SMASE-AFRICA

STRATEGIC PLAN
2016-2020
Abridged Version

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ABBREVIATIONS AND ACRONYMS

ADEA	Organization for Development of Education in Africa
APEC	Asia-Pacific Economic Cooperation
ASEI	Activities, Student, Experiment, Improvisation
AUC	African Union Commission
CEMASTEA	Centre for Mathematics, Science and Technology Education in Africa
COMEDAF	Conference of Ministers of Education of the African Union
EC	Executive Committee
EFA	Education for All
HOD	Head of Department
ICADETA	Institute for Capacity Development of Teachers in Africa
ICT	Information Communication Technology
INSET	In-Service Education and Training
JICA	Japan International Cooperation Agency
KSTC	Kenya Science Teachers College
KSC	Kenya Science Campus
LOU	Letter of Understanding
MDGs	Millennium Development Goals
CA	Contractual Agreement
MOU	Memorandum of Understanding
NEPAD	New Partnership for Africa's Development
OJT	On-Job-Training
PDSI	Plan, Do, See, Improve
SEAMEO-RECSAM	South East Asia Ministers of Education Organization-Regional Centre for Science and Mathematics
SDG	Sustainable Development Goals
SMASE	Strengthening of Mathematics and Science Education
SMASSE	Strengthening of Mathematics and Science in Secondary Education
SMLB	Science and Mathematics Literacy Benchmarks
SP	Strategic Plan
TCE	Third Country Expert
TCF	Teacher Competency Framework
TCTP	Third Country Training Programme
UP-NISMED	University of Philippine, National Institute of Science and Mathematics Education
WECSA	Western, Eastern, Central and Southern Africa
WGMSE	Working Group for Mathematics and Science Education
WSSD	World Summit on Sustainable Development

FOREWORD

The SMASE Africa Strategic Plan, 2016-2020 has been devised to mirror some of the strategies under the 2014-2018 Strategic Plan that had been set anchoring on previous financial arrangements. The plan is guided by various reviews, such as (Mid-Term Review of 2011, Third Country Expert (TCE) Reports, and Regional Conference Reports), where member countries saw the need for the organization to provide an African led platform to address pedagogical challenges of mathematics and science education while providing home grown solutions.

The development of the plan involved wide stakeholder consultation, and analysis of both the internal and external environments of the organization. The Context, Input, Process and Product (CIPP) Model was adopted to assess the implementation of the preceding strategic plan. The physical site office visits, observations, reports, constitution, past strategic plan and delegates' reports and minutes were used to collect some of the pertinent information to advise the development of the plan.

The broad consultation ensured that the plan's strategies and views are richly informed by the views of all the stakeholders which would greatly help in the implementation. In the 2016-2020 strategic period, the organization will be advised by the following five thematic areas as it pursues its strategic direction namely:
1) Development and operationalization of organizational structures
2) Capacity Development of Educators in Mathematics, Science & Technology
3) Mathematics, Science, and Technology education, Research and Publication
4) Advocacy, Networking and Partnership Development
5) Resource Mobilization, Management, and Utilization

Each thematic area will operate under various strategic objectives that will be advised by a couple of strategies and activities. At the end of the strategic period, it will have achieved its overall goal which is, "to promote teacher capacity development in member countries for effective teaching and learning."
These will be achieved through an effective and efficient implementation plan that will entail shared understanding of the Strategic Plan with stakeholders and partners, evidence-based decision making by the executive and at the secretariat, skills enhancement and motivation for staff, resource availability and priority actions for the implementation of programmes and performance evaluation of processes and activities. This organization requires commitment and full support from all stakeholders. I assure the secretariat full support and appeal to our partners to help us make it a reality.

BENSON BANDA
PRESIDENT, SMASE-AFRICA

ACKNOWLEDGEMENTS

We recognize the concerted efforts by SMASE-Africa management namely; the delegates and executive committees who sponsored and actively participated in Strategic Plan review process which culminated in this piece of work. Gratitude to the secretariat team that worked tirelessly to document all the ideas and made this Plan a reality. Much appreciation goes to CEMASTEA management under the leadership of the director for facilitating secretariat staff to spearhead strategic planning process to achieve a comprehensive strategy. Recognition also goes to all those who either directly or indirectly contributed to this process and to our partners who engaged on points of common interest.

EXECUTIVE SUMMARY

This strategy was designed based on a review process that interrogated implementation of the 2014-2018 strategy with a view to remain relevant to the ever-changing needs of the organization. A rigorous process facilitated by consultants was used through document analysis of various information and feedback based on implementation of the past strategy. Accordingly, this enabled identification of strengths, weaknesses, opportunities and threats in external and internal environments to develop five year strategic priorities.

The SMASE-Africa (2014-2018) strategy as a transitional plan enabled it navigate from donor funded and managed activities to a weaned self-governing organisation managed by member countries. The structural transformation within the organization took long necessitating rethinking the strategy. The implication was to strategize through the 2016 – 2020 Plan.

The Organization's:

Vision is: *"A leading organization in promoting innovative and effective classroom practices for quality education in Africa"*,

Mission is, *"To promote innovative and effective classroom practices in primary and secondary mathematics, science and technology education through research, fostering relevant policies, networking, collaboration, advocacy and teacher capacity development in Africa"*.

This Plan therefore covers the strategic analysis of the organization's activities with a view to improve and propose relevant future plans that respond to its dynamic needs. It details internal and external analysis of the operational environment of the organization. The internal analysis focuses on issues relating to management, funding, physical and human resources, organizational structure, programme implementation, advocacy, networking and partnership development. The external analysis focuses on issues that impact on the organization's operations relating to governments' policies, national and sectorial priorities, political issues, socio-economic trends and technological trends.

The Plan gives direction to organization's activities in the next five years detailing the vision, mission and core values to guide activities of the organization in terms of structure, core functions, overall goal, thematic areas, objectives, strategies and activities.

Finally, the strategic plan concludes with a Logical Framework Matrix to guide implementation of Organization's activities.

On behalf of SMASE-Africa, I salute all the stakeholders' for the commitment and resilience accorded the activities of the organization despite the numerous challenges of inadequate resources.

STEPHEN M. NJOROGE
EXECUTIVE SECRETARY, SMASE-AFRICA

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1.0 INTRODUCTION

Mathematics, science, and technology education in Africa continue to face more or less similar challenges in countries across the continent. The challenges such as poor performance and standards, teacher and teaching quality among other factors can greatly benefit from synergy created by collective efforts of African countries. Strengthening of Mathematics and Science Education in Africa (SMASE-Africa) formerly SMASE-Western, Eastern, Central and Southern Africa (WECSA), was created in early 2001 to be a vessel through which such collective efforts are channeled. The organization currently brings together 27 African countries. The network had been registered with United Nation as Type 2 initiative under which Japan supported development of mathematics and science education in Africa. It was also registered in Kenya under Section 10 of Societies Act as SMASSE-Western, Eastern, Central and Southern Africa on 1st July, 2003. The registration has since been reviewed to accommodate all countries in Africa and thus name changed to Strengthening of Mathematics and Science Education in Africa (SMASE-Africa) on 5th July, 2014.

A series of consultative meetings among stakeholders resulted into this strategic document. Key to this was an analysis of both the internal and external environment in which the organization has been operating over the years, and is likely to operate in during the implementation period of the Plan. The tools used in this diagnosis included Political, Economic, Social, Technological Legislative and Environmental (PESTLE) Analysis. The analysis takes into account the major political, socio-economic, legal, technological and environmental developments, which have had an impact on its operations and which may be of significance in future. In addition, trying to understand the environment the organization has been operating in; Strengths, Weaknesses, Opportunities and Threats (SWOT) have been identified. Furthermore, the Context, Input, Process and Product (CIPP) Model by Stufllebeam was used to assess implementation of preceding strategic plan.

Physical site office visits, observations, reports, constitution, past strategic plan and delegates' reports and minutes were used to collect some of the pertinent information on some of the strengths, weaknesses, opportunities and threats SMASE-Africa may be facing.

2.0 SITUATIONAL ANALYSIS

A PESTLE analysis conducted on the organization revealed the following political, economic, social, technological and legislative results. The organization working within the frame of member countries' government political sphere does experience shocks which affect it both positively and negatively. Observed are certain government political stances such as changes in teacher education policies. Much as the teacher education shows to be a very progressive intention, acceptable by many member countries the challenge is on way of implementation. The combination of system functionality and political reposition of countries including membership transitions over the years becomes a source of concern. This puts the organization on the risk of failing to deliver the policy intentions within and across member countries or it being diverted away from its own priorities.

The other concerns deal with changes in government due to elections. In turn they tend to affect the transition of activities although they could be planned by both secretariat and implementing countries. The organization is also affected by economic factors among other things relating to member country economic policies and structures. Changes in the member governments' funding decisions may indirectly affect organization finances. Closing or winding up of potential financers either multilateral, bilateral or private sector such companies affect the resource base. Furthermore, it has been a common phenomenon in the countries participating in the Organization's activities for teachers to demand for allowances/honoraria to participate in teacher capacity development forums. With limited resources, member countries find this a big challenge to the efforts to institutionalise and regularise teacher capacity development programmes (SMASE-WECSA regional conference report, 2013; M&E Reports of SMASE Kenya, 2008-2013).

The catchment area for the organization is broad tapping into diverse social cultural environments. These create social factors related to the cultural aspects, attitudes, beliefs, that affect the operation of the organization. Some of them are human resource combination in relation to inter and in country combinations changes. Observations are that the members who have had their capacities developed in the process of interacting with the organization activities tend to be quickly identified either by their governments, NGOs or universities. Their departure in turn lives a vacuum that require replenishing. In the process there is human resource capacity delay. Much as social networking is a good tool for social cohesion at times it acts as a hindrance to quality programme implementation. For instance blogs, face book, twitter, webpage, and the like are a hindrance to learning because participants spend a lot of time on these platforms mainly for socialization. If such platforms can be used for capacity development then education socialization would be enhanced in member countries. On the matter of advancing science, technology, and innovation in Africa, experts agree that to realize socio-economic development and growth, we need to prioritise science, technology and innovation. Africa's greatest assets are

its people and that this resources has to be empowered with the necessary skills and African-led innovation, (NEPAD, 2015)[1]

Changes in technology aspects, threats, innovations, barriers and incentives have had an impact on the organization. The Johannesburg Plan of Implementation, adopted by governments during the 2002 World Summit on Sustainable Development (WSSD) is largely about the role of science and technology in meeting sustainable development goals (Africa's Science and Technology Consolidated Plan of Action, 2005). The key individual in helping students develop ICT capabilities is the classroom teacher. The organization has experienced challenges related to rapid changes to standards and equipment required to ably deliver the intra and inter country membership activities. Inadequate competencies pose a risk of selecting the wrong technology at times of change. Connectivity among member countries has also posed a challenge since some countries still require paper work for communication to be authenticated. This poses a huge cost of postages to member countries.   A risk of computer hardware or software being out of date is another challenge. The organization is yet to develop a one-stop Central Management Information system and has inadequate staff to plan and manage IT systems. In addition, there is also slow rate of technology uptake in member countries owing to either socioeconomic factors or political reasons and unrest.

3.0 STRATEGIC DIRECTION

3.1 INTRODUCTION

The chapter is a discussion on strategic direction that SMASE Africa plans to take in the next five years. It is organized in sections that discuss; the vision, mission and core values that will guide activities of the organization, organizational structure, core functions, overall goal, thematic areas, objectives, strategies and activities. The strategic objectives have been developed to respond to issues and challenges identified by the situational analysis on internal and external environment.

3.2 VISION, MISSION AND CORE VALUES

3.2.1 Vision

"A leading organization in promoting innovative and effective classroom practices for quality education in Africa"

3.2.2 Mission

"To promote innovative and effective classroom practices in primary and secondary mathematics, science and technology education through research, fostering relevant policies, networking, collaboration, advocacy and teacher capacity development in Africa"

3.2.3 Core Values

In the day-to-day operations and in pursuit of organizations' mandate a set of core values which form the basic elements of how we function include;

1) **Relevance**:   We commit to provide and promote programmes that are relevant to the needs of our customers
2) **Innovativeness**:   We commit to be innovative and creative in all our capacity development programmes
3) **Accountability**:   We commit to be ethical, rational and take responsibility for our actions as well as meeting our obligations on time
4) **Teamwork**:   We commit to work together and support one another in our efforts to achieve the common goal
5) **Respect for individual country differences**: We commit to recognize individual country differences and treat others with respect and courtesy

3.3 STRATEGIC OBJECTIVES, STRATEGIES AND ACTIVITIES

To achieve the organization's vision and mission, the following strategic objectives, strategies and activities are proposed below and the implementation framework is in Annex 1.

THEMATIC AREA # 1: **DEVELOPMENT AND OPERATIONALIZATION OF ORGANIZATIONAL STRUCTURES**		
OBJECTIVE	**STRATEGY**	**ACTIVITIES**
1. To develop and operationalize SMASE-Africa's organizational structures	Upgrading and functionalizing SMASE-Africa secretariat	1. Engage with the African Union Commission and NEPAD, on strengthening the capacity of the organization to serve as the implementation body for SMT in Africa 2. Upgrade physical infrastructure and source for equipment and material resources: secretariat office & Equipment 3. Establish a scheme of service, deploy staff and build capacity
	Spearheading the establishment of Regional Centres for Teacher Capacity Development	1. Develop a concept paper on partnering with AUC on establishment of the regional training centres 2. Sign MOUs with ministries of education to establish the regional training centres 3. Establish scheme of service for organization's staff, recruit and build capacity
THEMATIC AREA # 2: **CAPACITY DEVELOPMENT OF EDUCATORS IN MATHEMATICS, SCIENCE, & TECHNOLOGY PROGRAMMES**		
OBJECTIVE	**STRATEGY**	**ACTIVITIES**
2. To promote capacity development of educators in mathematics, science & technology education among its member countries.	Strengthening pedagogical content knowledge and skills among SMT educators	1. Carry out needs assessments on classroom practices 2. Develop content based on needs identified including emerging issues. 3. Conduct training programmes based on content developed 4. Monitor and evaluate the programme implementation
	Enhancing subject content matter among SMT educators	1. Carry out needs assessments on subject content mastery of SMT educators. 2. Develop training content based on needs identified including emerging issues. 3. Conduct training programmes based on content developed Monitor and evaluate the programme implementation
	Enhancing learning assessment skills and knowledge among SMT educators	1. Carry out needs assessments on level of understanding of learning assessment skills & knowledge 2. Develop content based on needs identified include emerging issues. 3. Conduct training programmes 4. Monitor and evaluate the implementation
THEMATIC AREA # 3: **MATHEMATICS, SCIENCE, AND TECHNOLOGY EDUCATION RESEARCH AND PUBLICATION**		
OBJECTIVE	**STRATEGY**	**ACTIVITIES**
3. To conduct research	Providing	1. Develop a research policy and a framework for

	platforms for sharing research findings and publications	dissemination of findings
and publish on SMT education with a focus on classroom practices		2. Sensitize member countries to adopt/adapt the policy 3. Conduct research on classroom practices in the teaching and learning of SMT education 4. Disseminate research findings to relevant stakeholders
	Enhancing a culture of research and publication among member countries	1. Conduct research on classroom practices in the teaching and learning of SMT education 2. Disseminate research findings to relevant stakeholders

THEMATIC AREA # 4: ADVOCACY, NETWORKING AND PARTNERSHIP DEVELOPMENT		
OBJECTIVE	**STRATEGY**	**ACTIVITIES**
4. To enhance advocacy, networking and partnership within and across the continent	Exploiting existing and creating new networks	1. Identify areas for further collaboration with existing networks 2. Issue certificates of membership to new member countries
	Enhancing organization's presence and create partnership within and across the African countries	1. Showcase organization's programmes to continental forums such as AUC, ADEA, and NEPAD 2. Enter into agreements with new partners

THEMATIC AREA # 5; RESOURCE MOBILIZATION, MANAGEMENT, AND UTILIZATION		
OBJECTIVE	**STRATEGY**	**ACTIVITIES**
5.Mobilize resources for the organizations' programme activities and ensure effective utilization	Strengthening resource mobilization for the existing cash flows	1. Review and reorganization of the current resource mobilization structure 2. Put in place measures to ensure all member countries pay on time 3. Collect the outstanding debts
	Identifying and developing other sources of resources	1. Review of current resource mobilization sources and develop a projected strategic plan budget 2. Establish businesses through journals, online resources, consultancy services and printed matter
	Strengthening effective resource management and utilization	1) Implement the strategic plan through result-based management 2) Monitor, evaluate, report and improve management of resources

3.4 STRATEGY IMPLEMENTATION

The strategy implementation plan is a road map for the organization's actions. The five thematic areas adopted in the strategy will be guided by five strategic objectives. The objectives are expected results that detail strategies, activities, indicators of performance, means of verification, time frame and indicative budget.

The effectiveness of the key policy strategies outlined in this plan is dependent on realistic implementation and monitoring system. Consequently, the success of implementation and monitoring depend on reaching a shared view among those involved with execution of the programmes and activities. Behind this is the need for an efficient management structure and system involving both member countries and secretariat. To this end, both management and member countries will strive to make certain that the Strategic Plan is effectively and efficiently implemented through the development of annual operational work plans and budgets. Above all, teams will be created in line with thematic areas so that they are held accountable in the implementation process.

To achieve this, the following elements will be critical;
1. *Shared understanding of the Strategic Plan:* The process will be achieved through continuous discussion and participation at various levels by all stakeholders.
2. *Evidence Based Decision Making:* Continued development of systems and processes for evidence based decision-making is a priority. Maximizing organizational knowledge and developing a shared understanding of the environment in which member countries operate, through regular interaction between secretariat and member countries, will be a critical
3. *Skills Enhancement and Motivation:* The success of implementation is strongly linked to the sense of ownership staff have of the outcomes and their sense of responsibility for implementation.
4. *Resource Availability and Priority Actions:* Resources will be made available to implement programmes and activities contained in this plan.
5. *Performance Evaluation:* As an ingredient towards success, stakeholders will be committed to rigorous performance evaluation. There is need for a strong focus on a multi-faceted, integrated approach to measuring, reviewing and reporting on performance.

Implementation of the Plan will be through modification of existing management structure of the organization. Policy direction and oversight of implementation will be provided by the Executive and General Delegates Conference. The secretariat as well as regional centers and member countries in liaison with the Executive will ensure smooth implementation of programmes and activities of the Plan. However, in order to increase efficiency and cost effectiveness, the regional groupings and country specific activities will be priority to enhance ownership.

Strategic implementation committees for each of the five thematic areas will comprise members from the Executive, Regional Grouping, Country Delegates as well as staff of CEMASTEA.

3.5 ORGANIZATION STRUCUTURE

SMASE Africa is governed by the delegates' conference and the executive committee, whose decisions are implemented by the Secretariat, refer Figure 4.1.
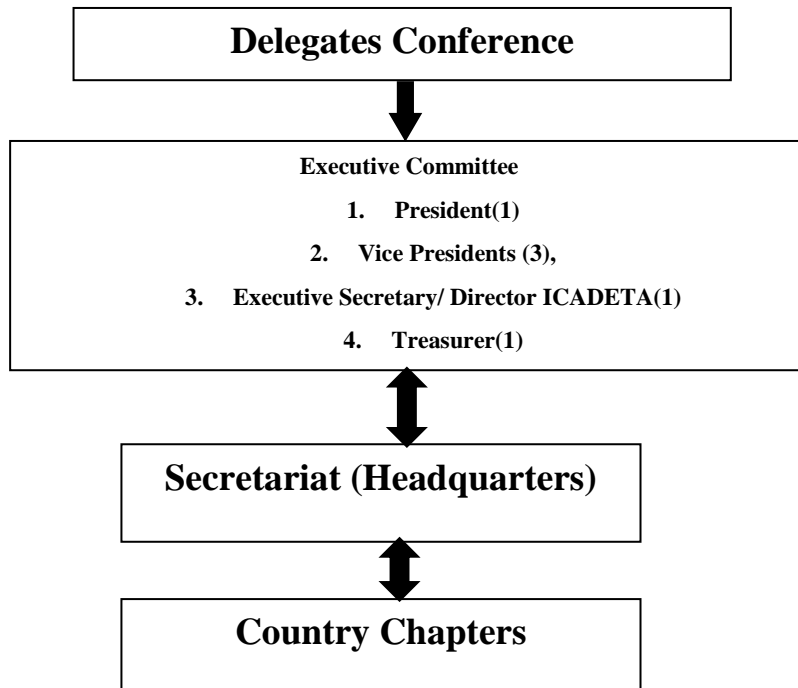
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┌─────────────────────────────────────────┐
│         Delegates Conference            │
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│            Executive Committee           │
│        1.   President(1)                 │
│        2.   Vice Presidents (3),         │
│        3.  Executive Secretary/ Director ICADETA(1) │
│        4.   Treasurer(1)                 │
└─────────────────────────────────────────┘
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│        Secretariat (Headquarters)        │
└─────────────────────────────────────────┘
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│            Country Chapters              │
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Figure 4.1: SMASE- Africa Organizational Structure

The Delegates Conference is the highest decision-making body. Each Country Chapter nominates one delegate to the Meeting. ***The Executive Committee*****:** is responsible for; Policy formulation and amendment of the constitution, formulation of short term, medium term and long term goals, soliciting for funds and ratification of proposed activities of the Association. ***The Secretariat:*** is the permanent centre of operation and is recognized as the headquarters. The Executive Secretary/Director CEMASTEA is the head of the Secretariat and assigns staff to carry out functions from time to time. The Executive Committee may recruit or second to the Secretariat personnel from member countries or collaborating organizations when necessary.

3.6 MANAGEMENT AND GOVERNANCE

SMASE Africa operates on a not-for-profit basis. It operates under the Executive committee who are elected by member country delegates every three years. The stakeholders are proud of long term personal and emotional attachment to the organization. The Executive members serve the organization on a voluntary basis. The essence of the executive's governance role is to oversee all aspects of the organization, appoint affiliate implementation team, and ensure a strategic approach to the future by setting major objectives, policy frameworks and strategies. The

executive also monitors adherence to systems of risk management, ensure compliance with legal obligations, and, undertake periodic performance reviews.

The day to day management and operations of activities is the responsibility of the Executive Committee and the Secretariat. The Secretariat implements actual day-to-day running of the organization, such as managing program implementation under direct leadership of the director-CEMASTEA.

3.7 ASSUMPTIONS

In an endeavor to successfully implement the Plan, a number of assumptions are stated as follows:

1. Legal framework remains favorable in member countries
2. Member countries remain economically and politically stable
3. Funding by national governments & development partners are sustained
4. Member countries support efforts to establish teacher capacity development programmes
5. Continued strategic leadership
6. Trained teachers remain in the service for at least five years
7. Trained teachers practice tenets of training
8. Continuous stakeholder support
9. Recruited staff remain at the centre for at least five years
10. Country chapters are guided by organization's constitution