



# Science Diplomacy and Regional Integration: The Eastern and Southern African Experience



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## Introduction

Science diplomacy two highly significant words in simple terms mean the use of science to build bridges among countries and promote scientific cooperation as part of foreign policy. The enhanced application of science, technology and innovation is imperative for growth expansion as they are the key drivers of Socio-economic Development. They are instrumental in the development and competitiveness of regional economies, which leads to wealth creation and the improvement of living standards. It is, therefore, essential that adequate consideration be given to Science Diplomacy for a sustainable and healthy economic development be it at national, regional, continental or international level. Science Diplomacy has to be at the heart of economic agenda and regional integration which stimulates growth in all key economic sectors in this competitive era as we approach the end of this decade.

The global competitiveness calls for a dynamic and competitive economy endowed with innovative human resources equipped with the required tools to produce high quality products for national, regional and world markets in the process enhancing job creation, skills development and entrepreneurship taking on board the youth and women.

At regional level, in particular, in the Eastern and Southern African region, Science Diplomacy is imperative to deepen regional integration and reach consensus on common programmes for achieving the set regional targets and thereby the Sustainable Development Goals. These programmes relate to Science and

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Technology, centres of excellence as well as the ocean economy and fisheries sector. To this end, the different activities/projects, as well as initiatives which are being implemented or which are being envisaged at the Eastern and Southern African region, are being highlighted below for possible technical or financial assistance from India: It is to be noted that a wide array of science and technology projects are currently being implemented in the region such as agriculture, health, pharmaceuticals, climate change, disaster reduction, renewable energy, water, and so on. However, for the sake of this paper, the analysis has been limited to a few areas.

## SADC level

The SADC region has been targeting the overall development and application of systems of innovation that drive sustained socio-economic development and rapid achievement of the goals of the SADC Common Agenda. The areas under focus are:

- Strengthening of regional cooperation;
- Development and harmonisation of policies; and
- Intra- and inter-regional cooperation.

The development of research capacity in key areas; to promote technology development, transfer and diffusion; and to support public understanding of science and technology is also of importance.

The implementation of a Protocol on Science, Technology and Innovation bears testimony to the importance given to the sector by the region since one decade ago. The Protocol outlines the framework of cooperation between Member States regarding science and technology within the region. The aim of the Protocol is to promote development and harmonisation of science, technology, and innovation policies, advocating investment in research and development and promoting public awareness of science and technology.

## Implementation Framework to Support Climate Change Response

Climate change is an urgent issue facing the SADC region – one where science, technology, and innovation can play an important role in adaptation by people, business, and industry. The SADC Science, Technology and Innovation Implementation Framework to Support Climate Change Response was adopted by the region's Science Ministers in May 2011. This document describes activities in four areas where Science, Technology and Innovation is crucial to tackling climate change:

- Observation and monitoring;
- Impacts, vulnerability and risks;
- Adaptation; and
- Mitigation.

The Plan also focuses on identifying sectors vulnerable to the impacts of climate change and producing a Vulnerability Atlas, highlighting areas at increased risk of flooding or drought. The adaptation strategy includes developing a portfolio of green technology projects, as well as research into disease-resistant and stress-tolerant crops.

An Implementation Plan is now being worked out. Funding and necessary expertise will be required for the implementation phase. The possibility that India brings in its expertise and possible financial resources can be explored.

## Centres of Excellence

Industrialisation is one of the SADC priorities. An Industrialisation Strategy and Roadmap was developed followed by an Action to ensure its sound implementation. Skills development is one of the prerequisites to facilitate the industrialization of the region. However, one of the constraints the industrialisation process of the region is the lack of adequate professionally and technically qualified and experienced personnel as well as the lack of adequate scientific and technological base. One of the strategies to address this constraint is the establishment of Centres of Specialisation and Centres of

Excellence as vehicles for capacity building and knowledge generation for development of human capital to drive socio-economic development and industrialisation in the Region as per Article 4(g) of the Protocol on Science, Technology and Innovation 2008.

There are many institutions that have been designated as Regional Centres of Specialisation by various bodies in the region. However, they have not been sustainable due to lack of funding as they were designated with external funding through projects and lack of a common regional framework for the management and operations of these centres to ensure maximum utilization by the region in its development agenda. To this end, a draft regional framework and guidelines for establishing regional Centres of Specialisation, and Centres of Excellence has been developed. The regional framework is still being finalised.

The Framework and Guidelines highlight the following:

- Objectives of Centres of Specialisation and Centres of Excellence
- Key activities and Services of the Centres
- Key Performance Areas for Centres of Specialisation and Centres of Excellence
- Centres of Excellence selection procedure and selection criteria
- Life Span of the Centres of Excellence and Centres of Specialisation
- funding and financial sustainability of the Centre
- Success Factors of the Centres of Specialisation and Centres of Excellence (Management and Governance, relevance, impact, funding, monitoring and evaluation); Specific consideration (Institutional commitment);

The Framework will also address the linkages between the Centres of Excellence and the industrialization strategy including the development of value chains, and there should be engagement of stakeholders between Industry and education sectors on the SADC Industrialization Strategy.

India, being one of the World Economic Leaders, could be one of the potential International

Cooperation Agencies to provide expertise in assisting the revamp of Centres of Excellence and in assisting in their sustainability plan. Areas of critical importance to India for potential investment could be, inter alia, in assisting the SADC Member States in building up capacity in Science, Technology and Innovation to address the shortage of required skills to fill up the gaps for meeting up the goals in the industrialisation process of the region.

## Challenges

SADC has, over the years, experienced an increase in its membership, areas of cooperation and in the size of its Programme of Action. This growth has brought with it new challenges to the integration process, given the different levels of development among Member States. SADC Member States also differ substantially in terms of population size, natural resource endowment, annual economic growth rates, *per capita* income, levels of debt burden, infrastructure development and level of industrialisation. Integrating the economies of such a diverse group of states presents new challenges, which SADC has to effectively manage. Unfortunately, the progress in the implementation of Science and Technology projects and programmes have not been smooth. This is a cause for concern. The amount of funds allocated to Research and Development in African countries as compared to Asian countries is very low. The percentage of R&D over GDP as well the Global Innovation Index gives a clear indication that the African countries do not promote Science and Technology sufficiently. At this pace, the growth momentum will not be sustainable.

| Country    | Research and Development Expenditure (% of GDP) in 2015 | Global Innovation Index 2018 |                   |
|------------|---------------------------------------------------------|------------------------------|-------------------|
|            |                                                         | Score                        | Rank              |
| Mozambique | 0.34                                                    | 23.06                        | 115 <sup>th</sup> |
| Malaysia   | 1.30                                                    | 43.16                        | 35 <sup>th</sup>  |
| Lesotho    | 0.05                                                    | -                            | -                 |
| Thailand   | 0.63                                                    | 44.49                        | 52 <sup>nd</sup>  |
| Egypt      | 0.72                                                    | 32.69                        | 102 <sup>nd</sup> |

Source: UNESCO Institute for Statistics; Dutta, Lanvin, and Wunsch-Vincent, 2018.

Further, Mauritius with a score of 31.31 ranked 75<sup>th</sup> for the Global Innovation Index 2018<sup>1</sup> and comes out as the second-best African country after South Africa. Indeed, South Africa is the best ranked African country as 58<sup>th</sup> with a score of 35.13 just after India (with a figure of 35.18 - ranked 57<sup>th</sup>). No African countries are found in the first fifty highest ranked countries. With these disappointing figures, the need is felt to accelerate implementation of S&T projects and further promote Science and Technology within the region.

## Proposed SADC/India Cooperation

A Memorandum of Understanding between SADC and India was signed in 1997 to provide a framework for promoting technical cooperation in all fields of economic activity. The cooperation graduated from MOU to Forum level in 2006. The Forum agreed on six priority areas of cooperation, namely, agriculture, small and medium enterprises, health, human resources development, water resources management; and Information, Communications Technology (ICT). The Forum agreed to meet annually at both Ministerial and Officials levels at mutually agreed date and place. Experts from both sides would work out specific project proposals in the above six areas of cooperation. However, since 2006, there have been no formal meetings of the Forum neither at Ministerial level nor at Officials level. Through this SADC India Forum, cooperation in the field of Science, Technology and Innovation could be further enhanced. The support of India, in terms of funding and capacity-building, could be garnered for the promotion of Science and Technology for a healthy and sustainable SADC region.

## COMESA

### *Science and Technology initiatives*

A Biopolymer workshop was held in May 2013, in Mauritius, which constituted one of the first steps towards implementing the COMESA Science, Technology and Innovation strategic priority. Further, the Centre for Biomedical and

Biomaterials Research (CBBR) of the University of Mauritius has been proclaimed COMESA Centre of Excellence in Biomedical Research in 2013. The COMESA Innovation Council has been set up with the aim of providing advice to Member States relating to existing and new knowledge and innovation, as well as best ways of applying this in the Member states. To celebrate the Year of Pan-Africanism and the African Renaissance, COMESA has launched the COMESA Innovation Awards Scheme to recognize and celebrate individuals and institutions of Member States that have used science, technology and innovation to further the regional integration agenda

### *Development of the Blue/Ocean Economy*

Since fish is the only affordable source of dietary animal protein in the region, the COMESA Member countries have thus given overwhelming importance to the sustainable management of fisheries resources and development of sustainable aquaculture.

However, it should also be noted that challenges with fish diseases, high costs of feeds, unavailability of seeds and degradation of aquatic environments and lack of capacity to effectively manage fish stocks continue to affect the growth of aquaculture in the region.

So far there is no policy framework and strategy on Blue/Ocean economy for the Eastern and Southern African region. The COMESA intends to come up with a framework with main focus on areas such as fishing, shipping and maritime transport, coastal tourism, marine energy (fossil and renewable), pharmaceutical and cosmetic industries, genetic resources and general sea-based products and blue carbon trading opportunities.

One of the nine strategic objectives of the COMESA Blueprint - Medium Term Strategic Plan (MTSP)- is “**strengthening the blue economy**”. Under this strategy, COMESA envisions transformation by unlocking investments and the generation of jobs to citizens through rebranding the use of the water bodies to realize the potential for economic advancement and tapping into new areas of economic actions. The thrust of the Blue/



Ocean economy is to place value addition to water bodies as an area of development space and in support of the SDGs specifically SDG 14. The following initiatives are being envisaged:

- Put in place appropriate frameworks for exploration and exploitation of hydro-carbon and mineral resources including management of the EEZs;
- Exploring deep ocean water applications such as for cooling of buildings and generation of renewable energy;
- Establish and/or strengthen marine services such as vessel registration, marine finance, ICT and marine tourism;
- Development of seaport related activities such as extension and strengthening of the port facilities to allow for larger and more vessels including tourist cruise ships, dredging works of the navigation channel and associated land reclamation, develop master plans and undertake studies to consider new opportunities offered by activities related to the ocean economy and address the land use requirements for future port development projects such as making a hub for bunkering, trans-shipment, cruise and a full-fledged marina;
- Ocean knowledge: identify areas for research, science, technology and innovation in Member states. Engage universities and high level research councils to produce knowledge and a critical mass of people knowledgeable in the area of ocean and blue economy;
- Formulation of a policy for maritime security and safety and ocean economy development;
- Development and adherence to COMESA wide applicable environmental safeguards including for climate risks;
- Develop and follow up on Blue economy Strategies and National Plans (related policy frameworks);
- Development of marine spatial planning to make informed and coordinated decisions on sustainable use of marine resources;
- Ensuring effective ocean management and governance for the sustainability of marine resources;

- Development of disaster risk reduction policy; and
- Develop a monitoring protocol for the coastal and ocean region.

India signed an MOU for long-term economic and technical cooperation with the COMESA in February 2003. An Action plan was developed primarily in the area of capacity building including deputation of experts under ITEC to COMESA Secretariat in the areas of industrial development, Drugs and Pharmaceuticals, ICT and energy. The Action Plan also envisages cooperation in trade, SMEs, science & technology and agriculture. Progress has been made in the implementation of the Action Plan. For instance, Indian experts have been deputed to COMESA Secretariat to assist in the development of the COMESA Integrated Energy Planning Strategy.

Within the context of this MOU, COMESA would welcome Indian expertise to foster the development of the ocean economy within the region and assist in the implementation of the initiatives listed above as well as promoting Science and Technology in the region.

Any form of cooperation with India will be a deeper form of Science Diplomacy with Eastern and Southern African Regional Groups. With such forms of cooperation, India would consolidate further its relations with the nations in a wide range of areas. It will build new ties with SADC and COMESA countries on Science related fields.

## Conclusion

Science and Technology are now essential tools for the economic uplifting of any country and any region in the world. Countries failing to keep abreast with innovative production techniques and sources of revenue are facing difficulties to meet up challenges of globalization. The Eastern and Southern African region is no exception. In spite of huge contributions by Member States and International Development Partners, ongoing negotiations on trade tariffs and barriers, the intra-SADC and intra-COMESA trade still remain low with a stagnate growth rate and weak economic outlook.

The time has come for innovative ideas to bring up new areas for the diversification of the economic base of the countries and use of Science and Technology for value added production. Unfortunately, investment in Science and Technology has been very little in the Eastern and Southern African region. The project ideas are there to promote the centres of excellence, development of Blue/Ocean Economy and Science and Technology at large. However, the region is constrained financially. It calls for assistance from world powers - resource rich - which could offer its technical knowhow and expertise for engaging in science and technology intensive projects. The region would welcome any form of assistance from India in this respect. The more so, as India already has existing forms of cooperation with both SADC and COMESA. With an intensified form of cooperation, India would consolidate further its relations with the nations in a wide range of areas. It will build up new ties with SADC and COMESA countries and further strengthen partnerships in building capacity in climate change, developing the blue/ocean economy and giving a new impetus to the centres of excellence.

Through an appropriate assistance from India, the region would be able to address climate change adaptation and mitigation problems, accelerate the development of the blue/ocean economy thereby ensuring food security and further, with the application of innovative Science Technology tools, shift gradually to renewable sources of energy and at large achieve sustainability in the long run. At this juncture, the technical and financial assistance of India in promoting Science and Technology in the Eastern and Southern African region would be an opportunity to revamp the SADC-India Forum and COMESA MOU through a Science and Technology oriented framework of cooperation.

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