

CURRICULUM FOR  
**M A T H E M A T I C S**  
GRADES I - VI  
2012



GOVERNMENT OF SINDH  
EDUCATION & LITERACY DEPARTMENT  
BUREAU OF CURRICULUM & EXTENSION WING SINDH  
JAMSHORO

# ADDENDUM

## Mathematics Curriculum

### *General Suggestions*

- Definitions of Standards, Benchmarks and Students Learning Outcomes may be given in the Curriculum.
- SLO's may be mentioned in term of Cognitive, Effective and Psychomotor Domain.
- Standard – 3 'Measurement and Geometry' may be split into two separate Content strands as 'Content strand -3a, Measurement' and Content strand -3b Geometry' (see annex-2 of the detailed report).
- Curriculum may be disseminated in all institutions of the province.

### *Gaps*

- The committee recommended addition of some Student Learning Outcomes in different chapters (details are available in subject committee's report at RSU)
- Benchmarks Grade VI only include and Grades VII, VIII, IX,-X and XI-XII may be excluded from National Curriculum for Mathematics 2006.

### *General Recommendations of Subject Committees*

- The committees agreed that 95% of curriculum 2006-07 is suitable for the requirements of the modern day Sindh.
- Only a few minor amendments/modifications were suggested.
- The consensus was on the fact that these modifications be added separately as an addendum which can be given to the textbook writers to incorporate while preparing manuscripts/textbooks.
- However, the committee should concern over the fact that implementation of the curriculum should not be limited to the development of textbooks. The curriculum 2006 envisages and promotes child centred teaching and learning approaches and emphasizes on application of knowledge rather than memorization of facts. In this perspective curriculum implementation needs to be viewed in a more holistic manner

with the ultimate aim to *improve the teaching and learning processes and the learning environment*.

- Textbook development is the first step to be followed by *training of teachers* in teaching to the new curriculum and *introduction of revised assessment* and feedback approaches.
- For this purpose an overall curriculum implementation framework<sup>3</sup> needs to be developed and implemented outlining all the steps to be undertaken for effective implementation of the curriculum. BoC should oversee and coordinate this process with the support of textbook board and RSU.
- The committees agreed that the textbooks should be developed as soon as possible as Sindh schools are still following a 10 year old curriculum. Parallel to the development of the textbooks the curriculum implementation framework should be outlined so that the necessary steps are undertaken by difference organizations so that teachers' related materials can also be developed and teachers can be trained alongside, amongst other measures.

## **Recommendations for textbooks development for curriculum 2006**

The committee opined that textbook development process should be expedited so that students of Sindh Government schools can have access to better quality books from the next academic year. For this purpose textbook authors and other stakeholders need to be trained in the understanding of the philosophy and approach of the curriculum and also in modern textbook development techniques.

For the process of textbook development the province can follow one of the 2 given options

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<sup>3</sup> A common curriculum implementation framework (CIF) has been developed jointly by the provinces (with GIZ's support) and can be adapted for immediate application in Sindh.

### **Option 1: Multiple Textbook System through private Publishers**

In 2007 the government of Pakistan in consultation with all provincial stakeholders developed and notified the National Textbooks and Learning Materials Policy and Plan of Action.

All provinces commenced their textbook development initiatives in accordance with the process outlined in the policy. Under this scheme the private sector publishers develop the textbooks and the textbook boards regulate, facilitate and monitor the process of textbook development.

If this option is followed the next steps will be as follows:

- TBB prepares quality criteria and specifications for textbooks to be developed against which all textbooks prepared by private publishers will be graded.

- Government selects and trains review committees on the agreed upon quality criteria.
- Publishers develop the textbooks which are reviewed against the set criteria.
- TBB recommends approved books to BoC which in turn gives NoC to books prepared by private publishers.
- Provincial committee headed by Secretary Education Sindh makes a selection from the approved books for free distribution in government schools.
- TBB purchases the print license from publisher whose book is selected and prints it according to its existing procedure.
- If “Multiple textbook” modality is chosen then Cost/economical and other criteria to be decided.

## **Option 2: Single Textbook System – in-house development by STBB**

This system was being followed by the textbooks boards prior to the introduction of the new textbooks policy. Under this system TBBs themselves develop the manuscripts of all subjects.

If this system is followed that the following steps will be taken:

- TBB identifies authors for each subject and grade.
- TBB and BoC jointly develop quality criteria against which books will be reviewed.
- BoC selects review committee members and trains them in the review process based on the quality criteria.
- BoC issues NoC to approved textbooks.
- Books are printed according to existing process.
- Since there will be only one textbook per subject and grade there is no need for a selection committee.

## **Possibility of textbook loan libraries/book banks in schools**

- Government should look into the possibility of “School Textbook Bank” instead of yearly free textbook supply.
- Under this scheme textbooks are printed on high quality paper and are used for 3 years.

- If approved then its effect on printing (quantities), distribution and safe storage of free textbooks needs to be worked out.

### **Recommendations on Institutionalization of the curriculum review process**

- One of the main recommendations that flowed out of the review process was that the policy and review process of the Curriculum needs to be regularized and institutionalized within a legal framework.
- Policies and procedures, roles and responsibilities need to be laid out and clarified within the post 18<sup>th</sup> amendment scenario for undertaking the devolved functions.
- Within the same context issues pertaining to capacities of the related institutions need to be evaluated against the enhanced scope of work and activities and relevant capacity building measures need to be undertaken to strengthen the organizations to assume the responsibility of the assessment, review and implementation of future curriculum reforms.
- Within the legal provisions and policies a framework for revision and implementation of the curriculum needs to be developed before any major curriculum reform is undertaken.
- For this purpose the committee recommended that a “Sindh Curriculum Policy and Review Unit” should be established in BoC within the provisions of a legal framework. The responsibility of this unit should be to devise the policy for revision of curriculum and for the development, coordination and monitoring of the Curriculum Implementation Framework (CIF).
- Since the establishment of this unit is seen as a long term measure it is recommended that as an immediate stem the Bureau of Curriculum should be empowered to approve textbooks developed for the curriculum 2006. The framework for implementing the curriculum 2006-07 including aspects of teachers training and assessments should also be developed and implemented immediately with the joint efforts of STB, BoC RSU and the Sindh Education Department so that the curriculum 2006 is implemented through all pillars of quality education.
- In the longer run the BoC’s capacity needs to be strengthened to carry out the challenging task of curriculum assessment, review and implementation for effective and sustainable reform of educational quality in Sindh.

### ***Conclusions and Recommendations of the Advisory and Subject Committees – a Summary:***

- Curriculum-2006 (on the subjects reviewed is considered 95% appropriate to prepare Manuscripts of upgraded improved textbooks.
- The 2011 Curriculum Review Analyses Reports have to be used as curriculum content addendum, in any textbook upgrading exercise.
- Textbooks should be developed according to the new curriculum for implementation in the next academic year.
- A holistic programme for curriculum implementation for the current implementation cycle (Like a CIF) should be prepared to include all aspects of curriculum implementation are initiated alongside the textbook development like teacher training and assessment reform so that curriculum 2006 is implemented in a holistic manner.
- Parallel to textbook development and other measures the long term system of curriculum review and implementation needs to be designed and institutionalized.
- “Sindh Curriculum Policy and Review Unit“ should be established in BoC.
- Capacity building measures should be undertaken to build up the capacity of the BoC for the new tasks. As immediate steps the following can be done.
- Field Visit to Allama Iqbal Open University’s curriculum review unit: its Placement, Staffing, RoB, Procedures, etc. might serve as a model for the province.
- Field Visit to Punjab to see their measures to introduce curriculum 2006 including the textbook development and lesson planning activities.
- These measures will help institutionalizing Sindh Curriculum Policy and Review Unit.