

SOUTHERN AFRICAN DEVELOPMENT COMMUNITY



GREEN ECONOMY STRATEGY AND ACTION PLAN FOR SUSTAINABLE DEVELOPMENT



WORLD BANK GROUP

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Zusammenarbeit (GIZ) GmbH

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List of acronyms and abbreviations

BAU	Business as usual
CA	Conservation Agriculture
CBD	Convention on Biological Diversity
CC	Climate Change
CCENRM	Cabinet Committee for Environment and Natural Resource Management
CCSAP	Climate Change Strategy and Action Plan
CTWG	Cross-Sectoral Technical Climate Change Working Group
CFL	Compact Fluorescent Lamps
CLD	Causal Loop Diagram
CLUVA	Climate change and Urban Vulnerability in Africa
COMESA	Common Market for Eastern and Southern Africa
CoP	Community of Practice
DRC	Democratic Republic of the Congo
EAC	East African Community
ECDPM	European Centre for Development Policy Management
ECOSOC	United Nations Economic and Social Council
EE	Energy efficiency
EIA	Environmental Impact Assessment
EMG	Environment Management Group
ENCA	Ecosystem and Natural Capital Accounts
ESC	Education for Sustainable Consumption
ESE	Economic, Social and Environmental
EU	European Union
FANR	Food, Agriculture and Natural Resources
FAO	Food and Agriculture Organization
FFN	National Forest Fund
GDP	Gross Domestic Product
GE	Green Economy
GGGI	Global Green Growth Institute
GGND	Global Green New Deal
GHG	Greenhouse gas
GLISP	Global Island Partnership

I&S	Infrastructure and Services
ICT	Information and Communication Technology
IEA	International Energy Agency
IGE	Inclusive Green Economy
IILS	International Institute for Labour Studies
ILO	International Labour Organization
IMF	International Monetary Fund
IMO	International Meteorological Organization
IOE	International Organization of Employers
IP	Integrated Policymaking
IPCC	Intergovernmental Panel on Climate Change
ISO	International Organization for Standardization
ITCZ	Inter-Tropical Convergence Zone
ITUC	International Trade Union Confederation
IUCN	International Union for the Conservation of Nature
IUU	Illegal, Unreported and Unregulated fishing
IWRM	Integrated water resources management
LEDS	Low Emissions Development Strategy
M&E	Monitoring and Evaluation
MSP	Multi-Stakeholder Process
MSW	Municipal Solid Waste
NGO	Non-Governmental Organization
OCHA	Office for the Coordination of Humanitarian Affairs
OECD	Organisation for Economic Co-Operation and Development
Organ	Organ on Defense and Security
PES	Payments for Ecosystem Services
PNEFEB	National Programme on the Environment, Forests, Water and Biodiversity
PPRM	Policy, Planning and Resource Mobilization
PV	Photovoltaic
R&D	Research & Development
RE	Renewable energy
REASAP	Regional Energy Access Strategy and Action Plan
REC	Regional Economic Community
REDD	Reducing Emissions from Deforestation and Forest Degradation

RISDP	Regional Indicative Strategic Development Plan
RRISDP	Revised Regional Indicative Strategic Development Plan
SADC	Southern African Development Community
SADC-CNGO	Southern African Development Community Council of Non-Governmental Organizations
SADCSTAN	SADC Cooperation in Standardization
SAGCOT	Southern Agricultural Growth Corridor of Tanzania
SD	Sustainable Development
SDGs	Sustainable Development Goals (SDGs)
SDM	System Dynamic Modeling
SDWG	Sustainable Development Working Group
SEEA	System of Environmental-Economic Accounting
SFM	Sustainable Forest Management
SHD&SP	Social and Human Development and Special Programmes
SNA	System of National Accounts
SWH	Solar Water Heater
SWOT	Strengths, Weaknesses, Opportunities, Threats
T, I&F	Trade, Industry and Finance
TAU	Technical Advisory Unit
TEEB	The Economics of Ecosystems and Biodiversity
TFCA	Transfrontier Conservation Areas
TPMCSOES	Tree Planting and Management for Carbon Sequestration and Other Ecosystem Services
UN	United Nations
UNCLOS	United Nations Convention on the Law of the Sea
UNCTAD	United Nations Conference on Trade and Development
UNDESA	United Nations Department of Economic and Social Affairs
UNDP	United Nations Development Programme
UNECA	United Nations Economic Commission for Africa
UNEP	United Nations Environment Programme
UNSD	United Nations Statistics Division
WAVES	Wealth Accounting and the Valuation of Ecosystem Services
WDI	World Development Indicators
WtE	Waste to energy

Executive Summary

Over the last decade, the Southern African Development Community (SADC) region has experienced rapid economic growth. However, this growth has been uneven across Member States, economic sectors and actors. When examining the causes determining recent trends on social, economic and environmental dimensions of development, and taking stock of its progress towards attainment of sustainable development goals, the need to employ a new planning paradigm based on the Green Economy (GE) approach became clear, both at the regional (e.g. for transboundary issues) and national level.

The Green economy aims to catalyse the socio-economic transformation of the SADC Region towards a resource efficient, environmentally sustainable, climate-change resilient, low-carbon development path and equitable society. It will achieve this through the transition towards sustainable production, distribution and consumption of goods and services activities and practices. This results in improved human wellbeing and economic growth over the long-term, while mitigating the exposure of future generations to significant environmental risks and ecological scarcities, in line with international trends and sustainable development commitments.

This way, the Green Economy is seen as an action-oriented approach, or a vehicle to reach sustainable development, addresses the main challenges observed in recent years (e.g. unemployment and inequality, economic vulnerability to energy prices and trade, desertification, deforestation, soil erosion and loss of biodiversity) and turns them into opportunities.

Building on these considerations and benchmarking on the SADC Protocol on Environmental Management for Sustainable Development and outcomes of Rio+20, the SADC Region expressed the intention to develop a *Regional Green Economy Strategy and Action Plan for Sustainable Development*. The objective is facilitate a balanced and accelerated attainment of the agreed goals anchoring on the three pillars of sustainable development, namely environmental sustainability, economic wellbeing and social equity (i.e. promoting the alignment of operational planning across SADC Secretariat and Member States). It is expected to build on and catalyze these processes in the implementation of all SADC Protocols and Policies and Strategies, in particular, the revised Regional Indicative Development Strategy (RISDP), the recently approved Industrialization Strategy and Road Map, the Regional Infrastructure Development Master Plan and the Regional Agriculture Policy.

This document, the *Regional Green Economy Strategy and Action Plan for Sustainable Development*, analyses 10 sectors in detail, and should be considered as a framework to guide the integration of resilient economic development, environmental sustainability and poverty eradication for a more sustainable future in the SADC region for green economy policy implementation.

It is based on several strategies, protocols, policies and programmes developed by SADC and by member countries. As a result, this document does not generate necessarily new technical or scientific knowledge, as it uses existing strategies and policies developed at the regional and national level. It is innovative in the cross sectoral approach used to harmonize national priorities into a regional GE (1) policy framework, (2) strategy and (3) action plan that can serve as the basis for further, and more customized work at the country level.

As a result, the proposed strategy and action plan aim to find and make use of synergies across sectors, identify and avoid potential emerging bottlenecks and side effects, in order to fully harness green economy opportunities. When applied at the national level, the adoption of an integrated approach, implemented through the use of multi-stakeholder dialogues that involve citizens, the public and private sector, therefore ensures the availability of resource and natural capital savings that will

enable the region to meet its development needs while reducing the socioeconomic and environmental vulnerabilities and resource constraints.

This document will support the integration of Green Economy policy principles into existing national and regional development protocols, policies and strategies including the Revised Regional Indicative Strategic Development Plan, the SADC Industrialization Strategy and Road Map, the SADC Infrastructure Development Master Plan and the Regional Agriculture Policy. For this reason, in addition to the GE Policy, Strategy and Action Plan, information is provided on the methodologies to be adopted to support the customization of the approach at the country level and indicators are identified to support each step of the policymaking process from a sectoral and integrated perspective (both at the national and international level).

The increasing interest to build a green economy in the SADC region presents an unprecedented opportunity to mobilize governments and other stakeholders to assess and reframe their policies and build new sustainable pathways for growth, contributing to green investments, job creation, poverty eradication, resource efficiency and to the overarching goal of sustainable development.

GE Policy framework

GE policies and investments are expected to contribute to (a) Climate change mitigation, through the reduction of Greenhouse gas (GHG) emissions and the promotion of a low carbon economy; (b) Climate change adaptation, through the adoption of sustainable approaches to the management of natural resources; (c) Sustainable development, through the promotion of inclusive and sustainable growth, the creation of employment and the overall improvement of the quality of life of individuals.

The high-level strategic directives (or policy principles) identified indicate opportunities for SADC to:

- **Foster the development of strategies, plans and processes to:**
 - Avoid, minimize or adapt to the negative impacts of climate change on key regional assets, including, among others, agriculture, water, fisheries and forests.
 - Avoid or reduce damage to human settlements and infrastructure caused by climate change.
 - Harmonize the approach to GE policies, strategies and action plans using transboundary issues and opportunities as entry points.
 - Build capacity to understand, analyze and react in a timely manner in the wake of future climate change impacts within the country.
- **Integrate and mainstream green economy approaches into core development policies, strategies and plans.**
 - Endeavour to obtain the involvement and participation of all stakeholders at the national and regional level in addressing issues related to sustainable development;
 - Adopt an integrated policymaking (IP) approach, taking into consideration economic, social and environmental variables that influence the achievement of policy objectives.
 - Establish clear and reliable indicators for policy formulation and evaluation.
 - Procure and allocate financial and other resources, as appropriate and feasible, to ensure that green economy policies and investments are addressed in the manner required.

GE Strategy and Action Plan

Based on observed challenges and relative opportunities, as well as existing sectoral policies and national efforts, GE Strategies and Actions are proposed to achieve sustainable development.

The strategies are underpinned by cross-sectoral linkages that may reach beyond national geographical boundaries, and are based on the core goals of (1) improving energy and resource efficiency, (2) promoting low carbon development, (3) supporting natural capital and ecosystem services and (4) striving to ameliorate equity and well-being.

GE Strategies, and related Actions, are identified to guarantee support to all three dimensions of sustainable development (social, economic and environmental), over the short, medium and longer term.

A sectoral prioritization is proposed, to make use of potential low hanging fruit while long-term investments targeting structural improvements should be supported to generate positive long term outcomes.

Sectors	Strategies
Agriculture	<p>A.1. Support water supply and conservation</p> <p>A.2. Promote the use of adaptive agricultural technologies and techniques and provide incentives for the development of green agri-business</p> <p>A.3. Promote land use planning practices</p> <p>A.4. Promote working landscapes with ecosystem services to improve agro-biodiversity</p>
Water	<p>W.1. Enhance integrated management of shared water courses</p> <p>W.2. Increase water use efficiency</p> <p>W.3. Enhance and sustain ecosystems</p> <p>W.4. Preserve, upgrade and increase monitoring, data analysis and management</p> <p>W.5. Strengthen capacity in disaster risk reduction.</p>
Forestry and biodiversity	<p>FO.1. Plan and implement Sustainable Forest Management.</p> <p>FO.2. Increase protected areas in number and coverage.</p> <p>FO.3. Provide tax benefits and subsidies for the development of agroforestry.</p> <p>FO.4. Support the development of Bio Trade.</p>
Fisheries	<p>F.1. Promote sustainable utilization of fisheries resources.</p> <p>F.2. Promote green aquaculture.</p> <p>F.3. Strengthen implementation of Regional Fisheries Agreements.</p> <p>F.4. Improve the data collection and dissemination systems on fisheries resources.</p>
Energy	<p>E.1. Support the use of renewable energy.</p> <p>E.2. Promote the investment in energy efficiency.</p> <p>E.3. Improve energy infrastructure and access to electricity.</p> <p>E.4. Reduce deforestation for energy purposes.</p>
Manufacturing and mining	<p>M.1. Promote the reduction of the amount of natural resources needed to produce finished goods (resource productivity).</p> <p>M.2. Reduce negative externalities associated with waste and pollution.</p> <p>M.3. Reduce climate change impacts on manufacturing infrastructure</p> <p>M.4. Support the development of green manufacturing sectors.</p> <p>M.5. Promote the adoption of sustainable mining practices.</p>
Waste	<p>WAS.1. Support the building and maintenance of wastewater and solid waste management facilities.</p> <p>WAS.2. Strengthen control on hazardous and e-waste disposal and promote waste recycling.</p>

Sectors	Strategies
	<p>WAS.3. Support the improvement and regional harmonization of municipal solid waste management schemes.</p> <p>WAS.4. Promote waste recycling, reuse and reduction (3R).</p>
Transport	<p>TR.1. Promote investments in climate-resilient transport infrastructure and relocation of infrastructure exposed to climate change impacts.</p> <p>TR.2. Promote green public transport networks and multimodal transport.</p> <p>TR.3. Encourage regional trade for (energy efficient) low-emitting vehicles.</p>
Tourism	<p>T.1. Promote the reduction of resource intensity in the tourism sector.</p> <p>T.2. Support the protection of natural habitats and ecosystems.</p> <p>T.3. Adapt the tourism sector to current and expected climatic changes.</p>
Human settlements	<p>C.1. Support the reduction of urban resource consumption</p> <p>C.2. Discourage unsustainable housing and settlement practices</p> <p>C.3. Promote investments in public transport systems</p> <p>C.4. Reduce climate change impacts on cities.</p>

Institutional arrangements for action on the GE

The *Regional Green Economy Strategy and Action Plan for Sustainable Development* provides tangible ways to overcome the institutional and governance challenges faced by the SADC Secretariat to effectively and efficiently institutionalize the GE Strategy and Action Plan. By capitalizing on current resources and ongoing initiatives (e.g. Climate Change Initiative), a pragmatic and evolutionary approach has been proposed to establish an institutional design for harmonizing the GE framework at the SADC Secretariat.

Institutional arrangement for cross-sectoral coordination of GE at the SADC Secretariat

The institutional arrangement proposed leverages on an existing structure that has already been established at the Secretariat to deal with climate change. The Cross-sectoral Technical Climate Change Working Group (CTWG) that consists of representatives of all the Directorates and Units described earlier has been set up to coordinate and guide the development of the SADC Regional Climate Change Strategy. As an immediate action, it is proposed that the terms of reference of the CCWG should be revised to also cover all coordination related to the GE Strategy and Action Plan at the Secretariat. It is also recommended that the name of the working group be changed to the Sustainable Development Working Group (SDWG). Evolving from this initial change, it is further proposed that an Inter-Directorate Committee may be established at the Secretariat to address all issues related to sustainable development, including all cross-sectoral issues such as GE and CC. The Inter-Directorate Committee will report to the Deputy Executive Secretary of the SADC Secretariat. The SDWG would then act as a Technical Advisory Unit (TAU) to the Inter-Directorate Committee. Lessons from other Regional Economic Communities (RECs) will be critical in ensuring that implementation of the strategy is harmonized and feeds into other continental initiatives and agendas.

Institutional arrangement to increase the connectivity between the Secretariat and Member States

It is found that the effectiveness of the SADC Secretariat could be improved in two aspects pertaining to sustainable development planning, and by extension the GE. Firstly, the context-specific national transcription of SADC's regional strategies and action plans should be improved. Secondly, there is a need to improve the monitoring and evaluation (M&E) of the impacts of regional strategies at the national level. In addition to enabling better Ministerial-level reporting to be carried out by the

Secretariat, positive effects on the policy planning process will also be obtained – better adaptive management. The two aspects require an institutional arrangement that will increase the connectivity and communication between the Member States and the SADC Secretariat. To achieve this, it is proposed that the existing a Sustainable Development Technical Committee should be set up and convened every year and should be used to; (1) expose Member States to the Regional GE Strategy and Action Plan, and (2) receive feedback from Member States on their respective progress regarding the formulation and implementation of sustainable development, including GE policies, strategies and actions. This arrangement will increase the relevance of regional strategies and action plans to Member States; better guide the Secretariat to be attentive to the needs of its Member States; and place the Secretariat in a better position to carry out resources mobilization for sustainable development.

1. Introduction

1.1. The overall context

Over the last decade, the Southern African Development Community (SADC)¹ region has experienced rapid economic growth. However, this growth has been uneven across Member States and sectors. Countries continue to be confronted with persistent poverty and high unemployment while the resource base for many productive sectors faces increasingly the consequences of climate change, desertification, deforestation, soil erosion and loss of biodiversity. Further, political instability and conflicts throughout the continent exacerbate the severity of poverty and climate change impacts on population. In this context, there is an urgent need to maintain the region's recent economic momentum, while ensuring that SADC's growing population benefits from development in a sustainable manner and reducing the vulnerability to current and emerging environmental and socio-economic risks.

A new paradigm is needed to ensure that countries maximize the benefits that can be generated from such resources in order to enhance livelihoods, eradicate poverty, and minimize vulnerabilities by creating new opportunities for sustainable growth and development. As proposed in Rio+20 Summit Outcome Document, "The Future We Want", a green economy is one of the important tools available for pursuing these critical objectives in order to achieve sustainable development and poverty eradication (UN, 2012). In this context, "green growth" can be seen as a means to achieve a green economy. Over the past few years, analytical work and reports on green economy by various regional and multilateral agencies and various international research institutions have demonstrated that a green economy can be a means – perhaps one of the most important drivers - to achieve sustainable development (UNDESA, 2012).

In 2011, the SADC region undertook a review of its progress towards attainment of sustainable development goals and objectives prior to the RIO+20 Summit in 2012. The review identified a number of gaps and weaknesses but also made tangible recommendations for the enhancement of sustainable development in the region. The global debate has consolidated these recommendations into a set of priority areas and interventions that need to be undertaken to ensure sustainable and equitable global growth.

Building on this and benchmarking on the outcomes of Rio+20, the SADC Region expressed the intention to develop a Regional Green Economy Strategy and Action Plan for Sustainable Development in order to facilitate a balanced and accelerated attainment of the agreed goals anchoring on the three pillars of sustainable development, namely environmental sustainability, economic well-being and social equity.

SADC as a region has already developed a number of strategies, protocols, policies and programmes. These strategies include, among others, the SADC Industrialization Policy, the Industrialization Strategy and Roadmap, the Infrastructure Development Masterplan, the Regional Agriculture policy and the various protocols.

This document does not generate necessarily new technical or scientific knowledge, as it is based on existing strategies and policies developed at the regional and national level, but it is innovative in the cross sectoral approach, which aims to find synergies between policy areas in order to fully harness green economy opportunities. The adoption of an integrated approach aims to ensure resource and

¹ The Treaty establishing SADC was signed on August 17, 1992. SADC has 15 Member States, namely; Angola, Botswana, Democratic Republic of Congo (DRC), Lesotho, Madagascar, Malawi, Mauritius, Mozambique, Namibia, Seychelles, South Africa, Swaziland, United Republic of Tanzania, Zambia and Zimbabwe.

natural capital savings that will enable the region to meet its development needs while reducing the socioeconomic and environmental vulnerabilities and resource constraints.

Starting from the analysis of sustainable development challenges, this analytical work aims at supporting the SADC region with:

- Outlining processes for the region and national entities to adopt what will facilitate development of a coordinated set of participatory and continuously improving processes of analysis, debate, capacity-strengthening, planning and investment. This will integrate the short and long term economic, social and environmental objectives to enhance the green economy and promote sustained growth;
- Developing the enabling framework for the successful implementation of GE policies by overcoming financial, technical, technological, cultural and social barriers.
- Promoting policies and investments towards a range of green sectors such as clean technologies and industries, renewable energies, water services, clean transport, waste management and green building with a view to address poverty
- Contributing towards a people-centered socio-economic development of the region by enhancing integration of the regions' environmental and other natural assets into national economies;
- Reducing social disparities by suggesting an accelerated framework for implementing the millennium development goals and the provisions of the outcomes of Rio+20 while strengthening equal opportunities and cultural identities.
- Providing concrete recommendations to improve governance at the local, national and regional levels that fully integrates the green economy; and
- Providing tools for the analyses of existing policies and programmes to enhance consistency and coherence that will promote sustainable development.

The *Green Economy Strategy and Action Plan* should be considered as a framework to guide the integration of resilient economic development, environmental sustainability and poverty eradication for a more sustainable future in the SADC region for green economy policy implementation. The increasing interest to build a green economy in the SADC region presents an unprecedented opportunity to mobilize governments and other stakeholders to assess and reframe their policies and build new sustainable pathways for growth, contributing to green investments, job creation, poverty eradication, resource efficiency and to the overarching goal of sustainable development.

1.2. Policy options

There are several steps that SADC countries should follow to facilitate the transition to sustainable development by developing a green economy. To support this transition, a number of enabling conditions need to be put in place by policymakers at both regional and national level. As stated by UNEP, "enabling conditions consist of national regulations, policies, subsidies and incentives, as well as international market and legal infrastructure, trade and technical assistance" (UNEP, 2011).

Generally, there are four main ways to create the required conditions and influence future trends in order to reach stated goals: (1) voluntary behavioral change, (2) capital investment, (3) public targets mandated by law, and (4) incentives (such as tax reductions and subsidies) (UNEP, 2014). Since targets and mandates ensure reaching stated goals while controlling expenditure, and incentives as

well as capital investments support cost sharing across the key actors in the economy, creating a comprehensive package would allow making the best of all the options analyzed.

More specifically, synergies could be created by using:

- Public Targets: to ensure reaching a stated goal.
- Incentives and capital investments: to reduce upfront costs (shared between government and other actors, such as households and the private sector), with incentives being especially effective if the upfront cost is contained when initial capital investments costs are high.

The interventions presented in this document would therefore require policy packages that include mandates/targets, incentives for supporting the transition and capital investments for process improvements. Moreover, policy interventions should be adopted taking into consideration the complex interactions and causal relations occurring within the system. In some cases, unintended consequences can be avoided through the combination of complementary policies.

The choice of policy instruments will impact not only the probability to reach stated goals and targets, but also the total costs of interventions and how these costs are going to be allocated across the different actors in the economy. Similarly, policies will determine how benefits will be accrued. The goal is to find a strategy to balance funding responsibilities, sharing benefits with all actors of society and the economy, while providing support to low income and disadvantaged families.

Table 1 below provides some of the interventions that could be adopted to pave the way for a green economy transition. As can be observed, national governments should be the main drivers in this initial phase, especially for the provision of incentives, the allocation of budget and the formulation (or amendment) of laws and regulations. However, the role of SADC is essential in harmonizing and aligning policy instruments at the regional level, so as to promote the achievement of common green growth objectives, at the same time building on the differences and competitive advantages of different Member States (see Section 3.4).

Table 1. Some Policy options that would support the green economy transition in the SADC region.

Type of Instrument	Description	Actor	Source of Finance	Who benefits (directly)	Why
Regulatory instruments					
Payments for Ecosystem Services	Payments made to preserve natural capital and the provision of ecosystem services, possibly made also by the private sector and households.	Governments and SADC.	International donors, private Sector and households, as well as government	Communities, Private Sector.	Maintenance of forests and other ecosystems to the benefit of long term availability of forest resources and ecosystem services.
Standards	Energy efficiency standards for the Private Sector (i.e. manufacturing) are set at both government and regional levels.	Governments and SADC.	Public budget	Communities, Private Sector.	Reduced costs; increase in energy availability; increased revenues from energy exports and expansion of the energy grid to include mini grids.
Capital investment					
Regional Investment Programs	SADC injects capital into the development of innovative green sectors, including protected marine and forest areas, green cities – green transport, green agriculture, renewable energies etc.	SADC	Donor countries, Global Funds.	Communities, Private Sector.	Reduced upfront costs for green activities. Increased economic efficiency, increased productivity.
Incentives and disincentives					
Incentives to sustainable agricultural techniques	Tax deduction, financial incentive or other forms of economic incentives to farmers and private companies for the adoption of adaptive techniques (i.e. irrigation, fertilization, seed selection, intercropping).	Governments	State Budget.	Farmers, farming companies, communities.	Increased resilience of the agricultural sector; increased production and revenues; increased food security.
Incentives to green business	Incentives to green business, including in the field of renewable energies (i.e. solar panels), waste management, etc.	Governments	State Budget	All stakeholders with business in SADC countries.	Ease to start new green businesses or greening existing ones.
Environmental Taxation and removal	Environmental Taxes and removal of subsidies that are harmful to the environment to promote	Government	State and User budgets	Communities, Private Sector	Increase environmental protection and responsible use and protection

of environmentally harmful subsidies	responsible environmental management				of the environment
<i>Voluntary behavioral change</i>					
Voluntary commitment	Voluntary commitment by companies and individuals could facilitate the introduction of new regulations and market instruments to a green national economy.	Companies, consumers, individuals, communities.		Private Sector, Consumers, Communities.	The transition to a green economy is facilitated.

1.3. Enabling Conditions

Enabling conditions consist of national policies, regulations, taxes/subsidies, financing and investment, capacity building and technical assistance as well as information/awareness, and sustainable consumption. These are reforms or measures to be implemented with a view to provide the private sector and society with incentives to invest in green economic activities. Those measures can be created by either the SADC, national governments or still international and national non-governmental organizations (NGOs), and private sector actors from international conglomerations and large firms to small and medium sized enterprises (UNEP, 2011).

1.3.1. Public policies

Legislation/standard setting

Existing legislations might need reviewing and where appropriate new legislations as well as standards favouring a greener economy should be introduced. For instance, the introduction of 'Feed-in tariffs' can be a powerful market-based instrument to reduce greenhouse gas emissions, enhance energy supply security, and also enhance economic competitiveness (UNEP, 2011). The feed-in tariff obliges energy companies operating on the national grid to purchase electricity from renewable energy sources at a pre-determined tariff, which constitutes in itself an incentive for investing in renewable energy. Feed-in tariffs are commonly used for PV solar energy and biomass-based cogeneration. Kenya has recently revised its feed-in tariff policy, which is expected to stimulate around 1300 MW of electricity generation capacity, undoubtedly a significant contribution to the country's energy security (UNEP, 2011). With respect to the trade of environmental resources, the reduction of trade barriers (tariff and non-tariff) might encourage cross-border trade rather than the overuse of the same resource within one country. In other sectors, the setting of minimum standards can help address the most harmful forms of unsustainable behavior, such as over logging and over fishing. SADC countries should also consider encouraging the adoption of international environmental standards like the ISO 14000 series on environmental management and the ISO 14065 series on greenhouse gas monitoring in lower income countries and small organizations (UNEP, 2011).

Fiscal policy reform

Fiscal reform entails reviewing the set of taxes and subsidies so that they are conducive to greening the economy. There are two sets of environmentally related taxes: the "polluter pays" principle focused on charging producers or consumers at the point that they are responsible for the creation of a pollutant; and the "user pays" principle, which focuses on charging for the extraction or use of natural resources. Hence, the taxes can provide clear incentives either to reduce emissions or to use natural resources more judiciously. A further analysis is required to assess the overall tax burden, as they can have negative effects on economic output. Another approach is to agree on lists of externalities to tax, while leaving the level of taxation (UNEP, 2011). It is also critical that tax revenues raised be recycled into aid for industry restructuring for instance. Similarly, subsidies may need to be reviewed, so that they do not encourage the further depletion of natural resources (e.g. subsidies on fuel, fishery). Again here, comprehensive research needs to be done to assess the overall subsidy incidence and welfare loss (i.e. who will be the winners and losers).

Financing and investment including private sector and public-private partnership

Public investment and expenditure are crucial in attracting green investment and in promoting the development of green markets, especially in the short term. By showing the way, Governments will encourage the private sector too to invest in the green sectors such as water, waste water, energy (especially renewable energy like wind, solar, PV, bio energy) and agriculture (UNEP, 2011). In "Green Jobs: Towards Decent Work in a Sustainable, Low-Carbon World (UNEP, ILO, IOE, ITUC, 2008), a

comprehensive list of green jobs is identified, that can be boosted within the framework of a green economy. This includes energy, construction (green buildings), transportation, recycling, agriculture, forestry among others. They can be models in creating green and decent jobs, that is, jobs that are fair for the environment and for the job holder as well. Governments may also provide various financial supports or grants, through development banks for example. This can range from instruments such as loan guarantees or less stringent repayment, to low-cost financing (UNEP, 2011). Commercial banks may as well provide loans at preferential rates of interest to encourage green investment. Similarly, in the various sectors of the economy, the participation of the private sector and the encouragement of public-private partnership can optimize human, financial and intellectual capital.

Green Public Procurement

By pursuing sustainable consumption, sustainable production will expand. Government can through public procurement, opt for environmentally and socially preferable goods and services. It is understood that the latter can have higher up-front costs than less sustainable alternatives but measures for encouraging sustainable consumption need to be given due consideration. SADC countries can replicate the sustainable public procurement policies of developed countries or best practices of developing countries. One procurement option is to consider long-term leasing of items such as electronic equipment, vehicles and furniture, rather than their outright acquisition, which can facilitate maintenance, disposal and replacement by more environmentally friendly ones over time (UNEP, 2011).

The role of trade as an enabler of Green Economy and Green Growth

Trade policy can be modified to encourage further the trade of environmental resources, green goods, technologies or even investments. For instance, the proper pricing of environmental resources can allow countries to sustainably exploit their comparative advantage in exploiting natural resources for the mutual gain of exporting and importing countries. For instance, water abundant countries can help to relieve pressure in water scarce countries by exporting water-intensive products (UNEP, 2011). Globally, trade is considered as a major engine of development. To facilitate the set-up of 'green regional markets', trade negotiations should seek to target the reduction of tariff and non-tariff barriers on environmental goods and services. Establishing regional standards and labelling for green goods exchanged can contribute to conserving and protecting natural resources from over exploitation while encouraging the sustainable trade of resources where their availability is abundant (for example agriculture, biofuel, fisheries, timber, tourism). Fair Trade principles applied in other parts of the developing world can be considered for developing the export of agricultural goods produced by small farmers who adopt sustainable agricultural practices (UNCTAD, 2011).

1.3.2. Capacity building and communication

Capacity building, transfer of technology and technical assistance

Capacity building within public institutions as well as the private sector is needed for the effective implementation of green policies and tools. Technology and particularly state of the art technology needs to be supported so that people can bring about the required changes to management or processes. The introduction of new technology can play a significant role in enhancing the environment and natural resources, while helping to sustain economic activity that relies on them (Annex I, UNEP, 2011).

Capacity building is also concerned with training and enhancing human skills that can lead to green jobs. There is a potential for green jobs in several sectors, e.g. agricultural, manufacturing, research and development (R&D), administrative, and service activities. These jobs have the ability to preserve

or restore environmental quality, through the protection of ecosystems and biodiversity; the reduction of energy, materials, and water consumption; the lowering of carbon in the economy; and the minimization or avoidance of waste and pollution (UNEP et al, 2008).

Information, awareness, education, and participation

Information, awareness and education are also important in creating enabling conditions for a green economy. The different actors involved in policy planning need to be aware of the needs, concerns and knowledge of stakeholders. This will help in planning for socially desirable outcomes. Moreover, training programmes or workshops can best prepare the population including the workforce for a smooth transition towards a green economy. The sound use of media including TV and radio programmes has the ability to cover a very wide audience as well.

1.3.3. Tools to support Green Economy Policymaking

Two approaches can be adopted, either elaborating a national policy for creating a green economy or integrating the 'green economy' into existing development plans and commitments. These include state economic and development plans, national sustainable development strategies and poverty reduction strategies. While some countries have already started the process of drafting a national strategy for a Green Economy, including South Africa, Mauritius, Namibia, Mozambique, Kenya², and identifying options for developing sustainable development paths, the current initiative can contribute to replicate the approach to other SADC countries. The recommended approach is to mainstream the green economy into national development strategies. This involves among others fostering a multi-stakeholder dialogue, identifying areas for capacity building and training and creating indicators for measurement frameworks. Integrated policy-making recognizes the need for a proactive approach to integrating SD or ESE into policymaking (UNEP, 2009). It is vital here to enlist political support as policymaking entails committing resources (time and finance) from relevant institutions stakeholders.

1.4. Structure of the Strategy

The *Green Economy Strategy and Action Plan* is structured to be concise with all supporting documentations placed in annexes. Before turning to the sections on Policy, Strategy, Action Plan, and Monitoring & Evaluation that form the essence of the document, the background information contained in the annexes are introduced.

- Issues related to the origins and definitions of GE and priority areas for GE policy making are given in Annex 1. Annex 1 also presents the rationale for a GE strategy in the context of sustainable development planning;
- The starting point used to develop the GE Strategy and Action plan has been the RISDP and SADC sectoral strategies. The RISDP is underpinned by the mission of SADC, which is "*To promote sustainable and equitable economic growth and socio-economic development through efficient productive systems, deeper co-operation and integration, good governance, and durable peace and security, so that the region emerges as a competitive and effective player in international relations and the world economy*" (SADC, 2003). Both the RISDP and sectoral strategies already include measures (strengths) that could be classified as pertaining to a GE, whereas they also have weaknesses that can be translated into opportunities for a GE. The development of the *Green Economy Strategy and Action Plan* is motivated by these strengths and opportunities, and these are reviewed in Annex 2. Further, the Green Economy Strategy and Action Plan also took into account the GE practices in SADC Member States that are

² UNEP. <http://www.unep.org/greeneconomy/AdvisoryServices/Overview/tabid/101805/language/en-US/Default.aspx>

summarized in Annex 3. This element brings coherence between the regional GE Strategy and Action Plan and national relevance;

- Since green economy action plans reflect a mix of policy options, a stocktaking exercise was carried out to review the existing regional policies, plans and regulations. This review, together with the challenges and opportunities for a green economy, are also summarized in Annex 2 in the form of a sectoral SWOT analysis; and
- Annex 4 provides broad guidelines and steps that SADC Member States might adopt to translate the regional Green Economy Strategy and Action Plan into nationally relevant strategies and action plans.

The background documents mentioned above are among the main sources of information used to frame and develop the GE Policy (Section 2), GE Strategy (Section 3) and the GE Action Plan (Section 4). Indicators to support the policy making process for the customization of the action plan at the country level are presented in Section 5.

2. GE Policy

2.1. Identification of needs and policy gaps

The SADC Region has already put in place a number of strategies, policies and protocols to regulate and guide the priority sectors of the regional economy towards the objective of sustainable development (Table 24 in Annex 2). Two categories of policy can be distinguished:

- Cross sectoral policies focused on broad issues such as climate change, sustainable development, infrastructural development (i.e. revised RISDP);
- Sectoral policies and protocols.

It can be noted that several existing policies and strategies include interventions that can be considered green economy interventions. These include, among others, the diversification of national economies (*SADC Industrial Development Policy Framework, 2013 and the Regional Industrialization Strategy and Road map 2015*), the optimization of resource use (e.g. water) in the tourism sector (*Protocol on the Development of Tourism, 2002*), and green infrastructure development for limiting the environmental impacts of transport (*Protocol on Transport, Communications and Meteorology, 1998*).

While the current SADC policy framework is already advanced in providing guidance to national governments towards the achievement of key sustainable development objectives across the main sectors of the economy, some aspects could be further improved in order to mainstream green growth principles, and facilitate the implementation of green economy policies at the national level. In particular, green economy and sustainable development issues are often considered as separate chapters or annexes in strategic and policy documents. On the contrary, the objective of a green economy approach is to integrate green investments and policies in each sector, as an integral part of sustainable development plans.

Aside from challenges in fully integrating the concept of the green economy into the policy framework, challenges have been found in relation to the implementation of strategies and policies, as highlighted during the *SADC Regional Green Growth Strategy Development Workshop (2013)*. These include:

- Lack of resources and weak resource mobilization;
- Weak coordination between regional and national activities and programme and economic sectors;
- Shortage of human and technology skills.

The opportunities identified to overcome these challenges and create regional synergies include:

- Joint investments across sectors and countries;
- Coordination across institutions
- Establishment of Public Private Partnerships (PPPs) with multinational companies;
- Regional capacity building exercises;
- Information sharing (network creation on best practices/regional database on natural capital)

These challenges and opportunities have been taken into account when formulating the GE strategy and action plan presented in sections 5 and 6.

2.2. GE policy objectives and principles

This section presents key strategic directions to elaborate and implement integrated policies – including several different enabling conditions- and further elaborates on the advantages created by coordinated implementation, to make use of synergies and avoid bottlenecks. Indeed, the green economy paradigm is conceived to facilitate a systemic approach to development planning through the incorporation and mainstreaming of sustainable development objectives and principles into sectoral and cross-sectoral policies and plans. In particular, green economy investments and policies would contribute to:

- a) **Climate change mitigation**, through the reduction of GHG emissions and the promotion of a low carbon economy;
- b) **Climate change adaptation**, through the adoption of sustainable approaches to the management of natural resources, as well as the introduction of innovative techniques and technologies that ensure a better adaptation to the impacts of climate change in each of the priority sectors within and across countries (e.g. concerning transboundary issues);
- c) **Sustainable development**, through the promotion of inclusive and sustainable growth, the creation of employment and the overall improvement of the quality of life of individuals (i.e., food and water security, access to clean energy, health conditions etc.).

The overall enabling conditions for the transition to a green economy can be detailed into actionable strategies that are specific to the SADC context. Firstly, high-level strategic directives (or policy principles) are introduced to create positive synergies across sectors. Secondly, specific strategies are proposed for each sector, taking into account the positive and negative effects on the entire socio-economic and environmental system.

Overall, SADC member states should:

- **Foster the development of strategies, plans and processes to:**
 - Avoid, minimize or adapt to the negative impacts of climate change on key regional assets, including, among others, agriculture, water, fisheries and forests;
 - Avoid or reduce damage to human settlements and infrastructure caused by climate change;
 - Harmonize the approach to GE policies, strategies and action plans using transboundary issues and opportunities as entry points; and
 - Build capacity to understand, analyze and react in a timely manner in the wake of future climate change impacts within the country;
- **Integrate and mainstream green economy approaches into core development policies, strategies and plans:**
 - Adopt an Integrated Policymaking approach (IP), taking into consideration economic, social and environmental variables that influence the achievement of policy objectives; and
 - Establish clear and reliable indicators for policy formulation and evaluation.

More specifically:

- **Foster long term planning mechanisms:**
 - Ensure that adequate planning (physical, socio-economic etc.) is undertaken on a continual basis to address the impacts of climate change and harness green growth opportunities. Such

planning should be undertaken not in isolation but in the wider context of sustainable development, and using an integrated, cross-sectoral and trans-disciplinary approach (i.e. systems approach).

- **Improve climate resilience:**

- Enhance and maintain environmental quality, recognizing that the resilience of the natural environment is key to coping with climate change;
- Promote the development of a strong and diversified economies considering that economic resilience is key to coping with climate change; and
- Create an enabling environment for the adoption of appropriate technologies and practices that will assist in meeting national and international commitments with respect to the causes and effects of climate change.

- **Improve financing options to meet sustainable development financial needs:**

- Procure and allocate financial and other resources, as appropriate and feasible, to ensure that green economy policies and investments are addressed in the manner required.

- **Strengthen capacities and institutional frameworks:**

- Develop national human and institutional capacity in all aspects of green economy research, response, planning, etc.;
- Create an institutional, administrative and legislative environment which engenders/ supports the effective implementation of green economy policies;
- Collaborate as appropriate and feasible, with other regional organizations and states which pursue confluent agendas on green economy and sustainable development;
- Involve the participation of all stakeholders at the national and regional level in addressing issues related to sustainable development; and
- Ensure effective coordination to minimize duplication of effort and conflict and which ensures efficient use of resources and the creation of positive synergies.

Based on this general strategic approach, sectoral strategies should be implemented to transform green economy opportunities into real actions. These strategies, summarized in the following table, have to be in response to current challenges in implementing green growth interventions. Existing sectoral and cross-sectoral policies and action plans should be reshaped, when needed, to include the suggested provisions. Section 5 presents all these elements by sector, specifying (1) challenges, (2) specific strategies that would address the challenges and (3) green policy interventions for strategy implementation.

3. GE Strategy

Based on observed challenges and relative opportunities (see Annex 2.1), as well as existing sectoral policies (see Annex 2.2) and national efforts (see Annex 3), this section proposes GE Strategies to achieve sustainable development. The strategies are underpinned by cross-sectoral linkages that may reach beyond national geographical boundaries. An example of such cross-linkages is illustrated in Section 4.1 using energy consumption from a rural developmental perspective. Given the challenges of coordinating cross-sectoral strategies, institutional frameworks are proposed for further consideration in Section 4.2.

Table 2. Green Economy challenges, strategy and global targets

Sectors	Challenges	Strategies	Global targets
Agriculture	<ul style="list-style-type: none"> - Decreased agricultural productivity and production (both crops and livestock) due to soil nutrient depletion and poor land and water management. - Crop losses due to lack of storage facilities in winter season, as well as to extreme weather events such as floods, cyclones and storms. - Observed negative impact of drought periods on livestock and agricultural production in many countries. 	<p>A.1. Support water supply and conservation</p> <p>A.2. Promote the use of adaptive agricultural technologies and techniques and provide incentives for the development of green agri-business</p> <p>A.3. Promote land use planning practices</p> <p>A.4. Promote working landscapes with ecosystem services to improve agro-biodiversity</p> <p>A.5. Support agronomy research and development</p>	<ul style="list-style-type: none"> • Increase nutrition levels to 2800-3000 Kcal/person by 2030 (FAO). • By 2020 areas under agriculture, aquaculture and forestry are managed sustainably, ensuring conservation of biodiversity (Aichi target 7). • By 2020, pollution, including from excess nutrients, has been brought to levels that are not detrimental to ecosystem function and biodiversity (Aichi target 8).
Water	<ul style="list-style-type: none"> - Climate change impacts on water availability (e.g. increased temperatures, sea level rise, extreme weather events and reduced rainfall). - Lack of adequate water infrastructure. - Poor exploitation of abundant water resources. - Weak regional mechanisms for the integrated management of shared watercourses. - Inefficiency in the use of water resources – leading to unsustainable practices and high 	<p>W.1. Enhance integrated management of shared water courses</p> <p>W.2. Increase water use efficiency</p> <p>W.3. Enhance and sustain ecosystems</p> <p>W.4. Preserve, upgrade and increase monitoring, data analysis and management</p> <p>W.5. Strengthen capacity in disaster risk reduction.</p>	<ul style="list-style-type: none"> • By 2020, at least 17 per cent of terrestrial and inland water, and 10 per cent of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem services, are conserved through effectively and equitably managed, ecologically representative and well-connected systems of protected areas and other effective area-based conservation measures, and integrated into the wider

Sectors	Challenges	Strategies	Global targets
	costs, thus limiting <u>access to water</u>		landscapes and seascapes (Aichi target 11).
Forestry and biodiversity	<ul style="list-style-type: none"> - Decreased productivity of forests due to climate change impacts. - Loss of forest cover and biodiversity due to unsustainable human activities. - Expected increase in forestland conversion to agriculture and human settlements driven by demographic growth. 	<p>FO.1. Plan and implement Sustainable Forest Management.</p> <p>FO.2. Increase protected areas in number and coverage.</p> <p>FO.3. Provide tax benefits and subsidies for the development of agroforestry.</p> <p>FO.4. Support the development of Bio Trade.</p>	<ul style="list-style-type: none"> • By 2020, at the latest, people are aware of the values of biodiversity and the steps they can take to conserve and use it sustainably (Aichi target 1). • By 2020, at the latest, biodiversity values have been integrated into national and local development and poverty reduction strategies (Aichi target 2). • By 2020, at the latest, incentives, including subsidies, harmful to biodiversity are eliminated, phased out or reformed (Aichi target 3). • By 2020, the rate of loss of all natural habitats, including forests, is at least halved and where feasible brought close to zero, and degradation and fragmentation is significantly reduced (Aichi target 5). • By 2020, ecosystem resilience and the contribution of biodiversity to carbon stocks has been enhanced, including restoration of at least 15 per cent of degraded ecosystems (Aichi target 15).
Fisheries	<ul style="list-style-type: none"> - Impact of rising temperatures on fish species composition and abundance. - Negative impact of unsustainable fishing practices (e.g., bycatch of juvenile fish, bottom trawling, dynamite fishing) on fish stocks and ecosystems. - Overfishing and IUU threaten the sustainability of fishing activities, with consequences for food security and income of fishing communities. 	<p>F.1. Promote sustainable utilization of fisheries resources.</p> <p>F.2. Promote green aquaculture.</p> <p>F.3. Strengthen implementation of Regional Fisheries Agreements.</p> <p>F.4. Improve the data collection and dissemination systems on fisheries resources.</p>	<ul style="list-style-type: none"> • By 2020 all fish and invertebrate stocks and aquatic plants are managed and harvested sustainably, legally and applying ecosystem based approaches, so that overfishing is avoided, recovery plans and measures are in place for all depleted species, fisheries have no significant adverse impacts on threatened species and vulnerable ecosystems and the impacts of fisheries on stocks, species and

Sectors	Challenges	Strategies	Global targets
			ecosystems are within safe ecological limits (Aichi target 6).
Energy	<ul style="list-style-type: none"> - Potential climate change impacts on hydropower resources. - High reliance on fossil fuels for electricity generation. - Heavy reliance on forest resources for energy - High costs of fossil fuel imports and vulnerability to international fossil fuel price fluctuations. - Access to electricity is still very low in many countries, especially in rural areas. 	<p>E.1. Support the use of renewable energy.</p> <p>E.2. Promote the investment in energy efficiency.</p> <p>E.3. Improve energy infrastructure and access to electricity.</p> <p>E.4. Reduce deforestation for energy purposes.</p>	<ul style="list-style-type: none"> • Doubling the share of renewable energy in the energy mix by 2030 (SE4ALL) • 100% access to modern forms of energy by 2030 (SE4ALL) • Doubling of the energy efficiency improvement rate by 2030 (SE4ALL)
Manufacturing and mining	<ul style="list-style-type: none"> - High energy and water intensity in resource based sectors (e.g. mining). - Low value added of the manufacturing sector. - Limited development of energy, transport and logistic services in most countries. - Risks associated with hazardous substances and waste. - Disruption of key infrastructure as result of climate change effects. - Depletion of natural capital and ecosystems due to unsustainable mining processes. 	<p>M.1. Promote the reduction of the amount of natural resources needed to produce finished goods (resource productivity).</p> <p>M.2. Reduce negative externalities associated with waste and pollution.</p> <p>M.3. Reduce climate change impacts on manufacturing infrastructure</p> <p>M.4. Support the development of green manufacturing sectors.</p> <p>M.5. Promote the adoption of sustainable mining practices.</p>	<ul style="list-style-type: none"> • Doubling the share of renewable energy use in the mining sector by 2030 (SE4ALL) • Recycle and reuse 50% of waste from mining operations by 2030 (SE4ALL) • Half the energy requirements for the mining industry by improving efficiency by 2030 (SE4ALL) • At least 10 incentive mechanisms for adoption of green practices benefiting the mining industry by 2030 • Carbon emissions from the Mining sector reduced by 40% by 2030
Waste	<ul style="list-style-type: none"> - Illegal dumping and open landfills causing air pollution and groundwater contamination. - Poor management of hazardous chemical wastes and e-wastes. - Continuous increase in waste generation driven by expected demographic and economic growth 	<p>WAS.1. Support the building and maintenance of wastewater and solid waste management facilities.</p> <p>WAS.2. Strengthen control on hazardous and e-waste disposal and promote waste recycling.</p> <p>WAS.3. Support the improvement and regional harmonization of municipal solid waste management schemes.</p>	<ul style="list-style-type: none"> • At least 2 innovative and green waste water and solid waste management infrastructure operationalized by each SADC Member State by 2030 • At least two regulations for promoting green hazardous and e-waste management promulgated by each SADC Member State by 2030 • Guidelines for the improvement and regional

Sectors	Challenges	Strategies	Global targets
		<p>WAS.4. Promote waste recycling, reuse and reduction (3R).</p> <p><u>WAS.5. Promote sustainable production and consumption.</u></p>	<p>harmonization of municipal solid waste management schemes developed by 2020</p>
Transport	<ul style="list-style-type: none"> - Deterioration of infrastructure caused by climate change related extreme weather events. - Increasing maintenance costs of road networks leading to an increase in transport prices, and related negative impact on access. - Poor development of railways and inland waterways, and limited connections with SADC corridors. - Planned expansion of sea ports might negatively impact on the environment and socioeconomic development if not conducted in line with sustainability and resource efficiency standards. 	<p>TR.1. Promote investments in climate-resilient transport infrastructure and relocation of infrastructure exposed to climate change impacts.</p> <p>TR.2. Promote green public transport networks and multimodal transport.</p> <p>TR.3. Encourage regional trade for (energy efficient) low-emitting vehicles.</p>	<ul style="list-style-type: none"> • At least 3 climate-resilient transport infrastructure is developed by 2030 • At least 1 transport infrastructure exposed to climate change impacts relocated by each Member State by 2020. • At least 3 Green public transport systems operationalized by each SADC Member States by 2030 • At least 5 energy efficient and low carbon technologies adopted and traded between by 2030
Tourism	<ul style="list-style-type: none"> - Impact of climate change on key natural resources for tourism expansion, e.g. water, wildlife habitats. - Increasing running costs of resource-intensive tourism facilities due to higher prices of resources (e.g., energy). - Expected increase in the occurrence of extreme weather events, and related impact on tourism infrastructure and tourism attractiveness. 	<p>T.1. Promote the reduction of resource use intensity in the tourism sector.</p> <p>T.2. Support the protection of natural habitats and ecosystems.</p> <p>T.3. Adapt the tourism sector to current and expected climatic changes.</p>	<ul style="list-style-type: none"> • Use of renewable energy sources double by the tourism sector by 2030. • 100% access to modern forms of energy by tourism establishments by 2030 • Energy efficiency improvement doubled in tourism amenities by 2030 • At least 3 mechanisms for increasing the resilience of the Tourism infrastructure adopted and operationalized by each Member State by 2030
Human settlements	<ul style="list-style-type: none"> - High temperatures leading to the deterioration of housing stock and bitumen roads - Increasing demand of urban services as result of demographic expansion and urbanization process. - Flooding in urban areas can affect municipal solid waste management. 	<p>C.1. Support the reduction of urban resource consumption</p> <p>C.2. Discourage unsustainable housing and settlement practices</p> <p>C.3. Promote investments in public transport systems</p> <p>C.4. Reduce climate change impacts on</p>	<ul style="list-style-type: none"> • Public transport systems increased by 50% across the SADC region • 30% of the region's roads have cycle lane to promote cycling. • 50% of new buildings adopt green innovations for resource use efficiency • Sustainable Consumption is promoted in 50%

Sectors	Challenges	Strategies	Global targets
	<ul style="list-style-type: none"> - Food and water scarcity, and consequent increase in prices, will affect the lives of urban people. 	<p>cities.</p> <p>C.5. Promote urban biodiversity conservation</p>	<p>of education facilities in the region</p> <ul style="list-style-type: none"> • Urban biodiversity is increased by 50% in all urban areas by 2030

3.1. A systemic analysis of policy and strategic options

The GE can be seen as a ‘meta’ concept that is cross-sectoral and covers cross-cutting issues. It is a tool that should allow the alignment of various sectoral strategies, and which offers the opportunity to find complementarities across sectoral strategies and plans, as well as promoting the alignment of operational planning across SADC Secretariat and Member States. The review of the RISDP has shown that shortcomings in these areas have led to its poor monitoring and evaluation (SADC, 2014). The following shows a systemic analysis (based in the guidelines developed in Section 0) of the synergies between selected strategies and actions to highlight how the GE can deliver economic, social and environmental co-benefits simultaneously.

Figure 1 presents a Causal Loop Diagram (CLD), indicating how several indicators are connected to each other, influencing the performance of social, economic and environmental sectors directly, indirectly or in an induced manner. Importantly, the CLD shows that the energy sector influences the environment (e.g. GHG emissions and ecosystems) and the economy (e.g. through energy expenditure and productivity), which in turn affects employment and social development (e.g. health and education). Social development affects both the economy (e.g. through investment and labor productivity) and the environment (e.g. through the consumption of natural resources). This means that each of the three spheres of sustainable development is highly interconnected, and so are the potential outcomes of the actions included in the SADC GE action plan.

As a result, the systemic analysis also highlights how planning can be linked to implementation. In fact, synergies can be found when implementing interventions across sectors, as well as potential bottlenecks and side effects. The lack of connection between planning and implementation has often resulted in the Secretariat not relying on its strategies and plans to operate thereby making monitoring and evaluation a challenge (SADC, 2014). The indicators that have been identified in Section 5 are directly linked with the variables used to define the relationships in Figure 1. Hence, the systemic approach (using the modelling approach described in Section 0) offers the opportunity to develop a dynamic M&E framework (see Section 5) so that the impacts of integrated strategies can be monitored dynamically.

How to read a causal diagram?

Causal loop diagrams include variables and arrows (called causal links), with the latter linking the variables together with a sign (either + or -) on each link indicating a positive or negative causal relation:

- A causal link from variable A to variable B is positive if a change in A produces a change in B in the same direction.
- A causal link from variable A to variable B is negative if a change in A produces a change in B in the opposite direction.

Circular causal relations between variables form causal, or feedback, loops. “*Feedback is a process whereby an initial cause ripples through a chain of causation ultimately to re-affect itself*” (Roberts et al., 1983). These can be positive (amplifying change, and identified by a “R” notation, for reinforcing) or negative (countering and reducing change, and identified by a “B” notation, for balancing).

3.2. Institutional and governance architecture for GE

Institutions are fundamental building blocks of social systems, providing the generalized regulatory framework for socially acceptable behaviour. Without institutions-as-rules, social and economic coordination would not be possible and social life would be reduced to face-to-face negotiations of terms for every interaction (Connor & Dovers, 2004). In the policy sphere, institutions provide the backdrop against which the policy process and actors involved interact. Existing institutional settings can either hinder or promote the productive evolution of the policy process and the interactions between actors. Institutional theory shows that institutions can be designed to achieve stated policy objectives (Goodin, 1996).

In the case of Africa, it is worth noting that institutional deficiencies are hindering a transition to sustainable development via a green economy framework.³ A study was carried out in the wake of the Rio+20 Conference to assess the institutional and strategic frameworks for sustainable development at regional, sub-regional and national levels in Africa (UNECA, 2011). The SADC Secretariat was involved in this assessment. The objective of the study was to show the relevance of effective institutional and strategic frameworks in promoting the integration of the three pillars of sustainable development in a balanced manner, enhancing institutional linkages and encouraging multi-stakeholder participation and decentralization in the planning and implementation of programmes (such as a Green Economy Action Plan). The study also assessed how these frameworks catered for intra-generational and intergenerational equity through long term planning and strategies that bridge the equality gaps. In Africa, the use of the GE as a means to combat poverty is a priority. A review of Regional Economic Communities (RECs), including SADC revealed several challenges. The ones that are most relevant to the SADC Secretariat are (UNECA, 2011):

- Like their Member States the RECs are confronted with the challenge of achieving a balanced integration of the social, economic and environmental pillars of sustainable development in planning, budgeting and implementation of plans and programmes;
- The challenges of integration also relate to the complexity of the notion, and the lack of synergy between the institutions at different levels;
- Limited financing and human resources constitute persistent constraints in the balanced integration of the various dimensions of sustainable development in the sub-regional programmes;
- The SADC Secretariat faces inadequate capacity, uneven level of implementation in Member States, lack of reliable baseline data, and inadequate financial resources;
- When SADC secretariat was centralized in 2001, environment was left out, and nobody was in charge of the sector up to 2009, when a unit was setup in the Food Agriculture and Natural Resources Directorate. Despite its extensive mandate, the late start and the fact that this unit has only one professional staff means that a lot needs to be done with respect to the integration of the environmental concerns in policy planning and implementation at the level of the secretariat; and
- The lack of functional national institutions to effectively coordinate issues of a regional nature; difficulties in harmonization of regulatory and policy frameworks, including integration of national and regional plans; and inadequate funding for both project development and implementation are additional challenges that the organization faces.

³ Please see: <http://unu.edu/publications/articles/governance-challenges-for-a-green-economy-in-africa.html> - accessed 23 June 2014.

In order to overcome these challenges, the UNECA study (2011, pp. 15-16) made several recommendations that would allow RECs to play an important role in boosting the establishment and development of institutional and strategic frameworks for sustainable development, as well as in ensuring their effective operationalization and implementation. The main recommendations were that:

- Appropriate integration tools were urgently needed so that inter-linkages (vertical and horizontal) that showcase win-win solutions and help to change the prevailing perception can be adopted. In this respect, indicators of integration are relevant. In this regard, it is important to establish monitoring and evaluation systems to review progress, trends, build on achievements and draw lessons learnt. The use of an integrated assessment framework and associated tools for carrying out integrated development planning is discussed in Section 4, while monitoring and evaluation is addressed in Section 5 of this document;
- More effort was needed in developing and implementing integrated strategies, as well as in documenting and sharing best practices and demonstrating the multiple benefits of the balanced integration of economic, social and environmental objectives through well-thought out programmes and pilot projects. The systemic analysis of the policy and strategic options discussed in Section 3.1 illustrates the sustainable development benefits that can accrue from the proposed action plan;
- The capacity of RECs and Member States should be strengthened in the application of integration tools such as natural resources accounting, economic valuation of environmental and natural resources, environmental and social impact assessment, strategic environmental assessment and other integration tools. Section 4 has been specifically included in this document for this purpose; and
- Sustainable development indicator frameworks are crucial to promoting sustainable development and in particular, articulating the linkages among the different sectors. This is duly addressed in Section 5.

This GE Strategy and Action Plan respond to these recommendations by providing tangible ways to overcome the institutional and governance challenges. The remaining part of this section focuses on the institutional governance that will support the SADC Secretariat to effectively and efficiently institutionalize the GE Strategy and Action Plan. This is also echoed in the desk assessment of the RISDP which highlights the need for effective institutional structures to enhance the coordination between the SADC Secretariat and Member States (SADC, 2011b).

By capitalizing on current resources and ongoing initiatives (e.g. Climate Change Initiative), a pragmatic and evolutionary approach has been proposed to establish an institutional design for harmonizing the GE framework at the SADC Secretariat.⁴ The proposed approach recognizes that the revised RISDP may eventually lead to a restructuring of the organizational structure (vertical and horizontal) of the SADC Secretariat to fully embrace the multi-dimensional aspects of sustainable development and GE. The Secretariat is currently built around six technical directorates – (i) Food, Agriculture and Natural Resources (FANR); (ii) Social Health Development and Special Programmes (SHD&SP) (iii) Infrastructure and Services (I&S); (iii) Trade, Industry, Finance and Investment and (TIFI); (iv) Organ on Defense and Security (ORGAN); and (v) Policy, Planning and Resource Mobilization (PPRM)> These are in all practical purposes vertically integrated. This is despite the fact that the PPRM was set up to foster cross-sectoral integration, enhance monitoring & evaluation of

⁴ The institutional approach proposed here emerged from discussions with the representatives of FANR during the inception mission (29 and 30 April 2014), and the approach received support during the inception meeting (30 April 2014).

regional policies and strategies, and to carry out the mobilization of financial resources across all thematic areas for the Secretariat. There are also units, such as Gender, Information and Media Services, and Environment and Sustainable Development, which are cross cutting and are not supposed to be under any directorate. However, the Environment and Sustainable Development unit reports to the Director of FANR.

The stocktaking exercise also revealed that there was a weak linkage between the Secretariat and the SADC Members that makes the monitoring & evaluation of regional strategies inefficient (SADC, 2011b). Consequently, it becomes difficult to measure the impacts of regional strategies, or to take corrective actions, or to attract additional financing to the SADC region. Institutional arrangements have been proposed (1) to enhance cross-sectoral coordination at the level of the SADC Secretariat; and (2) to increase the connectivity between the Secretariat and Member States particularly in relation of the Regional GE Strategy and Action Plan.

3.2.1. Institutional arrangement for cross-sectoral coordination of GE at the SADC Secretariat

The institutional arrangement proposed here to carry out the cross-sectoral coordination of the GE Strategy and Action Plan leverages on an existing structure that has already been established at the Secretariat to deal with climate change. The Cross-sectoral Technical Climate Change Working Group (CTWG) that consists of representatives of all the Directorates and Units described earlier has been set up to coordinate and guide the development of the SADC Regional Climate Change Strategy. There are very close cross-sectoral linkages between CC and GE. In fact, CC and GE are inseparable since the GE Strategy and Action Plan is a means to achieve low-carbon (mitigation) and climate-resilient (adaptation) development. As an immediate action, it is proposed that the terms of reference of the CCWG should be revised to also cover all coordination related to the GE Strategy and Action Plan at the Secretariat. It is also recommended that the name of the working group be changed to the Sustainable Development Working Group (SDWG). The assumption here is that sustainable development provides the outer most boundary for development planning that covers all aspects of climate change mitigation and adaptation. As discussed in Section 1, GE is a means to achieving sustainable development.

Evolving from this initial change, it is further proposed that an Inter-Directorate Committee may be established at the Secretariat to address all issues related to sustainable development, including all cross-sectoral issues such as GE and CC. Given the central role of sustainable development to build the resilience of Member States in the face of shocks (internal and external), the Inter-Directorate Committee will report to the Deputy Executive Secretary of the SADC Secretariat. The SDWG would then act as a Technical Advisory Unit (TAU) to the Inter-Directorate Committee. The recommended institutional arrangement is shown in Figure 2.

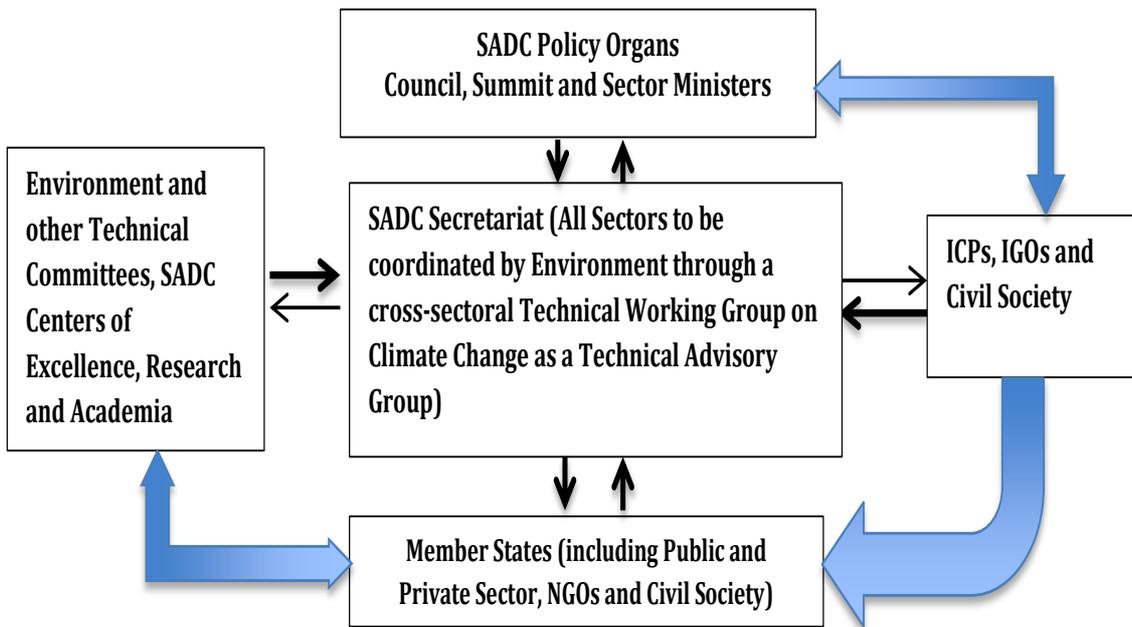


Figure 2. Institutional arrangement for coordinating sustainable development planning at the SADC Secretariat.

3.2.2. Institutional arrangement to increase the connectivity between the Secretariat and Member States

The stock taking exercise has shown that the effectiveness of the SADC Secretariat could be improved in two aspects pertaining to sustainable development planning, and by extension the GE. Firstly, the context-specific national transcription of SADC’s regional strategies and action plans should be improved. Secondly, there is a need to improve the monitoring and evaluation (M&E) of the impacts of regional strategies at the national level. This will apart from enabling better Ministerial-level reporting by the Secretariat, create positive effects on the policy planning process and result in better adaptive management. The two aspects require an institutional arrangement that will increase the connectivity and communication between the Member States and the SADC Secretariat. To achieve this, it is proposed that the existing Environment Technical Committee that is convened every year should be used (1) to expose Member States to the Regional GE Strategy and Action Plan, and (2) to receive feedback from Member States on their respective progress regarding the formulation and implementation of sustainable development, including GE policies, strategies and actions. This arrangement will increase the relevance of regional strategies and action plans to Member States; better guide the Secretariat to be attentive to the needs of its Member States; and place the Secretariat in a better position to carry out resources mobilization for sustainable development.

4. GE Action Plan, by sector and considering regional dynamics

The GG Action Plan is proposed to operationalize the GG Strategies by identifying specific sectoral interventions. In particular, a set of concrete actions is associated to each strategy in order to facilitate the implementation of the plan and the monitoring of progress. Further, an indicative time frame for implementation is assigned to each action, so as to provide guidance for the establishment of an activity schedule based on three time frame options, namely:

- Short Term: within 5 years from the approval of the plan.
- Medium Term: between 5 and 10 years from the approval of the plan.
- Long Term: more than 10 to 20 years from the approval of the plan.

In addition, a justification is provided for each suggested time frame, based on a number of criteria, including:

- *Immediate Opportunity (IO)*: the conditions are in place for the implementation of the activity.
- *Urgent Problem (UP)*: the activity should be implemented promptly in order to address a worrying situation.
- *Research and Development (R&D)*: the activity requires research on innovation (e.g., technologies), which might delay implementation.
- *Infrastructure Development (ID)*: the activity involves the construction/expansion of infrastructure, thereby requiring longer time for completion.
- *Institutional Capacity (IC)*: the building of institutional capacity is required prior to (or during) the implementation of the activity.
- *High Cost (HC)*: significant investments are needed to implement the action, leading to potential delays.
- *Social acceptance (SA)*: awareness raising and sensitization campaigns should be conducted prior to (or during) the activity in order to strengthen social acceptance.
- *Stakeholder Engagement (SE)*: the stakeholder consultation phase might require a significant time period.
- *Policy Process (PP)*: the implementation might be delayed by policy/legislative procedures.

4.1. Agriculture

Table 3. Agriculture GE action plan

	Strategies	Action List	Time Frame	Reasons
A1	Support water supply, conservation and related infrastructure development.	A1.1. Water conservation incentives – incentivize water pricing systems that reward conservation, accounting for differences between ecological zones with regards to growing conditions, crops, and other agronomic needs.	Short Term	IO
		A1.2. Development and promotion of the use of appropriate infrastructure for water use efficiency and water harvesting (e.g drip, micro, earth dams etc.)	Medium Term	SA

		A1.3. Floodplain Easements - Work with willing sellers to identify voluntary floodplain corridor protection (flowage) easements on agricultural lands to maintain agricultural production that is compatible with flood conveyance.	Medium Term	SE
		A1.4. Water harvesting.	Medium Term	SE
A2	Promote the use of adaptive agricultural technologies and techniques and provide incentives for the development of green agri-business.	A2.1. Promote and disseminate information about conservation agriculture to improve soil fertility and soil moisture retention and reduce soil erosion.	Short Term	IO; UP; SA
		A2.2. Inform and train farmers on cover crops cultivation and diversified crop rotation techniques that help improving soil physical conditions to reduce erosion and increase fertility and productivity.	Short Term	UP; SA
		A2.3. Up-scale locally proven Integrated Pest Management (IPM) technologies, especially for important cash crops.	Medium Term	SE; HC
		A2.4. Promote and incentivize use of sustainable nutrient inputs	Medium Term	SA;SE; PP
		A2.5. Promote composting and support the use of compost as a substitute to traditional fertilizers in order to enrich soils.	Short Term	IO; SE
A3	Promote land use planning practices	A3.1. Provide training and educational courses on land use planning at the community level, especially for the development of sustainable urban agriculture.	Short Term	IO
		A3.2. Facilitate the introduction of carbon trading in the agriculture sector, as incentive for improving farming practices.	Medium Term	PP; IC
		A3.3. Promote the use of GIS and remote sensing	Short Term	IO
		A3.4. Promote land and resource rights	Medium Term	PP; SE
A4	Promote working landscapes with ecosystem services to improve agro-biodiversity	A4.1. Provide technical and financial assistance and incentives for the conservation of “bee pastures” and the use of on-farm planting beneficial to native and non-native pollinators, all with consideration given to crop compatibility (i.e. seedless crop varieties).	Long Term	HC; PP; R&D
A5	Support agronomy research and development	A5.1. Support identification, research, development and breeding of crop varieties, cultivars, and mixtures of crops capable of adapting to expected climate change	Medium Term	R&D

4.2. Water

Table 4. Water GE action plan

	Strategies	Action List	Time Frame	Reasons
W1	Enhance integrated development and management of shared water courses	<p>W1.1. Formulate a Regional Integrated Water Resources Management Policy, which should address rural and urban water supply concerns, water efficiency, watershed management, flood management, adaptation to climate change impacts such as sea level rise, floods, droughts, shifts in rainfall patterns etc.</p> <p>(Integrate the GE principles in the Regional Strategic Action Plan for Integrated Water Resources Management)</p>	Short Term	UP
		W1.2. Develop hydrological models.	Medium Term	R&D; SE; IC; PP
		<p>W1.3. Identify strategies that can improve the coordination of local groundwater storage and banking with local surface storage along with other water supplies including recycled municipal water, surface runoff, flood flows, urban runoff, storm water, imported water, water transfers and possibly desalinated groundwater and seawater.</p>	Medium Term	PP; SE; IC
		W1.4. Strengthen the river basin organisations to integrate the GES in their programmes.	Short Term	IO
W2	Increase water use efficiency	W2.1. Build capacity on Efficient Water Management Practices across key sectors.	Short Term	UP
		W2.2. Promote and invest in technologies to safely recover and reuse wastewater for agricultural irrigation, industrial processes and replenishing of groundwater aquifers etc.	Long Term	HC; R&D
		W2.3. Approve new incentives and regulations (combined with information and training) to ensure water conservation and water use efficiency by water users.	Medium Term	PP; IC; SA
W3	Enhance and sustain ecosystems	W3.1. Enhance and/or introduce environmental flows in river basins.	Long-term	ID; HC
		W3.2. Identify and protect lands that will provide habitat for tidal wetlands to adapt to sea level rise.	Short Term	UP
		W3.3 Introduce and promote and promote payment for ecosystems services		
W4	Preserve, upgrade and increase monitoring,	W4.1. Invest in modern technologies for water data gathering and monitoring.	Medium Term	HC; R&D; IC
		W4.2. Prioritize training and courses on water data analysis, demand management and water balance for	Short-Term	IO

	data analysis and management	the projection of future rain patterns and a better understanding of current and future climate change challenges.		
W5	Strengthen capacity in disaster risk reduction.	W5.1. Strengthen the early warning systems	Short Term	IO
		W5.2. Consider climate change projections (sea level rise projections) into regional planning processes, including adaptation measures in the various sectors.	Short Term	UP

4.3. Forestry and biodiversity

Table 5. Forestry and biodiversity GE action plan

	Strategies	Action List	Time Frame	Reasons
F01	Sustainable Forest Management	F01.1. Strengthen the implementation of the SADC Protocol on Forestry.	Short Term	UP
		F01.2. Support and provide incentives for forest management, including reforestation and afforestation for production purposes.	Short Term	UP
		F01.3. Conduct regional training programmes on sustainable forest harvesting practices.	Short Term	IO
		F01.4. Support the establishment of a regional inventory through forest measurements, assessments, and mapping.	Medium Term	HC; IC
F02	Expansion of protected areas	F02.1. Promote the expansion and development of existing protected areas and regulate timber extraction and trade, thereby protecting ecosystems.	Medium Term	SA; IC
		F02.2. Support the establishment of new protected areas, especially in zones affected by recurrent droughts.	Long Term	SA; IC
		F02.3. Harmonize national laws on control and sanctions for illegal logging.	Medium Term	IC; PP
F03	Investment in agroforestry	F03.1 Intensify and improve silvo-pastoral practices.	Short Term	IO
		F03.2. Support the production of tree crops and their integration with other crops, to increase resilience to droughts and soil erosion.	Medium Term	R&D
F04	Support the development of Bio Trade.	F04.1. Strengthen the implementation of the SADC Biodiversity Strategy.	Short Term	UP
		F04.2. Support capacity building programmes on sustainable extraction and processing of biodiversity products.	Short Term	IO
		F04.3. Support credit mechanisms and fiscal incentives for the establishment of community-based Bio Trade cooperatives, giving central role to vulnerable groups including women.	Medium Term	SE; SA; IC; PP

		F04.4. Establish regional institutions to support research and the development of Bio Trade value chains.	Medium Term	IC; PP; SE
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4.4. Fisheries

Table 6. Fisheries GE action plan

	Strategies	Action List	Time Frame	Reasons
F1	Promote sustainable utilization of fisheries resources.	F1.1. Enhance the implementation of the SADC Protocol on Fisheries.	Short Term	UP
		F1.2 Support the expansion and development of existing marine protected areas.	Medium Term	SA; IC
		F1.3. Promote the harmonization of national laws on fisheries to include stricter regulations on the exploitation of fish resources in line with international conventions (i.e. FAO Code of Conduct for Responsible Fisheries and UNCLOS).	Short Term	UP
		F1.4. Determine the frequency of stock assessments and other necessary research at the regional level, with support from international bodies.	Short Term	UP
		F1.5. Conduct regional studies to assess the impact of fishery subsidy reallocation to other sectors (e.g., green aquaculture) as a means to preserve fish stocks, at the same time creating alternative income and employment opportunities for fishing communities.	Short Term	IO
		F1.6. Establish regional capacity building programmes on sustainable fishing practices.	Short Term	IO
F2	Promote green aquaculture	F2.1. Develop reliable management systems for green aquaculture practices, in particular to reduce impacts on lagoon ecosystems.	Medium Term	R&D; SE; IC
		F2.2. Provide technical advice and assessment for the selection of resilient fish species.	Short Term	IO
		F2.3. Incentivize the greening of small-scale fish farms and promote the creation of cooperatives committed to sustainability.	Medium Term	SE; PP
F3	Data collection and information sharing	F3.1. Develop and implement stock assessment programmes.	Medium Term	IC
		F3.2. Support the constant update of the SADC Regional Fishing Vessels Register.	Short Term	UP
		F3.3. Develop an effective monitoring, control and surveillance (MCS) system for marine fisheries, building on past experiences such as the SADC – Monitoring Control and Surveillance of Fishery Activities Program.	Medium Term	IC; HC
		F3.4. Organize awareness raising events, trainings and media campaigns to share relevant information on existing laws, fish stocks, climate change threats to marine resources and ecosystems, adaptive techniques etc.	Short Term	IO

4.5. Energy

Table 7. Energy GE action plan

	Strategies	Action List	Time Frame	Reasons
E1	Support the use of renewable energy	E1.1. Reinforce the institutional and policy frameworks for renewable energy, especially through the establishment of a Regional Centre for Renewable Energy in Southern Africa.	Short Term	IO
		E1.2. Provide financial and fiscal incentives to facilitate the development of the RE market, including incentives for the household use of renewable energy (i.e. solar panels) and for the development of new private business in this sector.	Medium Term	PP, SE; IC
		E1.3. Organize specialized training courses on the building and maintenance of renewable energy infrastructure, as well as on the installation of renewable energy technologies (e.g., solar water heaters in buildings).	Short Term	IO
		E1.4. Promote use of local raw materials e.g. biogas for electricity production and for biofuel.	Short Term	IO
		E1.4. Organize awareness raising events on the positive impacts of renewable energy, especially in the context of climate change adaptation and mitigation.	Short Term	IO
		E1.5. Support the reform of fossil fuel subsidies at the regional level, and the reallocation of resources to renewable energy development and pro-poor energy programmes.	Long Term	IC; SA; PP
		E1.6. Promote the removal of regional market distortions that impede the development, importation and trade in renewable energy technologies (e.g. customs).	Long Term	IC; SA; PP
		E1.7. Promote development of local green energy industries in the region	Long Term	IC; SA; PP
E2	Promote energy efficiency	E2.1. Establish regional standards and regulations on energy efficiency, in particular in energy intensive sectors such as manufacturing, oil extraction, mining etc.	Medium Term	SA; IC
		E2.2. Support energy efficiency in households through promotional initiatives (i.e. provision of energy efficient cook stoves and light bulbs etc.) and incentives (i.e. custom tax rebates on energy efficient technology) to encourage the use of innovative technologies.	Medium Term	PP; IC
		E2.3. Promote and incentivize green energy and energy efficiency in industries	Medium Term	PP; IC

E3	Improve energy infrastructure and access to electricity	E3.1. Enhance the implementation of the Energy Master Plan and the Regional Infrastructure Development Master Plan.	Short Term	UP
		E3.2. Enhance the implementation of the Regional Energy Access Strategy and Action Plan (REASAP).	Long Term	HC
		E3.3. Conduct regional studies and provide guidance on the construction and maintenance of climate resilient energy infrastructure.	Short Term	UP
E4	Reduce deforestation for energy purposes.	E4.1. Invest in the development of renewable energy infrastructure in rural areas (e.g. mini-grids) in order to increase access to clean energy.	Long Term	HC; ID
		E4.2. Support incentive programmes for the purchase and local production of improved cook stoves.	Short Term	IO
		E4.3. Promote afforestation and forestation programmes	Short Term	IO
		E 4.4. Promote alternative clean energy sources and technologies	Short Term	IO

4.6. Manufacturing and mining

Table 8. Manufacturing and mining GE action plan

	Strategies	Action List	Time Frame	Reasons
M1	Promote the reduction of the amount of natural resources needed to produce finished goods.	M1.1. Incentivize the introduction of low carbon and resource efficient technology innovations (i.e. water conservation measures, energy efficient machinery).	Medium Term	PP; R&D
		M1.2. Promote closed-loop manufacturing.	Short Term	IO
		M1.3. Harmonize manufacturing energy efficiency standards at the regional level.	Long Term	PP; SE; IC
M2	Reduce negative externalities associated with waste and pollution.	M2.1. Harmonize regional regulations on effluent limitation and pollution abatement in industries.	Medium Term	PP; SE; IC
		M2.2. Promote the location/relocation of industrial parks in less environmentally sensitive areas.	Long Term	HC; SA; SE
		M2.3. Reinforce regional regulatory and control mechanisms to reduce waste and pollution, in particular the dumping of waste at sea.	Short Term	UP
M3	Reduce climate change impacts on manufacturing	M3.1. Conduct risk assessment and mapping of risk areas for industry.	Short Term	UP
		M3.2. Establish capacity building programmes on climate change adaptation for the manufacturing sector.	Short Term	IO

	infrastructure			
		M3.3. Develop climate resilient and climate proofed industries to reduce the impacts of climate change		
M4	Support the development of green manufacturing sectors.	M4.1. Promote national endorsement of the SADC Industrial Development Policy Framework.	Medium Term	IO
		M4.2. Establish regional incentive schemes for the development of green manufacturing sectors, especially renewable energy and energy efficient technologies.	Medium Term	HC; PP; IC; SE
		M4.3. Improve access to credit for small and medium enterprises willing to invest in green industrial sectors.	Medium Term	PP
M5	Promote the adoption of sustainable mining practices.	M5.1. Support national efforts to enforce mineral extraction sustainability standards (e.g. Kimberly Process).	Short Term	UP
		M5.2. Promote the establishment of Payment for Ecosystem Services (PES) and Polluter Pays Principle schemes in the areas surrounding mining sites.	Medium Term	SA; PP
		M5.3. Enhance the implementation of the Harmonisation of Mining Policies, Standards, Legislative and Regulatory Framework in Southern Africa.	Long Term	PP; SE

4.7. Waste

Table 9. Waste GE action plan

	Strategies	Action List	Time Frame	Reasons
WAS1	Support the building and maintenance of wastewater and solid waste management facilities.	WAS1.1. Establish regional investment plans on wastewater and solid waste management facilities.	Medium Term	PP; SE
		WAS1.2. Introduce regional waste-tracking and mapping technology.	Long Term	HC; ID
		WAS1.3. Attract national and foreign investments for the introduction of Waste to Energy (WtE) innovative technology.	Long Term	PP; SE; IC
		WAS1.4. Engage the communities in wastewater and waste management initiatives.	Short Term	IO
WAS2	Strengthen control on hazardous and e-waste disposal.	WAS2.1. Define regional standards, targets and regulations for the management of hazardous waste and e-waste.	Medium Term	PP; SE; IC
		WAS2.2. Support the work of the Africa Institute, and promote the adherence of the largest number of SADC Member States.	Short Term	IO

		WAS2.3. Establish regional capacity building programmes on hazardous waste and e-waste management.	Short Term	UP
		WAS2.4. Adopt a regional protocol on hazardous waste and e-waste management and disposal.	Short Term	UP
WAS3	Support the improvement and regional harmonization of municipal solid waste management schemes.	WAS3.1. Support the establishment of public-private partnerships for municipal solid waste management, with the involvement of community-based organizations and informal waste collectors.	Medium Term	SE; PP; IC
		WAS3.2. Promote the allocation of investments to the expansion of waste management facilities in urban settings.	Long Term	HC
		WAS3.3. Promote the enforcement of national regulations on illegal landfills.	Short Term	UP
WAS4	Promote waste recycling, reuse and reduction.	WAS4.1. Support the introduction of incentive schemes for waste reduction, reuse and recycling.	Medium Term	PP
		WAS4.2. Promote the adoption of “Pay-as-you-throw” taxes to incentivize waste reduction and reduce in households.	Medium Term	SA
		WAS4.3. Establish capacity building programmes on waste recycling and waste composting.	Short Term	IO
		WAS4.4. Promote sustainable production and consumption patterns	Medium	SE; PP; IC
		WAS4.5. Promote the adoption of the “Polluter Pays Principle” to incentivize sustainable management of waste and pollution reduction.	Medium	IC; SE; PP;

4.8. Transport

Table 10. Transport GE action plan

	Strategies	Action List	Time Frame	Reasons
T1	Promote investments in climate-resilient transport infrastructure	T1.1. Establish incentive schemes for the promotion of innovative materials for road, railway and airport infrastructure in order to increase resilience to floods, storms, coastal erosion and higher temperature.	Long Term	HC; R&D; PP
		T1.2. Conduct assessment studies on the adaptation of key transport infrastructure highly exposed to climate change impacts (e.g., to sea level rise).	Medium Term	PP; SE; IC
T2	Promote green public transport networks and multimodal	T2.1. Encourage the establishment of public-private sector models to invest in and operate green transport systems.	Short Term	IO
		T2.2. Promote investments in “green ports”	Long Term	HC; ID

	transport	T2.3. Mobilize investments in railways and inland waterways transport modes.	Long Term	HC; ID
		T2.4. Increase access to public transport, especially for the poor and marginalized.	Short Term	UP
		T2.5. Conduct assessment studies for multimodal transport	Short Term	UP
T3	Encourage regional trade in low-emitting vehicles.	T3.1. Harmonize regulations on vehicle emissions and vehicle import bans.	Medium Term	SE; PP
		T3.2. Provide incentives to the regional trade in low-emitting vehicles, e.g. through custom tax rebates or exemptions.	Short Term	IO
		T3.3. Encourage the reduction (or reform) of harmful subsidies on gasoline and diesel (based on assessments of economic implications of the reallocation of the subsidies).	Medium Term	PP; SA

4.9. Tourism

Table 11. Tourism GE action plan

	Strategies	Action List	Time Frame	Reasons
T1	Promote the reduction of resource intensity in the tourism sector.	T1.1. Establish incentive schemes for renewable energy deployment in tourism facilities.	Medium Term	PP; IC
		T1.2. Devise and operationalise regional campaigns for the promotion of eco-tourism	Short Term	IO
		T1.3. Improve access to credit for small tourism businesses willing to invest in sustainable tourism.	Short Term	IO
		T1.4. Establish a regional sustainability certification programme for hotels and resorts.	Medium Term	SE; PP; IC
T2	Support the protection of natural habitats and ecosystems.	T2.1. Harmonize laws on natural resource management in the tourism sector.	Medium Term	PP; IC
		T2.2. Support investments in the expansion and creation of protected areas.	Medium Term	HC; SA; SE
		T2.3. Assist the economic valuation of ecosystem services (e.g. coastal, marine, forest ecosystems).	Medium Term	IC; R&D
		T2.4. Encourage the involvement of local communities in development projects that would help preserve the ecosystem.	Short Term	IO
		T2.5. Harmonize regional laws on ecosystem protection (especially coasts and high biodiversity areas).	Medium Term	PP; IC
	Adapt the tourism sector to	T3.1. Create investment and capacity building programmes on disaster risk reduction in the tourism sector.	Short Term	IO

	current and expected climatic changes.	T3.2. Support the diversification of tourism activities, especially to reduce dependency on climate sensitive resources, such as wildlife.	Long Term	SE; PP
		T3.3 Promote climate change resilient tourism initiatives and establishments		IO
T4	Strengthen the cross border management of natural resources.	T4.1. Enhance the implementation of the Regional Infrastructure Development Master Plan, especially the provisions on the sustainable development of Transfrontier Conservation Areas (TFCA).	Short Term	IO
		T4.2. Increase tourism employment and income of local communities in Transfrontier Conservation Areas (TFCA).	Short Term	IO
		T4.3. Establish regional institutional frameworks for the management of TFCA.	Short Term	IO

4.10. Human settlements

Table 12. Human settlements GE action plan

	Strategies	Action List	Time Frame	Reasons
C1	Support the reduction of urban resource consumption	C1.1. Collect and disseminate best practices on sustainable urban planning for reducing resource consumption in cities.	Short Term	UP
		C1.2. Harmonize regional standards and guidelines on sustainable buildings.	Medium Term	PP; IC
		C1.3. Reduce water consumption and provide alternatives to piped water supply (i.e. rain-water harvesting and reuse and recycling of waste water).	Medium Term	SA; PP
		C1.4. Promote the adoption of energy rating tools for buildings, such as the Green Star rating tool of the Green Building Council of South Africa.	Short Term	IO
		C1.5. Devise incentive schemes for encouraging the use of sustainable building materials.	Medium Term	PP
		C1.6. Modernize water pipe systems to reduce water wastage	Medium Term	IO
C2	Discourage unsustainable housing and settlement practices	C2.1. Reinforce and harmonize legislation on unsustainable housing and settlement practices	Medium Term	PP; IC
		C2.2. Mobilize resources for the relocation of illegal settlements and the provision of services to the poorest urban communities.	Long Term	HC; SA
		C2.3. Establish capacity building programmes for urban planners on sustainable urban planning.	Short Term	IO
C3	Promote investments	C3.1. Reinforce existing public and private transport systems e.g. buses, trains.	Medium Term	HC; IC

	in public transport systems	C3.2. Create new transport networks introducing innovative green technologies.	Long Term	HC; IC; ID
		C3.3. devise and promote incentive schemes for improving access to public transport, especially for the poorest urban population.	Short Term	IO
C4	Reduce climate change impacts on cities	C4.1. Conduct risk assessment and mapping of risk urban areas.	Short Term	UP
		C4.2. Support the development of Climate Change Adaptation plans for urban areas.	Short Term	UP

5. Processes and indicators for the Monitoring and Evaluation of progress

5.1. Integrated policymaking process and indicators

The monitoring and evaluation of the policies suggested in this study should take into account the economic, social and environmental objectives of green economy interventions. The process for the monitoring of progress towards the achievement of triple bottom line objectives of sustainability requires the adoption of an integrated policymaking (IP) approach. Integrated Policy implies a systemic analysis to enable the understanding of cross-sectoral impacts of policy interventions in the short, medium and longer term. Once the functioning of the system has been properly analyzed and understood, green economy interventions should be framed following a policy cycle that typically includes (1) the definition of issues (or agenda setting), (2) policy formulation, (3) decision-making, (4) implementation, and (5) evaluation. This is done to appropriately define policy issues; compare potential solutions; select and implement the solution that increases synergies and reduces trade-offs; and carefully monitor progress towards stated goals and objectives.

In order to effectively support IP, green economy indicators should be used to identify issues and their primary drivers (agenda setting indicators), carry out a cost-benefit analysis to evaluate policy and investment options (policy formulation indicators), and support integrated policy evaluation (policy evaluation indicators), as described below.

- **Agenda setting indicators**

State of the environment and impacts of economic activity. These indicators seek to facilitate the identification of issues related to the environment - such as water losses and GHG emission levels - resulting from economic activities, as well as from climate change impacts. Regardless of the nature of the problem to be solved (environmental, social or economic), indicators are selected to best identify the problem and its (at times many and varied) causes.

- **Policy formulation indicators**

Policy cost and reach. This group assesses the potential cost and performance of various intervention options that could be utilized to solve the issue. In the context of climate change adaptation, for example, these indicators can support a cost-benefit analysis to evaluate the net investment required to improve climate resilience, as well as investment allocation across key

sectors. The net cost/saving of the intervention should be estimated, comparing upfront investment and the economic savings (i.e., avoided costs and/or added benefits) accrued over time.

- **Policy evaluation indicators**

Policy impacts on economic, social and environmental progress and overall human well-being. These indicators aim at assessing the success of green economy policy interventions. Impacts have to be calculated using an integrated approach to policy evaluation, which includes the overall progress of human well-being. Improved resilience to climate change, for example, can be measured in terms of environmental benefits (i.e. sustainable availability of natural resources); economic gains (i.e. reduced costs from damages); and social advancements (i.e. jobs creation, poverty alleviation, social inclusiveness)

5.2. Green Economy indicators for integrated policymaking

Based on the main sectoral problems identified in this study, the following table provides an overview of relevant indicators that could be used to support SADC policymakers in all three phases of issue identification, policy formulation and evaluation. While the conceptual framework of indicators proposed in Section 5.1 could be generally applied to a variety of countries at different stages of development, the list of indicators presented in Table 13 is customized to the context of SADC countries. However, as different countries face various unique issues that are heavily influenced by their local context (agenda setting phase), the elaboration of how investments are to be undertaken or stimulated needs to be customized, depending on their political, economic and institutional circumstances (policy formulation phase). Similarly, impacts need to be defined and measured according to the local socio-economic and environmental context (policy evaluation phase).

Table 13. Sectoral indicators of issue identification, policy formulation and policy evaluation in the framework of the SADC Green Economy Strategy.

Sector	Problem	Indicator of issue identification	Indicator of policy formulation	Indicator of policy evaluation
Agriculture	1. High vulnerability of agricultural production/ yields due to climate change.	<ol style="list-style-type: none"> 1. Loss of crop yield due to climate variability (ton/ha/yr) 2. Precipitation variability (%). 3. Aridity Index, Rain concentration index, no. of droughts per month). 	<ol style="list-style-type: none"> 1. Number of capacity building activities on climate resilient agriculture. 2. Investments in climate resilient infrastructure for agriculture (US\$/year). 3. Amount of tax exemptions on climate resilient agricultural inputs (US\$/year). 	<ol style="list-style-type: none"> 1. Increase in agricultural productivity (ton/ha). 2. Reduction in yield variability (%). 3. Number of food secure people (% of population).
	2. Soil erosion and land degradation	<ol style="list-style-type: none"> 1. Agricultural soil loss (ton/ha/yr). 2. Amount of fertilizer/pesticides used (ton/year). 3. Average nitrate and pesticide concentration in surface and groundwater (mg/l). 	<ol style="list-style-type: none"> 1. Number of soil management plans implemented. 2. Proportion of crop area planted under responsible use plans (%). 3. Amount of tax exemptions on organic fertilizers and bio- pesticides (US\$/year). 	<ol style="list-style-type: none"> 1. Reduction of soil loss due to erosion (%). 2. Agriculture area under sustainable farming (ha). 3. Access to clean surface and groundwater resources (Quality) (%). 4. Sediment load in the water
	3. Inefficient use of natural pastures and reduced productivity and resilience due to overgrazing.	<ol style="list-style-type: none"> 1. Livestock productivity (kg of meat/ha equivalent) 2. Overgrazing (% of pasture overgrazed) 3. Pasture reduction during drought periods (ha) 	<ol style="list-style-type: none"> 1. Area of pastures managed with proper charging (%). 2. Investment in training and dissemination of new technology (US\$/year). 3. Number of capacity building programmes implemented on sustainable livestock production. 	<ol style="list-style-type: none"> 1. Reduction of GHG emissions per unit of product (tCO₂e/kg of meat). 2. Increases in livestock productivity (kg of meat/ha equivalent). 3. Livestock value added (% of GDP)
Water	1. Inefficient water use in agriculture.	<ol style="list-style-type: none"> 1. Volume of runoff as a proportion of potentially available resources (m³/year). 2. Water losses from irrigation (m³/year). 3. Agriculture water intensity (m³/ton) 	<ol style="list-style-type: none"> 1. Amount of tax exemptions on the import of efficient irrigation systems (US\$/year). 2. Amount of subsidies for rainwater harvesting in agriculture (US\$/year). 3. Length of water pipes to be replaced (km) 	<ol style="list-style-type: none"> 1. Provision of irrigation water from rainwater harvesting (%). 2. Share of water secure population (%). 3. Employment in water efficiency sector (person).

Sector	Problem	Indicator of issue identification	Indicator of policy formulation	Indicator of policy evaluation
	2. Water scarcity due to climate change effects and use.	<ol style="list-style-type: none"> 1. Mean annual (seasonal) average rainfall (mm). 2. Volume of treated wastewater reused (m³/year). 3. Per capita domestic water consumption (m³/person/year) 	<ol style="list-style-type: none"> 1. Amount of tax exemption on water efficient technology for industrial, agriculture and residential use (US\$/year). 2. Number of wastewater treatment plants established. 3. Investment in desalination plants (US\$/year) 	<ol style="list-style-type: none"> 1. Water balance (water demand minus water supply). 2. Volume of reused wastewater and desalinated water (m³/year). 3. Number of deaths from water scarcity.
Forestry and Biodiversity	1. Uncontrolled deforestation due to fuel wood extraction and land conversion to other uses.	<ol style="list-style-type: none"> 1. Deforestation rate (%/year). 2. Fuel wood energy consumption (toe/year). 3. Forest conversion to agriculture ((and other uses)ha/year)). 	<ol style="list-style-type: none"> 1. Extension of forest protected areas (% of forest cover). 2. Number of capacity building programmes on sustainable forest management (SFM). 3. Amount of incentives to agroforestry production (US\$/year). 	<ol style="list-style-type: none"> 1. Carbon sequestration by forests (tCO₂/year). 2. Value added from sustainable (certified) timber production (US\$/year). 3. Employment in forest management (person).
	2. Loss of biodiversity - Poaching - Unsustainable harvesting practices - Habitat fragmentation - IAS	<ol style="list-style-type: none"> 1. Biodiversity loss (%/year). 2. Number of species at risk of extinction. 	<ol style="list-style-type: none"> 1. Incentives to the establishment of community forests (US\$/year). 2. Number of capacity building programmes on sustainable use and commercialization of biodiversity products. 3. Number of laws on the exploitation of biodiversity resources. 	<ol style="list-style-type: none"> 1. Carbon sequestration by forests (tCO₂/year). 2. Number of poaching incidences reported (number). 3. Species Richness (number).
	3. Little value addition to biodiversity products.	<ol style="list-style-type: none"> 1. Value added from trade in biodiversity products (US\$/year). 	<ol style="list-style-type: none"> 2. Number of value addition plans. 	<ol style="list-style-type: none"> 1. Income from biodiversity trade (US\$/year). 2. Value added from trade in biodiversity products (US\$/year).
Fisheries	1. Overfishing leading to fish stock depletion.	<ol style="list-style-type: none"> 1. Annual fish landings (ton/year). 2. Fish stock (ton). 3. Fish capacity (number of vessels). 	<ol style="list-style-type: none"> 1. Extension of marine protected areas (km²). 2. Dismissal of fishing capacity in excess (number of vessels). 3. Number of retraining activities conducted for fishermen. 	<ol style="list-style-type: none"> 1. Fishery value added (US\$/year). 2. Fish stock (ton) 3. Employment in the fishery sector (person).

Sector	Problem	Indicator of issue identification	Indicator of policy formulation	Indicator of policy evaluation
	2. Illegal, unreported and unregulated fishing (IUU).	<ol style="list-style-type: none"> 1. Estimated illegal fish landings (ton/year). 2. Loss of government revenues due to IUU (US\$/year). 3. Additional emissions from IUU (tCO₂/year). 	<ol style="list-style-type: none"> 1. Annual law enforcement operations on IUU (n.). 2. Capacity building programmes on alternative income opportunities for illegal fishermen. 3. Amount of incentives to green aquaculture development (US\$/year). 	<ol style="list-style-type: none"> 1. Aquaculture value added (US\$/year). 2. Fishery related emissions (tCO₂/year) 3. Employment in green aquaculture (person/year).
Energy	1. Rising energy costs due to heavy reliance on expensive fossil fuel.	<ol style="list-style-type: none"> 1. Per capita energy bill (US\$/person/year). 2. Fossil fuel use (% of total final energy consumption). 3. Fossil fuel subsidies (US\$/year). 	<ol style="list-style-type: none"> 1. Share of renewables in energy production (%) 2. Amount of fossil fuel subsidies reallocated to renewable energy (US\$/year). 3. Amount of incentives to energy efficient appliances (US\$/year). 	<ol style="list-style-type: none"> 1. Reduced costs of energy imports (US\$/year). 2. Regional, national and household energy savings (US\$/year). 3. Emissions from energy generation and consumption (tCO₂/year).
	2. Poor access to modern forms of energy in rural and peri-urban areas.	<ol style="list-style-type: none"> 1. Rural access to electricity (%) 2. Deforestation for energy purposes (ha/year or biomass per year). 3. Number of reported cases from carbon monoxide poisoning (person/year). 	<ol style="list-style-type: none"> 1. Investment in the expansion of national electricity grid (US\$/year). 2. Incentives/investments to renewable energy mini-grids in rural areas (US\$/year). 3. Number of capacity building programmes on renewable energy jobs in rural areas. 	<ol style="list-style-type: none"> 1. Increase in rural access to electricity (%/year). 2. Emissions from deforestation (tCO₂/year). 3. Employment in renewable energy sector (person/year). 4. Number of new business registration in the clean energy sector (number/year).
Manufacturing and Mining	1. High water and energy intensity, and low value added of the manufacturing sector.	<ol style="list-style-type: none"> 1. Share of energy bill in manufacturing cost (%). 2. Share of water bill in manufacturing cost (%). 3. Manufacturing value added (US\$/year). 4. Energy and water productivity 	<ol style="list-style-type: none"> 1. Target reduction in energy consumption in manufacturing sector (%). 2. Target reduction in water consumption in manufacturing sector (%). 3. Green loans to manufacturing industries/to improve on resource efficiency (US\$/year). 4. Amount of incentives to energy and water 	<ol style="list-style-type: none"> 1. Number of manufacturing industries with ISO 14000 certification (n.). 2. Manufacturing green and decent employment (person/year). 3. Manufacturing of value added products (US\$/year).

Sector	Problem	Indicator of issue identification	Indicator of policy formulation	Indicator of policy evaluation
		in manufacturing (US\$/toe; US\$/m ³).	efficiency in manufacturing (US\$/year).	4. Quality of the employment
	2. Natural capital and ecosystem deterioration driven by unsustainable mining practices.	1. Deforestation/ecosystems degradation for mining purposes (ha/year). 2. Mining effluent loadings in water (kg/year). 3. People hospitalized from water poisoning and/or soil contamination around mining areas (person/year).	1. Number of regulatory instruments on sustainable mining. 2. Number of “payment for ecosystem services (PES)” schemes implemented in mining areas. 3. Taxes on mining activities (US\$/year). 4. Number of natural resource user rights and water user rights	1. Access to potable water in mining areas (%). 2. Forest cover (ha/year). 3. Government revenues from mining activities (US\$/year).
Waste	1. Environmental and health problems caused by poor management of hazardous wastes and e-waste.	1. Hazardous wastes and e-waste treated/recycled (%). 2. Groundwater pollution from toxic wastes (mg/l). 3. People hospitalized for respiratory diseases or water poisoning or other related diseases (number).	1. Number of regional standards and guidelines on hazardous waste and e-waste disposal (number). 2. Investment in plants for the treatment of hazardous waste and e-waste (US\$/year). 3. Incentives to hazardous waste and e-waste recycling/reuse (US\$/year). 4. Tons of hazardous/e-waste collected/recycled/disposed (ton/year).	1. Increase in hazardous waste recycling (%/year). 2. Additional employment in hazardous waste treatment (person/year). 3. Reduced deaths from water and air pollution due to hazardous waste and e-waste (%/year).
	2. Increasing volume of municipal solid waste produced and landfilled.	1. Municipal solid waste generation (ton/person/year). 2. Amount of MSW landfilled (% of total). 3. Total landfill area (ha)	1. Target increase in MSW recycling (%). 2. Pay-as-you-throw taxes (US\$/ton). 3. Investment in the expansion of waste management facilities, including treatment plants, recycling plants, landfills etc. (US\$/year).	1. MSW recycled and reused (%). 2. Additional jobs in waste MSW management (person/year). 3. Government savings from reduced waste management costs (US\$/year).
Transport	1. Increasing congestion and pollution in urban areas.	1. Number of private registered vehicles (vehicle per capita). 2. CO ₂ emissions from transport (ton/year).	1. Road Tax Charges/Registration fees for vehicles (US\$/year) 2. Investment in the expansion of the public transport network (US\$/year).	1. Annual transport fuel savings (US\$/year). 2. Access to public transport (%/year).

Sector	Problem	Indicator of issue identification	Indicator of policy formulation	Indicator of policy evaluation
		3. Use of public transport (passenger/km).	3. Annual budget allocated to encourage public transport system (US\$/year).	
	2. Environmental impacts of seaport expansion.	1. Freight transport by seaports (ton/year). 2. Energy productivity of seaports (US\$/toe). 3. Target expansion of seaports (%)	1. Number of regional instrument for regulating seaport activities. 2. Incentives to resource efficiency in ports (US\$/year). 3. Incentives to efficient vessels (US\$/year).	1. Increase in energy productivity of seaports (%/year). 2. Additional jobs in green ports (person/year). 3. Value added from maritime trade (US\$/year).
	2. Environmental impacts of Airports expansion.	1. Freight transport by Air (ton/year). 2. Energy productivity of Airports (US\$/toe). 3. Target expansion of airports (%)	1. Number of regional instrument for regulating airport activities. 2. Incentives to resource efficiency in airports (US\$/year). 3. Incentives to efficient vessels (US\$/year).	1. Increase in energy productivity of airports (%/year). 2. Additional jobs in green airports (person/year). 3. Value added from air trade (US\$/year).
Tourism	1. Increased Climate change impacts on the tourism sector, including from damages to coastal facilities, resource scarcity and extreme weather events.	1. Number of coastal hotels at risk from sea level rise. 2. Number of wildlife species threatened by drought. 3. Damages to tourism facilities from extreme weather events (US\$/year).	1. Hotels and resorts regulated by climate change adaptation standards (%). 2. Investment in disaster risk reduction programmes (US\$/year). 3. Capacity building programmes for tourism businesses on adaptive practices.	1. Value added from tourism (US\$/year). 2. Reduced damages to tourism facilities (%/year). 3. Additional employment in sustainable tourism (person/year).
	2. Inefficient resource consumption in hotels and resorts.	1. Energy consumption in hotels (MJ/person/night). 2. Water productivity in hotels (US\$/m ³) 3. Waste generation in hotels (ton/year).	1. Number of hotels with green certification. 2. Incentives to renewable energy deployment, energy and water efficiency, and rainwater harvesting in hotels (US\$/year). 3. Awareness raising and capacity building programmes on sustainable tourism.	1. Emissions from tourism sector (tCO ₂ /year). 2. Avoided costs of energy and water consumption, and waste disposal (US\$/year). 3. Tourist arrivals (person/year).
	3. Capital flight	1. Biodiversity loss (US\$/year)	1. Number of fiscal policies to reflect impact on biodiversity (number).	1. Public revenue from environmental taxation

Sector	Problem	Indicator of issue identification	Indicator of policy formulation	Indicator of policy evaluation
			2. Environmental-related taxation (US\$/year).	(US\$/year). 2. Avoided biodiversity loss (US\$/year).
Human settlements	1. Informal settlements exacerbating social and environmental problems in cities.	1. Extension of informal settlement in cities (km ²). 2. Illegal waste dumping sites close to informal settlements (km ²). 3. Number of deaths due to waterborne diseases in informal settlements (people/year). 4. Number of people without access to basic amenities and adequate sanitation (people).	1. Investments in upgrading buildings in existing informal settlements (US\$/year). 2. Investments in extending public services so as to reach informal settlements (US\$/year). 3. Incentives to the construction of new green buildings in informal settlement areas (US\$/year).	1. Number of informal workers regularized (person/year). 2. Value added and government revenues from upgraded settlements (US\$/year). 3. Reduced water pollution from illegal waste dumping and poor sanitation (%/year).
	2. Low resource efficiency in urban buildings.	1. Energy consumption in urban buildings (toe/household/year). 2. Water consumption in urban buildings (m ³ /household/year). 3. Waste recycling in urban buildings (% of annual waste production per household).	1. Incentives to the purchase of water and energy efficient appliances in households (US\$/year). 2. Preferential loans for the refurbishment of existing buildings (US\$/year). 3. Taxes on waste generation in buildings (US\$/ton). 4. Regulations and standards (number/enforcement).	1. Avoided cost of energy and water consumption in buildings (US\$/household/year). 2. Number of jobs created in the green buildings sector (person/year). 3. Emissions from buildings (tCO ₂ /household/year).

6. Concluding recommendations

The *Regional Green Economy Strategy and Action Plan for Sustainable Development* is conceived as a framework to guide the integration of resilient economic development, environmental sustainability and poverty eradication in the SADC region for green economy policy implementation. It analyses 10 sectors in detail, and it is based on several strategies, protocols, policies and programmes developed by SADC and by member countries. The value addition of this document lies in the cross sectoral approach used to harmonize national priorities into a regional GE (1) policy framework, (2) strategy and (3) action plan that can serve as the basis for further, and more customized work at the country level.

This document is intended to support the integration of GE policy principles into existing national and regional development strategies. For this reason, in addition to the GE Policy, Strategy and Action Plan, information is provided on the methodologies to be adopted to support the customization of the approach at the country level and indicators are identified to support each step of the policymaking process from a sectoral and integrated perspective (both at the national and international level).

In this respect, two aspects should be considered and addressed in parallel:

- It is very important to share the strategy and action plan with a diverse group of stakeholders, which can help identify synergies across sectors and avoid potential emerging bottlenecks and side effects, in order to fully harness green economy opportunities. The adoption of an integrated approach, implemented through the use of multi-stakeholder dialogues that involve citizens, the public and private sector, ensures the availability of resource and natural capital savings that will enable the region to meet its development needs while reducing the socioeconomic and environmental vulnerabilities and resource constraints.
- It is crucial to define an institutional arrangement at the SADC Secretariat that would enable effective coordination at the regional level, with support also provided to interested countries on the harmonization of GE definitions, policies, strategies and actions.

The use of the GE approach can support multiple planning processes, mostly because of the use of a systemic approach to development planning, where the outcomes of sectoral interventions are assessed across social, economic and environmental indicators, along the policymaking cycle. As a result, climate mitigation and adaptation, as well consultations on SDGs and more generally on the post-2015 agenda can be informed by the current and upcoming GE work of the SADC Secretariat and member countries. Harmonizing the approach brings considerable upside, especially because the region is characterized by shared resources, as well as opportunities.

Annex 1. An Integrated GE Policy Framework in the context of existing development challenges

A1.1 Origins and Definitions of GE, and Priority Areas for Policy Making

This section offers a historical background of the green economy and its key definitions, concepts and priority areas.

In the context of SADC, it can be said that the green economy strives to catalyse the socio-economic transformation of the Region towards a resource efficient, environmentally sustainable, climate-change resilient, low-carbon development path and equitable society, to be achieved through the transition towards sustainable production, distribution and consumption of goods and services activities and practices that result in improved human wellbeing economic growth over the long-term, while mitigating the exposure of future generations to significant environmental risks and ecological scarcities, in line with international trends and sustainable development commitments.

A1.1.1 Origins and definitions: Green Economy

In the 25 years since the term “green economy” appeared in the report “Blueprint for a Green Economy” (Pierce, Markandya, & Barbier, 1989), interest in a green transition has evolved and intensified. As a result of the global market and financial crisis in 2008 calls were made in the global policy arena for a Global Green New Deal (GGND). This was the focus of a report commissioned by UNEP in 2009 (Barbier, 2010). Implementation of green economic action was described as a long-term strategy for moving national economies out of the crisis. The GGND set out three concrete objectives:

- Economic recovery;
- Poverty reduction; and
- Reduced carbon emissions and ecosystem degradation.

The document proposed a framework for green stimulus programs as well as supportive domestic and international policies, including support to least developed countries.

Following the GGND, UNEP’s Green Economy Report was published in 2011 (UNEP, 2011). The Report elaborates the concept of a green economy, analyzes key sectors of a green economy and identifies global as well as sectoral recommendations for action. At the visionary level, UNEP (2011) considers the green economy as: *“An economy that results in improved human well-being and social equity, while significantly reducing environmental risks and ecological scarcities”*.

At the operational level, the green economy is seen as one whose growth in income and employment is driven by investments that:

- Reduce carbon emissions and pollution;
- Enhance energy and resource efficiency;
- Prevent the loss of biodiversity and ecosystem services.

These include investments in human and social capital, and recognize the central position of human well-being and social equity as core goals promoted by growth in income and employment. The approach is based on an economic analysis of current trends, risks and opportunities as well as on taking stock of national experiences in applying more integrated policy tools effectively.

Similarly, the Green Economy includes also the concept of Sustainable Consumption and Production (SCP). The 10-year framework (10YFP) on SCP is set to develop, replicate and scale up SCP and resource efficiency initiatives, at national and regional levels, decoupling environmental degradation and resource use from economic growth (one of the key objectives of the GE), and thus increase the net contribution of economic activities to poverty eradication and social development.

Green economy policies and investments have the final objective of “greening” economic growth. According to the Organisation for Economic Co-operation and Development (OECD), “green growth means fostering economic growth and development while ensuring that natural assets continue to provide the resources and environmental services on which our well-being relies. To do this it must catalyse investment and innovation which will underpin sustained growth and give rise to new economic opportunities” (OECD, 2011). The Global Green Growth Institute (GGGI) stresses that Green Growth seeks to fuse sustainable development's economic and environmental pillars into a single intellectual and policy planning process, thereby recasting the very essence of the development model so that it is capable of producing strong and sustainable growth simultaneously (Samans, 2013). The World Bank highlights that Green Growth means “growing cleaner without growing slower”. This can be done by making an efficient use of natural resources, minimising pollution and environmental impacts, improving resilience to natural hazards, and ensuring inclusiveness (World Bank, 2012).

The transition towards a Green Economy and Green Growth is expected to create new employment opportunities in green sectors. The International Labour Organization (ILO), the International Institute for Labour Studies (IILS) and the European Union (EU) define green jobs as “those jobs maintained or created in the transition process towards a green economy that are either provided by low-carbon intensive industries (enterprises) or by industries (enterprises) whose primary output function is to greening the economy” (ILO, EU & IILS, 2011). In a broad sense, a green job is defined as “any decent job that contributes to preserving or restoring the quality of the environment, be it in agriculture, industry, services or administration” (UNEP et al., 2008). An important point to note, however, is that the sustainable development opportunities that are afforded by the Green Economy may simultaneously trigger structural changes in ‘brown’ sectors that generate job loss (UNEP, 2011; OECD, 2012). However, the ILO has reported that concerns over job losses caused by greening of the economy are exaggerated, and that this impact was expected to be highest (at 1 per cent of the workforce) in industrialized economies (ILO, 2012). Further, the Green Economy outcomes for employment and income were largely determined by the policy instruments used and the institutions which implement them, rather than being an intrinsic feature of shifting to a greener economy. The outcomes are also country specific, pointing to the need for more country-level assessment (ILO, 2012). Section 0 provides examples of case studies that have been carried out in SADC countries to estimate the potential for the creation of green jobs, while also investigating the inter-linkages with brown jobs, using a variety of approaches.

The elaboration of effective Green Economy policies requires the estimation of the value of natural capital and ecosystems, and its integration into national accounting systems. The recognition of the economic benefits of biodiversity, and the growing cost of biodiversity loss and ecosystem degradation is the first step towards the adoption of more sustainable production and consumption modes. Moreover, natural wealth accounting is explicitly linked to Target 2 of the Aichi Biodiversity Targets, which requires that by 2020 biodiversity values be integrated into national and local development and poverty reduction strategies and planning processes and “incorporated into national accounting, as appropriate, and reporting systems” (CBD & UNEP, 2011).

Several natural wealth accounting initiatives have been launched over the last years to support governments in the valuation and internalization of natural capital and ecosystem services in policy

decisions. In particular, the Economics of Ecosystems and Biodiversity (TEEB), is a global initiative that brings together expertise from ecology, economics and development to support the mainstreaming of biodiversity and ecosystem considerations into policy making (TEEB, 2010). The World Bank-led Wealth Accounting and Valuation of Ecosystem Services (WAVES) initiative is a global partnership that aims to promote sustainable development by ensuring that the national accounts used to measure and plan for economic growth include the value of natural resources.

SADC countries have taken steps towards the integration of natural wealth into national accounts. For example, a WAVES project was launched in Botswana in 2012, focusing in particular on (1) water accounts, (2) land and ecosystems accounts; (3) mineral and energy accounts; and (4) macroeconomic indicators of sustainable development (WAVES, 2012). In Mauritius, the Ecosystem and Natural Capital Accounts (ENCA) initiative aims to provide a coherent framework for the integration of natural wealth into the System of National Accounts (SNA) through the use of the System of Environmental-Economic Accounts (SEEA), an international standard adopted by the UN Statistical Division (UNSD) in 2012 (Weber, 2014).

A1.1.2 Priority Areas for Policy-making

With the three main pillars of the green economy being low carbon development, resource efficiency and a resilient, equitable and pro-employment development, the green economy aims at transforming both supply and consumption, being mindful of environmental degradation and the carrying capacity of ecosystems. Therefore, it is clear that green policies and investments are also aimed at increasing the adaptive capacities of human societies to climate change. Priority areas for green policy-making according to UNEP (2011) include:

- **Addressing environmental externalities and existing market failures**, where the production or consumption of goods and services has negative effects on third parties and the environment whereby the cost is not fully reflected in market prices.
- **Limiting government spending in areas that deplete natural capital**, such as subsidies that stimulate unsustainable production, resulting in the depletion of natural resource stocks and overexploitation.
- **Promoting investment and spending in areas that stimulate a green economy**, i.e. in areas that (a) promote innovation in new technologies and behaviors that are vital to green markets; (b) expand infrastructure that is required for certain green innovations to flourish; and (c) foster infant green industries.
- **Establishing a sound regulatory framework** of legislation, institutions and enforcement to channel economic energy into environmentally and socially valuable activity.

A1.2 Rationale for a GE strategy in the context of development planning

This section provides a general overview of the main rationale for the transition to a green economy. The GE provides new engines of green growth, and it also offers new perspectives to transform threats into opportunities for sustainable development. In the case of SADC, the GE Strategy has particular relevance from the view points of the Revised Regional Indicative Strategic Development Plan (RRISDP) 2015-2020 (SADC, 2014b), and the SADC Climate Change Strategy and Action Plan, CCSAP (SADC, 2014c). By adopting a systemic approach, and while all these strategies seek to promote sustainable development and poverty eradication through regional integration and cooperation, the GE Strategy and Action Plan has been developed to be coherent with the RRISDP and the CCSAP.

A1.2.1 New Engines of Productive and Efficient Growth

Given the trends of environmental degradation and widespread poverty, and the causal link between the two, the nature of economic growth in the coming decades will have to be fundamentally different from the resource-intensive growth of the past. Future growth will need to be assessed more broadly, against the criterion of whether it satisfies demands for higher living standards for a larger global population, while adapting to tightening environmental and natural resource constraints.

As a way forward, the UN Environment Management Group (EMG) Report describes three new engines of productive and efficient growth (EMG, 2011):

- Greater efficiency in resource use,
- Stronger environmental protection and
- A shift in the composition of consumption away from resource-intensive goods towards less resource-intensive goods and services.

Fuelling these engines will require technological progress that boosts not only material and energy efficiency but also labor productivity. For this to happen, two main gaps between developing and developed countries will have to narrow:

- The technological gap; and
- The productivity gap.

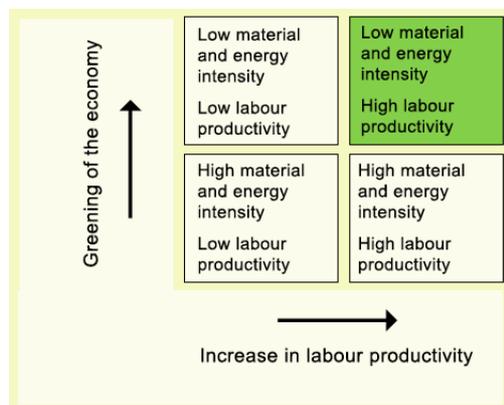


Figure 3. Green Economy Matrix (EMG, 2011).

The argument for closing the technology and labor productivity gaps as basis for a green and inclusive economy is summarized in very broad terms in the following matrix (Figure 3). The green quadrant – low material and energy intensity and high labor productivity – corresponds to the twin criteria of green and inclusive. A high material and energy intense growth model characterized by low labor productivity (lower left quadrant) is not desirable from either an environmental or a social perspective and reflects the situation of many developing countries. But there are also cases of countries characterized by high labor productivity, where the economy is not sustainable (lower right quadrant).

The EMG Report concludes that public policies will need to be used strategically to orient the process of economic growth towards such a sustainable pathway, and issues of fairness in income distribution and social investment as well as planning for long-run energy and resource efficiency need to be included in the redefined set of economic policy goals. This approach requires a systemic shift rather than incremental improvements alone.

A1.2.2 From Crisis to Opportunity

The last five years have seen the idea of a “green economy” enter the mainstream of policy discourse. It is found increasingly in the messages of heads of state and finance ministers, it is referred to in the text of G20 communiqués, and is discussed in the context of sustainable development and poverty eradication. Several reports like the EMG Report, the UNEP Green Economy Report and the Report of the UN Secretary’s General High-level Panel on Global Sustainability are pointing to a new economic paradigm – one in which material wealth is not delivered perforce at the expense of growing environmental risks, ecological scarcities and social disparities.

The formulation of national integrated policies that support this change of mindset goes hand in hand with sustainable development objectives. In the SADC region, the adoption of green economy principles could turn sustainability threats into opportunities for the achievement of low emission and resilient development. In particular, transitioning to a green economy would facilitate the achievement of key goals and targets outlined in the SADC Climate Change Strategy by increasing people’s resilience and enhancing economic growth in the face of changing climatic patterns. Indeed, green economy policies, investments, strategies and actions comprise climate change adaptation goals in a broader framework that integrates all aspects of climate-resilient development, including long and short-term adaptation and mitigation targets. In particular:

- Resource efficiency techniques and technologies could help preserving key natural resources that are being depleted by current economic models, consumption patterns and climate change, including water, soil and raw materials for industrial production. Energy savings will not only contain the environmental impacts of human activities, but also boost production, growth and employment as result of abated costs; and increase the overall energy supply needed to respond to emerging climate threats.
- The use of renewable energy could provide electricity to rural communities, thereby reducing the overexploitation of other energy sources, such as fuel wood, that are essential for ecosystem preservation in the context of climate change adaptation. Moreover, renewable energy has the potential to reduce national dependence on fossil fuel, with possible increase in oil exports and revenues. Also, the production and use of clean energy would improve health conditions as result of reduced pollution, and encourage new green businesses and jobs.
- The protection of the environment through the establishment and expansion of protected areas, the reduction of pollution and GHG emissions and the restoration of damaged ecosystems would ensure the long-term enjoyment of ecosystem services, which contribute to the protection of human settlements and activities from natural hazards such as floods, droughts, soil erosion etc.

The UNEP Green Economy Report affirms that transitioning to a green economy has sound economic and social justification and that there is a strong case emerging for a redoubling of efforts by both governments as well as the private sector to engage in such an economic transformation:

- For governments, this would include leveling the playing field for greener products by phasing out antiquated subsidies, reforming policies and providing new incentives, strengthening market infrastructure and market-based mechanisms, redirecting public investment, and greening public procurement.
- For the private sector, this would involve understanding and seizing the opportunity represented by green economy transitions across a number of key sectors, and responding to policy reforms and price signals through higher levels of financing and investment.

Annex 2. Green Economy Challenges and Opportunities

The starting point used to develop the GE Strategy and Action plan has been the RISDP and SADC sectoral strategies. A main point is that both the RISDP and sectoral strategies already include measures that could be classified as pertaining to a GE. This is not surprising since the RISDP provides the overarching developmental framework for achieving the objectives set under Article 5 of the SADC Treaty, which covers, among others, development and economic growth, poverty alleviation, enhancing standard and quality of life, promoting productive employment and human resources development, sustainable utilization of natural resources and effective protection of the environment, and the development, transfer and mastery of technology.⁵ The RISDP is also underpinned by the mission of SADC, which is "*To promote sustainable and equitable economic growth and socio-economic development through efficient productive systems, deeper co-operation and integration, good governance, and durable peace and security, so that the region emerges as a competitive and effective player in international relations and the world economy*" (SADC, 2003).

It is also pointed out that the sectoral scope of the GE Strategy and Action Plan has been guided by the similar coverage in the RISDP (SADC, 2003).

A2.1. A Green Economy to support sustainable development, sectoral analysis

SADC institutions have formulated and approved a number of strategies, policies and regulatory instruments to support the development of key sectors at the regional level (See Table 24). The Green Economy Strategy for Sustainable Development seeks to accelerate the achievement of development objectives by building on cross-sectoral and cross-country synergies. A systemic and inclusive approach to green economy investments, incentives and regulations, backed by adequate institutional arrangements, would help SADC countries to adapt to the effects of climate change, while accelerating the path towards sustainable development, including sustained economic growth, social inclusiveness and environmental conservation.

Specific green growth opportunities will be analyzed in the following paragraphs with regards to key priority sectors for SADC countries. The sectors that have been selected for the analysis are: Agriculture; Water; Fisheries; Forestry; Energy; Industry; Waste; Transport; and Cities. The choice of key priority sectors was made on the basis of stakeholder consultations and review of existing regional and national strategies, which provided the framework for the identification of specific challenges, options, opportunities and enabling conditions adjusted to the SADC context.

Broad regional goals for the development of each sector are first reviewed. Secondly, sectoral performance trends are highlighted, together with the analysis of current and expected challenges. Finally, based on sectoral challenges, potential green economy policy options are suggested. This analysis constitutes the background and foundation for the formulation of the SADC Green Growth Strategy and Action Plan for Sustainable Development.

⁵ Please see http://www.sadc.int/files/9113/5292/9434/SADC_Treaty.pdf - accessed 26 October 2014.

Overview of existing Climate Change trends (e.g. CC impacts, and projections)

The SADC region presents extremely variable climatic conditions due to its extended geographical coverage. In particular, the climate is arid in the west, semi-arid and temperate in the central area, and semi-arid in the east, with a few sub-humid zones in the central part of the eastern area. Equatorial countries, including Angola, DRC and coastal Tanzania, have a humid climate. However closer to the equator in Angola, DRC and coastal Tanzania, the climate is largely humid. Three wind systems influence the region's climate, namely the sub-tropical eastern continental moist maritime, the south-easterly wind systems bringing rainfall from the Indian Ocean, and the Inter-Tropical Convergence Zone (ITCZ) (Chishakwe, 2010).

The SADC region is affected by climate change. Average temperatures have risen by 0.5°C between 1900 and 2000 (IPCC, 2001), and the climate has been warming at an accelerated pace in the last decades. For example, average temperatures increased by 0.023°C every year between 1950 and 2000 in Namibia, and by 0.017°C per year in Botswana, over the same period (Lesolle, 2012). Mean temperatures are expected to further increase in the future. Projections show an increase of average temperatures in Southern Africa comprised between 0.4°C and 3.2°C by 2036-2065, relative to the 1960-2000 period.

The region has also experienced a downward trend in rainfall, leading to frequent droughts and higher water stress in many countries. Moreover, the climate projections of the Fifth IPCC's Assessment show a notable reduction in rainfall over southern Africa by 2080-2099 with respect to 1986-2005 (IPCC, 2013) levels. Average annual rainfall ranges between 50mm and 4,000mm. The areas with lowest rainfall coincide with the areas of highest potential evaporation, exacerbating water shortage (SADC, 2000). Changes in intensity and frequency of rainfall will result in more extreme events such as floods and storms, and longer periods between rainfall (SADC, 2011a) seasons. Also, the number of cyclones is expected to increase, especially in the South West Indian Ocean region, resulting in extensive flooding and related human and economic losses (Lesolle, 2012).

SADC countries contribute limitedly to global warming phenomena that is causing climate change and its adverse impacts, as their total GHG emissions accounted for 1.3% of global emissions in 2011 (Lesolle, 2012). South Africa is the only SADC country with relatively high levels of CO₂ emissions, mainly attributable to the energy sector (over 70% of national emissions) and the transport sector (12% of national emissions) (SADC-CNGO, 2012).

Despite their marginal contribution to anthropogenic climate change, SADC countries are already suffering from the negative impacts of changing weather patterns. Some of the most critical impacts of climate change are: increased water scarcity, food insecurity, climate related diseases, climate induced migration, and the increasing burden to women to cope with climate variations. In particular, decreasing rainfall patterns will expose 75 to 250 million people to increased water stress by 2020 (SADC-CNGO, 2012). Moreover, drought conditions cause the crop losses and consequent famine and diseases in the most vulnerable countries. In this sense, SADC countries are especially vulnerable because up to 80% of national populations live in rural areas and work in highly climate-dependent subsistence agriculture.

A2.1.1. Agriculture

The SADC Regional Agricultural Policy identifies as a central objective for the development of the sector through the enhancement of “sustainable agricultural production, productivity and competitiveness” (SADC, 2013a).

Agriculture is a major player in the SADC regional economy, contributing between 8% of regional GDP (27% when middle income countries are excluded) and approximately 13% of overall export earnings (CSIR, 2011; SADC, 2013a). The sector has experienced a 2.6% annual growth rate during the last decade, due mainly to a 40% increase in maize production while livestock production increased by 3% over the last decade (SADC, 2013a). Despite these encouraging trends, the region remains a net importer of agricultural products, and about 10% of the rural population is food insecure (OCHA, 2013). In particular, the cereal deficit for the 2013/2014 marketing year amounts to 4.01 million tons, compared to a deficit of 3.98 million tons in 2012/2013 (OCHA, 2013).

The main reasons behind the difficulty of SADC countries to satisfy the food needs of a growing population are linked to a decline in agricultural productivity, mainly due to the depletion of soil nutrients resulting from intensive agricultural practices and poor land management. Moreover, scarcity of water resources, poor water management practices, and inadequate irrigation infrastructure limit the availability of water for irrigation purposes in many countries (SADC, 2013a). All these factors lead to a comparatively low competitiveness of the agriculture sector of SADC countries relative to their trade partners. Consequently, the investment environment is not attractive.

Climate change has aggravated the negative impacts on agriculture in the last decade. Many countries are observing changes in the length of the growing season, leading to a decline in productivity, often associated with an increase in food prices and consequent threat to food security (Lesolle, 2012). Delayed growing seasons also affect rangeland and grasses used for animal husbandry, thereby influencing the performance of the livestock sector (Lesolle, 2012). Such negative impacts are expected to intensify in the future, with increasing average temperatures and decreasing rainfall projected in most SADC countries. For example, a 2°C temperature increase and a 10% rainfall decline would reduce maize yield in South Africa by 0.5 ton/ha (Lesolle, 2012). Finally, the region is already highly susceptible to droughts (especially in the winter season), floods, plant pests and animal diseases (SADC, 2003). All these challenges are likely to be worsened by climate change effects.

In order to overcome the challenges identified, SADC institutions could support the implementation of green economy policies in the region, as a means to improve long-term productivity and food security.

Table 14. Agriculture challenges and GE opportunities.

Challenges	Green Growth opportunities
<ul style="list-style-type: none"> - Decreased agricultural productivity and production (both crops and livestock) due to soil nutrient depletion and poor land and water management. - Crop losses due to lack of storage facilities in winter season, as well as to extreme weather events such as floods, cyclones and storms. - Observed negative impact of drought periods on livestock and agricultural production in many countries. 	<ul style="list-style-type: none"> - Conservation agriculture (CA) practices can increase farm yields and employment, while maintaining and/or improving ecosystem services. - Reduction of waste and inefficiency (crop losses due to pests and hazards, combined with food waste in storage, distribution, marketing and losses including unsustainable consumption patterns at the household level) can have a positive impact on productivity. - Increase productivity through: soil fertility management, crop and livestock diversification, biological plant and animal health management, improvement of storage facilities.

	<ul style="list-style-type: none"> - Building capacity of farmers on sustainable agriculture practices, e.g., soil fertility management, crop and livestock diversification, biological plant and animal health management, improvement of storage facilities, would increase productivity.
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A2.1.2. Water

According to the SADC Regional Water Strategy, “the integrated development and management of water resources at a national and regional level provides an opportunity to contribute to the achievement of the SADC strategic priorities of regional integration and poverty reduction” (SADC, 2006).

The SADC region is extremely rich in water resources. Renewable freshwater resources amount to an annual average of about 1,400 billion cubic meters, corresponding to 9,000 cubic meters per capita, or 27,000 liters per person per day (SADC, 2000). However, most people in rural areas struggle to gain access to a minimum human requirement of 25 liters per day, and women bear the brunt of water scarcity in many countries, as they have to walk long distances to reach freshwater sources (SADC, 2000). Moreover, despite the abundance of surface water resources, it is estimated that over 70% of the population rely on groundwater resources as primary source of water (SADC, 2014). It is clear from these figures that SADC countries have a great potential for improving the management of water resources, and ensuring the achievement of multiple sustainability objectives.

The difference in rainfall between wet and dry seasons is extremely marked, leading to a high frequency of floods and droughts in most SADC countries. Climate change is exacerbating these trends through its impact on the hydrological cycle and overall water demand and supply dynamics (Lesolle, 2012; SADC, 2006). In particular, projected increases in temperatures will have to be carefully addressed in order to reduce risks and ensure adequate access to water for households and productive sectors in a balanced and sustainable manner. Other key challenges for the sustainability of the water sector include the lack of adequate infrastructure and its uneven development across SADC countries, resulting in unbalanced water allocation; the poorly enforced international regulatory frameworks on shared watercourses; and the lack of institutional capacities for the implementation of regional policies and strategies (SADC, 2006).

The mainstreaming of green economy principles and policies into national and regional water management plans would help SADC countries to harness the great opportunities existing within the water sector, thereby accelerating the transition towards the sustainable and inclusive management of water resources.

Table 15. Water challenges and GE opportunities.

Challenges	Green Growth opportunities
<ul style="list-style-type: none"> - Inefficiency in the use of water resources – leading to unsustainable practices and high costs, thus limiting access. - Climate change impacts (e.g. increased temperatures, sea level rise, extreme weather events and reduced rainfall) could lead to reduced access to clean, potable water. - Lack of adequate infrastructure. - Poor exploitation of abundant water resources. - Weak regional mechanisms for the integrated management of shared watercourses. 	<ul style="list-style-type: none"> - Water efficiency could save costs, support economic growth, and increase resilience to climate change. - Adoption of integrated water resources management principles at the national and regional (i.e. for shared watercourses) level. - The use of smaller, local water-supply systems and access to new (non-traditional) sources of water would improve access to water in dry areas, with positive impacts on health.

A2.1.3. Forestry and biodiversity

The SADC Protocol on Forestry is axed on three main objectives, namely: (1) promote the development, conservation, sustainable management and utilization of all types of forests and trees; (2) promote trade in forest products throughout the region in order to alleviate poverty and generate economic opportunities for the people of the region; and (3) achieve effective protection of the environment, and safeguard interests of both the present and future generations. The SADC Regional Biodiversity Strategy has three general objectives: (1) enhancing the region's economic and business base by adding value to its biological resources and engaging in "Biotrade"; (2) ensuring that economic opportunities from "Biotrade" and related initiatives do not lead to the unsustainable use of the region's biodiversity; and (3) developing and promoting regional programmes on: biodiversity awareness; capacity building; research and development; and sustainable financing. In addition to the Regional Biodiversity Strategy, a SADC Protocol on Wildlife Conservation and Law Enforcement has been approved in 1999, with aim to harmonize regional law on wildlife management and sustainable use.

Forests play a central role for the sustainable development of SADC countries, as they support the development of key socio-economic sectors (e.g. tourism, timber industry, medicines, etc.), at the same time providing essential ecosystem services (e.g. soil protection, regulation of hydrological cycles, carbon sequestration, habitat). The region is endowed with large forest areas and rich biodiversity. In particular, forestland represents about 40% of the total land area, corresponding to nearly 395 million hectares. On the other hand, however, high deforestation rates are contributing to a rapid depletion of forest cover in most countries, with negative consequences for socio-economic development and environmental quality. Unlicensed and illegal logging played a central role in causing serious forest degradation. In addition, forest resources have declined by 0.6% every year between 1990 and 2000 due to land conversion for agriculture, human settlements and commercial purposes (SADC, 2013a). In the last few years the region has lost 1.4 million hectares of forests every year on average (Lesolle, 2012).

In addition to human activities, climate change is also posing a threat to forest resources and biodiversity. For example, rising temperatures have increased the occurrence of uncontrolled wild fires, which have devastating impacts on forest cover, and higher air and ocean temperatures are likely to affect the distribution of marine and terrestrial biological species. Projected climate change trends are likely to further deteriorate the current situation, as an increase in average temperatures by 1 to 2 °C would result in 40 to 50% loss of plant biodiversity (Lesolle, 2012).

A green economy transition in the SADC region should target the sustainable exploitation of forest and biodiversity resources, thereby maximizing their long-term economic, social and environmental benefits. In particular, forest management and natural capital conservation are key elements of a green economy. Investments in sustainable forest management (SFM) and protected areas can facilitate the adaptation of local communities to current climate change impacts, and ensure the availability and quality of public goods derived from forest ecosystems. SFM is based on the principle that the production of timber, fibre, and energy in natural forests should not be in conflict with the provision of other ecosystem services. Keeping this delicate balance is essential not only for climate mitigation purposes (i.e., reduction of CO₂ emissions) but also for ensuring a sustainable timber production that is able to meet the demand for wood products of the growing SADC population. In this regard, global programmes such as REDD+ represent an invaluable opportunity for SADC countries to obtain funding and guidance on reforestation and forest management activities. Forest conservation

will also have positive externalities for other sectors, such as agriculture (development of agroforestry) and water (reduced sedimentation of surface water as result of agroforestry). Moreover, the sustainable use and commercialization of native biodiversity products could become a driver for sustainable development in several SADC countries that are endowed with abundant biodiversity. In fact, it is increasingly acknowledged that the sustainable and responsible trade of native biodiversity species is economically viable and, in some cases, very profitable for all the actors along the value chain (UNEP, 2013). The development of trade in biodiversity products could be of particular benefit for women, as they are custodians of traditional knowledge on biodiversity conservation and use (UNEP, 2004).

Table 16. Forestry and biodiversity challenges and GE opportunities.

Challenges	Green Growth opportunities
<ul style="list-style-type: none"> - Decreased productivity of forests due to climate change impacts on biodiversity and forestland extension. - Loss of forest cover and biodiversity due to unsustainable human activities would reduce the productivity of key economic sectors, reduce social well-being, and increase vulnerability to climate change. - Forestland conversion to agriculture and human settlements might be further accelerated by expected demographic growth. - Inconsistent regulatory and legal framework across SADC. 	<ul style="list-style-type: none"> - Establishment of Sustainable Forest Management (SFM) criteria and indicators, REDD+ and implementation of Nagoya protocol. - Sustainable forest harvesting practices. - Expansion of existing protected areas and creation of new protected areas would better safeguard ecosystems from human and climate induced hazards. - Investments and incentives for agroforestry would increase food production and reduce the impact of climate and human induced phenomena such as soil degradation. - Incentives and capacity building on sustainable extraction and commercialization of biodiversity products could create new employment opportunities and economic revenues, at the same time ensuring the conservation of forest and wildlife habitats and species.

A2.1.4. Fisheries

The SADC Protocol on Fisheries has the main objective to improve the sustainability of the fishery sector across SADC Member States. In particular, the Protocol aims to promote and enhance food nutrition, security and human health; safeguard the livelihoods of fishing communities; generate economic opportunities for nationals in the region; ensure that future generations benefit from fish resources; and alleviate poverty and food insecurity (SADC, 2001).

The SADC region is endowed with abundant fishery resources due to the extended lakes and numerous rivers present within its territory, and the over 6 million square kilometers of exclusive economic zones, to which 8 out of 15 Member States have access. Total fish production in the region amounted to about 2.5 million tons every year on average between 1999 and 2008 (FAO, 2010). As a result, fish resources represent a source of income for a large number of people, and contribute extensively to nutritional needs.

However, the sustainability and economic productivity of the sector are threatened by a number of challenges, including water pollution from discharge of industrial waste and agro-chemicals; overfishing and consequent depletion of fish stocks; illegal, unreported and unregulated fishing (IUU); and limited intra-regional trade and investment in fisheries (SADC, 2013a). Moreover, aquaculture is still largely underdeveloped, contributing less than 1% to the region's total fish production (SADC, 2013a).

Climate change is also likely to affect fish production in SADC countries, as both inland and ocean fisheries are sensitive to climate fluctuations. In particular, increased ocean temperatures may affect fish ecosystems and cause changes in fish species composition and abundance. For example, the El Niño phenomenon along the Mozambique channel might affect the resurgence processes responsible for transporting nutrients from the deep layer of oceans to the surface for feeding the fish, thereby making waters become unsuitable for fisheries, and causing a reduction in -and possible collapse of- fishing activities (Dube & Chimbari, 2009). Also, rising temperatures will cause damages to coral reefs, acidification, and decreased consistency of river flows, with implication for fish production, and consequent impacts on food security and overall well-being (Young, Tucker, Galloway, Manyike, Chapman, & Myers, 2010).

The attainment of the goals set by the Protocol on Fisheries is strictly linked to the sustainable management of fishery resources. Investments in green fisheries and sustainable aquaculture, as well as in the extension of marine protected areas, would contribute to the development of the sector in both the short and the long term. The incorporation of sustainable small-scale fisheries into regional and national development planning is essential for poverty alleviation and food and nutrition security (UNEP, FAO, IMO, IUCN, World Fish Center, GRID-Arendal, 2012). In general, greening fisheries in the SADC region will lead to direct employment generation in fishing, processing and ancillary services, as well as through subsistence-based activities (UNEP, 2011).

Table 17. Fisheries challenges and GE opportunities.

Challenges	Green Growth opportunities
<ul style="list-style-type: none"> - Higher temperatures could cause changes in species composition and abundance, and deterioration of key ecosystems such as coral reefs, wetlands and mangroves. - Fisheries species fluctuations will reduce the overall availability of fish stocks. - Water pollution, overfishing and IUU threaten the sustainability of fishing activities, with consequences for food security and income of fishing communities. 	<ul style="list-style-type: none"> - Investment in marine protected areas for the restoration of damaged marine ecosystems. - Implementation of sustainable aquaculture to create employment. - Incentives for sustainable small-scale fisheries can have a positive impact on poverty alleviation and food and nutrition security. - R&D in technology innovations and production systems can reduce costs and improve performance.

A2.1.5. Energy

Several strategies and regulatory instruments are already in place to improve the sustainability, inclusiveness and efficiency of the energy sector in the region, including the Protocol on Energy, the Regional Energy Access Strategy and Action Plan (REASAP), the Energy Master Plan (developed under the framework of the Regional Infrastructure Development Master Plan).

The SADC region is rich in energy sources, including both fossil fuels and renewable energy. More precisely, oil reserves are in excess of 5.5 billion barrels (of which 96% are in Angola); proved natural gas reserves amount to 9.1 trillion cubic feet, corresponding to 1.9% of Africa’s natural gas reserves; and proven coal reserves are about 32 billion tons (SADC, 2012a). The main source of renewable energy is biomass, which contributes 36.66% to the regional energy mix, while hydro contributes 1.95% and modern biomass 0.39%. Other renewable sources – e.g. solar, geothermal, wind – are also largely available in most SADC countries, although they account for less than 1% of the mix (SADC, 2012a).

Despite the abundance of renewable energy sources, SADC power generation mix is dominated by coal, (74.3% in 2010), followed by hydropower (20.1%), nuclear (4%) and diesel (1.6%). The development and deployment of renewable energy infrastructure and technologies is still lagging behind, and the

implementation of renewable energy projects (e.g. wind, concentrated solar power) is proceeding very slowly (SADC, 2012a). The extensive use of coal for electricity generation has a significant impact on CO₂ emissions and air pollution, thereby contributing to climate change and negatively impacting on human and ecosystem well-being. Moreover, the installed electricity capacity is inadequate to meet electricity demand: in 2011, the region had a total capacity of 56 GW, while peak loads are expected to rise to 77GW by 2020, and 115GW by 2030 (SADC, 2012a). Another key challenge for the energy sector is the limited development of infrastructure, such as pipelines and refineries, which results in the fact that many countries are net importers of fossil fuels (SADC, 2012a). Access to electricity is still very low in some countries (e.g. Mozambique, Malawi, Lesotho), while other countries have successfully implemented rural electrification programmes (e.g., Mauritius, Seychelles).

Climate change is also posing a threat to energy sustainability and security across SADC. In particular, rising temperatures and declining rainfall affect electricity generation from hydro resources in many countries (Lesolle, 2012). Also, river siltation leads to a reduction of hydropower potential. In order to cope with climate change effects on hydropower and the increased demand for energy, other renewable sources are being increasingly exploited, including biogas and cogeneration (e.g. in Mauritius, South Africa, Zimbabwe), off-grid windmills for water pumping and solar PV systems for households (SADC, 2012a). Also, several SADC countries have implemented energy efficiency policies, e.g. for the promotion of compact fluorescent lamps (CFLs), solar water heaters (SWHs) and smart meters (SADC, 2012a).

The integration of green economy principles in national and regional energy plans would certainly facilitate the achievement of energy-related economic, social and environmental objectives. In particular, green growth strategies would support the exploitation of the high renewable energy potential and encourage improvements in energy efficiency and renewable energies.

Table 18. Energy challenges and GE opportunities.

Challenges	Green Growth opportunities
<ul style="list-style-type: none"> - Potential climate change impacts on hydropower resources. - High reliance on fossil fuels for electricity generation. - High costs of fossil fuel imports and vulnerability to international fossil fuel price fluctuations. - Access to electricity is still very low in many countries, especially in rural areas. - A heavy reliance on biomass for primary energy. 	<ul style="list-style-type: none"> - Renewable energy can help responding to a growing demand for energy services, while reducing the negative impacts associated with current production and use, and supporting the diversification of energy sources. - Energy efficiency can reduce consumption and costs, with positive benefits for the environment. - Promotion of mini grids.

A2.1.6. Manufacturing and mining

Regional manufacturing and mineral extraction activities are regulated by the SADC Industrial Development Policy Framework and the 1997 SADC Protocol on Mining. The Industrial Development Policy Framework stresses the need to invest in green industry development, including renewable energy and bio-fuel manufacturing, as a means to enhance the region's productive base (SADC, 2013b). The 1997 SADC Protocol on Mining aims, among other things, at improving the sustainable management of the region's mineral resources through the observance of internationally accepted standards of health, mining safety and environmental protection (SADC, 1997). In order to improve regional cooperation on sustainable mining, a framework for Harmonization of Mining Policies, Standards, Legislative and Regulatory Framework in Southern Africa was developed by SADC and UNECA in 2006 (SADC & UNECA, 2006).

SADC Member States have different levels of industrial development. The contribution of the manufacturing sector to GDP ranged between 4% in Botswana and 41% in Swaziland in 2011. On average, the manufacturing sector contributed to 13.9% of SADC GDP in 2011 (SADC, 2013b). The sector is dominated by low-technology industries, such as food processing, beverages, textiles, clothing and footwear. Moreover, the growth rate of industrial value added has declined in four SADC countries between 1990 and 2010, and only two countries have registered an increase by more than 5% over the same period (SADC, 2013b). On the other hand, the mining sector is a key driver of the regional economy, due to great abundance of mineral resources in many SADC countries. About half of the world's vanadium, platinum, and diamonds are found in the region, as well as 36% of gold and 20% of cobalt⁶. As a result, many countries are heavily reliant on mineral exports for their foreign exchange earnings.

A core challenge for the manufacturing sector is the lack of diversification of national industries. In particular, the top ten export products are resource based, thereby creating limited value added for the regional economy. Similarly, although mineral resources are abundant in many countries, especially in Zimbabwe and South Africa, vertical integration in the different structures of mineral production and manufacturing are lacking. (SADC, 2003). Moreover, inadequate infrastructure hinders the development of national industries and intra-regional trade. Most SADC countries have obsolete energy, transport and logistics services, as well as poorly developed information and communication technologies (SADC, 2013b).

Climate change represents an additional threat to the manufacturing and mining sectors. The main industrial sectors - including construction, food processing, energy manufacturing – are weather dependent, in particular those located in coastal areas. Indeed, climate change has an impact on the availability of and access to the natural resources needed for industrial production (i.e., agricultural products, energy, water, oil, metals). Also, increased floods and storms are likely to disrupt transport infrastructure and challenge the transfer of goods within the region, especially raw mineral resources extracted in remote areas.

Green economy investments are ideal to foster an industrial production that is clean, aligned with international standards and adapted and resilient to climate change. Also, the green economy represents an opportunity for the development of new industrial sectors and the creation of employment, as well as for boosting growth in other sectors. For example, investing in water efficiency and improved monitoring of water use in industrial production would increase the availability of water resources to meet the demand of other sectors, such as agriculture and energy production. Moreover, investments in green manufacturing activities such as the fabrication of solar panels and wind turbines would have beneficial effects for the diversification of energy sources and improvement of energy access. Also, the enforcement of sustainability standards for mineral extraction (e.g., the Kimberly process) and the harmonization of regional regulations on environmental protection in mining processes are essential steps to ensure the long-term profitability and social inclusiveness of this key economic sector, especially through the preservation of ecosystems and the protection of the rights of local communities. Incentive measures such as payments for ecosystem services (PES) might represent an ideal complement to regulatory policies on sustainable mining.

⁶ <http://www.sadc.int/themes/economic-development/industry/mining/>

Table 19. Manufacturing and mining challenges and GE opportunities.

Challenges	Green Growth opportunities
<ul style="list-style-type: none"> - High energy and water intensity in resource based sectors (e.g. mining). - Low value added of the manufacturing sector. - Limited development of energy, transport and logistic services in most countries. - Risks associated with hazardous substances and waste. - Disruption of key infrastructure as result of climate change effects. - Depletion of natural capital and ecosystems due to unsustainable mining processes. 	<ul style="list-style-type: none"> - Reduce the amount of natural resources needed to produce finished goods and adapt to scarcity of water and energy resulting from climate change. - Prioritize energy efficiency and innovative technologies to reduce energy needs and boost productivity. - Invest in green industrial sectors (e.g. renewable energy technologies) to increase value added and create green jobs. - Harmonize mining laws across the region in accordance with international sustainability and labor standards, and provide incentives to sustainable mineral extraction processes (e.g., payments for ecosystem services - PES).

A2.1.7. Waste

There are no regional Protocols or guidelines on waste management in SADC countries. Consequently, each country has set different systems for waste collection and disposal. On the other hand, SADC recognizes that waste management should be addressed in a more integrated way, especially through the enhancement of regional cooperation on hazardous chemicals and e-waste management. Some institutions are already actively involved in greening the waste sector. The Africa Institute, established in 2009 as a Basel Convention and Stockholm Convention Regional Centre, has the objective to enhance the capacity of members to manage hazardous and other wastes in a sustainable way.

Waste management represents a key challenge for sustainable development in SADC countries. The expected increase in population and growing production of industrial and agriculture products will inevitably exacerbate current gaps in national waste management systems. In particular, the treatment and disposal of hazardous chemical and e-wastes is a central priority for most countries, together with the management of municipal solid waste. Illegal open landfills and dumping sites constitute a threat to human health in many cities, as toxic waste infiltrates groundwater reservoirs, and favors the proliferation of pests and insects. Municipal solid waste management is a major challenge for local authorities, which have to deal with the lack of institutional arrangement, insufficient financial resources, inadequate information on quantity and composition of waste, and inappropriate technology. Moreover, the inefficiency of the sewage system in many countries is a contributing factor to the contamination of surface and groundwater sources.

The sustainable management and disposal of wastes is an essential condition for the transition to green growth. In particular, the 3R approach (reduce, recycle, reduce) should be the guiding principle for all the actors involved in the waste management chain (UNEP, 2011). In this sense, green investments, such as those in recycling plants or waste-to-energy technologies, would support the transition to a more sustainable waste management system. Also, the harmonization of waste management standards, as well as the introduction of incentives/disincentives to waste recycling and reduction at the household level (e.g., pay-as-you-throw taxes) might create the enabling conditions for the greening of the sector. Improved waste management would create positive externalities also for other sectors, such as water (i.e. reduction of groundwater contamination), and energy (i.e. increased energy supply through Waste to Energy technologies).

Table 20. Waste challenges and GE opportunities.

Challenges	Green growth opportunities
<ul style="list-style-type: none"> - Illegal dumping and open landfills pollute air and groundwater resources, thereby threatening human health and ecosystems. - Poor management of hazardous chemical wastes and e-wastes leads to serious environmental and health problems. - Expected increase in population and overall agriculture and industrial production will exacerbate current challenges related to hazardous waste treatment, and municipal solid waste management. 	<ul style="list-style-type: none"> - Improvement of wastewater and solid waste management facilities. - Investment in Waste to Energy (WtE) technologies would improve waste management and increase overall energy supply. - Incentives to waste recycling and reuse would reduce public costs of waste management and improve the sustainability of the sector. - Harmonization of standards and guidelines would ensure a more integrated approach to waste management in the SADC region, especially for transnational issues such as hazardous wastes and e-wastes.

A2.1.8. Transport

The SADC Regional Indicative Strategic Development Plan (RISDP) gives central priority to transport as a key sector for the transition to sustainable development. In particular, a key objective indicated in the RISDP is the “development of seamless, integrated, efficient, safe, cost effective and responsive transport” (SADC, 2003). Also, the SADC Protocol on Transport, Communications and Meteorology aims to ensure that the transport sector remains competitive and sensitive to emerging issues such as climate change (SADC, 1996).

Roads are the dominant mode of transportation in the SADC region, including both passenger and freight transport. This is attributable, among other things, to the fact that the majority of investments made by SADC countries in the transport sector are devoted to road network development and maintenance. Moreover, the costs of road transport are generally competitive with rail for most general cargo, and service quality is generally better than alternative transport modes (SADC, 2012b). Also, traffic volumes on most of the regional roads tend to be contained, rarely exceeding 2,000 vehicles per day (vpd), except for South Africa, where up to 120,000 vehicles per day are found near the metropolitan areas, and 60,000 to 80,000 vehicles per day between the main cities (SADC, 2012b). Unlike the road transport sector, regional railway systems are poorly reliable, and characterized by high costs and low volumes, often causing financial losses to cargo operators. Similarly, inland waterways are not adequately developed, and none of them is linked to the SADC transport corridors (SADC, 2012b). On the other hand, sea ports are key for regional and international trade: according to the Programme for Infrastructure Development in Africa (PIDA), the total seaport traffic in Southern Africa will expand from 92 million tons in 2009⁷ to 500 million tons in 2027 (SADC, 2012b).

The discrepancies between the development levels of different transport modes imply that multimodal transport approaches cannot be adopted under current conditions. Moreover, the sustainability of the road transport sector is challenged by the increasing costs of maintenance, particularly in the wake of the impacts of climate change such as floods and cyclones which have led to the deterioration of road conditions and increase in transport costs in many SADC countries (SADC, 2012b).

The expected increase in extreme weather events is likely to have an impact on transport infrastructure, and increase the incidence and severity of motor vehicle-related incidents. Higher sea

⁷ The seaports considered include: Nacala, Beira, Maputo, Durban and Walvis Bay.

level rise, for example, could cause inundation of ports, coastal roads, railways, and even airports, thus requiring consistent financial inputs for reparation or reconstruction. Changes in lake and river levels would also affect inland navigation. Evidently, the worsening of transport infrastructure as result of climate change might have negative impacts on the regional economy.

The diversification of transport modes and the development of clean transport networks under a green economy model would certainly contribute to the achievement of these objectives. In particular, the development of railways and inland waterways network would reduce transport network discontinuity, at the same time reduce the rate of degradation of roads due to a decrease in the use of private vehicles. Furthermore, it would reduce the environmental impact of the transport sector (i.e. through reduced GHG emissions), support equitable access to transport systems, and contribute to improved mobility. Investments in the diversification of regional transport networks would also contribute to poverty reduction through the creation of new jobs. In this sense, a great opportunity is given by the planned expansion of the main regional seaports, whose capacity will have to support the expected increase in maritime traffic over the next decade. The construction of “green ports”⁸, namely ports that minimize the use of resources (e.g., energy) and incentivize the access to efficient vessels, would certainly contribute to reducing transport footprint, at the same time creating green jobs opportunities.

Increasing access to efficient transport systems would benefit the poor and marginalized. This will have a positive impact on livelihoods, by enabling these groups to access economic activities that were previously out of reach.

Table 21. Transport challenges and GE opportunities.

Challenges	Green Growth opportunities
<ul style="list-style-type: none"> - Deterioration of infrastructure caused by climate change related extreme weather events. - Increasing maintenance costs of road networks are leading to an increase in transport prices, and related negative impact on access. - Poor development of railways and inland waterways, and limited connections with SADC corridors. - The planned expansion of sea ports might negatively impact on the environment and socioeconomic development if not conducted in line with sustainability and resource efficiency standards. 	<ul style="list-style-type: none"> - Investment in railways and inland waterways transport modes would increase resilience to climate change impacts, improve people and goods mobility, and create new jobs, with benefits for the entire economy. - Multimodal transport would contribute to reduce energy use, and GHG emissions from road vehicles. - The construction of “green ports” would reduce the carbon footprint of the transport sector, minimize resource use and related costs, and create green job opportunities. - Incentives to purchase low-emitting vehicles (e.g. hybrid cars), and disincentives to the import/production of highly polluting cars to replace fuel technologies with cleaner ones.

A2.1.9. Tourism

The development of the tourism sector in the SADC region is regulated by the 1998 Protocol on the Development of Tourism, which aims to promote the sector as a key driver of sustainable socioeconomic development through the improvement of services and infrastructures in an environmentally sustainable, inclusive and resource efficient manner (SADC, 1998). In line with the provisions of SADC Protocols (e.g., on tourism, wildlife, forestry, shared water course), a Regional Infrastructure Development Master Plan has been designed for the tourism sector. The Plan is

⁸ See for instance <http://wpci.iaphworldports.org>

centered on the development of Transfrontier Conservation Areas (TFCA) as a means to foster regional tourism development through the strengthening of cross border management of natural resources. The sustainable management of TFCAs could “enhance the conservation of biodiversity, improve the livelihoods of local communities and at the same time position the region as a top of the mind green tourism destination” (SADC, 2012).

Tourism is a growing sector in the SADC region: tourist arrivals have increased from 20.5 million in 2009 to 21.5 million in 2010, and the sector is projected to account for 58% of African tourist arrivals by 2027, compared to 43.6% in 2010 (SADC, 2012). The socioeconomic contribution of tourism is significant in many SADC countries: tourism receipts constituted 5.8% of regional GDP in 2010 (up to 27.2% in Seychelles, and 13% in Mauritius), and people directly employed in tourism related activities amounted to 1.9 million in the same year (SADC, 2012).

With the tourism sector projected to grow in southern African countries in the following years, a number of challenges need to be addressed in order to maximize the socioeconomic benefits of tourism, and ensure the preservation of those natural resources on which the tourism sector extensively relies. In particular, expected water scarcity due to demographic expansion and climate change, represent a potential obstacle to the development of the tourism sector, unless sound policies are implemented for increasing resource use efficiency in tourism facilities. Also, rising temperatures will have an impact on habitats, thereby posing a challenge to the survival of wildlife species and related tourism activities (IPCC, 1998).

In response to these human and climate-induced threats, a set of green growth policies and investments needs to be devised to enhance the sustainable and inclusive growth of the tourism sector in SADC countries. For example, policies and investments could be directed towards the promotion of eco-tourism, namely a type of tourism that is respectful of natural capital and ecosystems (e.g., water and energy efficient). In this regard, specific incentive policies could be introduced to promote private investments in renewable energy deployment in tourist facilities, as well as waste and water management standards. On the other hand, additional investments could be made for adapting the tourism sector to climate change impacts, including on disaster risk reduction programmes, and on tourism diversification to reduce dependency on climate sensitive resources, such as wildlife.

Table 22. Tourism challenges and GE opportunities.

Challenges	Green Growth opportunities
<ul style="list-style-type: none"> - Impact of climate change on key natural resources for tourism expansion, e.g. water, wildlife habitats. - Increasing running costs of resource-intensive tourism facilities due to higher prices of resources (e.g., energy) - Expected increase in the occurrence of extreme weather events, and related impact on tourism infrastructure and tourism attractiveness. 	<ul style="list-style-type: none"> - Incentives to sustainable tourism businesses (e.g. hotel certification programmes, incentives to energy efficient appliances and renewable energy deployment) would reduce the vulnerability of the sector to price increases and resource scarcity, and create new employment opportunities in green sectors. - Investments in disaster risk reduction programmes would reduce climate change related damages to tourism infrastructure. - Diversification to other green entrepreneurship to reduce dependency on climate sensitive natural resources

A2.1.10. Human settlements

Housing and urban planning policies are at various stages of implementation in SADC countries. In South Africa, for example, the housing policy aims to upgrade informal settlements in urban areas in order to ensure basic services and compliance with environmental requirements. Also, the Green Building Council of South Africa was launched in 2007 to define Green Star rating tools for buildings. In other countries, such as Tanzania, Zambia or Zimbabwe, housing policies are mainly focused on the regularization of informal settlements. At the regional level, SADCSTAN, the standard organization of SADC, adopted in 2012 a code of practice for the construction of rammed earth structures, which are considered as cost effective and sustainable buildings with a very low carbon footprint (SADCSTAN, 2012).

Over the last decade, urban population has increased in almost all SADC countries. In 2012, 39% of a total population of 257.7 million people was living in urban settlements. However, the rapid urbanization process was not counterbalanced by an adequate and sustainable urban development in most countries of the region. As a result, urban food security, municipal waste management and access to basic services such as water and sanitation are insufficient in many cities, leading to overall poor urban conditions that threaten sustainable development (Rampa & Van Wyk, 2014). Moreover, since housing supply is largely insufficient, the majority of households meet their housing needs independently through the development of informal settlements, thereby exacerbating the existing urban sustainability problems⁹.

In addition to these human induced threats to sustainable urban development, climate change in southern African cities is already affecting several aspects of citizens' lives (CLUVA, 2013). Changes in rainfall patterns and temperature as well as extreme weather events such as flooding or drought affect the production of food, increase energy demand due to heating and cooling requirements, increase waste management requirements, and challenge water distribution, with negative consequences especially for the most vulnerable people (ActionAid, 2006).

Worrying trends and projections for SADC cities can be turned into an opportunity to redesign the urban space and promote sustainable urban development in the long term. Investments in green cities have the potential to improve the living conditions of the urban population, and reduce future climate change impacts. For example, investments in sustainable urban planning could reduce the vulnerability of cities to extreme weather events, fluctuations in energy and food prices, water shortages etc. Also, carbon-financing mechanisms at local level could provide a key incentive for city authorities to promote green growth (UNEP, 2012).

Table 23. Human settlements challenges and GE opportunities.

Adaptation Challenges	Green investments opportunities
<ul style="list-style-type: none"> - High temperatures speed up the deterioration of housing stock and bitumen roads, and increase energy demand. - Flooding in urban areas can affect municipal solid waste management. - Food and water scarcity, and consequent increase in prices, will affect the lives of urban people. - Service delivery is constrained by high rates of urbanization and population growth 	<ul style="list-style-type: none"> - Improve city infrastructure and buildings, and reduce vulnerability to extreme weather events through sustainable urban planning. - Reduce energy consumption through increased energy efficiency. - Enhance public transport systems, relieve vehicle congestion and reduce pollution through sustainable urban transport, with positive impacts on health. - Improve ecosystem resilience through urban ecosystem management.

⁹ <http://www.housingfinanceafrica.org/wp-content/uploads/2012/10/SOUTHERN-AFRICAN-DEVELOPMENT-COMMUNITY.pdf>

A2.2. Review of existing policies, plans and regulations

SADC is already actively responding to the need for sectoral and cross-sectoral sustainable development policies and regulatory frameworks. This document intends to build on existing policies and plans to integrate and mainstream green growth principles and actions. The following table provides a review of policies, strategies, action plans, laws and decrees that influence the sectors considered (individually and systemically). The proposed Green Growth Strategy seeks to align all these instruments with the overall goal of enabling a green economy transition in SADC countries.

Table 24. Review of the main regional policies, strategies and protocols in key sectors.

Sector	Policy/Strategy/Protocol	Date	Description
<i>Agriculture</i>	<i>Regional Agricultural Policy</i>	2013	The policy specific objectives are: (1) Enhance sustainable agricultural production, productivity and competitiveness; (2) Improve regional and international trade and access to markets of agricultural products; (3) Improve private and public sector engagement and investment in the agricultural value-chains; and (4) Reduce social and economic vulnerability of the region's population in the context of food and nutrition security and the changing economic and climatic environment. The policy was approved by Ministers of Agriculture and Food Security in 2014 and endorsed by the SADC Council of Ministers and the SADC Summit in August 2014. Issues of sustainable development and climate change are prioritized in the policy
<i>Cross-Sectoral</i>	<i>Regional Indicative Strategic Development Plan</i>	2003	The RISDP (2003), which is a 15-year strategic roadmap, provides the strategic direction for achieving SADC's long-term social and economic goals. A Desk Assessment was conducted in 2011 with aim to evaluate progress made under the RISDP Implementation Framework 2005-2010. Key results of the assessment: for Food, Agriculture and Natural Resources (FANR), 64% of the outputs targets been fully achieved, 28% partially achieved and 8% have not been achieved; for Social and Human Development and Special Programmes (SHD&SP), 38% of the outputs have been fully achieved, 46% partially achieved and 15% not achieved.
<i>Cross-sectoral</i>	<i>SADC Regional Infrastructure Development Master Plan</i>	2012	The Plan builds on the SADC Infrastructure Vision 2027, and it is focused on 6 key sectors: Energy, Tourism, Transport, ICT, Meteorology, and Water. For each of these sectors, a Sector Plan was developed. In each of these key sectors, reference is made to environmental sustainability (e.g. renewable energy deployment, EIAs). However, investment in green infrastructure is neither prioritized nor mainstreamed.
<i>Cross-sectoral</i>	<i>Programme on Climate Change Adaptation and Mitigation in</i>	2011	It is a five-year initiative that aims to address climate change issues in the region through concrete actions, including support to Conservation Agriculture and capacity

Sector	Policy/Strategy/Protocol	Date	Description
	<i>the Eastern and Southern Africa (COMESA-EAC-SADC) Region</i>		building of researchers and policymakers on climate change mitigation and adaptation technologies and strategies.
<i>Energy</i>	<i>SADC Protocol on Energy</i>	1996 (entered into force in 1997)	“New and renewable energy sources” and “energy efficiency” are two subsectors addressed by the Protocol.
<i>Energy</i>	<i>SADC Energy Cooperation Policy and Strategy</i>	1996	
<i>Energy</i>	<i>Regional Energy Access Strategy and Action Plan (REASAP)</i>	2010	The strategy aims to harness regional energy resources to ensure, through national and regional action, that all the people of the SADC region have access to adequate, reliable, least-cost, and environmentally sustainable energy services.
<i>Energy</i>	<i>Regional Energy Access Policy and Action Plan</i>	2010	The goals of the SADC Energy Access Strategy are: (1) at the strategic level, to harness regional energy resources to ensure, through national and regional action, that all the people of the SADC Region have access to adequate, reliable, least cost, environmentally sustainable energy services, and (2) at the operational level, that the proportion of people without such access is halved within 10 years for each end use and halved again in successive 5 year periods until there is universal access for all end uses.
<i>Environment</i>	<i>Protocol on Environment for Sustainable Development</i>	2014	The main objectives of this Protocol are to; enhance the protection of the environment in order to contribute to human health, wellbeing and poverty alleviation; promote equitable and sustainable utilisation of natural and cultural resources and the protection of the environment for the benefit of the present and future generations; promote the shared management of trans-boundary environment and natural resources; and promote effective management and response to impacts of climate change and variability
<i>Fisheries</i>	<i>Protocol on Fisheries</i>	2001 (entered into force in 2003)	One of the main objectives of the Protocol is to prevent the overexploitation of fishery resources in southern Africa. Countries agree to harmonize laws, strengthen cooperation and law enforcement mechanisms to manage fish stocks sustainably.
<i>Forestry</i>	<i>Protocol on Forestry</i>	2002	The Protocol aims to promote the development, conservation, sustainable management and utilization of all types of forest and trees; trade in forest products and achieve effective protection of the environment, and safeguard the interests of both the present and future generations.
<i>Industry</i>	<i>SADC Industrial Development Policy Framework</i>	2013	This Policy Framework aims to accelerate the development of regional industrial sector through the diversification of national economies; development of productive capacity; and the creation of employment in order to reduce poverty and set SADC economies on a more sustainable growth path.

Sector	Policy/Strategy/Protocol	Date	Description
<i>Industry</i>	<i>SADC Industrialization Strategy and Roadmap</i>	2015	The SADC Industrialization Strategy and Roadmap seeks to engender a major economic and technological transformation at the national and regional levels within the context of deeper regional integration. It also aims at accelerating the growth momentum and enhancing the comparative and competitive advantage of the economies of the region.
<i>Transport</i>	<i>Protocol on Transport, Communications and Meteorology</i>	1996 (entered into force in 1998)	Central importance is given to infrastructure development and safety. However, reference is made to the need for limiting the environmental impacts of transport.
<i>Water</i>	<i>SADC Regional Water Strategy</i>	2006	The Regional Water Strategy recognizes the central importance of water for the transition towards sustainable development. An entire chapter is dedicated to “Water and Environmental Sustainability”, including specific strategies on environmental water requirements, EIAs, as well as the harmonization of standards for minimum water quality. Another chapter covers the issue of resilience to natural disasters.
<i>Water</i>	<i>Revised Protocol on Shared Watercourse Systems</i>	2000 (entered into force in 2003)	The objective of the Protocol is to “foster closer cooperation for judicious, sustainable and co-ordinated management, protection and utilization of shared watercourses and advance the SADC agenda of regional integration and poverty alleviation”. The Protocol requires State Parties to “maintain a proper balance between resource development for a higher standard of living for their people and conservation and enhancement of the environment to promote sustainable development”.
<i>Water</i>	<i>Southern African Vision for Water, Life and the Environment in the 21st century</i>	2000	The broad vision for the water sector is: “Equitable and sustainable utilization of water for social, environmental justice, and economic benefit for present and future generations”.

A2.3. Strengths, weaknesses, challenges and opportunities

Table 25 summarizes the sectoral SWOT analysis relative to GG in the SADC region. Additional cross-cutting themes should be considered, such as skills (human and institutional), education, health and gender. These themes also provide significant opportunities for intervention as discussed in Section 5.

Table 25. Overview of sectoral strengths, weaknesses, challenges and Green Growth opportunities in the SADC region.

	Strengths	Weaknesses	Threats	GG Opportunities
Agriculture & Livestock	<ul style="list-style-type: none"> - Contribution to GDP: 8-27% - Agriculture annual growth rate: 2.6% - Livestock annual growth rate: 3% 	<ul style="list-style-type: none"> - 10% of the rural population is food insecure - Cereal deficit 2013/2014: 4.01 million tons - Region net importer of livestock and other products 	<ul style="list-style-type: none"> - Decreased productivity due to soil nutrient depletion. - Crop losses due to lack of storage facilities and extreme weather events. - Droughts and floods impact on production - Infrastructure - Connectivity - Markets - Standards and labelling 	<ul style="list-style-type: none"> - Conservation agriculture (CA) practices. - Reduction of waste and inefficiency. - Productivity improvement through crop and livestock diversification, improvement of storage facilities etc. - Infrastructure development – transport e.g., rail as opposed to road networks - Green technologies for agriculture and livestock
Water	<ul style="list-style-type: none"> - Abundant freshwater availability: 27,000 litres per person per day - Abundant renewable groundwater resources: 2,491m³/capita/year in (higher than Europe or Asia) - 15 shared watercourses. 	<ul style="list-style-type: none"> - Low access to clean and potable water, especially in rural areas. - Only 1.5% of groundwater is utilized. - Lack of adequate infrastructure - Weak regional mechanisms for the integrated management of shared watercourses. - Inefficiencies in water utilisation 	<ul style="list-style-type: none"> - Climate change impacts (e.g. increased temperatures, sea level rise, extreme weather events and reduced rainfall) - Expected population growth and increase in water demand. - Outdated water delivery infrastructure – too much wastage 	<ul style="list-style-type: none"> - Water efficiency measures and technologies. - Integrated water resources management (IWRM) at national and regional (i.e. for shared watercourses) level. - Use of smaller, local water-supply systems and access to new (non-traditional) sources of water. - Water harvesting and storage

	Strengths	Weaknesses	Threats	GG Opportunities
Forestry	<ul style="list-style-type: none"> - 40% of the area is covered by forests (395 million hectares). 	<ul style="list-style-type: none"> - Deforestation rate: 0.6% between 1990 and 2000. - In the last years, 1.4 million hectares of forests lost annually. - Loss of biodiversity resulting from deforestation. - policy implementation and weak enforcement mechanisms 	<ul style="list-style-type: none"> - An increase in average temperatures by 1 to 2 °C would result in 40 to 50% loss of plant biodiversity. - Forestland conversion to agriculture and human settlements might be further accelerated by expected demographic growth. - Biomass for energy (charcoal and firewood) leading to deforestation 	<ul style="list-style-type: none"> - Sustainable Forest Management (SFM) criteria and indicators - Creation/expansion of protected areas - Agroforestry development - Forest tourism/ecotourism - Sustainable harvesting techniques - Incentives and capacity building on sustainable extraction and commercialization of biodiversity - CBNRM
Fisheries	<ul style="list-style-type: none"> - 6 million sq. km of exclusive economic zone. - 8 out of 15 Member States have access to the sea. - Fish is a source of income and nutrition for a large part of the population - Annual Fish production: 2.5 million tons between 1999 and 2008. 	<ul style="list-style-type: none"> - Overexploitation of fish resources, and consequent risks for sustainability of fish stocks. - High erosion rates leading to siltation of breeding grounds - Water pollution from discharge of industrial waste and agro-chemicals. - Illegal, unreported and unregulated fishing (IUU). - Limited intra-regional trade and investment in fisheries. - Low level of adoption of aquaculture (contributing only 1% to regional fish production) 	<ul style="list-style-type: none"> - Species fluctuations and reduction of fish stock driven by climate change. - Higher water temperatures could cause changes in species composition and abundance, and deterioration of key ecosystems such as coral reefs, wetlands and mangroves. - Overexploitation of fisheries resources 	<ul style="list-style-type: none"> - Marine Protected areas - Green fisheries and sustainable aquaculture - Sustainable small-scale fisheries
Energy	<ul style="list-style-type: none"> - High renewable energy potential in most Member States. - Renewable energy projects (e.g. off-grid windmills for water 	<ul style="list-style-type: none"> - Low access to electricity in many SADC countries. - High reliance on imported fossil fuels. - Coal contributes 74.3% to the 	<ul style="list-style-type: none"> - Potential climate change impacts on hydropower resources. - Expected population growth and increase in energy demand. - Potential cross boundary and 	<ul style="list-style-type: none"> - Renewable energy increasing clean energy supply and energy access (and potential increase in oil exports). - Energy efficiency reducing

	Strengths	Weaknesses	Threats	GG Opportunities
	<p>pumping and solar PV systems for households) are being implemented in some countries.</p> <ul style="list-style-type: none"> - Existing enabling policies for renewable energy - Existing SADC protocol on energy 1996 (the protocol intends to promote harmonious development of national energy policies and matters of common interest for the balanced and equitable development of energy throughout the SADC region) - Increase in renewable energy technologies 	<p>electricity mix.</p> <ul style="list-style-type: none"> - High capital investment cost. 	<p>cross sectoral conflicts regarding shared resources e.g. water.</p>	<p>consumption and costs.</p> <ul style="list-style-type: none"> - Expansion of mini-grids to improve access to electricity, especially in rural areas. - Localisation / local production of green industries in the region. - Development of human capital.
Industry	<ul style="list-style-type: none"> - Abundant raw materials available for the development of high value-added industrial sectors. - About half of the world's vanadium, platinum, and diamonds are found in the region, as well as 36% of gold and 20% of cobalt. 	<ul style="list-style-type: none"> - Manufacturing GDP: 13.9% in 2011. - Value added: Stagnant growth in most countries over the last two decades. - High energy, water and resource intensity in resource based sectors (e.g. mining). 	<ul style="list-style-type: none"> - Climate change might have an impact on natural resource availability for production purposes. - Disruption of transport infrastructure affecting goods mobility. - Unsustainable production and consumption 	<ul style="list-style-type: none"> - Reduction of amount of natural resources needed - Closed-cycle manufacturing - Energy and water efficiency - Invest in green industrial sectors (e.g. renewable energy technologies) to increase value added and create green jobs. - Harmonizing mining laws across the region. - Payment for ecosystem services (PES) in mining areas.
Waste	<ul style="list-style-type: none"> - Establishment of regional institute for hazardous waste management (i.e. Africa Institute). 	<ul style="list-style-type: none"> - Illegal dumping and open landfills. - Poor management of hazardous wastes including chemical wastes 	<ul style="list-style-type: none"> - Expected increase in waste generation due to population expansion and economic growth. - Potential for increased pollution 	<ul style="list-style-type: none"> - Improvement of wastewater and solid waste management facilities. - Investment in Waste to Energy

	Strengths	Weaknesses	Threats	GG Opportunities
	<ul style="list-style-type: none"> - Majority of waste is combustible - Potential for waste segregation for reuse and recycling 	<ul style="list-style-type: none"> and e-wastes. 	<ul style="list-style-type: none"> land and surface and ground water 	<ul style="list-style-type: none"> (WtE) technologies. - Incentives to waste recycling and reuse - Harmonization of standards and guidelines on waste disposal.
Transport	<ul style="list-style-type: none"> - Developed regional road network. - Emissions reduction efforts in some Member States 	<ul style="list-style-type: none"> - Increasing costs of road maintenance. - Increasing costs of road transport. - Railways and inland waterways are almost unutilized. - Increasing road traffic volumes. 	<ul style="list-style-type: none"> - Damages to transport infrastructure from extreme weather events. - Pollution and emissions from road vehicles. 	<ul style="list-style-type: none"> - Climate proof transport infrastructure - Green public transport networks (reduced costs and emissions, improved access, employment generation). - High potential for sea transport and development of railway infrastructure. - Zero emissions technologies
Tourism	<ul style="list-style-type: none"> - Tourist arrivals increased from 20.5 million in 2009 to 21.5 million in 2010, - Tourism receipts: 5.8% of regional GDP in 2010 - Tourism employment: 1.9 million in 2010. 	<ul style="list-style-type: none"> - Intensive exploitation of natural resources, e.g. water, energy, and landscapes, e.g. coasts. - Poor management of waste in tourism facilities. 	<ul style="list-style-type: none"> - Impact of climate change on water, wildlife habitats, etc. - Higher prices of resources (e.g., energy) impacting on tourism profitability. - Impact of extreme weather events, on tourism infrastructure and attractiveness. 	<ul style="list-style-type: none"> - Incentives to sustainable tourism businesses (e.g. hotel certification programmes, incentives to energy efficient appliances and renewable energy deployment). - Investments in disaster risk reduction programmes. - Payment for ecosystem services
Human settlements	<ul style="list-style-type: none"> - National Housing Policies addressing informal settlements (e.g. Tanzania) - Establishment of regional and national standards on green buildings (i.e. Green Building Council of South Africa). 	<ul style="list-style-type: none"> - Poor resource efficiency in buildings. - Inadequate sewage systems. - Lack of municipal solid waste management infrastructure. - Heavy reliance on private vehicles for urban transport. 	<ul style="list-style-type: none"> - Damages to housing stock and bitumen roads, and increase energy demand due to rising temperatures. - Flooding in urban areas potentially affecting municipal solid waste management. - Poor biodiversity management in urban areas 	<ul style="list-style-type: none"> - Improve resilience of city infrastructure and buildings through sustainable urban planning. - Reduce energy consumption through increased energy efficiency. - Promote alternative energy sources such as solar water

	Strengths	Weaknesses	Threats	GG Opportunities
				heaters - Enhance public transport systems. - Improve ecosystem resilience through urban ecosystem management.

Annex 3. Review of country GE initiatives

Country	GE Scoping Study	GE Strategy or Action Plan	UNFCCC National Communication	GE Targets	Key sectors	GE Policies	Other GE initiatives	Institutional setup
Angola			2012		Health; Education; Agriculture; Buildings; Energy; Industry.	National Environmental Management Plan	Mayombe Project	
Botswana		X	2011		Agriculture; Mining; Tourism; Transport.	Botswana Innovation Hub; Incentives to high value agricultural crops.	WAVES (water; minerals & energy; land & tourism; indicators of sustainability).	
DRC			2009	Forest protected areas: 17% of national territory by 2020.	Forestry; Biodiversity; Agriculture.	Framework Law on the Environment (2011); National Policy on Forest and Biodiversity Conservation; Code on Forestry; National Forest Fund (FFN).	Mayombe Project; REDD+; Central Africa Regional Program for the Environment; National Programme on the Environment, Forests, Water and Biodiversity (PNEFEB).	National Council on the Environment and Sustainable Development; National Committee for the fight against desertification.
Lesotho			2013	Wind energy capacity: 6,000 MW by 2022 Hydro energy capacity: 4,000 MW by 2022. Green jobs in energy sector: 25,000 for capacity expansion, and 1,500 permanent jobs by 2022.	Organic agriculture; Energy; Water	2010 Land Act; investments in renewable energy (wind) and rural electrification; Integrated land and water management.	Lesotho Highlands Water Project; Metolong Dam and Water Supply Programme	
Madagascar			2010		Biodiversity; Fishery; Energy;	National Strategy on Disaster risk Reduction; National Strategy for	UNDP's Sustainable Natural Resources	Climate change Directorate.

Country	GE Scoping Study	GE Strategy or Action Plan	UNFCCC National Communication	GE Targets	Key sectors	GE Policies	Other GE initiatives	Institutional setup
					Cities; Forests; Waste	the Sustainable Development of Marine and Coastal Areas; National Strategy on the Management of Pollution.	Management Project; ADES (solar stoves); REDD+; Community-based natural resources management; WAVES.	
Malawi			2011		Fisheries; Agriculture; Transport; Energy; Mining; Forestry. water:	Malawi Growth and Development Strategy; Vision 2020, National Environmental Policy; Strategic Plan to improve livestock production; National land Resources Policy and Strategy; Wildlife Policy; National Fisheries And Aquaculture Policy; National Water Policy; National Forestry Policy; Integrated Trade and industry Policy; Energy Policy; Agriculture Policy. .	Malawi Rural Electrification project; Energy Saving Stoves; Clean Development Mechanism; REDD+; Carbon sequestration project; Green Belt Initiative; Tree Planting and Management for Carbon Sequestration and Other Ecosystem Services(TPMCSOES).	Cabinet Committee on Agriculture and natural resources; Parliamentary Committee on Agriculture and Natural Resources National Council on Environment; Technical Committee on the Environment; District Environmental Subcommittee.
Mauritius		X	2010	20% reduction in per capita water use by 2020 Reduce energy consumption in buildings by 10% by 2020 Renewable energy penetration: 35% by 2035.	Water; Land Use; Energy; Biodiversity; Tourism; Agriculture; Waste	Environment Protection Act; Promotion of rainwater harvesting; Investment in flood management systems; Investment in desalination; Incentives to micro-irrigation.	EU-Mauritius Fishery Partnership Agreement; SmartFish Programme; ISLANDS Project.	
Mozambique		X	2006		Agriculture; Cities; Energy; Water; Fisheries; Transport	Periodic surveys to control the use of chemical pesticides; Agricultural Development Fund; Investment in improved stoves and rural electrification; Obligatory mixture of biofuels with petrol and diesel; Policy and	N'hambita Community Carbon Project.	

Country	GE Scoping Study	GE Strategy or Action Plan	UNFCCC National Communication	GE Targets	Key sectors	GE Policies	Other GE initiatives	Institutional setup
						Law on Territorial organization.		
Namibia	X		2011	Increase Bio Trade value added by 50% by 2022.	Bio Trade; Biodiversity; Mining; Waste	Eco-labeling; Communal Conservancies; Community Based Natural Resource Management Programme; Environmental Management Act;		
Seychelles		X	2013	Renewable energy penetration: 5% by 2020, and 15% by 2030. Protect 20% of coral reef by 2030.	Energy; Tourism; Biodiversity; Water; Agriculture; Fisheries.	Sustainable Land Management Action Plan; Environment Protection Act;; Incentives to energy efficiency; government grants for solar water heaters in residential buildings;	ISLANDS Project; Global Island Partnership (GLISPS);	
South Africa	X	X	2011	Reduce emissions by 37% in 2020, and by 42% in 2025. Additional green jobs: 300,000 by 2020 and 400,000 by 2030. Renewable energy penetration: 33% by 2020; 50% by 2030. Water demand in cities: 15% reduction by 2030.	Energy; Waste; Cities; Agriculture; Transport; Natural Resource Management	Carbon Tax; Green Economy Accord; Green fund; Long-Term Mitigation scenario; National Energy Act; Environmental Fiscal Reform; Grant for solar water heating systems; Promotion of energy efficiency; incentives to waste recycling.	Working for Water Program	
Swaziland			2012		Biodiversity; Waste; Energy; Tourism; Buildings.	Environment Management Act; Waste regulations; National Solid Waste Management Strategy; National Housing Policy.	Financial support to the production of solar-powered refrigerators.	
Tanzania			2003		Agriculture; Livestock; Water; Transport; Energy; Mining; Cities; Industry; Forestry; Fisheries	Soil Erosion control; Promotion of agroforestry; Investments in protected areas; Environmental quality standards for industries; Promotion of afforestation; EIA required for energy projects; Waste water treatment regulations	Southern Agricultural Growth Corridor of Tanzania (SAGCOT) Institutional Strengthening of Education for Sustainable	

Country	GE Scoping Study	GE Strategy or Action Plan	UNFCCC National Communication	GE Targets	Key sectors	GE Policies	Other GE initiatives	Institutional setup
						for industries.	Consumption (ESC)	
Zambia	X		2004		Waste; Water; Forestry; Agriculture; Energy.	Environmental Management Act; Disaster Management Act; Promotion of conservation agriculture; Community-based Forest Management; Incentives to Renewable energy		
Zimbabwe			2013	Substitute 10% of national fuel requirements with biofuels by 2015.	Agriculture; Water; Energy; Industry; Mining; Biodiversity; Waste.	Increase RE supply and improve energy efficiency; Improvement of irrigation schemes; integrated water resource management scheme; water quality monitoring around mining areas;	Nitrogen Fixation Programme; Persistent Organic Pollutants reduction program; Mini-hydro projects; National Ethanol Project.	

Annex 4. Guideline for designing national GE Strategies

A desk assessment of the RISDP carried out in 2011 highlighted that the domestication of regional policy frameworks remained a challenge. This slowed down the level of regional integration (SADC, 2011b, pg. 97). The assessment called for increased advocacy and technical assistance at the national level to kick-start implementation of these regional frameworks in order to augment regional integration efforts. As a response to this recommendation, this annex provides a practical guide for SADC Member States to design national GE Strategies. It is meant to assist SADC Member States with a methodological step-wise approach to develop their national GE strategies to mirror the Regional GE Strategy and Action plan. The building blocks that are presented here are equally valuable for developing sustainable development strategies that take into consideration the economic, social, environmental and cultural dimensions of development planning. Appropriate tools and methodologies are also proposed.

The development of sustainable development strategies, including GE and CC strategies, can be done through 3 building blocks, namely: (1) iteration through the policy cycle; (2) adoption of a multi-stakeholder process to identify development priorities and trade-offs; and (3) using an adaptive management process during the implementation of strategies and action plans. The capacity for integrated development planning can be built and developed using a learning-by-doing approach. While the development of a good strategy is important, impacts can only be obtained through implementation. Consequently, a set of enabling conditions has been proposed to enhance the successful implementation of sustainable development strategies. The building blocks, tools and methodologies are proposed within a systems framework (thereafter called the ecosystem framework) that is described first.

A4.1. An Ecosystem Framework for Integrated Policymaking

The “diamond” heuristic of the ecosystem approach used to develop sustainable development strategies is shown in Figure 3. It reflects the cross-disciplinary evaluation of sustainability that emerges at the intersection of different conceptualizations of sustainable development and analyses based on the science of complex systems. Sustainable development can therefore be seen as an emerging property of the complex eco-social system where visions and preferences of societies interact with ecological possibilities. The framework allows scenarios for implementing sustainable development to be contextualized, in order to reflect specific needs and national development priorities, and guide the elaboration of targeted programmes and action plans. This is very important in the implementation of a regional strategy since the mix of beneficiary countries is heterogeneous in terms of geographical scale and spread, culture and language, level of socio-economic development, and human and institutional capacities. The “diamond” in Figure 3 is the nexus where ecological understanding and sociocultural preferences meet and where they interface with policymakers. In the context of a GE (see Section 1.2), the normative approach offers expected outcomes where growth in income and employment is driven by investments that (1) reduce carbon emissions and pollution; (2) enhance energy and resource efficiency; and (3) prevent the loss of biodiversity and ecosystem services. These include investments in human and social capital, and recognize the central position of human well-being and social equity as core goals promoted by growth in income and employment.

While taking into account this normative significance, the ecosystem approach provides SADC countries with the flexibility to construct their own definition of GE and GG within the broader context of sustainable development, first to adhere with the principle of sovereignty, and second, to cater for the different national contexts and countries’ varying development stages. In generic terms, the

ecosystem approach promotes a functional definition of sustainable development that prioritizes the conservation of ecosystems and biodiversity, ensuring stable economic growth and measurable improvements in social well-being. It aims to support decision-makers in the identification, assessment and implementation of concrete policy interventions to redress worrying trends (e.g., increasing vulnerability to climate change impacts and progressive depletion of natural capital; social inequity and poverty). Policy options are assessed with the help of scenario analysis using a systems approach (e.g. models to analyse the dynamics of the interactions between economy, society and environment), and they are analysed through the lens of local culture and values.

As a result, in any meaningful dialogue concerning priority developmental issues, system dynamics analysis requires a multi-stakeholder process (MSP) that draws on a range of disciplinary perspectives, as well as expert and non-expert knowledge (Waltner-Toews and Kay, 2005; Tovey, 2009; Sen, 2013). Given the continuous evolution of sustainable development and GG challenges, the collaborative process for the sharing of knowledge and the definition of common visions and preferences has to be intended as iterative and continuative, aimed at the establishment of a community of practice, CoP (Li *et al.*, 2009), which would repeatedly exchange ideas and explore inclusive solutions based on cultural values and preferences. The iterative and continuative process underlying the MSP is also applicable to the policy formulation process (Section 8.1.1). The CoP should be developed at both the national and the regional level. It is proposed that country experiences and best practices can be consolidated at the regional level using the institutional arrangements proposed in Section 3.4.

Importantly, the systems approach allows the sustainable development process to be contextualized at the national level, meaning that no prescribed approach (or “one size fits all”) is imposed on beneficiary countries. It also enhances inclusive, evidence-based policy decision-making as proposed in the Rio+20 outcome document (UN, 2012). In sum, the ecosystem approach provides the evaluative space to inform policy and decision-making through scenario analyses that combine socio-cultural preferences of development and the concurrent ecological possibilities. The building blocks discussed below (Section 8.1) take place within the ecosystem framework. Section 8.2 discusses the tools and enabling conditions for GG planning and implementation.

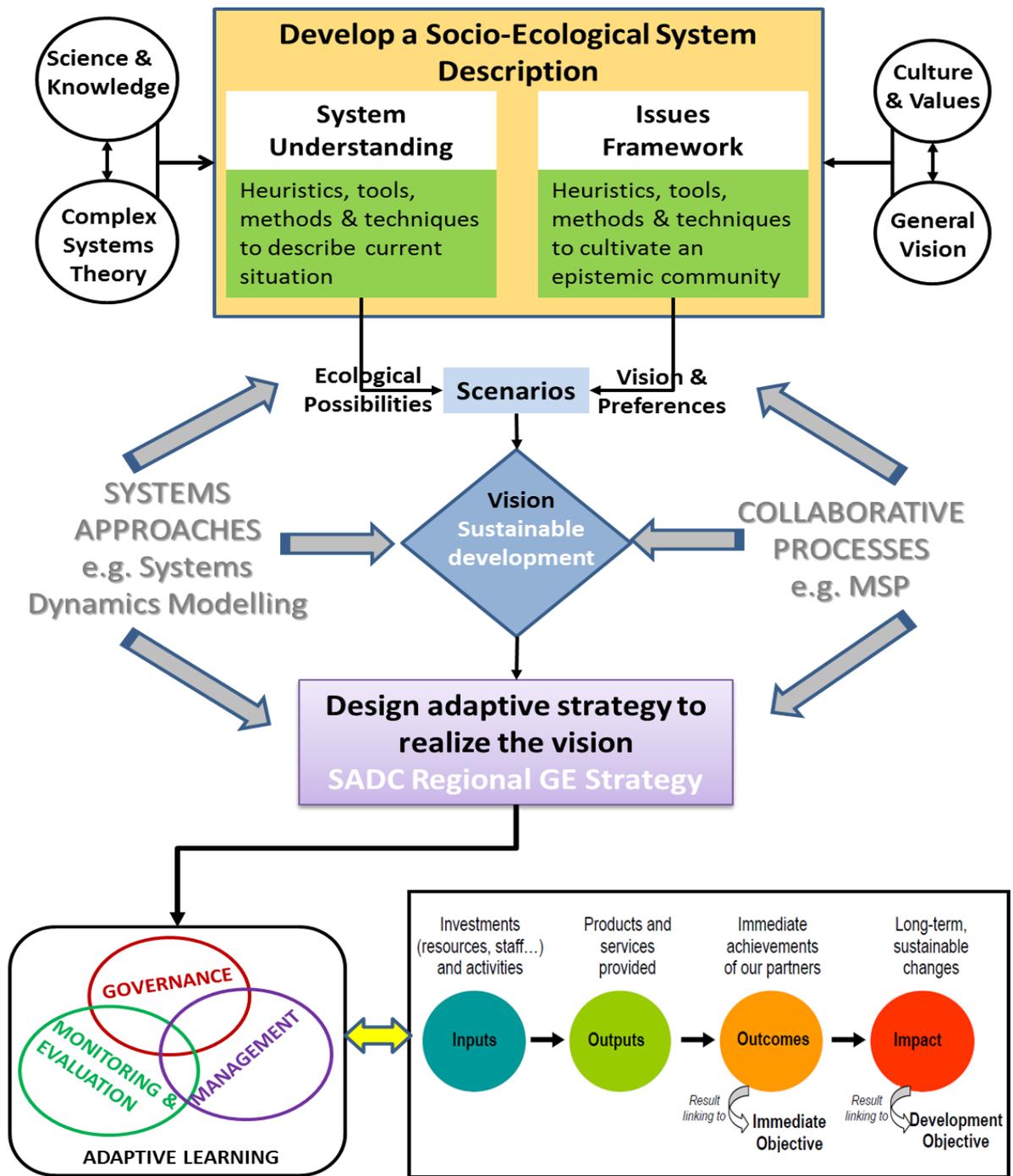


Figure 4. An ecosystem approach to GE planning and implementation.

A4.1.1. The Policy Cycle

Policy formulation will in fact involve the different steps of the policy cycle (see Figure 4), comprising (1) agenda setting, (2) policy formulation, (3) decision-making, (4) implementation, and (5) evaluation. This is done to ensure respectively that policy issues are appropriately defined, potential solutions compared, the solution that increases synergies and reduces trade-offs adopted, and the adopted solution implemented, monitored, and evaluated. Policy formulation and evaluation need to be carried out in the context of scenarios (e.g. technological development, natural disasters), and policies (e.g. subsidies, incentives and/or mandates) have to be evaluated across a variety of indicators (social, economic and environmental) simultaneously. As discussed earlier, the five steps should be carried out iteratively based on an inclusive MSP.

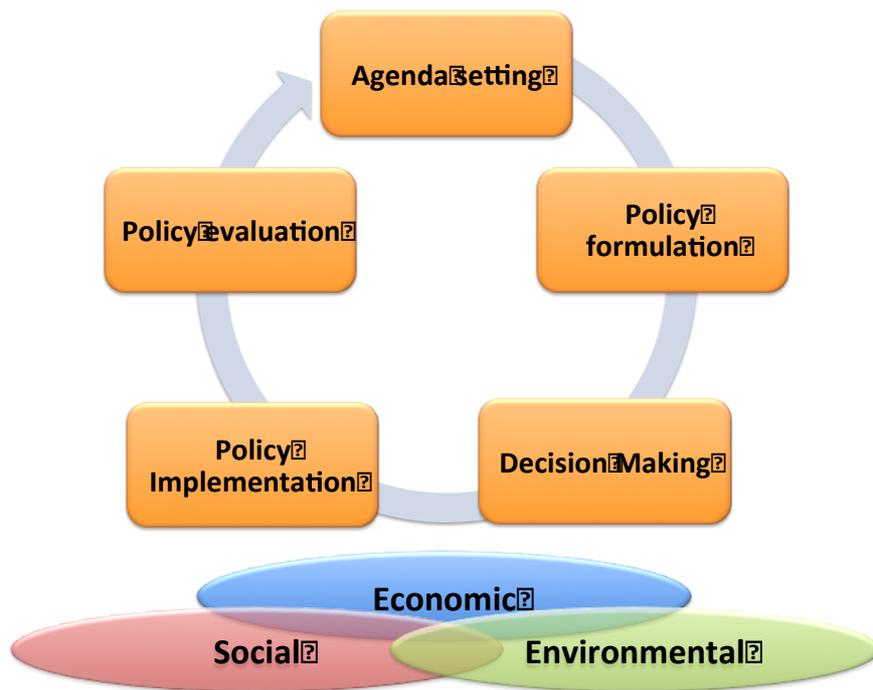


Figure 5. The main steps of the policy cycle, taking into account social, economic and environmental factors.

The development of the GE Strategy and Action Plan has made use of IP steps (1), (2) and (5):

- In the context of public policy, an agenda is a list of issues or problems (including potential opportunities, which may be missed without policy interventions) to which government officials, and people outside of the government closely associated with those officials, are paying some serious attention at any given time.
- Policy formulation is a process of generating policy options in response to a problem established on the agenda. This stage does not always follow suit the agenda setting phase. Nor is this stage the same as the decision-making stage, where a course of action is to be chosen from the available option.
- Integrated policy evaluation refers to the effort of monitoring and determining how a policy has fared during implementation. In the case of this document where policy options are proposed, it is important to provide appropriate indicators for the monitoring and evaluation of these policy options.

Decision Making and Policy Implementation – IP steps (3) and (4) pertain to the Strategy and Action Plan sections of this document.

A4.1.2. Multi-stakeholder processes for climate change governance

It is widely acknowledged that the knowledge required to articulate what would constitute sustainable development in any given context (i.e. country or sub-regions therein) is often dispersed within the system boundary (i.e. country and its sub-regions), which is why a multi-stakeholder approach is necessary for successful outcomes. In other words, the complex system of socio-economic conditions existing within the natural ecosystems characterising any given territory can only be seen collectively for the adequate response to the increasing demands for policy-relevant interventions. Multi-Stakeholder Processes (MSP) can also help ensure better coordination between programmes and projects which may be overlapping, on top of ensuring that knowledge is combined and properly utilized by sharing common mental models.

Climate change impacts, vulnerability, adaptive capacity, and barriers to adaptation are location-specific and will change over time, but the processes needed for adaptation that supports all affected parties are similar. Bottom-up as well as top-down processes are key for adaptation, from community-level adaptation design and implementation, that includes access to information across all levels, and ensuring enabling national-level processes including finance, build capacity, and integrate. The MSP is an appropriate model to achieve this.

The five sequential steps of a generic MSP are illustrated in Figure 5 (Hemmati, 2002). Each step involves specific actions to ensure maximum ownership of the process by the beneficiary stakeholders and ensuring them that climate change related actions are discussed through dialogue and consequently integrated in the national and local agenda.

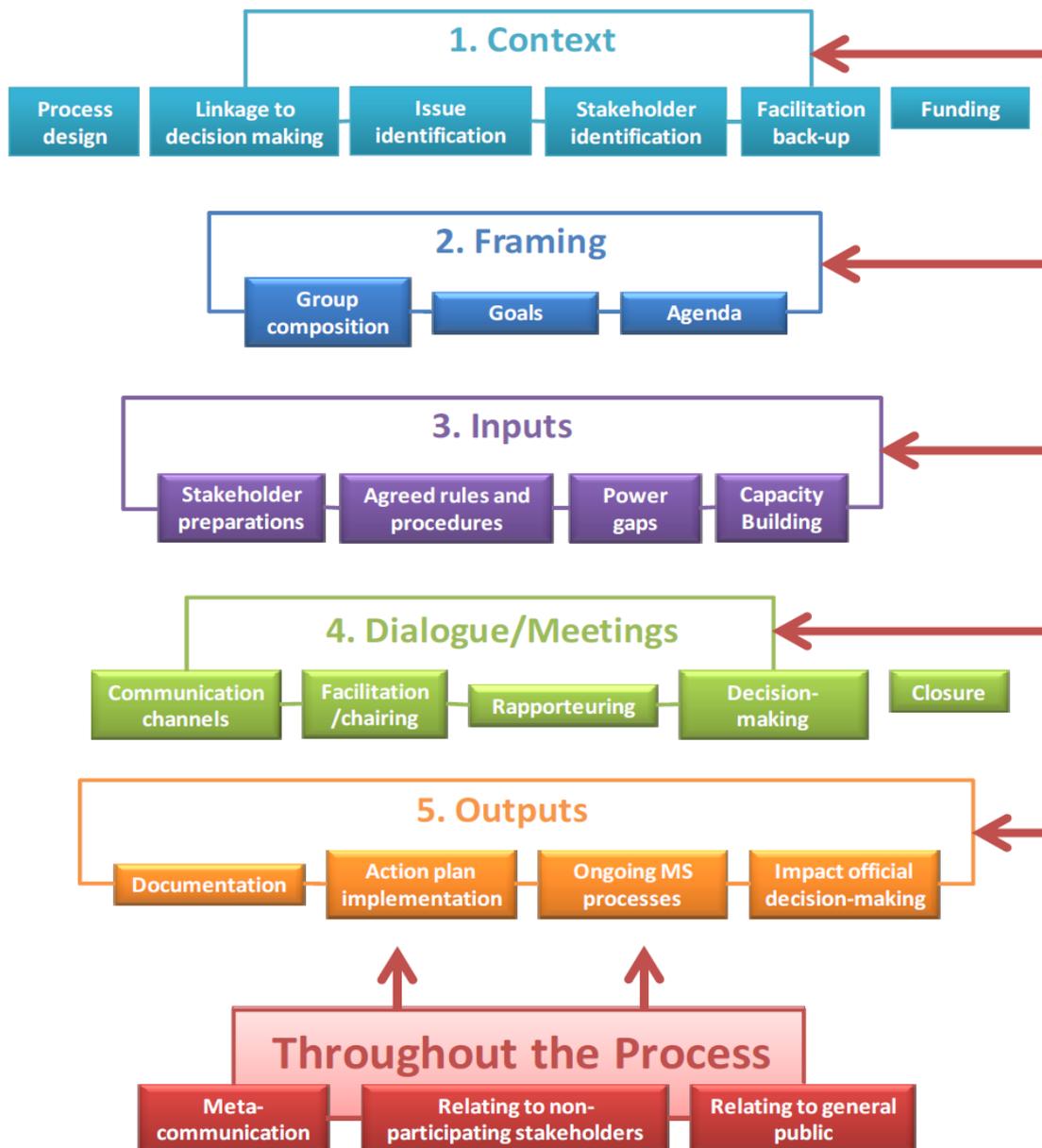


Figure 6. Generic multi-stakeholder process for sustainable development planning.

Briefly, the steps of the MSP are defined in generic terms while noting that the central issues are related to climate change:

1. **Context** – Setting the context is probably the most critical step in the process, and the ‘one-size-fits-all’ cannot be applied. After the key stakeholders have been identified based on principles of inclusiveness, diversity and size, they should be involved in every aspect of the design process to generate legitimacy, credibility and trust. This does not mean that conflicts will not arise, but that any conflicts may be better dealt with later on. In designing the process, it should be made very clear how the output of the dialogues will permeate the policy decision-making process. Productive dialogue can only take place when all participants share a common understanding of the agenda of the MSP. This requires a clear definition of what issues the MSP will address. Successful MSPs require facilitation and organizational back up, also implying the need for adequate financial resources.
2. **Framing** – MSPs need precisely defined issues before them. The questions to be addressed and the goals of the process need to be very clear to all the participants and agreed by them. Possible

changes over the course of an on-going process also need to be agreed by the group, allowing for consultations within constituencies if necessary.

3. **Inputs** – In order to facilitate dialogues, several inputs must be in place or be made available to participants. First, all participants must have equitable access to all information, and they should be given sufficient preparation time. The ground rules for the purpose of dialogue must be agreed within the group, while noting that no one has all the answers but that the output required will be the collective wisdom and knowledge of the participants. Fundamental differences exist between stakeholders in such things as knowledge and information, communication skills, size, nature and the amount of resources that define significant power gaps and unfair distribution of bargaining and negotiating power. Care must therefore be taken to identify and address power gaps, and this is also a reason why facilitation of dialogues is critical. Bilateral meetings can be used where necessary to prepare participants for plenary sessions.
4. **Dialogue** – MSPs are about creating a space where dialogue can take place. An atmosphere that cultivates equity, respect, dignity, humility and hope will create a space where people can interact in such a way that their differences and their commonalities become clear so that they can begin to explore possible ways forward.
5. **Outputs** – MSPs should be transparent all the way. So, they should not only publish and communicate their deliberations and outcomes but also keep record of their design. A critical aspect is to be able to demonstrate to stakeholders how the outcomes of their dialogues impacted policy decision-making.

A4.1.3 Adaptive Learning

While the development of a good strategy is important, impacts can be obtained only through implementation and developing the capacity for learning. The latter is important since there is no ‘one size that fits all contexts’ and a country’s GG expertise and capabilities will evolve based on active learning. An adaptive learning environment can be nurtured based on two elements, namely (1) putting in place a robust M&E and management system; and (2) by adopting a learning-by-doing approach.

The ecosystem approach has also a structure consisting of a triad of activities (monitoring, governance and management) that allow assessments of performance against the objectives of the ecosystem-based approach and adaptive learning at the project level. A core characteristic of the adaptive learning structure is the results-oriented management approach that is shown in the bottom right hand corner of Figure 3. The connections between the outcomes and impacts of the GG Strategy and Action Plan, respectively, are also illustrated. A key aspect of the adaptive learning infrastructure is to capture and disseminate the outputs and results of the implementation of GG policies. Here, the adaptive learning infrastructure is built on putting in place a robust M&E framework as discussed in Section 7, and based on the governance that can be mediated through the institutional arrangements proposed in Section 3.2.

As discussed in Section A4.1, countries will have to develop their context-specific GG Strategy and Action Plan based on the guidance discussed in Section 1. Since sustainable development is an evolving concept, enhancing the capacity for learning by building a Community of Practice (CoP) is a useful approach. A learning-by-doing model is characterized by a virtuous circle of positive feedback that enhances the acquisition of knowledge through real-life application of skills. The learning-by-doing approach is based on a continuous assessment of policy performance, in turn informing the capacity development phase. Figure 7 shows the learning-by-doing virtuous cycle using the example of capacity building on system dynamics modelling (see Section A4.2.1) for integrated policy planning to build the resilience of countries. In this example, the technical support of SADC is used to trigger the

self-reinforcing learning cycle. The learning-by-doing approach is applicable to all aspects GG planning, implementation and M&E.

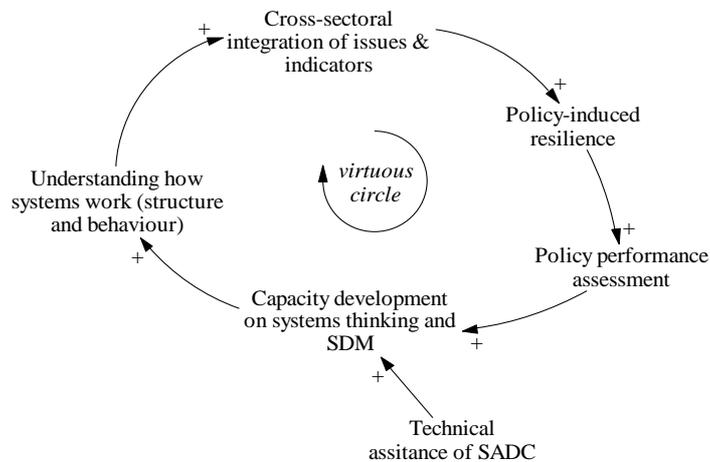


Figure 7. Learning-by-doing approach to capacity development.

A4.2. Tools for Integrated Policy Planning and Enabling Framework for Implementation

This section discusses the tools that can be used to carry out integrated policy planning, as well as the enabling conditions that are required to support the implementation of sustainable development policies.

A4.2.1. Systems approach for sustainable development planning

In addition to the cultural preferences of individuals, sustainable development also includes the bio-physical and monetary flows between the economic, social and environmental spheres. The interactions between these preferences and bio-physical and monetary flows can be treated as a complex system (see for example Deenapanray and Bassi, 2014). An understanding of these complex interactions (i.e. interactions that are dynamic – i.e. change over time, and which involve the inter-linkage of multiple development parameters) requires the use of appropriate tools and techniques, such as integrated assessment tools in planning. Both qualitative and quantitative tools can be used to understand systems.

Policies are “shocks” to the system, which in turn responds to these changes. Hence, the system itself should be analysed focusing on feedbacks and causal relations, with a specific interest on medium to longer-term impacts (which go beyond the implementation delays of policies -i.e. inertia of the system). Simulation models exist which aim at understanding what the main drivers for the behaviour of the system are. In the case of System Dynamics, this implies identifying properties of real systems, such as feedback loops, nonlinearity and delays, via the selection and representation of causal relations existing within the system analysed. This is advantageous for integrated policymaking because, while optimization models are prescriptive and econometric models are heavily relying on the history of the system analysed, simulation models are descriptive and focus on the identification of causal relations influencing the creation and evolution of the issues being investigated.

System dynamics modelling (SDM) that provides a generic framework of analysing complex systems may be adopted to achieve this objective. Scenario analysis using SDM can both create a better understanding of the behaviour of the complex eco-social system and point to trade-offs that may be made to achieve the overall vision. Moreover, it has been noted that SDM generates opportunities for monitoring the performance of the adopted policies and the possibility of improving the effectiveness of the process of water provision (Stave, 2003; Winz and Brierley, 2007). A more recent study has demonstrated the application of simple system dynamics models to guide the public policy process,

and it also covered references to the use of SDM in various areas of public affairs, including public health, energy and the environment, social welfare, sustainable development, and security (Ghaffarzadegan, Lyneis and Richardson, 2011). SDM has been adopted by UNEP in its green economy endeavour to investigate the global socio-economic and environmental impacts of green investments (UNEP, 2011). A green investment study has subsequently been carried out using SDM for Mauritius (Bassi and Deenapanray, 2012). More recently, the application of SDM for integrated policy planning to build the resilience of several countries that are also Member States of SADC has been demonstrated using the Eco-systemic framework (Deenapanray and Bassi, 2014).

Key steps for model development and validation

The development of a SDM (conceptualization, customization and validation) proceeds through a variety of tasks, and the generic steps are discussed below:

STEP 1: Identification of key issues and opportunities. As every model application is unique, the issues to be analyzed have to be carefully designed and agreed upon. A multi-stakeholder process is adopted to obtain the widest possible stakeholder views. The steps of the MSP adopted are shown in Section 8.1.2. The MSP is used to engage stakeholders during all the steps of model conceptualization, customization and validation.

STEP 2: Data collection and consistency check. This is a time consuming task, and, on top of data mining, cross-sectoral data consistency checks are an essential step.

STEP 3: Causal mapping and identification of feedback loops. This step constitutes creation of causal loop diagrams (CLDs) of the issues or sectors that were identified in Step 1. The CLDs provide the high-level system view of issues that would be addressed by the modeling, and its development also draws from the availability of data identified in Step 2. Creating a map of the system analyzed has several purposes. First of, it brings ideas, knowledge and opinions of the core team of modelers together. Secondly, it highlights the boundaries of the model and analysis. Thirdly, it allows all participants to reach a basic to advanced knowledge of the issues and how they relate to society, the economy and the environment. Finally, it serves as a starting point in the development of the mathematical (stock and flow) model.

STEP 4: Creation of customized mathematical models. This step consists of a sequence of iterations involving key stakeholders, and it consists in the translation of CLDs into mathematical models, with numerical inputs and equations. This step adds the quantitative layer to the analysis. At this stage the model is built up on social, economic and environmental sectors, practically integrating the best sectoral knowledge in one single model framework representing a full incorporation of economic and bio-physical variables, capturing (a) feedbacks within and across sectors, aiming at identifying both synergies and potential bottlenecks (unexpected side effects); (b) time delays, whereby policies and investment allocations may lead to a “worse before better” situation; (c) non-linearity, leading to the identification of potential thresholds and tipping points. Further, the model is created making use of existing expertise (through the CLD and participatory modeling), acting as a knowledge integrator of successful -technically valid and already effectively utilized- models for policy analysis, and being fully customized to the national context (with an extensive cross-sectoral dataset and structure, for a more holistic approach to planning in the energy sector).

STEP 5: Validation and analysis. Variables and equations have to be validated to ensure that all experts feel comfortable with the overall structure of the model, reflecting reality. This is done primarily by simulating the base case and testing the outputs of simulations against historical data (Step 3), and this is done for a multitude of socio-economic and environmental indicators. The confidence that the causal relationships in the model are well established emerges from the ability of the model to replicate historical data. Once the BAU is confirmed, scenarios can be simulated to test the impacts of alternative policy options that were identified in Step 1.

As an example pertaining to the energy sector, Figure 8 shows that policy formulation and evaluation need to be carried out in the context of scenarios (e.g. technological development, natural disasters), and policies (e.g. subsidies, incentives and/or mandates) have to be evaluated across a variety of

indicators (social, economic and environmental) simultaneously. How these three levels are supported with solid and coherent information, and interact with each other, will greatly determine the success of any national development plan over the medium to longer term. This information is also crucial to truly understand the drivers of change and design policies that have the desired impacts, effectively.

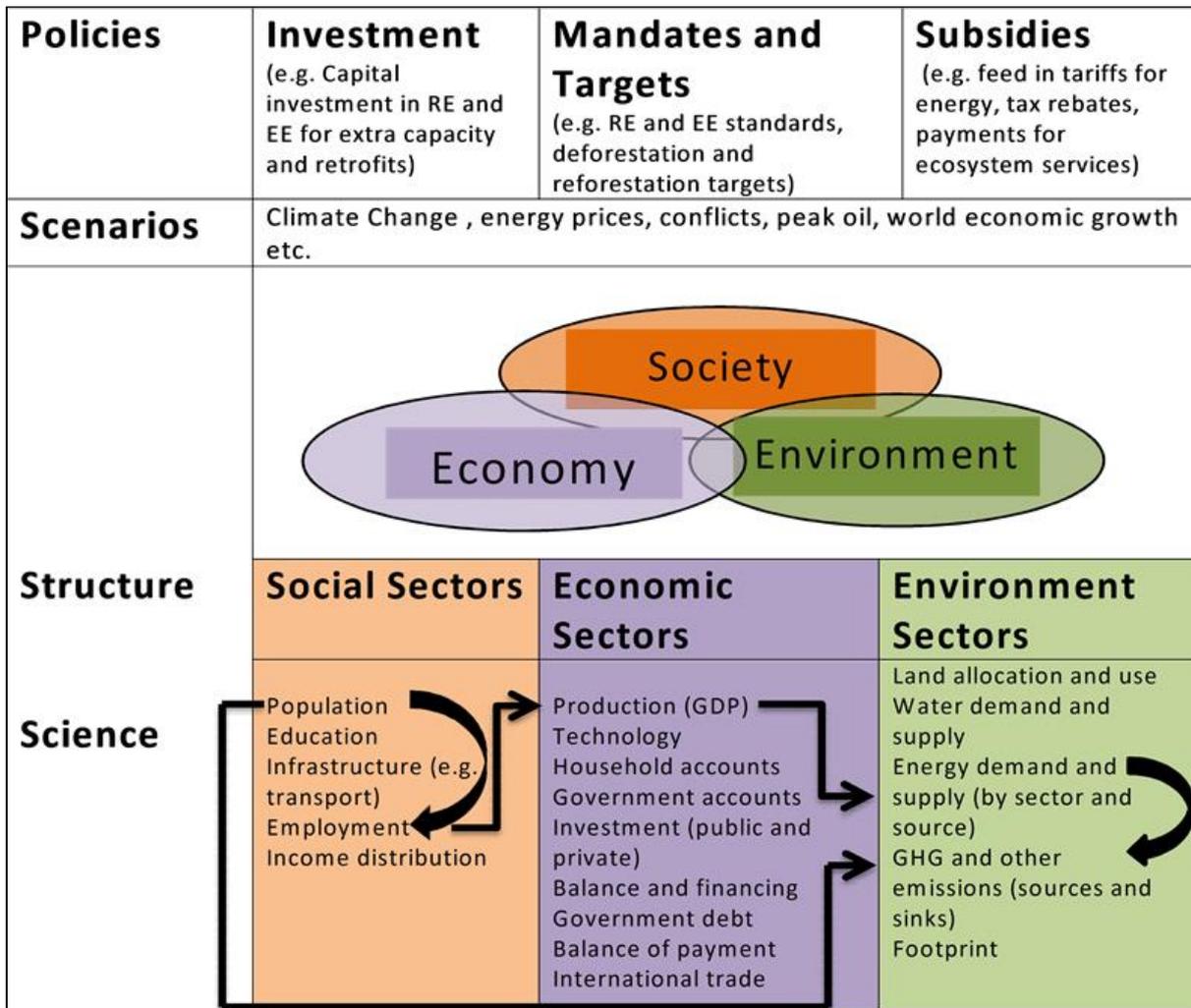


Figure 8. The three main layers for carrying out integrated policy formulation and evaluation: structure, scenarios and policies.

More specifically, firstly, in order to design and evaluate national development policies the structure of the system analysed (e.g. social, economic and environmental) should be properly analysed and understood. This includes the investigation of the main drivers of demand, and how supply can respond to its needs; in the case of poverty reduction, this implies understanding what are the key factors influencing poverty and what are the main drivers for their behaviour. This is a broad investigation heavily relying on soft and hard data analysis, as we are in rapidly changing times and various cross-sectoral interdependencies are emerging.

Secondly, economic volatility, as well as climate impacts, natural disasters and other unexpected events, can have a considerable impact on the effectiveness of energy and environmental policies over time. For these reasons scenarios have to be defined, to reduce the uncertainty coupled with the analysis carried out. Policies would then be evaluated based on the structure of the system analysed as well on a variety of possible scenarios.

Thirdly, the implementation of policies should be tested in the context of longer-term national development. In order to do so effectively -and evaluate whether they create synergies, bottlenecks or side effects across sectors-, the impact of policies has to be evaluated for a variety of social, economic and environmental indicators.

To conclude, the understanding of the functioning mechanism of the system allows for the identification of medium to longer-term sectoral and cross-sectoral implications of policy implementation. These impacts have to be analysed with the understanding that different sectors are influenced by different key causes defining the success (or failure) of policies. In other words, a policy can have very positive impacts for certain sectors and create issues for others. Furthermore, successful policies in the longer term may have negative short-term impact, for which mitigating actions may be designed and implemented.

A4.2.2. Analysis of green job creation

As discussed in the introduction, a key objective of the Green Economy is to create new opportunities for green (and decent) jobs. Further, the outcomes of the Green Economy Strategy and Action Plan discussed in Section 3 and Section 4 are expected to be country-specific (ILO, 2012). Different approaches have been proposed to define green jobs, but no consensus has yet emerged (OECD, 2012), and this situation further justifies the application of country-level analysis. The analysis of green investments on job creation is needed for two main reasons: (1) job creation, including decent work and social inclusion, is a powerful justification for catalysing green investments; and (2) to identify the types of employment that are particularly critical to achieving green growth in order to guide the labour market and training policy. Green jobs assessments using an Input-Output modeling approach have been carried out in several SADC Member States, including Mauritius, Namibia, South Africa, and Zambia.¹⁰ A system dynamics modeling approach has also been used to investigate the impacts of green investments, including on green job creation, in several sectors in Mauritius (Bassi and Deenapanray, 2012). A study by the ILO has provided a generic view of the key sectors that will witness major transformations, and hence provide good opportunities for green job creation (ILO, 2012). These sectors are summarized in the Box below. Another sector that is expected to be prominent in the SADC region is Tourism.

¹⁰ For more details, please see <http://www.ilo.org/global/topics/green-jobs/projects/africa/lang-en/index.htm> - accessed 24 October 2014.

Examples of the Sectoral scopes of green job creation (ILO, 2012)

The ILO forecasts that while changes in employment and incomes will be seen through the economy, eight key sectors will undergo major changes:

Agriculture

Strong investments in skills, rural infrastructure and organization to enable smallholder farmers (including women) to adopt greener, more productive, and climate resilient farming practices could boost food security, lift tens of millions out of poverty and prevent accelerated rural-urban migration.

Forestry

Unsustainable practices have already led to job losses, sometimes on a very large scale. Sustainable forest management provides both essential environmental services and renewable raw material to other sectors while providing quality jobs.

Fishery

This sector faces a major, albeit temporary, transition challenge due to overfishing. Temporary reductions of catch are needed in many fisheries to avoid the collapse of fish stocks and to allow their recovery for sustainable food production and employment. A main concern is that 95% of workers employed in fishing are mostly poor artisanal fishers in developing countries. New and sustainable fishing technologies can help to create more employment opportunities and uplift poor artisanal fishers

Energy

Rapid employment growth in renewable energy, improvements in energy efficiency and enhanced access to energy can lead to major gains in employment and income opportunities, as well as in significant environmental benefits. Fossil energy generation is likely to see job losses.

Resource-intensive manufacturing

This sector has seen a decline in employment for decades, in which the environment has been a contributor of goods and services but a minor factor when it comes to management. However, a green economy could increase improve resource availability, increase demand for products from these industries, contributing to improved competitiveness while protecting existing employment and even creating new jobs.

Recycling

Recycling is critical for energy efficiency, avoidance of waste, safe treatment of hazardous waste and recovery of valuable materials. Employment could be increased significantly by improving recycling rates, and there is major potential to improve social inclusion and reduce poverty through formalization, as the majority of waste pickers, notably women and child labourers, are concentrated in informal employment.

Buildings

Energy- and resource-efficient buildings have the largest potential to reduce greenhouse gas emissions and resource use. There are also significant opportunities for employment creation in new, green buildings, and even more opportunities in retrofitting older buildings. A successful strategy hinges on skills development and on preparation and upgrading among the small and medium-sized enterprises which dominate the sector.

Transport

Transport is central to the functioning of societies and for development, but it has also seen the most rapidly growing source of greenhouse gas emissions. Substantial gains in employment can be

A4.2.3. The Enabling Framework

Policies, strategies and action plans require the presence of factors conducive for their implementation. The enabling framework (also ‘enabling environment’) captures the country-specific circumstances including the entire range of institutional, regulatory, political, technological and socio-cultural conditions necessary to facilitate implementation of policies. Typically, lack of the enabling framework gives rise to barriers to policy and strategy implementation. The elements of the enabling framework are listed below, and the categorisation is related to the ability of government to either directly or indirectly configure the framework conditions to promote the implementation of sustainable development policies (Boldt, Nygaard, Hansen, & Traerup, 2012).

Table 26. Elements of enabling frameworks and barriers that they address.

Elements of enabling framework	Examples of areas of government's influence	Examples of barriers addressed
National macroeconomic conditions	<ul style="list-style-type: none"> • Trade policies and laws • Tax, subsidies, and tariff regime policies • Regulation of financial sector institutions • Public investment policies • Commercial law and practices • Monetary policy 	<ul style="list-style-type: none"> • Lack of adequate financing options e.g., high cost of capital and interest rates • High inflation rate and high price fluctuations • Balance of payment problems • High import duties • Unstable currency and uncertain exchange rates • Low foreign direct investments • Low level of adaptation technology transfer
Human, organisational, and institutional capacity	<ul style="list-style-type: none"> • Capability building programmes of governmental agencies and institutions • Initiatives to efficiency in government procedures and processes • Promotion of associations, networks, organisations and alliances 	<ul style="list-style-type: none"> • Lack of functioning legal institutions • Lack of coordination between governmental agencies (national and sub-national) and between state and non-state actors • Lack of stakeholder/community participation in local planning • Lack of specialised governmental climate change agencies
Research and technological capacity	<ul style="list-style-type: none"> • Technical standards, certification, and codes • Publicly funded research and development and training programmes on CC • Support for testing and demonstration facilities (including training programs) • Monitoring capacity enhancement programmes • Property rights regimes policies 	<ul style="list-style-type: none"> • Lack of technology nurturing sites • Limited capacity to install, implement, operate and maintain technology • Insufficient specialised expertise in technology, practice, or organisational system • Lack of institutions or initiatives to set standards or to benchmark best practices
Socio-cultural	<ul style="list-style-type: none"> • Information dissemination, outreach and awareness-raising campaigns • Targeted assistance to promote early adopters and technology front runners • Promotion of public-private-partnerships • Education policies 	<ul style="list-style-type: none"> • Limited awareness, trust, or acceptance in the suitability/reliability of adaptation policy, strategy, action, technology • Community resistance to new practices • Tradition, social esteem, pride, laziness and religious belief discouraging adoption of sustainable development actions

While the above table (Table 5) summarizes the broad enabling framework, it is also important to delineate the enabling conditions at the multiple levels at which decisions and planned actions are

taken. **Figure 9** shows the enabling elements at the national and local government levels, as well as the level of the community (Pettengell, 2010). This framework is exemplified by the fact that it is ultimately communities that bear the impacts of climate change and climate vulnerability. Sub-national levels of government are vital for adaptation, given that it is the level of government closest to the communities vulnerable to the impacts of climate change.



Figure 9. Enabling elements for multi-scale interactions for successful implementation of sustainable development.

The GG Strategy (Section 3) and GG Action Plan (Section 4) aim to develop the enabling framework for the successful implementation of a GE by overcoming barriers.

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