

APEC SCSC
Project Advisory Group on Education
about Standards and Conformance
- 3rd Meeting Summary -

Feb 24, 2008
Swissotel Lima, Peru

Prepared by: Korea/Singapore

Overview

- The 3rd SCSC PAGE meeting was held at 09:00 – 15:30 of Feb 24, 2008 in Swissotel, Lima in Peru.
- The meeting was participated by more than 40 participants from Australia, Brunei, China, Indonesia, Japan, Korea, Malaysia, Peru, Singapore, Thailand, USA, Vietnam, and SRBs. Also, the SCSC Chair Mr. Augusto Mello and APEC secretariat Mr. Sun Tao were present at the meeting.
- The meeting was moderated by the group chair Mr. Teo Nam Kuan and the project editor Mr. Donggeun Choi.
- The meeting was composed of opening, nine economy update reports, phase I project outcome report and breakout discussions.

1. Opening

- The SCSC PAGE Chair Mr. Teo Nam Kuan opened the meeting and welcomed all the participants
- The SCSC Chair Mr. Augusto Mello gave some welcoming remarks and expressed his support to the meeting.
- The project editor Mr. Donggeun Choi introduced the meeting program and main discussion items

2. Adoption of agenda

- The agenda was adopted as prepared without any modification.

3. Presentation Session

3.1 Economy Update Report

3.1.1 China Report

- Ms. Du Chunjing presented the main activities of china including followings:
 - Standards Education Structure of Administration in case of SAC and CAS
 - Five University Practicies of China Jiliang UniversityChina Jiliang University, and other courses by Zhongnan university of economics and law, Huazhong university of Science and Technology, Chongqing universtiy of arts and sciences, Nanjing university of agriculture
- * Standards Education is one of the important elements for t he China standardization work.

3.1.2 Indonesia Report

- Ms. Nurasiah Saleh Sanhudi briefed the economy report of Indonesia including followings:
 - National Strategies for Standardization
 - Present Status and Some Initiatives such as ITB(post graduate) and UNDIP (graduate)
 - Three phases of curriculum implementation
 - Contents of curriculum and modules
 - * A lot of activities are initiated to develop standards education in higher education.

3.1.3 Japan Report

- Mr. Mitsuo Matsumoto presented economy report of Japan including followings:
 - Training Courses for Standards Writers and Developers
 - Development of Teaching Materials
 - Education at Graduate School (MOT, MBA)
 - Standards Education Delivery Service
 - Future Challenges
 - * Special policy committee to deliberate JISC's policy on human resource development in standardization

3.1.4 Korea Report

- Mr. Donggeun Choi briefed the economy report of Korea including followings:
 - 5 Year National Standards Master Plan (06-10)
 - Training program of four different types
 - University Education Promotion on Standardization update: paper contest, revised textbook, feedback, and elearning
 - Secondary school subchapter development
 - Standards Olympiad (camping program)
 - Customer Satisfaction of RATER
- * Future consideration: Department in university, Standards Society, (Academic/professional), Professional certification

3.1.5 Malaysia Report

- Mr. Rosalan Alias introduced the education activities in Malaysia including followings:
 - Introduction and objectives
 - Essay writing and Photography competition on standards (with three Student Guidebooks of 'Young Consumers and Standards')
 - Awareness Training Programme – For Educators (with teachers guidebook)
 - Train the trainer and module development
- * implements a programme for promotion of standards and education in collaboration with the Malaysian Association of Standards Users

3.1.6 Singapore Report

- Mr. Dennis Chew briefed the economy report of Singapore including followings:
 - Present Situation (Sectoral focus; international standardization for stakeholder, Train standards users, develop training program)
 - Plan to use materials under APEC Standards Education Project to promote awareness to SMEs
 - * Plan Marketing Committee under Standards Council looking into standards education for IHLs (institute of higher learning)

3.1.7 Chinese Taipei Report

- Mr. Ing-Shyan HUNG provided economy report of Chinese Taipei including followings:
 - Three Pillars for Chinese Taipei's Strategy for National Standards Development (Standardization Education System is one of the three pillars.)
 - First Step toward Teaching Materials: introducing to textbook 'fundamentals of standardization'
 - Training Pilot-run
 - * Future Action Plan (2009-2012) to shape the standardization education system (Roadmap, ToT, Certificate, Digital Platform, International Cooperation)

3.1.8 USA Report (ICES)

- Ms. Julia Doherty introduced economy report of USA focusing on ICES 3rd Meeting:
 - ICES Purpose and History (International Cooperation on Education about Standardization)
 - The 3rd meeting took place in Gaithersburg, Maryland in USA with more than 70 participants; included Different perspectives and strategies worldwide including APEC project phase I outcome, Strategic planning; 3 leadership team election; 2009 meeting will be Tokyo
 - For more information www.standards-education.org
 - * ICES has been formalized with its Strategy and Leadership Team

3.1.9 Vietnam Report

- Mr. Tran Van Hoc presented the economy report of Vietnam including followings:
 - Current situation lead by government agencies (but not so much done yet)
 - Since 2007, Standards education have been put in the Draft of National Strategy for standardization up to 2015 and now under consideration
 - Future plan: National Strategy Approval, Cooperation with MoE, Coordination Committee, Development of Curriculum and Textbook, Tacher/Teaching Method

3. Presentation Session

3.2 Project Phase I outcome Summary

- Mr. Donggeun Choi (Korea) presented the phase I project outcome:
 - **APEC SCSC Guideline 1: Case Studies of How to Plan and Implement Standards Education Programs and Strategic Curriculum Model**

Contents (Guideline 1)

1. Background and Objectives
2. Methodology and Definitions
3. Case Study of Policy and Strategy
4. Case Study of Education Practices
5. Case Study of Surveyed Lessons
6. Strategic Curriculum Model
7. Future Challenges

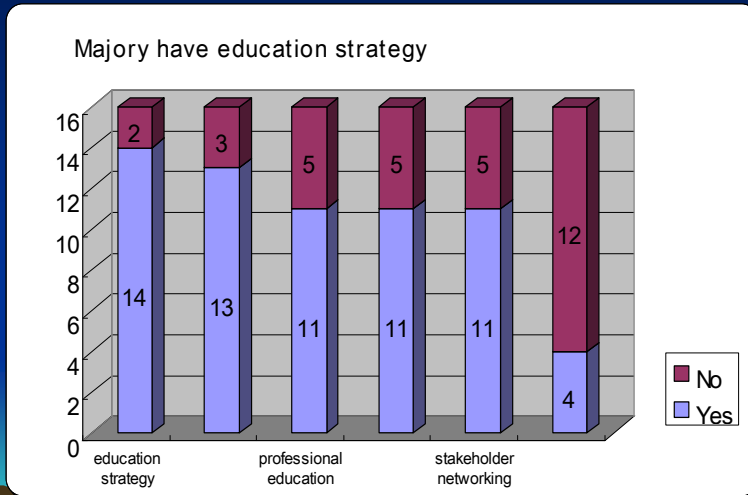
Contents – Annex (Guideline 1)

- A. Project Survey Questionnaire (11p)
- B. National Strategy on Standards Education (8p)
- C. Summary List of 118 Standards Education Practices (16p, distributed)
- D. Detailed Fact Sheets of 88 Standards Education Practices (171p)
- E. Surveyed Lessons Learned (25p)
- F. Contact Information for Standards Education (20p)

Structure (Guideline 1)

- Ch.3 with Annex B
 - Policy, Strategy, Committee
- Ch.4 with Annex C and D
 - 16 General Activities
 - 10 Primary/Secondary Education Practices
 - 27 Higher Education Practices
 - 65 Professional Education Practices
 - Excluding Sector specific programs
- Ch. 5 with Annex E
 - Lessons Surveyed → Regrouping
- Ch. 6 Strategic Curriculum Model (reference)

3.1 Majority recognize the importance



3.2 More detailed or inclusive Strategy needed

<Level of details>	Specific (Detailed) ←	Canada Chinese Taipei	Japan (*link only) Korea USA Vietnam
	Brief (General) →	China Chile Malaysia	Canada Hong Kong Singapore
		← Limited(General)	Wide(Broad) →
<Level of broadness>			

<Figure 4> Different Levels of Strategy

3.2 Good Practices

→ Selected Text from Education Strategy ←

Establish department of standardization in universities in order to build education infrastructure.

- Annex B.6 (Korea)

Encourage universities and colleges within the United States to create standardization education programs in fields of study such as engineering, science, technology, government and public policy, business, economics and law.

- Annex B.12 (USA)

Set up and implement appropriate education/training programmes on standards and conformance in academic and professional institutions such as: universities, colleges, vocational/technical schools, etc

- Annex B.13 (Vietnam)

4.2 Primary/Secondary - Ten Practices

#No	Target	Economy Org.	Operator	Title	Method P.Sheet
1	F1) F2)	Japan	METI	Standards Education Delivery Service (Lectures on Demand)	Survey Annex D1
2	F1) F2)	Korea	KSA	Standards Olympiad	Survey Annex D2
3	F2)	Korea	KSA	Textbook Sub-chapter Development for Secondary School Students	Survey
4	F2)	Philippines	BPS	Standards Blitz – Standards in the Curricula of Secondary and Alternative Learning Education	Survey Annex D3
5	F2)	Philippines	BPS	Standards Blitz – Standards' Essay Writing Contest (including Teacher)	Survey Annex D4

4.2 Primary/Secondary - Ten Practices

6	F2)	Thailand	TISI	The Project on Integrating Standardization in Education (including teachers)	Survey Annex D5
7	F2)	Turkey	TSE	Standardization and Quality	Research Annex
8	F1)	UK	BSI	BSI's Education Programme Primary (Age 7-11) Online Information	Research Annex
9	F2)	UK	BSI	BSI's Education Programme Secondary (Age 11-14) Online Information	Research Annex
10	F2)	UK	BSI	BSI's Education Programme Secondary (Age 14-19) Online Information	Research Annex D9

4.2 Comparison by Level of Intensiveness and Expansion

<Level of Expansion>	nation-widely (Semi)	-	#6 Thailand-TISI (completed) #3 Korea-KSA (in development) #4 Philippines-BPS (in expanding)	#7 Turkey-TSE (data incomplete)
	One to Dozens of Schools	#1 Japan-METI (delivery service)	#8/#9/#10 UK-BSI	-
	One time event	#2 Korea-KSA (camping) #5 Philippines-BPS (writing contest)	-	-
		One time event	Module(s) Sub-Chapter	Single Subject
		<Level of Intensiveness>		

4.3 Higher Education – 17 selected Courses

# No	Target	Economy Org.	Operator	Title	Method F.Sheet
12	F3)	China	CJLU	CJLU-SQM program for bachelor's degree	Research AnnexD10
13	F4)	China	CJLU	CJLU MEE and TTMM course for Master's degree	Research AnnexD11
17	F4)	EC(EU)	Helmut Schmidt- Univ. et al	EU-Asia Link -Standardization in companies and markets	Research AnnexD12
18	F4)	Egypt	PQI	POI's programmes for post graduate degrees (POI's programme)	Research AnnexD13
19	F4)	France	Univ of Techn of Compiègne	Master's degree in quality management (MQ) Master's Programme NQCE(Normalization, qualite, certification et essays)	Research AnnexD14
20	F4)	France	ZFIB	Standardization as a tool for Competitive Intelligence	Survey AnnexD15
21	F4)	France	ZFIB	Standardization as a tool for Openness	Survey AnnexD16
22	F3)	Indonesia	BSN	Development of curriculum for education on standardization	Survey

4.3 Higher Education – 17 selected Courses

# No	Target	Economy Org.	Operator	Title	Method F.Sheet
23	F3) F4)	ISO	ISO DEVCO	Development Manual 4 - Teaching of standardization on institutions of higher learning	Research AnnexD17
24	F4)	Japan	JSA	Standardization for business solution	Survey AnnexD18
25	F4)	Japan	Tokyo Univ.	Graduate school of Technology Management (MOT)	Research AnnexD19
26	F3)	Korea	KSA	KSA-Far East University Standardization Program "Global Standards Strategy" (for Computer Engineering Students)	Survey AnnexD20
27	F3)	Korea	KSA	University Education Program on Standardization(UEPS)	Survey AnnexD21
28	F3)	Netherlands	RSM Erasmus U	Business Administration - Standardization Strategy	Survey AnnexD22
29	F4)	Netherlands	RSM Erasmus U	Standardization Management, et al	Survey AnnexD23
30	F4)	Sri Lanka	Univ of Moratuwa	MBA in Management of Technology / Quality Management & Standardization	Survey AnnexD24
34	F4)	USA	Catholic University	School of Engineering - Engineering Management Program	S+Research AnnexD26

4.3 Higher Education

<Level of Expansion>	Multi Universities	#27 Korea-KSA UEPS #17 EU-Asia Link #23 DEVCO(dormant)	#13 China-CJLU	#12 China-CJLU
	One University	#20.#21 France-ZFIB #24 Japan-JSA #30 Univ Moratuwa #34 USA-Catholic	#26 Korea-FEU(multi) #25 Japan-T.U(multi) #28/#29 Neth-RSM (thesis, optional)	#18 Egypt – PQI #19 France – U.C.
		One Subject	Multi Subjects - a few subjects/thesis-	Multi Subjects - degree/program -
		<Level of Intensiveness>		

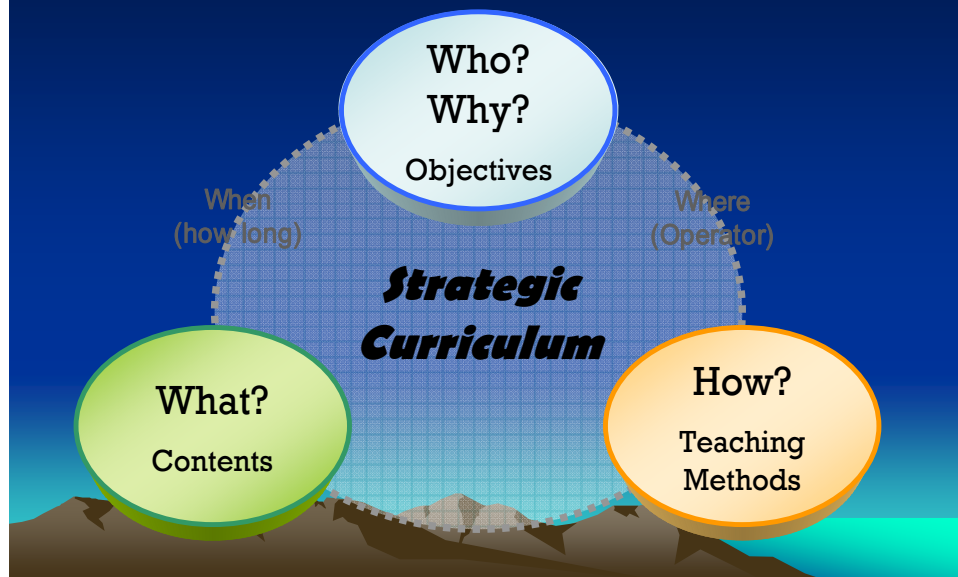
5. Surveyed Lessons

- 5.1. Clear Objectives and Target Oriented Programs
- 5.2. Make Teaching Materials Sexy
- 5.3. Preferred are 'Daily Life Examples or Case Studies'
- 5.4. Exciting is 'Learning by Doing'
- 5.5. As is the Good Teacher, So Will the Students Be
- 5.6. Leadership and Collaboration needed
- 5.7. Other Notable Lessons

6. Strategic Curriculum Model

p.28 – p.40

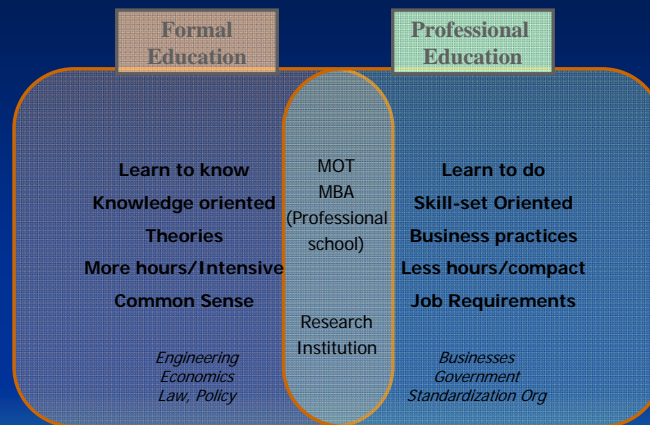
6.1 Components



6.1 Components

- Who/Why? the needs of students and objectives
 - e.g. understand the general importance of standardization; learn how to draft an ISO standard.
- How? the teaching methods including assessment tool
 - e.g. lecture, student presentation, group discussion, role-playing; mid-term exam, term paper, case study.
- What?
 - the contents of education
 - e.g. history of standards, standards and IPR, conformance procedures.
- When? how long
- Where? program initiator and operator

6.2 Who and Why - Objectives



Primary Secondary → Undergraduate → Graduate → Engineer Researcher → Biz Executives Gov Officials → Committee SDO staff

Easy/Fun Daily life → Academic → Analytical Implementing → Decision Making → Developing Administrating

6.3 What – Six Contents in Brief - obstacles

- No standardized classifications
 - same contents, but different title
(found many times)
- Duplicative contents in even one textbook
 - Mismatch of chapter title and contents
- Academic or theoretical contents are limited
 - Little academic society
 - Little research activities

6.3 What – Six Contents in Brief - Findings from 88 practices

- Daily examples and fundamentals of standardization found in most courses:
 - found in all types of education materials
 - from primary/secondary students to professional
 - from daily life examples - importance of standards,
 - Basic/Introductory/Factual/Fundamental information
 - around 40 cases are dealing with these contents

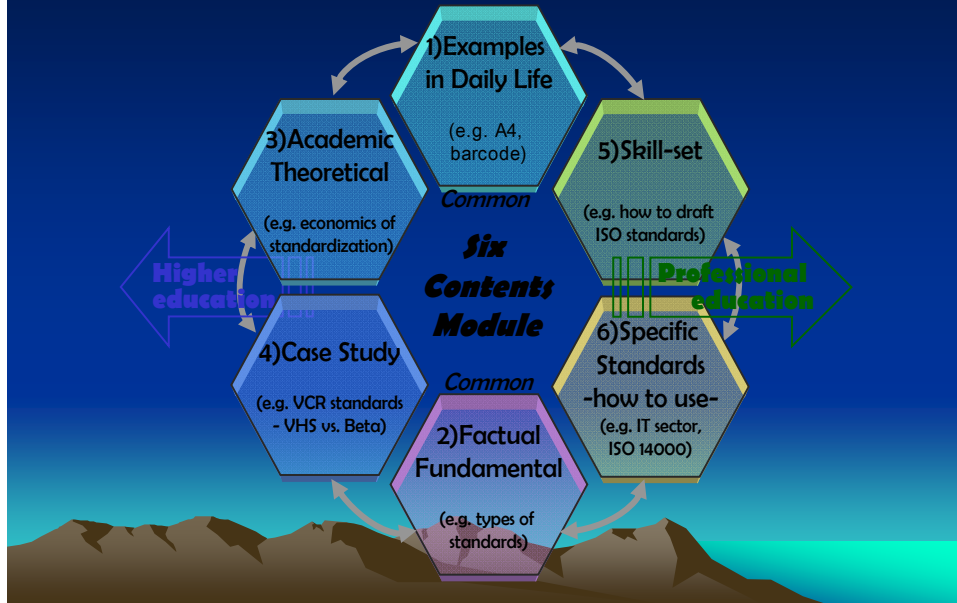
6.3 What – Six Contents in Brief - Findings from 88 practices

- Theoretical aspects of standardization chiefly found in higher education:
 - economics of standardization, standardization and innovation, standards and IPR are commonly found in higher education
 - Case #12, #17, #27, #28, #30
- Case Study chiefly found and expected to be dealt in higher education:
 - usually dealt in higher education, commonly in graduate education. It requires students certain mathematical or analytical ability. Some professional education includes brief case studies as well.
 - #10, #12, #17, #19, #20, 21, #25, #27, #28, #29, #30

6.3 What – Six Contents in Brief - Findings from 88 practices

- Skill-set mostly found in professional education:
 - the education for skill-set is found mostly in professional education * chapter 4.4 for details
 - Case #45, #49, #52, #53, #57, #70, #78, #86, #99
- Industry/technology specific standards generally found in professional education:
 - about how to use IT technology related standards, or how to apply ISO 14000 are generally found in professional education. However, some engineering departments in universities are also introducing industry related standards.
 - Commonly as a few days of workshop or training course by standards organizations or trade associations

6.3 What – Six Contents Map



6.3 What – Common Domain

- Common Core Domain includes two centrally located modules:
 - <Module 1> Example standards in daily life related contents and
 - <Module 2> Factual or Fundamental information related contents.
 - We place these two modules in central part of the map as they are common core contents and are considered part of any level of educations.

6.3 What – Higher Education Oriented Domain

- Second, Higher Education Oriented Domain includes two left located modules:
 - <Module 3> Academic/ Theoretical aspects of standards and conformance related contents, and
 - <Module 4> Case Study of standardization related contents. We place these two modules in left part of the map, as they are commonly found in the courses in higher education, universities.
 - However, you always have freedom to use these higher education oriented modules in professional education, either to meet specific objectives or to increase variety of an education program.

6.3 What – Professional Education Oriented Domain

- Third, Professional Education Oriented Domain includes two right located modules:
 - <Module 5> Skill-set related contents, and
 - <Module 6> (How to use) Specific Standards related contents. *many introductory course increasingly found in higher education as well
 - We place those two modules in right part of the map, as they are commonly found in the course in professional education.
 - However, you always have freedom to use these professional education oriented modules in higher education, either to meet specific objectives or to increase variety of an education program.

6.5 How – Teaching Methods

- After identifying what to teach
- it is moment to decide the modality of teaching and students' assessment.
 - Active teaching/learning shifts the focus from the teacher and delivery of course contents to the student and active engagement with the material.
 - Through active learning practices and modeling by the teacher, students drop the traditional role as passive receptors and learn and practice how to capture knowledge and skills and use them.

6.5 How – Teaching Methods

<Level of Activeness>	← Active (Detailed)	Case Study Project Paper/Report (Student) Presentation (Student)	Role-playing Simulation Team Contest Workshop Group/Panel Discussion
	Passive (General) →	Game/Quiz Questioning Sessions Field Trip	Peer Teaching Brain Storming
		Video Lecture	Class discussion
		← Less Collaborative	More Collaborative →
<Level of Collaboration>			

6.6. Strategic Curriculum Model Abridged - School

Who -students-	Why -objectives-	Where -operator-	What (Contents)		How -methods-	Good Practices (Annex C)
			-1st-	-2 nd , 3rd-		
Pre-School	Awareness	Gov NSBs	Module 1 -examples (simplified!)		Game Quiz	N/A
Primary/ Secondary Education	Awareness	Gov NSBs	Module 1 -examples (simplified)	Module 2 (simplified)	Contest Camping Quiz Game	#7 Turkey #6 Thailand #3 Philippines #8-10 UK

6.6. Strategic Curriculum Model Abridged - Higher

Who -students-	Why -objectives-	Where -operator-	What (Contents)		How -methods-	Good Practices (Annex C)
			-1st-	-2 nd , 3rd-		
Higher Education -Under- graduate	Awareness/ Specialized Knowledge	Gov NSBs SDOs Univ	Module 2 -fundamental Module 3 -academic Module 1 -example	Module 4 Module 5 Module 6	Team Project Presentation Field Trip	#12 CJLU #27 KSAUEPS #28 Erasmus
Higher Education -Graduate	Specialized Knowledge/ Theory	Univ Gov NSBs SDOs	Module 3 -academic Module 4 -case study	Module 6 Module 2 Module 5 Module 1	Case Study Term Paper Workshop	#25 Tokyo Un. #17 EU-Asia #18 PQI #19 Compienge #13 CJLU

6.6. Strategic Curriculum Model Abridged – Professional

Who -students-	Why -objectives-	Where -operator-	What (Contents)		How -methods-	Good Practices (Annex C)
			-1st-	-2 nd , 3 rd -		
Professional Education -Gov -Executive	Strategic Decision/ Policy Developmen t	NSBs SDOs Gov	Module 2 - fundamenta l Module 3 -academic Module 4 -case study (Abridged!)	Module 1 Module 5 Module 6	Workshop Panel Discussion	#67 TISI(gov) #89 ANSI(gov)
Professional Education -Committee Members -SDO staff	Practical Skills or Ability	NSBs SDOs Gov	Module 5 -skill-set	Module 4 Module 3 Module 2 Module 1 Module 6	Simulation Role Paying Workshop	#48 ISO online #49 ISO training # many bust not listed all here
Professional Education -Engineer -Researcher	How to use Specific Standards	Biz Univ R&D	Module6 -standards	Module 4 Module 3 Module 2 Module 1 Module 5	Experiments Practices	Not included in this Case Study, but many are operated by NSBs and SDOs

4. Discussion Session

- Participants were grouped into five small groups for break out sessions
- Each group will discussed about how to effectively plan and implement education program with following topics:
 - Curriculum and Textbook Development
 - Academic/Professional/Teacher's Networking
 - SCSC 7th Conference Topics (afternoon of Aug 11)
 - Promotion of the Project Phase I outcome
- Please note that the discussion was a brainstorming (no official decisions made/presented)



Ideas from Group 1

- **Textbook**
 - Difficult to suggest general sense of priorities
 - Lego block approach to a modular case studies
 - Simple /Intermediate/ Sophisticated
 - eLearning system development is recommendation rather than simple textbook
- **Networking**
 - Motivation is needed for both academic and professional
 - Database - contact information and area of interest
 - Informal dialogue among those to support them to sit together to discuss education and research topics
- **Topic**
 - Case Study



Ideas from Group 2

- **Textbook**
 - 1st priority: Basic knowledge of standardization for all level of students
 - * Standards and conformance change quickly, need expertise from government officials and business professionals
 - 2nd priority: Case Study
- **APEC networking**
 - Propose NSBs to coordinate the education activities and networking
 - Networking by website is a good tool
- **Topics**
 - Case Studies for diverse aspects



Ideas from Group 3

- **Textbook**
 - Factual/Fundamental Information is essential
 - Secondary priority Case Study (30-40%)
 - Academic aspects should be the role of academia
- **Academic/Professional Networking**
 - To share the viewpoints of academia
 - To provide more academic contents
- **Topics**
 - OK as suggested
 - Liaison with ICES



Ideas from Group 4

- **Textbook**
 - **Model of economic impact analysis of standardization**
 - examples that discuss positive and negative impacts
 - Discussion of why standardization is important
 - National, regional and international trends
 - Concepts and Definitions in standards and conformance
 - How standards and conformance methods are developed, used, and their practical impacts
 - Case studies with focus on trade, development, consumer protection, environment
 - Explanation of opportunities and implications of language pertaining to standards and conformance in agreements i.e. FTAs can expand opportunities for international business. This would be particularly important for SMEs

Ideas from Group 4

- Academic Networking
 - SRBs are working on professional networking for education within their fields of metrology, conformity assessment, and standardization
 - ICES could provide invitation to APEC Standards Education PAGE and SRBS to the next ICES meeting for networking.
 - Investigate other potential APEC for a interested in education
 - Invite academia from each economy to attend next standards education project advisory committee meeting
- Project Promotion
 - Conformance organizations want title to be expanded to include them, for promotional purposes.
 - Project could be promoted through universities, SRBs, education ministers, chambers of commerce, trade associations, professional associations
 - Database of case studies for members' use
 - Promotion of case studies to academic journals or international organizations of educators, United Nations Educational, Scientific, Cultural Organization (UNESCO)
 - Promote to ABAC



Ideas from Group 5

- **Textbook**
 - **Undergraduate**
 - Economic benefit sharing success story
 - Basic case study
 - practical training on the development of standards
 - **Post graduate**
 - Economic benefits by sharing experience
 - Policy of international standardization and its components
 - Practical training on the development
 - To prepare the students to be standards writer
- **Academic Networking**
 - To develop common framework for APEC region
 - To Implement the framework – benefits
 - Framework of standards education



5. Summary Conclusions

Textbook Contents

- All the participants generally reached the consensus in contents priority of phase II textbook development as follows:
 - 1st: Factual/Fundamentals Contents
 - 2nd: Case Studies
 - 3rd: Economic benefits
 - Others
- * Module approach and online dissemination were recommended

Academia/Professional Networking

- Why Academia Networking?
 - To Motivate both Academic and Professional be necessary
 - To Stimulate Academia to provide more academic contents
 - To Stimulate Academia to teach the contents
 - Useful to Share the viewpoints of Academia
- How?
 - Networking by website/database is a good tool
 - Informal dialogue to support them to meet to discuss education and research topics would be useful
 - Propose NSBs to coordinate the education activities and networking
 - Coordination with SRBs useful (Professional networking)
 - Coordination with relevant Fora or Societies such as ICES be useful
- Need further discussion for detailed actions
 - To be discussed in 7th SCSC Conference

Project Outcome - Promotion

- Participants expressed thanks to Korea for the comprehensive case studies and curriculum model and proposed following promotion methodologies:
 - Project could be promoted through NSBs, SRBs, SDOs
 - Project could be promoted through universities, education ministers, chambers of commerce, trade associations, professional associations
 - Promote to ABAC and relevant APEC fora (HRDWG)
 - Promote via website; Database of case studies
 - Promotion of case studies to academic journals (society) or international organizations of educators (e.g. ICES), United Nations Educational, Scientific, Cultural Organization (UNESCO)
- * Hard copies will be available at the end of March
- * Database of Case Studies will be available via the project website in the middle of 2008

SCSC 7th Conference

- Session IV - Date/Venue
 - Title: Challenge of Education Contents
 - 1:30-5:30pm, 11th Aug 2008 (session vi)
 - Cutsco, Peru
- Session Structure
 - Presentations and a Panel Session
 - Mainly from APEC, one or two from non-APEC
- Proposed Topics
 - Textbook development (contents)
 - 1st Priority: Case Studies
 - 2nd Priority: Economic Benefits
 - Others: Project status, Development Strategy
 - Academia/Professional networking
- All member economies are invited to nominate speakers for the session.

Next Meeting

- The Next meeting will be subsumed under the 7th SCSC Conference Session IV (education) on Aug 11 in Cutsco, Peru
- The 4th Meeting will be (tentatively) held under 2009 SCSC I in Singapore
 - Detailed dates, venue, topics to be announced in 2008 SCSC II in consultation with Singapore

Thank you for attention!

APEC SCSC PAGE 2008

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