



Association for the
Development
of Education
in Africa

Dialogue on education for leadership and change



The Association for Development of Education in Africa
(ADEA)
Inter-Country Quality Node on Mathematics and
Science Education
(ICQN-MSE)



1. BACKGROUND: MATHEMATICS AND SCIENCE EDUCATION IN AFRICA

The United Nations Rio 20+ Declaration: *The Future We Want* (United Nations, 2012)¹, recognised Mathematics and Science Education as pillars for economic growth and national development; being the foundations for Science Technology and Innovation (ST&I). ST&I is critical elements in a world that is increasingly becoming knowledge-based. Science and mathematics skills, according to the World Bank (2011)², are essential for building modern knowledge and skills, readiness to take initiatives, and ability to solve problems and to innovate products and processes; elements that regional integration and labour market mobility are increasingly demanding.

However, the UNESCO Science Report (2010)³ notes that in spite of Africa being replete with natural resources, intellectual capital and indigenous knowledge and culture, it is nevertheless at a comparative disadvantage with regard to overall development because of low investment in ST&I and adoption of a short-term view of human development. Similarly, the midterm review of the African Union's 2nd Decade of Education Plan of Action (2006-2015) identifies lack of Science and Mathematics knowledge as one of the outstanding challenges Africa needs to solve. It noted that Africa has the lowest enrolment and graduation in science and math. This is compounded by lack of science, mathematics and technology teachers with the supply on the average being half of the demand at secondary and higher education.

If Africa has to develop, urgent measures to address the quality of mathematics and science education has to be put in place. It is for this reason that the Association for the Development of Education in Africa (ADEA), Japan International Cooperation Agency (JICA) and the Ministry of Education, Science and Technology (MOEST) of Kenya partnered in 2004 to form the Working group on Mathematics and Science Education (WGMSE). In order to enhance the ownership and country-level

¹ United Nations (2012). Resolution No. 66/288: The Future We Want. [Online]. Available from:

http://www.icriforum.org/sites/default/files/UNGA_the_future_we_want.pdf Accessed 1 February 2013

² The World Bank (2011). A Regional Exploration of Pathways towards Harmonization of Math and Science Curriculum in the East African Community: Discussion Paper. [Online]. Available from: http://www.wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2011/11/15/000386194_20111115233228/Rendered/PDF/655070WP00PUBLOion0discussion0paper.pdf. [Online]. Accessed 1 February 2013

³ UNESCO (2010). Science Report. Retrieved from: <http://www.unesco.org/new/en/natural-sciences/science-technology/prospective-studies/unesco-science-report/> Accessed 1 February 2013

implementation by participating countries, the ADEA Steering Committee converted WGMSE into an Inter-Country Quality Node on Mathematics and Science Education (ICQN-MSE) in May 2014.

2. INTER-COUNTRY QUALITY NODE ON MATHEMATICS AND SCIENCE EDUCATION (ICQN-MSE)

2.1. Rationale for the Intervention

ADEA's mandate is to promote education in African through providing a network and a unique forum for policy dialogue for African education and training ministries, educational experts and international partners. The Association also seeks to translate expert knowledge into concrete recommendations and frameworks to inform African governments of the required paradigm shifts, policy changes, and actions required to transform education and training.

It is for this reason that it initiates targeted interventions on the most pressing thematic areas that impact the development of critical knowledge, skills, and qualifications. The Working Group on Mathematics and Science Education (WGMSE) was therefore launched in November 2004 to provide targeted intervention in the area mathematics and science education.

In order to support countries in translating knowledge, strategic frameworks and key recommendations emerging from ADEA's evidence-based policy dialogue into policies and implementation frameworks at the national level, ADEA converted WGMSE into the ICQN-MSE. The ICQN arrangement is considered a more potent option for promoting implementation at national level because it is a unique arrangement where countries facing similar challenges come together with strategic partners who have expertise in a specific field to promote dialogue, collective learning and space for collaborative action was therefore mooted. It therefore has a great potential for promoting ownership of the learning around which it is built. This is critical since quality improvement is a national affair.

ICQN arrangement also has the potential to promote capacity building by continuously utilising existing capacity while developing new through the process of collaborating states and partners learning in and from action, practice and experience as well as learning together, with and through one's peers. In this regard it fosters and

develops synergies by actively bringing together strategic development partners involved in a strategic area.

ICQNs are constituted by grouping a certain number of countries along a set of criteria such as shared challenges and themes; the six regions currently represented in ADEA (Southern Africa, Central Africa, West Africa, East Africa, North Africa and Indian Ocean); current educational initiatives (SACMEQ, PASEC); other lines (such as the Lusophone countries) or Africa's regional economic communities (SADC, ECOWAS, CEMAC, etc.). A champion country takes the lead and convenes other countries around a thematic area that presents a common challenge then ADEA Secretariat and Working Groups and other strategic and funding development partners facilitate the initial launch of the ICQN.

2.2. Structure of ICQN-MSE

The ICQN-MSE is lead by Kenya's Ministry of Education, Science and Technology (MOEST). It is hosted and coordinated by the Centre for Mathematics, Science and Technology Education in Africa (CEMASTEА) in Nairobi; an institution under MOEST. JICA has been the lead partner for WGMSE activities since 2004. However after transformation to ICQN-MSE, all partners are welcome to support Africa on its efforts to promote mathematics and science education.

In line with ADEA Charter for ICQNs, ICQN-MSE will put in place and make operational its Regional Coordinating Committee chaired by Kenya's Cabinet Secretary for Education, Science and Technology and includes Ministers from participating countries. It will also constitute and make operational the Local Coordinating Committee and strengthen its ICQN-MSE Secretariat at CEMASTEА. The ICQN-MSE will strengthen its relationship with SMASE Africa Association and engage other WGMSE partners such as the Africa Principals Convention, the South-East Asian Ministers of Education Organization-Regional Centre for Mathematics and Science Education (SEAMEO-RECSAM) and education professionals.

Kenya's MOEST leads the ICQN-MSE and CEMASTEА host and coordinates it because of their long history of working with African countries around mathematics and science that dates back to the year 2001. The country launched its own programme to strengthen mathematics and science education (SMASE) in 1998. Many countries in

the region saw the programme as promising approach to address the challenges facing mathematics and science education. Therefore some 11 countries from Eastern, Central and Southern Africa met in Nairobi 2001 to create a platform around which they would create synergy in addressing mathematics and science challenge.

Countries from West Africa joined this initiative in 2003 and hence the creation of the Strengthening of Mathematics and Science Education in Africa (SMASE-WECSA) Association. SMASE-WECSA has since become SMASE-Africa to open up for all Africa countries. SMASE-Africa currently brings together 35 countries. Of these, 27 are officially registered members whose governments remit annual subscription fees (see Annex I). Kenya hosts the secretariat of this Association at CEMASTEА in Nairobi. Indeed, several of these countries through this resultant learning have initiated country-based programmes modelled after Kenya. SMASE-Africa is a very close partner of the ICQN-MSE and have together organised several activities since its launch in 2004 as WGMSE. JICA, ICQN-MSE and SMASE-Africa partner in collaboration with the Government of Kenya have constructed ultramodern office and training facilities at CEMASTEА at a cost of approximately US\$5million to support ICQN-MSE and SMASE-Africa activities.

3. ICQN-MSE: OUR WORK AND ACHIEVEMENTS

The ICQN-MSE while operating as WGMSE, implemented its work in five areas namely; capacity building, networking, analytical work, information dissemination, and advocacy. The work was undertaken in line with ADEA's high level objectives of advancing policies, strategies, practices, and programs that promote critical knowledge, skills, and qualifications and to develop and promoting African-led education and training solutions that address national and regional needs. Under each of the five areas, the ICQN achieved the following:

3.1.Capacity Building

ICQN-MSE implements capacity building programmes through CEMASTEА with funding from JICA and the Government of Kenya. The training programmes aim at contributing to the development of human resources that can promote the advancement of Africa's development. They also seek to promote mutual

understanding and friendship among those who are undertaking the training programmes. Through this programme, over 1,600 key trainers from 27 countries have been trained in the process creating a network of professional across the continent. In addition to the regular training programmes, customised courses have also been undertaken to address specific needs of a requesting country (see Annex II).

Besides training at CEMASTEА, JICA's south-south cooperation third country expert service has supported some 17 countries to put in place country-based training programmes for their mathematics and science teachers. These country-based programmes are run by the key trainers prepared by CEMASTEА. Some 218 experts from CEMASTEА have been dispatched on such missions to support formulation of training programme, facilitation of training, programme management, monitoring and evaluation and stakeholder sensitization (See Annex III).

In addition to training at CEMASTEА and exchange of expertise, technical workshops that provide forums for technical staff of the country-based programmes to share experiences on these interventions are also organised. Three such workshops have been held in Swaziland, Kenya and Zambia (see Annex IV). The workshops have shown a high potential for influencing technocrats in adopting/adapting strategies, practices and programmes that promote cultivation of scientific core skills and knowledge among participating countries. For example, the 2013 workshop that was held in Lusaka, Zambia brought together 150 participants from 26 countries that included teachers, teacher educators, and education policy makers. They studied Zambia's school-based continuous professional development; learning what works well or what does not.

3.2. Networking and Advocacy

In order to sensitise education officials on the work being undertaken, ICQN-MSE (as WGMSE) in collaboration with SMASE-Africa has organised nine regional conferences since 2005 as summarised in Annex V. These have provided forums for education stakeholders from over 27 African countries to chart way forward for sustaining their collaborative efforts aimed at enhancing the quality of mathematics and science through capacity-building and policy advocacy. It also briefed the Caucus of Ministers of Education on the mathematics and science capacity-building programmes

for Africa during the ADEA Triennale in February 2012 in Burkina Faso and in April 2012 during the COMEDFA V in Abuja Nigeria.

Technical exchange visits have also been promoted between participating countries. Several high level delegations from other African countries conducted study missions to Kenya to learn from the country's experience on the implementation of its SMASE Programmes. These included ministerial delegations and Principal Secretaries from Angola, Malawi, Mozambique, Federal Republic of Nigeria, Senegal and Uganda. Besides visits to Kenya, delegations from Rwanda, Swaziland, and Senegal have also visited Zambia which has displayed an exemplary initiative on school-based continuous professional development focusing on lesson study (See Annex VI)

3.3. Information Dissemination

Information dissemination has mainly been through the forums provided by training programmes at CEMASTE, regional conference, technical workshops, and the international high level education meetings. Dissemination through a dedicated website has however been weak. This is one area that the ICQN-MSE will direct its activities in the coming year with a view to posting relevant publications and information.

3.4. Analytical Work

ICQN-MSE seeks to upgrade capacities of practitioners and responsible educators to improve their ability to conduct participatory evaluation and action research based on their own experience, and to be able to communicate results more widely. Therefore one of the important elements of its training is on monitoring and evaluation. The implementation of mathematics and science programmes involve experimenting with new kinds of partnership and relationships that exist between education ministries and the varied players in basic education, assessing the role that the public sector can play in supporting these highly diverse educational modalities, updating members knowledge of productive linkages between primary and secondary education, and developing pre-service or in-service teacher training programs. The practical experiences from the various participating countries provide a rich arena for analytical work on what works and what does not work.

A good example of such analytical work presented results at ADEA's 2008 Biennale is Kenya's SMASE Project Impact Assessment Survey (SPIAS) which investigated, among others, how teacher participation in the in-service training affects teachers' attitudes, pedagogical preparedness, and classroom practices and how students' attitude and participation in lessons affect their achievement. The findings were that the quality of INSET brought about a better attitude towards teaching and that the practice of ASEI-PDSI improved students' learning process, students' attitude towards mathematics and science subjects, participation, and test-scores. Findings from such analytical work inform the revision of training course content for greater impact.

3.5. Impact of the ICQN-MSE Activities

As a result of ICQN-MSE and SMASE-Africa working together on the five areas of capacity building, networking, analytical work, information dissemination, and advocacy, 17 countries are already implementing country-based INSET programmes for their teachers (see Annex VII). These programmes having been inspired by ICQN-MSE (WGMSE) activities and support are implemented at country level through bilateral arrangements supported by ICQN-MSE partner JICA. The work of ICQN-MSE with JICA and SMASE-Africa has thus catalysed the up-scaling across the African continent a successful experience piloted in Kenya. It is also instructive that Governments of participating countries have shown commitment to the ideals propagated by remitting annual contributions to the SMASE-Africa Association even though it is only nominal.

4. CHALLENGES FACING WGMSE

In spite of its achievements, ICQN-MSE is currently faced with several challenges it needs to surmount to continue delivering programmes to African countries. A major challenge is inadequate funding. As WGMSE, ICQN-MSE had only development partner, JICA, supporting its activities. JICA has continued as ICQN-MSE partner but will only support the training of Anglophone countries at CEMASTEА.

This means that Francophone countries will no longer benefit from the ICQN-MSE training programmes at CEMASTEА in spite of the great needs that still remain. Similarly, JICA will no longer support the third country expert service that CEMASTEА provided to various countries starting training programmes. Moreover, in spite of

participating countries demonstrating commitment to support activities implemented by CEMASTEAM to improve the quality of mathematics and science, the annual subscriptions are only nominal.

Besides funding challenges, ICQN-MSE has done very little analytical work. Much of its activities have been concentrated around capacity building. However, there are rich practical experiences that participating countries have accrued over the years. There is therefore a strong need for documenting these valuable experiences, analysing them and distilling appropriate policy recommendations to inform African Governments on how to improve mathematics and science education.

Another challenge for ICQN-MSE is that the advocacy forums it has organised with SMASE-Africa have mostly brought together middle level officers rather than the top education policy makers. In order to entrench those ICQN activities that have been proved to impact positively on the quality of mathematics and science in national policies and plans, there is need to dialogue with Ministers or Principal Secretaries responsible for education. This has not been possible because of the fairly large resources required.

5. WAY FORWARD: ICQN-MSE STRATEGIC DIRECTION (2014-2017)

In order to move ahead and surmount the challenges facing it, ICQN-MSE will align itself to ADEA's medium term strategic framework for the 2014-2017. As an ADEA unit, ICQN-MSE has adopted ADEA's vision, mission, strategic objectives and strategic initiatives for 2014-2017 but with specific reference to mathematics and science education.

5.1. ICQN-MSE Aims, Objectives and Strategic Initiatives

Thus during the 2014-2017 strategic period the main aim of ICQN-MSE would be "to serve as an open and flexible pan-African forum to inform and facilitate the transformation of mathematics and science education to contribute to Africa's accelerated and sustainable development". The strategic objectives and strategic initiatives for this period will be as follows:

5.1.1. Strategic Objective 1: Advance policies, strategies, practices, and programs that promote critical knowledge and skills in mathematics and science

- Strategic Initiative 1.1: Inform the development of effective policies, strategies, practices, and programs in mathematics and science
- Strategic Initiative 1.2: Advise African governments in implementing national mathematics and science policies and strategies
- Strategic Initiative 1.3: Provide technical support for the scale-up and replication of innovative pilot programs in mathematics and science
- Strategic Initiative 1.4: Contribute to national and regional efforts to monitor critical mathematics and science skills development
- Strategic Initiative 1.5: Foster gender-sensitive approaches
- Strategic Initiative 1.6: Promote the integration of values into the center of mathematics and science education

5.1.2. Strategic Objective 2: Develop and promote African-led education and training solutions to address national and regional needs

- Strategic Initiative 2.1: Advance the science and mathematics education agenda of AU's Second Decade of Education and other select regional and continental initiatives
- Strategic Initiative 2.2: Facilitate greater inter-country collaboration and regional integration
- Strategic Initiative 2.3: Promote greater awareness and application of existing African solutions in mathematics and science education
- Strategic Initiative 2.4: Advise African governments in designing and implementing African-led solutions for improving mathematics and science education

5.1.3. Strategic Objective 3: Foster greater utilization of relevant ICT to accelerate the transformation of mathematics and science education approaches and outcomes

- Strategic Initiative 3.1: Engage technology and education stakeholders in dialogue to identify executable ICT solutions for improving mathematics and science
- Strategic Initiative 3.2: Advise African governments in implementing ICT integration in mathematics and science education policies and strategies
- Strategic Initiative 3.4 Promote ICT integration policies and strategies in mathematics and science education that target marginalized groups and populations

5.1.4. Strategic Objective 4: Leverage a diverse, sustainable partner network

- Strategic Initiative 4.1: Diversify partner-base to integrate new voices and experiences into mathematics and science education policy dialogue
- Strategic Initiative 4.2: Engage African Diaspora to contribute to the development of mathematics and science education in the continent
- Strategic Initiative 4.3: Increase technical participation from network partners to expand ICQN-MSE's reach
- Strategic Initiative 4.4: Increase financial support from network partners

5.1.5. SO5: Strengthen organizational capacity and effectiveness

- Strategic Initiative 5.1: Develop and continuously improve the ICQN's core business processes
- Strategic Initiative 5.2: Institutionalize and foster positive internal culture in the ICQN
- Strategic Initiative 5.3: Maximize effectiveness of human capital in the ICQN
- Strategic Initiative 5.4: Improve collaboration and decision-making with other ADEA components

5.2. ICQN-MSE Activities

ICQN-MSE shall develop and strengthen systems for supporting teachers to provide quality mathematics and science education through:

5.2.1. Capacity-Building and Networking

ICQN-MSE shall work with Lead Country, ADEA, Development Partners and other stakeholders to mobilise resources for the following capacity-building programmes it previously organised and conducted under WGMSE:-

- i. Third Country Training Programme at CEMASTEAM,
- ii. Technical Workshops,
- iii. Third Country Expert Services

5.2.2. Advocacy and Networking

ICQN-MSE shall seek to promote the development, dissemination and application of policies that enhance mathematics and science education among member countries. It will therefore first and foremost mobilise essential resources to organise a launch ceremony that brings together Ministers or Principals Secretaries responsible for education in the participating countries. The ICQN will also endeavour to organise international policy dialogue forums on mathematics and science education besides promoting technical exchange visits among participating countries to facilitate learning from each other.

5.2.3. Analytical Work

ICQN-MSE shall conduct research on innovative methods and approaches for effective delivery of mathematics and science education and for popularising the subjects. It will also focus on documenting lessons learnt through the practical experiences of participating countries with regard to up-scaling of programmes, innovative funding approaches and stakeholder engagement among others. These practical experiences have the potential for informing policy papers and briefs. Hence effort will be directed at developing such papers and briefs based on the outcome of the analytical work.

5.2.4. Information Dissemination

ICQN-MSE will publish and distribute a newsletter and a bulletin dedicated to its activities and other actors promoting mathematics and science activities across the continent. It will also disseminate the policy briefs and papers it will generate.

5.2.5. Strengthening the role of CEMASTEAs as a Mathematics and Science Resource Centre for Africa

ICQN-MSE will support its host institution CEMASTEAs to more effectively function as a resource centre for Africa. It will support the institution to publish materials developed under WGMSE. Relevant materials from across Africa and other parts of the world will also be collected and stored for use by participants when training at the Centre.

5.2.6. Establish Other Regional Centres of Excellence in mathematics and science Education across the continent

ICQN-MSE Lead Country Kenya has signed a memorandum of understanding with African Union Commission (AUC) on CEMASTEAs to enable the institution to support AUC's continental teacher development programmes. The ICQN therefore intends to work with CEMASTEAs and AUC in the identification of potential countries to host other centres of excellence and provide technical expertise to such countries.

5.3. 2015 Integrated Plan and Budget (IPB)

In order to move forward in 2015, ICQN-MSE has developed its 2015 IPB. However, several activities have no committed funding as yet. It therefore will engage potential partners to fund activities.

5.4. Monitoring, Evaluation and Reporting

Aligned to ADEA's results-oriented approach, ICQN-MSE will implement an outcome-based Performance Measurement Plan (PMP) to conduct effective performance measurement. In ICQN-MSE context, impact-level data will measure the results of African governments' or other partners' efforts. The data will be tracked and monitored by the countries and partners while ICQN-MSE will use it to inform its strategic planning efforts. ICQN-MSE PMP will focus on the high-level outcomes that can be attributed either directly or indirectly to its work. The PMP will focus on the outcome and output levels, as these will provide the ICQN with the most useful data for measuring its own performance and progress. ICQN will define at least one performance measure for each of its Strategic Initiatives and Strategic Objectives.

6. BIBLIOGRAPHY

ADEA (2013). *ADEA Medium-Term Strategic Plan 2013-2017*.

ADEA (2013). *ADEA Working Group on Mathematics and Science Education*. Retrieved from: <http://www.adeanet.org/portalv2>

ADEA (2013). *What's an ADEA Inter-Country Quality Node (ADEA ICQN)?* A briefing paper for the 39th Session of ADEA Steering Committee held in November 2013 in Tunis, Tunisia.

ADEA (Undated). *Inter-country quality nodes from the standpoint of Biennale follow-up*. A briefing paper for ADEA Steering Committee.

WGMSE (2013). *Report on Achievements during the 2008-2012 Strategic Medium Term Period*

WGMSE (2014). *2013 Report of Activities Working Group on Mathematics and Science Education (WGMSE)*

CEMASTE (2013). *The strengthening mathematics and science education initiative: Towards quality classroom practices in Africa*. An unpublished briefing paper.

ANNEXES

Annex I: African Countries Participating in the Continental Programme for Strengthening Mathematics and Science



- 1) Angola
- 2) Benin
- 3) Botswana
- 4) Burkina Faso
- 5) Burundi
- 6) Cameroun
- 7) Ethiopia
- 8) Ghana
- 9) Kenya

Observers

- 1) Congo
- 2) Cote d'Ivoire
- 3) Egypt
- 4) Madagascar
- 5) Mauritius
- 6) Seychelles and
- 7) South Africa
- 8) Eritrea.

Official Members

- 10) Lesotho
- 11) Malawi
- 12) Mali
- 13) Mozambique
- 14) Namibia
- 15) Niger
- 16) Nigeria
- 17) Rwanda
- 18) Senegal
- 19) Sierra Leone
- 20) South Sudan
- 21) Swaziland
- 22) Tanzania
- 23) The Gambia
- 24) Uganda
- 25) Zambia
- 26) Zanzibar-Tanzania
- 27) Zimbabwe

Annex II: Summary of Training Programmes Offered at CEMASTEА

Table 1: Courses conducted by CEMASTEА (2004-2014)

Type of Training	Target Group	Numbers trained
2004 February	7 countries Lesotho, Malawi, Rwanda, Uganda, Zambia, Zimbabwe,	42
2014 November	15 Countries: Botswana, Burundi, Ethiopia, Lesotho, Mauritius, Malawi, Niger, Nigeria, Rwanda, Senegal, Seychelles, Swaziland, Tanzania, Uganda, Zimbabwe,	85
2005	14 countries: Benin, Burkina Faso, Cameroon, Cote d'Ivoire, Ethiopia, Gambia, Madagascar, Nigeria, Senegal, Seychelles, Sierra Leone, Tanzania, Uganda, Zanzibar,	95
2005 Specialised	4 Countries: Malawi, Rwanda, Sudan, Zambia,	69
2006 Anglophone	12 Countries: Botswana, Burkina Faso, Burundi, Cameroon, Niger, Sierra Leone, Swaziland, Tanzania, Zambia, Zimbabwe, Ghana,	72
2006 Francophone	6 Countries: Burkina Faso, Burundi, Cameroon, Niger, Rwanda, Senegal	86
2006 Specialised	3 Countries: Malawi, Sudan, Zambia	64
2007/Sep-Oct	6 (Anglophone)	76
2007/Oct-Nov	7 (Francophone)	67
2008 Anglophone Regular	12 Anglophone countries	83
2008 Francophone Primary	3 Francophone countries	31
2008 : Anglophone Primary	7 Anglophone countries	50
2009 Anglophone Regular	Angola,(8) Botswana(8), Cameroon(4), Ethiopia(9), Gambia(8), Malawi(10), Mozambique(7), Tanzania(8), Uganda(7) and Zanzibar (8).	76
2009 TCTP 12 Francophone Primary	Benin, Burkina Faso, Burundi, Cameroon and Senegal	32
2010 Anglophone Regular	Teacher Educators from 12 Anglophone countries: Angola (8) , Botswana (8),Cameroon (4) , Gambia (8), Lesotho (4), Malawi (11), Mozambique (3), Namibia (8) Swaziland (4), Tanzania (8), Uganda (8), Zanzibar (8)	82
2010 TCTP 14 Anglophone Primary	Ghana (6), Nigeria (8), Rwanda (8), Sierra Leone (8), Southern Sudan (8), Swaziland (8) and Zambia (6).	52
2010 TCTP 15 Francophone Primary	Teacher Educators from 7 Francophone countries: Benin (4), Burkina Faso (5), Burundi (4), Cameroon (3), Mali (4), Niger (5) & Senegal (5)	30
2010 Anglophone Customised	Teacher Educators from 10 Anglophone countries: Ethiopia (6), Ghana (6), Lesotho (4), Mozambique (3), Nigeria (6), Rwanda (6), Sierra Leone (6), Southern Sudan (5), Swaziland (4) and Zambia (4).	49
2011 Anglophone Regular	Teacher Educators from Botswana, Ethiopia, Ghana, Mozambique, Namibia, Nigeria, Sierra Leone, South Sudan, Swaziland, Zambia and Zimbabwe	62
2012 Francophone Primary	Teacher Educators from 6Francophone countries: Benin, Burkina Faso, Burundi, Mali, Niger & Senegal (5 participants from each country)	30
2012 Anglophone Primary	Teacher Educators from 12 Anglophone countries: Angola, Cameroon, The Gambia, Malawi, Rwanda, Tanzania (8), Uganda (8), Zanzibar (8)	52
2012 Anglophone	Anglophone speaking Primary school educators from 12	72

Type of Training	Target Group	Numbers trained
Regular	countries namely, Botswana, Ethiopia, Ghana, Lesotho, Mozambique, Namibia, Nigeria, Sierra Leone, South Sudan, Swaziland, Zambia and Zimbabwe.	
2012 Francophone Primary	Teacher Educators from 7 Francophone countries: Benin, Burkina Faso, Burundi, Mali, Niger, Senegal and Djibouti	31
2012 Anglophone Advanced Course	Teacher Educators from 8 Anglophone countries: Angola, Cameroon, Gambia, Malawi, Rwanda	51
2013 Anglophone Advanced	7 Anglophone countries: Angola(6), Cameroon(7), Gambia(7), Malawi(7), Tanzania(7), Uganda(7), Zanzibar(7)	48
2013 Anglophone Primary	10 Anglophone countries: Botswana(5), Ethiopia(1), Ghana(7), Mozambique(2), Namibia(6), Nigeria(6), Sierra Leone(5), South Sudan(6), Swaziland(6), Zimbabwe(7)	52
2013 Francophone Primary	6 Francophone countries: Republic of Benin(5), Burkina Faso(5), Burundi(5), Mali(5), Niger(5), Senegal(5)	30
2014 Anglophone Secondary Advanced		57
TOTAL TRAINED		1626

TABLE 2: Customized training courses conducted by CEMASTE A (2008-2011)

Course	Year/Month	Country	Length of Training/ Workshop	No. of participants
1) OJT for Malawi	2002	Malawi	4 weeks	2
2) Stake holders workshop on INSET for Primary teachers	2005/June	Nigeria	1 week	
3) Sensitization Workshop	2005/August	Niger, Senegal, Gambia, Cameroon		
4) OJT for National Trainer, SESEMAT Project	2005/Aug-Sep	Uganda	4 Weeks	4
5) Specialized Training	2005/Dec	Southern Sudan	1 week	10
6) SESEMAT Project	2005/Dec	Rwanda, Sudan, South Sudan, Zambia	2 Weeks	72
7) Project Formulation WS	2006/Jan	Niger	2 Weeks	3
8) OJT for National Trainer, SESEMAT Project	2006/Aug-Sep	Uganda	2 Weeks	8
9) OJT for National Trainer, SMASE Project	2006/Aug-Sep	Nigeria	4 Weeks	4
10) OJT for National Trainer, SMASE Project	2006/Sep	Nigeria	2 Weeks	12
11) Introduction of ASEI/PDSI	2006/Nov	Malawi, Sudan, South Sudan, Zambia	2 Weeks	60
12) ASEI-PDSI Workshop	2007	Ghana	2weeks	
13) Introduction of ASEI/PDSI	2007/Aug	Sudan, Southern Sudan	2 Weeks	31
14) INSET Curriculum Design	2007/Oct	Tanzania	1 Week	2
15) INSET Curriculum Design	2007/Oct-Nov	Lesotho, Swaziland	2 Weeks	10
16) INSET on hands-on activities for effective classroom practices	2008	Southern Sudan	2 weeks	31
17) OJT for educators	2008	Tanzania, Lesotho, Swaziland, Nigeria		
18) Sensitization Workshop	2008	Angola		
19) Introduction of ASEI/PDSI	2009/Jan-Feb	Southern Sudan	4 Weeks	74
20) WS for INSET System in	2009/Feb-	Senegal	1 Week	17

Course	Year/Month	Country	Length of Training/ Workshop	No. of participants
Kenya	Mar			
21) WS for INSET System in Kenya	2009/Mar	Mali	1 Week	9
22) Monitoring and Evaluation Technical Workshop	2010/May	5 Countries (Botswana, Malawi, Namibia, Swaziland and Zambia)	2 weeks	
23) 2011 OJT- INSET Trainers of trainer	South Sudan			4
TOTAL				353

Source: CEMASTE A

Annex III: Dispatch of Third Country Service from CEMASTEА

Table 3: Dispatches of Third Country Expert Service and Study Teams from CEMASTEА to other Countries (2003-2007)

Country/ Project Period	Dates of Assistance	Areas of Technical Assistance	Outputs
Malawi (SMASSE Malawi: Oct 2004 Sept 2007)	31 st March – 3 rd April 2003	National Workshop for TOT: <ul style="list-style-type: none"> • Sensitisation of Core Trainers on ASEI/PDSI • INSET Curriculum development 	<ol style="list-style-type: none"> 1. Conducted sessions on ASEI/PDSI 2. Trained Core Trainers on INSET curriculum development 3. Developed draft curriculum from needs survey report
	July 10 th – Aug 27 th 2005	INSET for Core Trainers: <ul style="list-style-type: none"> • Needs Assessment, • Curriculum development, • Implementation • M&E 	<ol style="list-style-type: none"> 1. Conducted survey on the capacity and needs of core trainers 2. Developed training curriculum for Core Trainers 3. Conducted training for Core Trainers on planning, implementation and evaluation of INSET 4. Made recommendations based on the observations with respect to quality, management and sustainability.
	27 th Nov – 29 th Dec 2005	INSET for Classroom Teachers implemented by Core Teachers <ul style="list-style-type: none"> • Finalising of preparations • Facilitation • Evaluation and way forward 	<ol style="list-style-type: none"> 1. Reviewed write-ups, programmes and evaluation tools developed by Core Trainers 2. Made observations, gave recommendations/advice with respect to planning and implementation of INSET
	Nov 19 th – Dec 23 rd 2006	INSET implemented by Core Trainers for secondary MS teachers <ul style="list-style-type: none"> • Administration, • Implementation • M&E during Regional 	<ol style="list-style-type: none"> 1. Sensitisation of key education stakeholders on ownership, sustainability and need for INSET policy. 2. Ensuring adequate preparation for INSET 3. Quality control (polishing up) of manuals 4. Development and use of instruments on ability of core trainers to implement INSET
	4 th –10 th Feb 2007	Providing Feedback on INSET	Giving reports on 2006 TCE mission observations and recommendations to various stakeholders as well as a Joint Co-ordinating Committee Meeting
	March	Impact Survey of TCTP	Assessment of the extent of ex-trainees practice of ASEI / PDSI teaching methodology
Niger (SMASSE Niger Project; Oct 2006 – Aug 2009)	6 th –15 th March 2006	JICA Study Mission <ul style="list-style-type: none"> • Project Formulation • Project Design Matrix 	Project Design Matrix
	3 rd – 9 th June 2006		
	29 th –31 st Jan. 2007	Stakeholder Sensitisation Workshop and Preparation for National INSET	Provided advice on quality control of training manuals and INSET preparedness with respect to facilities and resource

Country/ Project Period	Dates of Assistance	Areas of Technical Assistance	Outputs
	23 rd Feb – 21 st March 2006	National INSET for Regional Trainers	<ol style="list-style-type: none"> 1. Helped to develop M&E instruments 2. Observed INSET sessions 3. Did data analysis and interpretation
Rwanda (Envisaged SMASSE-	24 th Feb – 3 rd March 2007	Preliminary appraisal mission on project formulation for a SMASSE-type project	Provision of technical advice and guidance based on Kenyan experience during preparations of Records of Discussion (RD)
Rwanda for Nov 2007)	7 th -11 th and 19 th -24 ^h March 2006	Baseline Survey	<ol style="list-style-type: none"> 1. Development of Survey Instruments 2. Advice on survey design and logistics 3. Analysis and interpretation of data
	13 th -19 th May 2007	Impact Survey	Assessment of the extent of ex-trainees practice of ASEI / PDSI teaching methodology
Nigeria (SMASE Nigeria; Sept 2006 – August 2009)	19 th – 24 th June 2005	Stakeholders' Workshop	Sensitisation on ASE/PDSI and development of funding strategies for the then proposed SMASE-Nigeria Project
	26 th -29 th Oct 2005	On the Job Training at CEMASTEAM on Needs Survey	Preliminary guidance on development of survey instruments
	9 th Oct – 5 th Nov 2005	Baseline Survey Project Design	<ol style="list-style-type: none"> 1. Development of questionnaires 2. Preparations for and conduct of survey 3. Formulation of Project Design Matrix 4. Sensitisation of Stakeholders
	Aug 2006	OJT on Monitoring and Evaluation and Development of INSET, Curriculum, Schedules and Training Manuals	<ol style="list-style-type: none"> 1. Observation of SMASSE-Kenya District INSET 2. Hands-on M&E of District INSET 3. Development of INSET manuals
	15 th Nov – 9 th December 2006	<ol style="list-style-type: none"> 1. Preparations for, implementation and M&E of Cycle 1 of National INSET for State Trainers and State INSET for Core Teachers 2. Stakeholder Sensitisation 	<ol style="list-style-type: none"> 1. Technical input and quality control of development of INSET handouts 2. Preparations for cycle 1 of National INSET 3. M&E of National INSET 4. Development/Adaptation of M&E instruments 5. Session Facilitation during National INSET 6. Advice on preparations for cycle 1 of State INSET 7. Advice on effective management of INSET implementation for sustainability
	14 th Feb – 15 th Mar 2007	Preparations for Cycle 2 of National INSET for State Trainers	<ol style="list-style-type: none"> 1. Technical input and guidance into the development of Cycle 2 INSET programme, training manual and handouts 2. Advice on effective management of INSET implementation for sustainability 3. Advice on preparation of INSET and M&E Reports
Uganda (SESEMAT: Secondary Science and	Aug 21 st – Sept 17 th 2005	OJT at CEMASTEAM on: <ol style="list-style-type: none"> 1. M&E 2. Development INSET Curriculum 	<ol style="list-style-type: none"> 1. M&E of District Level INSET (Field observations and Discussions) 2. Development of M&E instruments 3. Development of INSET Curriculum

Country/ Project Period	Dates of Assistance	Areas of Technical Assistance	Outputs
Mathematics Teachers' Project;(2005 -2008)		3. Development of training manuals 4. Stakeholder Sensitisation	4. Development of Programmes and write-ups for cycle 1 of National INSET for Key Trainers 5. Participation in Principals' Workshop
	12 th –23 rd Dec 2005	M&E of INSET	1. M&E of cycle 1 of National INSET for Key Trainers 2. Advice on effective management of INSET implementation for sustainability 3. Training National Trainers on M&E of INSET
	28 th Nov – 1 st Dec 2006	INSET material development	Quality control and technical input into refining of INSET programme and training manual/write-ups for cycle 2 of national INSET for Key Trainers
	11 th – 22 nd Dec 2006	M&E of INSET	1. M&E of cycle 2 of national INSET for Key Trainers 2. Advice on effective management of INSET implementation for sustainability
Zambia (SMASTE Zambia)	26 th –31 st January 2003	Stakeholder Sensitisation	Facilitation of workshop sessions to introduce SMASSE Kenya to educationist in Zambia Provision of technical advice on further development of SMASTE Zambia Demonstration of ASEI/PDSI Lessons
Senegal	23 rd -26 th Jan 2007	Project Formulation	Consultative tripartite discussion on the proposed mathematics and science education project
	6 th -21 st May 2007	Preliminary appraisal mission on project formulation for a SMASSE-type project	Provision of technical advice and guidance based on Kenyan experience during preparations of Records of Discussion (RD)
Burkina Faso	6 th -21 st May 2007	Preliminary appraisal mission on project formulation for a SMASSE-type project	Provision of technical advice and guidance based on Kenyan experience during preparations of Records of Discussion (RD)
Burundi	9 th -11 th Nov	Stakeholder Sensitisation	Paper presentation on ASEI/PDSI during the launching of SMASSE-WECSA Burundi Chapter
	30 th April- 1 st May	Study on the Status of SMASSE in Burundi	Assessing progress made by SMASSE-WECSA Burundi chapter Sensitising Minister of Education on SMASSE-WECSA activities

Summary of Third Country Expert Service by CEMASTE Staff (2009-2011)

Year	Countries receiveing expert service	No. Of experts dispatched
2008	13 Countries: Angola, Burkina Faso, Malawi, Niger, Nigeria, Rwanda, Sierra Leone, Senegal, Sudan, Swaziland, Tanzania, Uganda and Zambia	64
2009	8 Countries: Angola, Burkina Faso, Niger, Nigeria, Rwanda, Senegal, Sudan and Tanzania	18
2010	8 Countries: Angola, Burkina Faso, Niger, Nigeria, Rwanda, Senegal, Sudan and Tanzania	20
2011	1 Country: South Sudan	2
2014	1 Country: Namibia	2

Source: CEMASTE

Annex IV: Technical Workshops

TABLE 4: Summary of Technical Workshops

Theme/Focus	Dates	Host Country	Participating Countries
Seminar for Lesson Improvement	Feb 2012	Uganda	6 Anglophone countries: Ethiopia(4), Ghana(3), Zambia(8), Rwanda(3), Tanzania(3), Malawi(2), Uganda(14)
Strengthening of ASEI-PDSI implementation in the classroom	July 2012	Kenya	18 Countries: Cameroon(2), Ethiopia(2), Gambia(2), Ghana(3), Lesotho(1), Malawi(2), Namibia(2), Nigeria(2), Rwanda(2), South Sudan(4), Swaziland(2), Tanzania(2), Uganda(2), Zambia(5), Zanzibar(2), Zimbabwe(1), Senegal(1), Niger(1), Kenya(25)
Strengthening of ASEI-PDSI implementation in the classroom	June 2013	Zambia	26 Countries: Angola (1), Benin (1), Botswana(3), Burkina Faso (1), Burundi (1), Cameroon (3), Lesotho (1), Malawi (3), Mali(1), Namibia (1), Ethiopia (3), Gambia (3), Ghana (3), Zanzibar (3), Zimbabwe (3), Mozambique (2), Senegal (3), Burkina Faso (1), Tanzania (1), Kenya (13), Zambia (47)

Annex V: Summary of Regional Conference (2001-2013)

TABLE 5: Regional Conference since 2001

<p>The 1st Regional Conference Venue: February 2001 in Nairobi, Kenya Theme: Mathematics and Science Education: Enhancing Classroom Activities for Quality Teaching and Learning in Eastern, Central and Southern Africa Region. Participant Countries (11 African Countries): Kenya, Lesotho, Malawi, Mozambique, Rwanda, South Africa, Swaziland, Tanzania, Uganda, Zambia and Zimbabwe (Observer: Japan)</p>	<p>The 2nd Regional Conference Venue: June 2002 in Nairobi, Kenya Theme: Enhancing Classroom Activities for Quality Teaching and Learning in Eastern, Central and Southern Africa Region. Participant Countries (13 African Countries): Burundi, Ghana, Kenya, Lesotho, Malawi, Mozambique, Rwanda, South Africa, Swaziland, Tanzania, Uganda, Zambia and Zimbabwe (Observer: Japan and Philippines)</p>
<p>The 3rd Regional Conference Venue: June/July 2003 in Accra, Ghana Theme: Enhancing Classroom Activities for Quality Teaching and Learning in Africa. Participant Countries (18 African Countries): Burundi, Egypt, Ghana, Kenya, Lesotho, Malawi, Mozambique, Namibia, Niger, Nigeria, Rwanda, Senegal, South Africa, Swaziland, Tanzania, Uganda, Zambia and Zimbabwe (Observer: Japan and Philippines)</p>	<p>The 4th Regional Conference Venue: May/June 2004 in Mpumalanga Province, South Africa Theme: Enhancing Classroom Activities for Quality Teaching and Learning in Eastern, Central and Southern Africa Region. Participant Countries (21 African Countries): Botswana, Burundi, Egypt, Ghana, Kenya, Lesotho, Madagascar, Malawi, Mozambique, Namibia, Niger, Nigeria, Rwanda, Senegal, Seychelles, South Africa, Swaziland, Tanzania, Uganda, Zambia and Zimbabwe (Observer: Japan and ADEA Secretariat)</p>
<p>The 5th Regional Conference Venue: June 2005 in Gitarama, Rwanda Theme: Enhancing Classroom Activities for Quality Teaching and Learning in Eastern, Central and Southern Africa Region. Participants Countries (27 African Countries): Benin, Botswana, Burkina Faso, Burundi, Cameroon, Cote d'Ivoire, Ethiopia, Egypt, Ghana, Kenya, Lesotho, Malawi, Mauritius, Mozambique, Niger, Nigeria, Rwanda, Senegal, Seychelles, Sierra Leone, South Africa, Swaziland, Tanzania, Uganda, Zambia, Zanzibar and Zimbabwe (Observer: Japan, Philippines and ADEA Secretariat)</p>	<p>The 6th Regional Conference Venue: May/June 2006 in Saly, Senegal Theme: Enhancing classroom activities for quality teaching/learning of Mathematics, Science and Technology in Africa. Participants Countries (27 African Countries): Benin, Botswana, Burkina Faso, Burundi, Cameroon, Ethiopia, Gabon, Gambia, Ghana, Kenya, Lesotho, Malawi, Mali, Mozambique, Niger, Nigeria, Rwanda, Senegal, Sierra Leone, South Africa, Sudan, Swaziland, Tanzania, Uganda, Zambia, Zanzibar, and Zimbabwe (Observer: Japan, Malaysia, Philippines and ADEA Secretariat)</p>
<p>The 7th Regional Conference Venue: June 2007 in Lusaka, Zambia Theme: Enhancing Classroom Activities for Quality Teaching and Learning of Mathematics, Science through Lesson Study. Participant Countries (23 African Countries): Angola, Benin, Burkina Faso, Burundi, Cameroon, Ethiopia, Ghana, Kenya, Lesotho, Malawi, Mozambique, Niger, Nigeria, Rwanda, Senegal, Sierra Leone, Sudan, Swaziland, Tanzania, Uganda, Zambia, Zanzibar, Zimbabwe (Observers: Japan, Madagascar, South Africa, Malaysia, Philippines and ADEA Secretariat)</p>	<p>The 8th Regional Conference Venue: May 2008 in Nairobi, Kenya Theme: Successful and Sustainable SMASE-WECESA Organization for Better Teaching and Learning of Mathematics and Science in Africa. Participant Countries (21 Countries): Angola, Benin, Botswana, Burkina Faso, Burundi, Cameroon, Ethiopia, Gambia, Ghana, Kenya, Malawi, Mozambique, Niger, Nigeria, Rwanda, Senegal, Southern Sudan, Tanzania, Uganda, Zambia, Zanzibar and Zimbabwe (Observer: Japan, South Africa, Malaysia, Philippines and ADEA Secretariat)</p>
<p>The 9th Regional Conference Venue: November 2009 in Nairobi, Kenya Theme: Successful and Sustainable INSET Activities and Government Support for Quality Teaching and Learning.</p>	<p>The 10th Anniversary Regional Conference Venue: December 2010 in Nairobi, Kenya Theme: A Reflection on a Decade of Promoting Mathematics and Science Education in Africa. Participating Countries (26 African Countries): Angola,</p>

<p>Participant Countries (20 African Countries): Botswana, Burkina Faso, Burundi, Cameroon, Ethiopia, Gambia, Ghana, Kenya, Malawi, Mozambique, Niger, Nigeria, Rwanda, Senegal, Southern Sudan, Tanzania, Uganda, Zambia, Zanzibar and Zimbabwe (Observer: Benin, Japan, South Africa and ADEA Secretariat)</p>	<p>Botswana, Burkina Faso, Burundi, Cameroon, Ethiopia, Gambia, Ghana, Kenya, Lesotho, Mali, Malawi, Mozambique, Namibia, Niger, Nigeria, Rwanda, Senegal, Sierra Leone, Southern Sudan, Swaziland, Tanzania, Uganda, Zambia, Zanzibar and Zimbabwe (Observer: Benin, Japan, South Africa and ADEA Secretariat)</p>
<p>The 11th Regional Conference Venue: Nairobi, Kenya; December 2011 Theme: The Way Forward of SMASE WECSA (Sustainability beyond 2013) Participating Countries (26 African Countries): Angola, Benin, Burkina Faso, Cameroon, Ethiopia, Ghana, Japan, Kenya, Malawi, Mozambique, Niger, Nigeria, Rwanda, Senegal, Sierra Leone, South Africa, Southern Sudan, Tanzania, Uganda, Zambia and Zimbabwe (Observer: Japan, ADEA Secretariat, Kenyatta University and Kenya Primary Headteachers's Association)</p>	<p>The 12th Regional Conference Venue: Nairobi, Kenya; November/December 2012 Theme: Strategising for Sustainable SMASE Africa Beyond 2013. Participating Countries (26 African Countries): Angola, Botswana, Burkina Faso, Burundi, Cameroon, Ethiopia, Gambia, Ghana, Kenya, Lesotho, Mali, Malawi, Mozambique, Namibia, Niger, Nigeria, Rwanda, Senegal, Sierra Leone, Southern Sudan, Swaziland, Tanzania, Uganda, Zambia, Zanzibar and Zimbabwe (Observer: Djibouti;, Japan, African Union Commission, ADEA Secretariat)</p>
<p>The 13th Regional Conference Venue: Nairobi, Kenya; October/November 2013 Theme: Rethinking the Strategies for the Future Sustainability of SMASE-WECSA. Participating Countries (26 African Countries): Angola, Botswana, Benin, Burkina Faso, Burundi, Cameroon, Ethiopia, Gambia, Ghana, Kenya, Mali, Malawi, Mozambique, Namibia, Niger, Nigeria, Rwanda, Senegal, Sierra Leone, Sudan, Swaziland, Tanzania, Uganda, Zambia, Zanzibar, Zimbabwe (Observer: Japan and ADEA Secretariat)</p>	

*Red: new members

Annex VI Technical Exchange Visits

Table 6: Summary of Technical Exchange Visits on Spread of Good Practices among Countries

Nature of Activity	Country/ Organization	Date	Category of Personnel Sensitised
Visits to CEMASTE A	NEPAD	22/06/2004	Prof. Mboya
	Malawi	5/07 2004	JICA Malawi
	Honduras	13/09/2004	JICA
	Uganda	6/12/2004	Permanent Secretary and others
	Nigeria	14/02/2005	Director Education and others
	Egypt	21/02/2005	JICA Project
	Malawi	10/04/2005	PS Education, Principal Domasi College of Education
	Nigeria	1/05/2005	Directors of Teacher T. Colleges
	Uganda	24/0/4/2005	Uganda SESEMAT
	Senegal	6/06/2005	PS Education
	AU	4/12/2006	Head of Education Division
	Mozambique	6/03/2007	PS Education
	Angola	6/03/2007	Assistant Minister MOE
	AU	8/03/2007	AU commissioner for Human Resources, Science and Technology
	Benin	18/06/2007	Director
	Burkina Faso	28/06/2007	PS Education
		2013	Ministerial delegation
	Malawi	22/07/2007	PS Education
	Gabon	2010	PS Education Gabon
	Burkina Faso	Aug 2012	Ministerial delegation
Nigeria	Sept 2012	Senior Education Officials from state agencies and various states	
Botswana	Dec. 2013	Director of Education	
Namibia	April 2014	Members of Parliament	
African Union	July 2014	Commissioner for Human Resources Science and Technology	
Visits to Zambia to learn the lesson study experience	Malawi	Sept 2012	
	Burundi	Sept 2012	

Annex VII: Countries implementing country- based programmes to strengthen mathematics and science

Country	Description of country-based capacity building programme
1) Uganda	<ul style="list-style-type: none"> • Name of Programme: Secondary Science and Mathematics Teachers National Expansion Plan (SESEMAT NEP) • Period: Phase 1: 2005-2008; Phase 2: Aug 2008-Aug 2011 • Reported Outcomes/impact: There is a slight improvement in Uganda Certificate of Education in M&S last year. More students have opted for science combinations at Advanced level.
2) Kenya	<ul style="list-style-type: none"> • Name of Programme: SMASSE Project since 1998 that has created system for 20,000 Secondary MS Teachers established with National INSET Centre (CEMASTE A). SMASE Project (2009-2013) targets 60,000 Primary MS teachers trained on ASEI/PDSI approach and further capacity development for CEMSTE A. • Reported Outcomes/Impact: Through the influence of INSET activities of SMASE, Kenya enacted in 2012 a law that has made continuous professional development of all teachers compulsory.
3) Rwanda	<ul style="list-style-type: none"> • Name of Programme: Strengthening Mathematics and Science in Secondary Education Project (SMASSE Rwanda) • Period: [Feb. 2008-Jan. 2011] • Reported outcomes/impact: Increase in the number of students who choose M&S subjects as electives has been recognized. (70% of students entering in Public Higher Learning Institutions should do Science/Technology according to the Government Policy). Attitude of teachers has changed as professionals.
4) Ethiopia	<ul style="list-style-type: none"> • Name of Programme: National Pilot Project for Strengthening Mathematics and Science Education in Ethiopia (SMASSEE) • Period: Jan. 2011
5) Malawi	<ul style="list-style-type: none"> • Name of Programme: The Project on Strengthening of Mathematics and Science in Secondary Education (SMASSE INSET Malawi) Phase 2 • Period: Phase 1: Sep. 2004-Sep. 2007; Phase 2: Aug. 2008-Aug.2012] • Reported outcomes/impact: There is improvement on students' performance in national examinations. The teaching and learning approach used in SMASSE has generated considerable interest in M&S among the students and more students are enrolling in the subjects for examinations
6) Ghana	<ul style="list-style-type: none"> • Name of Programme: Project for Strengthening the Capacity of INSET Management (INSET Management Project) • Period: Phase 1: Dec. 2005-Nov. 2008; Phase 2: Jun. 2009-Mar. 2013 • Reported outcome/impact: Teacher motivation to teach the subjects has been enhanced. Pupils' interest in M&S has increased based on their attendance in class and readiness to do projects.
7) Senegal	<ul style="list-style-type: none"> • Name of Programme: Senegal PREMST Project Phase I Project period: three year pilot project • Target: 10,310 elementary school teachers in three pilot regions of Louga, Fatick and Thiés out of the 11 regions in Senegal. 11 national trainers offer training to 50 Regional Trainers from the three pilot regions who in turn train a total 345 local trainers in their respective regions • Period: 2008-2010
8) Niger	<ul style="list-style-type: none"> • Name of Programme: Project on Strengthening Mathematics and Science in Secondary Education in Niger (SMASSE Niger) Phase 2 • Period: Phase 1: Oct 2006 to Oct 2009; phase 2: Mar 2010 to Sep 2013 • Reported Outcome/impact: Improvement of test results: 2006(11.93%), 2007(19.62%), 2008(30.6%), 2009(41.45%), 2010 (31.35%)
9) Burkina Faso	<ul style="list-style-type: none"> • Name of Programme: Project for Improvement of INSET Training of Math and Science Teachers in Primary Education (SMASE Project) Phase 2 • Period: Phase 1: Jan. 2008-Jan. 2011; Phase 2: Jan. 2011-Jan. 2015

Country	Description of country-based capacity building programme
10) Zambia	<ul style="list-style-type: none"> • Name of Programme: Strengthening Mathematics, Science and Technology Education (SMASTE) School-based CPD Project Phase 2 • Period: Phase 1: Oct. 2005-Oct. 2007,; Phase 2: Feb. 2008-Feb. 2011 • The impact assessment report indicates that there was a marked improvement in general performance and also in the quality of results for M&S from the time the SMASTE project was introduced in Central Province as compared to the non-target provinces
11) Mozambique	<ul style="list-style-type: none"> • Name of Programme: Strengthening of Primary Education in Gaza Province in Mozambique (MSE INSET Project) • Period: Jul. 2006-Jul. 2009
12) Southern Sudan	<ul style="list-style-type: none"> • Name of Programme: Strengthening Mathematics and Science Education in Southern Sudan (SMASESS) • Period: Nov. 2009-Dec. 2011
13) Nigeria	<ul style="list-style-type: none"> • Name of Programme: Strengthening of Mathematics and Science Education in Nigeria Project (SMASE Nigeria) Phase 2 • Period: Phase 1:Aug. 2006-Aug. 2009; Phase 2:Jun. 2010-Jul. 2013 • Report outcome/impact: Active participation of the children during class lessons has been achieved
14) Botswana	<ul style="list-style-type: none"> • Name of Programme: Project for Improvement of INSET Training of Math and Science Teachers in Primary Education (SMASE Project) Phase 2 • Period: [Phase 1: Jan. 2008-Jan. 2011; Phase 2: Jan. 2011-Jan. 2015]

Source: 10th SMASE-WECSA Anniversary Brochure