EVLUATION REPORT

QUALITY ASSESSMENT OF PRIMARY AND MIDDLE EDUCATION IN MATHEMATICS AND SCIENCE(TIMSS) (RAB/01/005/A/01/31)

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QUALITY ASSESSMENT OF PRIMARY AND MIDDLE EDUCATION IN MATHEMATICS AND SCIENCE (RAB/01/005/A/01/31/REV.1)

EXECUTIVE SUMMARY

I. Context

1. As part of its policies to promote educational reforms as building blocks for knowledge society and for developing intellectual capital in the Arab region, the UNDP/RBAS has been assisting five Arab States -- Egypt, Lebanon, Palestine, Syria and Yemen -- in assessing the effectiveness of mathematics and science teaching in their primary or middle schools under a regional project (RAB/01/005/A/01/31)[1].

2. The curriculum-based assessment in the five countries (UNDP 5) is being carried out through their participation in a quadrennial international survey, TI MSS 2003, conducted by the Amsterdam-based International Association for the Evaluation of Educational Achievement (IEA). The survey is managed by the International Study Center (ISC), Boston College, with data processing and analysis being handled by Statistics Canada (StatCan), Ottawa, and the IEA's Data Processing Center (DPC).

3. The primary development objectives of the regional project are: promotion of quality-oriented educational reforms based on objective evaluation and assessment of existing institutions and policies in the participating countries and synchronization of educational policies and systems in the Arab region.

4. The international survey, covering 49 countries, is nearing completion. Its International Reports, scheduled to be released on 14 December, will be reviewed first by Arab educators and then by Ministers of Education at UNDP-sponsored meetings in early 2005. IEA also plans to launch its next quadrennial survey, TIMSS 2007, in February 2005.

5. In July this year, UNDP/UNOPS jointly selected a consultant to evaluate RAB/01/005/A/01/31 as part of RBAS' Regional Programmes Evaluation Plan. The evaluation focussed on an assessment of the activities completed so far i.e. the international survey, TIMSS 2003, and its impact in terms of capacity building in the participating countries.

6. The consultant visited the five countries from 17 July to 7 August and had meetings with the TIMSS teams. He also met with TIMSS Management in Boston ISC), Ottawa

[1] Of the six Arab countries who endorsed the regional project, five -- Egypt, Lebanon, Palestine, Syria and Yemen -- met the qualifications for participating in the 49- nation TIMSS 2003. Sudan could not meet the requirement -- a minimum enrollment ratio of 65 per cent in the appropriate age group -- considered essential for securing fair comparisons among participating countries.

(StatCan) and Hamburg (IEA/DPC). He was briefed by the RBAS Senior Regional Advisor and the concerned Portfolio Manager in UNOPS. The consultant submitted his report on 27 September 2004. Following is a summary of his findings and recommendations.

II. Implementation

7. TIMSS survey has been implemented on schedule. The TIMSS Management (IEA/ISC/DPC) carried out all the survey-related activities specified in the regional project. Although the five Arab states who qualified to participate in TIMSS 2003 under RAB/01/005/A/01/31 joined the survey mid-stream, nearly a year after its launch, they quickly became integral part of its preparatory phase. Nearly 25,500 students in 806 schools in the five countries participated in the TIMSS final tests administered from March-June 2003. Another 5,350 students in 113 schools took part in the field tests in March-May 2002.

8. Egypt translated TIMSS survey documents, originals in English, into Arabic. For countries which did not either have time or the capacity for producing the Arabic version of TIMSS manuals, tests, questionnaires and data instruments (Palestine, Syria and Yemen), the RBAS Senior Regional Adviser intervened personally to arrange the transmission of Arabic versions produced by Egypt, Jordan and/or Tunisia.

III. Evaluation

9. As first time participants in an international survey of any kind much less TIMSS, the UNDP 5, by and large, did well in terms of the quality of data collected and organization and administration of TIMSS tests. Palestine's data is considered "near flawless" and its organization "impressive" followed by Lebanon and Egypt. In case of Syria, flawed class sample, produced without using IEA software, resulted in its exclusion from the TIMSS International Report despite acceptable quality of its data. Yemen also failed to qualify for inclusion in the International Report. Its national student sample, prepared manually without using the IEA software, did not meet the quality standards of IEA and became suspect. However, a brief summary of Syrian and Yemeni data will appear as Appendices in the TIMSS International Report.

10. In the three countries that did well in conducting the study -- Palestine, Lebanon and Egypt -- TIMSS teams were located in well-established and experienced national institutions/agencies with adequate human, physical and financial resources to facilitate TIMSS implementation. In Syria, where the Ministry of Education served as TIMSS cooperating agency, the TIMSS team was slow in coalescing, had limited capability and did not have adequate physical facilities.[2] It also did not have the funds necessary for meeting the local costs of TIMSS survey, contrary to a commitment made by the Government at the time of signing the project document. This was also the case in

[2] The Senior Regional Advisor of the RBAS, in person and in writing, repeatedly urged the Ministry of Education to provide adequate institutional support to the TIMSS team, possibly and preferably through an experienced institution.

Yemen where TIMSS team, though located in an experienced national institution and adequately staffed, did not have the necessary financial resources despite a special emergency UNDP/RBAS grant of $30,000.

11. Some of the UNDP-supported participants in TIMSS -- Syria and Yemen -- did not seem to fully realize the importance of following TIMSS process and procedures to the letter as well as in spirit, a must for maintaining the integrity and comparability of collected data in an international survey like TIMSS. Syria and Yemen also did not use IEA-supplied software for formulating class and/or student samples and did not maintain documentation in support of the random sample methodology that they used

12. One or more of UNDP-supported participants in the survey skirted some of TIMSS rules or took shortcuts without considering the resulting consequences. They also showed a rather lackadaisical attitude towards meeting deadlines, again a must in an international survey of the size and kind of TIMSS.

13. Some of UNDP 5 did not follow the TIMSS rules/procedures relating to:-

- Submission of Student Tracking Forms and Data Management Forms to the DPC/StatCan as per the Surveys Operation Manual; and,

- Verification by IEA of Arabic translations of TIMSS instruments both prior to and after "cultural adaptation" and approval of ISC of all survey instruments prior to their printing.

IIIa. <u>Valuable Experience</u>

14. However, despite problems resulting in some cases from inadequate institutional and financial resources, TIMSS survey has proved to be an extremely valuable experience for all the UNDP-supported participants, resulting in creating valuable indigenous capacity for organizing similar surveys at other grade-levels nationally and for participating in TIMSS 2007. TIMSS survey has already led to:-
    - meaningful educational reforms in curriculum, evaluation and assessment standards and tests and examinations, particularly in Egypt;
    - reforms/changes in curriculum and testing and scoring methodologies have been instituted;
    - heightened awareness of the need for reforms in such areas as teaching methodologies, teachers training and licensing;
    - adoption of new test formats and scoring methodologies;
    - recognition of the urgent need for shifting the emphasis from rote learning to application of knowledge; and,
    - a renewed awareness of the essential need for educational reforms as a building block for knowledge society.

15. UNDP 5 are aware of the value of preparing secondary reports using TIMSS data on such issues as gender and education, class sizes, teaching methodologies, curriculum

and teachers' training. Egypt and Palestine have already given some thought to secondary reports while in Yemen and Lebanon, TIMSS teams are waiting for the decisions by their superiors.

16. There appeared to be a general consensus in favour of a proposal, mooted and promoted by RBAS and its Senior Regional Advisor, for the production of a regional report on TIMSS. This report will include all the 10 Arab countries participating in TIMSS, with each country preparing its own national report and recommendations for educational reforms. A committee of five -- Bahrain, Egypt, Jordan, Morocco, and Saudi Arabia -- has been set up for coordinating the production of the Arab Regional Report which, after a review by the Arab educators, will be considered at a meeting of Ministers of Education early next year.

17. UNDP 5 also supported the consultant's suggestion for the production of an IEA-verified and authorized Arabic version of all TIMSS instruments, including all the manuals, which could then be used by the Arab countries participating in TIMSS for "cultural adaptation". IEA verification of all culturally adapted test instruments and ISC approval prior to their printing will remain the responsibility of each NRC.

18. Most of UNDP 5 voiced the need for more extensive training of data entry and data processing personnel. A two-day workshop was not enough, particularly in countries like Syria and Yemen, where the IT staffs were not familiar with the software used by TIMSS Management. Training workshop should be at least of a week's duration.

19. All countries acknowledged and appreciated the catalytic role played by the RBAS Senior Regional Advisor in promoting and facilitating the implementation of TIMSS 2003, particularly in convincing them to participate in TIMSS, a totally novel experience for them.[3] His interventions were appreciably noted in:-

- Arranging and facilitating the transmission of Egyptian, Tunisian and Jordanian translations in Arabic of all TIMSS instruments Yemen, Syria and Palestine;
- Persuading the Palestinian Authority to participate in the TIMSS survey, overcoming its initial reservations and reluctance;
- Arranging special grant of $30,000 to Yemen for meeting some of the local costs of TIMSS survey;
- Persistent promotion and advocacy of educational reforms in his meetings with government officials; and,
- Arranging participation by the National Data Managers of Egypt and Palestine in supplementary training organized by DPC in Yemen and Syria.

[3] The Senior Regional Advisor was also instrumental in convincing Bahrain to participate in TIMSS on its own.

V. TIMSS Management Perspective

20. From the TIMSS Management viewpoint, communications presented the biggest challenge. The problem of unreliable communication facilities was compounded by language as not all the NRCs or Data Managers had working knowledge of English. As mentioned earlier, translation of test instruments from English into Arabic also proved problematic, particularly in the absence of a standard technical terminology in Arabic.

21. At ISC, the Co-Directors of TIMSS 2003 raised the issue of frequently changing representation from UNDP 5 at NRC workshops. StatCan and DPC, however, did not view changing representation or lack of proficiency in English as a major handicap. They recognized the adverse impact of these factors on the "continuity" of discussions at the general sessions of NRC workshops. However, participation in NRC workshops, in their view, rightly and usefully varied according to the special emphasis of a given workshop.

22. There was general consensus, however, that each country should be represented by two persons at NRC workshops, the NRC and the data manager or any other relevant technical person e.g. scorer depending on a given workshop's agenda, and one of these two must be fairly proficient in English.

23. Problems encountered by the UNDP 5 were not atypical for first time TIMSS participants. TIMSS Management believes that these countries would do better in TIMSS 2007 if they remembered the lessons learnt in TIMSS 2003 and by taking corrective action. Ministries of Education in the participating countries need to put their full weight behind the TIMSS team and in the administration of TIMSS survey.

V. Recommendations

24. In four of the five countries that the consultant visited, he met with either the Assistant or the Deputy Minister of Education. In Lebanon, he met with the Director of the Center for Educational Research and Development. All of them viewed TIMSS survey and the forthcoming International Report as a critical starting point for major educational reforms and were keen on participating in TIMSS 2007.

25. The consultant briefed them about his assessment of TIMSS organization and administration in their respective countries and steps that, in his view, need to be taken to improve their participation in TIMSS survey, including:

- Appointment of dedicated NRC and Data Manager, one of whom must be fully conversant in English, for the entire duration of TIMSS survey;
- Provision of adequate human, physical and financial resources (as specified in the Regional Project RAB/01/005/A/01/31) for TIMSS implementation, including participation in field trials; and,
- Strict adherence to TIMSS procedures and compliance of reporting deadlines.

VI. Conclusions

27. The administration and organization of TIMSS survey in UNDP 5 -- Egypt, Lebanon, Palestine, Syria and Yemen -- has been a major success and a rewarding learning experience for all the participants. UNDP/RBAS has succeeded -- through on-the-job training as it were -- in introducing, and demonstrating the effectiveness of, the culture and methodology of objective evaluation and assessment of educational systems and institutions as a precursor of constructive educational reforms. This culture needs to be nurtured systematically through participation in similar surveys, including TIMSS 2007, in future to establish a firm basis for continuing, meaningful and impact-oriented educational reforms and policies which, according to the Arab Human Development Report 2002, are a must if the Arab people are to build and develop "knowledge societies" in the region.

EVALUATION REPORT

QUALITY ASSESSMENT OF PRIMARY AND MIDDLE EDUCATION IN MATHEMATICS AND SCIENCE (RAB/01/005/A/01/31/REV.1)

A. BACKGROUND

1. As part of its policies to promote educational reforms as building blocks for knowledge society and for developing intellectual capital in the Arab region, the UNDP/RBAS has been assisting five Arab States in assessing the effectiveness of mathematics and science teaching in their primary or middle schools under a regional project (RAB/01/005/A/01/31)[4] launched in 2002. The curriculum-based assessment in the five countries -- Egypt, Lebanon, Palestine, Syria and Yemen (hereafter referred to as UNDP 5)-- is being carried out through their participation in TIMSS 2003, third in a series quadrennial international surveys for evaluating the effectiveness of mathematics and science teaching in the primary and middle school systems in 49 countries.

2. The quadrennial TIMSS (Trends in Mathematics and Science Study) surveys are conducted by the Amsterdam-based International Association for the Evaluation of Educational Achievement (IEA), an independent international cooperative of 60 national research institutions and government agencies, with the International Study Center (ISC), Boston College, doing the day-to-day management. IEA agreed to include the five countries under a subcontract with UNOPS, the implementing agency for RAB/01/005/A/01/31.

3. TIMSS 2003 is nearing completion. Its International Reports are being finalized and will be transmitted to the participating countries in November 2004 for release to the public on 14 December. Some of the project activities -- review of TIMSS report first by Arab educators and then by Ministers of Education of the 10 Arab countries[5] involved in TIMSS are planned for early next year.

4. The regional project envisaged an evaluation at its completion. However, the RBAS decided to advance the evaluation in view of the keen interest of several Arab states in participating in TIMSS 2007, the next quadrennial survey scheduled to be launched in February 2005. The evaluation, carried out by a consultant jointly selected by UNDP

[4] Of the six Arab countries who endorsed the regional project, five -- Egypt, Lebanon, Palestine, Syria and Yemen -- met the qualifications for participating in the 49- nation TIMSS 2003. Sudan could not meet the requirement -- a minimum enrollment ratio of 65 per cent in the appropriate age group -- considered essential for securing fair comparisons among participating countries.

[5] Other five Arab participants in TIMSS 2003 are: Bahrain, Jordan, Morocco, Saudi Arabia and Tunisia. Some are funded by the World Bank while others are participating on their own

and UNOPS, is part of the UNDP/RBAS Regional Programmes Evaluation Plan. The evaluation focussed on an assessment of the activities completed so far i.e. the international survey, TIMSS 2003 and its impact in terms of capacity building in the participating countries.[6]

B. DEVELOPMENT OBJECTIVES

5. The primary development objective of the regional project is:

- To promote in the participating countries quality-oriented reforms based on accurate and verifiable data and on analyses of various factors that affect the transformation of raw inputs into learning; and,

- To assist Arab countries in synchronizing their educational policies and educational system.

6. Countries participating in TIMSS are also expected to acquire a cadre of educators, administrators and researchers trained in sampling, data collection, test development, data cleaning, analysis, policy-making and reporting. By participating in TIMSS, they also are to develop and institute practices for:

- Measuring student performance and other characteristics of the system through routine national assessments and by participating in international in-depth investigations;

- Improving educational statistics to make them policy relevant and accurate; and,

- Routinely evaluating the effects of new policies on the educational system.

7. TIMSS participants will also learn the relative efficiency and effectiveness of their educational policies and systems within the universe of participating countries globally and regionally, using a common scale -- developed by IEA -- for ranking countries around an international average and key benchmarks.

C. IMPLEMENTATION

8. While IEA is responsible for the overall management of the survey, the day-to- day management of TIMSS 2003 is handled by the International Study Center (ISC), Boston College, with data processing and analysis being managed by Statistics Canada (StatCan), Ottawa, and the IEA's Data Processing Center (DPC), Hamburg (Hereafter collectively referred to as TIMSS Management).

9. For implementing TIMSS survey, each participating country had to appoint a National Research Coordinator (NRC), a National Data Manager with a team of data entry and data processing personnel. Each country was also required to designate a national

[6] For detailed Terms of Reference, see Annex A.

agency/institution with adequate human and financial resources for facilitating TIMSS implementation. A School Sample of about 150 schools and a class and student sample of at least 4,000 students was to be formulated in each country. IEA/Statcan formulated the school sample using the school data supplied by the NRC. The NRCs were responsible for formulating national class and student samples using IEA-supplied software preferably or using a documented methodology for random sampling acceptable to IEA. In order to maintain the integrity and objectivity of TIMSS survey and ranking system, all samples and collected data had to meet the strict quality criteria of IEA. For field trials, each participating country was required to formulate a student sample of about 1,000 students in 15 or so schools using the TIMSS software and methodology. Under the IEA requirements, all class and student samples had to be approved by the StatCan or DPC prior to the administration of tests.

10. The consultant was briefed by the RBAS' Senior Regional Advisor and the UNOPS Portfolio Manager handling the project. The consultant visited Boston, Ottawa and Hamburg for briefings by and discussions with members of the TIMSS Management prior to visiting the five countries from 18 July to 7 August. In each country he visited, the consultant held extensive discussions with TIMSS team members, led by the National Research Coordinator, the National Data Manager, government agency/institution designated as cooperating agency for TIMSS 2003 and other government officials.[7] Although the consultant had planned to meet with some principals and teachers of schools in the TIMSS survey sample, he could only meet with three principals -- two in Yemen and one in Lebanon -- due to the summer school break.

11. Although the five Arab states who qualified to participate in TIMSS 2003 under RAB/01/005/A/01/31 joined the survey mid-stream, nearly a year after its launch, they quickly became integral part of its preparatory phase. Participating countries identified national research institutions/agencies for TIMSS and appointed National Research Coordinators to put together and lead the national research teams and coordinate local/national research for survey.

12. TIMSS survey has been implemented on schedule.[8] IEA had invited the six potential participants to the Third NRC Meeting in Madrid in December 2001. For countries which could not attend the Madrid workshop, a special briefing was organized in Cairo in February 2002. IEA arranged training for the National Research Coordinators, data collectors and processors as well as scorers. IEA/DPC also provided supplemental training to data processors in Syria and Yemen in February 2003. At the initiative of the RBAS, the Egyptian Data Manager and the Palestinian Data Manager supported IEA/DPC training team in Yemen and Syria respectively.

13. English being the official medium of TIMSS 2003, all its survey documents and manuals are produced and distributed to participating countries in English only, with each country responsible for translating them into the language of its choice and getting

[7] For a list of persons met and/or interviewed, see Annex B
[8] For Overview of Project Schedule, see Annex C

the translated material verified by IEA. For countries which did not either have time or the capacity for producing the Arabic version of TIMSS manuals, tests, questionnaires and data instruments (Palestine, Syria and Yemen), the UNDP/RBAS Senior Regional Advisor intervened personally to arrange the transmission of Arabic versions produced by Egypt, Jordan and/or Tunisia.

14. Nearly 25,500 students in 806 schools in the five countries participated in the TIMSS final tests administered from March-June 2003. Another 5,350 students in 113 schools participated in the field tests in March-May 2002.

15. Survey work including the development of assessment framework, preparation of tests and questionnaires, field tests, data collection, processing, analysis, translation and verification, and ranking has been completed as per schedule. However, by the time the UNDP Regional Project became operational, the IEA had nearly completed the assessment framework through a collaborative process spanning a two-and-a-half-year period, from September 2000 to March 2003. Drafts of field tests and questionnaires had also been formulated. National Research Coordinators of UNDP 5 provided information about their respective national curriculum, which was taken into account by IEA/ISC when finalizing the Assessment Framework. UNDP 5, through their participation in the field trials, were also able to contribute to the finalization of survey instruments. During the survey period, IEA organized 8 NRC workshops. Tasks carried out so far include:-

- Finalization of Assessment Framework
- Tests and Questionnaires drafted and revised by National Research Coordinators and tested through field trials, involving a group of about 1,000 students in each participating country.
- Tests and Questionnaires for TIMSS 2003 finalized in the light of the results of field trials.
- Using sampling techniques and software prepared by the TIMSS Management, participating countries identified 150 representative schools for inclusion into the national TIMSS target population sample.
- Tests and Questionnaires administered to the students; teachers and principals in the sample conducted under the overall supervision of the National Research Coordinators, each assisted by 15 monitors. Field tests completed by the end of July 2003.
- Data resulting from Tests and Questionnaires compiled and analyzed in the participating countries and sent to the IEA's International Study Center in Boston for final analysis and reports preparation; and,
- Draft of TIMSS 2003 international reports on mathematics and science prepared by TIMSS data analysts and experts.

D. EVALUATION

16. As first time participants in an international survey of any kind much less TIMSS, the UNDP 5, by and large, did well in terms of the quality of data collected and

organization and administration of TIMSS tests. Palestine's data is considered "near flawless" and its organization "impressive" followed by Lebanon and Egypt. In case of Syria, flawed class sample, produced without using IEA software, resulted in its exclusion from the TIMSS International Report despite acceptable quality of its data. Yemen also failed to qualify for inclusion in the International Report. Its national student sample, prepared manually without using the IEA software, did not meet the quality standards of IEA and became suspect. However, a brief summary of Syrian and Yemeni data will appear as Appendices in the TIMSS International Report.

17. In the three countries that did well -- Palestine, Lebanon and Egypt -- TIMSS teams were located in well-established and experienced national institutions/agencies with adequate human, physical and financial resources to facilitate TIMSS implementation. In Syria, where the Ministry of Education served as TIMSS cooperating agency, the TIMSS team was slow in coalescing, had limited capability and did not have adequate physical facilities.[9] It also did not have the funds necessary for meeting the local costs of TIMSS survey, contrary to a commitment made by the Government at the time of signing the project document.

18. In Yemen, where TIMSS project was located in an experienced national institution, TIMSS team in terms of staff was adequate but it lacked good physical facilities such as computers and communications. The Ministry of Education also did not provide any funds for covering local costs, including compensation for TIMSS-related activities and overtime work, despite its commitment to do so as a signatory of the project document. RBAS, when informed about Yemen's inability to provide funds to cover local costs of TIMSS survey, provided a special, emergency grant of $30,000 for this purpose.[10]

19. Some of the UNDP-supported participants in TIMSS -- Syria and Yemen -- did not seem to fully realize the importance of following TIMSS process and procedures to the letter as well as in spirit, a must for maintaining the integrity and comparability of collected data in an international survey like TIMSS. They skirted some of the rules or took shortcuts without considering the resulting consequences. They also showed a rather lackadaisical attitude towards meeting deadlines, again a must in an international survey of the size and kind of TIMSS, despite repeated reminders by the RBAS Senior Regional Advisory to the NRCs on the importance of meeting TIMSS deadlines.

20. Syria and Yemen did not use IEA-supplied software for formulating class and/or student samples and did not maintain documentation in support of the random sample methodology that they used. They did not seek proper sampling advice available from StatCan or DPC, nor did they ask for StatCan and DPC approval for their national sampling plans prior to administration of TIMSS tests as required under TIMSS procedures.

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[9] The Senior Regional Advisor of the RBAS, in person and in writing, repeatedly urged the Ministry of Education to provide adequate institutional support to the TIMSS team, possibly and preferably through an experienced institution.

[10] The special UNDP grant was used to cover the cost of organizing TIMSS at the governate level only. The TIMSS team to date has not received any compensation for TIMSS-related activities and overtime work.

21. Student Tracking Forms and Data Management Forms required to be sent to DPC/StatCan as per the Surveys Operation Manual were not sent by Egypt and Syria -- "we were not asked" -- and sent much after the deadline by Yemen. These forms should have been sent automatically on time without requiring any reminder. There were several other minor problems such as unreliable communications and errors in conversion and printing of English charts, graphs and tables into Arabic.

22. The essential process of IEA-verification of Arabic translations of TIMSS instruments both prior to and after "cultural adaptation" and the requirement of clearing all instruments through ISC prior to their printing also was not followed. Field tests and questionnaires as well as final TIMSS instruments were printed prior to receiving ISC approval of the translated documents and without incorporating corrections suggested by the IEA.

23. Despite workshops and briefings, principals and teachers by and large were not fully cognizant of the ultimate purpose and objective of TIMSS survey -- educational reforms. More intensive briefings and workshops need to be organized to convince principals and teachers that TIMSS survey has no bearing on their careers and promotions and will not affect academic promotion of the students. NRCs and their TIMSS team members need to establish personal contacts with the principals and teachers included in school and class samples.

E. CAPACITY BUILDING/EDUCATIONAL REFORMS

24. However, despite all the problems resulting in some cases from inadequate institutional and financial resources, TIMSS survey has proved to be an extremely valuable experience for all the UNDP-supported participants, resulting in creating valuable indigenous capacity for organizing similar surveys at other grade-levels nationally and for participating in TIMSS 2007. TIMSS survey has already led to some meaningful educational reforms in curriculum, evaluation and assessment standards and tests and examinations. This has been most noticeable in Egypt. In other four countries some reforms/changes in curriculum and testing and scoring methodologies have been instituted and more are expected to follow. TIMSS has highlighted the need for reforms in such areas as teaching methodologies, teachers training and licensing, shifting the emphasis from rote learning to application of knowledge and new test formats and scoring methodologies. In all these countries, TIMSS has created a renewed awareness of the essential need for educational reforms as a building block for knowledge society.

25. UNDP 5 are aware of the value of preparing secondary reports using TIMSS data on such issues as gender and education, class sizes, teaching methodologies, curriculum and teachers' training. Egypt and Palestine have already given some thought to secondary reports while in Yemen and Lebanon, TIMSS teams are waiting for the decisions by their superiors. All of them, however, need some additional information and training from IEA, particularly in regard to weights assigned to different items in the final test instruments, assessment and ranking. Preparation of secondary reports will

be an item on the agenda of the meeting of Arab educators, including NRCs, scheduled for early next year. IEA/ISC also intends to provide training in TIMSS data analysis for preparing secondary report at the next NRC meeting also scheduled for early 2005.

F. REGIONAL REPORT

26. There appeared to be a general consensus in favour of the proposal for producing a regional report on TIMSS. This report will include all the 10 Arab countries participating in TIMSS. Each country will prepare its own national report following and adapting an agreed upon outline, including recommendations for educational reforms. At the NRC workshop in Santiago, Chile, last June, the RBAS Senior Regional Advisor chaired a meeting of Arab NRCs at which it was decided to set up a committee of five -- Bahrain, Egypt, Jordan, Morocco, and Saudi Arabia -- for coordinating the production of the Arab Regional Report. The Committee has drafted an outline and has sent it to UNDP/RBAS for comments and follow-up. The Report, after review by the Arab educators at their meeting early next year, will be considered at the planned meeting of Ministers of Education.

27. UNDP 5 also supported the consultant's suggestion for the production of an IEA-verified and authorized Arabic version of all TIMSS instruments, including all the manuals, which could then be used by the Arab countries participating in TIMSS for "cultural adaptation". IEA verification of all culturally adapted test instruments and ISC approval prior to their printing will remain the responsibility of each NRC. An authorized Arabic version of test instruments will minimize the risk of errors resulting from converting and printing charts, graphs and tables into Arabic. Both Egypt and Lebanon offered to undertake the task but the TIMSS management believes, and the consultant agrees, that this should be arranged by UNDP/RBAS as part of the regional project, using, as necessary, the translation facilities offered by participating countries.

28. Most of UNDP 5 voiced the need for more extensive training of data entry and data processing personnel. A two-day workshop was not enough, particularly in countries like Syria and Yemen, where the IT staff were not familiar with the software used by TIMSS Management. Training workshop should be at least of a week's duration.

29. All countries acknowledged and appreciated the catalytic role played by the RBAS Senior Regional Advisor in promoting and facilitating the implementation of TIMSS 2003, particularly in convincing them to participate in TIMSS, a totally novel experience for them[11] . His interventions were appreciably noted in:-

- Arranging and facilitating the provision of Egyptian, Tunisian and Jordanian translations of manuals, field tests, questionnaires and final TIMSS instruments to TIMSS teams in Yemen, Syria and Palestine;
- Persuading the Palestinian Authority to participate in the TIMSS survey, overcoming its initial reservations and reluctance;

[11] The Senior Regional Advisor was also instrumental in convincing Bahrain to participate in TIMSS 2003 on its own.

- Arranging special grant of $30,000 to Yemen for meeting some of the local costs of TIMSS survey;
- Repeated reminders to the Ministries of Education on the vital importance of adequate institutional and financial support to their respective TIMSS teams, including improved communications;
- Persistent promotion and advocacy of educational reforms in his meetings with government officials;
- Arranging participation by the National Data Managers of Egypt and Palestine in supplementary training organized by DPC in Yemen and Syria;
- Repeated reminders to NRCs on meeting the TIMSS deadlines; and,
- Promoting the proposal for the preparation of a regional report by all the ten Arab countries participating in TIMSS.[12]

G. TIMSS MANAGEMENT'S PERSPECTIVE

30. From the TIMSS Management viewpoint, communications presented the biggest challenge. Accessing the email links and telephones in Yemen and Syria was a test of patience.[13] Even when they were able to get a connection and were able to transmit messages, responses either did not come or were too general or too late. Phone numbers and email addresses provided by the NCRs changed as frequently as the countries' participants in NRC workshops. The problem of unreliable communication facilities was compounded by language. All TIMSS communications were in English and not all the NRCs or Data Managers had working knowledge of English. TIMSS Management's messages and queries were either misunderstood or not understood at all. Again, the problem was more acute in Syria and Yemen than in other countries. All TIMSS teams need to have their own email addresses, phones and high-speed lines. The RBAS Senior Regional Advisor has consistently emphasized the need and importance of improved communications at his meetings with the participating institutions/ministries.

31. As mentioned earlier, translation of test instruments from English into Arabic also proved to be problematic, particularly in the absence of a standard technical terminology in Arabic. In some cases, technical terms used were too sophisticated for primary or middle school students. In others, the same Arabic term was used to translate two different English technical terms. Procedures for verification and approval of test instruments in Arabic were not followed, as mentioned earlier. Some errors crept it during the printing. There were cases when tables, charts and graphs did not match the text. Parts of charts and graphs were not produced correctly. In some multiple choice questions, one or more choices were left out. IEA had pointed out these errors to NRCs in Egypt, Syria and Yemen without any response or acknowledgement and test instruments were printed without incorporating the IEA corrections. [14]

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[12] See footnote 2.

[13] In Lebanon, Syria and Yemen, getting access to email or phones was equally difficult because TIMSS teams rely on national servers which are down frequently or are inaccessible due to traffic overload.

[14] The Ministry of Education in each participating country was responsible for providing adequate resources for getting the TIMSS manuals and survey instruments translated into Arabic (or the language of their choice), with the responsibility for ensuring that the translated documents met the IEA standards resting with the NRC.

32. At ISC, the Co-Directors of TIMSS 2003 raised the issue of frequently changing representation from UNDP 5 at NRC workshops. Egypt was represented by the same two persons at most of the NRC workshops but in case of others, participants changed frequently. This, together with the fact that some of them were not conversant in English, affected the tenure, continuity and impact of discussions at the workshops which rely on interaction and exchange of experience among the participants. StatCan and DPC, however, did not view changing representation or lack of proficiency in English as a major handicap. They recognized the adverse impact of these factors in the "continuity" of discussions at the general sessions of NRC workshops. However, participation in NRC workshops, in their view, rightly and usefully varied according to the special emphasis of a given workshop.

33. While lack of proficiency in English might have limited NRCs' contribution to general discussions, they, according to StatCan and DPC, were active participants in face-to-face meetings with TIMSS Management staff, using as necessary English-speaking participants from other Arab countries as translators. There was general consensus, however, that each country should be represented by two persons at NRC workshops, the NRC and the data manager or any other relevant technical person e.g. scorer depending on a given workshop's agenda, and one of these two must be fairly proficient in English.

34. Problems encountered by the UNDP were not atypical for first time TIMSS participants. TIMSS Management believes that these countries would do better in TIMSS 2007 if they remembered the lessons learnt in TIMSS 2003 and by taking corrective action. Ministries of Education in the participating countries need to put their full weight behind the TIMSS team and in the administration of TIMSS survey. NRCs need to have adequate resources, human as well as financial, to interact with the schools included in the sample and should be able to travel to schools to make personal contacts with the principals and teachers in the school and class samples.[15]

H. ASSURANCES FOR TIMSS 2007

35. In four of the five countries that the consultant visited, he met with either the Assistant or the Deputy Minister of Education. In Lebanon, he met with the Director of the Center for Educational Research and Development. All of them viewed TIMSS survey and the forthcoming International Report as a critical starting point for major educational reforms and were keen on participating in TIMSS 2007.The consultant briefed them about his assessment of TIMSS organization and administration in their respective countries and steps that, in his view, need to be taken to improve their participation in TIMSS survey, including:

[15] RBAS is in contact with the Ministers of Education and their deputies to seek commitments that the TIMSS teams would be provided with adequate institutional support and human and financial resources for implementing the survey.

- Appointment of dedicated NRC and Data Manager, one of whom must be fully conversant in English;
- Provision of adequate human, physical and financial resources (as specified in the Regional Project RAB/01/005/A/01/31) for TIMSS implementation, including participation in field trials.

36. In Syria and Yemen, the consultant also emphasized that part-time TIMSS staff should be assigned TIMSS work instead of, and not in addition to, their regular work.

37. All of them assured the consultant that all possible steps would be taken to strengthen their TIMSS teams for efficient and effective implementation of TIMSS 2007.

I. COUNTRY-BY-COUNTRY EVALUATION

I1. EGYPT

38. Relying on the experience and resources of the National Center for Examinations and Educational Evaluation (NCEEE), TIMSS 2003 survey in Egypt was well organized. Despite some inconsistencies, TIMSS 2003 Management considered the collected data acceptable. TIMSS survey in Egypt should be viewed as a major success. TIMSS has already led to several significant educational reforms in such areas as middle school curricula in science and math, introduction of TIMSS-style test formats and adoption of new teaching methodologies including enhanced classroom interaction between teachers and students, with promise of many more to come. Of the five UNDP-funded countries in TIMSS 2003, its impact in terms of educational reforms has so far been the greatest in Egypt.

Organization

39. In Egypt, the National Center for Examinations and Educational Evaluation (NCEEE) was designated as the national agency for implementing TIMSS 2003, with its Director, Dr. Soliman El-Khodary El Sheikh, serving as the NRC. The organization of TIMSS activities, however, was done primarily by Dr. Moustafa Hatem, the National Data Manager.

40. Nearly 7,000 students in 217 schools took part in the TIMSS survey. Another 1,250 students in 25 schools participated in the field tests trials in Egypt. Two of the schools in the original school sample, prepared by the StatCan, did not participate, one because its medium of instructions was German and the other because it had been merged with another school. These were substituted by two other schools, also selected by the StatCan.

41. The NCEEE set up multiple translation teams comprising specialists in math, science, English and Arabic. Translations done by one team were verified by the other. Only some portions of TIMSS Survey Manual (those dealing with Quality Control, Test Administrator, School Coordinator and Data Entry and Scoring) were translated and

printed, although Dr. Hatem and his team translated (but not printed) the remaining portions of the manual for their use only. After cultural adaptation, Arabic translations of all test documents and questionnaires were sent to IEA for verification. However, Egypt did not follow the entire process of translation and verification as laid out in TIMSS Survey Operations Manual. It did not agree with some of the changes and corrections suggested by IEA verifiers and printed and used the survey instruments without incorporating them. As a result, TIMSS tests and questionnaires administered in Egypt did not fully tally with the IEA's authentic English version, possibly affecting adversely the quality of resulting data [16]. Some of the errors in the final printed Arabic version of tests and questionnaires, according to Dr. Moustafa, were attributable to the use of different software (Windows 98 instead of Windows 2000) by some of the translators.

42. According to the DPC, there were inconsistencies in the Egyptian data although overall, the data collected was considered acceptable.

43. NCEEE's TIMSS team did not follow many other the procedures listed in the Survey's Manual. It did not provide IEA/StatCan with Tracking Forms, completed by the Test Administrators in the schools. These forms are important for detecting any discrepancies between the students included in the class samples and those who actually took the tests. It also did not provide the DPC several other forms listed in the Survey's manual and considered important for cross-checking and verifying data, including Data Management Forms, Cultural Adaptation Forms and the Survey Activities Report. Dr. Moustafa acknowledged that they did not send the above forms to DPC but "all the relevant data was included in the data sent to DPC". "IEA/DPC did not ask for these forms. If they had, we would have sent them". The Survey Activities Report was sent to ISC in April this year, according to him.[17]

44. NCEEE's communication facilities (fax and email) worked well. There were times when NCEEE did not meet the deadlines for submitting data and TIMSS Management had to send reminders, sometimes more than once. According to Dr. Moustafa, some of the delay and need for repeated reminders was due to the fact that IEA messages sent to Dr. Soliman did not reach him (Dr. Moustafa) immediately. In future, he intends to ask IEA to copy him in on all the communication sent to the NRC.

45. The NCEEE has considerable experience in organizing and administering tests in Egyptian schools. NCEEE administered TIMSS tests as it would any normal test, using its own team of inspectors, supplemented by retired inspectors. There were two inspectors per school. All scoring was done by inspectors who were specialists with Master's or Ph.D. degree in the field of education, science and mathematics. A team of

[16] The use of unverified Arabic versions of tests and questionnaires in Egypt had a bearing on TIMSS survey in Syria and Yemen which used the Egypt's Arabic version of TIMSS test instruments without any further verification by the IEA. Dr. Hatem, however, insisted that he had informed all the countries that received Egypt's Arabic version of TIMSS tests and questionnaires that they needed to be verified by IEA after "cultural adaptation".

[17] DPC, following a query by the consultant, asked Dr. Hatem to retransmit the Survey Activities Report and acknowledged its receipt on 18 August.

12 NCEEE data entry personnel, trained by Dr. Hatem and working under his guidance, worked part-time on entering and coding TIMSS data. Dr. Hatem, along with two other NCEEE data analysts/processors, had received training organized by the DPC in Hamburg and Cairo.

46. Questionnaires for students, teachers and principals proved problematic because most of them were not used to responding to such questions, particularly those including multiple choices/options. NCEEE is thinking about organizing some kind of training/workshop for teachers/principals on how to complete such questionnaires. Forty-five minutes were considered inadequate for completing the tests, particularly since the students were not familiar with the multiple-choice format.

Educational Reforms

47. TIMSS survey has already led to some reforms in mathematics and science curricula in 8^{th} and 9^{th} grades, training of teachers and supervisors and teaching methodologies and adoption of new concepts of science and mathematics delivery and assessment. Upon reviewing the TIMSS Curriculum Framework in early 2002, the Ministry of Education introduced immediate changes in the 8^{th} and 9^{th} grade curricula in all schools to cover all the subject areas included in the TIMSS field tests and final instruments. In mathematics, new courses were included in such areas as transformation geometry, statistics, probability theory and approximations, numerical and geometrical patterns and similarity. In science, the new material covered kinetic theory of matter, interpretation of natural phenomena, atmospheric pressure and winds, genetic properties, laws of conservation of energy, constant proportions and conservation of matter.

48. Some changes were introduced in teaching methodology to emphasize classroom interaction between teachers and students by providing time for students to ask questions. Small teams of faculty members from teachers' colleges and faculties and supervisors from the Ministry of Education were created to provide short courses to teachers in teaching methodologies and concepts. Thousands of teachers of science and mathematics in the country's preparatory schools (7 to 9 grades) were provided short refresher courses in new subject areas.

49. TIMSS has been like an "electric shock" to the educational system in Egypt, generating a much-needed push for educational reforms not only in the fields of science and mathematics but in all subjects. A dialogue, yet confined to specialists, has begun on educational policies and reforms on issues such as curriculum, teachers training, school reforms and new text book production. The Government has set up a committee of senior educators to review system-wide curriculum reforms in all subjects, not just math and science.

50. TIMSS has also led to changes in the format for examinations and tests, which has resulted in a public debate on the subject in the media. New examinations and tests, patterned after TIMSS tests, have found favour with and support among teachers. There

is a greater stress on applying knowledge to solve problems. Guides for student evaluation have been revised. TIMSS concepts are being emulated by teachers in other subjects such as geography. NCEEE is also planning to use TIMSS methodology for assessing effectiveness of teaching elementary schools and in developing a new system for evaluation in elementary schools. There are plans to establish a Professional Academy for Teachers to issue licenses to teachers.

51. In Egypt, policy-makers and educators view TIMSS as a "measurement tool" for building a knowledge society. TIMSS international report due for release in December is regarded as a starting point for educational reforms. NCEEE is preparing a national report for the Arab Regional Report, and has plans for producing secondary reports using TIMSS data for study of issues such as gender in education, school and class sizes and teachers' background and training.

52. NCEEE favoured the idea of an IEA-verified Arabic version of TIMSS manuals, field tests and questionnaires and final survey instruments and offered to undertake the task. NCEEE also offered its help in training data entry personnel, data processors and data analysts of any other Arab country participating in TIMSS. It had already provided such help by participating in a two-day training workshop in Yemen in February 2003.

53. Although the Ministry of Education had earmarked $75,000 for the TIMSS as required under the Regional Project, the NCEEE, according to its Director, has spent nearly $100,000 so far on hiring translators, data entry personnel, scorers and test administrators.

54. Egypt is very keen to participate in TIMSS 2007 and would maintain the present team for the next quadrennial survey. TIMSS 2003 was a "learning" exercise and "lessons learnt" would be applied in implementing TIMSS 2007.

Recommendations

55. By and large, TIMSS organization, in terms of human and financial resources, is commendable but it needs to adhere to TIMSS rules, procedures and deadlines, inherent to the success and reliability of an international survey like TIMSS.

56. In order to improve the quality of TIMSS data in the next quadrennial survey, NCEEE's TIMSS team must follow all the Survey's procedures in their entirety and not piece-meal, particularly in using only the IEA-verified Arabic version of tests and questionnaires.

57. All reports and forms listed in the Survey's manual must be sent to TIMSS Management on time without waiting for a request or a reminder. In view of the possibility of failure of email or fax facilities in transmitting documents, NCEEE should as a matter of routine ask for acknowledgement of receipt from TIMSS Management.

58. All deadlines must be met by increasing, if necessary, human resources for implementing TIMSS activities.

I2. LEBANON

Organization

59. In Lebanon, the structure of TIMSS implementation team was very similar to the one in Egypt. The Educational Center for Research and Development (ECRD) served as TIMSS cooperating agency, with its Director, Dr. Laila Maleeha Fayad, serving as the National Research Coordinator. The organization and coordination of TIMSS activities in Lebanon, however, was primarily managed by Antoine Skaff, together with a small team that included a data manager and other support staff.

60. The school sample, prepared by StatCan, included 160 schools but seven of them dropped out for one reason or the other. Sixty per cent of the schools in the sample used French as a medium of instruction for science and mathematics while in the rest English was the medium. Some schools left out of the TIMSS sample protested loudly about being discriminated against. Nearly 4200 students participated in the survey. In the field tests, 1300 students from 24 schools took part.

61. TIMSS tests were administered in French and English. All TIMSS survey instruments were translated into French and English text supplied by IEA was used with some "cultural adaptations". French version of TIMSS instruments as well as English version with "adaptations" were verified by IEA. Corrections suggested by IEA to align the English and French versions were incorporated in the final test instruments.

62. Despite some minor problems in the class samples, according to the DPC, data collected was of good quality. In some schools, attempts were made to substitute students in the class sample but TIMSS' team was able to prevent that with timely interventions.

63. Principals, teachers and test coordinators were briefed about TIMSS either at a workshop organized at the Center or by the Center's staff during field visits.

64. Each school had one administrator and one coordinator. TIMSS tests were administered on a staggered basis in different regions of the country. One IEA-hired Quality Control Manager visited 15 schools while the Center's four Quality Control Managers visited nearly 120 schools. ECRD established a team of 35 observers to monitor the administration of TIMSS tests in Lebanon. There were 16 members in the Center's scoring team, divided into four groups. Each group included a specialist in math., physics, biology and life sciences. Data entry and data processing team included 8 part-time persons. Some of the data entry and data processing team members were also trained to be observers.

65. Funds earmarked for TIMSS-related in-country expenditures ($75,000) were used to pay honoraria to and cover other expenses of nearly 200 part-time personnel who worked on TIMSS in Lebanon, translation and printing of TIMSS instruments and test materials (pencils/papers). All members of the scoring team received payment for their work on TIMSS. Observers, coordinators, administrators were paid for their services and transportation. ERCD staff working on TIMSS was also compensated for work done on TIMSS outside office hours.

Curriculum Deficiencies

66. Lebanese 8th grade curriculum covered only 80 per cent of the TIMSS curriculum framework, with major deficiencies being in life sciences: oceans, geology and nutrition. Mathematics curriculum was fairly well covered. Unlike in Egypt, no attempt was made to revise the curriculum as changes in school curriculum can only be done through a review by regional commissions. Lebanese students and teachers are familiar with the multiple-choice format used in TIMSS tests and questionnaires.

67. ECRD's TIMSS team felt that the Survey Manuals provided sufficient information on data processing and data entry software and felt that the training provided by DPC was adequate. Principals, teachers and students did not have any difficulty in completing the questionnaires although some principals did not take the questionnaire seriously.

68. Communications improved over time but remained problematic. Many a times ECRD had problem in accessing the server due to circuit overload on circuits. TIMSS Management also had difficulty in communicating with the TIMSS team in Beirut. Also, TIMSS Management was given three different email addresses for communicating with TIMSS team in Lebanon, resulting in confusion. Although by and large Lebanon met most of the deadlines and replied to all the queries, the Center failed to meet the deadlines twice in July 2003 due to a virus/worm-related breakdown in its computer network. None of the TIMSS-related data was lost but it took over two weeks to repair the computer network. The Center had to ask for delay to which the ISC/DPC agreed.

69. The ECRD's TIMSS team sent all the required forms and report listed in the Survey's Manual to TIMSS Management, including Tracking Forms, Data Management Tracking Forms and the Survey Activities Report. Although the Survey Activities Report was sent last October (and acknowledged by ISC on October 9, according to ECRD), the TIMSS Management to date has no record of receiving it.

Educational Reforms

70. Although TIMSS has not yet triggered any educational reform as has been the case in Egypt, it is expected to have significant impact on educational reforms in future. Lebanon is in the process of reviewing the school curriculum which was adopted in 1997. Regional commissions have been reviewing the curriculum in various disciplines since last October. Deficiencies noted in the middle school mathematics and science

curricula will be referred to the relevant regional commissions. TIMSS results will also be reviewed by these commissions as part of the curriculum review process. The Center also expects to revise textbooks in various disciplines by 2006 and deficiencies in mathematics and science curriculum already noticed would be kept in mind while updating and revising the textbooks.

71. New curriculum is expected to emphasize Information Technology. TIMSS questionnaires completed by principals, teachers and students have provided information about proportion of student population owning computers or having access go computers and internet.

72. TIMSS has underlined the importance of teaching science and mathematics in French and English in Lebanon. TIMSS test format is likely to influence Lebanon's national examination format. Participation in TIMSS has also helped the Center in acquiring capacity to organize similar surveys in other grades.

Regional and Secondary Reports

73. The Center has not yet decided on its participation in the Regional Report. The decision will be taken after it receives the proposed outline for the report. Not much thought has so far been given to the preparation of secondary reports based on TIMSS data. The center has the capacity to do such secondary analyses and is willing to assist other countries in preparing secondary reports. The ECRD is also interested in assisting in the production of IEA-verified Arabic versions of TIMSS survey instruments, including manuals, tests and questionnaires.

74. Lebanon is eager to participate in TIMSS 2007 and will basically maintain its present team.

Recommendations

75 By and large, TIMSS team's structure is sound and its resources adequate. However, the ECRD needs to take some measures to improve the performance of the TIMSS team and its participation in TIMSS workshops.

76. At least one of the two members participating in NRC workshops should be fully conversant in English, with knowledge of technical terminology.

77. Briefings for principals and teachers should emphasize that TIMSS is not for ranking their individual institutions but is a tool for educational reforms.

78. The Center needs to improve its communications facilities by acquiring high-speed internet connection. TIMSS team should have its own a single email address and phone. In view of the unreliability of communication facilities, both the TIMSS Management and the ECRD should institute, if not already in place, the practice of requiring acknowledgement of all messages/communications sent to each other.

I3 PALESTINE

Organization

79. In Palestine, the organization and administration of TIMSS amidst prevailing "chaos and turmoil" on the West Bank and Gaza was "very impressive", according to the DPC, and the resulting data of "very high quality, nearly flawless". The TIMSS team was drawn from the National Assessment and Evaluation Center, the cooperating agency for TIMSS in Palestine. The team's management was "collegial" or "collective" rather than centered in one person, with three persons acting as NRC at one time or the other.[18] While this resulted in different persons representing Palestine at different NRC workshops, a practice not looked upon favourably by TIMSS Management[19], the arrangement seems to have worked in efficient implementation of TIMSS and finding creative solutions to problems specific to their situation. The TIMSS team included 11 NAEC staff, eight on the West Bank and three in Gaza. The Ministry of Education also set up a Supportive Committee with members from various departments to facilitate the implementation of TIMSS.

80. Nearly 4,800 students in 150 schools participated in the survey. Ninety-six of the schools (average class size 35) were in the West Bank and 54 (average class size 42) in the Gaza. Field tests involved 500 students in 15 schools. In the sample schools, principals were designated as administrators and coordinators of TIMSS and were given training at district-level workshops. The NAEC advised principals in the school samples about the tests, printed tests and questionnaires. There were two 10-member scoring teams (five specialists each in science and mathematics), one in the West Bank and one in Gaza. There were also two Quality Control Managers, one for the West Bank and one for the Gaza. Nearly 200 persons, mostly part-time, participated in the implementation of TIMSS survey. NEAC staff visited at least 40 schools to ensure that survey procedures were being followed.

81. The Data Manager received training at the DPC in Hamburg and in turn trained a team of 10 data entry and processing personnel at a two-day workshop in the West Bank. Training of data entry personnel in the Gaza had to be done over phone as the Isrealis did not allow the Data Manager to travel to the Gaza. All data manuals were translated into Arabic. The TIMSS team did not have any problem in using the data entry/processing software although they believed that the training provided by the DPC

[18] Initially, Dr. Said Asaf, Assistant Deputy Minister for Technical Issues, was appointed the National Research Coordinator for TIMSS. He left the ministry after a few months and succeeded by Mr. Mohammed Matar Mustafa, Director fo NAEC, as the NRC. However, in mid-2003, Mr. Mohammed went on leave for a year and the NRC responsibilities were assigned to Ola Al-Khalili, Assistant Director of NAEC and Head of the Division for Research and Follow-up.

[19] DPC, however, did not consider this a major handicap. It is true that the Palestinians sent different representatives to NRC workshops but often this was due to the special emphasis of a given workshop. For example, NAEC sent data entry and data scoring persons to NRC workshops primarily designed to train such personnel. While this might have created some problem in terms of "continuity" at the main session of NRC workshops, from the data entry point, it was very appropriate.

in data entry, processing and analysis was not sufficient for some countries, such as Syria and Yemen. The Data Manager assisted in the supplementary training arranged by the DPC for the data processing team in Syria in February 2003.

Deadlines Met

82. The Data Manager kept to himself the responsibility for preparing the class and the student samples using the TIMSS software and completing the student and data tracking forms. He also supervised all data entry and processing. All the Tracking Forms and the Data Management Forms were sent to the DPC (ISC or StatCan) ahead of deadlines. In view of unforeseen curfews and restriction on movement, the TIMSS team developed the capacity to work either from home or in office. Communications between NAEC and the TIMSS management worked most of the time. Queries from TIMSS management were generally attended to promptly although there were sometimes communication breakdowns beyond the control of the TIMSS team resulting in reminders from ISC/DPC/IEA.[20] The Survey Activities Report was sent to ISC and DPC in August 2003 but neither of them seem to have received it.

Work Plan

83. The TIMSS team developed a four-phase work plan for implementing the survey in Palestine, starting with the assignment of tasks to the Center's staff in the West Bank and Gaza, production of IEA-verified Arabic texts of tests and questionnaires after "cultural adaptation, briefing of school principals and teachers, administration of tests and collection, and compilation and analysis of data. All TIMSS manuals were translated into Arabic. Although the NAEC received both the Egyptian and the Jordanian Arabic versions of TIMSS survey instruments, the TIMSS team decided to use the Jordanian version as the Arabic spoken in Palestine is very similar to one used in Jordan. The TIMSS team studied instruments in English and the Arabic version prior to "cultural adaptation" and sending the instruments to IEA for verification.

84. Nearly 90 per cent of the TIMSS curriculum framework was in sync with the Palestinian curriculum. The National Assessment and Evaluation Center was familiar with the TIMSS test format because, in preparing its own assessment and evaluation instruments earlier, its staff had reviewed the publicly available test materials of TIMSS 1995 and 1999. Multiple-choice format is also an integral part of NAEC's school tests. The TIMSS team felt there was a certain cultural bias in some of the items in the TIMSS tests. For example, one item dealt with marine life and animals. Palestinian students, particularly those in the West Bank, were not familiar with marine life and could have done better if this item had been substituted with one dealing with desert life. On the other hand, they recognized that the subject of marine life could be viewed as a gap in the school curriculum to be addressed when considering educational reforms.

[20] DPC cited an instance when the TIMSS team, replying to its query belatedly, apologized for the delay because they had been unable to go their offices for two weeks.

85. Due to Israeli-imposed curfews, restrictions on movement from village-to-village in the West Bank and between the West Bank and the Gaza, compounded by limited transportation and communication facilities, the logistics of organizing and administering TIMSS survey presented a major challenge, requiring creative solutions. It took three weeks to organize the distribution of tests/questionnaires to schools in the sample. The Assessment Center sought and received UNRWA's help in distributing TIMSS materials to various school districts in the sample. Similarly in shipping bulky test books and questionnaires to the DPC, the Center received help from the Finish and Norwegian missions.

86. For the NAEC and the Ministry of Education, the timing of the TIMSS survey (2003) coincidentally was very apropos because a unified Palestinian curriculum had been introduced in the 8th grade just in 2002 as part of the curriculum reforms that began in 2000. Prior to that Palestinian schools followed the Jordanian curriculum in the West Bank and the Egyptian curriculum in the Gaza. With the school year 2000, the Palestinian Authority had started introducing a unified curriculum in all the schools, beginning with 1st and 6th grades in 2000, 2nd and 7th grades in 2001 and 3rd and 8th grades in 2002. TIMSS survey would provide an objective evaluation of the impact and effectiveness of the new curriculum at least in teaching mathematics and science.

Educational Reforms

87. TIMSS already has had considerable impact on educational reforms in Palestine. The NAEC has adopted TIMSS data analysis and methodology for its own national evaluation and assessment programmes. It has modified its tests and questionnaires as well using TIMSS format. The Ministry of Education expects to get a fairly realistic idea of the position of Palestinian education system (ranking) within the region and globally in order to consider additional reforms.

88. TIMSS is viewed as a "diagnostic tool" for educational reforms, development of new curriculum, teachers training and introduction of some form of certification or licensing of teachers. The Palestinian Authority was in the beginning a "bit hesitant" about participating in TIMSS because of the political reality[21] and because of the apprehensions about the psychological impact of "occupation" on students and teachers. However, the Senior Regional Adviser proved persuasive in convincing the Palestinian Authority of the importance and usefulness of participating in the TIMSS survey. It is keen to participate in the Regional Report and TIMSS 2007.

89. NAEC and the TIMSS team favoured the idea of a standardized IEA-verified and approved Arabic version of TIMSS manuals and survey instruments which could be used by Arab participants in TIMSS for "cultural adaptation" and verification. This

[21] People live in "jails", according to the Assistant Deputy Minister of Education, Jehad Zakarna. Ramallah, in his view, is one prison, Jericho another. Each village or camp is isolated and all movements between them is controlled by the Israelis. Teachers and students are unable to or unsure of reaching schools regularly. Schools also lack equipment.

would also eliminate the problems/errors which had cropped up in the production/printing of graphs, charts and tables in Arabic.

Recommendations

90. NAEC should appoint a National Research Coordinator without making any changes in or affecting the "collegial/collective" structure of the TIMSS team.

I4. SYRIA

91. In Syria, in the absence any relevant national institution or government agency the Ministry of Education acted as the cooperating agency for the TIMSS survey.[22] The TIMSS team was led by Isho Ishaq, National Research Coordinator, who, as per his own statement to the consultant, though "authorized to deal with all issues related to TIMSS" limited his involvement only to administrative matters. The task of organizing and administering the TIMSS survey was left to a consultant, Faisal Wahbeh, a retired senior official of the Ministry of Education with background in mathematics, examinations and curriculum.

92. TIMSS team was slow in emerging and coalescing but ultimately TIMSS survey was organized on time and data collected and processed. Syria met "many of the TIMSS 2003 quality standards. However, its class sample, prepared without using the TIMSS sampling software, did not meet the TIMSS quality standards, resulting in IEA's decision to exclude it from the TIMSS International Report (due for publication next December) and its ranking. A brief analysis of the Syrian data would be included in the Report as an Appendix.

Organization

93. TIMSS was a new experience for Syria and the slow build-up of the TIMSS team affected the organization and administration of the survey. Inadequate resources, human, physical and financial, oftentimes also proved a drag resulting in missed deadlines and non-submission of required reports and data forms. The school sample, prepared by the StatCan, included 150 schools of which 136 participated in the TIMSS survey, with 4,959 students taking the tests. In the field tests, 1,100 students in 14 schools participated.

94. The Ministry organized a three-day workshop on TIMSS for inspectors in the country's 14 governates. The inspectors, in turn, briefed school principals and teachers in their respective governates. NRC and/or other TIMSS team members were present at these briefings. Scoring was done at the country's seven scoring centers, each with 20 to 50 scorers in mathematics and science. There were seven Quality Control Managers.

[22] RBAS has advised the Ministry of Education, both orally and in writing, on the need for setting up an institution for educational evaluation and testing.

95. The National Data Manager could not attend the training workshop in Hamburg in February 2002 because invitation came too late and he could not get the visa in time (Minimum lead time required two weeks). He received training after the field tests had been completed. Data entry team included 20 persons and there were two data processors. However, the two-day training workshop for the data entry personnel, organized by DPC in Damascus in February 2003, was not enough as they were not familiar with TIMSS software. Deadlines for submission of data were missed because of the limited capacity of data entry and processing personnel. Syria did not send Tracking Forms and Data Management Forms to the DPC. Neither the NRC nor anyone else on the TIMSS team was aware of the requirement for sending a Survey Activities Report to DPC and ISC in September 2003.

96. As the Ministry did not have adequate, qualified staff to translate TIMSS instruments for field trials, it decided to use the "unverified" Egyptian version of tests and questionnaires. A nine-member team of senior inspectors in science and mathematics was appointed to supervise the "cultural adaptation" of tests and questionnaires for the field trials and later of the final survey instruments. However, "culturally adapted" texts were not sent to IEA for verification. The TIMSS team and NCR also relied on partially translated TIMSS manuals received from Egypt which may account for the lack of knowledge about the Survey Activities Report requirement.

97. Most of the staff assigned to TIMSS carried out TIMSS-related activities in addition to their regular work without any compensation for overtime. Obviously staff assigned to TIMSS gave priority to their regular work. No additional staff was hired.

New Experience

98. TIMSS questionnaire and test represented something new both in terms of style and format. Students were not used to multiple-choice questions. School and class sampling methodology was completely new and none in the Syrian TIMSS team had experience in this kind of sampling and testing. TIMSS curriculum framework and field tests included several subjects which were not covered in the 8th grade curriculum in Syria, e.g. astronomy, geology, environment, applied mathematics and laboratory work. While a small textbook in astronomy was distributed to all the schools and made part of the 8th grade curriculum, similar action was not taken in regard to other subjects.

99. The Ministry acknowledged the problem of communications. It had to depend on a common national server. There had been occasions when the server had been down for days, and sometimes it had been difficult to access email due to heavy traffic. The Ministry is in the process of upgrading its communications network and within the next two to three months, TIMSS team could expect to have its own email address.

Unacceptable Class Sample

100. For TIMSS survey, class samples, prepared by the participating countries, have to be absolutely random. Countries, not using the IEA-supplied class sampling software, have to provide documentary evidence to prove that its class sample methodology meets the TIMSS criteria. Syria "could not come up with a national (class) sampling plan based on sound and defensible sampling method". The NRC could not provide any acceptable documentation in support of its class sampling methodology. Neither could the NRC explain the "large differences between the number of students from the list of schools prior to school sampling and the number of students found in these same schools at the time of testing".[23]

101. Syria's Deputy Minister of Education, Dr. Suliman Al Khatib, who was present at all but one meeting that the consultant had with the TIMSS team, expressed surprise at IEA's decision. Syria had learnt of IEA's doubts about the class sampling methodology only recently, at the NRC workshop last June. It was yet to receive a full explanation from the IEA on the matter. Why had not the IEA raised this issue much earlier so that Syria could have provided whatever documentation was needed in support of its class sampling methodology?

102. TIMSS Management, however, insisted that it had warned the NRC as early as in March 2002 at the NRC workshop in Ghent, Belgium, and again at Bucharest, Romania, a year later, against the use of methodology that he had planned to use in preparing the class sample. On both these occasions, the NCR promised to use TIMSS class sampling methodology. Special training on the use of TIMSS software in February 2003 included the use of class sampling software. In April 2003, StatCan asked the NRC to provide it information on the methodology used in preparing the class sample. TIMSS Management did not get any response despite repeated reminders. In April this year, in response to a message from StatCan, the NRC sent a two-line response saying that the sample, though based on first two classes (a & b) in the sample school was random without any documentary evidence in support of that. This was not acceptable. StatCan made a final attempt last June at the NRC workshop in Santiago, Chile. Syria's Data Manager provided an explanation which was "unclear and undocumented".Syrian class sample, in view of TIMSS Management, did not meet TIMSS standards. [24]

[23] For IEA's position on Syria's class sample, see Annex D

[24] Mr. Faisal, who prepared the class sample, acknowledged discussing the issue of class sample with Marc Joncas of StatCan but claims that he was not told that there was any problem with his methodology for formulating the class sample. He had prepared the class sample prior to receiving training in the use of TIMSS class sampling software. He had no support, had worked alone from his home. The differences in the class sizes prior to school sampling and at the time of testing, according to him, was attributable to school reorganization that resulted in the closure of some schools and transfer of students from one school to another. He claims that he had warned Marc Joncas of this at the Bucharest meeting in April 2003.

TIMSS & Educational Reforms

103. Despite the disappointment at Syria's exclusion from the TIMSS International Report, Syria considers its participation in TIMSS has been extremely beneficial as it would provide the Government with an impartial assessment of the country's education system and its impact on learning at the middle school level. The survey had come at an opportune time because the Ministry of Education, following the completion of school reorganization (merger of primary and middle schools) in September 2003, was in the process of reviewing and reforming mathematics and science curricula. The Ministry is also looking into the possibility of introducing new teaching methodologies to encourage application of knowledge rather than total reliance on rote learning. Multiple- choice format is being introduced in tests at all levels in the schools.

104. The Ministry plans to participate in the Regional Report. It is also keen to participate in TIMSS 2007. No thought has yet being given to producing secondary reports using TIMSS data. For doing the secondary analysis, the TIMSS team would need additional information from the ISC on weights assigned to different items and training in data analysis and processing for ranking.

105. Acting on the advice of the RBAS, the Ministry has decided to set up an Education Research Center to deal with all issues related to research on educational reforms and evaluation. This Center would report directly to the Minister of Education. TIMSS team would be part of this Center. Two offices equipped with computers, telephones and email facilities have been assigned to TIMSS staff recently.

Recommendations

106. The Ministry needs to appoint a National Research Coordinator who would be a hands-on manager of the TIMSS team, fully involved in and responsible for organizing the TIMSS survey in Syria. The NRC should be fully conversant in English and should serve for the entire duration of the survey.

107. Pending the establishment and development of the Educational Research Center, the Ministry should provide adequate physical and human resources to the TIMSS team to carry out all its functions on time.

108. The TIMSS should have adequate funds as required under the project RAB/01/005/A/01/31/REV.1 for meeting local costs.

I5 YEMEN

Organization

109. In Yemen, which qualified for participation only in the primary level TIMSS survey[25], the Education Research and Development Center (ERDC) acted as the TIMSS co-operating institute. Nearly 4,500 students in 150 schools participated in the test and the quality of data collected was considered "good". However, the student sample prepared without using the IEA-supplied software had serious and major inconsistencies and did not meet the IEA standards, resulting in Yemen's exclusion from the TIMSS International Report, assessment and ranking. [26] A brief analysis of Yemeni data, however, will be included in an Appendix to the Report.

110. TIMSS team was led by Mr. Omar Fadhel Ba-Fadhel, the NRC, assisted by the Data Manager, Hamid Al-Shaibani. The Ministry of Education set up a six-member Committee of Coordinators to facilitate TIMSS implementation.[27] More than 200 persons, including 150 observers, scorers and data processors, were involved in administering the TIMSS tests.

111. Yemen came in late in the TIMSS survey. The NRC could not attend the NRC Workshop in Madrid in December 2001. Within a week after the special briefings organized for the UNDP 5 in TIMSS in Cairo in February 2002, his team collected school and student population data on the assumption that it would be participating in the 8th grade survey. However, at the NRC workshop in Gent, Belgium, in March that year, Yemen was informed that it did not meet the requirements for participating in the middle school survey -- "because of a very high dropout rate in the 8th grade", according to the NRC. Immediately his team had to switch gear, collecting as expeditiously as possible data about primary schools.

112. Since the Field Trials were to be held by the end of May 2002, Yemen did not have the time or the personnel for translating field tests and questionnaires into Arabic. It used the Tunisian Arabic versions of mathematics tests and Egyptian version (unverified by IEA) of science tests, procured through personal intervention by the UNDP/RBAS Senior Regional Advisor. These documents were hastily reviewed for "cultural adaptations" and sent to the IEA for verification. However, the test documents were printed without incorporating the corrections received from IEA -- "we did not have time". Field Trials involving 1,200 students in 25 schools were administered on the last

[25] Yemen failed to qualify for participation in the Middle School level survey because the enrollment in the 8th grade was below the minimum TIMSS requirement of 65 per cent in the appropriate age group.
[26] For details, see Annex D
[27] The TIMSS team was put together by the NRC entirely through his personal contacts in the ERDC and the Ministry of Education. Most of the TIMSS work was done outside the office hours. No one has been compensated for the overtime they put in and some of them are still awaiting reimbursement for expenditures incurred by them on TIMSS-related travel and other activities.

day of the school term. However, the resulting data was not transmitted to the DPC until November, nearly two months past the deadline.

113. Yemeni 4th grade curriculum did not cover all of items the TIMSS curriculum framework. Yemeni students were familiar with the multiple-choice format but had "reading comprehension" problems. A significant portion of them did not comprehend written questions although they could understand these questions if read aloud to them. Students, teachers and principle alike seem to link TIMSS tests with academic or career promotions. There was lobbying by schools and students for inclusion in the TIMSS survey. Some school students included in the test sample did not take the tests fearing that it might affect their promotion from 4th to 5th grade, while those excluded from the class sample protested, sometimes attacking the students taking the TIMSS tests.

114. Principals and teachers were not well informed about the TIMSS survey. The TIMSS team did not organize individual or group briefings for principals and teachers of schools in the sample although they were sent briefing materials on TIMSS. Questionnaires evoked conflicting responses from the principals, some finding them easy to complete while others considering them irrelevant or not significant. At least that was the impression left on the consultant by the principals of two schools in the Sana'a school district.

Training

115. The data manager received training at the two-day workshop in Hamburg in February 2002. This was supplemented by a special three-day workshops organized by DPC in Sana'a in February 2003 and attended by 10 data entry and data processing personnel. The National Data Manager from Egypt assisted the DPC in training at this workshop. However, training was not considered adequate and both the NRC and the Data Manager emphasized the need for at least a weeklong training workshop because the data entry and processing staff were not familiar with the software used by the DPC and StatCan.

116. The NRC had no explanation for not using the IEA software for preparing the student sample. The discrepancies in the students included in the class sample and those who took the tests were, according to him, attributable to lack of reliable data. The Center had used the data from the 2002 school survey prepared by the Ministry of Education. The TIMSS coordinators had become aware of the discrepancies and gaps in the Ministry's data and the reality in the field only in March 2004 when checking students' background data in response to StatCan's request. TIMSS team had briefed the Minister and the Deputy Minister of Education about the gaps in the data. The Ministry has instructed the Directors of Education in all the governates to collect reliable data.

117. The TIMSS team sent the Data Tracking Forms and the Data Management Forms to the DPC but much after the deadline. The Survey Activities Report was transmitted to the DPC on time last September.

118. There were problems in communicating with the TIMSS Management (and vice versa) because of unreliable and slow email connections. The TIMSS team relies, as do all government agencies, on one internet server. Often times, it is either down or difficult to access because of traffic overload. The TIMSS team has now acquired new computer equipment and its own telephone lines. It is also looking into the possibility of switching to a high-speed internet connection.

119. The Government did not provide any funds for the implementation of TIMSS as required under the project document. After signing the project document and start of the TIMSS survey, the Government pleaded inability to provide funds for meeting the TIMSS local costs because funds allocated for education under the 5-year plan were already committed. On being advised of this, the Regional Director for Arab States approved a special, emergency grant of $30,000 but that was used primarily to defer TIMSS survey costs at the governates level. The TIMSS team and its other part-time associates (scorers, data entry and processing personnel etc.), despite repeated requests by them to the Ministry, are yet to receive compensation for their overtime work or reimbursement for the expenses they incurred on TIMSS-related travel.

Beneficial Impact

120. Though the exclusion from the International Report was disappointing, Yemen's participation in TIMSS proved to be very beneficial. It led to the creation of a dedicated and committed team of technical and other personnel experienced in organizing and administering an international survey. To the educators and ERDC, the TIMSS survey provided a "reality" check on the educational system in the country and "very objective" data for measuring the effectiveness of primary school education. It has drawn attention to the weaknesses in the country's educational institutions and the need for reforms in teaching methodology and the the format and style of school tests. Last but not least, it has highlighted the primary importance of collecting reliable data about school and class enrollment in the country's 21 governates.

121. Yemen's participation in TIMSS has resulted in the standardization of scoring methodology in the country. TIMSS survey has led to a re-examination of the style and and contents of tests administered to students at various grades. Multiple-choice questions in tests are to be more carefully formulated so as not to test the "rote learning" but application of knowledge. Educators and policy makers have become aware of the need not only for reforming curriculum but also teaching methodologies, standards for evaluating schools, teachers and students, and shifting the emphasis in schools from "rote learning" to application of knowledge for problem solving.

122. TIMSS team and the ERDC are aware of the possibility of using TIMSS data for preparing secondary reports on such issues as gender balance in education, reformation of schools, teaching methodologies and teachers training. They are also keen to participate in the proposed Arab Regional Report. However, a decision on all these matters has to be taken by the Minister of Education so that appropriate human and financial resources can be assigned.

123. Yemen, like other UNDP 5, is very keen to participate in TIMSS 2007.

Recommendations

124. While the TIMSS comprises dedicated and committed staff and it has performed surprisingly well, it risks falling apart because of lack of financial resources. The government must allocate funds as required under the regional project to cover local costs, including compensation for overtime work by the TIMSS team.[28]

125. TIMSS assignments/activities should be considered priority work and not just an add-on to the regular work of the ERDC or Ministry's staff who are part of the TIMSS team.

126. The NRC and his team should be provided adequate physical facilities, including high-speed internet links and email, and human resources to meet all the deadlines. Acknowledgement of all communications to and from the TIMSS Management should be made obligatory.

127. School and class data collected by the Ministry should be verified using the inspectors in the governates prior to its use for TIMSS survey.

128. The NRC must ensure that TIMSS procedures, including the use of class and student sampling software, are followed and data forms are coded properly. A;; required forms -- e.g. Student Data Forms and Data Management Forms -- should be sent to the DPC on time without requiring a request or reminder from the TIMSS Management.

129. Only the IEA verified Arabic version of TIMSS instruments should be used.

J. CONCLUSIONS

130. Despite initial teething troubles, the administration and organization of TIMSS survey in UNDP 5 -- Egypt, Lebanon, Palestine, Syria and Yemen -- has been a major success and a rewarding learning experience for all the participants. UNDP/RBAS has succeeded -- through on-the-job training as it were -- in introducing, and demonstrating the effectiveness of, the culture and methodology of objective evaluation and assessment of educational systems and institutions as a precursor of constructive educational reforms. This culture needs to be nurtured systematically through participation in similar surveys, including TIMSS 2007, in future to establish a firm basis for continuing, meaningful and impact-oriented educational reforms and policies

[28] The Deputy Minister of Education affirmed that the Government was very keen to participate in TIMSS 2007 and would include TIMSS survey costs in the budget that is under preparation now. He agreed to advise the UNDP/RBAS of this in writing by the end of September or as soon as UNDP/RBAS advises it about TIMSS 2007.

which, according to the Arab Human Development Report 2002, are a must if the Arab people are to build and develop "knowledge societies" in the region. [29]

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[29] Knowledge is a cornerstone of development, and its importance is increasing in an age of accelerating technological change and globalization….Investment in physical resources for education needs to be complemented by enhanced attention to quality, e.g. by emphasizing standards, by improving curricula and assessment, and by better training, managing and motivating teachers. Arab Human Development Report 2002 p.7 Recognizing "constant evaluation of education" among the priority policies for expanding and improving education, AHDR 2002 states: The success of educational efforts in meeting the needs of learners and society as well as the requirements of comprehensive development needs to be measured…Special focus should be placed on modern methods and concepts used in the evaluation of educational attainment, such as portfolio evaluation, summative evaluation and self evaluation. AHDR 2002 p. 58

ANNEX A

Terms of Reference

QUALITY ASSESSMENT OF PRIMARY AND MIDDLE EDUCATION IN MATHEMATICS AND SCIENCE (RAB/01/005/A/01/31/REV.1)

A. BACKGROUND

9. The two-year regional project (RAB/01/005/A/01/31) was launched in December 2002 to assist up to six Arab States[30] in assessing the effectiveness of math and science teaching in their primary or middle schools. The assessment was to be done through their participation in the on-going TIMSS 2003, third in a series quadrennial international surveys for evaluating the effectiveness of mathematics and science teaching in the primary and middle school systems in 55 countries. TIMSS (Trends in Mathematics and Science Study) surveys are conducted and managed by the Amsterdam-based International Association for the Evaluation of Educational Achievement (IEA), an independent international cooperative of 60 national research institutions and government agencies.

10. IEA organizes large-scale studies of educational achievements to gain in-depth understanding of the effects and policies and practices within and across systems of education. Curriculum-based cyclical studies are designed to enable the participating countries to strategically investigate trends in education performance on a continuing basis by developing benchmark national and international data and a common scale for ranking countries around an international average and key benchmarks.

11. The regional project also provides for a two-step review of the findings of TIMSS 2003, first by educators and policy makers, and then by education ministers of the participating countries, for developing recommendations/strategies for educational reforms to upgrade the teaching of mathematics and science in the Arab region.

B. DEVELOPMENT OBJECTIVE/OUTPUTS

12. The primary development objective of the regional project is:

- To enable a given country's policy-makers and administrators at national and local levels to devise quality-oriented reforms based on accurate and verifiable data and

[30] Although the project provided for participation of six countries in TIMSS 2003, only five -- Egypt, Lebanon, Palestine, Syria and Lebanon -- met the TIMSS minimum requirement -- school enrollment ratio of 65 per cent of appropriate age group.

on analyses of various factors that affect the transformation of raw inputs into learning, bearing in mind the comparative assessment of the country's primary/middle level educational systems vis-à-vis other countries in the Arab region.

13. Countries participating in TIMSS are also expected to acquire a cadre of educators, administrators and researchers trained in sampling, data collection, test development, data cleaning, analysis, policy-making and reporting. By participating in TIMSS, they also are to develop and institute practices for:

- Measuring student performance and other characteristics of the system through routine national assessments and by participating in international in-depth investigations;
- Improving educational statistics to make them policy relevant and accurate; and,
- Routinely evaluating the effects of new policies on the educational system.

14. TIMSS participants will also learn the relative efficiency and effectiveness of their educational policies and systems within the universe of participating countries globally and regionally, using a common scale -- developed by IEA -- for ranking countries around an international average and key benchmarks.

15. TIMSS 2003 is nearing completion. Its reports are being finalized and will be transmitted to the participating countries by the end of June 2004, to be made public in mid-December 2004. RBAS plans to organize a meeting of Arab educators and policy makers in early next year, to be followed soon thereafter by a ministerial-level meeting.

16. Although technically TIMSS 2003 has not yet been completed, a number of Arab States have approached RBAS for participating in TIMSS 2007, the fourth quadrennial survey that IEA plans to launch in February 2005. The Bureau is planning to revise the regional project and extend it until December 2008 to enable the participation of up to nine Arab States in TIMSS 2007 and follow-up reviews by Arab educators and education ministers.

C. EVALUATION

17. The regional project envisages that an evaluation of the project will be organized after completion to assess its outcomes relative to planned objectives and intended outputs. In view of the planned revision and extension of the project, it is considered that an evaluation be organized now to assess the activities completed so far i.e. the international survey, TIMSS 2003 and its impact in terms of capacity building in the participating countries. The evaluation will be part of the UNDP/RBAS Regional Programmes Evaluation Plan.

18. The evaluation, to be carried out by a consultant, will assess the achievements of the project so far in terms of methodology of implementation, participation of the five Arab States in the formulation, testing and administration of field tests and questionnaires and capacity building -- training of researchers and data analysts. The evaluation will also gauge the reaction of local and national educators in terms of their perceived immediate and long-term benefits of TIMSS 2003, enhanced awareness of the need and methodologies for measuring the effectiveness of learning institutions, and the need for continuing assessment of the quality and effectiveness of primary and middle school education.

D. REVIEW METHODOLOGY

19. The review process will include deskwork and field visits. The desk reviews will include New York, Boston, Ottawa and Hamburg. Field visits will include Egypt, Lebanon, Palestine, Syria and Yemen.

20. The desk reviews will enable the project reviewer to examine project documents and periodic reports from IEA in full detail and to interview those who have been directly involved in project planning, implementation and supervision. The field visits will enable the reviewer to communicate directly with designated national institutions, national research coordinators and his/her other team members, relevant government ministry/agency representatives and principals and teachers of representative schools (at least two in each country) which participated in the international survey. A detailed list of participating institutions, national research coordinators and their team members and surveyed schools will be made available to the reviewer by UNDP/RBAS/UNOP and/or IEA.

E. SPECIFIC AREAS OF INVESTIGATION

13. The reviewer will evaluate the preparation, organization, and the administration of TIMSS 2003 by IEA and its partner institutions in the five Arab States participating in the international survey under the regional project, with particular reference to their inputs in: -

- The formulation of data collection instruments -- field tests and questionnaires; testing, finalization and administration of instruments;
- Criteria used for designing the school samples, both for testing the data collection instruments and administration;
- Evaluation of school curricula; and,
- Organization the survey, translation and verification of translation of the data collected and compiled.

14. Also assessed will be the training for the National Research Coordinators and researchers and data analysts in the five participant countries.

15. The reviewer will also evaluate the quality and level of support provided by the national institutions designated as focal point for TIMSS 2003 in each country. Reviewed will be human and other resources available -- as against needed -- and communications for supporting TIMSS activities adequately and satisfactorily. Human resources to be looked at will include national research coordinators, researchers, data analysts and monitors.

16. The reviewer will also review the extent to which the designated national institutions, national research coordinators and other staff followed the IEA guidelines in the organization and administration of the survey.

F. WORKPLAN

- Desk review and preparation of field visits: New York (3 days), Boston (2 days) and Montreal (1 day), Hamburg (1 day).
- Field visits Egypt (3 days), Palestine (2 days), Lebanon (3 days), Syria (3 days) and Yemen (3 days).
- Draft Report: New York, 5 days
- Finalization of report: 2 days

ANNEX B

Persons Met Individually or Collectively
During Evaluation Mission

Egypt

Dr. Hassan H. El-Bilawi, First Undersecretary and Supervisor of Minister's Office
Ministry of Education
Dr. Soliman El-Khodary El-Sheikh, Director of National Center for Examinations and
Educational Evaluation (NCEEE), National Research
Coordinator for TIMSS 2003
Dr. Moustafa Hatem, NCEEE, National Data Manager

UNDP

Marta Vallejo Mestres, Regional Projects Officer
Tarek Talaat, Chief, Operations Unit

LEBANON*

Dr. Laila Maleeha Fayad, President, Educational Center for Research &
Development (ECRD), National Research Coordinator for TIMSS
Antoine Skaf, ECRD, Deputy to NRC
Antoine Farah, ECRD
Zena Habib, Assistant to President, ECRD
Issam Ch. El-Masri, Chief, Data Programming, ECRD, National Data Manager for
TIMSS
Michel Ghaoui, IEA's Quality Control Manager
Selim Jabbour, Data Programmer, ECRD
Paula MaKdissi, ECRD, Data Entry and Observer
Nina Nehme, ECRD, Data Entry and Observer
Samar El-Hayek, ECRD, Data Entry and Observer
Marie Khachom, ECRD, Observer
Souhad Chamss eddine, ECRD, Observer
Najat Ziade, ECRD, Observer
Maha Khoury, ECRD, Observer

Haitham Harb, TIMSS Coordinator, Lycee Pascal, Anout, Mt. Lebanon
Ali Sayeed, Principal, Lycee Pascal, Anout, Mt. Lebanon

UNDP

Nada Al-Nashif, Deputy Resident Representative
Hassan Krayem, Policy Specialist
Elham Barakat-Diab, Administrative Assistant
Ghia Osseiran, Summer Intern

Palestine

Jehad Zakarna, Assistant Deputy Minister for Education
Mohammad Mator, Director, National Assessment & Evaluation Center (NAEC)
Ola Khalili, Deputy Director, NAEC
Dr. Said Assaf, Deputy Assistant for Technical Issues, NAEC
Rabah Salameh Awad, Testing Division, NAEC
Khaled Dawas, Research Division, NAEC
Yasin Afana, Analysis and Item Bank Division, NAEC, Data Manager, TIMSS
Khalid Bsharat, Analysis and Item Bank Division, NAEC
Sahar Odeh, Chief, Division of Curriculum and Project Evaluation

UNDP

Timothy S. Rothermal, Special Representative, Programme of Assistance to the Palestinian People
Sufian Mshasha, Chief, Human Development Unit, PAPP

SYRIA*

Dr. Suliman Al-Khatib, Deputy Minister for Education
Ishoo Ishaq, National Research Coordinator, TIMSS
Faisal Wahbeh, former consultant and TIMSS team member
Abdullha Madena, National Data Manager
Riyad Khamou'a, Inspector General, Mathematics

UNDP

Fumiko Fukuoka, Deputy Resident Representative
Abir Zeno, GEF Associate
Faten Tibi, Operations Analyst

YEMEN

Prof. Abdulaziz Salih Ben Habtoor, Vice Minister of Education
Jamil Ali Al-Khalidi, Deputy Minister of Curriculums
Dr. Saleh Nasser Al-Soofi, Chief, Education Research and Development Center (ERDC)
Yahia H. Al-Makhathi, Manager of Education Office, Capital Sana'a Secretariat

Najeeb Al-Akomaim, Training Manager, Capital Secretariat
Omar Fadhel Ba-Fadhel, ERDC, National Research Coordinator for TIMSS
Hamid Al-Shaibani, National Data Manager
Ramadan Salem El Najar, Ministry of Education,
TIMSS Quality Control Manager
Om El-ssad Mohmed Abudl-Hay, Curriculum Specialist, Science, Scorer
Yehya Bakkar Mosaffer, Education Supervisor Mathematics, Scorer
Abdulla Al-Gubati, Ministry of Education
Maryam Abdul Jabbar Salman, Curriculum Specialist, Mathematics,Scorer
Mustafa A.I.Huwaidy, Learning Technology Consultant Science, Scorer
Ali Mohammed Hashem, Education Supervisor Science, Scorer
Fahd Ali M. Al-Matiray, Education Supervisor
Salmeen M. Basloom, Education Researcher Mathematics, Scorer
Mohammed Ali Thabit, Education Supervisor, Science, Scorer
Mohammed Ali Morshed, Education Researcher, Mathematics, Scorer
Aad Saleh Al-Kholagi, Education Researcher, Quality Control Team
Abdu A. Moktari, Education Supervisor Mathematics, Govern orate Coordinator
Ahmed Ismaill Al-Mhnaby, Education Supervisor Science, Governorate Coordinator
Abdul Momen Abdullah Mosen, Education Superviser, Science , Governorate
Coordinator
Mahfoud Mohammad Sallam, Education Supervisor,Science, Govern orate Coordinator
Abdu Ali Al-Shammi, Principal, Zaid Bin Harithah Basic School, Sana'a
Amatallatif Motaher, Principal, Aisha Basic School, Sana'a

UNDP

Moin Karim, Deputy Resident Representative
Randa Aboul-Hosn, Assistant Resident Representative
Shirin Shamsan, Admin. Associate, Poverty Programme
Akram Ali Al-Hindi, consultant/translator

TIMSS Management

Dr. Michael O. Martin, International Study Center (ISC), Co-Director, TIMSS
Dr. Ina V.S.Mullis, ISC, Co-Director, TIMSS
Dana Dianconu, Research Associate, ISC
Marc Joncas, Senior Methodologist, Statistics Canada (StatCan)
Dirk Hastedt, Co-Director, IEA's Data Processing Center (DPC)
Juliane Barth, PIRLS Project Coordinator, DPC

- The consultant also consulted with, over phone and via email,

Dr. Hans WageMaker, Executive Director, International Association for the
Evaluation of Educational Achievement (IEA)
Pierre Foy, DPC

UNDP, New York

Maen Nsour, Senior Regional Advisor, RBAS

UNOPS, New York

Gillman Rebello, Portfolio Management Officer

* Regret any errors in spellings of names and designations. The consultant had sent the list of names to the NRCs of Lebanon and Syria for verification and correction as needed. To date, no response has been received.

ANNEX C

TIMSS 2003
Overview of Project Schedule

Year 2000	
August - October	NRC recommendations for updating TIMSS Frameworks
November 1 to 3	First TIMSS 2003 Expert Panel meeting to update TIMSS Assessment Frameworks and Specifications
November - December	Draft TIMSS Assessment Frameworks and Specifications
Year 2001	
January - February	Expert Panel reviews draft TIMSS Assessment Frameworks and Specifications
February 25 to 28	First TIMSS 2003 NRC Meeting (Hamburg, Germany)
March - April	Revise TIMSS Assessment Frameworks and Specifications
May 2 to 4	Second Expert Panel meeting for TIMSS Assessment Frameworks and Specifications (Amsterdam, the Netherlands)
June 17 to 20	Second TIMSS 2003 NRC Meeting (Montreal, Canada)
July 13	Phase I of item writing (250 grade 8 and 200 grade 4 items per subject)
July 31	Phase II of item writing (extra 250 grade 8 and 200 grade 4 items per subject)
July - August	Prepare, review, and revise draft of TIMSS Assessment Frameworks and Specifications
September 17 - 20	Science and Mathematics Item Task Force (Boston, U.S.A)
September	Publish TIMSS Assessment Frameworks and Specifications
October 15- 19	Science and Mathematics Item Review Committee (SMIRC) (Portsmouth, N.H.,U.S.A)
October 22 - 25	Questionnaire Item Review Committee (QIRC) (Washington, D.C., USA)
December 9 – 14	Third TIMSS 2003 NRC Meeting (Madrid, Spain)
Year 2002	
January 4	Field test item blocks and background questionnaires sent to countries for translation and verification
February 17 – 20	Data entry training for field test (Hamburg)
March 17 – 22	Fourth TIMSS 2003 NRC Meeting (Gent, Belgium)
March - April	Field test
April 1 – May 31	Field test data sent to DPC
July 9 – 12	QIRC (Amsterdam, the Netherlands)
July 15 – 18	SMIRC (Oslo, Norway)
July 29 – August 2	Fifth TIMSS 2003 NRC meeting (Tunis, Tunisia)

October - November	Main data collection for Southern Hemisphere
November 3 – 7	Southern Hemisphere scoring training (Wellington, New Zealand)
Year 2003	
March - June	Main data collection for Northern Hemisphere
March	Sixth TIMSS 2003 NRC meeting (with scoring training for Northern Hemisphere) (Bucharest, Romania)
July - December	Data processing and review
November 9-14	Seventh TIMSS 2003 NRC meeting (Cape Town, South Africa) – review data summaries, report outlines, and draft exhibits for reports.
December 1	TCMA materials distributed to NRCs
December 31	NRCs send all background changes to DPC
Year 2004	
January 20-22	Sampling Adjudication Meeting, Boston
January 30	DPC distributes all background almanacs to NRCs ISC posts revised chapter 4 exhibits to web for NRCs to review student background data
February 13	NRCs send all changes to background data to DPC NRCs send TCMA spreadsheet to ISC
March 15	ISC posts updated exhibits in chapters 5-8 to web for NRCs to review background data
March 31	ISC completes scaling of achievement data
April 1	NRCs send all changes to background data to DPC
April 27-30	Scale Anchoring Meeting, Boston
May 10-14	IEA Research Conference, Cyprus
June 10	DPC distributes achievement and background almanacs to NRCs ISC posts draft reports (exhibits and text) to web for NRCs to review prior to 8th NRC meeting
June 20-25	Eighth NRC meeting (Santiago, Chile) – final review of draft TIMSS 2003 international exhibits for international reports in mathematics and science
July 9	NRCs send all final data changes to DPC
July 30	ISC posts released item sets to web
August 20	DPC distributes final almanacs and data files with data for all countries to NRCs
November 23	ISC mails out international reports, technical report, and press packet to NRCs
December 14	Press release international reports

Year 2005

February	International database training, held in conjunction with 1st TIMSS 2007 NRC meeting
March	International database and user guide published

ANNEX D

Yemen & Syria: Rationale for Exclusion From TIMSS 2003 International Report

One of the major objectives of any international comparative study is the selection of quality samples. Only properly selected samples will yield unbiased, accurate and internationally comparative survey estimates. For TIMSS 2003 this translates into a series of quality standards such as minimum effective sample size of 400 students selected from a minimum of 150 schools, participation rates of at least 85% of initially sampled schools, 95% of sampled classrooms and 85% of sampled students and teachers and as equally important, national sampling plans based on sound and defensible sampling methods. Following that last point, National Research Coordinators (NRCs) were responsible for developing their national sampling plans. It was their responsibility to seek proper sampling advice when dealing with this activity. Statistics Canada along with the IEA DPC were available specifically for that purpose. NRCs had also to seek approval from Statistics Canada and the International Study Center for their national sampling plans PRIOR to implementation. Failure to meet these standards results in non publication of the country survey estimates.

Yemen:

Although Yemen met many of the TIMSS 2003 quality standards, they couldn't come up with a national sampling plan based on sound and defensible sampling methods.
School sampling (run by IEA DPC) and classroom sampling within selected schools went relatively well in Yemen. However, the student sampling within selected classrooms was deemed unacceptable. Given the classroom sizes in Yemen, the NRC proposed to subsample 30 students within each selected classroom using softwares developed by the IEA DPC. By doing so, it becomes relatively easy for Statistics Canada to double-check that all sampling steps are carried on properly as documentation is automatically produced. In the case of Yemen, no good documentation was produced. It appeared that they did not use the available software. Instead, three different approaches were used, two of them were unacceptable in an international study context. Briefly, the sampled classrooms were grouped in three categories: According to the documentation provided the first approach can be described as follow: "If the number of students in the selected classroom was very large, a computer was used to choose randomly (30) students by taking one and leaving the next one. This was the case for the following schools".

Total No. Of School Students	Total No. Of Class Students	Sub sample of Students	ID CLASS	ID SCHOOL
225	65	31	000404	0004
143	71	30	000801	0008
258	64	30	001701	0017
459	96	31	001701	0018
263	65	30	001901	0019
259	66	31	002001	0020
290	73	31	002101	0021
281	70	31	002203	0022
150	65	30	002402	0024
269	65	30	002601	0026
277	70	31	002801	0028

Total No. Of School Students	Total No. Of Class Students	Sub sample of Students	ID CLASS	ID SCHOOL
253	64	29	003203	0032
216	54	29	003404	0034
270	67	30	003601	0036
244	81	29	003803	0038
216	56	31	004904	0049
132	66	28	006002	0060
123	62	26	006302	0063
125	63	26	006401	0064
127	63	31	006501	0065
215	72	30	007002	0070
221	55	30	007901	0071
286	85	30	007404	0074
254	67	35	007502	0075
289	58	30	007702	0077
274	58	40	007901	0079
278	77	27	008001	0080
350	73	30	008304	0083
247	84	31	008402	0084
242	80	30	008602	0086
235	58	29	008801	0088
239	58	29	008902	0089
237	83	31	009102	0091
232	64	35	009301	0093
115	58	16	009502	0095
222	56	30	009601	0096
214	66	31	009803	0098
175	62	32	005303	0103
169	59	30	010402	0104
165	58	30	010502	0105
157	82	31	010601	0106
226	75	30	010703	0107
112	55	31	011202	0112

A quick look at the above table shows inconsistencies. First we note that in many cases more than 30 kids were sampled (It is important to note that in this context of student subsampling, exactly 30 students had to be chosen). After discussion, the NRC thinks that some kids were probably forced to do the test (special codes were available to accommodate this situation but obviously were ignored at the time). We also note that many classes show less than 30 sampled kids. Again after discussion, the NRC thinks they omitted to include absent students (however, there are students with absent codes in their file, leaving me to believe that this way of doing wasn't systematic). Finally, there is no proof of the use of computers to select the students (no output, no programs…After discussion with the NRC, it appears that the NRC is not sure anymore whether computers were used or not).

For the next group of schools, all students in the selected class where sampled. This method is acceptable.

Total No. Of School Students	Total No. Of Class Students	Sub sample of Students	ID CLASS	ID SCHOOL
126	31	31	000101	0001
129	32	32	000203	0002
227	31	31	000302	0003
166	31	31	000502	0005
135	30	30	000602	0006
188	31	31	000703	0007
174	30	30	001205	0012
228	30	30	001601	0016
130	32	32	002302	0023
132	33	33	002501	0025
127	30	30	002701	0027
30	30	30	003001	0030
130	32	32	003103	0031
95	30	30	003301	0033
125	30	30	003704	0037
125	30	30	004201	0042
98	31	31	004302	0043
119	30	30	004401	0044
24	24	24	004501	0045
126	30	30	004601	0046
149	30	30	004801	0048
68	30	30	005002	0050
17	17	17	005201	0052
30	30	30	005301	0053
66	30	30	005602	0056
62	30	30	005401	0057
103	35	35	005801	0058
101	30	30	005901	0059
65	33	33	006101	0061
30	30	30	006901	0069
170	30	30	007201	0072
148	33	33	007302	0073
160	30	30	007601	0076
256	40	40	007901	0079
96	30	30	008501	0085
31	31	31	011003	0110
110	39	39	011301	0113
68	34	34	001241	0124
65	31	31	012501	0125
30	30	30	012601	0126
61	31	31	012702	0127
62	30	30	012801	0128
54	27	27	013001	0130
54	27	27	013101	0131
62	32	32	013302	0133
45	45	45	013801	0138
30	30	30	013901	0139
30	30	30	014001	0140
29	29	29	014101	0141

Total No. Of School Students	Total No. Of Class Students	Sub sample of Students	ID CLASS	ID SCHOOL
33	33	33	014201	0142
30	30	30	014301	0143
24	24	24	014401	0144
26	26	26	014501	0145
21	21	21	014601	0146
19	19	19	014701	0147
92	30	30	014803	0148
30	30	30	014901	0149

Finally, alphabetic ordering of the students was used to choose (30) students in the following schools. This was a process Statistics Canada specifically identified as unacceptable in an international study context in earlier discussions with the NRC. Moreover, again there are many classes with less or more than exactly 30 kids as one would expect from the planned sampling design.

Total No. Of School Students	Total No. Of Class Students	Sub sample of Students	ID CLASS	ID SCHOOL
82	40	30	000901	0009
93	45	30	001001	0010
145	45	30	001101	0011
220	45	34	001301	0013
302	51	30	001402	0014
162	54	30	001501	0015
182	47	31	002904	0029
205	54	30	003501	0035
247	47	29	003905	0039
234	45	29	004003	0040
205	42	29	004105	0041
157	40	30	004701	0047
43	43	30	005101	0051
44	44	31	005401	0054
55	55	31	005501	0055
121	41	30	006201	0062
133	45	30	006601	0066
149	45	29	006701	0067
154	37	30	006802	0068
115	40	30	007801	0078
259	51	30	008101	0081
253	52	31	008201	0082
241	48	30	008704	0087
238	50	28	009003	0090
234	43	31	009204	0092
230	53	30	009405	0094
218	43	30	009701	0097
208	53	30	009901	0099
205	40	31	010001	0100
188	49	33	010103	0101
180	43	30	010203	0102
189	50	33	010901	0109
122	40	29	011101	0111
101	50	30	011402	0114
89	49	30	011501	0115

Total No. Of School Students	Total No. Of Class Students	Sub sample of Students	ID CLASS	ID SCHOOL
95	47	30	011601	0116
91	45	30	011702	0117
88	43	31	011802	0118
88	43	30	011902	0119
85	42	30	012001	0120
39	39	39	012102	0121
73	36	30	012201	0122
70	35	31	012301	0123
56	31	31	012901	0129
50	50	30	013201	0132
62	32	32	013401	0134
43	43	30	013501	0135
41	41	30	013601	0136
39	39	30	013701	0137
46	46	30	015001	0150

In addition to this, late discussions revealed that for some schools, not all kids were listed as attested by large differences between the number of students from the list of schools prior to school sampling and the number of students found in these same schools at the time of testing (it appears that some schools had morning and afternoon shifts and that was ignored somehow along the sampling process).

For all these inconsistencies, Yemen sample did not meet the TIMSS quality standards.

Syrian Arab Republic

Although the Syrian Arab Republic met many of the TIMSS 2003 quality standards, they couldn't come up with a national sampling plan based on sound and defensible sampling methods.
School sampling was run by the IEA DPC. The IEA DPC also provided the NRC with softwares to sample classrooms within selected schools. These softwares create automatically the required documentation for Statistics Canada. Unfortunately, the software wasn't used in Syria. Instead they came up with a scenario where apparently only the first two classes of each selected school were given a chance to be part of the classroom sample. The following table illustrates that scenario (look under CLASS NUMBER). After discussion, the NRC thinks that a computer was first used to sample randomly two classes per school and then they decided to sample one classroom out of these two. I have no reason to believe this wasn't the case but unfortunately, in an international study context this is clearly unacceptable unless the NRC can prove that this is what happened. Given that the NRC couldn't come up with an acceptable documentation, combined with the fact that for many schools, not all kids were listed as attested by large differences between the number of students from the list of schools prior to school sampling and the number of students found in these same schools at the time of testing, the Syrian Arab Republic sample did not meet the TIMSS quality standards.

School ID	sex	No. of Classes	students number	class number	students number in the sample class
0008	female	5	255	Second	55
0013	female	5	232	Second	46
0016	female	5	222	Second	44
0020	female	6	237	Second	40
0032	male	5	209	Second	32

School ID	sex	No. of Classes	students number	class number	students number in the sample class
0033	male	3	120	Second	38
0035	male	3	144	Second	48
0042	male	5	204	Second	42
0048	male	5	195	Second	39
0051	male	7	306	Second	49
0056	male	11	425	Second	40
0075	female	7	297	Second	40
0076	male	3	120	Second	39
0077	male	8	370	Second	47
0065	(male + female)	3	130	Second	42
1012	female	6	254	Second	43
0114	male	4	130	first	31
0044	male	3	136	first	45
0088	female	3	100	first	28
0085	female	3	114	first	39
1109	(male + female)	5		first	43
0026	female	3	101	first	40
0017	female	6	215	first	41
0014	female	7	313	first	47

School ID	sex	number of classes	students number	class number	students number in the sample class
0086	female	2	73	first	38
0096	male	2	74	first	35
0136	(male + female)	2	51	first	25
0100	male	3	127	first	42
0093	male	2	95	first	47
0027	female	4	141	first	35
0117	(male + female)	3	83	first	33
0097	male	2	67	first	34
0091	female	2	66	first	32
0018	female	4	172	second	41
1113	(male + female)	4	151	second	33
1107	male	3	120	second	39
0116	male	3	90	second	34
0143	male	2	62	second	30
1110	male	2	85	second	44

School ID	sex	number of classes	students number	class number	students number in the sample class
2129	(male + female)	2	69	second	35
0087	female	3	130	second	46
0106	(male + female)	6	235	second	38
0118	(male + female)	3	116	second	39
0123	(male + female)	3	102	second	33
0066	(male + female)	4	141	second	35
0072	(male + female)	3	118	second	42
0084	female	5	187	second	40
0036	male	4	145	second	36
0011	female	4	171	second	42
0092	female	3	88	second	28
0121	(male + female)	4	126	second	33
0122	(male + female)	3	126	second	37
0128	(male + female)	1	32	second	32
0132	(male + female)			second	24
0146	(male + female)	2	46	second	21
0148	(male + female)	2	42	second	21
0125	(male + female)	4	122	second	32
0078	female	5	212	second	42
0126	(male + female)	2	92	second	46
0043	male	4	202	second	51
0140	(male + female)	2	81	second	40
0010	female	5	210	second	43
0006	female	5	208	second	41
0049	male	7	294	second	42
0055	male	7	182	second	42
0038	male	6	243	second	40
0007	male	6	247	second	42
0025	male	3	130	second	48
0019	female	4	141	second	33
0023	female	4	192	second	36
0089	female	2	81	second	40
0046	male	7	286	second	44
1134	(male + female)	2	69	second	32
0120	(male + female)	2	67	second	30
0059	(male + female)	5	172	second	37
0067	(male + female)	4	108	second	27
0068	(male + female)	3	80	second	25
0069	(male + female)	3	71	second	25
0127	(male + female)	3	102	second	35

School ID	sex	number of classes	students number	class number	students number in the sample class
0137	(male + female)	2	60	second	30
0149	(male + female)	2	39	second	20
1062	(male + female)	6	252	second	42
0104	(male + female)	2	52	second	21
0119	(male + female)	4	159	second	38
0073	(male + female)	1	28	second	28
2060	(male + female)	6	243	second	40
1124	(male + female)	3	90	second	34
0064	(male + female)	5		second	30
0094	male	3	86	second	26
0141	(male + female)	2	57	second	30
0142	(male + female)	2	58	second	29
0144	(male + female)	2	42	second	20
0147	(male + female)	2		second	21
0022	female	5		second	35
0145	(male + female)	1	37	second	37
0090	female	1	32	second	32
0102	male	4	147	second	43
0052	female	7	332	second	42
0015	female	7	242	second	45
0009	female	9	360	second	39
0131	(male + female)	2	65	second	33
0150	female	1	29	second	29
0105	(male + female)	3	144	second	46
0028	female	4	153	second	37
1003	female	7	379	second	54
0057	male	16	690	second	45
0037	male	5	207	second	44
0054	male	7	340	second	49
0139	(male + female)	2	77	second	38
0071	(male + female)	1	44	second	44
0061	female	6	248	second	38
0063	male	5	229	second	45
0029	female	3	95	second	30
0030	female	4	129	second	34
0112	(male + female)		182	second	57
0135	(male + female)	2	72	second	36
0130	(male + female)	3	72	second	25
0133	(male + female)	2	71	second	33
0138	(male + female)	3	101	second	33
0111	(male + female)	4	162	second	39
0108	(male + female)	5	200	second	39
0095	male	4	120	second	33
0098	male	4	175	second	39
0081	female	6	283	second	43
0082	female	4	161	second	39
0080	female	4	223	second	48

School ID	sex	number of classes	students number	class number	students number in the sample class
0021	female	5	180	second	31
0050	male	7	284	second	62
0001	female	8	353	second	42
0045	male	6	235	second	36
0047	male	6	260	second	43
1103	male	7	203	second	36