

APEC PROJECT PROPOSAL

Facesheet

Name of Committee/Working Group: <i>APEC Human Resources Development Working Group</i>			
Title of Project: <i>Collaborative Studies on Innovations for Teaching and Learning Mathematics in Different Cultures (III) - Lesson Study focusing on Mathematical Communication -</i>			
Proposing APEC Economy: <i>Thailand and Japan</i>			
Co-sponsoring APEC Economies:			
Project number:	Date received by Secretariat:		
<i>(Tick ✓ one)</i> <input checked="" type="checkbox"/> Project seeking APEC funding <input type="checkbox"/> Progress Report <input type="checkbox"/> Evaluation Report			
<i>(Tick ✓ one if applicable)</i> <input checked="" type="checkbox"/> Operational Account <input type="checkbox"/> TILF Special Account <input type="checkbox"/> APEC Support Fund			
<i>(Tick ✓ if applicable)</i> <input type="checkbox"/> QAF attached QAF not applicable <input type="checkbox"/> QAF attached			
Financial Information	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">Total cost of proposal (US\$): 150,360</td> <td style="width: 50%;">Amount being sought from APEC funding (US\$): 93,500</td> </tr> </table>	Total cost of proposal (US\$): 150,360	Amount being sought from APEC funding (US\$): 93,500
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Type of Project: <input checked="" type="checkbox"/> seminar/symposium <input checked="" type="checkbox"/> short-term training course <input checked="" type="checkbox"/> survey or analysis and research <input type="checkbox"/> database/website <input type="checkbox"/> others (<i>Please specify</i>)			
Project start date: <i>1 January 2008</i>	Project end date: <i>31 December 2008</i>		

Brief Description of Project -- its purpose and the principal activities (including when and where):

For professional development on the theme of stimulating mathematics and sciences in EDNET, the project HRD 03/2006, "A Collaborative Study on Innovations for Teaching and Learning Mathematics in Different Cultures among the APEC Member Economies", succeeded to share the approaches of Lesson Study for the method of the improving quality of education in general, a limited number of video tapes of good practices in mathematics and to develop collaborative network on Lesson Study among member economies. Based on the success and contribution to improving education with video on the Knowledge Bank, we, all specialists, proposed to continue the project for developing innovative teaching practice for APEC economies' welfare. APEC HRDWG meeting in Vietnam accepted following plans: Mathematical Thinking (year 2007), Mathematical Communication (year 2008), Evaluation (year 2009), and Generalization (year 2010). The first three topics are selected in relation to three Lesson Study processes, Plan (for Mathematical Thinking), Do (for mathematical Communication) and See (for Evaluation). The result of each year will be based for following year project. In the final year, Generalization will be set for benefit of all subjects in education.

On the project HRD 02/2007, we have focused on Mathematical Thinking because it is necessary ability for science, technology, economical life and development. This is in turn necessary for improving all APEC economies' education.

Based on the project HRD 02/2007, we will focus on Mathematical Communication for the project of year 2008 because in general Communication is necessary ability on Knowledge-Based Society and many mathematics teachers failed to develop it in their classrooms even if mathematics is a major subject for developing the ability of communication from the age of Plato in ancient Greek until today's information society.

Using Lesson Study approaches, the project aims to

- 1) Collaboratively share the ideas and ways of Mathematical Communication which is necessary for science, technology, economical life and development on the APEC member economies, and*
- 2) Collaboratively develop the teaching approaches on Mathematical Communication through Lesson Study among the APEC member economies.*

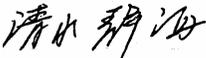
In order to achieve the goals of the project, activities will be implemented in four main phases

Phase I, *A workshop and a Lesson Study meeting (a kind of workshop for specialists) among key mathematics educators from APEC member economies hosted by Center for Research on International Cooperation in Educational Development (CRICED), University of Tsukuba, Japan will be organized in order to share the ideas and ways of communication on curriculum level and teaching level (at Tokyo & Kanazawa, January 2008).*

Phase II, *Each co-sponsoring APEC member economy will engage in the Lesson Study project for developing some topics on communication (February-July 2008).*

Phase III, *An International Symposium and a Lesson Study meeting (a kind of workshop for teachers) will be organized in order to share teaching approaches for developing communication by economies. The symposium will be hosted by Center for Research in Mathematics Education (CRME), Faculty of Education, Khon Kaen University, Thailand (at Khon Kaen, August 2008).*

Phase IV, *The professional development for school mathematics teachers will be conducted based on the obtained good practices and learned innovation (August-December 2008).*

Project Overseer: Name, Title and Organization (M/F) <i>Associate Professor Dr. Suladda Loipha, Vice President, Khon Kaen University, Thailand, Female.</i> <i>Assistant Professor Dr. Maitree Inprasitha , Director of Center for Research in Mathematics Education (CRME), Faculty of Education, Khon Kaen University, Thailand, Male.</i> <i>Associate Professor Masami Isoda, Director of Japan Society of Mathematical Education, Chief of Mathematics Education in CRICED , University of Tsukuba, Japan, Male.</i> <i>Associate Professor Shizumi Shimizu, Vice President of Japan Society of Mathematical Education, University of Tsukuba, Japan, Male.</i>	
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Signature of Project Overseer:  (Associate Professor Dr. Suladda Loipha)  (Assistant Professor Dr. Maitree Inprasitha)  (Associate Professor Masami Isoda)  (Associate Professor Shizumi Shimizu) (Separate written confirmation acceptable for email submission) Date: 31 March 2007	
Signature of Committee Chair/WG Lead Shepherd: (Not applicable to Progress Report and Evaluation Report) (Separate written confirmation acceptable for email submission) Date:	

Details of the Project Proposal

Please provide your answers in point form or as succinctly as possible below each paragraph heading.

A. Project Design

Project Objectives

- 1) Describe briefly how this project directly responds to the priorities set by APEC Leaders and Ministers and/or the vision of the host economy. Please make reference to the relevant parts of APEC documents.

The project responds to one of the four priority areas discussed at the Third APEC Education Ministerial Meeting held in April 2004 in Chile. In the Joint Statement from the Third APEC Education Ministerial Meeting the Ministers emphasized that curriculum reform, notably in Languages, the Sciences and Mathematics, must be considered in the context of the community as a whole to overcome the weaknesses in a given system, while preserving the existing strengths. The Ministers, therefore, has tasked EDNET to undertake joint research projects addressing fundamental cognitive, empirical and policy matters in the four main priority areas, and identify and share promising practices on the four priority areas through on-site and online networking communities to connect researchers, students, teachers, children, adult learners and common interest groups. The project also responds to a number of challenges among APEC Member Economies which will lead to the improvement of students learning mathematics and good practices for teaching and training mathematics teachers. Mathematical Communication could only be educated in mathematics because the ways mathematics is represented in classroom must include mathematical representation such as tables and graphs. Furthermore, Mathematical Communication is also done by dialectic ways of reasoning including the ways such as ‘if your result is true, then...’ and ‘if your result is not true, then.....’ and the ways of argumentation more than the debate on social sciences such as proving based on ground of shared knowledge.

- 2) Describe the **key objectives** of the project – usually no more than three

With the shared methods of Lesson Study, this project aims to:

1) Collaboratively share the ideas and ways of Mathematical Communication which is necessary for science, technology, economical life and development on the APEC member economies, and

2) Collaboratively develop the teaching approaches on Mathematical Communication through Lesson Study among the APEC member economies.

- 3) **Assessment.** With reference to each objective in paragraph 2), provide the **current status** and expected **end-of-project target**, so that the success of the project can be measured over the short and medium term. *The targets should be quantitative but if this is not possible then a precise description of the change aimed at should be given. Where appropriate, sex-disaggregated data should be used for assessment in order to detect any differential impact of the project on men and women.*

Current status:

On the project HRD 03/2006, “A Collaborative Study on Innovations for Teaching and Learning Mathematics in Different Cultures among the APEC Member Economies”, member economies shared the methods of Lesson Study for improving quality of education in general. On the project HRD 02/2007 “Collaborative Studies on Innovations for Teaching and Learning Mathematics in Different Cultures (II) - Lesson Study focusing on Mathematical Thinking-”, we applied the method of Lesson Study to develop Mathematical Thinking. Now specialists have been sharing the meaning of Mathematical Thinking and engaging in Lesson Study for developing it. Based on this activity, specialists share the teaching approaches to develop mathematical thinking.

For implementing the teaching approaches by teachers in classrooms, the most difficult point is to cultivate ways of communication in their classrooms.

Expected end: *Members of economies share the ideas and ways of Mathematical Communication which are necessary for science, technology, economical life and economical development, and develop teaching approaches for Mathematical Communication, such as Problem Solving Approach which is known in some economies. These results are uploaded on the knowledge bank of EDNET in HRDWG.*

Short-term success can be measured by evaluation of the workshop and the international symposium participants from APEC member economies. And also can be measured by the numbers of results of the project uploaded on the knowledge bank of EDNET in HRDWG.

Medium-term success can be measured by the expansion of professional development in the participating APEC member economies. Publishing textbook for teacher education about Mathematical Communication with several cases of Lesson Study by participated specialists in following year will be also a good indicator.

For establishing and reinforcing Lesson Study movement for professional development to improve quality of education in each economy level, the project is proposed during five years based on the evaluation of past year project by HRDWG. For beneficiaries of member economies, the ways of proposal are also considered: see following explanation at 4).

- 4) Explain who the intended beneficiaries of this project are.

The first direct beneficiaries are mathematics educators and school teachers in APEC member economies. The direct benefits influence and enhance Lesson Study network activity in member economies which push movement to improve qualities of education including mathematics and science in APEC member economies. In the past three meetings, participants are not only specialists in mathematics but also a number of general education researchers. The Lesson Study movement began to influence to education in general in APEC member economies.

The second direct beneficiaries are students in APEC member economies who's their ability of Mathematical Communication will be developed through the developed teaching approaches. In turn, improvement of mathematical literacy of students is one of the necessity conditions for learning science.

The indirect beneficiaries are people in society. Students and parents will learn how teachers trying to improve each other's lesson while Lesson Study is done in front of them and they will also learn the ways the teachers improve their teaching approaches.

For the benefit of member economies and the sustainability of qualitative improvement of lessons by teachers, an increasing numbers of participated specialists from economies in the meetings of the year 2006-2007 projects illustrate the numbers of teachers they involved in this project. For the most benefit of all economies, we are planning to invite specialists from more economies which are not yet engaging in.

*The title of the 2008 project ‘ **Lesson Study focusing on Mathematical Communication** ’ is reflecting that mathematical communication is not only the most necessary topic but also the most challengeable topic because most of traditional mathematics teaching has been done through drilling on exercises or routine problems without emphasizing on communication and in that way, it would not be an appropriate way for knowledge-based society.*

- 5) Describe precisely the expected **project outputs**. Describe how these outputs will benefit the targeted beneficiaries.

The expected outputs of each phase will be as follows:

Phase I: *Share the ideas and ways of Mathematical Communication that is necessary for science, technology, economical life and economical development as well as exploring mathematics, and share possible teaching approaches.*

Phase II: *Research reports on Lesson Studies for developing Mathematical Communication by APEC member economies.*

Phase III: *Share teaching approaches to develop Mathematical Communication with good practice video tapes.*

Phase IV: *School mathematics teachers participating for teacher training workshops. They develop teaching approaches through video tapes.*

All outputs will be put on the project web site for letting the beneficiaries know it.

After Phase IV, all results will be uploaded to the knowledge bank of EDNET on HRDWG. Beneficiaries will know the ways of teaching approach for developing students' Mathematical Communication through video tapes.

- 6) For applications under the TILF Special Account: Describe briefly how this project will contribute to the APEC Trade and Investment Liberalization and Facilitation (e.g. relevance to specific parts of the Osaka Action Agenda).

N/A

Linkages

- 7) Which other APEC fora have been consulted about this project and what were the results?

The project HRD 03/2006, “A Collaborative Study on Innovations for Teaching and Learning Mathematics in Different Cultures among the APEC Member Economies”, is the base of this project. We shared Lesson Study as an approach for improving the quality of education and a number of good practices with video tapes among member economies and develop collaborative network on Lesson Study among member economies.

The project HRD 02/2007 “Collaborative Studies on Innovations for Teaching and Learning Mathematics in Different Cultures (II) - Lesson Study focusing on Mathematical Thinking-” complemented to the HRD 03/2006 is also the base of this 2008 project. In its progress report, we shared the meaning of Mathematical Thinking and now have been developing the methods of teaching through Lesson Study.

The APEC Project (self-funded) entitled “International Seminar on Best Practices in Science and Mathematics Teaching and Learning” by Japan in November, 2005. In the report, there is a description about School Based Approach to improve the qualities of education and as agenda; it proposed “Professional Development for Teachers through Action Research”. Lesson Study is a well-known and best preferable approach according to this agenda.

The APEC Project (self-funded) “EDNET Website and Knowledge Bank” by China and the United States is a key for distributing the project’s results with videos to all member economies.

- 8) **Active Participation** Describe how the intended beneficiaries among APEC stakeholders –APEC fora, governments, private sector and civil society, men/women- will participate in the planning, implementation and evaluation of the project.

***For Phase I:** Key mathematics educators from APEC member economies will participate in workshop and exchange their ideas and ways of Mathematical Communication which has enhanced in their curriculum documents in each member economy. Most of them are expected to continue their researches from the past projects and at the same time, new specialists from not yet participated economies will be strongly invited. They will collaborate in planning and developing research proposals for developing Mathematical Communication.*

***For Phase II:** Key mathematics teachers from each participating member economy will engage in the developmental research in the real classroom with the Lesson Study method focusing on Mathematical Communication.*

***For Phase III:** Participating member economies will have an opportunity to share their research results and good practices for developing Mathematical Communication with videos. APEC member economies will be invited to join the symposium to make comments on the research results and good practices. At the same time, specialists have a workshop for teachers’ professional development.*

For Phase IV: Videos of good practices prepared at phase III will be used for teacher training workshops in order to develop students' Mathematical Communication in classroom.

Participants will play a part in evaluating the success of the project in the long run when they apply the knowledge and skills gained from the workshop to improve their teaching capabilities. All results including videos will be uploaded on the EDNET Knowledge Bank Website.

- 9) **Project influence** Describe how this project might contribute to any current or completed projects or activities in APEC or elsewhere. Why is APEC the most appropriate institution to fund the project?

Based on the results of HRD 03/2006 and HRD 02/2007, this project will build on related educational programs launched by several international organizations including followings:

The APEC Project entitled "Seminar on Best Practices and Innovations in the Teaching and Learning of Science and Mathematics at Elementary and Secondary Levels" implemented by Malaysia in 2003.

It focused on Best Practices. Our project focused on Lesson Study to develop such a desirable good practices.

The APEC Project (self-funded) entitled "International Seminar on Best Practices in Science and Mathematics Teaching and Learning" by Japan in 2005.

In the report, there is a description about School Based Approach to improve the qualities of education and as agenda; it proposed "Professional Development for Teachers through Action Research." Lesson Study which is the method focused in our project is a well known and a best preferable approach according to this agenda.

There are strong movements of Lesson Study such as in Japan, US and Canada and the movements are coveted by other economies but not easy to do especially by developing economies. The APEC is the most appropriate institution because there are no other international institutions to fund for comparing, sharing and developing Lesson Study movement among APEC member economies. This movement is necessary for most of APEC member economies which need a method to improve teachers' professional development to "Stimulating Learning in Mathematics and Science".

Methodology

- 10) Describe the project's **methodology**. Break down the project implementation into discrete functional steps over time with the associated outputs clearly specified. Identify the principal risks involved in each step if any, and explain how they will be managed. *Risks may include major delays and failures, expected cooperation not materializing, etc.*

In order to achieve the goals of the project, activities will be implemented in four phases as follows

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After the approval of this project, the information will be circulated among APEC member economies and on the Lesson Study network developed by the past projects, HRD 03/2006 and HRD 02/2007 in APEC member economies.

Phase I, *A workshop and a Lesson Study meeting among key mathematics educators from APEC member economies hosted by CRICED, University of Tsukuba, Japan will be organized in order to share the ideas and ways of Mathematical Communication. To be useful for the targeted beneficiaries, reports and discussions will be done through the related documents of each economy such as curriculum documents, and documents related to teaching approaches for implementation of curriculum. We then elaborate research topics for Lesson Study on Mathematical Communication in classroom. The workshop in Tokyo is opened for targeted beneficiaries such as teachers in Japan. With the support of Kanazawa University, participants will participate in Lesson Study meeting in Kanazawa. In Kanazawa, there are a number of cordially school teachers who can show their teaching practices to develop students' Mathematical Communication. (January, 2008)*

Phase II, *Each member economy will engage in the Lesson Study project for developing students' Mathematical Communication. The result of this phase will be the research reports on teaching approaches for developing Mathematical Communication and good practices with videos in classrooms.*

Phase III, *An International Symposium will be organized in order to share the teaching approaches and reflect on each member economy's research results and good practices with videos. The symposium will be hosted by Center for Research in Mathematics Education (CRME), Faculty of Education, Khon Kaen University, Thailand with the support of Office of Higher Education, Ministry of Education. In this International Symposium, specialists and teachers (both local and international) will share and discuss their experiences and the results of the project. Specialists will also organize workshops for teachers' professional development.*

Phase IV, *The professional development for school mathematics teachers will be conducted based on the obtained - teaching approaches with videos.*

Identify the principal risks involved in each step if any, and explain how they will be managed.

According to our experiences in the HRD 03/2006 and HRD 02/2007 projects, the principal risk is that some researchers could not participate in some phases because of their busy days. To overcome the risk, it is necessary to encourage more specialists to participate in the project. In this way, it will enhance the quality of the project because involving more co-researchers into the project will affect the Lesson Study movement in each economy. In addition, we will use our website so that more people can learn and share the results of the meetings even in the case that they cannot attend to the meeting. Information in our website will be useful for those who are interested in all economies.

- 11) Which APEC member economies will participate in each component of this project and what contribution are they expected to make?

Totally, we are expecting 19 economies will participate in this project.

The following sixteen economies have been already participating in this project:

Thailand and Japan as the project proposing economies

Another fourteen economies: Australia, Brunei Darussalam, Chile, China, Hong Kong, Indonesia, Korea, Malaysia, Mexico, Philippines, Singapore, Chinese Taipei, USA and Vietnam

Another three economies are expected to participate:

Canada, New Zealand and Peru

Participation of specialists from the rest of economies is expected to have a very important contribution to the project and the project overseers have been working for involving these economies.

Phase I: The Workshop on Developing Communication *The participants of this phase include key mathematics educators from participating economies. All key mathematics educators from each APEC member economy will actively share their ideas of Communication and approaches of its development, and elaborate the research topics for Lesson Study in mathematics. Japan will host the international workshop in this phase.*

Phase II: Lesson Study of the Developed Research Proposal *The participants of this phase include key mathematics researchers from participating economies who are responsible for implementation of the developed research proposal in their economies. **The expenses incurred from conducting research project will be the responsibility of each participated APEC member economy.***

Phase III: The International Symposium *The participants of the international symposium consist of key mathematics researchers from participating APEC member economies who are responsible for implementation of the developed research proposal in their economies. Other mathematics educators and mathematics school teachers from all APEC member economies are encouraged to actively participate in the symposium. Thailand will host the international symposium in this phase. The key mathematics educators from sixteen economies will make a presentation on research results in phase II and organize workshops.*

Phase IV: The professional development *The workshops for professional development will be held by each participated economies. The participants of the workshops in this phase will be interested school mathematics teachers from all member economies. **Each workshop expenses will be the responsibility in each economy or its participants.***

Minimum number of specialists in Phase II and Phase III by APEC grant is nineteen representatives from economies and four project overseers.

Project overseers encourage more participation from all APEC economies.

Dissemination of Project Output

- 12) Please include a plan for the publication and dissemination of the results of the project, including:
 - a. the nature of the target audience;
The target audiences are mathematics educators and school teachers in APEC member economies.

- b. the form and content;

Presentation of materials and related documents such as research reports, video tapes, training materials, etc.

- c. format (e.g. hard copies, floppy discs, internet uploading);

The project output will be provided in CD-ROM format and hard copy and will be made available on the internet.

- d. number of copies for the publication;

The number of copies is 200.

- e. a publicity plan for:

- i) Briefing the general or specialist media about key components of the project;

The results of this project can be read on the website and EDNET knowledge bank including videos that have permission and can be seen on the publication.

A press conference will be held at the conclusion of the international symposium (Phase III).

- ii) The promotion of sales or other dissemination of the final product; and

After the project, teacher education textbook for developing Mathematical Communication will published even if all contributions and result could be seen on the web site. The promotion of sales is good alternative because in the long run the textbook with videos can be useful for prospective teachers.

- f. a budget for publication and dissemination, to form part of the itemized budget.

See Annex A1.

Gender Concerns

- 13) Many projects have the potential to affect men and women differently because of their different roles and positions in many societies. What steps does this project take to ensure that it benefits both groups and in particular does not disadvantage women? (*Common responses include: using gender analysis to design project methodologies and inputs (e.g. surveys); including women in the planning, management, allocation of resources and implementation of a project; taking steps to ensure equitable participation by men and women; making special efforts to disseminate project results to women; and using sex-disaggregated data for project assessment.*)

This project has been designed to yield benefits to both male and female educators, school mathematics teachers and students, this teaching approaches to develop Mathematical Communication would be particularly enhance intellectual and communicating minds of both sexes.

The leader of the project overseer team (Vice President, Khon Kaen University, Thailand) is a woman who takes main responsibilities in planning, management,

allocation of resources, and implementation of the project. This will guarantee that the project will provide opportunities for both male and female participants to attend the activities in each phase of the project.

- 14) Show how the objectives of the project provide benefits for women. APEC Ministers have indicated (*Framework for the Integration of Women in APEC*) that benefits might include: increasing the involvement of women in the economy and economic institutions; integrating women into the global economy; strengthening small and medium sized enterprises; and reducing gender inequalities, including through education and training.

Through the project, female mathematics educators and teachers engage in key roles and the project strongly encourage their activities.

By participating in the project's activities in the four phases, female mathematics educators and teachers would benefit from learning and sharing experiences and good practices among APEC member economies. Many female elementary school teachers are not specialists in mathematics who have a chance to participate in this project. Developing teaching approaches for developing Mathematical Communication would enhance the teaching capacity of these female elementary teachers. This would benefit to female teachers and provide them more opportunities to develop their mathematical abilities.

In Phase I and Phase III, these female teachers will also participate in the Lesson Study workshops.

In Phase II, female teachers have key roles research related to Lesson Study. In Phase IV, many female teachers will have a chance to participate in workshops in their economies.

Budget

- 15) Please attach an itemized budget for the project in the format at **Annex A**. Where appropriate, provide details of the project's budget that are allocated to activities that address the specific needs of women. The budget should illustrate the assumptions adopted (e.g. unit costs) for the computations. *Remember to include all self-funding and to consult the list of eligible expenses in the Guidebook to APEC Projects. Advice on budget formulation, including acceptable unit costs, can be sought from the APEC Secretariat.*

Please refer to Annex A1.

- 16) A timetable for the drawdown of APEC funding requested for the project, including details of any advance payment or installment payment requested and justifications for such requests.

Time	Tasks	Amount
January 2008	Phase I Workshop in Japan: - Airfares, travel , accommodation and per diem of 17 researchers (Other 4 speakers, 2 researchers and hosting costs will be used by self grant from Japan)	US\$ 44,300 (US\$43,000 will be used by self grant from Japan)
February - July 2008	Phase II (Managed by self grant on each participating economy)	-
August 2008	Phase III International Symposium in Thailand: - Airfares, travel , accommodation and per diem of 4 speakers, 19 researchers.	US\$ 45,200 - US\$ 44,200 - US\$ 1,000

Time	Tasks	Amount
	- photocopying (Hosting costs will be used by self grant from Thailand)	(US\$12,860 will be used by self grant from Thailand)
December 2008	Phase IV Printing Project final report (Website costs will be used by self grant from Thailand)	US\$ 4,000 (US\$1,000 will be used by self grant from Thailand)

The project requires advance payments and waivers from the normal APEC financial rules to support and meet financial commitments of the parties involved. Details of the waivers and justifications are as follows:

- *Advance payment for airfares, travel, accommodation and per diem of researchers to participate in the identified activities of each phase. In addition, advance payment for report and dissemination including photocopying, and communications expenses of the identified activities in each phase and the expenses of the project's final report dissemination are also requested.*

- 17) Details of any request for waiver or exception from the normal APEC financial rules with justifications. (Examples are from tendering requirements; for advance payment; for government officials to receive funding; for active participants from travel-eligible economies to receive per diems)

Waiver is sought to fund the travel and per diem for speakers who are government officials from developing economies (if any) to encourage and enable them to attend the symposium and to fund airfares, accommodation and per diem for active researchers who are government officials. These researchers are required to provide value information and best practices in teaching and learning mathematics of their own economies as well as collaboratively develop research proposal in Phase I , conduct the research project in phase II, and present and share research results in the international symposium in Phase III.

- 18) **NOT required for projects for consideration at BMC II (July/August meeting) or for ASF projects but required for all others.** Give reasons for the urgency of the project. (These projects should relate to previous APEC Ministers' or Leaders' Declarations or current host economy's priorities. Reasons may include the project output as contributing to one of the major deliverables for the year)

N/A

APEC Project
Itemized Budget for Financial Year 2008*

(Please tick ✓.)

This project is:

- a seminar, symposium or short-term training course
- a survey or analysis and research project
- neither the above but involves the provision of equipment

Items	No. of Units	Unit Rate (USD)	APEC Funding (USD)	Self Financing (USD)
Direct Labour				
Speaker's Honorarium (government officials ineligible)	(no. of speakers) Phase I: Workshop in Japan For 4 speakers Phase III: International Symposium in Thailand For 4 speakers	US\$400 US\$400	- US\$1,200	US\$1,600 US\$400
- Translator's Fees	(no. of pages) Phase I: Workshop in Japan (three days)	US\$3,000/day	-	US\$9,000
- Short-term clerical and secretarial staff remuneration	(no. of hours)	-	-	-
- Consultant (including Researcher) Fees	(no. of hours)	-	-	-
- Consultant's Secretary Cost	(no. of hours)	-	-	-

- Airfare	(no. of persons and trips)			
	Phase I: Workshop in Japan 4 speakers and 19 researchers (including Tokyo-Kanazawa)	US\$ 500 x 2 = 1,000 US\$ 1,000 x 4 = 4,000 US\$ 1,300 x 7 = 9,100 US\$ 1,500 x 5 = 7,500 US\$ 2,000 x 3 = 6,000 US\$3,000 x 3 = 9,000	US\$ 25,600 (17 researchers)	US\$11,000 (4 speakers and 2 researchers)
	Phase III: International Symposium in Thailand 4 speakers and 17 researchers (not included local organizers)	US\$ 200 x 2 = 400 US\$ 500 x 4 = 2,000 US\$ 1,500 x 6 = 9,000 US\$ 2,100 x 6 = 12,600 US\$ 2,500 x 3 = 7,500	US\$ 31,500 (4 speakers and 17 researchers)	

* If project will continue for more than one year, please indicate the amount of funds required for each of the two financial years in question.

Items	No. of Units	Unit Rate	APEC Funding (USD)	Self Financing (USD)
<i>Travel (Active participants/ participants/trainees)</i> <i>(only from travel-eligible economies)</i>		-	-	-
- Per Diem (incl. accommodation and “additional payment”) <i>(active participants)</i>	(no. of persons and days)	-	-	-
- Airfare <i>(restricted economy class)</i>	(no. of persons and trips)	-	-	-
Other items				
Publication of report (including distribution)	Phase IV: Publication of the Project Results (200 copies with CD-rom)	US\$ 20	US\$ 4,000	US\$1,000 (For Developing Website)
Equipment / Materials <i>(describe briefly what is required and why)</i>	(no. and type of equipment) (no. of days for rental)	-	-	-
<i>Photocopying</i>	Phase III: (no. of copies)	US\$1,000	US\$1,000	-
<i>Communications (Phone/ Fax/ Mail/Courier)</i>	Phase I: (Phone) Phase III: (Phone/Mail)	- -	- -	Phase I: Workshop in Japan US\$2,000 Phase III: International Symposium in Thailand US\$4,000

<i>Hosting</i> (pl. briefly describe, e.g., conference room rental, stationery)	(units as appropriate) Phase I: Workshop in Japan room rental (6days) Part time employ (no. of days for rental) Phase III: International Symposium in Thailand Room rental (Hall) Part time employ	 US\$2,000/day (Tokyo, 2days) US\$1,200/day (Kanazawa, 4days) US\$100/day 40 days US\$1,000/day 4 days US\$25/day 160 days		 Phase I: Workshop in Japan US\$8,800 US\$4,000 Phase III: International Symposium in Thailand US\$4,000 US\$4,000
Total			US\$93,500	US\$56,860