REPUBLIC OF MOZAMBIQUE

REPUBLIC OF ZIMBABWE

AGREEMENT

BETWEEN

THE REPUBLIC OF MOZAMBIQUE

AND

THE REPUBLIC OF ZIMBABWE

ON

CO-OPERATION ON THE DEVELOPMENT, MANAGEMENT AND SUSTAINABLE UTILISATION OF THE WATER RESOURCES OF THE BUZI WATERCOURSE

PREAMBLE

WHEREAS the Republic of Mozambique and the Republic of Zimbabwe (hereinafter jointly referred to as the "Parties" and individually as the "Party");

BEARING IN MIND the principles advocated in the Declaration by the Heads of State or Government of Southern African States "Towards the Southern African Development Community" and the Treaty of the Southern African Development Community signed on 17 August 1992; as well as the SADC Protocol on Gender and Development signed on 17 August 2008.

CONSCIOUS of the mutual advantages of co-operation with regard to the utilisation and development of shared transboundary water resources and the significant contribution which such co-operation could make towards the peace and prosperity of the Parties;

CONSCIOUS of the paucity, value of water resources and the need to provide the Parties with access to sufficient and safe water supplies;

ACKNOWLEDGING the effects of Climate Change on water resources management and development and the environment;

COMMITTED to the realisation of the principles of equitable and reasonable utilisation, as well as the efficient management and sustainable development of the Buzi Watercourse;

DETERMINED to co-operate, seek mutually satisfactory solutions for the needs of the Parties towards water protection and to ensure the sustainable, equitable and participatory management of the water resources of the Buzi Watercourse and increase the derived social and economic benefits for the people living in the basin and other stakeholders;

EXPRESSING the common desire to proceed with sustainable development on the basis of Chapter 18 of Agenda 21 adopted by the United Nations Conference on Environment and Development on 14 June, 1992;

DESIROUS of extending and consolidating the existing relations of good neighbourliness and co-operation with regard to the management and development of the water resources of the Buzi Watercourse on the basis of the Convention on the Law of the Non-navigational Uses of International Watercourses, adopted by the General Assembly of the United Nations on 21 May, 1997, the Revised Protocol on Shared Watercourses in the Southern African Development Community, adopted in August, 2000, the Joint Water Commission Agreement between the Parties signed on 2 December, 2002 as well as the Pungwe Water Sharing Agreement signed on 11 July, 2016; and

RECOGNISING that the Parties need effective and co-ordinated planning to agree on water use in the shared watercourse to enable sustainable development;

HEREBY agree as follows:

Article 1

Definitions

In this Agreement the following terms shall have the meanings ascribed to them hereunder, unless the context otherwise indicates:

"Basin or Catchment" means a topographical area upstream of specific reference point that is drained by a river system;

"Buzi Watercourse" means the system of surface and ground waters of the Buzi constituting, by virtue of their physical relationship, a unitary whole flowing normally into a common terminus, the Indian Ocean;

"Climate Change" means significant changes in global temperature, precipitation, wind patterns and other measures of climate that occur over several decades or longer;

"Diversions" means abstractions, impoundments and appropriations of water that change the flow of a river;

"Emergency situation" means a situation that causes or poses an imminent threat of causing serious harm to the Parties and which results suddenly from natural causes, such as torrential rains, floods, droughts, landslides or earthquakes, or from human conduct;

"Environmental Impact Assessment" means a procedure for evaluating the likely impact of a planned measure on the environment;

"Equitable and Reasonable Utilisation" means equitable and reasonable utilisation as provided for under Article 3 (7) (a) and (b), and Article 3 (8) (a) and (b) of the Revised Protocol on Shared Watercourses in the Southern African Development Community;

"Flow Regime" means changes of river level or flows with time and the volume of water in rivers, lakes, reservoirs and marshes;

"Impact" means any effect on the environment caused by an activity that affects the environment including: effects on human health and safety, flora, fauna, soil, air, water, climate, landscape, socio-economic environment or the interaction among these factors and cultural heritage or socio-economic conditions resulting from alterations to these factors;

"Intra-basin transfer" means the artificial conveyance of water from one sub-catchment to another within the same basin;

"Inter-basin transfer" means a withdrawal of water from one river catchment, followed by use and/or return of some or all of that water to a second river basin. The river basin from which the withdrawal or diversion occurs is termed the 'donor' basin, and the river basin to which all or a portion of the water is diverted and returned is termed the 'receiving' basin;

"Integrated Water Resource Management" means a process which promotes the coordinated development and management of water, land and related resources in order to maximise economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems;

"Long-Term" means a period of 10 to 20 years;

"Medium-Term" means a period of 5 up to 10 years;

"Ministers" means Ministers responsible for water affairs of the Parties;

"Ongoing activity" means any action that would have been subjected to a decision of a competent authority in accordance with an applicable national procedure if it had been a planned measure;

"Planned measure" means any activity or a major change to an ongoing activity subject to a decision of a competent authority in accordance with applicable national procedures;

"Pollution" means any detrimental alteration in the composition or quality of the waters of a shared watercourse, which results directly or indirectly from human conduct;

"SADC Protocol" means the Revised Protocol on Shared Watercourses in the Southern African Development Community signed on the 7th of August, 2000 in Windhoek, Namibia;

"Short-Term" means a period of up to 5 years;

"Strategic Plan" means a master development plan comprising a general planning tool and process for the identification, categorisation and prioritisation of projects and programmes for the efficient management and sustainable development of a Watercourse;

"Significant harm" means non-trivial harm capable of being established by objective evidence without necessarily rising to the level of being substantial;

"Stakeholders" means an individual, living organism, group or organisation that has interest or concern, which can affect or be affected by activities implemented in the Buzi Watercourse;

"Sub-catchment" means a division of a catchment allowing runoff management as near to the source as is reasonable;

"Sustainable Utilisation" means the ability to use water in sufficient quantities and quality

from the local to the global scale to meet the needs of humans and ecosystems for the present and the future; and

"Trans-boundary Impact" means any adverse effect, caused by human conduct, within an area under the jurisdiction of a Party caused by a proposed activity, the physical origin of which is situated wholly or in part within the area under the jurisdiction of the other Party.

Article 2

Scope

This Agreement applies to management and protection measures related to the development and sustainable use of the Buzi Watercourse shared by the Parties.

Article 3

Objective

The objective of this Agreement is to promote coordinated co-operation between the Parties to ensure development, management and sustainable utilisation of the water resources of the Buzi Watercourse.

Article 4

General Principles

1. In the implementation of this Agreement, the Parties commit themselves to the general principles of the SADC Protocol which include, but not limited to, the following:
   a) Sustainable utilisation;
   b) Equitable and reasonable utilisation;
   c) Protection, preservation and conservation of the environment; and
   d) Prevention and mitigation of significant harm.
2. These principles shall be interpreted according to the provisions of Article 3 of the SADC Protocol and developed in accordance with the best international practices.
3. In the implementation of this Agreement, the Parties commit themselves to the provisions of the SADC Protocol on Gender and Development.

Article 5

Responsibilities of the Parties

1. The Parties shall individually and where appropriate, jointly, develop and adopt technical, legal, administrative, financial and other reasonable measures in order to:

a) prevent, reduce and control pollution of surface and ground waters and protect and enhance the quality status of the waters and associated ecosystems for the benefit of present and future generations;

b) prevent, eliminate, mitigate and control Trans-boundary Impact;

c) co-ordinate management plans and planned measures in accordance with Article 4 (1) of the SADC Protocol;

d) promote partnership and stakeholder involvement for effective and efficient water use and management;

e) promote the security of relevant water related infrastructure and prevent accidents;

f) monitor and mitigate the effects of floods and droughts;

g) provide warning of possible floods and implement agreed upon urgent measures during flood situations;

h) establish comparable monitoring systems, methods and procedures;

i) exchange information on the water resources quality, quantity and use;

j) promote the implementation of this Agreement according to its objectives and defined principles; and

k) implement capacity and confidence building programmes.

2. The Parties shall co-operate with the SADC organs and other Shared Watercourse institutions.

3. The Parties shall give their full co-operation and support to the decisions of the Joint Water Commission (JWC), and shall take the necessary legislative, administrative, technical and other measures to give effect to this Agreement or such decisions.

4. The Parties shall develop and implement a Strategic Plan which will guide the development and management of projects and programmes relating to the resources of the Buzi Watercourse.

5. The Parties shall agree on financing modalities for projects and programmes relating to the resources of the Buzi Watercourse.

6. The Parties shall in their respective countries adopt a stakeholder participatory approach in the management, development and utilisation of the water resources of the Buzi Watercourse.

Article 6

Shared Watercourse Institutions

1. The joint body for co-operation between the Parties shall be the JWC.

2. The JWC shall exercise the powers established in the JWC Agreement as well as those

conferred by the Parties, in order to pursue the objectives and provisions established herein.

3. The Parties may establish a joint institution, through an agreement, to carry out daily activities related to the management of the Buzi Watercourse.

4. The joint institution referred to in Article 6 (3) above shall provide regular reports to the JWC.

Article 7

Sustainable Utilisation

1. The Parties are entitled, in their respective territories, to optimal and sustainable utilisation of and benefits from the water resources of the Buzi Watercourse, taking into consideration the interests of the other Party, consistent with adequate protection of the Watercourse for the benefit of present and future generations.

2. The Parties shall co-ordinate their management activities through:

   a) the exchange of information on their respective experiences and perspectives; and

   b) the co-ordination of management plans, programmes and measures, as provided in this Agreement.

3. In pursuing the objective of this Article, the Parties shall follow the Water Allocation guidelines and the Dam Operating Rules as stipulated in Annex 2, Article 3.

4. In further pursuance of the objective of this Article the Parties shall disclose, in terms of Annex 3, their intentions of developing new projects that fall outside the scope of Annex 2 during the period of validity of this Agreement.

5. The Parties are committed to develop measures towards improvement of efficiency and rational use of water and its conservation and to promote more efficient water use through adopting better available technology.

Article 8

Equitable and Reasonable Utilisation

1. The Buzi Watercourse shall be managed and utilised in an equitable and reasonable manner.

2. In the application of Equitable Reasonable Utilisation, the Parties shall take into account all the relevant factors and circumstances including, the following:

   a) geographic, hydrographic, hydrological, climatic, ecological and other factors of a natural character;

   b) the social, economic, and environmental needs of the Parties;

   c) the population dependent on the Buzi Watercourse in the territory of the Parties;

d) the effects of the use(s) of the Buzi Watercourse in either of the Parties' territories;

e) existing and potential uses of the waters of the Buzi Watercourse;

f) existing and planned infrastructure which has the capacity to regulate streamflow of the Watercourse;

g) conservation, protection, development and economic use of the water resources of the Buzi Watercourse and the costs of measures taken to that effect;

h) the availability of alternatives of comparable value, to a planned or existing use of the waters of the Buzi Watercourse; and

i) agreements in force between the Parties.

3. The weight to be given to each factor is to be determined by its importance in comparison with that of other relevant factors. In determining what is an equitable and reasonable use, all relevant factors are to be considered together and a conclusion reached on that basis.

4. The basis for water allocation of the Buzi Watercourse is contained in Annex 2 of this Agreement.

Article 9

Protection, Preservation and Conservation of the Environment

1. The Parties shall individually and where appropriate, jointly, protect, preserve and conserve the ecosystem and the aquatic environment of the Buzi Watercourse, taking into account generally accepted international rules and standards.

2. Each Party shall take all measures necessary to prevent the introduction of alien or new species, into the Buzi Watercourse, which may have effects detrimental to the ecosystem of the Buzi Watercourse resulting in significant harm to the other Party.

3. In ensuring the protection and the preservation of the environment the Parties shall comply with the provisions of Article 4(2) of the SADC Protocol.

Article 10

Prevention and Mitigation of Significant Harm

1. The Parties shall, in utilising the Buzi Watercourse in their territories, take all appropriate measures to prevent the causing of significant harm to the other Party.

2. Where significant harm is nevertheless caused to the other Party, the Party whose use causes such harm shall, take appropriate and corrective measures, having due regard for the provisions of sub-Article (1) above in consultation with the affected Party, to eliminate or mitigate such harm and where appropriate discuss the question of remedial action.

3. Unless the Parties have agreed otherwise, for the protection of the interests of persons,

natural or juridical, who have suffered or are under a serious threat of suffering significant transboundary harm as a result of activities related to the shared Watercourse, the Parties shall not discriminate on the basis of nationality or residence or place where the injury occurred, in granting to such persons, in accordance with its legal system, access to judicial or other procedures, or a right to claim compensation or other relief in respect of significant harm caused by such activities carried on in its territory.

Article 11

Gender Mainstreaming

The Parties shall adopt the necessary measures, policies, strategies, programmes and projects to eliminate discrimination and to achieve gender equality and equity.

Article 12

Water Quality and Prevention of Pollution

1. In order to protect and conserve the water resources of the Buzi Watercourse, the Parties shall, through resolutions adopted by the JWC, and, when appropriate, through the co-ordination of management plans, programmes and measures, proceed to:

   a) develop an evolving classification system for the water resources of the Buzi Watercourse;

   b) classify and state the objectives and criteria in respect of water quality variables to be achieved through the agreed classification system for the water resources;

   c) adopt a list of substances the introduction of which is to be prohibited or limited, investigated or monitored in the water resources of the Buzi Watercourse;

   d) adopt techniques and practices to prevent, reduce and control the pollution and environmental degradation of the Buzi Watercourse that may cause significant harm to the other Party or to their environment, including human health and safety or the use of the waters for any beneficial purpose, or to the living resources of the Watercourse; and

   e) implement a regular monitoring programme including biological, physical and chemical aspects for the Buzi Watercourse and report at the intervals established by the JWC on the status and trends of the associated aquatic, marine and riparian ecosystems in relation to the water quality of the Watercourse.

2. Until such time that water quality objectives and criteria are determined, the Parties shall comply with the provisions of Annex 4.

Article 13

Measurements of Water Quantity and Quality

1. The Parties shall establish, maintain and operate an effective and uniform system:

a) for making and recording continuous measurements on the Buzi Watercourse of:

   i. the flow within the boundaries of each Party; and

   ii. the volume of stored water, at such locations as the Parties deem necessary to determine:

      (i) the volume of the abstractions from several portions of the catchment area;

      (ii) the flow at selected locations; and

      (iii) the losses from selected reaches with their positions and modes of occurrence.

b) for making and recording continuous measurements of all diversions, whether natural or artificial, or partly natural and partly artificial and rainfall from the Buzi Watercourse; and

c) for measuring and monitoring the quality of: -

   i. water in the Buzi Watercourse; and

   ii. stored water at such locations within the Buzi Watercourse.

2. The Parties agree to put in place an integrated surface water quantity and quality monitoring network.

Article 14

Exchange of Data and Information

1. The Parties, when sharing data and information shall:

   a) on a regular basis exchange available data and information on the condition of the Buzi Watercourse, in particular that of hydrological, hydrogeological, meteorological, environmental conditions, water quality as well as related forecasts, as provided in the Annex 5;

   b) exchange data, information and study reports on the activities that are likely to cause significant trans-boundary impacts;

   c) exchange at intervals agreed by the JWC, information on the use, quantity and quality of the water resource and the ecological state of the Buzi Watercourse necessary for the implementation of this Agreement;

   d) exchange information and consult each other and if necessary, negotiate the possible effects of Planned measures on the condition of the Buzi Watercourse; and

   e) develop the appropriate measures to ensure that the information is

homogenous, compatible and comparable as agreed by the JWC.

2. If a Party is requested by the other Party to provide data or any information referred to in Article 13 (1), the Party shall be obliged to comply with the request in accordance with Annex 5.

Article 15

Droughts and Floods

1. The Parties undertake to develop and implement a strategy on flood and drought warning and mitigation and any other strategies adopted by the Parties on the Buzi Watercourse.

2. The allocation of the water during drought periods shall be adjusted in accordance with the Annex 2 on Flow Regime which provides the basis on water allocation.

3. The Parties agree to the following order of priorities for water allocation:

   a) Urban, rural and livestock consumption;

   b) Industrial and Mining (IM) water use;

   c) Irrigation;

   d) Environmental Flows (reduced accordingly); and

   e) Others.

4. The Parties shall notify each other without delay and by the most expeditious means of any flood danger.

5. The affected Party may, during flood and drought situations, require the other Party to adopt the flood and drought warning and mitigation measures contained in the strategy referred to in sub-Article 1 above.

Article 16

Climate Change

The Parties shall undertake studies to identify, adopt and implement measures to adapt and mitigate against the impacts of Climate Change in the Buzi Watercourse.

Article 17

Trans-boundary Impact

1. The planned measures listed in Annex 3, regardless of their location that by themselves or by accumulation with the existing ones, which have the potential of significant Trans-boundary Impact on the Watercourse, shall not commence before the provisions of Article 4(1) of the SADC Protocol are complied with.

2. Whenever, a planned measure, not listed in Annex 3, is likely to cause significant Trans-boundary Impact or if either Party expresses concern that such may occur, it

shall not commence before the provisions of Article 4(1) of the SADC Protocol are complied with.

3. In case of planned measures involving a significant Trans-boundary Impact of substantial magnitude, the proponent shall conduct an Environmental Impact Assessment which takes Trans-boundary Impact into account in accordance with procedures determined by the Parties.

4. Whenever an ongoing activity causes or is likely to cause a significant Trans-boundary Impact which will lead a Party to comply with an obligation under this Agreement, the Party concerned shall address the matter through the co-ordination of management plans, programmes or measures.

Article 18

Incidents of Accidental Pollution and Other Emergency Situations

1. The Parties undertake through their relevant institutions to collaborate and ensure that they:

   a) immediately and by the most expeditious means available, notify the other potentially affected Party, the SADC organs or any other authorised competent international organisations and institutions of any incidents of accidental pollution and other emergency situations originating within their respective territories;

   b) promptly supply the necessary information to the other affected Party and competent organisations with a view to co-operate in the prevention, mitigation and elimination of the harmful effects of the emergency; and

   c) individually and where appropriate, jointly, develop contingency plans for responding to any incidents of accidental pollution and other emergency situations in co-operation, where appropriate, with other potentially affected and/or authorised competent international organisations to take immediately, all practicable measures necessitated by the circumstances to prevent, mitigate and eliminate the harmful effects of the emergency.

Article 19

Flow Regime

1. The flow regime of the Buzi Watercourse is contained in Annex 2, Article 2.

2. Any abstraction of water from the Buzi Watercourse, regardless of the use or geographical destination of such water, shall be in conformity with Annex 2, Articles 2 and 3 and relevant provisions of this Agreement and its annexes.

3. The Parties have considered the following criteria in establishing the flow regime:

   a) the geographical, hydrological, climatic and other natural characteristics of the

Buzi Watercourse;

b) the need to ensure water of sufficient quantity with acceptable water quality to sustain the watercourse and its associated ecosystems;

c) any present and foreseeable future water requirements; and

d) existing and planned infrastructure which has the capacity to regulate the stream flow of the Buzi Watercourse.

4. The Parties shall develop and implement groundwater quantity and quality monitoring according to Annex 2, Article 4.

Article 20

Intra and Inter-basin Water Transfers

1. The Parties agree on the possibility of intra and inter-basin water transfer in order to develop the resources of the Buzi Watercourse and other basins.

2. The Parties shall notify each other on the need of water transfer to fulfil requirements within and/or to other river basins with water scarcity.

3. The decision of Intra and Inter-basin water transfer shall be made by the Parties with the recommendation of the JWC.

Article 21

Capacity Building

The Parties shall individually and where appropriate, jointly:

a) identify and prioritise capacity building programmes necessary for the implementation and monitoring of this Agreement; and

b) promote awareness and implementation of capacity building programmes for Integrated Water Resource Management institutions and stakeholders.

Article 22

Annexes

1. The Annexes 1, 2, 3, 4 and 5 are part of this Agreement.
2. The Parties may agree on any other annexes they consider necessary through diplomatic channels.

Article 23

Settlement of Disputes

1. Any dispute between the Parties concerning the interpretation or implementation of this Agreement shall be settled amicably through consultation and negotiations

between the Parties.

2. Where the dispute has not been settled within one (1) year, from the date upon which such negotiations were requested, it shall be submitted for mediation as agreed by the Parties.

3. In the event that the dispute has not been resolved by mediation within six (6) months, the dispute shall be referred to a Tribunal of Arbitrators (the Tribunal) appointed by the Parties, as follows: -

   (a) the Tribunal shall comprise of three (3) arbitrators, two (2) of which shall be appointed by each Party; and

   (b) the two (2) arbitrators appointed by each Party shall appoint the third arbitrator who shall be the chairperson.

4. The decision of the Tribunal shall be final and binding on the Parties.

5. The costs of any arbitration under this Article shall be borne equally by the Parties.

6. While the process of dispute resolution is ongoing, the Parties agree not to proceed with the object of the dispute until it is resolved.

Article 24

Amendments

1. This Agreement may be amended at any time by mutual consent of the Parties, by an exchange of notes through diplomatic channels.

2. This Agreement may be revised and updated every ten (10) years.

Article 25

Entry into Force, Duration and Termination

1. This Agreement shall be subject to ratification by each Party.

2. This Agreement shall enter into force thirty (30) days after the deposit of the instrument of ratification by the Parties and shall remain in force for a period of ten (10) years.

3. The Agreement shall automatically be renewed for a similar period, unless either Party gives prior written notice of twelve (12) months of its intention to terminate the Agreement.

4. Unless otherwise specifically agreed by the Parties, termination shall not affect the validity of any ongoing activities not fully completed at the time of termination.

Article 26

Depositary of the Agreement

1. The Executive Secretary for SADC shall be the Depositary of this Agreement.
2. The Parties agree to inform each other on the completion of their internal legal processes.
3. The last Party to complete the internal process of ratification shall inform the other and shall be responsible for registering the Agreement with SADC within thirty (30) days.
4. The last Party to complete the internal process of ratification shall request SADC to register this Agreement with the United Nations.
5. In the event that this Agreement is terminated, the Party that initiated the process of termination, shall notify the depositary of the termination of the Agreement within three (3) months after termination of this Agreement.

IN WITNESS WHEREOF the undersigned, being the duly authorised representatives of either Party, have signed and sealed this Agreement in two original copies, in both English and Portuguese languages, both texts being equally authentic.

Signed at Mutare **on this** 29th **day of the month of** July **2019**

For and on behalf of the Republic of Mozambique

Minister of Public Works, Housing and Water Resources

For and on behalf of the Republic of Zimbabwe

Minister of Lands, Agriculture, Water, Climate and Rural Resettlement

ANNEX 1

MAP OF THE BUZI WATERCOURSE

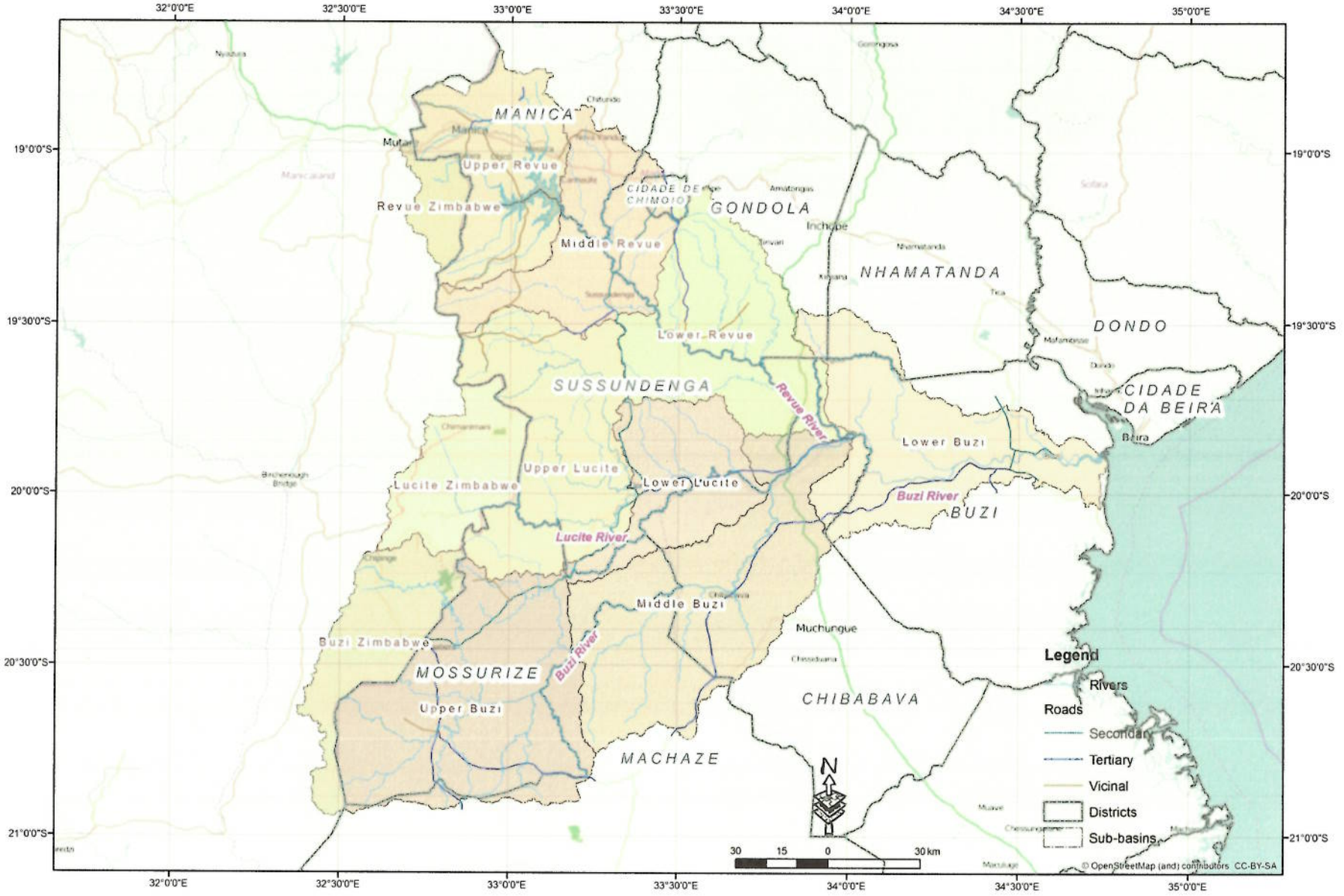

Figure 1: Map of the Buzi Watercourse

ANNEX 2

FLOW REGIME AND WATER ALLOCATION

ANNEX 2

FLOW REGIME AND WATER ALLOCATION

Article 1
Determining Criteria

(1) Determination of the flow regime is based on the criteria in Article 8.2 of the Agreement.

(2) The Parties accord a first priority to supply water for domestic, livestock and industrial use.

(3) If, upon review of the hydrology of the system, more water is found to be available in the Buzi watercourse than that contemplated in this Annex, the Parties shall give priority to the water uses referred to in sub Article 1(2) of this Annex, when considering the allocation of the water.

(4) Monitoring of the flow regime shall be carried out at appropriate hydrometrical stations as indicated in Annex 5 of the Agreement.

Article 2
Sub-catchments Considered for the Buzi Watercourse

(1) The Buzi Watercourse, covers a total area of 28,870 km^2, and it is sub-divided in the following eleven sub-catchments as shown in a Table 1 below.

(2) The net contributions to the total net natural mean annual runoff – MAR, in the natural condition without any land and water use effects and allowing for river channel losses, of 6 878 million m^3 of the Buzi watercourse at the estuary by the various catchments are estimated as follows:

Table 1: **Buzi Watercourse Sub-catchments, Area and Mean Annual Runoff (MAR) Contributions**

ID	Sub-catchments	Location	Area (Km^2)	MAR (Mm^3)
1	Revue (Zonwe)	Zimbabwe	508	176
2	Rusitu / Lucite	Zimbabwe	1535	665
3	Buzi Zimbabwe	Zimbabwe	1690	538
4	Upper Revue	Mozambique	2333	555
5	Middle Revue	Mozambique	2463	560
6	Lower Revue	Mozambique	3139	839
7	Upper Lucite	Mozambique	3251	1366
8	Lower Lucite	Mozambique	1885	385
9	Upper Buzi	Mozambique	4476	1177
10	Middle Buzi	Mozambique	4332	330
11	Lower Buzi	Mozambique	3258	288
Total			28,870	6878

Article 3

Utilisation of the Water Resources of the Buzi Watercourse

(1) Based on the estimates of the present availability of water in the Buzi Watercourse, the Parties agree to the following annual water uses that will result in a reduction in runoff of the Buzi Watercourse:

Table 2: **Utilisation of the Water Resources of the Buzi Watercourse in Zimbabwe:**

ID	Type of Use	Annual Water Uses (Mm^3)
1	Urban water supply to Chipinge and Chimanimani	13.7
2	Rural water supply	6.5
3	Livestock	4.7
4	Irrigation	350
5	Industry and other water uses	7.00
Total		381.9

Table 3: **Utilisation of the Water Resources of the Buzi Watercourse in Mozambique**

ID	Type of Use	Annual Water Uses (Mm^3)
1	Urban water supply to Chimoio, Manica and Gondola	95.3
2	Rural water supply	8.4
3	Livestock	7.6
4	Irrigation	265
5	Industry and other water uses	8.5
Total		384.8

The Parties shall develop and adopt Dam Operating Rules to be approved by the JWC for the benefit of all the stakeholders within the basin in an integrated and equitable manner.

The water allocations in both countries exclude planned projects.

The Parties may convert some of their agreed irrigation use to first priority use at a conversion factor approved by the JWC at the time that the need arises.

The water allocations in Zimbabwe assumes the construction of Mirror Dam.

The water allocations in Mozambique do not require any additional storage dam although Cintura and Lucite Dams and water transfer schemes from Buzi to Save Basin, should be considered for the long term. The construction of Tsate Dam reflects the need for hydropower.

The Parties may convert some of their agreed irrigation use to first priority use at a conversion factor approved by the JWC at the time that the need arises.

(2) The water use (Mm^3) by categories in the two countries is given in the following table 4.

Table 4: **Water Use Categories in Zimbabwe and Mozambique**

Type of Water Uses	Zimbabwe (sub-catchments)			Mozambique (sub-catchments)							
	Revue (Zonwe)	Lucite	Buzi	Upper Revue	Middle Revue	Lower Revue	Upper Lucite	Lower Lucite	Upper Buzi	Middle Buzi	Lower Buzi
Urban water supply	0	6.0	7.7	95.3	0	0	0	0	0	0	0
Rural water supply	0.5	2.5	3.5	1.4	1.9	0.2	1.5	1.4	0.2	0.9	0.9
Livestock	0.7	0.9	3.1	0.9	0.8	1.0	1.1	0.6	1.5	1.1	0.6
Irrigation	95.0	94.0	161.0	23.0	23.0	42.0	17.0	8.0	8.0	96.0	48.0
Industry and other uses	2.8	1.8	2.4	0.8	0.7	0.8	0.6	0.4	0.5	0.7	4.0
SUB-TOTAL	99.0	105.2	177.7	121.4	26.4	44.0	20.2	10.4	10.2	98.7	53.5
Country Total	381.9			384.8							

Where there is a zero (0) in the table it means that there is no water uses in that category

(3) Until detailed studies on environmental flows required in the various sub-catchments and sections of the main river and tributaries are executed and the environmental flow can thus be defined, the Parties agree that sufficient water should flow in the river system and enter the Buzi Estuary. The following flows, in million m^3/month, have been considered to be adequate in normal years, with the average approximately equal to 15% of the MAR at the estuary, or 32.8 m^3/s:

- Wet months (December – April) – 21.5 m^3/s
- Dry months (May – November) – 11.2 m^3/s

(4) When the JWC determines that a drought condition exists and that the water use by the Parties as given in sub-Articles (1), (2) and (3) must be reduced, the irrigation use and the environmental flows shall be the first to be reduced. This shall be followed by reductions in the first priority use, in accordance with plans prepared by the different water users and approved by the JWC.

(5) The operating rules of the existing Chicamba dam and of the new dams that are proposed, namely Mirror Dam and Tsate Dam, shall be reviewed by the JWC from time to time. The operating rules developed by the Parties for those dams in their territory shall ensure that the river losses and the agreed water allocations of the various sectors in the Buzi Watercourse, corresponding to the actual land use, can be supplied. The JWC shall approve the criteria for reducing water use that are included as part of the operating rules. These shall take account of the availability of water and the water requirements in sub-Articles (1), (2), (3) and (4), the determining criteria defined in Article 1 and the acceptability of restrictions for the first priority and irrigation users and the tolerance of the riverine and estuarine ecosystems to reductions in water supply. Adequate account shall be taken of transmission losses and other return flows.

Article 4
Monitoring of Groundwater Quantity and Quality

1. The Parties shall develop and implement a groundwater monitoring strategy.
2. Each Party should install and maintain a number of boreholes in selected aquifers for the purpose of monitoring groundwater quantity and quality.

Article 5
Water Conservation

Any Party may use a saving in the agreed water use by a particular sector, as a result of better management practices or other water conservation measures, including pricing policies, for any other purpose within its own territory, provided that the JWC shall be notified accordingly.

Article 6
Generation of Hydropower

A Party may utilize water within its own territory for the generation of hydropower at existing hydropower stations, and those under construction at the time of this Agreement coming into force, and future installations after the JWC has agreed to the operating rules.

Article 7
Concluding Provisions

The JWC shall assess any problems regarding the flow regime, any problems that will affect the normal utilization of dams and any problems arising from the minimum flows specified to maintain the ecosystems, taking into consideration the provisions of Article 14 of the Agreement. Any affected Party shall inform the JWC about the problems, so that measures may be considered and adopted to establish a temporary or revised interim flow regime conforming to the general criteria set out in Article 8.2 of the Agreement.

ANNEX 3

PLANNED MEASURES

ANNEX 3

PLANNED MEASURES
Article 1
Determining Criteria

1. The Parties accord a high priority to supply water for domestic, livestock and industrial use. In particular, the Parties recognize the strategic importance of guaranteeing the future water demand of the cities and towns of Chipinge and Chimanimani in Zimbabwe and Chimoio, Manica and Gondola in Mozambique.

2. The Parties recognize the projects in this Annex as projects that are contemplated by the Parties to commence before 2025 and that have previously been identified and studied by one or more of the Parties for future implementation.

3. The projects are classified into water utilization projects and water resources development projects.

4. The Parties recognize the usefulness of studying the creation of structural and non-structural measures in order to make more water available, as indicated in Annex 2.

5. For the mere reason that a project is listed in this Annex, the Party is not exempted from complying with the provisions of the Agreement.
[3]

6. If more water is made available through structural and non-structural measures in the Buzi watercourse, the Parties shall give priority to the water uses referred to in sub Article 1, when considering the allocation of the water, taking into account the equitable and reasonable utilization by the Parties of the water resources of the Buzi Watercourse.

7. A Party may develop any other project not listed in this Annex, in accordance with the provisions of the Agreement.

Article 2
Planned Measures in Zimbabwe

The following are planned water resources development projects (Table 5) in the Buzi Watercourse in Zimbabwe:

Table 5: **Planned Water Utilization and Development Projects in Zimbabwe**

ID	Name of project	Purpose	Description of the project
1	Mirror Dam	Augmentation of the water supply to the towns of Chipinge and irrigation in the Buzi sub-basin	Location - Buzi River High - 37 m high Live storage capacity -23 Mm3
2	Haroni Dam	To support urban water supply and hydropower generation to Chimanimani, in the Rusitu / Lucite sub-catchment	Location – Haroni River High - 15 m high and with 2 Live storage capacity - 10 Mm3
3	Nyabamba, Rusitu, Nhahonde, Kupinga and Silverstream	Hydropower generation.	Mini- Hydropwer Schemes with a total installed capacity of 11.6 MW
4	Construction of small dams, less than 10 m high	For domestic supply, small scale irrigation, livestock and mini hydropower generation.	Location - High < 10m Live storage capacity - < 1Mm3

Article 3
Planned Measures in Mozambique

The following are planned water resources development projects (Table 6) in the Buzi Watercourse in Mozambique:

Table 6: **Planned Water Utilization and Development Projects in Mozambique**

ID	Name of Project	Purpose	Description of the Project
1	Tsate Dam	Augmentation of the water supply to the towns of Chimoio, Manica and Gondola, with additional water secured from the Revué sub-basin, via the intake at Chicamba Dam and hydropower generation.	Location - Revue River High - 34 m high Live storage capacity -75 Mm^3
2	Cintura Dam	Increased irrigation development along the Buzi, Lucite and Revuè rivers, reaching a total of about 22,000 ha.	Location – Luciti River High - 81 m high Live storage capacity - 720 Mm^3
3	Miracuene Dam	Increased irrigation development along the Buzi, Lucite and Revuè rivers, reaching a total of about 22,000 ha.	Location – Buzi River High - 66 m high Live storage capacity - 709 Mm^3
4	Mweneze Dam	Irrigation and hydropower generation.	Location- Luciti High - 10m Live storage capacity – 100 Mm^3
5	Construction of small dams, less than 10 m	For domestic supply, small scale irrigation, livestock and mini hydropower generation.	Location- High < 10m Live storage capacity - < 1 Mm^3
6	Munhinga Dam	Hydropower generation.	Location- Munhinga Installed Capacity - 9 MW
7	Mavuzi II Dam	Hydropower generation.	Location- Revue River Installed Capacity - 8.2 MW
8	Mavuzi III Dam	Hydropower generation.	Location- Revue River Installed Capacity - 56 MW
9	Toa Dam	Hydropower generation.	Location- Revue River Installed Capacity - 4.4MW

ANNEX 4

GUIDELINES ON WATER QUALITY MONITORING

ANNEX 4

GUIDELINES ON WATER QUALITY MONITORING

Article 1
Objective of Water Quality Monitoring

1. The objective of water quality monitoring is to ensure that the Buzi watercourse is used in a sustainable manner, in accordance with this Agreement, particularly Article 11.

Article 2
Water Quality Management

1. Water quality is described by the physical, chemical and biological characteristics of the watercourses.

2. Water quality will be managed considering also the character and condition of the in-stream and riparian habitat and the characteristics, condition and distribution of the aquatic biota.

3. Specific studies shall be conducted by the JWC to define the requirements in terms of water quantity and quality for environmental conservation in important sections of the Buzi river and its tributaries and at the estuary.

Article 3
Water Quality Management Goals

1. The water quality management goals for the Buzi watercourse system should ensure that existing aquatic ecosystems are protected, allow for the abstraction for use in the production of drinking water after appropriate treatment and for other water uses without treatment, prevent significant adverse transboundary impacts, prevent deterioration of the water quality of the watercourses, and conform to the values set for the parameters indicated in Appendix A.

2. The JWC can review and may, at any time, revise the parameters, values and/or frequencies given in Appendix A. Revisions may be considered either at the request of a Party or on a proposal within the JWC, in respect of specific river reaches or estuary and whenever there are changes in the human, infrastructural and financial resources of any of the Parties or there are improvements in technical and scientific knowledge.

3. The values mentioned in Appendix A may be temporarily waived in the case of extreme natural hydrological occurrences, including natural enrichment in certain substances. Where a Party waives the stipulated values, it shall forthwith notify the other Party thereof, stating its reasons, the periods anticipated and the proposed mitigation measures to be introduced, if any.

4. Whenever surface water fails to comply with the values for parameters set in Appendix A,

the Parties shall consider adopting, with the least delay, the measures required for the improvement of its quality, including a thorough investigation of the relevant sources of point and diffuse pollution and the enforcement of suitable effluent discharge limits and programs of environmental management.

Article 4
Monitoring of Surface Water Quality

1. Surface water sampling and analysis shall be done for the variables and at the frequency mentioned in Appendix A, and at the prioritized surface monitoring stations, listed in Appendix B or at suitable locations in the vicinity of these stations.

2. The results from water quality monitoring shall be exchanged within a week after sample analyses are done.

3. The Parties shall be alerted immediately if any extreme values are found for the parameters indicated, where use of the watercourse could pose a hazard to humans, other water uses or the environment.

4. Existing historical water quality data for the surface water monitoring stations in the Buzi Watercourse, listed in Appendix B, shall be exchanged between the Parties within twelve months of signing of the Agreement.

5. Quarterly reports on the water quality status at the monitoring stations shall be exchanged by the Parties, by within Thirty (30) days after the reporting period.

6. An annual report on the water quality status at the monitoring stations shall be exchanged by the Parties, by 31st January for each year.

7. The Parties shall individually or, where agreed, jointly promote actions to identify, design, establish and re-enforce monitoring systems for the Buzi watercourse.

Article 5
Monitoring of Groundwater Quality

1. Groundwater is part of the watercourse and the sustainable development of groundwater resources at a regional level shall be promoted. This shall include the assessment, exploitation and protection of the groundwater component of the watercourses.

2. Each Party should install and maintain a number of boreholes in selected aquifers for the purpose of monitoring groundwater quality.

Article 6
Bio-Monitoring of Water Quality

The Parties shall develop and implement bio-monitoring programmes in the Buzi Watercourse.

APPENDIX A: WATER QUALITY GUIDELINES

The Parties agree that the minimum parameters to be monitored are those specified in Table 7.

Table 7: **Water Quality Monitoring Parameters**

Parameter	**Unit**	**Standards**			
Basic physico-chemical characterization		**Blue**	**Green**	**Yellow**	**Red**
Temperature	°c	<35	<40	≤40	≤45
Electrical Conductivity	µs/Cm	<1000	<2000	<3000	<3500
Ph	Ph	6.0-9.0	5-6 9-10	4-5 10-12	0-4 12-14
Dissolved Oxygen	% Saturation	>60	>50	>30	>15
Total dissolved solids	Mg/L	<500	<1500	<2000	>3000
Total suspended solids	Mg/L	<25	<50	<100	<150
Turbidity	NTU	<5	*	*	*
Inorganic non metallic					
Biological Oxygen Demand	(Mg/L)	<30	<50	<100	<120
Chemical Oxygen Demand	(Mg/L)	<60	<90	<150	<200
Ammonia (N)	Mg/L	≤0.5	≤1.0	≤1.5	<2.0
Total Nitrogen (N)	Mg/L	≤10	≤20	≤30	≤50
Nitrates	Mg/L	<10	<20	<30	<50
Nitrites	Mg/L				
Phosphates	Mg/L	<0.5	<1.5	<3	<5
Sulphates	Mg/L	<250	<300	<400	<500
Oxygen Absorbed	PV	<10	<15	<25	<40
Dissolved oxygen	(Mg/L)	60	>50	>30	>15
Metals					
Aluminium	Mg/L	*	*	*	≤5
Cadmium (Cd)	Mg/L	≤0.01	≤0.05	≤0.1	≤0.3
Chromium (Cr (Hex))	Mg/L	≤0.05	≤0.1	≤0.2	≤0.5
Copper (Cu)	Mg/L	≤1.0	≤2.0	≤3	≤5590
Lead (Pb)	Mg/L	≤0.05	≤0.1	≤0.2	≤0.5
Iron (Fe)	Mg/L	≤1.0	≤2.0	≤5.0	≤8.0
Nickel (Ni)	Mg/L	<0.3	<0.6	<0.9	<4.5
Selenium (Se)	Mg/L	≤0.05	≤0.1	≤1.5	≤3
Zinc (Zn)	Mg/L	<0.5	<4.0	<5.0	<15.0
Manganese (Mn)	Mg/L	<0.1	<0.3	<0.4	<0.5
Mercury (Hg)	µg/L	≤0.01	≤0.02	≤0.03	≤0.05
Copper	(Mg/L)	<1.0	<2.0	<3.0	<5.0
Chloride	(Mg/L)	<250	<300	<400	<500

Parameter	Unit	Standards			
Cyanide And Related	Ppm	≤0.07	≤0.1	≤0.15	≤1
Compounds (CN) Cyanide (As Free CN)	Ppm	≤0.07	≤0.1	≤0.15	≤0.3
Microbiology					
Faecal Coliforms (No./ 100 ml)	(No./ 100 Ml)	≤1000	>1000	>1500	≤2000

Blue Normal - Considered to be environmentally safe.
Green - Considered to present low environmental hazard.
Yellow - Considered to present a medium environmental hazard.
Red - Considered to present a high environmental hazard.
* - Negligible

The following parameters are to be analyzed *in situ*: pH, Temperature, Dissolved Oxygen (DO), Turbidity, Electrical Conductivity (EC). The water quality analysis should be carried out at certified laboratories.

The sampling and laboratory analysis should be made quarterly and more or less evenly distributed along the hydrological year, covering the wet and the dry seasons. If technical or financial reasons put a constraint on the number of measurements, the minimum should be two per year, one during the wet season and one during the dry season.

Although the laboratory analyses of metals, particularly cadmium, iron, lead, manganese, zinc and mercury, are quite expensive, an effort should be made in both countries to do it once a year, even if in fewer sites which are deemed to be more critical.

The legal regulations of each country defining the acceptable limits of the monitoring parameters in terms of water quality should be followed, until a general agreement on water quality standards is reached at the SADC level.

APPENDIX B: SURFACE WATER QUALITY MONITORING STATIONS

The Parties agree that the surface water quality monitoring stations in Zimbabwe are as shown in Table 8.

The Parties agree to put in place an integrated surface water quantity and quality monitoring network.

Table 8: **Surface Water Monitoring Sites in Zimbabwe**

ID	Reference	River	Site Description	Latitude	Longitude
1	Budzi/15	Buzi	Budzi river	-20.29113°	32.68932°
2	Rusitu/15	Rusitu	Charter turn off towards Kopa shopping centre.	-20.05878°	32.85535°
3	Nyahode/15	Nyahode	Nyahode river	-20.05162°	32.85594°
4	ER93	Silverstream	Silver Stream River, Bridge before Wattle Factory.	-19.99528°	32.68932°
5	Munene	Munene Trib	The area just below the Mutare LA dumpsite.	-18.99314°	32.67706°
6	Mazonwe /15	Mazonwe	Burma valley, within the Vumba Banana Plantations	-19.11082°	32.85310°
7	Haroni/14	Haroni	Downstream after the DTZ mine and slimes dam.	-19.80891°	32.96682°

The suggested surface water monitoring stations in Mozambique are listed in the following table 9.

Table 9: **Surface Water Monitoring Sites in Mozambique**

ID	Reference	River	Site Description	Latitude	Longitude
1	ESN	Buzi	Upper Buzi	-20.609772°	32.980569°
2	ESN	Buzi	Buzi upstream Lucite junction	-20.195444°	33.701546°
3	E188	Buzi	The area more downstream in Buzi Basin, before discharge into the ocean	-19.897438°	34.617211°
4	E259	Revue	Northwest Manica upstream Chicamba Dam	-18.986980°	33.049930°
5	ESN	Zonwe	Upstream of Chicamba Dam	-19.005450°	33.096320°
6	ESN	Munene	Munene river at the border	-19.018696°	33.135205°
7	E654	Mossurize	Mossurize river at the border	-19.765686°	33.845805°
8	E246	Lucite	Lucite upstream Buzi junction. Major tributary of Buzi river	-19.97883	33.39619
9	E84	Buzi	Espungabera	-20.4667	32.7667

ANNEX 5

EXCHANGE OF INFORMATION

ANNEX 5

EXCHANGE OF INFORMATION

Article 1
General Principles

1. The Parties shall exchange or facilitate the exchange of information on water quantity, water quality, water use, hydraulic infrastructures and other relevant data and information.

2. The Parties shall individually or, where agreed, jointly develop a mutually accessible and appropriate website where information to be exchanged, as required in terms of the Main Agreement and this Annex, shall be posted and updated by the Parties.

3. The Parties shall put the necessary administrative procedures in place in order to comply with the exchange of information.

4. The Parties shall individually and, where agreed, jointly determine the budget necessary for the actions described, including activities for providing equipment, software and its installation, running and maintenance costs and training activities.

5. The Parties shall establish clear channels of communications, indicating the responsibilities of each involved institution, the personnel and the contacts (phone, cell, fax and e-mail) as well as contacts for emergency situations.

Article 2
Use of Information and Data

1. Buzi basin related information published by a Party within its territory may be used by the other Party for any purpose relevant to the objectives of the Agreement, subject to acknowledgment of the source.

2. Information given by one Party for the exclusive use of the other Party for the purpose of planning, development and management of the Buzi watercourse shall only be used for that purpose.

Article 3
Rainfall Data

1. The following table lists the rainfall monitoring network (Table 10) whose data is to be collected and exchanged by the Parties.

Table 10: **Rainfall Monitoring Sites in the Buzi Watercourse**

Order	Location	Reference	Name / location
1	Zimbabwe	27-2478 VP 7787 E	Vumba Nation
2		27-2478 VP 8710 H	Chimanimani
3		22-VN 2477 6386 B	Highland Estate
4		27- VN 2477 6167 Z	Chipinge
1	Mozambique	P-77	Estaquinha
2		P-93	Vila Manica
3		P-122	Açude Mavuzi
4		P-158	Chicamba Dam
5		P-422	Dombe
6		P-759	Messambuzi
7		P-785	Espungabera
8		P-66	Garvin
9		P-91	Garuso
10		P-345	Bandua
11		P-351	Muoha
12		P-359	Chibabava
13		P-1088	Vila do Buzi
14		P-1110	Dacata
15		P-1274	Goonda

2. In each station, data should be collected on a daily basis.

3. Exchange of rainfall data should be done on a daily basis during the rainy season and monthly in normal situation.

4. If a flood is foreseen or a high value of rainfall[1] is recorded in a station of a Party, the exchange of information should be done on a daily or hourly basis.

[1] For example, a value above the 80% probability threshold.

Article 4
Runoff Data

1. The following table lists the runoff monitoring network (Table 11) whose data is to be collected and exchanged by the Parties.

Table 11: **Runoff Monitoring Sites in the Buzi Watercourse**

Order	Location	Reference	Code / name
1	Zimbabwe	F3	Upper Chisengu
2		F4	Lower Chisengu
3		F-7	Nyahodi
4		F8	Nyahodi
5		F-10	Zonwe
6		F11	Rusitu Power Station
7		F16	Chipudzana Southdown
8		F-18	Buzi Ypress
9		F19	Bangazaan U/S
10		F20	Bangazaan U/S
11		F21	Bangazaan D/S
1	Mozambique	E-84	Espungabera
2		E-188	Estaquinha
3		E-244	Chibabava
4		E-246	Dombe
5		E-456	Goonda
6		E-654	Revue na EN1
7		CHD	Chicamba Dam

2. In each station, water level data should be collected on a daily basis.

3. In each station not provided with a measuring weir, periodic flow measurements shall be made to allow for the re-calibration of the rating curve.

4. Water level data shall be converted into flow data using the adequate rating curve in each station.

5. Exchange of runoff data, comprising water levels, flows and flow measurements, should be done on a monthly basis.

6. If a flood is foreseen or a high-water level, above a defined level of alarm, is recorded in a station of a Party, the exchange of information should be done on a daily or hourly basis.

Article 5
Water Quality Data

1. The monitoring stations, the parameters to be observed and the frequency of sampling is defined in Annex 4.

2. The results from water quality monitoring shall be exchanged within a week after sample analyses are done.

3. The Parties shall be alerted immediately if any extreme values are found for the parameters indicated, where use of the watercourse could pose a hazard to humans, other water uses or the environment.

Article 6
Water Use Data

1. The Parties shall collect and organize data on permits and effective water use in different categories: priority uses, namely urban, rural, livestock, tourism, industry and mining; irrigation; and afforestation.

2. Exchange of water use data shall be done on a yearly basis.

Article 7
Hydraulic Infrastructures Data

1. The Parties shall exchange information about major hydraulic infrastructures, particularly storage dams higher than 6 meters, indicating the characteristics of the dam, spillway and outlets, storage capacity and any other relevant aspect.

2. Each Party shall receive from the owners or the operators of the dams in its country, at least on a monthly basis, the following daily data: water level at the reservoir, reservoir outflow, estimated inflow, rainfall and evaporation.

3. Exchange of reservoir data shall be done on a quarterly basis, including water balance and dam status report.

Article 8
Annual Report

1. A joint annual report shall be prepared by the parties and will include hydrological data and analysis, water quality data and analysis, water use data and trends and hydraulic infrastructures data and information.

Article 9
Other Relevant Information

1. The Parties shall exchange other relevant information as soon as it becomes available, including but not being limited to:

a) Study reports on the Buzi Watercourse or relevant to the Buzi basin;

b) New legislation on water resources management or influencing water resources management;

c) Policies and strategies for water resources development and management prepared at a national or regional level;

d) Potential new large water users;

e) Potential new sources of water pollution;

f) Plans and studies for new hydraulic infrastructures, particularly storage dams.