

## Foreword

The International Association for the Evaluation of Educational Achievement (IEA) founded in 1959 has, over the past 45 years, conducted comparative research studies focusing on educational policies, practices, and outcomes in more than 60 countries around the world. Organized around a Secretariat located in Amsterdam, The Netherlands, and a data processing center in Hamburg, Germany, IEA, through its various projects, continues to report on a wide range of topics and subject matters. IEA's focus on curriculum and what students have learned in school within a given time frame has allowed it to contribute to a deep understanding of the educational processes both within individual countries as well as within the broader international context.

TIMSS, IEA's Trends in International Mathematics and Science Study, conducts international comparisons of student achievement in mathematics and science on a regular four-year cycle. Directed by the TIMSS & PIRLS International Study Center at Boston College, TIMSS also collects a rich array of information about the school and home contexts for learning mathematics and science. With data collection for the first time in 1995, and again in 1999 and 2003, the TIMSS data collection in 2007 will provide trend data on students' mathematics and science achievement at four points in time extending over a 12-year period. Countries that have participated in successive waves of TIMSS have access to unparalleled information about the improvement or decline in the mathematics and science achievement of their students. Central to the success of TIMSS has been participating countries' expertise in the areas of curriculum, measurement, and education, and their willingness to work together in the interests of improving mathematics and science education.

The TIMSS 2007 Assessment Frameworks provides a template for IEA's work in the assessment of Mathematics and Science at fourth and eighth grades. Building on the frameworks prepared for the 2003 assessment, this document is the product of an extensive collaborative process involving many individuals and expert groups from around the world, most notably the TIMSS advisory groups in mathematics and science, the National Research Coordinators (NRCs) from more than 60 countries, and TIMSS staff at Boston College, Amsterdam,

and Hamburg. The review process of consultation, collaboration and systematic review among representatives of the TIMSS countries, the mathematics and science research community, and other experts ensures that the document reflects the latest advances in thinking about large-scale comparative assessment of mathematics and science and embodies the interests of many individuals and countries around the world.

Any project as ambitious as TIMSS 2007 requires significant financial support for its development and execution. Support for this project and the development of the framework document was provided by the National Center for Education Statistics of the US Department of Education, the US National Science Foundation, the World Bank, the United Nations Development Programme, and the participating countries. IEA is extremely grateful for their continued support. We are grateful also for the generous support provided for TIMSS by Boston College and the National Foundation for Educational Research for England and Wales.

The work presented in this document represents the efforts of many individuals and groups. TIMSS derives the direction and leadership necessary to complete such a complex and ambitious project from IEA's TIMSS & PIRLS International Study Center in the Lynch School of Education at Boston College. Together with the committed and able staff from the consortium of organizations that work to implement TIMSS, the Center's dedicated staff and consultants have played a vital role in developing the assessment frameworks. Crucial also has been the work of the TIMSS advisory groups in mathematics and science, and in particular that of TIMSS Mathematics Coordinator Graham Ruddock and TIMSS Science Coordinator Christine O'Sullivan. Taking special responsibility for mathematics and science, respectively, Alka Arora and Ebru Erberber each made major contributions to the frameworks document. Eugene Johnson and Pierre Foy adapted the TIMSS assessment design to the requirements of the 2007 assessment. All of the Boston College staff, and in the particular the TIMSS International Study Directors, Ina V.S. Mullis and Michael O. Martin of Boston College, have been central to the preparation of this document. To all of them I would like to express our sincere thanks.

Hans Wagemaker

*Executive Director, IEA*