Speech delivered by the MEC for Education; Mrs. Reginah Mhaule at the Occasion of the Maths Summit on 20 March 2014

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Members of Senior Management

District Management Teams

Circuit Managers

Curriculum Implementers

Business Representatives

Student Formations

Labour Formations

Representatives from UNICEF

Top Maths Students

Representatives from AMESA

Representatives from SAMF

Representatives from our various Universities and Institutions of Higher Learning

Representatives from Non Governmental Organisations

Departmental Officials and

Teachers

Sanibonani,

It is at times like these, when a gathering of this magnitude and stature takes place that one is inspired to ponder on very profound thoughts about the subject of Mathematics. It is difficult to imagine a world without Mathematics. Even if we could easily dream of a history devoid of the inventions and learning applied mathematics has made possible, it strains the mind to imagine a world without even simple counting.

The worth of a herdsman cannot be known unless some basic facts of counting are known. A Church, school, house or any shelter cannot be built unless certain facts about triangles, squares, and volumes are known. An inheritance cannot be distributed unless certain facts about division or fractions are known.

Even those suffering from maths-related anxieties or phobias cannot escape its everyday presence in their lives. From home to school to work and places in-between, maths is everywhere. Whether using measurements in a recipe, or deciding if half a tank of gas will make the destination, we all use maths. It is a good idea, therefore, for teachers and parents of reluctant maths learners to use real world examples to ignite a spark of practical interest.

Understanding of life and survival in general revolves around the usage of basic mathematical concepts. Anyone who is denied knowledge of elementary Mathematics will find it hard to make meaning of the world around him. Mathematics is therefore more than just a subject

to be studied for the sake of passing but it is basic means of survival.

Maths came into existence for dealing with the obstacles in analysing real life situations. The goal of mathematics is to help solve problems in or give new perspectives to physics, chemistry, biology, arts, architecture, interior design, astronomy, and all fields imaginable. Most of the logic of programs in any programming language used by computers has its roots in mathematics.

Those who were obsessed to sustain subservient human mind deliberately created a perception that Mathematics is a subject reserved only for those who are viewed to be highly gifted and thus entrenching the myth of projecting Mathematics as a no-go area for learners who seem to be struggling academically.

Our country took an informed decision with the dawn of democracy that the education of the African child will not be complete without Mathematics as part of the curriculum. This saw a steady improvement in the leaners taking Mathematics as part of the curriculum package. We should continue to make learner to see the need to opt for these subject as it hold the key to most careers.

Learners must first opt for Mathematics as an anchor before combining it with other subjects like Accounting and Physical Sciences.

The Mathematics Strategy

Programme Director, The Mpumalanga Department of Education has made a lot of strides in the quest to promote Mathematics as a learning area as well as related learner performance. In that regard, we have established the Maths, Science and Technology Academy which seeks to elevate Mathematics.

As a Department, we have developed a Mathematics Strategy to increase participation rates in Mathematics in Grades 10-12 as well as to increase performance in Mathematics at exit points; i.e. grades 3, 6, 9 and 12. This Strategy, in our view will enhance the teaching of Mathematics and also improve the quality of passes with increased participation and performance of girl learners in Mathematics.

Our analysis of performances in Mathematics over the past five years; 2009-2013 indicates a 19.7 % improvement which is an increase of 1 705 learners from 9 596 learners that wrote and passed in 2009 to 11 301 that passed in 2013. We need to improve on this performance as we also remedy the decline of the number of girl learners passing Maths.

Performance in Mathematics at Exit Levels

The monitoring and promotion of Mathematics should not be limited to the FET band only as there is 100% participation of learners in the GET band. Our focus in the GET band should thus seek to provide the right foundation for excellence for the higher grades.

We have noted that the performance in Mathematics ANA generally improved across all grades in the 2013 ANA. Performance improved by 10.6% in grade 3, by 11.7% in grade 6 and by 4.1% in grade 9. Although there is an increase in performance, it is not satisfactory and this is of particular concern in grade 9.

Our average score for Mathematics increased by 57 points while the national average score increased by 63 points. In relation to the performance of other provinces in the country, Mpumalanga's performance in Mathematics ANA is among the bottom 4. We really need to rid our selves of this tail end performance and our engagement in this regard seeks to deal with that.

Our Province, Mpumalanga produced the second lowest number of learners (1.8%) achieving at 50 % and above in grade 9 in Mathematics in 2013.

Performance in Mathematics in grade 12 examinations has been increasing steadily over the past five years (2009 – 2013) with an improvement of 19.7 % which is an increase of 1 705 learners from 9 596 learners that wrote and passed in 2009 to 11 301 that passed in 2013.

However, compared to other provinces, Mpumalanga is not improving its position. For the past three years, performance in Mathematics has remained at position 6 even though it is interesting to note that girls perform better than boys in both Mathematics and Physical Sciences over the same

period. Such performance presents a challenge for all of us as improving on them is entirely dependent upon all of us.

Teacher Subject Content Knowledge and Pedagogical Content Knowledge

The value of mastering subject content matter cannot be over-emphasised. Teacher subject content knowledge is one of the key contributors to the development of a sound understanding of the fundamental concepts in a school subject.

Teachers must know in detail and from a more advanced perspective the Mathematics content they are responsible to teach as they need proper subject matter knowledge and a high level of pedagogical content knowledge for effective teaching.

Researchers have also established that teachers with a deep understanding of subject content as well as pedagogical content knowledge are better placed to broaden their teaching approaches and create better learning opportunities for learners. They can provide quality teaching and better learning that can result in learner achievement.

We thus need to pay particular attention to these factors as our success is hugely reliant on them. Allow me to re-affirm the need to act on this with effective professional development that resonates to these factors so as to improve performance at classroom level.

Learning Environment

The Ministerial task team that investigated the status of provisioning of MST in provinces found that the competency level of educators of Mathematics and Science is the most serious challenge facing the department. Generally, there is a shortage of suitably qualified teachers of Mathematics, Science and Technology subjects.

Research shows that although the majority of teachers teaching Mathematics and Science are professionally qualified very few are academically qualified to teach the subjects they teach. Findings indicate that some teachers are out-performed by their learners in assessments in the grades that they teach. This situation is worse in the GET Band.

The majority of schools in the province do not have adequate resources for the teaching of Maths. Mathematics teaching is largely mechanistic. Teachers mainly use a procedure-focused way of teaching in which the learning content is split up in meaningless small parts and where the students are offered fixed solving procedures, trained by exercises, often to be done individually.

There is general agreement that the quality of an education system cannot exceed the quality of its teachers. Therefore the province has a challenge and needs to provide teacher development to up-skill its Maths teaching force for it to meet its demands.

Strategic Approach to Overcome the Challenges

The department will strengthen its human resource capacity to ensure the implementation of the provincial Maths Strategy. Financial resources will also be made available to implement the strategy.

The Maths Strategy focuses on five key pillars namely; schools, teachers and teaching practice for support and development, learners and learning processes with regards to participation and performance, resources as well as monitoring, evaluation and advocacy.

The department will implement a structured and focused teacher development strategy where it will profile individual schools and teachers so as to design and provide specific and differentiated professional development programmes. There is also a need to strengthen partnerships with in-service training providers.

INSET programmes will be streamlined and training provided mainly on areas of need identified by the Department of Education. INSET providers including NGOs will be required to provide differentiated teacher-training through based on teacher needs

Programme Director, to strengthen the capacity to provide quality Mathematics teaching, the department has established a Maths, Science and Technology Academy. The Academy

provides in-service training to maths, science and technology teachers and will assist the province to mass produce maths learners.

One hundred Maths and Science dedicated FET schools and Three Hundred Mathematics and Science focus feeder-schools will receive dedicated support and equipped to ensure that there is mass production of Mathematics graduates at grade 12 level and that the passes are quality passes.

These schools will include all Dinaledi and Dinaledi feeder-schools in the province. They will receive targeted support and be specifically monitored by the Mathematics, Science and Technology Academy. The 100 schools will be expected to offer mathematics and physical sciences to all learners registered in them. Learners will choose the other subjects from Life Sciences, Accounting, CAT and IT.

Human Development plays very crucial role in an advancement of Mathematics. In this respect, it is well known that Curriculum Implementers are key to provision of quality mathematics curriculum. Focused intensive support will be provided to mathematics Curriculum Implementers and on provision of school support.

Mathematics and Science Heads of Department are key drivers on the implementation of MST curriculum in schools whence they will be supported on MST curriculum management and management

of MST resources provided to schools.

Schools as an Area of Focus

A clear, explicit, advocated and focused strategy is required to meet the goals of increasing participation and performance as well as the quality of the passes in Mathematics.

I need to inform this August House that the strategy is both generic and school-specific and thus all schools will be expected to provide five-year **Mathematics Development Plans**, as part of their School Development and School Improvement Plans, consulted with their Circuit Managers. This will include targets, teacher development needs, resource needs and action steps to achieve the targets.

Schools will also be categorized according to performance in mathematics in ANA and in the NSC. This will be required as all schools will be expected to set performance targets and also to improve their performance, according to individually identified targets.

Dinaledi Schools and MST Academy

The 45 Dinaledi schools in the province will also be categorized according to participation and performance in Mathematics as well as participation and performance of girl learners.

With regards to the MST Academy, 100 Mathematics and Science dedicated FET schools and 200 Mathematics and Science focus feeder-schools will receive dedicated support to ensure that there is mass production of Mathematics graduates at grade 12 level and that the passes are quality passes.

These schools will include all Dinaledi and Dinaledi feeder-schools in the province. They will receive targeted support and be specifically monitored by the Mathematics, Science and Technology Academy.

These 100 schools will be expected to offer Mathematics and Physical Sciences
to all learners registered in them. Learners will choose the other subjects from Life Sciences, Accounting, CAT and IT.
Schools that do not belong to the MST Academy will be categorized into four levels according to participation rates in the subject expressed with special focus depending on learner outcomes.

Resource Provisioning

Programme Director, to ensure that the goals of the Strategy are met, schools will also be provided with relevant resources to enable them to offer efficient and effective lessons. The provision of ICT equipment and relevant software for teaching and learning as well as equipment for broadcasting of mathematics e-lessons to selected schools is

very paramount to the success of the Strategy. Mathematics laboratory equipment and r kits as well as self-study material and mental maths books will also be made available.

Support and Development for Teachers and Teaching Practice

A customised approach as opposed to a one fits all type of approach will be followed in this regard. Individual schools and teachers will be profiled to offer specific and differentiated support. Training and support on e-learning and the use of e-resources for teaching and learning is a priority if our teachers are to be well equipped to meet the objectives of the strategy and thus its success.

As part of the support and development programme teacher-training through the MST Academy, camps, workshops and short courses with HEIs and ETDP-SETA based on identified needs will be followed.

Building and strengthening the capacity of Curriculum Implementers to provide training and support to teachers and the sharing of expertise and knowledge through mathematics seminars and conferences will also add up to the value.

Conclusion

The top priority for us is the performance and participation of learners in Mathematics. In this regard we want to ensure that the mastery of Maths concepts at exit levels in FET and GET band through the analysis of monthly and quarterly assessments will reveal inadequacies in understanding concepts and acquisition of skills and also reveal areas of intervention on both teachers an learners.

This undertaking, we believe will provide room for immediate remediation through enrichment programmes for learners such as extra classes; Saturday, morning, afternoon, winter or spring classes to address identified inadequacies.

Let us also encourage more learners to take Mathematics by encouraging the formation of communities of learning such as Study groups and Social Network groups and establishing support for MST clubs for learners. The participation in MST competitions such as Olympiads, EXPO for Young Scientists, Quizzes and mental maths competitions will also be encouraged as we expose our learners to various career and bursary opportunities in MST.

In so doing let us also intensify the offering career guidance to Grade 8 and 9, with various career options and motivate learners using former learners that performed well.

Let me conclude by quoting the great Aristotle who once said,

Open Quote

"We are what we repeatedly do. Excellence then is not an act but a habit."

Let me thus make an appeal to each and every one of us not to hold back but to participate in this Summit. Let us engage robustly so that our outcome at the end of the Summit could be qualitative.

With these words I declare the Maths Summit opened.