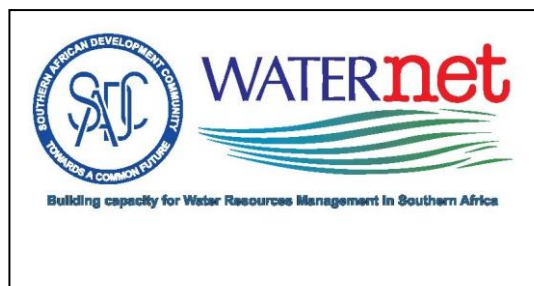




## SADC Water Research Agenda



May 2015



## **Acronyms and Abbreviations**

IWRM	Integrated Water Resources Management
RBOs	River Basin Organisations
RSAP-IWRM	Integrated Water Resources Management and Development
SADC	Southern African Development Community
UN	United Nations
WARSA	Water Research Fund for Southern Africa

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## EXECUTIVE SUMMARY

SADC, through the SADC Water Division, continues to search for ways to realise its vision of a water secure region as enunciated in the various policy and strategy frameworks. Research has been identified as an important pillar in efficient and effective implementation of water programmes and projects.

### Strategic Objective and Principles of the SADC Water Research Agenda

The strategic objective of the SADC Water Research Agenda is to

Promote evidence-based implementation of SADC water programmes and projects through multi- and inter-disciplinary research, and synthesis of existing and new information, which will lead to a realisation of SADC developmental goals.

The research agenda is guided by a number of principles which include:

- Prioritisation of research on the basis SADC 's overall development agenda
- Inventory and consolidation of research as a platform for maximising output from research endeavours
- Multi- and inter-disciplinary research to inform more holistic approaches to water management
- Taking into account of cross-cutting themes to ensure a more comprehensive research agenda
- Developing and application of regional best practices and guidelines
- Understanding drivers of success and failure in water management.

### Research Themes and Topics

The research agenda has two focal areas, namely Infrastructure for Health, Livelihoods and Economic Development, and Water Resource Management and Environment. The table below presents the themes and topics under each focal area.

FOCAL AREA/THEME	TOPIC
<b>Infrastructure for Health, Livelihoods and Economic Development</b>	
Theme 1: Development and sustainable implementation of resilient water-related infrastructure	<ol style="list-style-type: none"><li>1. Water supply and sanitation in rural areas</li><li>2. Water supply and sanitation in urban areas</li><li>3. Water supply and sanitation in peri-urban areas/slums</li><li>4. Agricultural water management for food security and</li></ol>

	poverty alleviation
Theme 2: Innovation in affordable and appropriate technologies and innovative approaches and practices	<ol style="list-style-type: none"> <li>1. Waste water treatment technologies in urban, peri-urban and rural settlements and industrial areas</li> <li>2. Support to self-supply technologies for domestic uses and agriculture water management</li> </ol>
Theme 3: Sustainable Water institutions	<ol style="list-style-type: none"> <li>1. Responsive local public, and public-private partnerships water institutions</li> <li>2. Decision-support tools to enable effective planning and management of water resources</li> <li>3. Accountability, transparency, integrity for maximum societal benefits</li> <li>4. Implementation and monitoring methods of water and sanitation services.</li> </ol>
Theme 4 : The Human Right to Water	<ol style="list-style-type: none"> <li>1. Social, economic and environmental viability of large-scale investments in agriculture</li> <li>2. Support to local investments incorporating gender, and legal and social protection of small-scale water users</li> <li>3. Implications of human right to water supply, sanitation and hygiene</li> <li>4. Core minimum service levels for multiple uses including the right to food.</li> </ol>
<b>Water Resource Management and Environment</b>	
Theme 1: Assessment of surface and groundwater resources	<ol style="list-style-type: none"> <li>1. Water quantity and quality assessment</li> <li>2. Regional water quality guidelines for rivers, lakes and aquifers</li> <li>3. Data processing, storage standards and dissemination</li> <li>4. Suitability of water productivity performance indicators</li> <li>5. Optimisation of monitoring networks</li> </ol>
Theme 2: Operational Rules for Water Resources Management	<ol style="list-style-type: none"> <li>1. System operating rules for environmental flows, irrigation management and flood response</li> <li>2. Impact of hydropower reservoir discharges on downstream productive uses and the environment.</li> </ol>
Theme 3: Impact of Urbanisation on Water Resources	<ol style="list-style-type: none"> <li>1. Urban hydrology across various human settlements and economic zones</li> </ol>

	2. Sustainable urban design
Theme 4: Water Governance and Institutional Arrangements	1. Institutional models for effective water governance.
Theme 5: Water and Land	1. Assessment of irrigation resources 2. Sustainable land management including the land-water nexus.

## Implementation Arrangements

The suggested implementation of the research agenda is based on a strategic perspective where the emphasis is on providing a framework within which the agenda will be operationalised with specific implementation arrangements to be captured in the strategic and operational plans. Effective implementation strategy of the SADC Water Research Agenda depends on addressing the following critical issues:

- Implementation arrangements in terms of type of research and institutionalisation of the agenda
- Strategies for mobilisation and disbursement of research funds
- Formats for funding research
- Institutions expected to play a leading role in the research
- Management of research outputs i.e. information and knowledge generation, synthesis and dissemination.

WARFSA, which has been designated by SADC Water Division as the implementing agency for research in water issues, appears to be the most appropriate institutional home for the research agenda. The governance structure and mechanisms of WARFSA should reflect regional character of the research agenda, and should include mechanisms to ensure transparency and accountability. It is, however, important to note that some research will be managed outside the WARFSA framework. This may include WARFSA-affiliated and non-affiliated research. WARFSA shall also be the primary repository of knowledge and information emanating from the research efforts. In this regard a regional water journal may be an important outlet.

As an interim measure before the agenda is established some seed money is needed to roll out the agenda. The implementation cycle shall be 5 years. However, individual projects shall be implemented in accordance with the design of the project projects extended to the next cycle if necessary.

## **1. INTRODUCTION**

Member states of the Southern African Development Community (SADC) recognise the importance of water as a vehicle for the region's socio-economic development, and political integration. Consequently a number of policy, legal and strategic frameworks, such as the Revised Protocol on Shared Watercourses, Regional Water Policy, Regional Water Strategy, and the Regional Strategic Action Plan on Integrated Water Resources Development and Management (RSAP-IWRM), which from 2016 will enter its fourth five-year cycle of implementation, have been developed.

SADC, through the SADC Water Division, continues to search for ways to realise its vision of a water secure region as enunciated in the various policy and strategy frameworks. One such mechanism is evidence-based implementation of SADC water programmes and projects. Research has therefore been identified as an important pillar in efficient and effective implementation of the programmes and projects. While there are many research efforts that have been undertaken and continue to be undertaken in the region, there is a need, however, to consolidate, streamline and institutionalise the research against the backdrop of a changing research landscape that is characterised by;

- Rapid expansion of knowledge and information,
- Multiplicity of local, regional and international actors, and
- Disparate research findings some of which do not contribute to SADC's developmental agenda.

## **2. STRATEGIC OBJECTIVE AND PRINCIPLES OF THE SADC WATER RESEARCH AGENDA**

### **2.1 Strategic Objective**

The strategic objective of the SADC Water Research Agenda is to

Promote evidence-based implementation of SADC water programmes and projects through multi- and inter-disciplinary research, and synthesis of existing and new information, which will lead to a realisation of SADC developmental goals.

### **2.2 Principles Informing the Research Agenda**

The research agenda is guided by a number of principles which are deemed critical to ensuring that it addresses SADC's overall development agenda.

#### **2.1.1 Prioritisation of Research**

The agenda shall always be informed by SADC's overall development agenda, and shall therefore take cognisance of SADC's pronouncements on the same, as well as any modification, and SADC's way of doing business, which, among other things, is based on consensus building.

### **2.2.2 Inventory and Consolidation of Research**

The agenda recognises that there are many research efforts that are underway in the SADC region, as well as others outside the geographical confines of the region but are nevertheless relevant to the region. Consequently the agenda will:

- Promote inventorying of research to establish the baseline for all research efforts so as not to re-invent the wheel;
- Ensure that past and existing research findings are consolidated and synthesized in line with SADC developmental needs because many research efforts have produced useful results, which, however, are not useable in their present forms and formats; and
- Identify knowledge gaps that exist in order to promote the generation and application of new frontiers of knowledge.

### **2.2.3 Multi- and inter-disciplinary Research**

The water challenges that confront SADC require practical solutions, and the possible interventions do not easily fit within any one expert discipline, hence the importance of multi- and interdisciplinary research. Such a perspective also takes into account that useful entry points into water research and development sometimes lie outside the traditional water sectors.

### **2.2.4 Cross-cutting across Themes**

The issues and challenges that the agenda seeks to (re)solve are not confined to one theme, hence the importance of paying attention to cross-cutting issues such as gender, climate change, HIV and Aids, and the food-water-energy nexus.

### **2.2.5 Regional Best Practices and Guidelines**

The research agenda will seek to infer best regional practices from research findings by:

- Identifying international best practices that can be adapted to national and local levels;
- Assessing to what extent regional guidelines have been developed including their suitability and adoption; and
- Extrapolating/upscaling/ out scaling research findings across different geographical, hydrologic, administrative and institutional scales and levels.

### **2.2.6 Drivers for Success and Failure**

The solutions to the water challenges should be based on an understanding of the pressures and drivers, and how these vary in different political, economic and social contexts and over time.



### **3. RESEARCH THEMES AND TOPICS**

The research agenda has two focal areas, namely Infrastructure for Health, Livelihoods and Economic Development, and Water Resource Management and Environment.

#### **3.1 Infrastructure for Health, Livelihoods and Economic Development**

SADC recognises water infrastructure as critical to sustainable health and livelihoods of SADC citizens, and economic development of SADC economies against a backdrop of:

- Poor access to water and sanitation, which continues to compromise the health of many citizens;
- Low agricultural production resulting in widespread food insecurity;
- Poor performing economies, which undermine capacity to invest resulting in serious water infrastructure deficits;
- Widespread poverty, which has implications for affordable water services; and
- Rapid urbanisation that puts pressure on limited basic social services.

The themes and topics, which are identified and described below indicate the research directions in the two focal areas.

#### **Theme 1: Development and sustainable implementation of resilient water infrastructure**

Infrastructure that supplies water for multiple uses (for domestic and productive purposes), and delivers adequate sanitation should be robust and resilient to continue to provide vital services in a changing biophysical and socio-economic environment. This theme explores the 'hardware' and 'software' arrangements of how this can be achieved, as well as the critical linkages and interactions that need to be recognised. The human, social, environmental, economic and political cost of limited infrastructure is an important entry point in studying the complexity of the issues.

##### *Topic 1: Water supply and sanitation in rural areas*

The majority of SADC citizens live in the rural areas where infrastructure for water supply is used for multiple purposes and is shared by many people and communities. However, the infrastructure is generally limited, because of lack of adequate financial investment, poor design and investment protocols, as well as poorly understood governance and management arrangements. Related to this, and worsening water supply, is inadequate sanitation (whose coverage is lower than of water supply), which contaminates water sources leading to frequent waterborne diseases.

##### *Topic 2: Water supply and sanitation in urban areas*

Due to rapid urbanisation, water supply and sanitation services continue to decline in many urban areas. At the same time many local authorities presiding over these areas are

inadequately resourced and make attempts to collect revenue from poorly served customers often to the detriment of the health of the urban population. Inadequate and unaffordable services are forcing many residents to unsafe water and sanitation alternative arrangements. At the same time promising innovative local solutions are not known and are often sidelined by authorities. Apart from these dynamics it is important to assess level of service across various residential areas, and how the service can best be benchmarked using the most appropriate methodology.

*Topic 3: Water supply and sanitation in peri-urban areas/slums*

Water supply and sanitation infrastructure in peri-urban areas and slums is in many cases non-existent. Moreover, there are few prospects of provision of traditional infrastructure in the short, medium to long term. Because of the rapidly urbanising population, the majority of which will be found in such areas, it is important to investigate new sustainable solutions to service these predominantly poor areas.

*Topic 4: Agricultural water management for food security and poverty alleviation*

Historically state investments in agricultural water management infrastructure have tended to favour large, visible and imposing development projects to the detriment of low cost infrastructure that can address food security concerns. Focus should be on understanding the technical, social and institutional factors (and how they are interlinked) and operational aspects of pro-poor interventions.

**Theme 2: Innovation in affordable and appropriate technologies and innovative approaches and practices**

Technology contributes significantly to the realisation of adequate water supply and sanitation services. The challenge is to identify technologies that are appropriate to the areas where they will be located as well as the people they will serve, including affordability. Such challenges call for new innovations and innovativeness that stand a chance of being accepted by the intended beneficiaries.

*Topic 1: Waste water treatment technologies in urban, peri-urban and rural settlements and industrial areas*

Across the board, waste that is generated is often a health hazard to residents and the environment because of poor disposal methods. The situation requires an assessment of the state of existing infrastructure and the level of exposure to the attendant danger to both residents and the environment. To address the challenges, it is important to research on waste water management for pollution control and remediation, re-use and resource-recovery for productive purposes, solid waste characterization and management for production and energy generation, and the linkage to hygiene. Both off site and on site treatment should be investigated including the design standards, and the waste-energy nexus. The associated costs should be taken into account.

*Topic 2: Support to self-supply technologies for domestic uses and for agriculture water management*

In the face of failing centralised systems, self-supply technologies for multiple water use are critical. An inventory of what is existing and alternative arrangements is important. Special focus should be on groundwater given its importance for the rural population, and the relationship to sanitation because of possible contamination from natural and anthropogenic agents. The high prevalence of malaria and bilharzias in many rural areas requires that effort be made to understand the best approach to combating these, including investigating appropriate low cost technologies.

### **Theme 3: Sustainable water institutions**

The provision of water infrastructure by itself does not guarantee the envisaged positive social outcomes. The interaction of the various persons that are involved as individuals and groups through various institutional arrangements is key and should be understood.

#### *Topic 1: Responsive local and public-private partnerships water institutions*

The configuration and performance of community, public, public-private sector institutions that are involved in water supply and sanitation, and agricultural water management warrants a close study. It is particularly important in multi-purpose infrastructure where different interests need to be reconciled. Detailed assessments of performance in terms of adequacy of services, and the responsiveness of relevant institutions should be undertaken.

#### *Topic 2: Decision-support tools to enable planning and management*

How best to promote efficient and effective implementation of water supply and sanitation, and agricultural water management, depends on robust planning and management interventions. Credible decision support systems are important, and in this regard these should not stop at the development of technical models but incorporate participatory modelling as well.

#### *Topic 3: Accountability, transparency, integrity for maximum societal benefits*

Good water governance has been identified as critical to securing better water-related outputs and outcomes. Issues that need to be examined include identifying perverse and performance-enhancing incentives, accountable financing and operational arrangements, and costs of lack of accountability.

#### *Topic 4: Implementation arrangements for and monitoring methods of water and sanitation services*

Issues that are of interest include comparing service delivery models, differentiated pricing/subsidization/incentives and other strategies for the good of the entire society.

### **Theme 4: The human right to water**

In this context the human right to water includes access to both domestic and productive water, and therefore incorporates aspects related to land and water tenure security, and access to safe water and adequate sanitation.

#### *Topic 1: Social, economic and environmental viability of large-scale investments in agriculture*

In recent years many African governments have supported foreign large scale investments in agricultural production including but not limited to biofuel production. Such investments have been criticised for their negative social impacts due to local people losing land and water resources. There is a need to extend the critique to interrogating the economic claims of these investments as well as the environmental impacts. The ultimate aim should be to identify land and water agreements that benefit local people, and fair compensation if local people lose their land and other resources.

*Topic 2: Support to local investments incorporating gender and legal and social protection of small-scale water users*

The counterpoint to foreign large scale investments in agricultural production are local investments, which unfortunately, are often misunderstood and neglected and yet they play a vital role in local food supply chains. There is a need for more understanding of the various relationships in the value chain including gender dimensions, and how the state can extend legal protection to these investments, and how these interact with local social protection measures. Local risk assessment, which includes studying communities' resilience to water variability against the backdrop of climate variability and change, is an important area of investigation.

*Topic 3: Implications of human right to water to water supply, sanitation and hygiene*

Many governments in SADC in principle agree to the human right to water, as illustrated by them being signatories to international agreements on the human right to water, and inclusion of the same in national constitutions. The research focus is on how this right is being operationalised, especially against the backdrop of initiatives to privatise water supply services, and how alternative arrangements, such as cross subsidisation, can make a contribution.

*Topic 4: Core minimum service levels for multiple uses including the right to food*

The human right to water should be extended to include the right to water for food production, which will lead to a realisation of the right to food, which is also widely recognised. The link between the human right to drinking water and access to food is worth exploring.

## **3.2 Water Resource Management and Environment**

Water is an important input into many developmental programmes and projects, and should therefore be managed as efficiently and effectively as possible. This entails assessing the available and potential resources, how water is used in its various uses, and the related impacts.

### **Theme 1: Assessment of surface and groundwater resources**

*Topic 1: Water quantity and quality*

Efficient and effective water management should be based on accurate assessment of the available water resources, which is a challenge in the region given the poor spatial and temporal distribution of hydrometric and meteorological stations. The commodification of data, especially meteorological data, has also compromised the quality of research that has

been and can be done. The research focus is on how best to utilise the existing data, and how newer technologies, such as satellite images, can improve assessment of both surface and groundwater including transboundary aquifers.

*Topic 2: Regional water quality guidelines in rivers lakes, aquifers*

Since many SADC countries share common water sources, such as rivers, lakes and aquifers, it is critical that regional water quality guidelines are developed and studied with a view to assess their applicability over different hydrologic and geographical scales.

*Topic 3: Data processing, storage standards and dissemination*

Data processing and storage is critical to efficient and effective water management. Communication between member states is greatly enhanced when the shared data is processed and stored according to agreed standards. This calls for the development and testing of existing and new methods and systems that can be used across the region. A related aspect is to investigate how the stakeholders will access such data and how it may be disseminated to the wider society.

*Topic 4: Suitability of productivity performance indicators*

The benefits of utilisation of water is often measured using water productivity performance indicators/indices. An assessment of the various performance indicators and which are best suited under which conditions is an important topic to investigate.

*Topic 5: Optimisation of monitoring networks*

Real time water monitoring against a backdrop of uncertainties in a changing climate and socio-economic conditions is key to efficient, effective and sustainable management of water resources. To this end region-wide, such as the SADC Hypos, are critical. There is a need to investigate past experiences and new initiatives with a view to develop and refine current practice.

**Theme 2: Operational rules for effective water resources management**

Efficient and effective water management should be based on clear operational rules that are clear to all the actors and at defined levels of operation.

*Topic 1: System operating rules for environmental flows, irrigation management and flood response*

Methodologies and techniques that can be used to systematically operate water infrastructure for the purposes of environmental flows, irrigation management, flood control and drought monitoring need to be investigated in terms of applicability across the entire region. This should be linked to assessment of regional flood and drought monitoring initiatives such as early warning system, weather and flood forecasting near real time and medium and long term, as a means towards enhancing emergency planning and disaster preparedness.

*Topic 2: Impact of hydropower reservoir discharges on downstream uses and the environment*

In rivers where hydroelectric generation is being undertaken, and the rivers are also a source of water for irrigation, there is a need to establish trade-offs between electricity generation and irrigation development and the environment at the project and river systems level. This calls for the development of methodologies, including models, to quantify the trade-offs.

### **Theme 3: Impact of urbanisation on water resources**

*Topic 1: Urban hydrology in various urban and urbanising settlements (urban and peri-urban areas including slums) and economic zones*

Urbanisation does not just change the landscape but also the hydrology because of localised and non-localised pollution, drainage and flooding due to the peculiarities of the water supply and sanitation, urban and peri-urban agriculture in addition to the traditional economic activities such as industry. An assessment of this new phenomenon and how it links with the wider surface and underground systems is critical.

*Topic 2: Sustainable urban design*

The urban landscape is rapidly changing and will continue to change because of economic and political pressures. This means that old planning models can no longer suffice for the new realities. Research needs to be done in relation to how to plan for new urban spaces.

### **Theme 4: Water governance and Institutional arrangements**

*Topic 1: Institutional models for effective water governance*

The introduction of IWRM in the region has seen the establishment of new water institutions such as RBOs, catchment councils/catchment management agencies. These have operated juxtaposed to old institutions, which are based on political and administrative boundaries. What needs to be understood are the mandates of existing organisations (RBOs and Regional organisations), and how they are linked to local and national plans, Transfrontier Conservations Areas, Regional Development Corridors and global conventions such as the UN International Watercourse Convention.

### **Theme 5: Ecosystems**

*Topic 1: Ecological water requirements*

While environmental flow requirements exist in many water laws, practical implementation has been low, in part because of the absence of common methodologies. Research is needed to determine the best tools and approaches and the rationale for standardisation, and if so, what form this will take.

*Topic 2: Payment for ecosystem services*

The provision of services by the environment to society requires, not just in terms of appreciation, but to progress further to undertake a valuation of ecosystem goods and services. In this regard the development and testing of methodologies is key. The converse

is true for invasive alien plants whose extent and impact is yet to be fully assessed. The positive and economic impacts should be assessed.

### *Topic 3: Reconciling ecosystem and hydro(geo)logical boundaries*

The catchment approach to water management has tended to focus on surface water resources to the neglect of other important water sources such groundwater and wetlands. There is a need to understand the linkages between the various water sources and uses, which implies recognizing the existence of, not just hydrological boundaries, but ecosystems boundaries as well. The assessment of the various sources, and management practices, and the regulatory environment, including alignment with international conventions and climate change, and other cross cutting themes are important lines of enquiry.

## **Theme 6: Water and land**

### *Topic 1: Assessment of irrigation resources*

The proportion of irrigated area as a fraction of the total arable land is low across the region. However, the assessment is based on crude methodologies, which are badly in need of revision. Biophysical resource that need to be assessed include determination of irrigation potential vs arable land, suitability of agricultural performance indicators (water use efficiency), and water use by various land uses (such as forestry, biofuel feedstock).

### *Topic 2: Sustainable land management*

Water as an entry point, as implied by IWRM, has tended to produce a skewed understanding of developmental challenges. The interaction between land and water is an important nexus that needs to be clearly understood. This means taking into account such issues such as soil health and degradation.

## **4. IMPLEMENTATION ARRANGEMENTS**

In this document implementation of the research agenda is described from a strategic perspective where the emphasis is providing a framework within which the agenda will be operationalised at a strategic level. The specific details will be contained in the strategic and implementation plans.

### **4.1 Critical Issues**

The most effective implementation strategy of the SADC Water Research Agenda should be informed by a thorough consideration of:

- Type of research and institutionalisation of the agenda
- Format for funding research
- Institutions expected to play a leading role in the research
- How the outputs (information and knowledge) will be managed.

## **4.2 Overview of Implementation Strategy**

The components that make up the Implementation Strategy include the funding strategies, sources for funding, disbursement of funds, and governance arrangements. As shown in Figure 1, these are interlinked. The strategy should therefore be seen as a whole and not as individual stand-alone components.



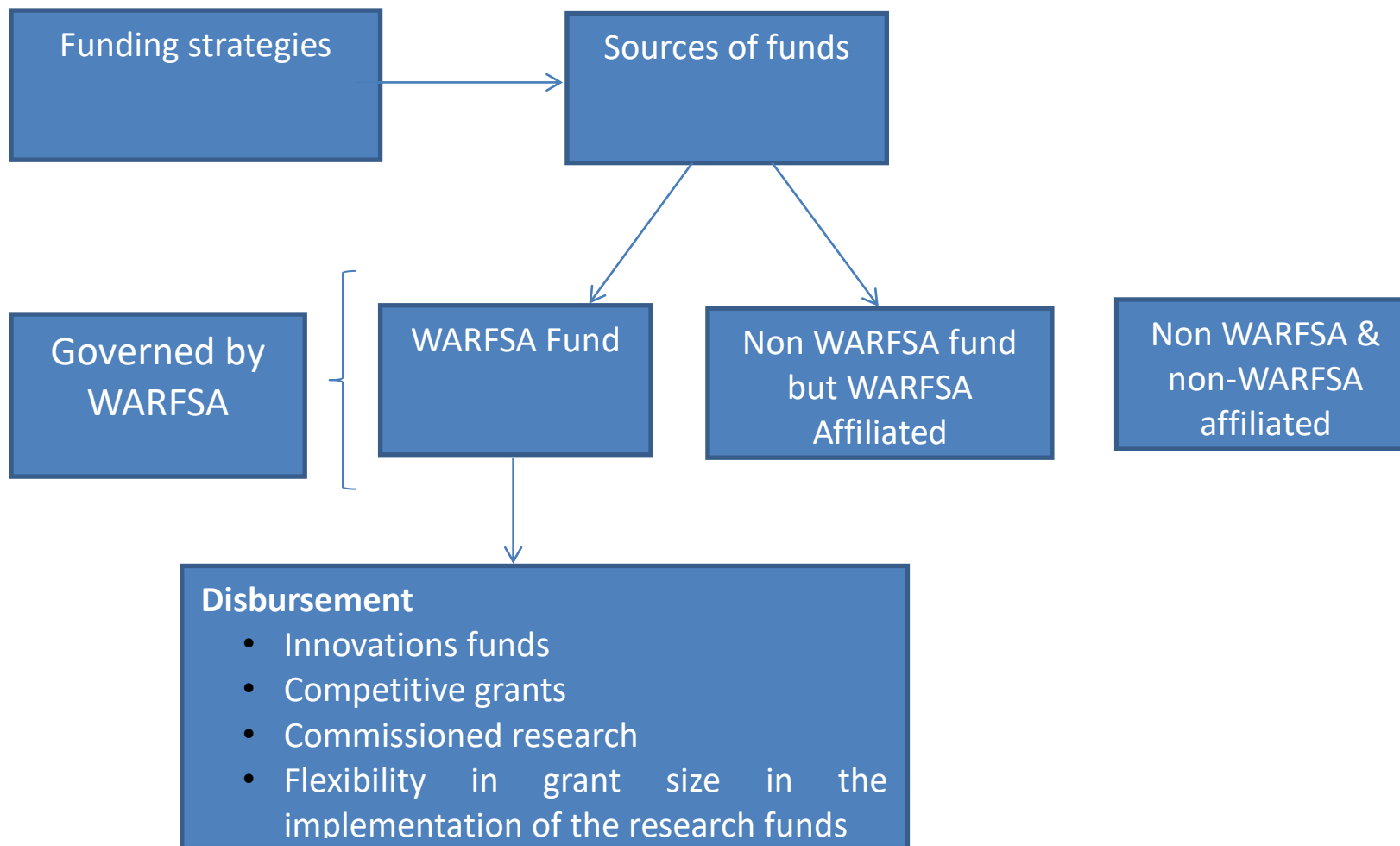


Fig. 1 Strategies, sources for funding and Coordination

### **4.3 Funding Strategies**

A number of funding strategies can be identified and these include:

- Partnering with ministries of science and technology in sourcing funds e.g. the role of nano-technology in water management
- Engaging non-state actors on issue that speak to their own priorities (e.g. private sector, philanthropic organisations)
- Emphasis of water as a significant input into other sectors
- Tapping into development priorities
- Taking advantage of consultancy funds
- Accessing non-water funds, for example in the environmental and disaster management sectors.

### **4.4 Sources of Funding**

#### **4.4.1 Private corporate bodies**

Public and private sector corporate bodies that are interested in exercising corporate social responsibility and taking advantage of business opportunities in the water sector can be sources of funding. To this end partnerships, in the form of research and consultancy, can be created with corporate entities that directly use water such as food and beverages, mining, energy and agri-business. This could be either because they want to be assisted in achieving compliance with legal requirements or the envisaged interventions will result in increased margins. Insurance companies and telecoms companies can also be a source for funding if they see an opportunity such as managing risk and improving financial performance.

#### **4.4.2 Philanthropic organisations**

Some philanthropic organisations that are interested in water issues can be another source of funding. There is a need to document such organisations in terms of mandates and their modus operandi as a step towards fund raising.

#### **4.4.3 International cooperating Partners**

There are a number of international cooperating partners that provide funding for the water sector, and these could be bilateral and multi-lateral.

#### **4.4.4 Banks**

Commercial and development banks can provide research funds as loans or research grants.

#### **4.4.5 Public Sector**

National and local governments can contribute to a regional research funds since there are interested parties in efficient and effective water management.

### **4.5 Governance**

Good governance, in terms of how the agenda will be implemented and managed is an important sustainability consideration. It should ensure transparency and accountability in both financial and implementation of programmes and projects in terms of management arrangements in relation to the inputs and outputs as well as well.

#### **4.5.1 Transparency and Accountability**

WARFSA, which has been designated by SADC Water Division as the implementing agency for research in water issues, appears to be the most appropriate institutional home for the research agenda. It is expected that the governance structure of WARFSA will reflect regional character of the research agenda and will include mechanisms to ensure transparency and accountability. Not all research funds will come through WARFSA. Other funds will be channelled through affiliated projects that seek the endorsement of WARFSA but will remain independent. An important condition for such WARFS-affiliated projects may be to insist that they pay a small percentage of the project budget as a holding fee and also report to WARFSA progress of the research. For those projects that recognise the SADC Water Research Agenda but are not WARFSA affiliated, WARFSA shall all the same be interested in the research findings.

#### **4.5.2 Disbursement of funds**

Research money can be disbursed as competitive grants, commissioned research and innovation funds to new ideas. Specific disbursement arrangements will depend on the requirements of different projects.

#### **4.5.3 Seed money**

As an interim measure, before fund mobilisation for the agenda, it is necessary that seed money be found. This will lay the ground for operationalisation of the research agenda.

#### **4.5.3 Information and Knowledge Management**

WARFSA shall also be the primary repository of knowledge and information emanating from the research efforts. In this regard a regional water journal may be an important outlet.

### **4.6 Implementation Cycle**

Individual projects shall be implemented in accordance with the specifics of the project. This means that individual projects shall lapse at different times. The programme, itself, however, shall be reviewed after 5 years. Projects that are still relevant can be extended to the next cycle.