



Regional Infrastructure Development Master Plan

Executive Summary
August 2012





Acknowledgements

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My Esteemed Colleagues,

One year has come and gone since the last Ordinary Summit held in Luanda, Angola, in August 2011, during which we were honoured to Chair our august body, the Southern African Development Community (SADC). During that period, we were humbled by the unequalled cooperation that we received from yourselves and other Member State representatives within other SADC policy structures with which we collaborated. You will recall, Your Excellencies, that at the very outset of our ascendancy to the SADC Chair, we identified infrastructure development as not only a priority, but as an area which we were going to champion. We took the reins at a time when the process of crafting the SADC Regional Infrastructure Development Master Plan (RIDMP) had just commenced, guided by the Executive Secretary. It was very clear that the advent of the RIDMP would usher an opportunity for Member States to strike consensus on priority projects, which would constitute the basis for not only our cooperation as Member States, but our cooperation as a region with International Cooperation and Development Partners.



FOREWORD FROM THE SADC CHAIRPERSON

The SADC Infrastructure Master Plan has now been completed for our review and adoption. Perusal of the documents no doubt suggests that a lot of work was undertaken by the Member States, assisted by the SADC Secretariat. I am made to understand that the process was undertaken by regional consultants, which is highly commendable. I wish to commend the Executive Secretary and his team for putting together this piece of work, enabling the region to achieve this historic milestone, especially given the articulation of our priorities on infrastructure development. I am most inspired by the Master Plan – Short-term Action Plan (STAP), which elaborates on the projects that will be implemented in the short term. These projects are at different levels of development, but all of them are scheduled to be completed during phase 1 of this plan. Those in the preliminary stages are the realistic candidates to be packaged through funding from the SADC Projects Preparation Development Facility (PPDF), besides other existing global mechanisms, to ensure that the region has a pipeline of bankable projects in which we are confident and can solicit serious appetite for funding and investment by both public and private off-takers.

It would be remiss on my part if I did not recognise the support received from the UK Department for International Development (DFID), through TradeMark Southern Africa (TMSA), the main funder of the RIDMP development process. I would also like to commend the European Union and the Development Bank of Southern Africa (DBSA), both of which provided significant resources to complement the process within the framework of the SADC-International Cooperating Partner (ICP) partnership, as espoused by the Windhoek Declaration.

It is important that we clearly lay out our strategy for the implementation of the RIDMP, bearing in mind that the Plan is not an end in itself, but a means to an end. Consequently I am comforted by the fact that institutional arrangements and a framework for monitoring, evaluation and reporting on implementation of the RIDMP has been agreed, as articulated by the Plan of Action.

Infrastructure is the bedrock of our economic development and the deepening of our regional integration. It is therefore critical that, as Summit, we accord all our support to the implementation of the RIDMP. I note with great pride that, as part of our roadmap, a SADC Infrastructure Investment Summit has been pencilled for next year. I urge you all to accord this process considerable priority and indeed support. Angola is proud to not only have been party to this process, but to have led and guided it to successful conclusion, thanks to your cooperation.

HE José Eduardo Dos Santos, President, Republic of Angola and outgoing SADC Chairperson

Your Excellencies, you will recall that during your brainstorming session on the Up-scaling of the Implementation of Infrastructure in the Region at the Lusaka Summit held in August 2007, you directed Council to oversee the development of the Southern African Development Community (SADC) Regional Infrastructure Development Master Plan (RIDMP), which would constitute the Infrastructure Development Blueprint for our region. Pursuant to your wise counsel, and following the successful mobilisation of resources from our partners, the process of developing the RIDMP commenced in earnest in 2011. The process was characterised by a broad-based consultative process in which Member States were central in elaborating the infrastructure projects, supported by all our key stakeholders and the private sector. I wish to commend the technical experts, senior officials and our ministers for taking the development of the RIDMP through a painstaking, but necessary, process to ensure that it reached a watershed, namely a stage where Member States can start implementing infrastructure in a systematic and holistic manner, guided by agreed priorities within the Plan. SADC maintains its practice regarding emphasis on development of infrastructure, for which it has been renowned over the years. The delivery of the RIDMP ushers a new opportunity to up-scale this process, for which we need to create the necessary enabling environment for investment in this area. Our priority, as a Community of States, remains the deepening of our regional integration and addressing our overarching objective of poverty reduction. There is no doubt that the provision of infrastructure provides a launch pad for these interventions.

The RIDMP is aligned to the Programme for Infrastructure Development in Africa, as well as the COMESA-EAC-SADC Inter-Regional Infrastructure Master Plan, and no doubt lays a foundation for the development of the African Economic Community, as espoused by the Lagos Plan of Action and the Abuja Treaty. Implementation of the RIDMP will enable us to consolidate the SADC Free Trade Area, the COMESA-EAC-SADC Tripartite Grand Free Trade Area, as we march towards the total integration of Africa, guided by the ideals of our founding fathers, whose legacy remains unparalleled.

I am confident that, through your distinguished leadership, you will continue to guide this region to unprecedented success, especially on the implementation of infrastructure. The fact that SADC has successfully implemented infrastructure is no longer an issue for debate, the issue at stake is how can we up-scale the delivery of world-class infrastructure to our people in the region and in Africa as a whole.

It is critical, as we seek to accelerate our infrastructure programme, that we seriously address transit facilitation for our six landlocked countries, Botswana, Lesotho, Malawi, Swaziland, Zambia and Zimbabwe, in order for those countries to enjoy realistic, competitive prices for landed products as well as exports to global markets. There can be no doubt that any meaningful implementation of the RIDMP should accord priority to addressing power shortfalls in the region, through the development and commissioning of requisite power generation and transmission infrastructure, as main concerns of the priority. The inter-connection of Angola, Malawi and the United Republic of Tanzania is necessary to enable the migration of these Member States to Operating Members of the Southern African Power Pool.

Let me underscore the strategic importance of resources for the implementation of infrastructure. First, it is critical that resources be allocated for project preparation through the SADC Project Preparation and Development Facility (PPDF), as well as for investment through, among others, the SADC Development Fund. We are looking forward to make available bankable projects which the region would seek to promote among investors.



FROM THE EXECUTIVE SECRETARY'S DESK

Going forward, our ministers have put in place the appropriate institutional mechanisms to oversee the implementation of infrastructure, supported by the Plan of Action. The role of Member States in leading this process is pivotal, with the SADC Secretariat central to the coordination of and reporting on the process.

I have no doubt, Your Excellencies, that this process is doable, let's go for it!

Tomás Augusto Salomão
Executive Secretary

Towards a common future

The Southern African Development Community (SADC) Infrastructure Vision 2027 was conceived at the 2007 Lusaka Summit in Lusaka, Zambia, with the objective of establishing a strategic framework to guide the development of seamless, cost-effective trans-boundary infrastructure. The SADC Infrastructure Vision 2027 is anchored on six pillars consisting of energy, transport, information and communication technologies (ICT), meteorology, trans-boundary water resources and tourism (trans-frontier conservation areas), which constitute the SADC Regional Infrastructure Development Programme. The six infrastructure pillars are established on a solid foundation of harmonised policies and regulations, capped by a joint pool of human resource capacity development and a concerted effort to engender public awareness and commitment to these goals. The competitiveness of the SADC will, to a larger extent, depend on joint action and joint pooling of available resources to achieve the comprehensive development of infrastructure as envisioned by the SADC Infrastructure Vision 2027.



THE SADC – REGIONAL INFRASTRUCTURE DEVELOPMENT MASTER PLAN

The Regional Infrastructure Development Master Plan (RIDMP) Study revealed that the region currently faces a number of challenges with regard to the provision of adequate regional infrastructure. The compelling indicators highlighted by the Study instil a sense of urgency for the region to expedite the implementation of strategies to bridge the identified gaps and eliminate bottlenecks to unlock the regional potential of SADC.

The study prognosis is that the current population of the SADC region, which is at approximately 272 million, will grow at the rate of about 1.7% per annum to reach approximately 350 million by 2027. The situational analysis also revealed that the region is not coping with current infrastructure requirements. This, therefore, requires an innovative approach in order to respond positively to the greater challenges of a more complicated future, especially when compounded by rising competition brought about by increasing globalisation.

The Diagnostic Report of the RIDMP draws attention to the fact that the region is facing a number of challenges, including:

- Insufficient energy supply to serve increased production and to extend access;
- Highly priced, unpredictable transport and logistics services, especially for landlocked states;
- Lack of low-cost access to information and communications technologies;
- Inadequate meteorological services for effective and efficient planning and management of water resources, energy production, transport services and other climate-sensitive sectors;
- Unacceptably high number of citizens without access to safe drinking water, adequate sanitation and water for irrigation to improve systems for agricultural production which will contribute to food security; and
- Slow response to new tourism trends and opportunities.

The SADC region is embarking on the fundamental task of creating an enabling environment by delivering infrastructure requirements by 2027 in order to facilitate the realisation of sustainable regional socio-economic development and integration within the framework of the SADC Infrastructure Vision 2027. While some of the proposed targets appear to be ambitious, the region has adequate potential to sustain the envisaged development requirements through commitment and continued collaboration.

The challenges and aspirations outlined above generate the imperative necessity to drive the SADC Infrastructure Vision 2027 by translating it into a rolling programme, anchored on the six pillars constituting the regional infrastructure programme.





ENERGY

The region has made significant strides in the establishment of regional infrastructure in the electricity sub-sector, as evidenced by the interconnection of nine of SADC Member States to the regional power pool, the Southern African Power Pool (SAPP). The interconnection of these Member States has optimised power system production and trade. What is now clearly urgent in the Regional Energy Sector Programme is the connection of the remaining three mainland Member States, Angola, Malawi and Tanzania, to the SAPP.

The RIDMP has revealed that, notwithstanding the current interconnectivity achievements, the SADC region still faces a number of challenges with regard to energy delivery, access and price. The Study's interesting indicators reveal that:

- Some of the SADC countries have less than 5% rural access to electricity;
- Comparatively, the SADC region lags behind its sister Regional Economic Communities (RECs) in respect of overall access to electricity. 24% of SADC residents have access to electricity compared to 36% in the Eastern Africa Power Pool (EAPP) and 44% in Western Africa Power Pool (WAPP);
- The SADC region has been facing an electricity deficit since 2007 and the expectations are that the identified gap will be met by 2014. However, indications are that the implementation of projects can lag behind their planned dates due to a lack of funding;
- Low tariffs, poor project preparation, no off-takers that can sign Power Purchase Agreements (PPAs) under single buyer models and a lack of required policy/regulatory frameworks are hampering investment and financing;
- To date, coal has been the backbone of power generation in the region (contributing 75%), yet is considered an unclean fuel under the global warming debate;
- The petroleum and gas sub-sector is plagued by volatile prices. Although the region is endowed with petroleum and gas resources, a lot of it is not available due to foreign commitments or inadequate infrastructure; and
- Large, estimated renewable energy (RE) potential needs infrastructure for grid connection, manufacturing and quality testing, and although the prices are coming down, RE needs innovative financing.

The Energy Sector Plan (ESP) is designed to address four key strategic objectives, namely ensuring energy security, improving access to modern energy services, tapping the abundant energy resources and achieving financial investment and environmental sustainability. Collectively, these factors contribute to the SADC energy goal of achieving adequate, reliable, lowest cost, environmentally sustainable energy services for economic growth and poverty eradication.

Identified 'hard' infrastructure projects include the planned electricity generation and transmission projects; refineries, storage facilities and pipelines for the petroleum and gas; and transport facilities for coal distribution and exports. Most of the regional energy projects are already included in the electricity plan. In addition to the deficit in 'hard' infrastructure, there are also shortfalls in the 'soft' infrastructure such as a lack of coordinated planning, harmonised requisite policy and regulatory frameworks, institutional support, capacity, financing and investment.

The Study identified 73 power generation projects to increase generation from the current 56 000 MW and surpass the projected demand of 96 000 MW by 2027. Three major interconnecting projects would facilitate the interconnection of Angola, Malawi and Tanzania to the SAPP. The estimated investment cost of all planned electricity generation projects is US\$62 billion for the short term (2012 – 2017), US\$39 billion for the medium term (2017 – 2022) and US\$72 billion for the long term (2022 – 2027), totalling US\$173 billion. Prioritised generation projects with capacity greater than 1000 MW were estimated in this study to cost between US\$65 billion and US\$104 billion, while those prioritised with a capacity of less than 1000 MW were estimated to cost between US\$7 billion and US\$18 billion. The total cost of the prioritised projects would range between US\$42 billion and US\$122 billion. In addition, the estimated cost for priority inter-connector and transmission projects is US\$3 billion.

The region recognises the urgent need to improve tourism infrastructure in readiness for the forecasted growth that could see the SADC region receiving approximately fifty-eight percent (58%) of the total continental traffic by 2027.

Recent reports indicate that international tourist arrivals increased from 882 million in 2009 to 940 million in 2010 and reached 980 million in 2011. Tourism receipts improved from US\$852 billion in 2009 to US\$940 billion in 2010 (United Nations World Tourism Organization (UNWTO), 2012 Report). The UNWTO forecasts a growth of 3% for the sector in 2012 and expects international tourist arrivals to reach the one billion mark.

It has also been observed that trends in the tourism markets show a shift from the traditional sun, sea and sand mass tourism to more personalised, responsible and experiential holidays. Tourists are attracted by ethical values relating to social, cultural and environmental responsibility within the places they visit and the products they use. Furthermore, growth in the sector's different market segments is being influenced by the consumer's search for "authentic experiences".

This shift has, in many ways, benefited the African continent, mainly because of its diverse cultural and geographical nature. Tourist arrivals in the African continent increased from 46 million in 2009 to 49.8 million in 2010. The highest growth was experienced in the Sub-Saharan region, which registered 14% growth during the same period. Total tourist arrivals in the SADC region grew from 20.5 million in 2009 to 21.5 million in 2010 (RETOSA, 2011 Annual Report).

The SADC region has deployed a number of strategies in response to these requirements so as to ensure that it retains and sustains this contemporary market. One of the strategies is the development of Trans-Frontier Conservation Areas (TFCAs) to ensure the ease of movement of tourists across the SADC region, wilderness protection, employment creation and income generation in rural areas, which translates into an improved quality of life for the citizens of this region.

The RIDMP indicates that the number of tourists coming to the SADC region could triple by 2027, hence there is an urgent need to have physical infrastructure in the TFCAs to capture and increase the market share.

The Tourism Chapter identified an Infrastructure Development Action Plan, comprising five priority projects, among others, for implementation within the regional Trans-frontier Conservation Areas. The estimated costs for these projects is US\$1.1 billion.

TOURISM



The transport sector entails road transport, rail transport, ports, maritime and inland waterways, as well as air transport. The need to capacitate the SADC Secretariat to undertake the critical role of coordinating and facilitating strategic policy formulation and implementation in the transport sector cannot be overemphasised.

Surface Transport

The highlights of the transport diagnostic analysis indicate that there is a widening gap in the provision of infrastructure in the surface transport sub-sector across the region. While roads have improved in most countries, railway lines have seen minimal improvement. The reports highlight the strategy adopted by the region in response to these challenges and in recognition of an urgent need to intensify regional transport programmes, which enhance multimodal transport linkages and improve interconnectivity. In this regard, the region adopted a Spatial Corridor Development Strategy in 2008, which has yielded the flagship programme, the North-South Corridor Project.

The SADC corridor approach to regional development is based on both well-maintained, operated infrastructure and the provision of seamless transport services. The realisation of trade projections will require increased capacity and performance of the transport and logistics sector to serve both intra-regional and overseas trade. The Programme for Infrastructure Development for Africa (PIDA), which is a continental strategic framework for infrastructure development, forecasts indicators for the SADC region as follows:

- Transit traffic for landlocked SADC countries¹ will increase from 13 million tonnes in 2009 to 50 million tonnes by 2030 and 148 million by 2040, at an average annual growth rate of 8.2%. Most regional ports handle only 30-50% transit traffic, meaning that actual port volumes will be far higher;
- Total port traffic in Southern Africa will jump from 92 million tonnes in 2009 to 500 million tonnes by 2027;
- Current projects for additional container terminals at Dar-es-Salaam will only provide adequate container capacity until 2020; planning for further expansion and/or a new port should commence;
- OR Tambo International Airport in Johannesburg will have demand for 2 million passengers per year by 2030 and 3 million by 2040; and
- Lusaka International Airport currently operates at 70% capacity, but will reach 124% of capacity by 2020. Aeroport de Kinshasa (Democratic Republic of the Congo (DRC)) is currently operating at 70% of capacity and will reach 133% of capacity by 2020. The situation is similar at many other SADC regional airports.

These findings have been largely substantiated by the RIDMP.

Productivity in every sector is affected by the quality and performance of the road system. While there is currently considerable capacity on most of the network, the projections for 2027 suggest the need for widening, construction of bypasses for major cities, passing lanes in hilly regions and more efficient border posts. Missing links have to be paved in areas where the network is still gravel or earth. A major issue across the region is maintenance funding, and many of the proposed projects are the rehabilitation of trunk roads affected by overloading and a lack of adequate regular maintenance. The enforcement of harmonised load limits and related regulatory standards is a major component of many projects for the preservation of the asset and safety improvements.

¹ PIDA, Phase II Transport Sector Brief. Countries are Botswana, Malawi, Southern DRC, Zambia and Zimbabwe.



TRANSPORT

The SADC regional railways, which are extensive and contiguous, operated on a common gauge (Cape), should be operating as seamless, relatively fast cross-border services, but are instead operated as a collection of national systems. Common technical, operating and safety standards need to be established and enforced in order for railways to operate across borders under the oversight of a regional regulator. The formulation of a multilateral regional business agreement between railways needs to be negotiated to facilitate migration from the existing constraints of bilateral agreements.

The SADC railways generally operate well below their original design capacity, yet they cannot increase their volumes because of poor track condition, lack of locomotive and wagon availability and low operating capital. The Sector Plan suggests projects to revitalise the existing railways, build missing links (especially those serving the mining sector) and rehabilitate the Sena line to Beira and Malawi, the Lobito line in Angola and of the SNCC system in the DRC.

National port authorities do the port planning and development. While regional and international associations, respectively, play an important role in this sub-sector, the SADC Secretariat's ability to facilitate and coordinate maritime policy and strategic planning is currently compromised by a lack of commensurate capacity, critical to the realisation of regional objectives in this sub-sector. More private sector participation should be considered for terminal operations, as is the case at Dar-es-Salaam and Beira. Enhancing maritime safety and security is a major port goal which impacts on the cost of maritime transportation.

Most regional ports are currently operating near or over capacity. Some of the factors causing delays and high costs are poor port/road and port/rail interfaces, poor handling capabilities and equipment, congested access routes, inefficient layouts, insufficient use of operating software, insufficient berths and drafts and slow clearances by regulatory agencies and transport operators. Despite the current expansion programmes at most of the region's ports, there is apparently an urgent need to increase port capacity and landside access beyond the projects already in the pipeline, particularly for existing deep-water ports such as Nacala and Walvis Bay.

Air Transport

Air transport is a global enterprise based on commercial considerations and governed by international conventions that stipulate Standards and Recommended Practices (SARPs) under the auspices of the International Civil Aviation Organization (ICAO). There is need to expedite the establishment of an oversight body at SADC level to augment the safety oversight capacity of national civil aviation authorities and to facilitate the harmonisation of regulatory and operating systems and procedures. Private or quasi-private operation of airports, airport services and air navigation services might be explored in the context of establishing a regional body. Issues of market access in compliance with the continental market liberalisation initiatives within the framework of the Yamoussoukro Decision are being addressed within the Tripartite (COMESA-EAC-EADC) context through the establishment of a Joint Competition Authority and Competition Regulations. Identified priorities for cooperation include the integration of the regional upper airspace, implementation of the Yamoussoukro Decision, incorporation of ICAO SARPs into national legislation and the establishment of joint regional training institutions.

The SADC region has numerous airports, many of which are currently being upgraded. OR Tambo International Airport, which is the largest airport, serves as a regional hub for flights coming into the region and intra-regional flights.

Angola is engaged in a major expansion of its airports and the terminals in Gaborone, Kinshasa, Windhoek, Victoria Falls, Kariba and Buffalo Range Airports are currently being expanded. According to PIDA, other regional airports, such as the international airports in Lusaka, Lilongwe, Mauritius and Dar-es-Salaam, will need expansion before 2020.

Intermodal Development

A number of dry port projects are under construction or in the planning stages to facilitate mode interface in the network. The rail link from Mchinji (Malawi) to Chipata (Zambia) will have a cargo terminal to serve the adjacent part of Zambia with rail access through Malawi to the Mozambican seaports. A dry port at Dona Ana and a container terminal at Tete (Mozambique) are planned in conjunction with the rehabilitation of the Sena railway line to serve Malawi and eastern Zambia. Other dry ports are planned for Lusaka, Kitwe and Edeola in Zambia, outside Dar-es-Salaam in Tanzania, at the Lebombo/Ressano Garcia border between South Africa and Mozambique and at Walvis Bay in Namibia.

The RIDMP identifies key transport projects for roads, railways, inland waterways, land borders, air and seaports, at a cost of 100 US\$ billion over the fifteen (15) plan period.



Information and Communication Technologies (ICT) have become the lifeblood of the knowledge economy, or as some observed, the electricity of the 21st Century. The goal of the ICT Sector Plan is to ensure that every Member State citizen has full access to this vital resource.

The region has stepped up its momentum in the development of regional infrastructure in the field of ICT. The irony is that while it is possible to reach the required capacity in this sector, progress is constrained by a lack of complementary infrastructure, particularly energy.

An analysis of the current status of ICT further reveals that one of the main shortfalls is that although most of the underlying infrastructure is in place, it is not efficiently utilised. Landlocked SADC Member States still pay more to get their traffic to the coast or to the rest of Africa than they do to get from the coast to Europe, the United States or Asia. National fibre optic backbones in many SADC Member States require improved management, upgrading and extension to cover more of the population, at affordable prices. It is evident that due to limited development of traffic exchange points, much domestic and regional traffic is exchanged overseas, leading to poor network performance and millions of dollars in transit fees annually paid to foreign operators. As a result, high access costs prevail across the region, severely limiting use, especially for broadband services, among the general public. This in turn constrains demand for the development of local applications and services, resulting in the continued use of inefficient manual processes.

The current status of ICT in SADC can be summarised as follows:

- Average mobile uptake is 60% of the population, the range is from 20% to 100%;
- 6% of total voice subscribers are fixed line holders, underlining the importance of mobile networks;
- 4% of SADC residents are internet users with a wide variation between Member States, from 1% in the DRC to 40% in the Seychelles;
- Less than 25% of the borders between neighbouring SADC Member States directly exchanges Internet traffic;
- There is a 5% annual decline in postal mail volumes due to e-mail and private carriers, which matches the global trend;
- Postal services handle 96% of domestic letters and 80% of international letters, but only 28% of domestic parcel service and 20% of international parcel service; and
- Globally, parcel mail is increasing as a result of e-commerce and SADC may experience this soon, but as shown above this business could go to private couriers.

The Sector Plan goals are based on always-on, affordable connectivity, rich content and useful applications, with easy to use access devices and postal systems. With a 4% per capita Internet user base in 2011, the assumption is that this would reach 20% by 2027 (reaching 80-90% of households and businesses with access). In order to ensure the achievement of this goal by 2027, there is a need for rapid and concerted efforts by all stakeholders. It will require the strong commitment of governments, with the allocation of clear roles and responsibilities on the basis of a systematic approach, to eliminate bottlenecks and identify the best methods to move forward. The framework for this strategy

INFORMATION AND COMMUNI- CATION TECHNOLOGIES (ICT)



is anchored on four pillars established on a platform of ICT policy and regulatory harmonisation, confidence and security of networks and services. The pillars are infrastructure, capacity building and content, e-services and other applications, research, innovation and industry development.

The ICT Chapter has identified projects aimed at improving the enabling policy and regulatory environment for encouraging increased private sector investment in ICT infrastructure, the bridging of gaps within the SADC Regional and National Integrated Broadband Infrastructure and SADC Regional Information Infrastructure (SRII), facilitating the full integration of SADC Member States and focusing on the deployment of a region-wide pervasive, reliable, resilient, affordable, modern, fully integrated, interconnected and complementary network, which will be enhanced by utilising the undersea cables that have landed on the eastern and western sea-boards of the region, and extensive enhancing of postal systems in order to support the present and future socio-economic development of the SADC region. The total estimated cost of providing an ICT infrastructure and the implementation of other identified projects is US\$21.4 billion.

The SADC region suffers from meteorology infrastructure deficiency. This lack of appropriate infrastructure poses a serious threat to the region's planning processes in the context of changing climate patterns.

As indicated earlier, southern Africa is home to about 272 million people whose multi-sectoral socio-economic activities, such as power generation, water resource management and agriculture, among others, are to a greater or lesser extent impacted by climate variations. The improvement of output, therefore, demands accurate and timely weather forecasts and seasonal climate predictions. Mitigation measures are required to avert disasters related to meteorological and hydrological extremes, which are increasing in the SADC region and indeed across Africa. This requires early warning systems.

Statistics show that:

- In 1993 about 15 large-scale disasters occurred. Since 2000 disasters have fluctuated between 60 and 100 a year;
- From 1980 to 2007 over 90% of all disasters related to natural hazards; 71% of the casualties and 78% of economic losses were caused by weather, climate and water-related hazards; and
- Climate-induced fatalities have been reduced, but economic losses are increasing.

It is becoming more apparent that meteorological services are critical to the socio-economic development and security of the region's citizens, the protection of life and property and the sustained protection of the environment. The value of the information disseminated increases with its quality, accuracy, timeliness, location specificity and user-friendliness. While the work of meteorologists is coordinated by the World Meteorological Organization (WMO) and data collected feeds into global information and analysis systems, it is mandated under national law and implemented by National Meteorological Services (NMSs). NMSs face many challenges in carrying out their work, including poor observation networks, inadequate instrumentation, a shortage of skills, inefficient data management systems and poor telecommunication systems for collecting and disseminating information. The region has to address many challenges in order to benefit from the advances in climate sciences and technologies.

The study identified a number of regional projects which focus on:

- Strengthening the meteorological observation network infrastructure for the monitoring and analysis of weather and climate variability and change;
- Modernising meteorological telecommunications and communication systems to improve rapid data collection, management, processing, exchange and dissemination of data and information;
- Improving technical capacities in terms of resources and expertise;
- Strengthening the institutional capacity of the National Meteorological Services to provide relevant, reliable and timely tailored products for users of climate and weather services; and
- Strengthening the capacities of the regional climate and meteorological institutions to function as efficient regional coordination, development, service and dissemination centres.

The estimated cost of implementing the projects is US\$125 million.

METEOROLOGY



The most compelling indicators revealed by the Water Diagnostic Study are that the SADC region only retains 14% of the available renewable water resources of which 10% is retained in the Kariba and Cahora lakes respectively, which are the largest man-made reservoirs in the region, both of which are on the Zambezi River. The rest of the total available renewable water resources go back to oceans. The indicators shows that of the estimated total of 2 300 km³/year of renewable water resources available, the current level of abstraction is only 44 km³/year or 170 m³/capita/year; 77% of which is used for irrigation, 18% for domestic purposes and 5% is used by industry.

The statistics show that there are adequate water resources to support the citizen of SADC, however the challenge is that there is insufficient infrastructure which is appropriate to make these resources available to the populace for their economic and social use. It is a notable fact that the distribution of water resources varies significantly from north to south and from east to west. These challenges therefore require concerted effort in joint planning, management and development of water resources in order to achieve the regional targets And to ensure availability and adequacy across the SADC region.

The following indicators define the current situation:

- The current level of abstraction is only 44 km³/year or 170 m³/capita/year – about 2% of the available resource. 77% of the current abstraction is for irrigation, 18% for domestic purposes and 5% for use by industry (Aquastat 2008);
- If the storage of the Kariba and Cahora Bassa dams is excluded, only 4% of the total annual renewable water resources in the SADC region are currently stored, which is very low compared to 70-90% in most industrialised countries (UNEP 2009);
- If the storage of the Kariba and Cahora Bassa dams is included, 14% of the total annual renewable water resources in the SADC region are currently being stored;
- Of region's population of 272 million people, 39% have no access to adequate, safe drinking water, while 61% has no access to adequate sanitation services; and
- Of the potential 150 GW of hydropower, only 12 GW is currently installed (SADC 2011).

The SADC region needs to invest in the water sector infrastructure in order to develop economically, provide better livelihoods and enhanced the quality of life of its citizens.

The Water Chapter identified some 34 water infrastructure projects that are ready for immediate implementation between 2013 and 2021, given the preparation that has already been undertaken, with an estimated cost of US\$16 billion. In terms of impact, the projects shall address and facilitate the increase of:

- Annual renewable water resources storage from 14% to 25%;
- The area under irrigation from 3.4 million hectares to 10 million hectares (i.e. by 13% of the potential);
- Hydropower generation from 12 GW to 75 GW (i.e. an increase from 8% to 50% of potential);
- Access to water supply from 61% of the population to 75% of the population; and
- Access to sanitation services from 39% to 75% of the population.



WATER



Short-term Action Plan 2013-2017

The Short-term Action Plan (STAP) 2013-2017 was developed to guide the implementation of Phase 1 of the Regional Infrastructure Development Master Plan (RIDMP). Projects contained in the STAP are those that are considered ready for implementation during the next five years. During the short-term phase, other projects will be prepared according to the level of bankability, its readiness for financing and for implementation in later phases. The project pipelines will be continuously updated as additional projects undergo the project preparation process. The STAP also includes “soft” projects related to capacity building, regulatory and institutional strengthening that may be necessary for the effective implementation of associated infrastructure projects. Annex I depicts the RIDMP sector plans in maps. Annex II contains details of projects in the STAP.

Programme of Infrastructure Development in Africa

The RIDMP is an integral part of the Programme of Infrastructure Development in Africa (PIDA) and the region continues to build synergies with PIDA to leverage support and exploit its comparative advantage underpinned by collective implementation at continental level with leadership provided by the African Union.

Infrastructure Programme for Oceanic States

The Master Plan Study also delivered a compendium of projects for the oceanic states, Mauritius and the Seychelles, to ensure that their particular requirements, which are not catered for at sub-regional level, are indeed addressed.

Plan of Action

In addition, a Plan of Action, which will guide implementation of the approved programme, has been developed and it will engender a systematic approach when allocating resources and oversight, including monitoring and evaluation aspects.

The various projects submitted by the Member States have been mapped into a dynamic Geographical Information Systems (GIS) database, which enables stakeholders and interested parties to access project profiles and geographic location directly through the Internet.

In order to ensure the expeditious implementation of the priority infrastructure projects elaborated in the Master Plan, a Plan of Action has been developed to guide the region towards implementation.

Critical elements to operationalise the Plan of Action include the following:

- Proposed funding mechanisms: The Plan of Action outlines some of the key modalities for financing infrastructure, which include public financing through fiscal mechanisms and sovereign loans, grants from development partners, private sector funding and private-public partnership (PPP) arrangements.
- Institutional structures/monitoring and evaluation mechanisms: The following structures will continue to oversee the approval process of the SADC Infrastructure Programme as espoused in the SADC Protocols:
 - Sectoral Project Committee at the sectoral Level;
 - Sub-Sectoral Committee (SCOM);
 - Committee of Senior Officials;
 - Sectoral Ministerial Committee;
 - Infrastructure Ministers Committee;
 - Council; and
 - Summit.

RIDMP IMPLEMEN- TATION STRATEGIES





CRITICAL SUCCESS FACTORS FOR PROJECT IMPLEMEN- TATION

The RIDMP critically reviews the enabling environment and highlights the need to expedite the implementation of the agreed policies.

The completion of the RIDMP constitutes a launch pad for the systematic implementation of priority infrastructure projects on which Member States have attained consensus. The document becomes the key basis for cooperation with development partners and all stakeholders, guiding the collaboration framework towards the implementation of infrastructure, including the convening of infrastructure investment conferences. The Plan is a means to an end, not an end in itself, and the real work commences with the finalisation of thereof.

Certain conditions have to be met to ensure the expeditious implementation of priority infrastructure projects as critical success factors including:

- **Commitment by Member States and related agencies:** It is critical that Member States demonstrate their commitment to the projects by signing Memorandums of Understanding (MoUs), cooperating fully with other participating states, making budgetary provisions for identified projects and including the projects in which Member States have an interest in their National Development Plans. The experience gained through the implementation of projects to date will be valuable in consolidating this process;
- **Creation and strengthening of oversight and implementing institutions:** The RIDMP has recommended the creation and strengthening of oversight and implementing institutions in order to effectively manage and coordinate the implementation of infrastructure projects. It is critical that appropriate institutions be created, or the existing ones strengthened, to effectively discharge their mandates as recommended by the RIDMP. These institutions include the regional bodies mandated to implement projects at a technical level (e.g. Southern African Power Pool, Southern African Railways Association, Southern African Telecommunications Association, etc.) or ad hoc structures, including project implementation structures within ministries or agencies in the Member States;
- **Appropriate policy, institutional and regulatory framework:** Pursuant to the recommendations of the RIDMP, it is necessary that the process of implementation of infrastructure projects be underpinned by an appropriate policy, regulatory and institutional framework, which provides the necessary enabling environment for the processes. The region, as provided for in the requisite protocols, has developed model policies, regulatory frameworks and institutional frameworks, which have been adopted and domesticated by the Member States;
- **Provision of a robust monitoring and evaluation system:** The RIDMP Plan of Action provides guidance on monitoring and evaluation systems in order to ensure adequate follow-up and reporting on progress relating to infrastructure development based on the agreed targets. It is important that a robust monitoring and evaluation system be put in place to ensure that implementation occurs within the agreed milestones, failing which this tool provides corrective mechanisms. It is critical that these measures be put in place at all levels of the operational structures;
- **Availability of a pipeline of bankable projects:** The RIDMP dynamic GIS database is designed to facilitate the availability of a pipeline of bankable projects. Experience has shown that in order to up-scale the implementation of infrastructure projects, it is necessary that a pipeline of bankable projects be available. In this regard, it is necessary to identify, develop and package projects to the stage of bankability. On its part, Summit has approved the SADC Project Preparation and Development Fund to support the packaging of priority infrastructure projects. There are also other project preparation facilities that can be accessed by Member States for the same purpose;

- **Financial sustainability of projects funding:** The Diagnostic Analysis highlighted the challenges related to the financial sustainability of project funding. In order for projects to be successfully funded, it is necessary that they are financially viable and sustainable. The overall estimates of the investment programme of the RIDMP are summarised below, however, it has to be noted that some of the approved projects have not been costed and therefore have not been accounted for in the summary;

Sector	Program Description	Initial Investment Cost (US\$ million – US\$ billion)
Energy	Energy generation and grid connections	290.00 – 420.00
Transport	Construction and maintenance	100.00 – 100.00
ICT	Complete broadband connectivity	21.40 – 21.40
Meteorology	Improved equipment, manpower and expertise	0.19 – 0.19
Water	Investment projects and studies	15.41 – 15.41
Tourism (TFCAs)	TFCA facilities investment plans	1.10 – 1.10
Total		428.10 – 558.10

- **Partnership with private sector in infrastructure development:** Research studies and, as determined by the RIDMP, public financing of infrastructure, continues to face challenges owing to fiscal limitations and competing needs from other urgent socio-economic sectors. In order to address this challenge, the RIDMP advocates the adoption of joint public-private partnership participation in regional infrastructure development. In practice, some SADC Member States have invited the private sector to partner with government on investment in infrastructure, either as sole investors or in the form of PPPs. The RIDMP also recommends that Member States need to explore the elimination of monopolies and institutionalise open access options where the services are more amenable to the private sector; and
- **Adoption of the user pays principle:** One of the key challenges to the sustainability and rehabilitation of infrastructure, as observed by the Diagnostic Analysis of the RIDMP, is the lack of cost-reflective tariffs application for the usage of infrastructure, which has resulted in limited resources for maintenance and the dilapidation of infrastructure. In the case of power projects, this has adversely affected the securing of Power Purchase Agreements owing to the non-viability of projects operated on current sub-economic tariffs. If the region is to attract investment, it is important that it migrates to cost-reflective tariffs across all sectors and that Member States examine, if necessary, the cushioning of the disadvantaged through other means that do not prejudice the ability to foster maintenance to prescribed standards.





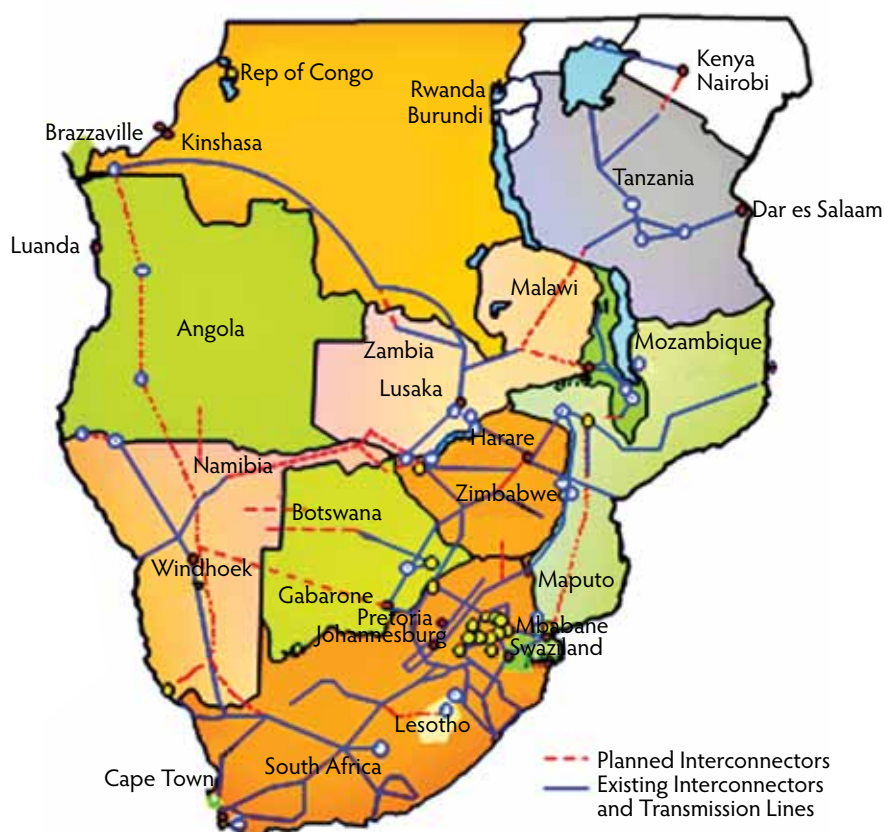
CONCLUSION

The current 4-7% economic growth in the SADC region is propelled by rising external demand, high international metal prices, rising global income, resurgent capital flows and the sound macro-economic policies of SADC Member States. New investments in mining and mineral outputs are increasing, and fiscal discipline and abundant natural resources have combined to attract Foreign Direct Investment (FDI) into the region. Continued growth will, to a large extent, depend on the diversification, greater beneficiation and value addition of commodities, which will in turn create local employment. There is a critical requirement for improved intra-regional distribution networks, strengthened institutional capacity to attract sustained capital and increased domestic savings and investment. Efficient, integrated, cost-effective infrastructure is a prerequisite for harnessing opportunities in the global economy.

ANNEX 1: SADC INFRASTRUCTURE PROGRAMME IN MAPS

Energy Sector

SADC Regional Power Interconnector Projects



	Name of Project	Member States	Estimated Year of Completion
1	Central Transmission Corridor (CTC)	Botswana, Namibia, Zambia and Zimbabwe	2014
2	ZIZABONA Interconnector Project	Botswana, Namibia, Zambia and Zimbabwe	2015
3	Zambia–Tanzania–Kenya (Z-T-K) Power Interconnector Project	Zambia, Tanzania, Kenya	2016
4	Namibia – Angola Interconnector Project	Namibia, Angola	2016
5	Democratic Republic of the Congo (DRC) – Angola Interconnector	DRC and Angola	2016
6	Mozambique – Malawi Interconnector	Mozambique and Malawi	2016
7	2nd South Africa – Zimbabwe Interconnector	South Africa and Zimbabwe	2017
8	2nd DRC – Zambia Interconnector	DRC and Zambia	2017
9	Mozambique Backbone Project	Mozambique	2020

Tourism Sector

Transfrontier Conservation Areas (TFCA) is defined as “the area or component of a large ecological region that comprise the boundaries of two or more countries encompassing one or more protected areas and multiple resources-use areas”.



Treaty signed

- 1 !Ai-!Ais Richtersveld TP (Namibia/South Africa)
- 2 Kgalagadi TP (Botswana/South Africa)
- 4 Great Limpopo TP (Mozambique/South Africa/Zimbabwe)

MoU signed

- 3 Limpopo-Shashe TFCA (Botswana/South Africa/Zimbabwe)
- 5 Lubombo TFCA (Mozambique/South Africa/Swaziland)
- 6 Nakitu - Drakensberg TFCA (Lesotho/South Africa)
- 7 Iona - Skeleton Coast TFCA (Angola/Namibia)
- 11 Malawi - Zambia TFCA (Malawi/Zambia)
- 14 Chimanmani TFCA (Mozambique/Zimbabwe)

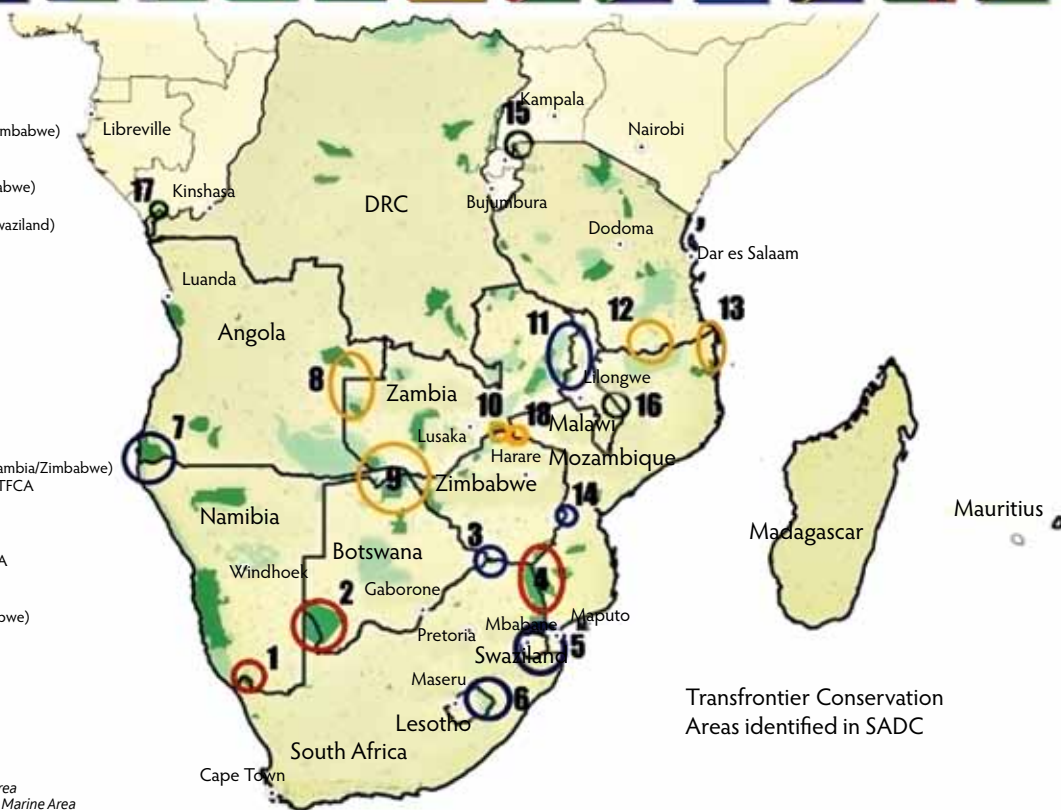
Conceptual phase

- 8 Liuwa Plain - Kameia TFCA (Angola/Zambia)
- 9 Kavango - Zambezi TFCA (Angola/Botswana/Namibia/Zambia/Zimbabwe)
- 10 Lower Zambezi - Mana Pools TFCA (Zambia/Zimbabwe)
- 12 Niassa - Selous TFCA (Mozambique/Tanzania)
- 13 Mnazi Bay - Quirimbas TFCMA (Mozambique/Tanzania)
- 18 ZIMOZA TFCA (Mozambique/Zambia/Zimbabwe)

Other

- 15 Kagera TFCA (Rwanda/Tanzania/Uganda)
- 16 Liwonde - Lichinga TFCA (Malawi/Mozambique)
- 17 Malombe Forest TFCA (Angola/Congo/DRC)

TP - Transfrontier Park
TFCA - Transfrontier Conservation Area
TFCMA - Transfrontier Conservation Marine Area



Transfrontier Conservation Areas identified in SADC

Name of TFCA	Countries Involved	Status
1. !Ai-!Ais-Richtersveld Transfrontier Park	Namibia and South Africa	MoU signed in 2001 Treaty signed 2003
2. Kgalagadi Transfrontier Park	Botswana and South Africa	Treaty signed in May 2000
3. Greater Mapungubwe TFCA	Botswana, South Africa and Zimbabwe	MoU signed in 2006. Treaty to be signed during the course of 2012
4. Great Limpopo Transfrontier Park	Mozambique, South Africa and Zimbabwe	MoU signed in 2000 Treaty signed in 2002
5. Lubombo TFCA	Mozambique, South Africa and Swaziland	Trilateral Protocol signed in 2000
6. Maloti-Drakensberg TFCA	Lesotho and South Africa	MoU signed in 2001
7. Iona-Skeleton Coast TFCA	Angola and Namibia	MoU signed on 1 August 2003
8. Liuwa Plain-Kameia TFCA	Angola and Zambia	Conceptual phase
9. Kavango-Zambezi TFCA	Angola, Botswana, Namibia, Zambia and Zimbabwe	Treaty signed in August 2011
10. Lower Zambezi – Mana Pools TFCA	Zambia and Zimbabwe	Conceptual phase
11. Malawi-Zambia TFCA (Nyika and Kasungu/Lukusuzi)	Malawi and Zambia	MoU signed in 2004
12. Niassa – Selous TFCA	Mozambique and Tanzania	Conceptual phase
13. Mnazi Bay – Quirimbas TFCA	Mozambique and Tanzania	Conceptual phase
14. Chimanmani TFCA	Mozambique and Zimbabwe	MoU signed
15. Maiombe Forest TFCA	Angola, Congo and DRC	Conceptual phase
16. Kagera TFCA	Rwanda/Tanzania	Conceptual phase
17. ZIMOZA TFCA	Mozambique, Zambia and Zimbabwe	Conceptual phase

Transport Sector

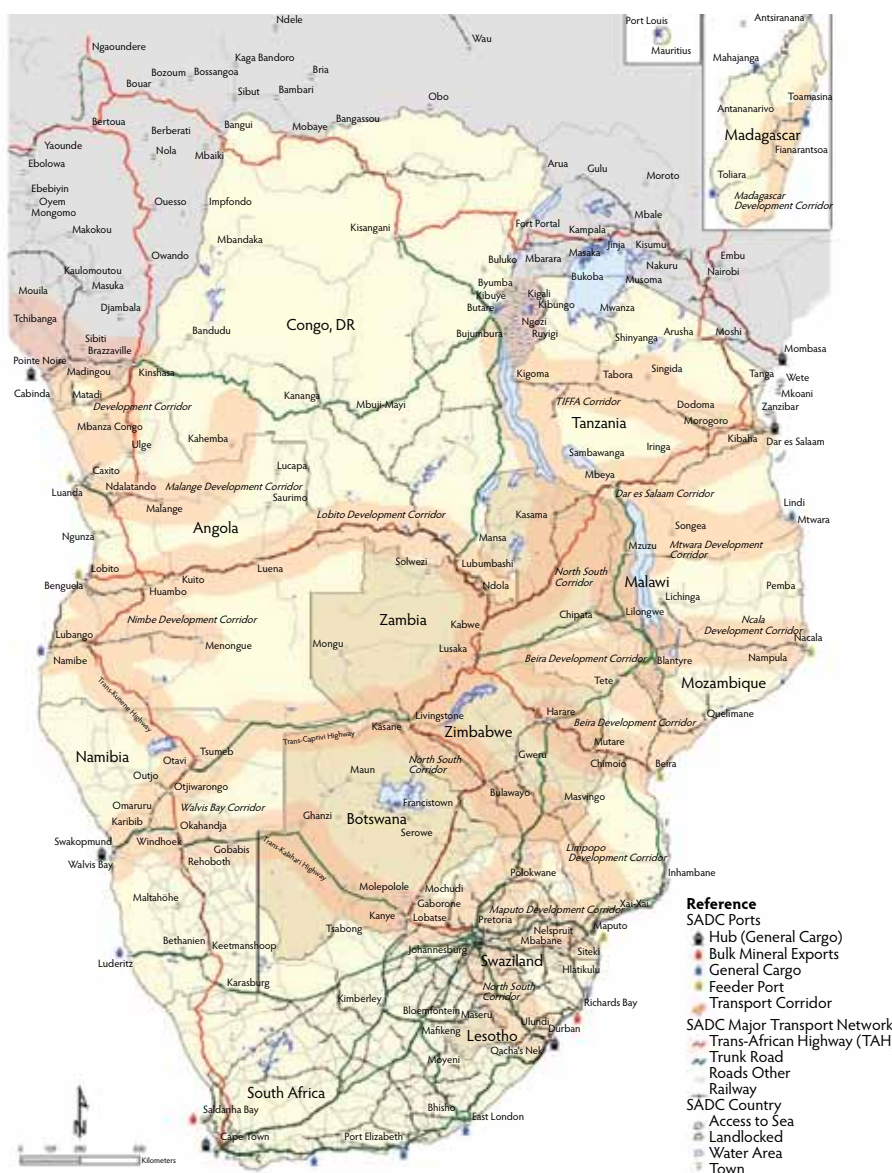
SADC Regional Transport Corridors – Mainland

Member States	Corridors
Angola	1. Lobito (Benguela); 2. Namibe; 3. Trans-Cunene; 4. Malange; 5. Bas Congo
Botswana	1. Trans-Kalahari (TKC); 2. North-South (NSC)
DRC	1. North-South (NSC); 2. Malange; 3. Walvis Bay – Ndola – Lubumbashi, (Trans-Capri); 4. Dar-es-Salaam; 5. Central; 6. Bas Congo; 7. Lobito (Benguela)
Lesotho	1. Maseru – Durban
Malawi	1. Nacala; 2. Beira; 3. Mtwara; 4. Dar-es-Salaam; 5. North-South (NSC)
Mozambique	1. Maputo; 2. Beira; 3. Nacala; 4. Mtwara; 5. North-South (NSC); 6. Limpopo
Namibia	1. Trans-Kalahari (TKC); 2. Trans-Orange; 3. Trans-Cunene; 4. Walvis Bay – Ndola – Lubumbashi (Trans-Capri); 5. Namibe
South Africa	1. North-South (NSC); 2. Maputo; 3. Trans-Kalahari (TKC); 4. Trans-Orange; 5. Maseru – Durban; 6. Manzini – Durban
Swaziland	1. Maputo; 2. Manzini – Durban
Tanzania	1. Dar-es-Salaam; 2. Mtwara; 3. Central
Zambia	1. North-South (NSC); 2. Dar-es-Salaam; 3. Mtwara; 4. Beira; 5. Walvis Bay – Ndola – Lubumbashi (Trans-Capri); 6. Lobito (Benguela)
Zimbabwe	1. Beira; 2. Maputo; 3. North-South (NSC); 4. Limpopo

Maritime corridors serving the SADC (island and mainland) states are still under development

Air transport: The regional airspace and airports infrastructure is developed within the framework of the International Civil Aviation Organisation (ICAO) Africa and Indian Ocean Regional Air Navigation Plan, in collaboration with the African Civil Aviation Commission (AFCAC), as outline in the RIDMP.

The map highlights the SADC corridors, which are at different levels of development.

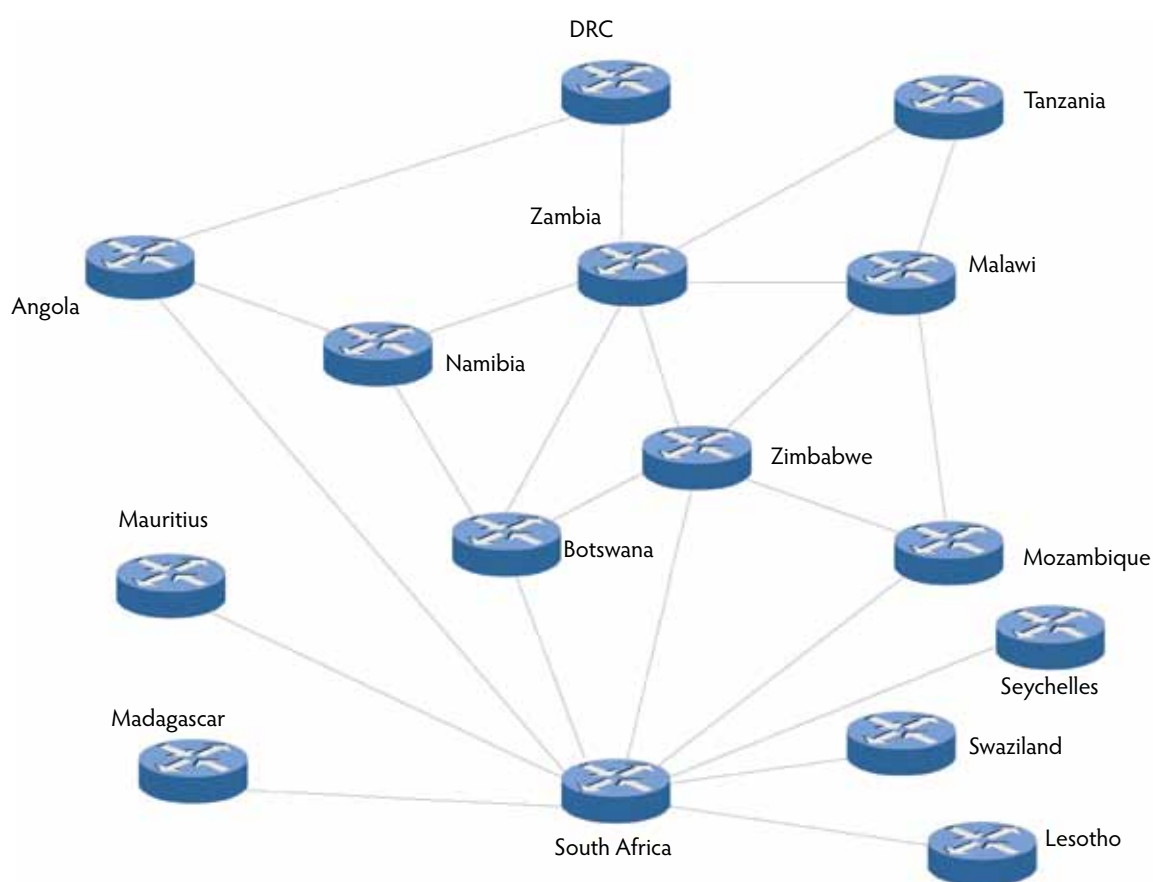


ICT Sector

Project Title	Participating Countries	Target Date
1. DTT migration support to SADC Member States 2012 – 2016	Selected SADC Member States	2013
2. SADC Regional Information Infrastructure (SRII) Phase II	All SADC Member States	2016
3. National and Regional Internet Exchange Points (N/RIXP)	All SADC Member States	2013
4. SADC Regional and National Integrated Broadband Infrastructure	All SADC Member States	2017

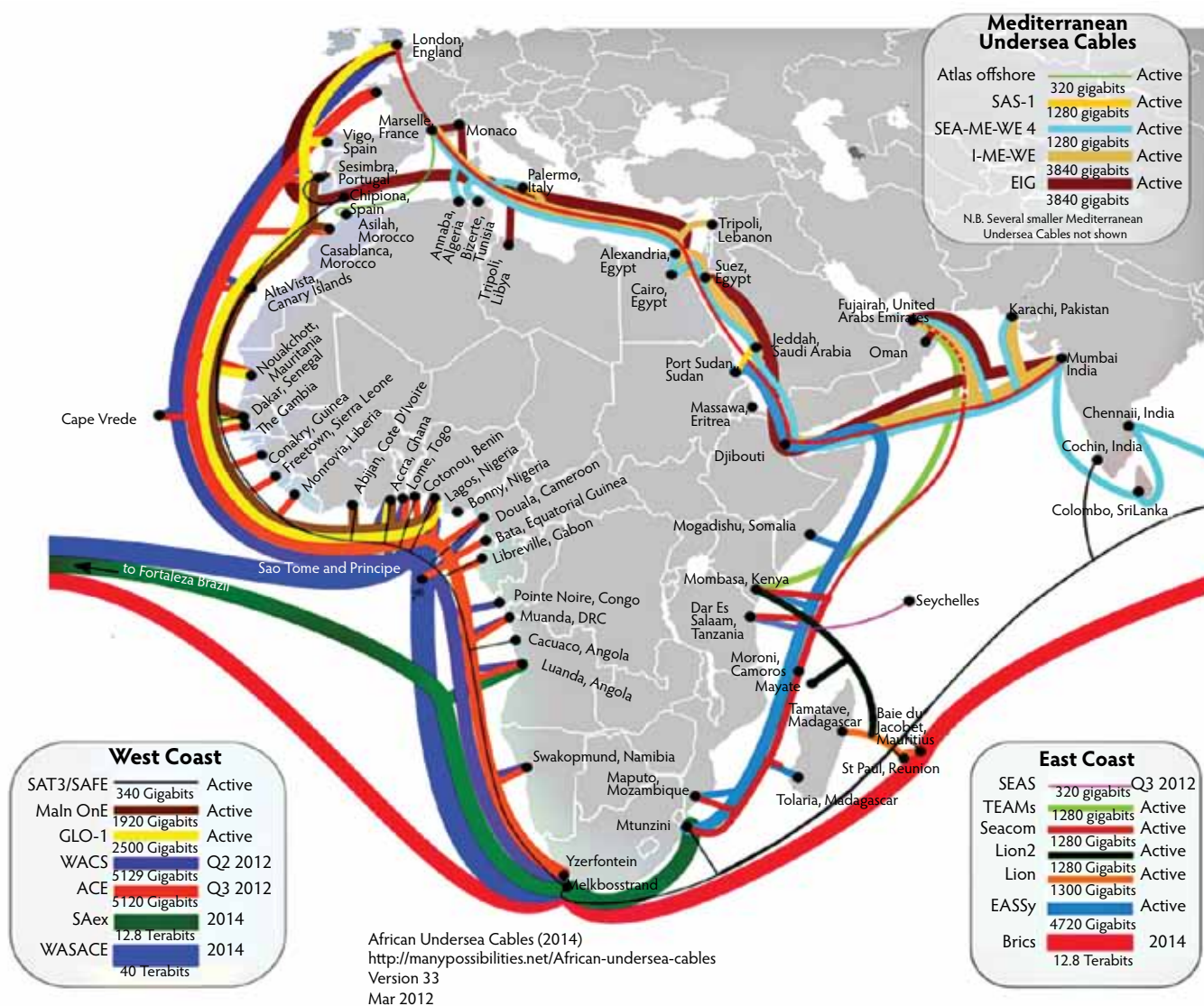
Comparative analyses show that the SADC region now has the most pervasive regional terrestrial fibre network. The bilateral links between the national backbones of the incumbent operators in each country form the basis of most of the cross-border terrestrial fibre in the region, which was achieved under the aegis of Phase I of SATA's SRII project.

SRII Phase II – Next Generation Network (NGN) Platform Terrestrial fibre links between countries in place



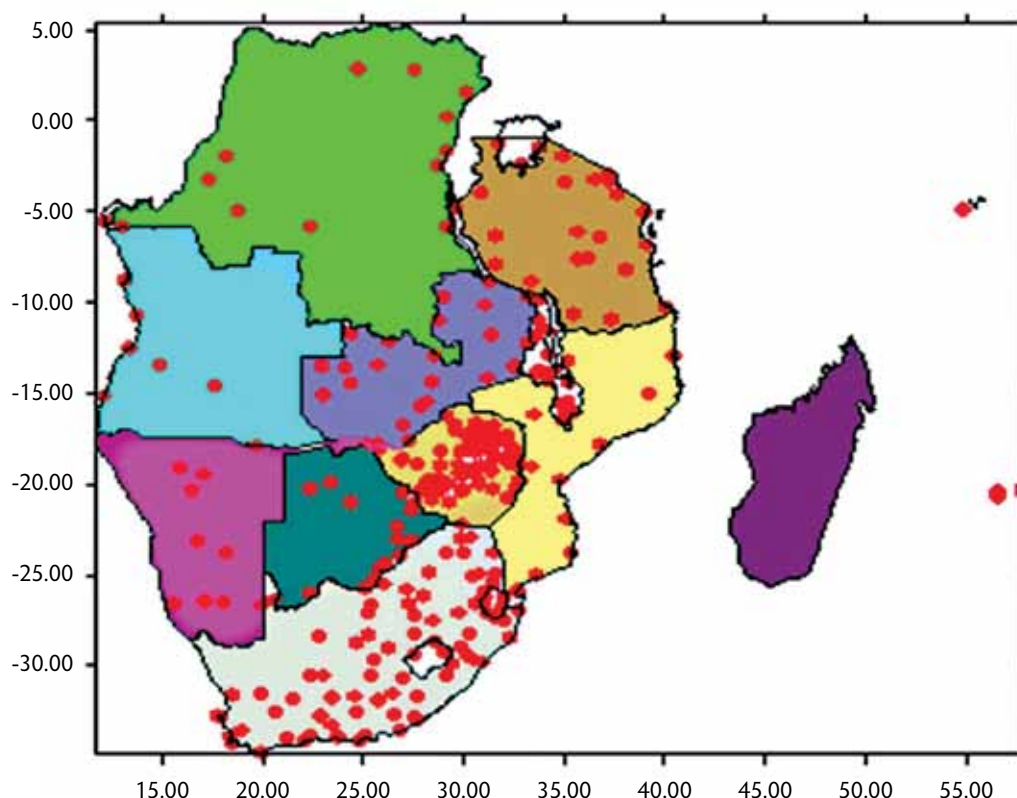
Under –Sea Cables

Country	Access to Rest of the World
Angola	SAT-3, WACS, (ACE, SAex)
Botswana	Currently via South Africa later via Namibia to WACS
DRC	Currently satellite, later WACS, ACE
Lesotho	Via South Africa
Madagascar	EASSy, LION (SEACOM)
Malawi	Via Tanzania and Mozambique
Mauritius	SAFE, LION (LION2, BRICS)
Mozambique	SEACOM, EASSy
Namibia	Via South Africa or Angola until WACS
Seychelles	Currently satellite, later SEAS
South Africa	SAT-3, SEACOM, SAFE, EASSy, WACS, (ACE, SAex, BRICS)
Swaziland	Via SA and Mozambique
Tanzania	SEACOM, EASSy
Zambia	Via Namibia, Botswana, and Tanzania
Zimbabwe	Via South Africa and Mozambique



Meteorology Sector

Project	Benefiting Countries /Owners
AMESD Project	Angola, Botswana, Namibia, Lesotho, Malawi, Mozambique, South Africa, Swaziland, Tanzania, Zimbabwe, and Zambia.
Institutional Support to African Climate Centre Institution Project (ISACIP)	Angola, Botswana, DRC, Namibia, Lesotho, Malawi, Madagascar, Mauritius, Mozambique, Seychelles, South Africa, Swaziland, Tanzania, Zimbabwe, and Zambia.
SAMPRO (Southern Africa Meteorology Project)	Angola, Botswana, DRC, Namibia, Lesotho, Malawi, Madagascar, Mauritius, Mozambique, Seychelles, South Africa, Swaziland, Tanzania, Zimbabwe, and Zambia.
ClimDev-Africa	Angola, Botswana, DRC, Namibia, Lesotho, Malawi, Madagascar, Mauritius, Mozambique, Seychelles, South Africa, Swaziland, Tanzania, Zimbabwe, and Zambia.
Strengthening of Weather and Climate Observing System in the SADC region	Angola, Botswana, DRC, Namibia, Lesotho, Malawi, Madagascar, Mauritius, Mozambique, Seychelles, South Africa, Swaziland, Tanzania, Zimbabwe, and Zambia.
Strengthening the capacity of the SADC regional climate and meteorological units (CSC, MASA, RMTCs, and RICC)	Angola, Botswana, DRC, Namibia, Lesotho, Malawi, Madagascar, Mauritius, Mozambique, Seychelles, South Africa, Swaziland, Tanzania, Zimbabwe, and Zambia.
Improving the Meteorological Telecommunications and Communication Systems for rapid data exchange and the dissemination of information	Angola, Botswana, DRC, Namibia, Lesotho, Malawi, Madagascar, Mauritius, Mozambique, Seychelles, South Africa, Swaziland, Tanzania, Zimbabwe, and Zambia.
Improving the level of technical capacities (resources and expertise) to generate appropriate, policy-relevant climate information and operational warning services	Angola, Botswana, DRC, Namibia, Lesotho, Malawi, Madagascar, Mauritius, Mozambique, Seychelles, South Africa, Swaziland, Tanzania, Zimbabwe, and Zambia.



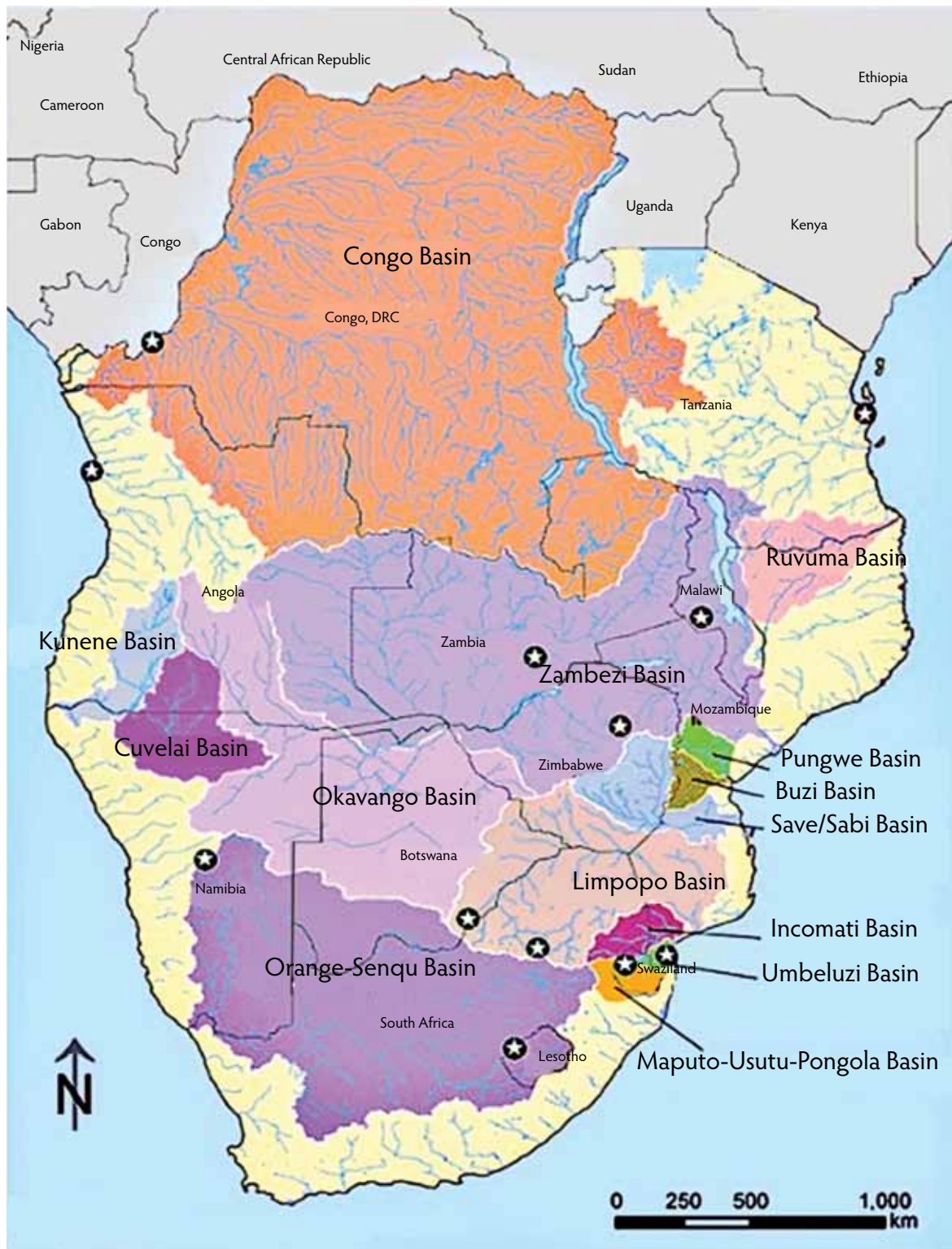
The Regional Infrastructure Development Master Plan (RIDMP) highlights the seriousness of the level of inadequacy of observational data in SADC, which is evident from the latest World Meteorological Organization (WMO) Annual Global Data Monitoring results for October 2010 to April 2011. The results clearly show that the region's performance is by far below the global average.

Water Sector

SADC Water Infrastructure Priority Projects

Project #	Project Name	Countries
Regional Projects		
1	Inga 3 Hydropower	DRC-shared Regional Electricity
2	Lesotho Highlands, Phase II	Lesotho, South Africa
3	Batoka Gorge Hydropower	Zambia, Zimbabwe
4	Songwe River Basin Development Programme	Malawi, Tanzania
Cross Border Projects		
1	Food Security - Upper Okavango	Angola, Namibia
2	Vaal-Gamagara Water Supply	Botswana, South Africa
3	Ressano Garcia Weir - Water Supply	Mozambique, South Africa
4	Lomahasha/Namaacha Water Supply	Swaziland, Mozambique
5	Cross border locations - Water Supply & Sanitation	Zam-Ang-Bot-DRC-Mal-Moz-Tan-Zim
National Priority Projects		
1	Lubango - Phase 2: Water Supply & Sanitation	Angola
2	Limpopo Basin Joint Water Monitoring	Bot, Moz, RSA, Zim
3	Kinshasa - Water supply & Sanitation	DRC
4	Lesotho Lowlands Water Supply Scheme - Zone 1	Lesotho
5	Pending	Madagascar
6	Mombezi Dam - Multipurpose	Malawi
7	13 Housing Estates - Water Supply	Mauritius
8	Movene Dam - Multipurpose	Mozambique
9	Windhoek - Managed Aquifer Recharge	Namibia
10	Non-revenue Water and use efficiency	Seychelles
11	Water demand Management	South Africa
12	Nondvo Dam - Multipurpose	Swaziland
13	Ruhuhu Valley Irrigation	Tanzania
14	Climate Change Adaption AER 1	Zambia
15	Bulawayo Water Supply from Zambezi River	Zimbabwe

Transboundary River Basins in the SADC Region



Data Source
Basin boundaries from Program in Water Conflict Management
and Transformation at Oregon State University.

ANNEX 2

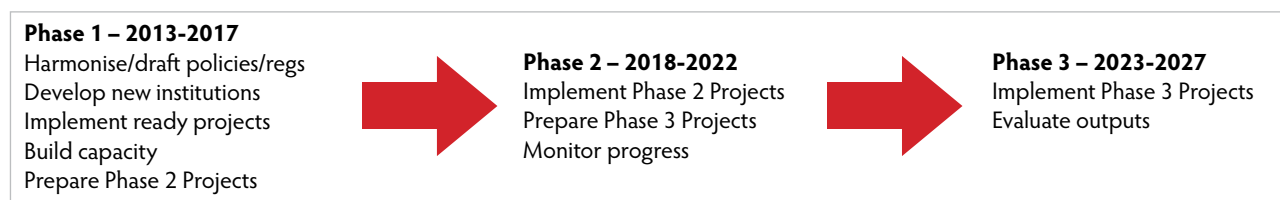
SADC RIDMP Short-Term Action Plan (STAP) 2013–2017

The SADC RIDMP Short-term Action Plan (STAP) 2017 is the short-term programme of the SADC Regional Infrastructure Development Master Plan (RIDMP), which consists of projects that are currently in different stages of development. Some of these projects have committed financing, while others are in the priority pipeline for resource mobilisation and allocation. The Plan constitutes hard infrastructure projects, as well as soft projects relating to policy, regulatory and institutional capacity building. The latter is geared towards the creation of an enabling environment that will facilitate the effective execution and delivery of projects contained in the STAP.

The STAP 2017 comprises projects from the six sectors constituting the SADC Infrastructure Regional Master Plan, namely energy, tourism, transport, ICT, meteorology and water. Projects contained in the STAP will be implemented during the first five years of the planned period as shown below.

The cross-linkages between the three phases are as indicated by Figure 1 below.

Figure 1: Common Elements of Sector Action Plans



The total cost of the STAP is US\$64.15 billion.

The Continental PIDA PAP 2020 SADC Programme is subsumed under the RIDMP STAP 2017 to ensure the complementary, effective facilitation and coordination of the continental and regional priority programmes.

1. Energy Sector

Project	Benefiting Member States	Region	Project Cost Estimate (\$ million)	Expected Completion Year	Project Status
Mozambique backbone transmission lines Phase I and II	Mozambique	SADC	1,700.00	2016	EIAs concluded and submitted to government
ZIZABONA 400kV transmission lines, 408 km	Zimbabwe, Zambia, Botswana and Namibia	SADC	223.00	2015	Investors' round table held in Namibia. IG-MoU signed
ZTK Interconnector 400 HVAC transmission line, 700 km	Zambia, Tanzania and Kenya	SADC/ COMESA/ EAC/PIDA PAP	860.00	2016	Funding secured for Zambian portion and for feasibility studies in Tanzania
Central Transmission Corridor Network (CTC) Phase II To strengthen power transmission capacity, particularly the 280 km Alaska – Sherwood line	Zimbabwe	SADC/PIDA PAP	100.00	2016	Funding secured for project preparation
DRC-Zambia Interconnector 330 kV transmission line from Solwezi to Kolwezi	DRC and Zambia	SADC/PIDA PAP	94.00	2016	Funding secured for DRC and Zambian portions from the World Bank and the Electricity Council International (CEC), respectively
Namibia – Angola Interconnector	Angola and Namibia	SADC/PIDA PAP	250.00	2016	Terms of Reference have been prepared for the technical studies and are awaiting approval
DRC – Angola Interconnector	Angola	SADC/PIDA PAP	95.00	2016	Still busy with the feasibility study
2 nd South Africa – Zimbabwe Interconnector	South Africa and Zimbabwe	SADC/PIDA PAP	280.00	2017	To be anchored by a power purchase agreement (PPA), but still at the feasibility study level
2 nd DRC – Zambia Interconnector	DRC and Zambia	SADC/PIDA PAP	80.00	2017	To be anchored by a PPA
Mozambique – Malawi Interconnector	Mozambique – Malawi	SADC/PIDA PIDA	93.00	2015	Agreement reached between two countries to move expeditiously
Cahora Bass North Bank Power Station	Mozambique	SADC	800.00	2017	To be anchored by a PPA
Mpanda Nkuwa Hydro Power Station – Phase 1	Mozambique	SADC/PIDA PAP	2,000.00	2016	Ongoing
Hwange Power Station 7 and 8 Expansion Project	Zimbabwe	SADC	1,080.00	2017	Still at the feasibility study stage
Gokwe North Power Station	Zimbabwe	SADC	2,240.00	2017	Updating the feasibility studies
Inga III Hydro Power Project	DRC	SADC	1,730.00	2018	Negotiating with financiers
Kudu Gas power Station	Namibia	SADC	640.00	2016	Engineering and design studies underway
Total			12,27 billion		

2. Tourism Sector

Project	Benefiting Countries/Owners	Region	Project Cost Estimate (\$ million)	Expected Completion Year	Project Status
Upgrading of the Sani Pass road from Himeville to Mokhotlong (Maloti/Drakensberg TFCA)	Lesotho, South Africa	SADC	62.50	2012 – 2014	Feasibility study completed
Relocation of Sani Pass border post (Maloti/Drakensberg TFCA)	Lesotho, South Africa,	SADC	6.20	2012 – 2014	EIA, structural design and geotechnical reports completed
Limpopo River Crossing (GLTFCA) – Kruger and Gonarezhou	South Africa, Zimbabwe	SADC	2.40	2012 – 2014	EIA completed. Scoping report in place and site identified
Upgrading of the Barberton to Piggs Peak road (Lubombo TFCA)	Swaziland	SADC	10.00	2012 – 2014	The road is currently an unpaved 4x4 road
Construction of the Dinosaur Interpretative Centre at Golden Gate National Park (Maloti – Drakensberg TFCA)	South Africa	SADC	28.00	2012 – 2014	Business plan, feasibility study and conceptual exhibition design completed
Upgrading of Joel's Drift to Monontsa Pass road and border post (Maloti – Drakensberg TFCA)	Lesotho	SADC	42.00	2012 – 2016	Seeking an investor
Upgrading of Ha Mpiti to Sehlabathebe National Park via Ramatselis's border gate (Maloti – Drakensberg TFCA)	Lesotho	SADC	112.50	2012 – 2016	Seeking an investor
Upgrading of Ongeluksnek Pass and establishing the one-stop border post (Maloti – Drakensberg TFCA)	Lesotho	SADC	36.00	2012 – 2016	Seeking an investor
Upgrading of Aliwaloskop to Telebridge Road (Maloti – Drakensberg TFCA)	Lesotho	SADC	7.20	2012 – 2016	Seeking an investor
Usuthu Gorge (Mambane) Community Conservation Area Fencing (Lubombo TFCA)	Swaziland	SADC	7.00	2012 – 2016	Seeking an investor
Construction of access bridge between Mooiplaas and Doorhoek Gate, Songimvelo Nature Reserve (Lubombo TFCA)	South Africa	SADC	3.00	2013 – 2017	Seeking an investor
Development of a tourist link road alongside the Komati River, linking the Songimvelo and Malolotja game reserves (Lubombo TFCA)	South Africa, Swaziland	SADC	1.50	2013 – 2017	Seeking an investor
Policy harmonisation, institutional strengthening and strategy development	All SADC Member States	SADC	1.20	2013 – 2017	
Development of marketing tools and systems, as well as building capacity to create awareness for the Uni-Visa	Pilot members: Angola, Mozambique, Namibia, Swaziland and Zimbabwe	SADC	1.50	2013 – 2017	
Development and marketing of trans-national tourism products for the Vanilla Islands States	Mauritius and Seychelles	SADC	3.00	2013 – 2017	
Total			324 million		

3. Transport Sector

Project	Benefiting Member States	Region	Project Cost Estimate (\$ million)	Expected Completion Year	Project Status
South African ports: Durban port expansion	Regional	SADC North-South corridor	2.92 billion	2014 – 2017	Ongoing
Walvis Bay: port expansion	Regional	SADC Trans-Kalahari corridor	650	2014 – 2017	Detailed design completed. Procurement for works contract ongoing.
Huambo Airport: improvements		SADC Lobito corridor	50	2013 – 2017	Pre-feasibility studies completed
Kazungula Bridge: construction of a road bridge which can also handle trains in future	Botswana and Zambia	SADC/ COMESA North-South corridor	250	2012 – 2014	Detailed design completed. MoU and project implementation arrangements being finalised
Beitbridge – Chirundu: road upgrading	South Africa and Zimbabwe	SADC/ COMESA Limpopo corridor	932	2013 – 2016	Feasibility studies completed
Beitbridge border OSBP: upgrading and expanding the infrastructure	Zimbabwe	SADC North-South corridor	6	2013 – 2014	Ongoing consultation between Zimbabwe and South Africa. Preliminary studies ongoing
Trans-Kalahari/Mamuno OSBP	Botswana and Namibia	SADC Trans-Kalahari corridor	6	2013 – 2014	Feasibility studies completed
National railways of Zimbabwe: revival	Zimbabwe	SADC Limpopo corridor	200	2013	Feasibility studies ongoing
Ressano Garcia/Lebombo OSBP: infrastructure upgrades and redesign of processes	Mozambique and South Africa	SADC Maputo corridor	6	2013 – 2014	Feasibility studies completed. Some works completed, but main pending
Lobito corridor roads: rehabilitate the main feeder roads within the corridor	Angola	SADC Lobito corridor	390	2012 – 2016	Feasibility studies and some works ongoing
Dar-es-Salaam: Chalinze toll road	Tanzania, Zambia, DRC and Malawi	SADC Dar-es-Salaam corridor	585	2012 – 2017	Feasibility studies completed in 2010. PPP viability study completed
Nakonde – Tunduma OSBP	Tanzania, Zambia, DRC and Malawi	SADC Dar-es-Salaam corridor	8	2012 – 2017	Feasibility studies completed and construction started on Zambian side. MOU signed
Makambako – Songea road: rehabilitation	Tanzania, Zambia, Malawi	SADC -Dar es Salaam Corridor	138	2012 – 2017	The road section is under detailed design through World Bank financing. Funds required for rehabilitation
Plumtree – Bulawayo – Gweru – Harare – Mutare road: rehabilitation	Zimbabwe, Mozambique, Malawi, DRC and Botswana	SADC Beira and North-South corridors	206	2012 – 2017	Minor works ongoing
Isaka – Keza – Kigali – Msongati railway line	Tanzania, Rwanda, Burundi and DRC	SADC Tripartite Central corridor	3,130	2012 – 2017	Feasibility study completed
Tanzania Railway Limited services: revival	Tanzania, Rwanda, Burundi and DRC	SADC Tripartite Central corridor	362	2012 – 2017	Ongoing

Project	Benefiting Member States	Region	Project Cost Estimate (\$ million)	Expected Completion Year	Project Status
Mtwara - Liganga - Muchuchuma - Songea - Mbamba railway	Tanzania, Zambia, Malawi and Mozambique	SADC Mtwara corridor	1,386	2012 – 2017	Feasibility study completed by Japan International Cooperation Agency (JICA) and the National Development Council (NDC). Detailed design pending
Manyoni - Tabora - Kigoma road: rehabilitation	Tanzania, Rwanda, Burundi and DRC	SADC Tripartite Central corridor	450	2012 – 2017	Detailed design and tender documents completed. Works ongoing in some sections
Kisarawe - Dar-es-Salaam: construction of ICD	Tanzania, Rwanda, Burundi, DRC, Malawi and Zambia	SADC Dar-es-Salaam and Central corridors	120	2012 – 2017	Pre-feasibility study completed. RFP for feasibility study issued
Kolwezi - Dilolo road (Angola border, SADC Route 20, 426 km): rehabilitation	DRC, Zambia and Angola	SADC Lobito corridor	2	2012 – 2017	Pre-feasibility study done. Feasibility and detailed design pending
Kinshasa - Inkisi - Ngindinga - Mbanza Sosso road (Angola border, 120 km): rehabilitation	Angola and DRC	SADC Malanje corridor/PIDA TAH 3	120	2012 – 2017	Feasibility study completed
Kisangani - Niania - Bunia - Beni- Kasindi (Uganda border, 845 km): rehabilitation	DRC, Rwanda, Uganda, Tanzania and Kenya	SADC Tripartite Northern and Central corridors	700	2012 – 2016	Feasibility study completed. Detailed design and construction pending
Tshikapa - Angola border (117 km)	Angola and DRC	SADC Malanje corridor	118	2012 – 2016	Pre-feasibility study completed. Funding for full feasibility and detailed design pending
Kolwezi - Dilolo railway: rehabilitation	DRC, Zambia and Angola	SADC Lobito corridor	250	2012 – 2016	Pre-feasibility study completed. Funding for full feasibility and detailed design pending
Kinshasa - Ilebo railway link: construction	DRC, Zambia, Zimbabwe, South Africa, Botswana and Tanzania	SADC NSC, Trans-Caprivi, Beira and Maputo corridors	8	2012 – 2016	Pre-feasibility study completed. Funding for detailed design required
Ponta Techobanine, Mozambique: heavy haul railway line and port	Mozambique, Botswana, Zimbabwe, South Africa and Swaziland	Maputo corridor, North-South corridor	1.7	2012 – 2019	Abridged executive summary completed in August 2010, and three countries have agreed to finance the pre-feasibility study at a cost of US\$1.8 million, equally shared among them
Sena Line Railway: rehabilitation and upgrade	Mozambique, Zambia and Zimbabwe	Beira corridor	200	2013 – 2015	Tender documents and contractor proposals ready
Nacala: line and new coal terminal	Mozambique and Malawi	Nacala corridor	1.5	2012 – 2015	Detailed engineering studies

Project	Benefiting Member States	Region	Project Cost Estimate (\$ million)	Expected Completion Year	Project Status
Nacala: port modernisation and expansion	Mozambique	Nacala corridor	200	2012 – 2014	Master plan, final report and construction will be subject to the conclusion of an Environment Impact Assessment (EIA)
Mbinga – Mbaba Bay: road upgrade	Tanzania	Mtwara corridor	53	2013 – 2016	Feasibility study, detailed design reports and tender documents
Institutional projects: road user charging systems (RUCS), harmonisation of corridors, standardised Commercialised Road Management (CRM) assessment study, establish regional transport competition authority, coordination and facilitation of air transport	All SADC Member States	SADC/ COMESA/EAC	38	2012 – 2017	Ongoing
Institutional initiatives: continue the commercialisation of regional airports, ANS, withdrawal of government participation in national airlines, continue commercialisation, including land lording of ports	All SADC Member States	SADC/ COMESA/EAC		2012 – 2017	Ongoing
Total			16.65 billion		

4. Information and Communication Technologies (ICT) Sector

Project	Benefiting Member States	Region	Project Cost Estimate (\$ million)	Expected Completion Year	Project Status
Digital Terrestrial Television (DTT) migration support to SADC Member States	All SADC Member States	SADC	0.77	2012 – 2016	Setting up the SADC DTT Migration Special Desk at the SADC Secretariat to oversee implementation
SADC Region Information Infrastructure (SRII) Phase II	All SADC Member States	SADC	125.155	2012 – 2016	Project almost complete with a few missing links remaining on SRII Phase II
Ensuring confidence in, and security of networks and services	All SADC Member States	SADC	0.830	2012 – 2017	Model cyber security laws prepared, now working with ITU impact for Member State assistance
Regional/national internet exchange points (IXPs)	All SADC Member States	SADC	0.211	2012 – 2015	Project implementation has commenced in conjunction with African Union Commission (AUC)
SADC regional and national integrated broadband infrastructure	All SADC Member States	SADC/PIDA	21,000.00	2013 – 2017	
Development of a shared satellite network to connect remote research centres, schools, meteorology stations, wildlife conservation posts, border posts, clinics, emergency services and postal branches	All SADC Member States	SADC	0.94	2013 – 2017	
Implementation of postal code addressing systems	All SADC Member States	SADC	110.00	2012 – 2016	Project has commenced in some SADC Member States
Extension of national postal branch networks to more locations, especially in rural areas	All SADC Member States	SADC	0.085	2012 – 2016	Project has commenced in some SADC Member States
Improving the use of ICT in postal systems	All SADC Member States	SADC	140.07	2013 – 2016	
Regional Global Monitoring System (GMS) for mail QOS measurement	All SADC Member States	SADC	10.00	2012 – 2014	Project has commenced in some SADC Member States
Establishing a Regional Centre of Excellence for ICT and postal systems	All SADC Member States	SADC	1.50	2013 – 2015	
Institutional and Regional Harmonisation ICT Policy Projects and Initiatives					
Development and review of the enabling policy and regulatory environment to maximise ICT infrastructure deployment	All SADC Member States	SADC	1.766	2012 – 2017	SADC has developed and reviewed some policies and guidelines
Development of the SADC ICT Observatory	All SADC Member States	SADC	0.301	2012 – 2015	Terms of Reference have been developed
ICT capacity building and content (broadcasting and universal ICT education programme)	All SADC Member States	SADC	0.784	2013 – 2017	

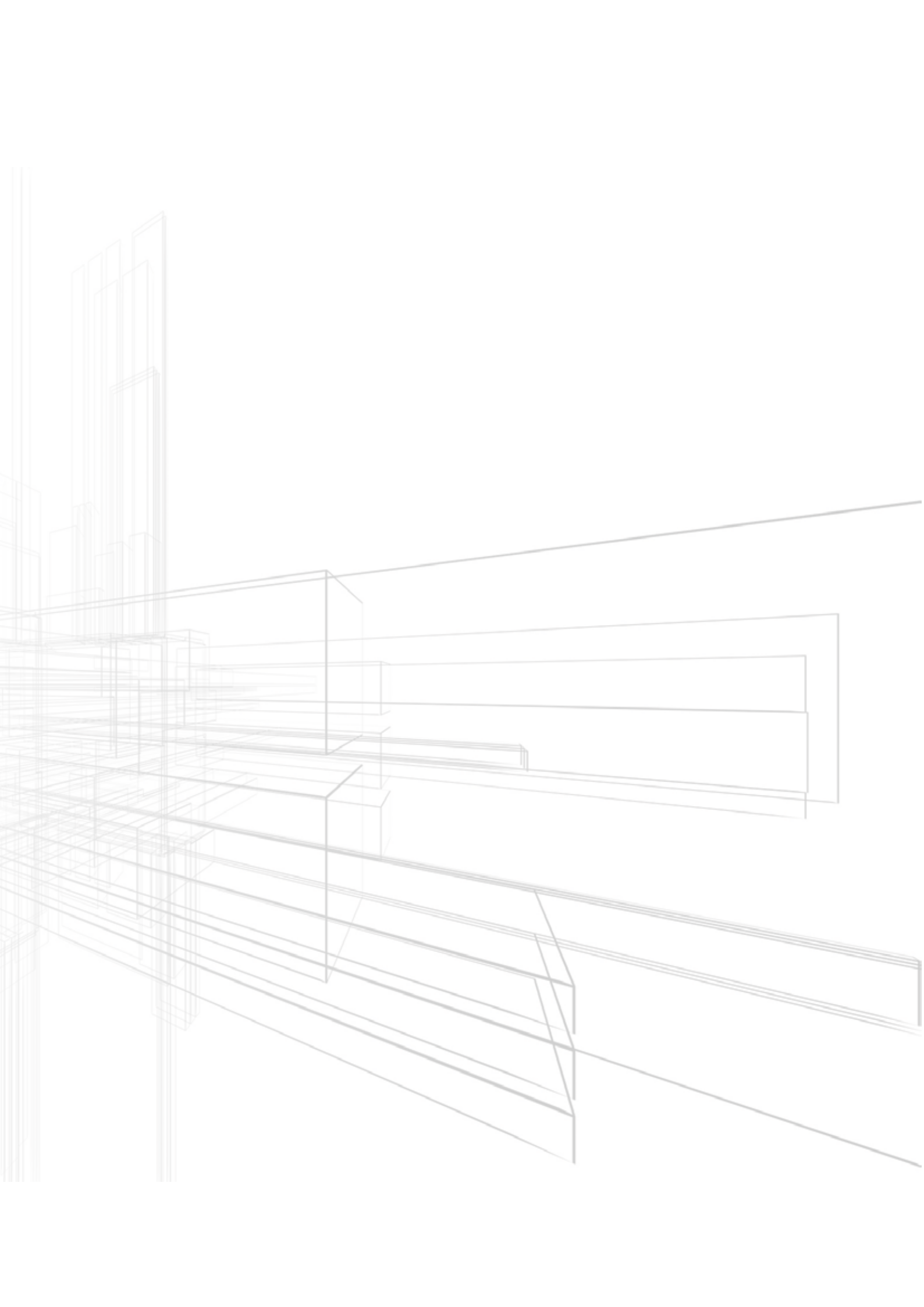
Project	Benefiting Member States	Region	Project Cost Estimate (\$ million)	Expected Completion Year	Project Status
Community empowerment programme	All SADC Member States	SADC	1.84	2013 – 2017	
Regional/national e-services and applications development (e-commerce and e-post)	All SADC Member States	SADC	6.988	2012 – 2017	Adopted the SADC e-strategic Framework
Promote improved collaboration, information and knowledge sharing between research centres	All SADC Member States	SADC	5.135	2013 – 2015	
Development of ICT equipment manufacturing, software and applications	All SADC Member States	SADC	0.375	2013 – 2016	
Total			21.40 billion		

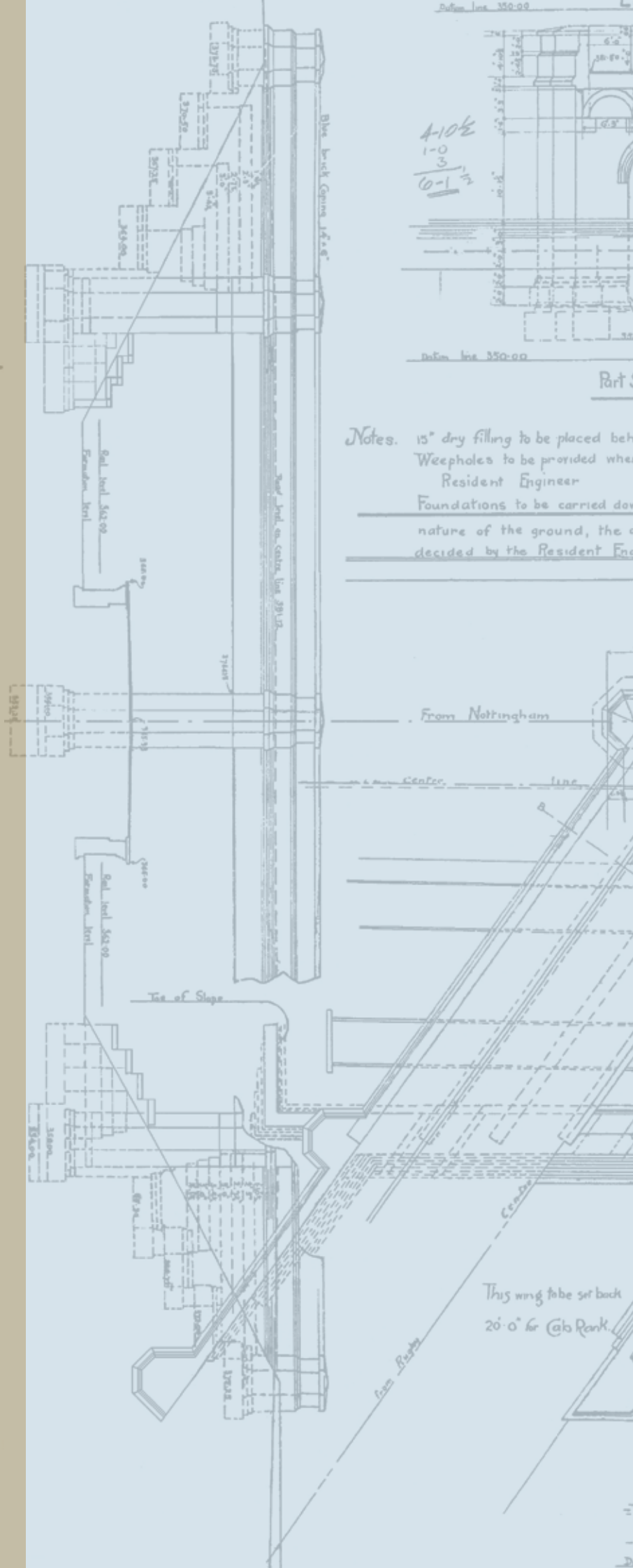
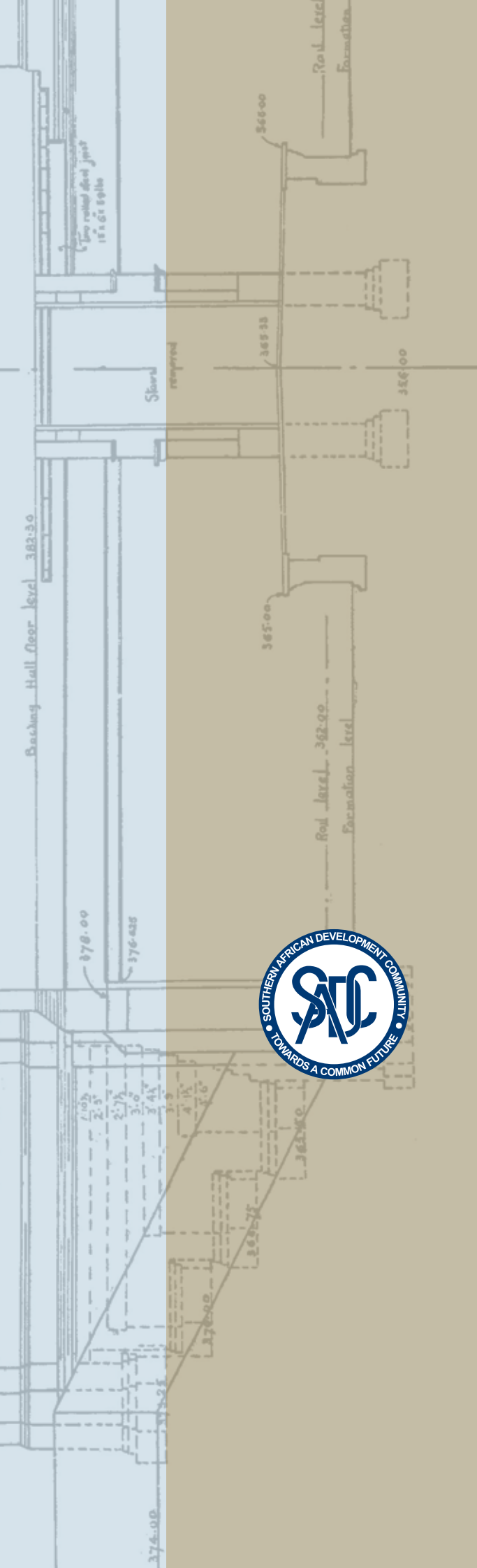
5. Meteorology Sector

Project	Benefiting Member States	Region	Project Cost Estimate (\$ million)	Expected Completion Year	Project Status
AMESD Project	Angola, Botswana, Namibia, Lesotho, Malawi, Mozambique, South Africa, Swaziland, Tanzania, Zimbabwe and Zambia	SADC	1.95	May 2013	Ongoing
Institutional Support to African Climate Centre Institution Project (ISACIP)	All Member States	SADC	4.00	March 2013	Ongoing
Strengthening of Observation Network in the SADC region	All Member States	SADC	85.60	2013 – 2017	Being developed
ClimDev-Africa	All Member States	SADC	68.70	2014 – 2017	Being developed
Improvement of meteorological telecommunications and communication systems	All Member States	SADC	4.23	2013 – 2017	Being developed
Improvement of technical capacity levels	All Member States	SADC	5.65	2013 – 2015	Being developed
Improving the understanding of applying climate information to socio-economic benefits	All member States	SADC	2.16	2013 – 2015	Being developed
Strengthening the institutional capacity of the NMSs institution	All Member States	SADC	10.77	2013 – 2015	Being developed
Strengthening the capacity of the regional climate and meteorological units of SADC (CSC, MASA, and RIC)	All Member States	SADC	8.97	2013 – 2015	Being developed
Total			192.00 million		

6. Water Sector

Project	Benefiting Member States	Region	Project Cost Estimate (\$ billion)	Expected Completion Year	Project Status
Inga Hydro-power	DRC-shared regional electricity	SADC	8.0	2017	Pre-feasibility study completed in 2011. Feasibility and design to follow
Lesotho Highlands Phase II	Lesotho and South Africa	SADC	1.0	2017	Pre-feasibility study completed in 2011. Feasibility and design to follow
Batoka George Hydro-power	Zambia and Zimbabwe	SADC	3.5	2015	Feasibility studies completed. Detailed design and tendering to follow (2012 – 2013)
Songwe River Basin	Malawi and Tanzania	SADC	0.22	2017	Feasibility studies completed. Detailed design and tendering to follow (2012 – 2013)
Okavango Multi-sector Investment	Angola, Botswana and Namibia	SADC	0.015	2016	
Limpopo Joint Water Monitoring	Botswana, Mozambique, South Africa and Zimbabwe	SADC	0.007	2016	Pre-feasibility study completed. Feasibility expected to be completed by 2013
Lomahasha/NamaAcha Water Supply and Sanitation	Mozambique and Swaziland	SADC	0.250	2017	
Institutional capacity enhancement, policy reform and harmonisation projects	All Member States, river basin organisations and water utilities	SADC	0.490	2013 – 2017	Series of projects with Terms of Reference and variable documentation available
Total			13.48 billion		





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Notes. 15" dry filling to be placed behind Weepholes to be provided when Resident Engineer Foundations to be carried down to nature of the ground, the decision decided by the Resident Engineer

This wing to be set back 20'-0" for Cab Rank