

Mathematics Education in India

Status and Outlook

Editors

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The diagram on the cover is a Vedic chiti or sacrificial altar made of geometrically shaped bricks (See Chapter 2).

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Preface

This collection of articles on the status of and outlook for mathematics education in India provides a detailed background for the Indian National Presentation at the 12th International Congress on Mathematics Education (Seoul, July 2012). It provides a viewpoint on the vast and varied landscape of the subject, and offers an insight into not only the problems and potential of mathematics education in India but also how they are approached by scholars active in this arena.

Mathematics is embedded deeply into the life and culture of people in the Indian subcontinent, attested by a long history of engagement with mathematics in art, craft, work and abstract disciplines of thought. This has also meant a tradition of socially embedded modes of education and learning in aspects of mathematics as well. Such a historical perspective on mathematics and its education in India is illustrated briefly in this collection.

Most of the articles centre on school mathematics, reflecting the current centrality of concern in Indian education. With the Right to Education legislated by the Indian Parliament in recent years, universalization of school education is becoming an imminent reality. On the other hand, the need for strengthening mathematics education at school level is acknowledged by all policy planners. While the overall expansion and development of higher education remains an important issue, problems of curriculum and pedagogy, assessment and teacher professional development have their roots in mathematics at school, and these are discussed at some length. The paucity of research in mathematics education and its influence on policy is pointed out.

India is characterized by diversity and cultural riches, as well as endemic poverty and social division, and this is reflected in mathematics education as well. Despite the tremendous challenges, also visible are a number of innovative initiatives, some small and some on a large scale. While a short collection like this cannot hope to evaluate the effectiveness of such initiatives, it does point to them with a sense of hope towards the future.

Any short set of articles and authors on mathematics education in India must necessarily be selective and this collection very likely excludes many important and interesting issues. Yet we hope that it adds value to discussions on this theme, not only among Indian educators, but among the international community of mathematics educators as well.

This collection is an outcome of the National Initiative in Mathematics Education (NIME) launched under the auspices of the Indian National Science Academy. The NIME

initiative and the publication of this book were supported generously by the National Board of Higher Mathematics. Similarly, the Homi Bhabha Centre for Science Education extended support to the NIME initiative by publishing this collection and in other ways. We thank the organizers and participants of the NIME regional and national conferences and the National Seminar on the History and Cultural Aspects of Mathematics Education organized by the Indira Gandhi National Open University. The material in this collection draw on the proceedings of these conferences. We thank the members of the NIME Steering Committee for guidance and support.

The authors of the collection have made great efforts in putting together information and ideas, often when there was insufficient or no prior work to draw upon. They have managed extremely tight deadlines and have co-operated in every possible way. We are grateful to them for making the collection possible. We thank K. Ramasubramanian for permission to use the diagram on the cover. The members of the mathematics education group at the Homi Bhabha Centre pitched in to ease the labour of production. Manoj Nair, as always, was the person who saw the production through till the end.

June 2012

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