priority 2: Equitable Access and Water Allocation Develop: ● Rules of Application of the principle of Equitable and Reasonable Utilisation (iteratively with the Guideline) ● Guidelines for Member States to incorporate equitable and reasonable utilisation (and benefit sharing) into requisite regulatory frameworks. ● Guideline for addressing transboundary obligations in water allocation policies and plans ● Scenarios for consumption patterns, future consumption scenarios, and climate change
Strategic Plan – aspects for water law harmonisation	Develop: ● Benefit sharing mechanism for determining equitable allocation of water resources in the ZRB ● Water Allocation Strategy that refers to good practice for harmonised laws and policies for water allocation ● Scenarios for consumption patterns, future consumption scenarios, and climate change
Notification Procedures – aspects for water law harmonisation	Develop: ● Transboundary EIA guidelines, including provisions for public participation ● A Benefit sharing mechanism

Part C | The Evidence for Harmonisation

Part C provides the evidence base for the Framework for Harmonisation presented in Part B. Part C summarises, at a high level, the gaps in the regulatory frameworks in the countries across the Basin. These gaps were identified through the Comparative Assessment and Gap Analysis (the Comparative Assessment) of the national water laws in the ZRB presented in Supplementary Reports 4 & 5 to this Paper. This process entailed assessing and then comparing all the water-related policies and legislation of the countries in the ZRB, against a set of indicators of good practice for water resource management (outlined in section A1). A full analysis of the findings of the Comparative Assessment can be found in Supplementary Reports 4 & 5. Member States are directed to Supplementary Report 4 for the results of the comparative assessment of the laws and policies of each of the states against a set of indicators of good practice for water resource management.

Additionally, Annexure B provides an excerpt from a table of comparison of National EIA provisions. This is illustrative of the information provided in the overall Comparative Assessment and Gap Analysis – but allows individual Member States to see how their own laws and policies have been rated. The full table is available in the project Dropbox folder.

The Comparative Assessment is predicated on a set of indicators of good practice (Indicators) that underpin water security in the ZRB. These Indicators were developed for this assignment as detailed in Supplementary Report 4. The Indicators are grouped across the six dimensions of water security discussed at the outset, namely Equitable Access, Planned Development, Benefit Sharing, Regional Integration, Dispute Resolution, and Climate Change Planning.

C1 | Comparative Assessment Summary: Graphs

The quantitative results of the Comparative Assessment of the countries of the ZRB have been plotted out in a series of radial graphs below. The first graph, Figure 4, gives an overall picture across the ZRB. Figures 5 to 10 give a comparative indication of the general level of equivalence of water law and policy of each Member State, as measured against the indicators of good practice. These graphs give a high-level indication of scores, using an aggregate of indicators under each dimension. Annexure C specifies which of the indicators of good practice have been aggregated to form the nodes used in the graphs below. It is important to note that the graphs are for illustrative purposes only and cannot show absolute values. In some instances, where countries have scored the same for a particular aggregated indicator, the radial lines have been adjusted slightly in order to make the otherwise overlapping lines visible. For a full perspective of how each Member State has scored against each indicator of good practice, please refer to Annexure 3 to Supplementary Report 4.

Box 8. How to interpret the radial graphs

Interpreting the radial graphs, using Figure 5 (section C3) as an example

Figure 5 shows the comparative assessment for Equitable Access across the ZRB.

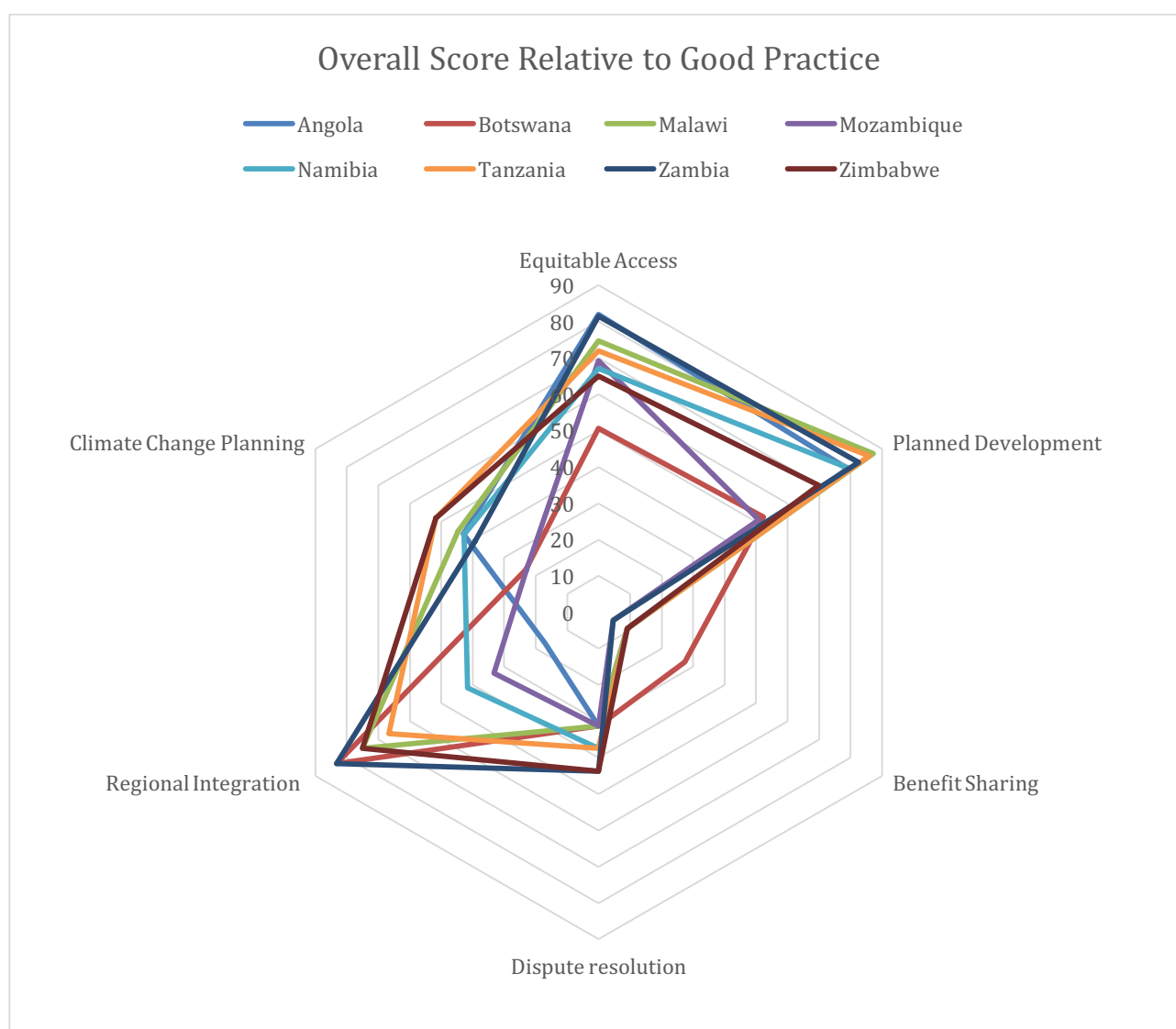
- The relevant Indicators have been aggregated into six related aspects of Equitable Access: Monitoring and Reporting; EIA Regulations; International Law Principles; Allocation Planning; Water Resource Management; and Prohibited Substances and Aquatic Weeds.
- Each aspect assessed appears as a point or node on the graph, and is scored from 0 at the centre to 100 at the outer edge,

C2 | Overall Score of Member States relative to Good Practice

No single country in the ZRB can be said to have laws or policies in place that completely address the indicators of good practice for water resource management; and different countries have made progress in different areas of water law and policy. This informs the need for bringing national regulatory frameworks into line with trends in international water governance as the key driver for harmonisation detailed in section A1.

Figure 4 below provides the aggregated score of each country for each dimension of water security. This graph indicates that water resource management, as assessed through the lens of Equitable Access, is generally well addressed across the Basin, as are Planned Development and Regional Integration. However, there are key gaps that need to be addressed across all countries as well as at a Basin level, in order to enhance cooperative water resource management. There are more obvious gaps with regards to Climate Change Planning and Dispute Resolution mechanisms, which are poorly addressed by most countries. Most countries do not address Benefit Sharing at all.

Figure 3. The aggregated score of each country for each dimension of water security



Source: OneWorld, 2017, based on analysis from the Comparative Assessment & Gap Analysis

C3 | Equitable Access

Figure 5 below shows the results of the assessment of the dimension of Equitable Access, made up of 75 indicators of good practice grouped into six key focus areas:

- Water Resource Management
- Monitoring and reporting
- Inclusion of International Law principles (e.g. Equitable and Reasonable Use)
- Water allocation planning
- Prohibited Substances and Aquatic Weeds
- EIA regulations (Note: these are discussed under the next section: Planned development)

Water resource management: There are large inconsistencies between countries in how this is addressed, which can have negative consequences for upstream and downstream neighbouring states. It is important that Member States, in revising their regulatory and policy frameworks, work towards developing law and policy in a way that is harmonised with good practice in order to mitigate against such negative consequences. Member States should refer to the Detailed Country Assessments; Annexure 3 to Supplementary Report 4, in order to ascertain the aspects of their legal and policy frameworks that do not align with indicators of good practice. *Given the large number of gaps identified we recommend that ZAMCOM develop a set of best practice guidelines for legislative and policy revision, as detailed by Action Item 1.7.*

Information Monitoring and Reporting: The laws and policies that guide this aspect of water resource management are uneven across the Basin, with few countries meeting the majority of indicators of good practice (Angola, Mozambique, Tanzania and Zambia score better than most). Accurate, reliable data and information, that is easily accessible, is key to successful water resource management both at a national and at a Basin level as explained in detail in Section B3 [Priority 1]. Understanding national water stocks and consumption patterns is the departure point for strategic water resource management, without which strategic planning is baseless and is likely to fail in advancing water security. ZAMCOM's role as the curator of basin-wide information is clearly identified in its objectives in Article 5 of the ZAMCOM Agreement. Thus, it is critical that the harmonisation process address these policy and legislative gaps identified in the assessments to this project, summarised in Box 6 above. *Seven separate action items are detailed in Table 4 under Priority 1 above. These Action Items should be perused in order to address the pertinent gaps and issues identified.*

Inclusion of International Water Law Principles in national legislation is one of the most foundational aspects of achieving harmonised good practice for water resource management. Addressed more fully in Part A, the principles of international water and environmental law act as the cornerstone for development planning and decision making. These principles should be explicitly included in the domestic laws and policies of Member States. Our analysis reveals that certain countries have included certain principles, differing from one country to the next. None of the countries have included all of the principles.

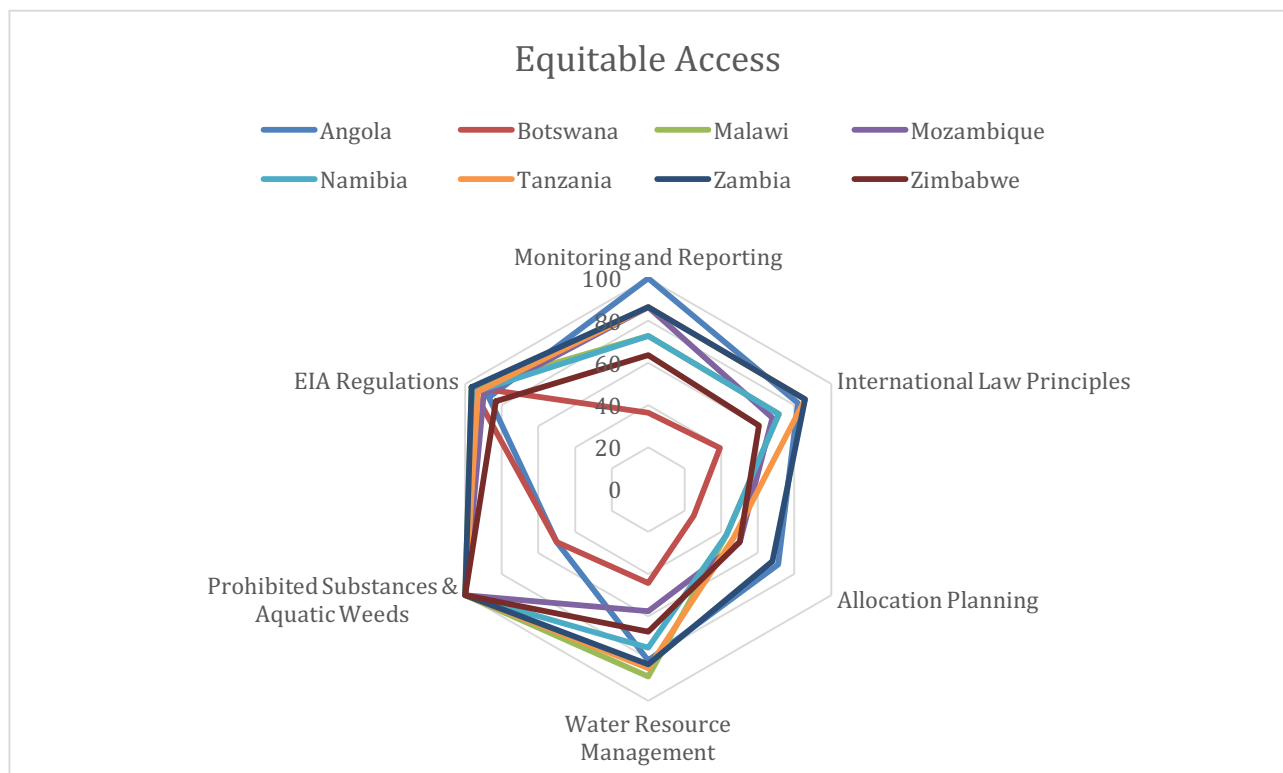
The principle of Equitable and Reasonable Utilisation (ERU) is discussed in Part A and in more detail in Annexure A to this report. Specifically, when applying the principle of ERU, there are seven factors to consider when making decisions. These factors are only present in the laws of Zambia. Decision makers in other Member States are neither guided by them nor required to take them into account. *Action Item 2.1 addresses this issue by suggesting that Member States include in revisions of their national water laws, the above-mentioned factors. These are the factors that planning institutions/departments and other decision makers need to take into consideration when*

determining whether certain actions will be considered as equitable and reasonable use of the available water resources.

Box 9. Differences in application of the Equitable and Reasonable Utilisation Principle

Article 18 of the Zambezi River Authority Act stipulates measures that the contracting states undertake to ensure the “efficient and equitable use” of the waters of the Zambezi River. Although the Act incorporates the principle of equitable utilisation, the Act only applies between Zambia and Zimbabwe. Moreover, there is no mention of reasonable utilisation. Thus, there is no mention in Zimbabwe’s legislation or policy of the principle of reasonable utilisation. “Equitable” and “reasonable” are not synonymous and should not be treated as such. By contrast, Zambia’s legislation specifically mentions both equitable and reasonable utilisation. The preamble to the Water Resources Management Act (No.21 of 2011) states that the Act is there to “provide for the equitable, reasonable and sustainable utilisation of the water resource. ... provide for international regional co-operation in, and equitable and sustainable utilisation of, shared water resources.”

Figure 4. Comparative assessment of best practice in Equitable Access across the ZRB



Source: OneWorld, 2017, based on analysis from the Comparative Assessment & Gap Analysis

Allocation Planning: As seen in Figure 4, none of the Member States adequately address best practice with regards to water allocation planning. There appears to be a general lack of information pertinent to allocation and prioritisation of available water resources at both a national and catchment level. Member States are thus unable to participate in basin-wide allocation planning. Planning is impossible without local knowledge and understanding of water stocks and consumption patterns, both in the present, and in the future under various scenarios. *This is comprehensively addressed by the suite of Action Items suggested in Priority 2 above, relating to establishing legislation and guidelines to support equitable water allocation.* There is also uncertainty in terms of mandates to undertake monitoring and reporting activities, which are often discretionary in nature with the exception of Angola that demonstrates best practice in the Basin in this regard.

Allocation planning links strongly to the need for a cost- and benefit-sharing approach to water resource allocation and the need for trade-offs and co-benefits to be considered when undertaking

any planned development that affects the watercourse. Foundational to this is access to information, going beyond only hydrological and meteorological data, to the sharing of broader socio-economic, environmental and development information.

Prohibited Substances and Aquatic Weeds: Somewhat surprisingly, although all Member States align with the indicators for laws and policies relating to *prohibited substances and aquatic weeds*, such legal and regulatory provisions *are not standardised across the Basin*. There is no common ZRB list or registry with which domestic laws and regulations could be harmonised. As a result, Member States are not managing this issue in a collaborative manner. Given the way in which prohibited substances and aquatic weeds can rapidly spread throughout the watercourse, it is important that this issue be addressed at a basin level, with ZAMCOM being well positioned to facilitate this process. *This is addressed by Action Item 2.6 where we recommend that ZAMCOM develops a guideline for harmonising the management of prohibited substances and aquatic weeds, outlining the relevant thresholds and standards for measurement. We also recommend that ZAMCOM draws up and maintains an agreed upon central registry of prohibited substances and aquatic weeds.*

Environmental Impact Assessments: The issues pertaining to EIAs are addressed under the dimension of Planned Development (section C4) below.

C4 | Planned Development

Four aspects make up the dimension of planned development in Figure 6 below:

- Integrated development planning
- Comprehensive EIA regulations
- A mandated body for Disaster Monitoring & reporting
- RBO Notification procedures incorporated/ mandated

Comprehensive EIA Legislation: Though all countries in the ZRB have EIA legislation in place, there is little consistency in approaches and requirements, particularly in terms of the basis for comprehensiveness, measurements, and timelines for conducting EIAs. This has the potential of leading to disputes around planned development, in cases where those proposing the development, and those who may be affected thereby, follow different approaches for determining potential impacts. This is demonstrated by way of example in Box 10 and Box 11 below.

Box 10. The importance of consistency in EIA Legislation requirements

Zimbabwe's Environmental Management Act and EIA Regulations, do not mention the need to consider environmentally friendly alternatives to the planned actions. Therefore, EIA reports in Zimbabwe lack information on the most feasible and environmentally friendly alternatives. By contrast, Zambia's Environmental Protection and Pollution Control (Environmental Impact Assessment) Regulations (1997) direct a developer (section 4) to prepare a project brief which states the objectives and nature of the project and reasonable alternatives. Section 11 of the Regulations provides that the environmental impact statements must include reasonable alternatives to the proposed project. Moreover, they must include the environmental effects of the projects, and reasonable alternatives, including the direct, indirect cumulative, short-term and long-term effects.

This level of unevenness in regulations is further demonstrated by the different ways in which Member States provide for consultation with stakeholders and potentially affected persons. In general, EIA requirements give little guidance with regards to stakeholder consultation and participation in decision making. Often "stakeholder" is not well defined, and the process for consultation is not mandated, which is demonstrated in Box 11 below.

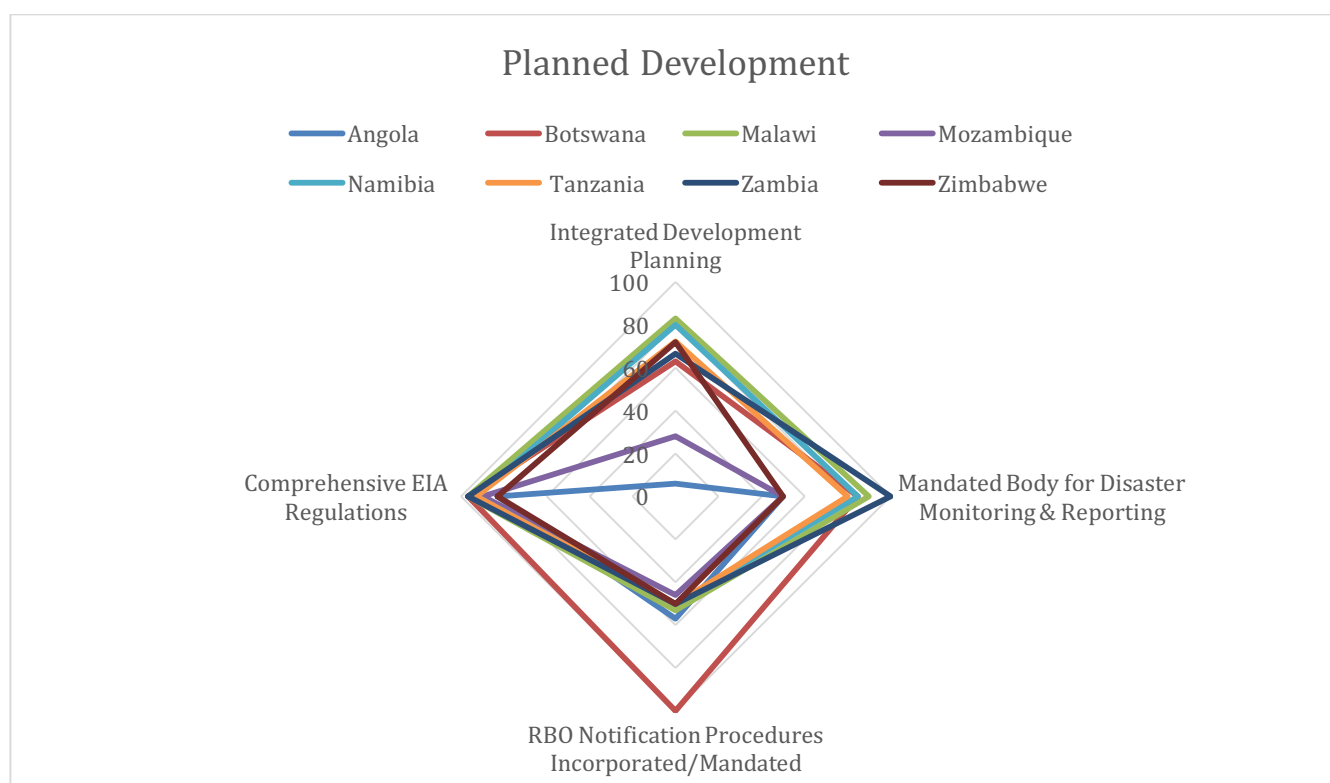
Box 11. Differences between definitions regarding stakeholders in EIA regulations

In Zimbabwe; Section 10(4) of Zimbabwe's EIA Regulations for example, states that before any EIA report is furnished to the Director-General, the developer shall carry out wide consultations with stakeholders. In Zambia, on the other hand, Section 8

of Zambia's EIA Regulations provides that during the course of preparing the terms of reference for a tender/development, the developer must organise a public consultation process which involves "government agencies, local authorities, non-governmental and community-based organisations and interested and affected parties, to help determine the scope of the work to be done in the conduct of the environmental impact assessment statement and in preparation of the environmental impact assessment." Thus, according to Zambian law, developers need to consult with the public prior to the preparation of a terms of reference, where in Zimbabwe this is not the case. Thus, there are more onerous requirements for developers in Zambia than in Zimbabwe. The EIA regulations of Zambia and Zimbabwe refer broadly to stakeholders and interested and affected parties, without mentioning whether this is limited to affected persons within the borders of each country.

The need for basin-wide consistency in the EIA process is particularly strong in terms of the transboundary setting, where some degree of transboundary impact is almost always unavoidable. Apart for Botswana, none of the other Member States in the ZRB make provision in their EIA legislation for transboundary EIAs. Though countries such as Malawi, Zambia and Zimbabwe require that domestic EIAs should indicate whether the environment of any neighbouring state is likely to be affected, the extent of such an effect does not need to be determined, and is not prescribed by any clear procedure. **Action Items 1.1–1.4** address the issues of comprehensive EIAs in recommending that ZAMCOM develop a set of Transboundary EIA Requirements/Guidelines for the Basin in order to harmonise national approaches and introduce a degree of certainty into the processes involved.

Figure 5. Comparative assessment of Planned Development across the ZRB



Source: OneWorld, 2017, based on analysis from the Comparative Assessment & Gap Analysis

Integrated development planning: Water plays a crucial role in a variety of sectoral developments, such as hydropower dams for generating electricity and irrigation schemes for agricultural production. Given that future water availability in the ZRB is likely to be constrained, competition between sectors for a share in a country's water resources needs to be managed. In the ZRB there is a demonstrable need to integrate water resource planning into national and sub-national development planning, and in particular, into sector specific plans (such as the agriculture and energy sectors). Such planning should include consideration of water supply and demand under various scenarios. If done for each sector, a full picture of the water requirements for integrated

development planning would emerge. This would allow each country to make the necessary trade-offs and prioritisation that will be required in times of water scarcity.

Without quality information available, planning around national allocations becomes impossible to do with any accuracy. This in turn affects the ability of riparian states to agree on basin level allocations and prioritisation. What appears to be most lacking is an understanding of the consumption of water resources by the different economic sectors of riparian states, and projections of how consumption patterns are likely to change as a result of climate change, population growth, rapid urbanisation and economic development. Once this information is readily available, countries will be able to undertake the necessary degree of integrated water resource development planning. **Action Item 2.3** aims to address this aspect, providing for the role of ZAMCOM in facilitating the development of these scenarios through or supplementary to the SP, and particularly to be incorporated in, or inform the ZAMCOM Best Practice Guidelines for Harmonisation.

Box 12. Good practice in integrated water resource planning, across sectors

Namibia's Water Resource Management Act 11 Of 2013 (WRMA), and the Integrated Water Resources Management Plan (2010) are examples of good practice with regard to integrated water resource planning. Integrated water resource planning and management is prioritised in both these instruments, and the respective Minister is given cross-sectoral powers to investigate and set efficiency targets. States such as Tanzania show a stronger tendency towards good practice in this regard through the creation of extensive obligations to monitor and report on water usage across various sectors.

Notification of planned measures: A primary functions of an RBO is to facilitate the notification of planned measures between Member States. Whilst the obligation to undertake such procedures is binding between Member States, third parties, for example developers, are for the most part (depending on the legal system in place) not obliged to follow the procedures and give such notification as agreed to by the respective Member State. For this reason, it is important that there is domestication of the provisions of RBO notification mechanisms into national law. As indicated by Figure 6 above, apart from Botswana, none of the laws or policies of the other Member States refer to, and create the obligation to adhere to, the notification procedures/mechanisms in place within shared river basins. For this reason, Botswana has achieved a much greater score for this aspect as indicated on the graph. The laws of most Member States refer only to the vague notion of cooperation and information sharing around planned development, but do not detail what such cooperation entails. In some instances, such as the EIA regulations of Zambia, there is an obligation to share EIAs with affected neighbours. Other provisions, such as those of Section 28 of the Namibian WRMA, create a vague obligation on the relevant Minister “to engage in the joint management, planning and development of projects concerning shared water resources” and “to protect the international water resource quality, including discussion with upstream states to reduce or prevent the deterioration of water quality resulting from activities in upstream states”. For the most part such provisions do not go so far as to recognise that RBOs may have set notification procedures in place, which all relevant departments and third-party developers are obliged to follow. **Action Item 2.2** provides for the role of ZAMCOM to support Member States in a process to amend national EIA legislation so that it requires that developers follow the relevant RBO Notification Procedures.

This strongly links to the need for a cost and benefit-sharing approach to water resource allocation and the need for trade-offs and co-benefits to be considered when undertaking any planned development affecting the watercourse. Foundational to this, is access to information, going beyond only hydrological and meteorological data, to the sharing of broader socio-economic, environmental and development information (see comments under Benefit Sharing earlier in this Section).

Disaster monitoring and reporting: Whilst the laws of certain Member States, such as Botswana, Malawi, Namibia, Tanzania and Zambia, make explicit provision for national level disaster monitoring and reporting, through the establishment of disaster management agencies and units, only Zambia's Disaster Management Act Section 5 makes explicit provision for transboundary

cooperation and early warning systems. This is reflected in Figure 6 above. There is however, a need for a basin-wide system of cooperation in relation to early warning systems and the sharing of vital information concerning imminent dangers. National legislation and/or regulations should be promulgated in order to create the necessary obligation on certain departments to cooperate accordingly. **Action Item 1.4 addresses this aspect** by recommending that ZAMCOM explicitly includes provision for the governance of early warning and disaster monitoring & reporting processes in the Data Sharing Rules (via the annual review process), and agree on standardised parameters and processes for notifying Member States, as per the function of the Technical Committee at Article 10(1)(c)(ii) of the ZAMCOM Agreement. Additionally, ZAMCOM should advise Member States of best practice for including the requisite domestication provisions in national legislation/regulation.

C5 | Benefit Sharing

The dimension of Benefit sharing (Figure 7) comprises the following aspects:

- The ZRB is recognised and identified as a single economic unit
- There is recognition of the need for a Basin Allocation Strategy
- Development planning prioritises investment in water related infrastructure

Recognition of the ZRB as a single economic unit: The laws and policies of countries such as Botswana, Malawi, Zambia and Zimbabwe recognise the resources of the Basin as a whole, as opposed to the watercourse in isolation from the land and resources around it. However, none of the countries go so far as to recognise the Basin as a single economic unit, which would position countries to collaboratively plan for the best use of the resources as a whole. **Action Item 2.1 addresses this by recommending that ZAMCOM develops a guideline for the incorporation of equitable and reasonable utilisation, and benefit sharing mechanisms into national policy and legislation, within the Best Practice Guideline for Harmonisation.**

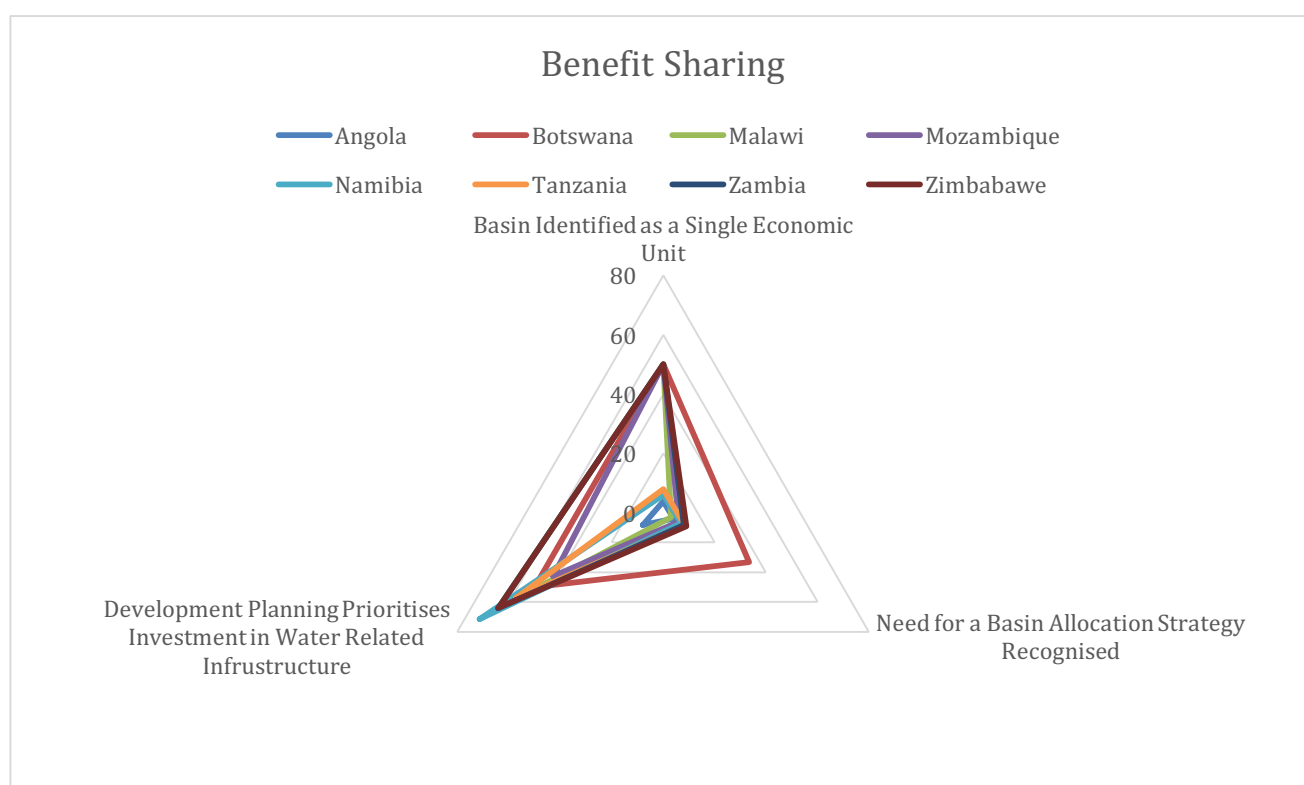
Recognition of the need for a Basin Allocation Strategy: Prioritising uses, and making necessary trade-offs needs to be underscored by a policy directive that guides decision making. Such national policy provisions would unlock and inform strategic tools such as a Basin Allocation Strategy that provides for cost and benefit sharing in a way that has the most positive impact across the basin, in recognition of basin as a single economic unit. Botswana is the only Member State that has policy in place which recognises the need for a Basin Allocation Strategy (Figure 7). It recognises the co-benefits but does not explore them. The regulatory frameworks of other Member States do not recognise such a need, and consequently have all scored extremely low for this indicator, causing an overlap that makes the graph difficult to interpret. Future water resource policies and plans of Member States should offer guidance to relevant decision makers to consider cost- and benefit-sharing options and the associated co-benefits when engaging in planning activities. Member States should draw up and share national and subnational water allocation plans, underpinned by reliable data on current and predicted future water availability and consumption. Allocation plans should include transboundary obligations, addressing the role and interface with Basin Allocation Strategies. **Action Item 2.2 addresses this by recommending that ZAMCOM draws up a guideline for addressing transboundary obligations in water allocation policies and plans, within the Best Practice Guideline for Harmonisation.**

Box 13. Benefit sharing in ZRB policy: the case of Botswana

Botswana is the only Member State that has policy provisions that recognise and direct action around benefit sharing. Botswana's National Water Policy (2012) provides for guidance for the management of internationally shared boundary water resources including benefit sharing mechanisms. The Integrated Water Resource Management Water Efficiency Plan (IWRM-WE) mentions the need to share benefits of transboundary water resources. Specifically, the policy notes that there should be

Development planning prioritises investment in water related infrastructure: Although all Member States have policies in place that prioritise the development of water related infrastructure, none have policies that fully appreciate that uncoordinated development across the basin creates risks to these investments. Planned developments in one country can result in shifts in water availability downstream which could potentially lead to a situation of stranded assets, unable to perform as planned. Alternatively, external factors such as climate change have the potential, under certain scenarios, to alter water availability in certain parts of the Basin which could likewise lead to stranded assets. Thus, coordinated planning is vital for encouraging and securing investment in the Basin, without which development will not be possible.

Figure 6. Comparative assessment of Benefit Sharing across the ZRB



Source: OneWorld, 2017, based on analysis from the Comparative Assessment & Gap Analysis

C6 | Dispute Resolution

Figure 8 shows the dimension of Dispute Resolution, which incorporates the following focus areas:

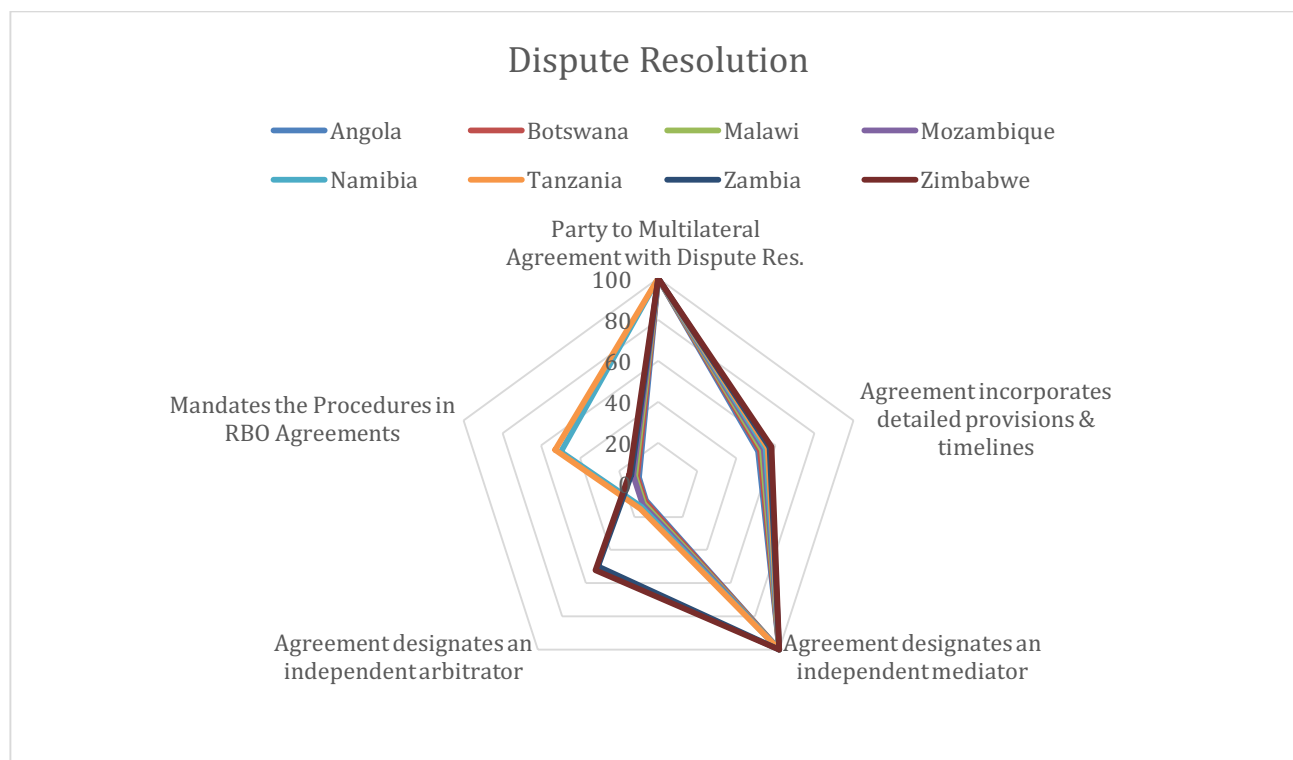
- The country is party to a multilateral agreement which includes a mechanism for Dispute Resolution (e.g. the ZAMCOM Agreement, the SADC Revised Protocol)
- National legislation mandates the use of the dispute resolution procedures that exist in RBO Agreements (e.g. ZAMCOM Agreement)
- The country is party to an agreement that incorporates detailed provisions and timelines for dispute resolution
- The country is party to an agreement that designates an independent mediator as part of the dispute resolution procedures
- The country is party to an agreement that designates an independent arbitrator as part of the dispute resolution procedures

Signatory of a multilateral agreement with a Dispute Resolution mechanism: All Member States have available to them the dispute resolution mechanism within the ZAMCOM Agreement, as well as the mechanism provided for in the SADC Revised Protocol (Figure 8). Thus, all Member States meet the requirement of this indicator of good practice. What then comes into focus is the value which the dispute resolution processes in the ZAMCOM Agreement and the SADC Revised Protocol offer, and the manner in which national legislation directs state and non-state actors towards following such processes.

Mediation and arbitration: Whilst the ZAMCOM Agreement provides for the role of ZAMCOM as a mediator of disputes, neither the ZAMCOM Agreement, nor the SADC Revised Protocol provide for arbitration, which is the natural next step should mediation efforts fail. In some instances, such as the Agreement for the Formation of the Zambezi River Authority (ZRA) between Zambia and Zimbabwe, Member States choose to incorporate specific dispute resolution provisions into bi-lateral agreements. This is particularly useful, especially when the bi-lateral agreement relates to specific resources, and should be encouraged as an approach to be followed across the Basin. Establishing dispute resolution mechanisms in bi-lateral agreements advances water security because it removes the uncertainty associated with determining the appropriate platform for dispute resolution. Zambia and Zimbabwe, through the provisions of the ZRA, and parallel national legislation, have established an arbitration mechanism for either party to make use of. This can be seen in Figure 8 below, where no other country has achieved a score for this indicator.

The SADC Revised Protocol makes provision for the role of the SADC Tribunal however, this option remains unavailable whilst the Tribunal is suspended. The future of the Tribunal is likely to see a limiting of the scope of mandate thereof to provide only for disputes between states, leaving no available mechanism for non-state actors to resolve disputes around transboundary water.

Figure 7. Comparative assessment of Dispute Resolution across the ZRB



Source: OneWorld, 2017, based on analysis from the Comparative Assessment & Gap Analysis

Detailed provisions and timelines for dispute resolution: The ZAMCOM Agreement does not incorporate detailed timelines or provisions regarding the specifics of the process to be followed

for dispute resolution. This leads to uncertainty as to how to apply the mechanism. Given the uncertainty of the available mechanisms, it is no surprise to learn from stakeholder interviews that Member States prefer to resolve disputes through diplomatic means. *In addition to the Priorities for Harmonisation and associated Action Items detailed in Section B above, it would be useful for ZAMCOM to develop detailed mechanisms and processes for dispute mediation and arbitration. This is particularly relevant where disputes involve non-state actors.*

National legislation mandates the use of the dispute resolution procedures that exist in RBO Agreements: The laws of countries such as Namibia and Tanzania allocate the duty to participate in dispute resolution processes (in general) to certain Ministers. However, none of the countries mandate that state and non-state actors follow the specific procedures in relevant RBO agreements to settle disputes involving transboundary water (Figure 8). This creates uncertainty on the part of both state and non-state actors when trying to determine the appropriate forum for dispute resolution. *The proposed Best Practice Guidelines for Harmonisation could direct Member States to develop legislative provisions that mandate that state and non-state actors follow the specific procedures in relevant the RBO agreements.*

C7 | Regional Integration

The indicators of water security for the dimension of Regional integration fall under three focus areas:

- Rating as per the African Regional Integration Index
- Policy recognises the benefits of increased regional trade
- National legislation promotes freedom of movement of ZRB nationals

This analysis, as illustrated in Figure 9, reveals that there is considerable room for improvement in regional integration among the members of the ZRB.

Rating as per the African Regional Integration Index: The African Regional Integration Index is a tool used to rate countries in terms of their level of integration, across five dimensions: regional infrastructure, trade integration, productive integration, free movement of people, and financial and macroeconomic integration (see <https://www.integrate-africa.org/>). As shown in Figure 9, most of the countries in the ZRB fail to feature well on the Index, despite countries such as Botswana and Zambia having progressive policy in place.

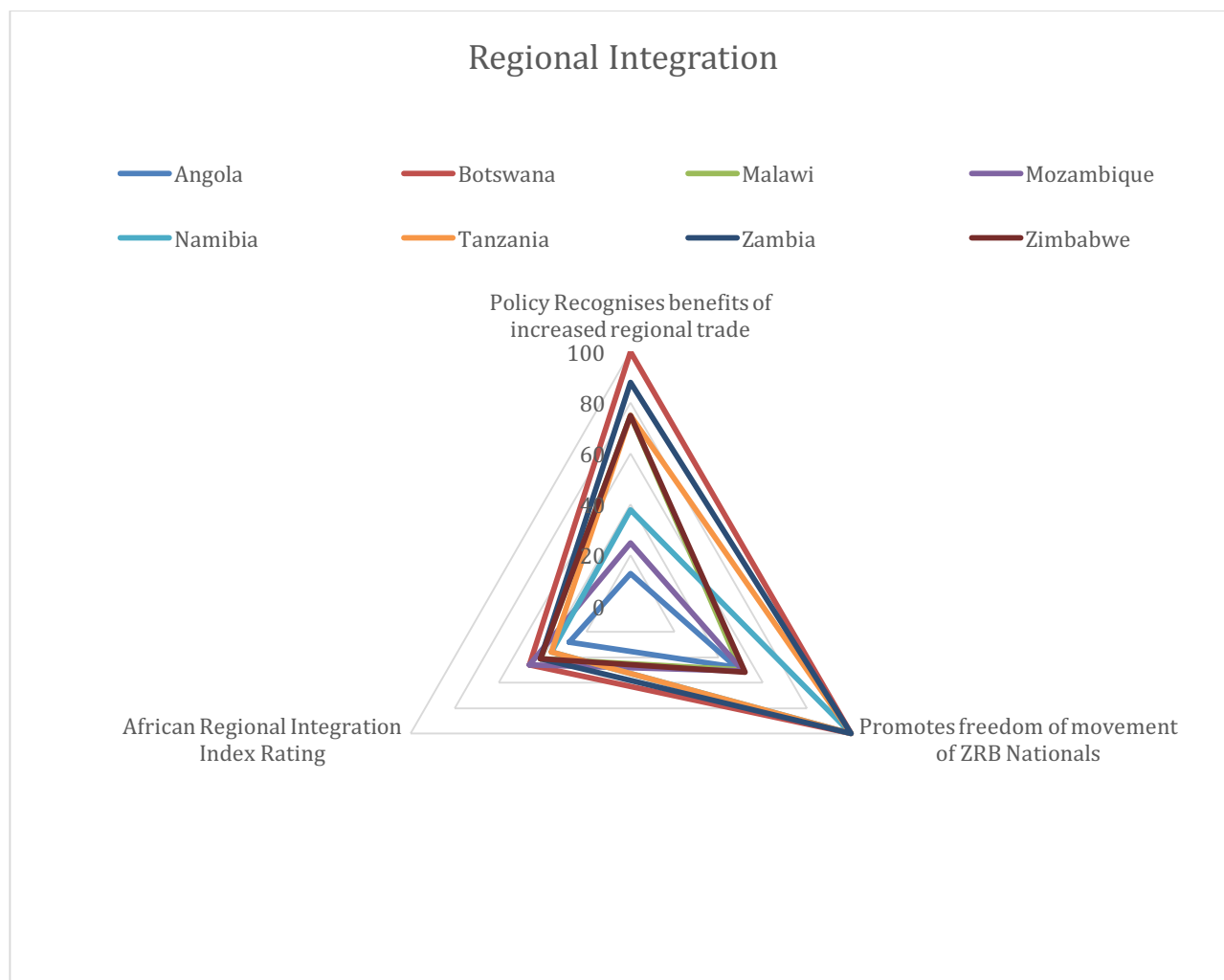
Policy recognises the benefits of increased regional trade: There is a need to follow policy with action and develop the necessary trade agreements and other mechanisms for increasing regional integration across these dimensions. There is an overall need to improve trade between Member States, focusing on food, energy and water, to increase resiliency throughout the Basin. The benefit sharing approach has the potential to advance this aim.

National legislation promotes freedom of movement of ZRB nationals: One way to encourage greater access to information and enhanced cooperation for regional integration is to promote the freedom of movement of ZRB nationals, facilitating access to markets and cross-border job opportunities. To a large extent the majority of Member States are successfully implementing this (Figure 9); however, the laws of countries such as Angola, Mozambique and Zimbabwe are prohibitive in this regard, although not always enforced.

Language is an additional and important factor in regional integration. With Portuguese being the official language of two of the eight Member States, having access to key documents in both English and Portuguese for both countries would advance the level of understanding, between state (and non-state) actors. Key legislation and policy includes EIA Regulations, National Water Policies, and

National Water Resource Management Acts. This would contribute greatly towards increased regional integration.

Figure 8. Comparative assessment of Regional Integration across the ZRB



Source: OneWorld, 2017, based on analysis from the Comparative Assessment & Gap Analysis

C8 | Climate Change Planning

This dimension of water security incorporates three key focus areas:

- The country has a climate change response strategy in place
- The country undertakes comprehensive Risk and Vulnerability assessments (R&V)
- The country carries out climate change scenario planning

All Member States have, at a minimum, submitted a Second National Communication to the UNFCCC, communicating the country's national circumstances in terms of climate change and development. All Member States have also submitted Nationally Determined Contributions to the UNFCCC, underpinning the Paris Agreement and highlighting voluntary national targets for activities to address climate change. The responses of Member States to Climate Change, as demonstrated in Figure 10, is explored in more detail below.

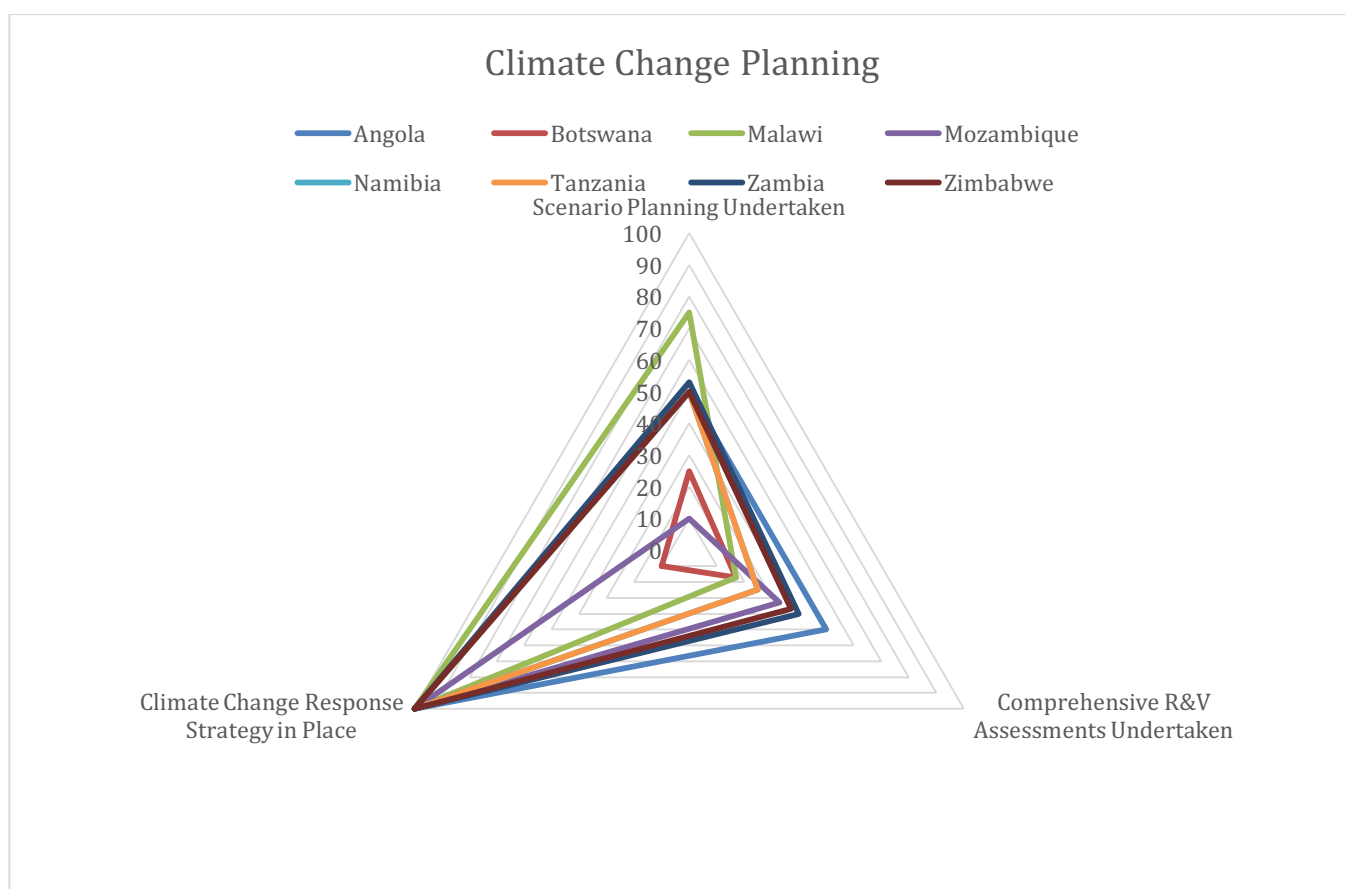
A climate change response strategy in place: As shown in Figure 10, all Member States, with the exception of Botswana, have made progress in developing Climate Change Response Strategies that address national adaptation and mitigation priorities. As Member States continue to evolve their

climate change response measures, there is a need to mainstream climate change into the policies and action plans across sectors and down to the local government level.

Comprehensive Risk and Vulnerability (R&V) Assessments have been conducted: All riparian countries have conducted some form of climate Risk and Vulnerability Assessments although the methodologies vary greatly, as does the degree of comprehensiveness (Figure 10). This is problematic because until Member States have a thorough, scientific basis upon which to build response strategies, the risks presented by climate change cannot be said to be fully understood and mitigated against. Having an equivalent degree of comprehensiveness across all Member States contributes to basin-wide planning and allocation of water resources, where Member States are able to interface and negotiate from an informed position.

Climate change scenario planning: The risks to life, livelihoods and investments, posed by climate change, exist across sectors and throughout the Basin. It is thus imperative that Member States develop comprehensive, well-informed climate change policies and strategies to mitigate against these risks. Given that water is the medium through which climate change impacts ripple, water policies and plans in particular need to consider the impacts of various climate change scenarios. The current policies in place across Member States do not generally take various climate change scenarios into account (Figure 10). Scenario planning should form part of national integrated resource development planning, as well as sector specific development plans, where in general we have found there to be a lack of consideration of climate change impacts. The proposed Best Practice Guideline for Harmonisation should address this need.

Figure 9. Comparative assessment of climate change planning across the ZRB



Source: OneWorld, 2017, based on analysis from the Comparative Assessment & Gap Analysis

References and bibliography

- Ashton, P.J., Earle A., Malzbender D., Moloi, B., Patrick M.J. & Turton, A.R. (2005) Compilation of all the International Freshwater Agreements entered into by South Africa with other States. Final Water Research Commission Report for Project no K5/1515. Water Research Commission, Pretoria
- Ashton, P.J. & Turton A.R. (2004) Transboundary Water Resource Management IN Southern Africa: Opportunities, Challenges and Lessons Learned. Paper presented at the International Expert Workshop on Water, Development and Cooperation, Comparative Perspective: Euphrates-Tigris and Southern Africa. Bonn International Conference Centre 1-3 March
- Ashton, P.J. & Turton, A.R. (2008) Water and security in sub-Saharan Africa: Emerging concepts and their implications for effective water resource management in the southern African region, in Brauch H-G *et al.* (eds), *Facing Global Environmental Change: Environmental, Human, Energy, Food, Health and Water Security Concepts*, IV. Berlin: Springer, 2008, pp. 665–78
- Dellapenna, J.W. (2001) The Customary International Law of Transboundary Fresh Waters, *International Journal of Global Environmental Issues*, Vol 1, Nos 3/4
- Dinar, A., Dinar, S., McCaffrey, S., McKinney, D. (2013) *Bridges over Water – Understanding Water Conflict, Negotiation and Cooperation*. World Scientific Series on Energy and Resource Economics – Vol. II. 2nd ed.
- Grey & Sadoff (2007) Sink or Swim? Water security for growth and development, *Water Policy* 545–571
- International Law Association, 1966. *The Helsinki Rules on the Uses of the Waters of International Rivers*, Adopted at the 52nd Conference held in Helsinki
- Kituku, W. (2014) The Doctrine of Equitable and Reasonable Utilisation of International Water and Its Application under International Watercourses Law
- Moseneke, D. (2010). The Role of Comparative and Public International Law in Domestic Legal Systems: A South African Perspective. *Advocate*. Vol.23(3): 63-66. Accessed at: <http://www.sabar.co.za/law-journals/2010/december/2010-december-vol23-no3-pp63-66.pdf>
- Mutembwa, A. (1998) Water and the Potential for Resource Conflicts in Southern Africa. Occasional Paper No.3. Global Security Fellows Initiative. University of Cambridge. [Online] Accessed from: <https://www.dartmouth.edu/~gsfi/gsfweb/htmls/papers/text3.htm> [Accessed on: 28.10.2017]
- OneWorld (2017) Discussion Paper on the Permanent Okavango River Basin Agreement. Prepared by OneWorld for the Permanent Okavango River Basin Commission (OKACOM). OneWorld Sustainable Investments, Cape Town.
- Petrie, B. (2017) Cooperative Water Governance for Climate Resilience: Are institutional arrangements in southern Africa fit for purpose? SAIIA Policy Insight
- Pulp Mills on the River Uruguay (Argentina v Uruguay), 2010 ICJ (Apr 20)
- SADC (2003) SADC Water Sector RSAP Projects 9 & 10: Guidelines for the Development of National Water Policies and Strategies to Support IWRM. Gaborone: Infrastructure and Services Directorate of the SADC Secretariat
- SADC (2009) SADC Concept Paper on Benefit Sharing and Transboundary Water Management and Development
- Shaw, M. (2008) *International Law*, 6th ed, Cambridge University Press
- Spalding-Fecher, R., Yamba, F., Walimwipi, H., Kling, H., Tembo, B., Nyambe, I., Chapman A. and Cuamba B. (2014) Water Supply and Demand Scenarios for the Zambezi River Basin. Climate Change and Upstream Development Impacts on New Hydropower Projects in the Zambezi Project. Report for Climate & Development Knowledge Network. Cape Town, University of Cape Town
- Tshosa, O. (2010). The status of international law in Namibian national law: A critical appraisal of the constitutional strategy. *Namibian Law Journal*. 2(1): 3-30.
- Turton, A.R., Patrick, M.J. and Julien, F. (2006) Transboundary Water Resources in Southern Africa: Conflict or cooperation?
- Turton, A. (2010) New Thinking on the Governance of Water and River Basins in Africa: Lessons from the SADC Region. Research Report 6 for the Governance of Africa's Resources Programme. Published by the South African Institute for International Affairs
- UN Watercourses Convention User's Guide Fact Sheet Series: Number 5 No Significant Harm Rule [Online] Accessed from: <http://www.unwatercoursesconvention.org/documents/UNWC-Fact-Sheet-5-No-Significant-Harm-Rule.pdf> [Accessed on: 27.10.2017]
- Vick, M. (2012) *The Law of International Waters: Reasonable Utilisation*, 12 Chicago-Kent J. Int'l & Comp. Law
- ZAMCOM (2017) Procedures for Notification of Planned Measures

Annexure A: Examination of the Principle of Equitable and Reasonable Utilisation

This annexure provides an analysis (in summary) of the legal aspects relating to the principle of equitable and reasonable utilisation of a shared water resource.

The principle of equitable and reasonable utilisation is considered a principle of customary international law. It aims to reconcile conflicting interests across international borders, so as ‘to provide the maximum benefit to each basin state from the uses of the waters with the minimum detriment to each’ (Article IV Helsinki Rules on the Uses of the Waters of International Rivers).

The principle of equitable and reasonable utilisation treats watercourses as a shared resource subject to equitable and reasonable utilisation by riparian states. It reconciles territorial sovereignty with territorial integrity by introducing the notion of shared sovereignty by all states in respect to the shared watercourses (Kituku, 2014).

The primary aim of this principle is to distribute the water of an international river basin in such a way as to satisfy all the co-riparian countries’ conflicting economic and social needs to the greatest extent possible. Consequently, there is a relative rather than absolute equality of the river basin states, and the respective share for each basin state has to be identified on a case by case basis.

One should not assume that the two terms “equitable” and “reasonable” are synonymous, as to do so would mean one or the other is superfluous. Equitable utilisation can be conceptualised as dividing the entire watercourse among the watercourse states and other watercourse interests, such as ecological, preservation, fisheries, navigation and recreation. By contrast, reasonable utilisation looks at how water is used to determine if the purpose for which the water is being used and the amount used are reasonable under the circumstances (Vick, 2012).

The equitable and reasonable use principle is found in Article 5 and 6 of the 1997 UN Convention on International Watercourses (the UN Convention). Factors of equitable and reasonableness found in Article 6 of 1997 UN Convention are very similar to the factors to determine reasonable use that are set out in the Restatement of Torts and in the Model Regulated Riparian Code (Vick, 2012). In this context, reasonableness “depends not only upon the utility of the use itself, but also upon the gravity of its consequences on other proprietors” (Restatement (Second) of Torts).

The United States Supreme Court in the Vermejo River Cases made the salient point that “equitable apportionment will protect only those rights to water that are ‘reasonably acquired and applied’”. Reasonable use of the Vermejo River requires not only the “reasonably efficient use of water”, but it also imposes “an affirmative duty to take reasonable steps to conserve and augment the water supply of an interstate stream”.

Reasonable use is therefore the standard to determine the available supply for apportionment and to determine which uses are to be protected from interference by new and existing uses in another state (Vick, 2012). It is in this light that one must consider the doctrine enshrined in the UN Convention.

Article 6 of the UN Convention sets out several factors which must be taken into consideration in determining the equitable and reasonable use of shared watercourses. The factors can be divided into six broad categories:

- i. States must consider natural factors such as geography, hydrographic and hydrological factors, climate, ecology, etc. Data and information about these factors is essential in order to determine for example the flow of water, both present and future, and the chance of this being affected by climatic changes (Kituku, 2014). Moreover, the effect of such factors on the flow of water is necessary to establish appropriate use.
- ii. The economic and social needs of the states concerned. In terms of social needs these could include cultural attachment of people to watercourses. Economic needs could encompass the economic activities and livelihoods supported by the watercourse (Kituku, 2014). For example, a river could be supporting food production, electricity generation, supporting trade and transport, etc.
- iii. Demographic factors, which entails looking at both the current and future populations dependent on the watercourse and the consequence of any change of use on the population (Kituku, 2014).
- iv. The existing and potential uses of the watercourse will need to be considered in order to establish any effect on it. For example, decisions that adversely affect current uses without any compensation cannot be considered fair. Such uses need to consider future generations and hence the use of the term “potential” uses (Kituku, 2014).
- v. The conservation, protection, development and economy of use of the watercourses. The amount of water required to ensure ecosystem integrity of a river basin and its effect on any change of use is considered under this factor. By implication, this factor promotes economic use of shared waters and avoids wastage.
- vi. The availability of alternatives of comparable value to an existing or potential use. Where there are alternatives that are more valuable than existing uses, a change of use will be preferred, and vice-versa (Kituku, 2014).

Viewing the factors in this light provides an objective framework which enables states to balance various interests in order to arrive at a mutually agreeable position. No priority is given to any of the factors. Rather, each factor is weighed against the other, which allows for the balancing of all interests using a common plane (Kituku, 2014). All the relevant factors are considered together and a conclusion is reached on the basis of the whole. The weight to be given to each factor is determined by its relation with that of other factors. Article 10 of the UN Convention highlights the fact that no priority is given to the factors, by providing that no use of an international watercourse enjoys inherent priority over other uses. This notwithstanding, it has been argued that due priority should be given to uses that satisfy basic human needs (Kituku, 2014). The 2004 Berlin Rules accords priority to the vital human needs criterion over other factors to be considered when determining equitable and reasonable uses.

In short, a state’s entitlement to the watercourse will be based on the determination of the applicable law as well as the facts related to the natural characteristics and economic use of the resource. Where there is a conflict of use, the scope of each country’s entitlement must be determined. Where such an entitlement overlaps, an adjustment of the uses must be done to maximise the benefits while minimising the harm (Jones, 2009).

Bibliography

Primary Sources:

1997 UN Convention on the Law of the Non-navigational Uses of International Watercourses. Adopted by UNGA 21 May 1997

Berlin Rules on Water Resources, International Law Association Berlin Conference on Water Resources Law (2004)

International Law Association, 1966. *The Helsinki Rules on the Uses of the Waters of International Rivers*, Adopted at the 52nd Conference held in Helsinki



ILC, “Draft Articles on the Law of the non-navigational uses of international watercourses and commentaries thereto and resolution on transboundary confined groundwater”, *Yearbook of the International Law Commission*, 1994, vol. II, Part Two

Restatement (Second) of Torts § 402A (1965)

Cases:

Colorado v. New Mexico (Vermejo II), 467 U.S 310 (1984)

Gabcikovo-Nagymaros Project (Hungary v Slovakia), 1997, ICJ. 7

Pulp Mills on the River Uruguay (Argentina v Uruguay), 2010 ICJ (Apr 20)

Secondary Sources:

Allan, A. (2009) *The Role of Reasonableness in Assessing Equitable and Reasonable Use*

Banda, D. E. (2013) *Shared Water Resources in the SADC: A Case Study of the Zambezi River*, Masters Thesis. Institute of Diplomacy and International Studies, University of Nairobi

Franck, T.M. (1995) *Fairness in International Law and Institutions*, (Clarendon Press; Oxford University Press)

Jones, P. A. (2009) *The Application of Equitable and Reasonable Utilisation to Transboundary Water Resources Disputes: Lessons from International Practice*,” Ph.D. Thesis, University of Dundee (unpublished)

Kituku, W. (2014) *The Doctrine of Equitable and Reasonable Utilisation of International Water and Its Application under International Watercourses Law*

McCaffrey, Stephen C. (2007) *The Law of International Watercourses* 384-85 (2nd ed.) Oxford International Law Library Series

Salman M. A. Salman, (2007) “The Helsinki Rules, the UN Watercourses Convention and the Berlin Rules: Perspectives on International Water Law”, *Water Resources Development*, Vol. 23, No. 4, 625-640

Vick, M. (2012) “The Law of International Waters: Reasonable Utilisation”, 12 *Chicago-Kent J. Int’l & Comp. Law*

Annexure B: Country Comparison Tables

A set of tables comparing the national legislative provisions of each Member State across five specific lines of enquiry is available in Excel format via Dropbox. Using the relevant indicators of good practice as a common basis for comparison, the following lines of enquiry are analysed:

- EIA Legislation
- National Allocation Planning
- Basin Allocation Planning
- Notification Procedures
- Monitoring and Reporting

The table below is an extract from this document for demonstration purposes.

Member states achieve scores on the following scale:

0 – If the regulatory frameworks do not provide at all for this indicator

1 – If the regulatory frameworks provide partially for this indicator

2 – If the regulatory frameworks provide fully for this indicator

Figure 10. Excerpt from the Country Comparison Tables (provided in the project Dropbox folder)

Ind. No	Indicator	Angola	Botswana	Malawi
I 1.60	National law has an EIA process in place	Score 2 - The law provides for an EIA process for activities with an environmental impact. The Environmental Law Act provides that the EIA process shall be mandatory for actions that have implication on environmental and social balance and harmony. The listed activities requiring an EIA are contained in regulations.	Score 2 - The Environmental Assessment Act regulates the EIA process and requires an environmental impact statement and authorisation for activities identified under its Regulations. Schedule 1 of the regulations set out the projects requiring an EIA.	Score 2 - Environmental Management Act, 23 of 1996, section 24, project for which an EIA is required. The Minister may specify, the type and sizes of projects which shall not be implemented unless an EIA is carried out
I 1.61	National law clearly identifies the types of projects where EIAs are mandatory	Score 2 - Decree 51 lists the projects for which an EIA is mandatory.	Score 2 - The Environmental Assessment Act Regulations list the projects requiring an EIA. Schedule 1 of the Regulations sets out the projects to which the Act applies, and it contains a relatively detailed list of activities which require an EIA. The list is so extensive that it effectively includes almost any type of development regardless of sector type, which could affect a water resource.	Score 2 - Environmental Impact Assessments in Malawi are governed by the EMA and the Guidelines for Environmental Impact Assessment of 1997. The Guidelines set out the types of projects which must undergo an EIA are detailed and extensive.
I 1.62	National law mandates a clear structure of the EIA	Score 2 - Decree 51 contains detailed provisions which set out the structure and content of the EIA.	Score 2 - The Environmental Assessment Act provides that EIA structures must conform to the schedules set out in the EIA Regulations.	Score 2 - The Act and guidelines mandate a clear structure for the EIA

Annexure C: Table of Aggregated Indicators

The below table shows which of the indicators of good practice, utilised in each of the country assessments, have been combined to form the nodes of aggregated indicators used in the graphs in Section C above.

Equitable Access	
Mandated Monitoring and Reporting	
I 1.1	Legislation is in place that establishes departments or institutions mandated to monitor information regarding watercourse & groundwater flows.
I 1.2	Legislation is in place that establishes departments or institutions mandated to monitor information regarding water pollution.
I 1.3	Legislation is in place that establishes departments or institutions mandated to monitor information regarding water quality.
I 1.4	Legislation is in place that establishes departments or institutions mandated to monitor information regarding water utilisation/consumption levels.
I 1.8	The national law/policy of Member States obliges them to collect, and disseminate this information to the RBO.
I 1.27	National legislation mandates a team of inspectors or dedicated officials to obtain and manage information in relation to water resources management.
I 1.37	Legislation or policy recognises the role of basin level organisations in water resource management.
I 1.38	Legislation or policy obliges government departments or institutions at a national level to interface with River Basin Organisations in planning water resource usage.
I 1.55	National law/policy provides for adequate capacity to monitor and report on water quality and pollution and the related impacts on human health. National law requires the authorities and users to monitor and report on water quality and pollution.
I 2.31	National law/policy mandates departments or institutions to plan for and manage disasters (man-made or extreme weather events, including but not limited to floods and droughts).
I 2.32	National law/policy mandates local authorities to provide early warning of disasters to their populations.
Incorporates International Law Principles	
I 1.6	Law or policy incorporates as guiding principles, the principle of equitable and reasonable utilisation of water resources.
I 1.7	Legislation or policy makes reference either directly to article 6 of the United Nations Watercourse Convention, or indirectly by listing the factors for consideration when determining equitable and reasonable utilisation.

I 1.9	Riparian countries have laws/policy in place that recognise the principle of transparent information sharing with other riparian countries.
I 1.10	Legislation or policy makes reference to the duty to avoid significant harm, when considering how to determine equitable and reasonable utilisation.
I 1.42	National Law/policy incorporates as guiding principle, the principles of sustainable development.
I 1.51	National laws/policies of riparian countries follow the Polluter Pays principle.
I 1.59	National law requires the relevant government department or institution to adopt a precautionary approach when determining water use permits.
I 1.59.2	National water law recognises the principle of intergenerational equity in relation to water resource management.
I 2.22	National mining legislation and regulations specifically incorporate the principles of sustainable development.
I 2.24	National water laws and catchment level water resource management processes and regulations are based on and enforce the principles of sustainable development and the principle of avoiding potential harm.
I 2.27	National agricultural law/policy incorporates the principles of sustainable development.
I 2.28	National agricultural law/policy enforce the principles of sustainable development through the regulations.
I 2.29	National industrial development laws/policy incorporates the principles of sustainable development.
I 2.30	National industrial development laws/policy enforce the principles of sustainable development through the regulations.
Allocation Planning in Place	
I 1.11	National law/policy makes provision for mechanisms to determine the amount of surface water which can be allocated for supply/use.
I 1.12	National law/policy makes use of such mechanisms by government mandatory.
I 1.13	National law/policy makes provision for mechanisms to determine the amount of ground water which can be allocated for supply/use.
I 1.14	National law/policy makes use of such mechanisms by government mandatory.
I 1.16	National legislation/policy of riparian countries mandates relevant departments or institutions to monitor and report on the usage of water per sector against national allocations, using a needs based and/or rights based approach, informed by scientific evidence.

I 1.17	National law/policy provides that mechanisms to determine supply take into account the minimum flow requirements for upstream or downstream users within the country?
I 1.18	National law provides that mechanisms to determine supply take into account the minimum flow requirements for upstream or downstream transboundary water users?
I 1.19	National law/policy has provisions that protect the basic minimum water supply to meet human needs (20l/person/day (WHO standard)) from being allocated for other uses?
I 1.20	National legislation or policy makes provision for environmental flow assessments.
I 1.21	National legislation or policy include mechanisms for negotiated multi-stakeholder consensus on flow allocation among all stakeholders.
I 1.22	National legislation or policy requires that environmental flow assessments include a scientific basis from different disciplines to evaluate the ecology, economic costs and benefits, and the social impacts of alternative flow scenarios.
I 1.23	National legislation or policy requires that environmental flow assessments include assessment of the contribution of biodiversity and ecosystem goods and services to livelihoods and poverty reduction.
I 1.24	National legislation or policy makes provision for an adaptive management approach, recognising the need for flexibility to effectively negotiate the objectives and outcomes of environmental flows.
I 1.57	National law requires the relevant government department or institution to adopt a precautionary approach when determining water allocations.
Water Resource Management	
I 1.5	Legislation establishes national departments or institutions with a clear mandate, responsible for managing water resources.
I 1.15	National law/policy makes provision for water efficiency targets across sectors.
I 1.26	National legislation establishes a body, or delegates authority to a state representative, to ensure enforcement of water law infringements.
I 1.28	National legislation provides for an appeal authority within the ministry/department or institution which adjudicated water disputes or grievances (at a domestic level).
I 1.32	National law/policy establishes a national water services utility and authority for the management of water resources.
I 1.33	National law/policy provides for a separation between the function of water supply/delivery and management of the environmental sustainability/integrity of water resources.
I 1.39	Legislation or policy establishes sub-basin or watershed level river basin organisations.
I 1.40	Legislation or policy promotes local community membership and participation in sub-basin or watershed level river basin organisations.

I 1.41	Legislation or policy obliges local government participate in, and cooperate with sub-basin organisations, linking local level decisions with basin level planning.
I 1.49	National legislation/policy of riparian countries mandates regulation of existing infrastructure that has the capacity to impact upon/regulate streamflow in the watercourse.
I 1.50	National legislation/policy of riparian countries mandates regulation of transport and traffic on the watercourse.
I 1.53	National law/policy provides for mandatory waste water treatment, with regulations for monitoring.
I 1.54	National law/policy provides for mandatory waste water treatment, with regulations for reporting.
I 1.74	National legislation/policy of riparian countries mandates Demand Side Management (“ DSM ”).
I 1.75	National legislation/policy of riparian countries mandates protection of the aquatic environment.
I 2.2	National law/policy mandates a department or institution to monitor and report on water resources per capita or population per cubic meter, and articulates targets for improvement (ratio of people with access to water).
I 2.4	National law/policy mandates a department or institution to monitor and increase the percentage of people using an improved drinking water source, applying targets for improvement.
I 2.5	National law/policy mandates a department or institution to monitor and increase the percentage of people using an improved sanitation facility source, with targets for improvement articulated in water and related laws and policies.
I 2.17	National law/policy recognises the importance of fishing, fisheries and aquatic life for food security.
I 2.18	National law/policy mandates a department or institution to protect and monitor breeding grounds for fish.
I 2.19	National law/policy licences fishing against a permit system that is enforced.
I 2.20	National law/policy monitors and reports on fishing activities and populations.
I 2.21	National law/policy provides for bilateral or transboundary cooperation on fishing activities and population management.
I 2.23	Wastewater/polluted discharges from agricultural activities are regulated by regulations with discharge standards.
I 2.25	National level laws and policies mandate a department or institution to monitor agricultural effluent.

I 2.26	National level laws and policies mandate a department or institution to report on agricultural effluent.
Prohibited Substances & Aquatic Weed Regulation	
I 1.56	National law/policy mandates a department or institution for the management, controlling and reporting on Invasive Alien Species (IAS), including biota contamination and/or eutrophication.
Comprehensive EIA Regulations	
I 1.60	National law has an EIA process in place.
I 1.61	National law clearly identifies the types of projects where EIAs are mandatory.
I 1.62	National law mandates a clear structure of the EIA.
I 1.63	National law require EIAs to consider the effects and consequences of proposed actions.
I 1.64	National law require EIAs to consider practical and environmentally friendly alternatives to the planned actions.
I 1.65	National law requires meaningful public engagement and review in at least two stages of the process, pre-EIA report, and again after the findings of the EIA have been presented.
I 1.66	National law requires that all relevant issues and factors, including cumulative effects, social impacts, and health risks are taken into account when preparing an EIA.
I 1.67	National law directs a formal EIA approval process.
I 1.68	National law makes provision for conditional approval of an EIA, including follow-up review requirements.
I 1.69	National law requires EIAs to clearly identify potential adverse effects of proposed actions.
I 1.70	National law requires EIAs to clearly identify mitigation measures using conventional and customized techniques.
I 1.71	National law identifies a department or institution or body with the mandate to enforce EIA findings.
I 1.72	National law makes provision for penalties for failing to abide by EIA regulations.
I 1.73	National legislation of riparian countries mandates trans boundary Environmental Impact Assessment EIA and/or Strategic Environmental Impact Assessment (SEA) procedures for large scale projects.
I 2.6	National law/policy makes clear provisions for and mandates a department or institution to manage continuous public participation and stakeholder engagement to inform decision making on water resource utilisation and development, including significant investments.

Planned Development:	
Integrated Development Planning out of 18	
I 2.8	National law/policy incentivises private investments in large infrastructure management and in water and related sectors.

I 2.9	National law/policy regulates private investments in large infrastructure management and investments in water and related sectors.
I 2.10	National law/policy monitors agriculture usage and efficiency.
I 2.11	National law/policy regulates agriculture usage and efficiency.
I 2.15	National law/policy monitors water related energy developments and the national regulatory framework enforces this.
I 2.16	National law/policy reports on water related energy developments and the national regulatory framework enforces this.
I 2.33	National law/policy regulates that disaster risks be considered in specifications for infrastructure plans and developments.
I 2.34	National law/policy regulates that disaster risks be considered in specifications for town and settlement plans
S 6.2	Are climate change related issues mainstreamed into national policy/law?

Mandated Body for Disaster Monitoring & Reporting out of 6

I 1.29	National legislation/policy of riparian countries mandates relevant departments or institutions to monitor extreme weather events, including but not limited to floods and droughts.
I 1.30	National legislation/policy of riparian countries mandates relevant departments or institutions to plan for extreme weather events, including but not limited to floods and droughts.
I 1.31	National legislation/policy of riparian countries mandates relevant departments or institutions to disseminate early warnings on extreme weather events or emergencies, to other riparian countries.

RBO Notification Procedures Incorporated/Mandated into Law out of 2

I 2.1	National laws recognise the need to share information on planned measures in the basin.
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Benefit Sharing

River Basin Resources Recognised as a Single Economic Unit

S 3.2	Does the national law/policy recognise the shared watercourse as a single unit?
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Need for a Basin Allocation Strategy Recognised

S 3.1	Does national law/policy on water utilisation make any provision for a transboundary benefit sharing approach with a mechanism for costing and regulating shared benefits?
S 3.3	Does the national law/policy recognise the need for internalising the costs incurred by other riparian countries as a result of the country's water related activities?
S 3.5	Does the national law/policy recognise that a preferred location of planned measures, aiming to improve transboundary water management, could be/should be determined by the most beneficial place within the basin, rather than national borders?

S 3.7	Does the national policy/law recognise the need for allocating the costs of activities/investments aimed at improving transboundary water management among beneficiaries?
S 3.8	Does the national law/policy show a clear understanding of the co-benefits for riparian countries from a transboundary water development project?
S 3.9	Does the national law/policy make a reference to the application of a benefit sharing approach as a tool for avoiding or resolving conflict with other riparian countries?
National Development Plans Clearly Identify Long Term Potential Investments Effecting Water Resources	
I 2.8	National law/policy incentivises private investments in large infrastructure management and in water and related sectors.
I 2.9	National law/policy regulates private investments in large infrastructure management and investments in water and related sectors.
I 2.12	National law/policy plans for irrigation expansion and the national regulatory framework enforces this.
I 2.13	National law/policy reports on irrigation expansion and the national regulatory framework enforces this.
I 2.14	National law/policy plans for water related energy developments and the national regulatory framework enforces this.
I 3.1	The national policy/law recognises the economic implications associated with failing to invest in precautionary measures.
I 3.2	The national law/policy recognises the transboundary implications of failing to do so.

Dispute Resolution	
Part to Multilateral Agreement with dispute resolution	
I 4.1	The riparian country is party to a multilateral agreement with other basin states, setting out a specific dispute resolution mechanism.
Agreement incorporates detailed provisions & timelines	
I 4.2	The riparian country is party to a multilateral agreement with other basin states, setting out detailed procedures for notification of disputes and timelines that members are obliged to follow.
Agreement designates an independent mediator	
I 4.3	The riparian country is party to a multilateral agreement that empowers a specific and neutral body with the authority to mediate any disputes with other member states.
Agreement designates an independent arbitrator	
I 4.4	The riparian country is party to a multilateral agreement with other member states, obliging it to bring disputes before a specific and neutral arbitration body.

Party to Bilateral Agreement with Dispute Resolution Mechanisms	
I 4.5	The riparian country is party to bi-lateral agreements between itself and other basin states, that empowers a specific and neutral body with the authority to mediate any disputes between them.
I 4.6	The riparian country is party to bi-lateral agreements between itself and other basin states, obliging them to bring disputes before a specific and neutral arbitration body.
Mandates the Procedures in RBO Agreements	
I 4.7	National laws/policies mandate that the provisions of the ZAMCOM Agreement are to be followed in cases of transboundary water disputes in the Zambezi River Basin.

Regional Integration	
Trade policy recognises the benefits of increased regional trade	
I 5.1	National law/policy recognises the dependence parts of the watercourse in other riparian countries for national economic development and trade.
I 5.2	National trade law/policy promotes regional trade.
I 5.3	National trade law/policy incentivises regional trade.
I 5.6	National law/policy recognises the need for and promotes regional integration in water resource management.
Promotes Freedom of movement	
I 5.5	National law/policy recognises the need for and promotes freedom of movement of nationals from other riparian countries.

Climate Change Planning	
Scenario planning water availability	
S 6.5	Do the vulnerability assessments include scenarios of possible future impacts of climate change?
S 6.6	Do the scenarios take a variety of factors into consideration, such as population growth, urbanisation, food availability?
Comprehensive R&V assessments in place	
I 6.1	A national risk and vulnerability assessment has been undertaken for the country, and has been made public.
I 6.2	The national policy/law follows the recommendations made in the regional level vulnerability assessment for the enhancement of basin level climate change actions, in addition to national level assessments.
S 6.3	Does the national policy/document require alignment with basin and regional level risk and vulnerability assessments as these are conducted?

S 6.7	Do the vulnerability assessment include spatial mapping of vulnerable areas?
S 6.8	Do the vulnerability assessment include a systemic approach to assessing climate vulnerability?
S 6.9	Do the vulnerability assessments take a cross-sectoral approach to assessing vulnerability?
Climate change response strategy in place	
I 6.3	A national climate change response strategy has been undertaken for the country, and has been made public.