



**EMS**

**European Mathematical  
Society**

<http://www.emis.de/>

**Committee on Mathematics  
Education**

## **Reference levels in School Education in Mathematics**

### **Niveaux de référence pour l'enseignement des mathématiques en Europe**

**Project reference 2000-0204SO261OBGE**

**Agreement Nr. 2000 – 0204 / 001 - 001**

**COMMISSION OF THE EUROPEAN COMMUNITIES**

**Directorate General XXII**

**Education, Training and Youth**

## **Presentation of the report**

What certainly can be considered as a relative success of the reference levels project is surely the fact that we were able to appoint a working group composed of mathematicians and mathematics educators known in their respective countries and able to establish links between the project and the national mathematical societies and mathematics teachers associations. The list of the members of this working group is given next pages.

During the two years project three meetings (3 to 4 days each) of the working group were hosted by the Institute of Research in Mathematics Education of the University of Franche-Comté (IREM de Besançon). In the intervals exchanges within the group were numerous, especially using Internet.

A final "dissemination meeting" was successfully held in Luxembourg, May 11 and 12, 2001, with the participation of 75 people from all countries involved in the project.

The reference levels project report is composed of several documents.

1 - The national presentations are monographs concerning the state of mathematics teaching around 16 in each of the concerned countries<sup>1</sup>. All these presentations have been written by the members of the working group and updated by Mars 2001. They have been the occasion of exchanges inside concerned countries as well as within the working group.

Resolution has been taken to keep this information base alive. That means to find a way to enrich them (for instance extending the information to the 18 year old level) and regularly updating them.

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<sup>1</sup> Due to the load put on the French to managing the whole project, and to the last minutes difficulties, the French national presentation has not been yet completed, but it will be available on the Website by October 2001.

- 2 - The international report tries to synthesize the information contained in the national presentations and to reflect the conclusions of our meetings.
- 3 - Two documents presenting reference questions that can be used as well in teaching than in assessment settings.

One of the main findings of the "reference levels" project was that the observed differences between national systems often reflect different local traditions in a very positive way, and should therefore not be interpreted as indicating ignorance of some putative "best" approach. (We need to understand much more about teaching and learning, about the importance of local traditions, and about the dynamics of change, before we can assess the scope for any "harmonisation".).

The meeting in Luxembourg asked us to do what we could to avoid the term "reference levels" being interpreted as indicating a "1-dimensional" scale. To reflect this view we have decided to adjust the title on the front of each document displayed on our Website by putting the word "levels" in quotation marks.

All documents have been made available on our Website<sup>2</sup>. The site still needs refinement and has to be linked with the European Mathematical Society and with other national sites devoted to mathematics teaching.

If the project were allowed to continue with the 18 year old age level, that would obviously give means and reasons to continue to refine and to disseminate what has been done until now.

The database developed in the IREM of Besançon should be viewed as most embryonic and asking for consolidation as well as continuous updating.

We hope to be able to continue developing what is surely a way to get a common understanding of the issues concerning mathematics education across europe and to help improving it.

## **EMS project**

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<sup>2</sup><http://www-math.univ-fcomte.fr/DEPARTEMENT/CTU/IREM/internat.htm>

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**EMS REFERENCE LEVELS PROJECT**  
**Members of the Working Group**  
**(and authors of the national presentations)**

<b>First name</b>	<b>Name</b>	<b>Country (alphabetic order)</b>	<b>Institution</b>
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Tony	GARDINER	UNITED KINGDOM	University of Birmingham

# CONTENT OF THE REPORT

**1 - Cover letter** : *Prof. Vinicio Villani*

**2 - Presentation note** : *Antoine Bodin*

**3 - International Report** : *Antoine Bodin and Vinicio Villani.*

*In both languages : English and French*

**4 - Reference questions**

**part 1 : presentation** : : *Antoine Bodin and Vinicio Villani (English)*

**part 2 : bundle of reference questions** : : *Antoine Bodin and Lucia Grugnetti*

*In both languages : English and French*

**5 – National presentations**

Belgium

Denmark

Finland

Germany

Greece

Hungary

Italy

Luxembourg

Poland

Russia

Spain

Sweeden

Switzerland

TheNetherlands

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*France is still under completion*

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