出國報告(出國類別:出席國際會議)

出席第5次APEC科技創新政策夥伴 (PPSTI)會議報告

服務機關:科技部科國司

姓名職稱:傅顯達研究員

派赴國家:菲律賓長灘島

出國期間:104年5月15至18日

報告日期:104年8月7日

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壹、 會議緣起

菲律賓為 2015 年 APEC 會議主辦國,APEC 科技創新政策夥伴會議(Policy Partnership on Science, Technology and Innovation,以下簡稱 PPSTI)由菲律賓科技部負責辦理並規劃相關行政事宜。PPSTI 第 5次會議業於本(104)年 5 月 16 至 18 日於菲律賓 Boracay Crown Regency Resort and Convention Center 舉行,由菲律賓科技部部長 Hon. Mario G. MONTEJO 向各會員體代表致歡迎詞,本次會議並邀請人力資源發展工作小組(Human Resources Development Working Group, HRDWG)主事國代表共同與會,針對 7 月即將舉辦之高階科技與教育政策對話 (High Level Policy Dialogue on Science and Technology in Higher Education (HLPD-STHE)進行意見分享。

貳、重要討論及決議事項

APEC PPSTI 第 5 次會議以「科技創新創造包容性成長」為主題,除我方外,包含澳洲、汶萊、加拿大、智利、中國大陸、印尼、日本、韓國、馬來西亞、紐西蘭、秘魯、菲律賓、俄羅斯、泰國、美國及越南,共計 17 個會員體參與。本次會議由本年 1 月 1 日甫接任大會主席之中國大陸科技部副司長陳霖豪主持,兩位新任副主席分別為美國國務院代表 Ms. Christin Kjelland 及菲律賓科技部副部長 Dr. Amelia P. Guevara,ABAC 代表則由 Mr. Nicholas Brooke 續任。

主席表示 PPSTI 的宗旨為加強各會員體之創新能力,積極建立相關制度、進行創新科技政策對話以及強化與其他工作小組或委員會間交流互通機制,並持續支持 APEC 永續經濟成長與共榮之目標。

菲律賓由科技部長 Dr. Mario G. Montejo 代表主辦單位向各會員體代表致歡迎詞, Dr. Mario G. Montejo 部長強調科技創新為帶動包容性永續成長最重要的引擎, 而他亦相當期待透過 PPSTI 看到各會員體

在科技創新的發展成果。

本次會議重點說明如下:

一、有關菲律賓主辦之高等教育及科技政策對話(High Level Policy Dialogue on Science and Technology in Higher Education):

高等教育及科技政策對話擬於7月6至7日假菲律賓International Convention Centre 舉行,針對「食品製造與安全」、「環境、災害預防」、「氣候變遷與能源、海洋經濟、生物多樣性及保育」、「智慧分析與工程創新」、「健康系統」五大領域邀請各國代表進行就「創新與高等教育」、「高等教育」對亞太區經濟發展之影響、「未來科技與職涯」三大主軸專題演講。

二、APEC 秘書處報告:

- 1. 秘書處表示因 APEC Funding 資源減少,日後對於 APEC 計畫補助申請將越來越困難,本年度第一階段申請 PPSTI 16 件申請案僅通過 1 件,故建議會員體可考量將所提計畫改以 Self-fund 方式運作。
- 2. 考量 PPSTI 計畫爭取 APEC Funding 的情形日益嚴峻, PPSTI 大會認為有必要進行結構性重整以因應各計畫在經費及管理上 之需求。
- 三、菲律賓提出「將科技及創新活動轉化為政策內涵」之倡議 (initiative on Translating Science, Technology & Innovation Activities into Policy Statements/Briefs):

菲律賓經濟發展部部長 Arsenio Balisacan 此次特地參與 PPSTI 會議,說明如何將研究成果轉化成實際活動及政策內涵,Arsenio Balisacan 部長並呼籲會員體共同協助亞太地區制定具實證基礎的政策。他並同時鼓勵 PPSTI 應將本組織政策建議產出提報至 APEC 領袖會議,透過領袖們的支持促進亞太地區之科研合作,並使科技研究活動更加普及。

四、重新建立與 ABAC 之關係及分組主席/副主席改選:

- 1. PPSTI 所有會員體代表一致同意邀請 Mr. Nicolas Brooke 繼續擔任 ABAC 於 PPSTI 之代表, Mr. Brooke 承諾將持續協助 PPSTI 重建與 ABAC 之溝通管道,強化私部門於本分組之角色。
- 2. PPSTI 各分組主席任期將於本次會議屆滿,大會宣布進行分組 主席之改選,並請有意願角逐分組主席及副主席之會員體將意 願書提交秘書處。

五、有關 2015 年 ASPIRE Award 進度:

ASPIRE Award 本年主題為降低災害風險:了解氣候變遷及其多樣性,相關辦法業於2月初透過APEC 秘書處公告問知,請各會員體將候選人名單及相關資料於5月22日前提交秘書處,投票作業將於6月22日前辦理完成,獲獎者名單擬於6月26日公布。

六、有關 2015 年 ART Workshop 辦理成果:

ART Workshop 2015 業於本年 3 月 8 至 13 日假韓國松島市 SUNI-Korea 舉行,本年度會議主題為「後 2015 永續發展目標」、「有關人才流動、技術移轉之科技創新倡議」、以及「建立 APEC 開放創新平台」,共計有中國大陸、俄羅斯、泰國、韓國、美國、汶萊、中華台北、印尼、馬來西亞、秘魯、越南及美國 12 個會 員體與會。

七、分組會議(略,會議結論詳如第九點)

八、PPSTI 創新政策分享研討會(PPSTI Innovation Policy Sharing Seminar):

本次會議於第二日上午新增創新政策分享研討會,各會員體代表 針對政府、科研單位、業者對「科技類中小企業之創新成長之策 略」進行分享。各會員體代表於各場次分享之議題如下表:

Session 1 (government): Policy support for small and medium S&T enterprises	
to gain greater access to finance, technology, market etc.	
(Canada) Boosting Business Innovation : Instruments and Considerations	
(China) Government Support for S&T SMEs	
(Japan) Japan's Policy support for S&T SMEs to gain greater access to finance,	
technology	
(Peru) Peruvian Innovation Policy: new global challenges and perspectives	
(the Philippines) S&T Intervention for MSMEs for Productivity Improvement	
(Russia) The Russian Government policy measures to support innovative SMEs	
(USA) U.S. Government Programs to Support SMEs for Innovation	
(Macao, China) Policy Measures to Support S&T SMEs in Macao	
(WIPO) WIPO Services for Science and Technology SMEs	
Session 2 (Academia): Academia's contribution to human capacity building of	
S&T SMEs and academia's recommendations to government	
(the Philippines) S&T Human Resource Development for Small and Medium S&T	
Enterprises	
Enterprises (Chinese Taipei) R&D Institutes Provide S&T Platform for SME's Capacity Building	
(Chinese Taipei) R&D Institutes Provide S&T Platform for SME's Capacity Building	
(Chinese Taipei) R&D Institutes Provide S&T Platform for SME's Capacity Building (USA) "Fostering a robust knowledge economy that fully leverages the potential of the	
(Chinese Taipei) R&D Institutes Provide S&T Platform for SME's Capacity Building (USA) "Fostering a robust knowledge economy that fully leverages the potential of the triple helixGovernment, Academia, and Industry"	
(Chinese Taipei) R&D Institutes Provide S&T Platform for SME's Capacity Building (USA) "Fostering a robust knowledge economy that fully leverages the potential of the triple helixGovernment, Academia, and Industry" Session 3 (private sector): Relationship between development of small and medium	
(Chinese Taipei) R&D Institutes Provide S&T Platform for SME's Capacity Building (USA) "Fostering a robust knowledge economy that fully leverages the potential of the triple helixGovernment, Academia, and Industry" Session 3 (private sector): Relationship between development of small and medium S&T enterprises and inclusive growth and private sector's recommendations to	
(Chinese Taipei) R&D Institutes Provide S&T Platform for SME's Capacity Building (USA) "Fostering a robust knowledge economy that fully leverages the potential of the triple helixGovernment, Academia, and Industry" Session 3 (private sector): Relationship between development of small and medium S&T enterprises and inclusive growth and private sector's recommendations to government	

investments in building the startup ecosystem

(USA) Relationship Between Development of Small and Medium Science &Technology Enterprises and Inclusive Growth

九、分組結論報告:

1. Building Science Capacity (Chair: China, Vice-Chair: USA)

分組 A 由中國大陸科技部王蓉芳處長擔任主席,美國 Mr. Brad Fenwick 擔任副主席,針對 8 個計畫(6 個為 Self-fund,2 個將申請 APEC fund)進行討論,主席強調在資源日益減少的情況下,各計畫間應積極建立合作機制,並具體化各計畫之 KPI,使其更具實際效益。分組 A 各計畫分列如下:

- (1)(Australia) Building regional ocean and land observation systems to safeguard APEC resources and communities
- (2)(Malaysia) APEC Young Scientist Workshop on Effective Science Communication in the 21st Century
- (3)(Korea) APEC S&T Mentoring Center for the Gifted in Science
- (4)(Chinese Taipei) APEC Green Video Festival
- (5)(APRU) 9thAPEC Cooperation for Earthquake Simulation (ACES) Workshop
- (6)(Macao, China) "Developing Research and Industrialization of Chinese Medicine in Macau"
- (7)(Korea)Training and Nurturing Young Scientists (Theoretical Physicists) in the Asia Pacific Area (APEC Young Scientist Training)
- (8)(Chinese Taipei) Workshop on Scientific Decision Supports for Emergency Preparedness of Natural Hazards
- 2. Promoting Enabling Environment for Innovation (Chair: the Philippines, Vice-Chair: Indonesia)
 - 分組 B 由菲律賓科技部 Mr. Mario Capazana 擔任主席,邀請會

員體代表針對 5 項既有提案及 1 項新提案進行討論。有關菲律 賓 新 提 出 之 APEC Workshop on Commercialization and Popularization of Research and Market-based Innovations through Policy Translation,美國代表表示本案與 ART 相似性高,建議 菲律賓應將計畫主軸與韓國 ART 明顯區隔。分組 B 各計畫分列 如下:

- (1) (China) APEC Internet of Vehicles (IoV) Phase 2
- (2) (Russia) Development of Methodology and Analysis of STI Co-operation in APEC Region
- (3) (Philippines) Establishment of Regional Database on Herbal Medicine
- (4) (Philippines)APEC Workshop on Strategies to Address
 Non-communicable Diseases(NCDs) through S&T and
 Innovation: Nutrigenomics Approach (Self-funded Project)
- (5) (China) The Co-establishment of an Online Service Platform
- (6) (Philippines)APEC Workshop on Commercialization and Popularization of Research and Market-based Innovations through Policy Translation (Self-funded)
- 3. Enhancing Regional Science and Technology Connectivity (Chair: Chinese Taipei, Vice-Chair: United States)

分組 C 由我方蘇評揮教授擔任主席,美國國務院 Ms. Christin Kjelland擔任副主席,本次分組會議由我方蘇評揮教授作總結,為 C 組各計畫擬定未來發展方向,分別為(A)整合主題相近之計畫,並搭建相關平台(platform approach),使計畫間能夠互相溝通及分享資源;(B)應設立具實際效益的計畫目標,著重實際的價值創造(含政策建議);(C)建立合作機制及中小企業政策分享平台;(D)KPI 中應涵蓋設計示範計畫之項目。分組 C 各計畫分列如下:

(1) (Korea) Use of Weather and Climate Information for Efficient Disaster Management

- (2) (Korea/Japan) Development of APEC-VC single entry point
- (3) (Chinese Taipei) APEC Typhoon Symposium 2015
- (4) (Chinese Taipei)Public-Private Partnership for the Development of Value Chain Cycling to APEC through SME's Value Chain Integration
- (5) (China) APEC Smart City Forum and Exhibition on Information Technology
- (6) (Chinese Taipei) Promoting innovative and high value-added recycling production technologies for sustainable development of APEC's regional connectivity
- (7) (USA/China) Renewable Energy and Climate Change Metrology and Technology Challenges Workshop
- (8) (Australia) Building regional ocean and land observation systems to safeguard APEC resources and communities.

十、菲律賓報告有關 PPSTI 6 辦理方式:

PPSTI 6 將於今(104)年 8 月 26 至 28 日假菲律賓宿霧市辦理, 會議議程及相關行政安排將另由 APEC 秘書處轉告週知。(其後 APEC 秘書處通知,已改於今(104)年 8 月 10 至 12 日假菲律賓 馬尼拉辦理)

參、 會後參訪

本次大會安排參訪菲律賓長灘島紅樹林公園及珊瑚礁復育計畫 示範點,邀請各會員體代表參與種植紅樹林幼苗、種植紅珊瑚、及共 同觀賞生態保育短片等活動,展示其環保生態計畫現階段之成果,並 重申其復育紅樹林及保護珊瑚礁與海底生態之決心。參訪紀錄如下:







肆、我方應配合辦理之工作與分工

- 一、 向 APEC 秘書處提交分組主席、副主席意願表,表達我方爭取擔任分組主席意願。
- 二、 持續配合 APEC 秘書處完成 PPSTI 策略計畫(Strategic Plan),並 設定較為具體、實際、可執行的關鍵測量指標。

伍、結論與建議

- 1. 為因應 APEC Funding 日益緊縮並提升我方提案計畫品質,後續我方提案計畫,建議採取 Top Down 方式,由幕僚團隊依區域組織發展重點,篩選我方較具優勢之計畫代表我方向 PPSTI 提案。
- 2. 科技部可善用 APEC 平台,研擬相關產學合作計畫推動策略,鼓勵國內優質產學計畫於 APEC 平台提案,使我方技術成果與能與

國際舞台(如 APEC)作最有效之串接,持續向亞太地區進行科技行銷,尋找下一個科技出口海。

附件1:我方代表團名單

No.	Name	Title
1.	周倩 CHOU, CHIEN	Director General Department of International Cooperation and Science Education, Ministry of Science and Technology
2.	蘇評揮 SHU, PING-HUEI	Professor Department of Vehicle Engineering, National Taipei University of Technology
3.	傅顯達 FUH, SHEN-DA	Program Director Department of International Cooperation and Science Education, Ministry of Science and Technology
4.	曾毅振 TSENG, YI-CHEN	Specialist Department of Industrial Technology, Ministry of Economic Affairs
5.	梁志鴻 LIANG, CHIH-HUNG	General Manager Cycling & Health Tech Industry R&D Center
6.	周淑芳 CHOU, SHU-FANG	Manager Cycling & Health Tech Industry R&D Center
7.	關尚仁 KWAN, SHANG-REN	Project Director Grand Project for the Development of Taiwan Science Communication Industry
8.	朱正永 CHU, CHEN-YEON	Chief Division of International Cooperation Green Energy Development Center, Feng Chia University
9.	賴奇厚 LAY, CHYI-HOW	Assistant Professor Division of International Cooperation Green Energy Development Center, Feng Chia University
10.	楊尊華 YANG, TSUN-HUA	Associate Researcher Taiwan Typhoon and Flood Research Institute, National Applied Research Laboratories(NARLabs)
11.	張龍耀 LUNG-YAO CHANG	Assistant Researcher Taiwan Typhoon and Flood Research Institute, National Applied Research Laboratories(NARLabs)
12.	徐基生 HSU, CHI-SHENG	Director Ofc. of Cross-Strait Exchange, Industrial Technology Research Institute
13.	鄭麗娟 CHENG, LI-CHUAN	Deputy Director Ofc. of Cross-Strait Exchange, Industrial Technology Research Institute
14.	梁兆鈞 LIANG, CHAO-CHIUN	Division Director ITRI International Center, Industrial Technology Research Institute
15.	黄琬婷 HUANG, WAN-TING	Deputy Administrator Ofc. of Cross-Strait Exchange, Industrial Technology Research Institute

附件2:代表團行程

5月15日(星期五)

06:30 前	台灣桃園國際機場第一航廈辦理報到
07:35~09:35	中華航空 CI 701 TPE-MNL
09:35~10:30	辦理通關及轉寄行李
11:00~14:00	轉機(午餐與團務會議)
14:05~15:05	菲律賓航空 PR 2063 MNL-Caticlan
15:05~16:30	Caticaln 機場至 Crown Regency Resort and Convention Center
16:30~17:30	Check-in
17:30~20:00	晚餐(自理)

5月16日(星期六)

APEC PPSTI 5

08:30~09:30	Guest Registration	
09:00~09:30	Opening Session	
09:30~09:50	Coffee Break	
10:00~12:00	General Issues	
12:00~14:00	Lunch	
- 14:00~17:00	PPSTI Sub-Group Session* (分組參與名單詳如下表)	
18:30~20:30	Dinner	
20:30~21:30	團務會議(地點另行通知)	

分組名稱	參加人員
Subgroup Capacity Building(3)	周倩司長、關尚仁教授、傅顯達研究員*
Subgroup Innovation(2)	梁兆鈞組長、楊尊華副研究員*
Subgroup Connectivity(10)	蘇評揮專家、曾毅振技正 朱正永博士、賴奇厚博士、張龍耀助理研究員、梁志 鴻總經理、周淑芳經理、徐基生主任、鄭麗娟副主任、 黃琬婷*

5月17日(星期日)

APEC PPSTI 5

09:00~12:00	PPSTI Innovation Policy Sharing Seminar
12:00~14:00	Lunch
14:00~16:00	Wrap-up Session
16:00~17:00	Other Business

5月18日(星期一)

- Site Visit: Eco-Tour on Mangrove and Coral Planting

5月19日(星期二)

06:00 前	吃完早餐並完成 Check-Out 手續
06:00~10:00	分別搭乘大會接駁車往長灘島 Caticlan 或 Kalibo 機場
	搭乘菲律賓航空 PR 2970 or PR 2060 至馬尼拉
10:00~13:00	抵達馬尼拉・辦理行李轉運及離境手續
13:00~16:30	自由活動(但團員需自行至機場櫃台辦理報到手續)
16:30~18:30	中華航空 CI 704 NMNL-TPE
18:30~	行程結束

附件3:大會議程

5thAPEC Policy Partnership on Science, Technology and Innovation (PPSTI) Meeting

Boracay Island, the Philippines

16-18 May 2015

THEME: "Science, Technology and Innovation for Inclusive Growth"

AGENDA (Draft)	
16 May 2015 (Day 1)	
9:00 AM - 9:30 AM	OPENING SESSION
9:00 AM - 9:15 AM	1. Welcoming, opening remarks and introductions
	Opening remarks by PPSTI Chair, Mr. Chen Linhao, Deputy
	Director-General, Department of International Cooperation, Ministry of
	Science and Technology (MOST), China
	Introduction of new Governing Board Members
	Welcoming Message by the Host Economy of the 5 th PPSTI Meeting:
	Hon. Mario G. Montejo
	Secretary
	Department of Science and Technology
	Republic of the Philippines
9:15 AM - 9:20 AM	2. Adoption of the Agenda
	A brief introduction by the Chair about the draft agenda and PPSTI
	members endorse the agenda
9:20 AM - 9: 25 AM	3. Business Arrangement
	The Philippines, the Host Economy, to announce business arrangements
	for the 5 th PPSTI Meeting
9:25 AM - 9:30 AM	4. Group Photo
	Participants will be invited to join group photo
9:30 AM - 9:50 AM	Coffee Break

09:50 AM - 12:10PM	GENERAL ISSUES
09:50 AM - 10:15 AM	5. Preparation of High Level Policy Dialogue on Science and Technology
	in Higher Education(HLPD-STHE)
	Short presentation of the initiative (Philippines)
	HRDWG Lead Shepherd's idea on HLPD-STHE
	Discussion
10:15 AM - 10:25 AM	6. APEC 2015 Priorities
	SOM Vice Chair to present on the host 2015 priorities
10:25 AM - 10:45 AM	7. Report of the APEC Secretariat
	APEC Secretariat (Director) to report on key developments, including
	projects
	APEC Secretariat (Policy Support Unit) to report on economic trends
10:45 AM - 11:10 AM	8. Philippine initiative on Translating Science, Technology & Innovation
	Activities into Policy Statements/Briefs
	Presentation of the Initiative:
	Hon. Arsenio M. Balisacan
	Secretary of Socio Economic Planning and
	Director-General
	National Economic Development Authority
	Republic of the Philippines
	Discussion
11:10 AM - 11:20 AM	9. The role intellectual property (IP) plays in fostering a dynamic
	innovation ecosystem
	Mr. Willimott from the World Intellectual Property Organization (WIPO)
11:20 AM - 11:50 AM	10. Annual Work Plan for 2015 and Strategic Plan
	Discussion about the Annual Work Plan for 2015 and final endorsement of
	the Work Plan by PPSTI members
	Discussion about the revision of Strategic Plan
11:50 AM - 12:00 NN	11. PPSTI Operation Issues
	Discussion on rebuilding cooperation with ABAC
	Discussion on reselection of subgroup chairs and vice chairs
12:00NN - 12:05 PM	12. 2015 ASPIRE
	A brief explanation by the US/Philippines of the 2015 ASPIRE scheme

	and current progress of candidate selection
12:05 PM - 12:10 PM	13. Report on ART 2015
12:10 PM - 2:00 PM	Lunch Break
2:00 PM - 5:00 PM	SUB-GROUP MEETINGS
	[Parallel 1: Building Science Capacity, Chair: China, Vice Chair: USA]
2:00 PM - 3:15 PM	1.1.1 Report on the endorsed and planned activities
	(Australia) Building regional ocean and land observation systems to
	safeguard APEC resources and communities
	(Malaysia) APEC Young Scientist Workshop on Effective Science
	Communication in the 21 st Century
	(Korea) APEC S&T Mentoring Center for the Gifted in Science
	(Chinese Taipei) APEC Green Video Festival
	(APRU) 9 th APEC Cooperation for Earthquake Simulation (ACES)
	Workshop
	(Macao, China) "Developing Research and Industrialization of
	Chinese Medicine in Macau"
	Others
3:15 PM - 3:45 PM	Coffee Break
3:45 PM - 4:15 PM	1-1-2. Questions and discussion about the activities
	Member economies are encouraged to discuss important policy
	recommendations advocated in their projects, which are in line with
	APEC goals and eligible to be submitted to SCE or SOM or even more
	senior leaders
4:15 PM - 4:45 PM	1-1-3. Discussion of the future actions
	Member economies planning to submit new proposals are encouraged
	to provide their initiatives to the members
	(Korea)Training and Nurturing Young Scientists (Theoretical
	Physicists) in the Asia Pacific Area (APEC Young Scientist
	Training)
	(Chinese Taipei) Workshop on Scientific Decision Supports for
	Emergency Preparedness of Natural Hazards
	Member economies are encouraged to explain how the new proposals
	are aligned with PPSTI's workplan / strategic plan
4:45 PM - 5:00 PM	1-1-4. Other Managerial Issues

2:00 PM - 5:00 PM	[Parallel 2: Promoting Enabling Environment for Innovation, Chair:
	Philippines, Vice Chair: Indonesia]
2:00 PM - 3:15 PM	2-2-1. Report on the endorsed and planned activities
	(China) APEC Internet of Vehicles (IoV) - Phase 2
	(Russia) Development of Methodology and Analysis of STI Co-operation
	in APEC Region
	(Philippines) Establishment of Regional Database on Herbal Medicine
	(Philippines) APEC Workshop on Strategies to Address
	Non-communicable Diseases(NCDs) through S&T and Innovation:
	Nutrigenomics Approach (Self-funded Project)
	(China) The Co-establishment of an Online Service Platform
	Others
3:15 PM - 3:45 PM	Coffee Break
3:45 PM - 4:15 PM	2-2-2. Questions and discussion about the activities
	Member economies are encouraged to discuss important policy
	recommendations advocated in their projects with corresponding
	timelines, which are in line with APEC goals and potential to be
	submitted to SCE or SOM or even more senior leaders
4:15 PM - 4:45 PM	2-2-3. Discussion of the future actions
	Member economies planning to submit new proposals are encouraged
	to provide their initiatives to the members
	(Philippines) APEC Workshop on Commercialization and
	Popularization of Research and Market-based Innovations
	through Policy Translation (Self-funded)
	Member economies are encouraged to explain how the new proposals
	are aligned with PPSTI's workplan / strategic plan
4:45 PM - 5:00 PM	2-2-4. Other Managerial Issues
2:00 PM - 5:00 PM	[Parallel 3:Enhancing Regional Science and Technology Connectivity,
	Chair: Chinese Taipei, Vice Chair: USA]
2:00 PM - 3:15 PM	3-3-1. Report on the endorsed and planned activities
	(Korea) Use of Weather and Climate Information for Efficient Disaster
	Management
	(Korea/Japan)Development of APEC-VC single entry point
	(Chinese Taipei) APEC Typhoon Symposium 2015

	(Chinese Taipei)Public-Private Partnership for the Development of Value
	Chain Cycling to APEC through SME's Value Chain Integration
	(China) APEC Smart City Forum and Exhibition on Information
	Technology
	(Chinese Taipei) Promoting innovative and high value-added recycling
	production technologies for sustainable development of APEC's regional
	connectivity
	(USA/China) Renewable Energy and Climate Change Metrology and
	Technology Challenges Workshop
	(Australia) Building regional ocean and land observation systems to
	safeguard APEC resources and communities
	Others
3:15 PM - 3:45 PM	Coffee Break
3:45 PM - 4:15 PM	3-3-2. Questions and discussion about the activities
	Member economies are encouraged to discuss important policy
	recommendations advocated in their projects with corresponding
	timelines, which are in line with APEC goals and eligible to be
	submitted to SCE or SOM or even more senior leaders
4:15 PM - 4:45 PM	3-3-3. Discussion of the future actions
	Member economies planning to submit new proposals are
	encouraged to provide their initiatives to the members
	Member economies are encouraged to explain how the new
	proposals are aligned with PPSTI's work plan / strategic plan
4:45 PM - 5:00 PM	3-3-4. Other Managerial Issues
	17 May 2015 (Day 2)
	PPSTI Innovation Policy Sharing Seminar
9:00 AM – 11:30 AM	Chair: China, Co-Chairs: USA and the Philippines
	Theme: Small and Medium S&T Enterprises for Inclusive Growth
9:00 AM - 9:10 AM	Opening remarks by Chair and Co-Chairs
	Session 1 (government): Policy support for small and medium S&T
	enterprises to gain greater access to finance, technology, market etc.
9:10 AM - 9:20 AM	(Canada) Boosting Business Innovation : Instruments and
	Considerations
9:20 AM - 9:25 AM	(China) Government Support for S&T SMEs
9:25 AM - 9:30 AM	(Japan) Japan's Policy support for S&T SMEs to gain greater access
	1

	inter-sessionally.
	the seminar and the formal summary will be circulated
11:20 AM - 11:30 AM	Chair and Co-Chairs summarize the main contents and results of
	Science &Technology Enterprises and Inclusive Growth
11:15 AM - 11:20 AM	(USA) Relationship Between Development of Small and Medium
	industry spurring investments in building the startup ecosystem
11:10 AM - 11:15 AM	(the Philippines) Bridging the idea to commercialization gap through
11:00 AM - 11:10 AM	(Malaysia) Commercialization of R&D and Inclusive Growth
	Innovative Capacity
10:55 AM - 11:00 AM	(China) The Integration of Public Service to Enhance SMEs'
	sector's recommendations to government
	small and medium S&T enterprises and inclusive growth and private
	Session 3 (private sector): Relationship between development of
10.00 AW	the potential of the triple helixGovernment, Academia, and Industry"
10:50 AM - 10:55 AM	(USA) "Fostering a robust knowledge economy that fully leverages
	Capacity Building
10:40 AM - 10:50 AM	(Chinese Taipei) R&D Institutes Provide S&T Platform for SME's
13.107.11	Medium S&T Enterprises
10:35 AM - 10:40 AM	(the Philippines) S&T Human Resource Development for Small and
	government
	building of S&T SMEs and academia's recommendations to
	Session 2 (Academia): Academia's contribution to human capacity
10:15 AM - 10:35 AM	Coffee Break
10:05 AM - 10:15 AM	(WIPO) WIPO Services for Science and Technology SMEs
9:55 AM - 10:05 AM	(Macao, China) Policy Measures to Support S&T SMEs in Macao
9:50 AM - 9:55 AM	(USA) U.S. Government Programs to Support SMEs for Innovation
0.40 / WI	innovative SMEs
9:45 AM - 9:50 AM	(Russia) The Russian Government policy measures to support
9:40 AM - 9:45 AM	Improvement
0:40 AM 0:45 AM	(the Philippines) S&T Intervention for MSMEs for Productivity
9:30 AM - 9:40 AM	perspectives
0:20 AM 0:40 AM	to finance, technology (Peru) Peruvian Innovation Policy: new global challenges and

11:30 AM - 2:00 PM	Lunch Break	
2:00 PM - 4:00 PM	WRAP-UP SESSION	
2:00 PM - 2:40 PM	14. Wrap-up Session	
	Report by Chair and Vice Chair of Sub-Group Capacity	
	Report by Chair and Vice Chair of Sub-Group Innovation	
	Report by Chair and Vice Chair of Sub-Group Connectivity	
2:40 PM - 3:20 PM	15. Endorsements and Next Steps	
	Endorsement of the minutes of PPSTI 4 and issues discussed in PPSTI 5:	
	Minute of PPSTI 4	
	"Translating S&T Innovation Activities to Policy Statements/Briefs"	
	Etcetera	
3:20 PM - 4:00 PM	16. Guest reports	
	Guests are invited to present updates and deliver a short presentation	
	outlining the key issues or recommendations.	
4:00 PM - 5:00 PM	OTHER BUSINESS	
4:00 PM - 4:25 PM	17. Report to SCE/SOM and Meeting Summary	
	The Chair summarizes the main contents and results of PPSTI 5,	
	which may be submitted to SCE/SOM as its directions	
	The meeting summary will be circulated inter-sessionally.	
4:25 PM - 4:50 PM	18. Announcement by the Host Economy (The Philippines)	
	Presentation on preparatory hosting for the PPSTI 6 Meeting in	
	August 2015, in Cebu City	
	Presentation of the Eco-tour	
	Others	
4:50 PM - 5:00 PM	19. Closing Remarks	
	The Chair conveys the closing remarks and closes the meeting	
18 May 2015 (Day 3)		

	20. Eco – tour (see attached tour agenda for details)
8:30 AM - 9:30 AM	Ceremonial Mangrove Tree Planting
10:00 AM - 12:00 NN	Turn-over Ceremony of Coral Nursery Units and Inauguration of the APEC PPSTI Coral Garden
12:00 NN	LUNCH

出國報告(出國類別:出席國際會議)

出席 APEC 高等教育科學與 技術高階政策對話預備會議報告

服務單位:科技部科教發展暨國際合作司

姓名職稱:傅顯達研究員

出國地點:菲律賓長灘島

出國日期:民國 104年5月19日至21日

報告日期:民國104年8月7日

壹、 會議緣起與目的

菲律賓為 2015 年 APEC 主事國,特別強調討論人類能力建 構(Human Capacity Building)及防災科技(Natural Disaster Mitigation Technology),糧食缺乏問題等,菲律賓高等教育委員 會與菲國科技部認為透過大力發展高等教育的科技研發創新能 力,必能有效解決上述問題,因此預定於2015年7月或8月在 該國馬尼拉市舉辦 APEC 高等教育科學與技術高階政策對話 (APEC High-Level Policy Dialogue on Science and Technology in Higher Education),希望 APEC 各會員經濟體之科技部、教育部 資深官員、大學主管人員、研究機構、企業界都能有代表參加。 為使正式會議能順利進行,並聽取各經濟體對此會議內容以及 預定產出之共同宣言之意見,菲國特別於2015年5月19至20 日緊接著第5次APEC 科技創新政策夥伴(PPSTI)會議之後,在 同一地點(菲律賓長灘島)舉行先期預備會議,邀請我科技部及 教育部派員參加;本部科國司周倩司長及本人已於5月16至 18日出席 APEC PPSTI 會議,因周司長另有要公須先行返台, 故由本人代表周司長參加本次預備會議,教育部則由李蔡彦司 長參加。另外,菲國科技部也直接邀請國研院颱洪中心李清勝 主任與會進行專題報告,介紹 ACTS 成立背景與經過,及歷年 來舉辦與颱風洪水研究或防災減災教育有關的各種活動和努力。 李主任事實上在同一時間已另有出國行程,但為能利用此機會 提升 ACTS 的國際能見度,並與各經濟體的代表交流,尋求合 作機會,特別派該中心廖宇慶副主任與會。

貳、 會議經過與討論事項

本次我方代表包括代表 教育部出席的資訊及科技教育司李

蔡彦司長、科技部傅顯達研究員,以及代表颱洪中心李清勝主任出席之該中心副主任廖宇慶教授三人,廖副主任的報告安排在5月19日下午,報告內容為ACTS成立的經過,自2010年成立以來所舉辦的各類研討會、研習營、大型國際颱風研討會、年輕科學家計畫等,同時也先預告ACTS在2015年5月底要舉辦的2015年International Workshop on Typhoon and Flood (IWTF),以及2015年底要在菲律賓舉辦的年度APEC Typhoon Symposium (APTS)。

廖副主任在報告中除了介紹 ACTS 在颱風與洪水預報以及風險管理上所進行的研究以外,還強調 ACTS 在探討天氣預報與防災對社會經濟衝擊的評估,也提及女性在防災決策體系以及災後重建過程中所扮演的重要角色。廖副主任報告完畢後,擔任主席的菲國高等教育委員會主任委員 Dr. Minella Alarcon女士特別稱讚這是很有前瞻性研究。美國的代表則提出如何將防災研究成果用來影響/教育決策者的問題,菲律賓的代表則詢問 ACTS 計畫成功的關鍵因素為何,會後中國的代表亦特別前來表達讚許 ACTS 的努力。與廖副主任同時段報告的還有來自俄羅斯、中國、菲律賓的報告,討論議題涵蓋範圍甚廣,其中菲律賓的報告人是菲律賓大學的校長,主題為 Association of Pacific Rim University (APRU)所推動的事物,我國的台灣大學為 APRU 成員之一。5 月 18 日的歡迎晚宴在一濱海飯店舉行,由菲國科技部部長 Montejo 親臨主持。

第二天 5 月 20 日的議程主要為對前一日的報告內容做出結論,並針對 7-8 月要召開的大會中所要提出的共同宣言(Joint Statement),先擬出一份草案,因此當天的會議內容即為各經濟

體代表針對菲方所提出的草案,進行細部內容甚至是文字上的修訂。基本上,該共同宣言的精神是要能夠盡可能地打破 APEC 各經濟體之間的界線,加強亞太地區高教育跨境合作,以加速人才與知識的流通,如針對菲方提出的 S&T Expert Mobility Card (STEM Card),以及為強調 APEC 對高等教育之重視,菲國提議成立 APEC 高等教育工作小組(Higher Education Group)等,都花了很長的時間討論,但意見分歧,沒有共識。

參、 結論與建議

- 一、基本上,本次會議是希望達成一個共識,及希望藉由金 (2015)年 11 月 APEC 領袖會議或部長會議之宣言,呼籲 亞太地區建立一個平台,以方便人才、經驗觀念的交流交換,而高等教育作為科技創新的引擎,也應該用來解決未來全球面臨的挑戰,會中特別提到的挑戰想木有糧食短缺、災害預防能力、氣候急遽變遷、能源問題、海洋經濟生物 多樣性與保育、衛生健康系統等,其中有多項是我國之科技強項,應持續努力維持先進地位並透過國際平台,突顯我國之強項。
- 二、亞太經濟合作颱風與社會研究中心(APEC Research Center for Typhoon and Society; ACTS)成立於 2010 年,後依照國科會(現今的科技部)的規劃,於 2013 年改由國研院颱風與洪水研究中心執行計畫。ACTS 成立的宗旨,為拯救人命與降低災害(save life and reduce losses),因此其重要的任務之一,是成為亞太經濟合作地區的重要平台,交換各經濟體之間的知識、經驗、訊息、技術以及資料。ACTS 亦致力於研究颱風洪水災害對社會經濟之影響,正

確預報對社會經濟助益的定量化評估,機率預報資訊在各行業的最佳化利用,以及探討適合各經濟體獨特環境之防減災策略,協助 APEC 會員提升颱風洪水預報與防減災技術,減少災害損失和對社會經濟的影響。本次會議主辦國菲律賓因每年深受颱風之害,特別邀請我颱洪中心與會介紹 ACTS,並稱許是一項成功的 APEC 計畫,科技部科國司作為推廣者及業務指導者實在與有榮焉。自明(2016)年起,ACTS 計畫就要交由國研院自行編列經費自行督導,期待也相信 ACTS 能持續發揚光大,造福亞太地區。

三、 APEC 高等教育科學與技術高階政策對話 (APEC)

HLPD-STHE)會議召開方式係由菲國主辦單位指定 15 個演講主題範圍,邀請 APEC 官員學者專家演講,APEC 21 會員國出席代表則於演講後自由發表意見。依據議程,目前 15 位演講者除菲律賓科技部長、高等教育委員主席及祕魯科學委員會主席位階較高外,其餘位階均不高,美國係國務院代理科技顧問,中國為上海先進研究院副院長,日本為科技機構計畫主管,我國則為英業達董事長李詩欽及國家防災中心主秘李維森博士,據瞭解,除菲國外,目前治無國家派出部、次長級官員率團參加者。各國無法保證一定派部、次長級官員率團出席之理由是: APEC 有 21 會員國,但本次會議只能安排 15 位演講,其中菲律賓及非 APEC 會員國講者已佔近三分之一,且演講內容須配合菲國規定之重點,限制頗多很難暢所欲言。各國出席預備會代表鑑於部、次長級官員出席有可能枯坐兩天聽演講而毫無暢所欲言表達該國意見之機會,因此不願承.諾能

派部、次長級官員率團出席。事實上,依大會提供之會議 背景資料,菲國原先鎖定邀請之官員代表,就是定位為各 國科技部及教育部地資深官員(senior government officials) 因此建議:未來正式會議,我方由科技部及教育部司長及 參事級官員率團,搭配大學院長、副校長級主管,以及來 自於研究機構之研究人員共同組團即可。

由於菲律賓為今年 APEC 主事國,該國創先召開 APEC 高等教育科學與技術高階政策對話 (APEC -HLPDSTHE),其最主要目的是希望能獲得 APEC 各會員 經濟體代表之背書認可,產出一個共同宣言(Joint Statement),其中包括三項倡議(1,Establishing APEC Higher Education Group • 2, Enhancing Mobility of S&T Experts and 3, Advancing Cross-Border Education and Inter-University Collaboration), 而菲國可利用其為今年 APEC 主事國之身分,有利將此一 Joint Statement 列入本 屆 APEC 部長宣言或領袖宣言內。不過本預備會議各國 與會代表對前述三項倡議有很多不同意見,尤其對成立 APEC Higher Education Group 一項,多數認為疊床架屋, 有違 APEC 現今力倡精簡的主流意見 。 本人初步研讀 認為,除成立 APEC Higher Education Group 一項,其他 二項如能納入 APEC 領袖或部長宣言,對我國並無害處, 對我國推動高教走出國際及高科技人士出國交流甚至可 能有所助益,因此對菲律賓主導本項 Joint Statement,建 議我代表團可採立場如下:

1. 若會場氣氛傾向支持則錦上添花

- 2.若會場氣氛傾向中性,未明顯反對,則雪中送炭3.若會場氣氛傾向反對,則不表態,或是建議留給資深官 員會議進一步討論。
- 附錄 1-APEC 高等教育科學與技術高階政策對話預備會議議程 附錄 2-共同宣言草案(Draft Joint Statement)

PREPARATORY CONFERENCE ON APEC HIGH-LEVEL POLICY DIALOGUE ON SCIENCE AND TECHNOLOGY IN HIGHER EDUCATION

19-20 May 2015, Boracay Island, Province of Aklan, Philippines

Chairs: Hon. Minella C. Alarcon, Ph.D. (CHED) and Hon. Amelia P. Guevara, Ph.D. (DOST)

"Developing 21st Century Innovators for Sustainable and Inclusive Growth"

PROVISIONAL PROGRAMME		
19 May 2015 (Day 1)		
08:00 – 9:00	Registration	
	Opening Ceremonies	
09:00 – 09:15	Welcome Message Hon. Minella C. Alarcon, Ph.D. (Philippines) Commissioner, Commission on Higher Education	
09:15 – 09:30	Opening Message Hon. Laura Q. del Rosario SOM Chair and Undersecretary, Department of Foreign Affairs	
09:30 – 10:00	Official Group Photo	
10:00 – 10:30	Coffee Break	
10:30 – 11:00	Plenary Session 1: <u>Agenda and Expected Outcomes of the Preparatory</u> <u>Conference</u>	
	Napoleon K. Juanillo, Jr., Ph.D. (Philippines) Commission on Higher Education	
11:00 – 11:15	Plenary Session 2: <u>Significance of the HRDWG in the Sphere of Science and</u> <u>Technology and PPSTI in the Sphere of Higher Education</u>	
	Sergey V. Ivanets, Ph.D. (Russia) Lead Shepherd, Human Resources Development Working Group	
11:15 – 12:30	Interventions by Participants/ General Discussion	
12:30 – 14:00	Luncheon to be hosted by the Department of Science and Technology (DOST)	
`14:00 - 14:15	Mr. Linhao Chen (China) Chair, Policy Partnership on Science, Technology and Innovation	
14:15 – 14:30	Hon. Alfredo E. Pascual (Philippines) President, University of the Philippines Member, Steering Committee, Association of Pacific Rim Universities	
14:30 – 15:00	Coffee Break	

	Plenary Session 3: <u>Translating APEC Concept Notes to APEC Policies and</u>
	Realities Realities
15:00 – 15:15	Yu-Chieng Liou, Ph.D. (Chinese Taipei) APEC Research Centre for Typhoon and Society
15:15 – 15:30	Natalia Stapran, Ph.D. (Russia)
15:30 – 15:45	APEC Study Centre
	Ms. YiWei Zhang (China) Global Exhibition of Intelligent Transportation (Internet of Vehicles) in the Asia-Pacific Region
15:45 – 16:30	Open Forum
17:00 – 19:00	Shuttle from Crown Regency to Shangri-La Cocktails
19:00 onwards	Welcome Dinner Hosted by the Commission on Higher Education (CHED)
	Hon. Patricia B. Licuanan, Ph.D. Chairperson
	Commission on Higher Education
20 May 2015 (Day 2)	
09:00 – 09:30 am	Recap of Day 1: Ma. Cynthia Rose B. Bautista, Ph.D. (Philippines)
09:30 – 10:00	Agenda for the High-Level Policy Dialogue on Science and Technology in Higher Education on July 6-7, 2015
	Hon. Minella C. Alarcon, Ph.D. (Commission on Higher Education) Hon. Amelia P. Guevara, Ph.D. (Department of Science and Technology)
	Open Forum
10:00 - 10:30	Coffee Break
10:30 – 12:30	Plenary Session 4: Crafting the Draft Declaration and Policy Initiatives Towards Fostering Talent Mobility in Science and Technology
	Ma. Cynthia Rose B. Bautista, Ph.D. Commissioner, Commission on Higher Education Facilitator
12:30 - 14:00	Luncheon hosted by the Commission on Higher Education (CHED)
14:00 – 15:00	Continuation of Plenary Session 4
15:00 - 15:30	Tea/Coffee Break
15:30 – 16:00	Reading of the Draft Declaration
	Hon. Amelia P. Guevara, Ph.D. Undersecretary, Department of Science and Technology (Philippines)
16:00 - 16:30	Closing Statement: Where do we go from here?
3 4 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	Rowena Cristina L. Guevara, Ph.D. (Department of Science and Technology) Napoleon K. Juanillo, Jr., Ph.D. (Commission on Higher Education)



2015/SOM2/HLPD-STHE/PREP/002

Session 4

Draft Joint Statement

Purpose: Consideration Submitted by: Philippines



Preparatory Conference on High Level Policy Dialogue on Science and Technology in Higher Education Boracay, Philippines 19-20 May 2015

JOINT STATEMENT (Draft as of 18th May 2015)

2015 APEC HIGH-LEVEL POLICY DIALOGUE ON SCIENCE AND TECHNOLOGY IN HIGHER EDUCATION

- 1. We, the APEC high-level representatives responsible for policy and partnership in science, technology and education and building human resources in higher education, science and technology, and research and development as well as representatives from trade and industry, and other representatives from business and academia, met in Manila, Philippines on July 6 and 7, 2015 for the APEC High-level Policy Dialogue on Science and Technology in Higher Education with the theme, "Developing 21st Century Innovators for Sustainable and Inclusive Growth."
- 2. We met under the theme of APEC 2015 Philippines, "Building Inclusive Economies, Building a Better World," guided by the 22nd APEC Economic Leaders' Declaration encouraging APEC economies to prioritize stabilizing and expanding employment, implementing macroeconomic policies in favor of job creation, and strengthening capacity building for human resources development, vocational skills development and skills training for youth, enhancing the participation of women in the economy.
- 3. We are specifically guided by the 6th HRD Joint Ministerial Statement and the Action Plan 2015-2018 on promoting quality employment and strengthening people-to-people connectivity through human resources development, taking into account the three (3) priority areas such as: a) Supporting inclusive and sustainable growth to address the social dimensions of globalization, including equality and needs of vulnerable groups; b) Enhancing human resource quality to meet supply chain demands; and c) Facilitating mobility of labor and skills development.
- 4. We also recognize the APEC Connectivity Blueprint for 2015 to 2025 which underlines the importance of institutional connectivity, people-to-people connectivity and the role of cross-border education cooperation in promoting economic development thru knowledge and skills transfer towards achieving an integrated Asia-Pacific and driving APEC progress.
- 5. We also consider the Policy Partnership on Science Technology and Innovation (PPSTI) 2015 Work Plan that encourages and supports S&T SMEs through multiple channels and platforms and fosters collaboration between government and academia.

Developing the 21st Century S&T Innovators: Key to Inclusive and Sustained Growth

- 6. We recognize that diversity in the human resource spurs entrepreneurship and innovation.
- 7. We support policies that facilitate the mobility of highly skilled human capital as well as policies aimed at harmonizing the international job market for research as these are beneficial to science, technology and innovation.
- 8. We emphasize the need for diversity in the academe and its importance in yielding high research productivity, intellectual capital, creativity and collaboration.
- 9. We acknowledge that supporting, funding and promoting S&T talent mobility helps the sustainable development of societies and growth of economies.
- 10. We recognize the need for S&T Experts, who are pivotal to developing innovations particularly in the fields of (a) food production and security, (b) environment, disaster preparedness, climate change and energy, (c) marine economy: biodiversity and conservation, (d) smart analytics and engineering innovations, and (e) health systems which are critical to the sustained and inclusive growth of APEC member economies.
- 11. We support the Port Moresby 2015 High-level Policy Dialogue on Human Capacity Building, particularly (a) its focus on the 21st century skills, including Science, Technology, Engineering, and Mathematics (STEM) education, to address the advanced technology requirements of 21st century jobs in the context of knowledge based economy building and to face the changes in our markets; and (b) its strategic approaches to align education and training to industry needs in the 21st Century.
- 12. Following the APEC 2015 priority on investing in human capital development, we call on the APEC economies to pursue the following strategic courses of action:

A. S&T Expert Mobility Card (The STEM Card)

- 13. We propose the establishment of the S&T Expert Mobility Card (The STEM Card), which allows S&T experts from any of the APEC member economies to travel within the APEC region for S&T activities, particularly those related to (a) food production and security, (b) environment, disaster preparedness, climate change and energy, (c) marine economy: biodiversity and conservation, (d) smart analytics and engineering innovations, and (e) health systems.
- 14. The STEM Card provides S&T experts with a short-term entry facility to member economies. Participating members of the STEM Card scheme are S&T experts who are:
 a) professors registered in the APEC Registry of University Faculty in Science,

Technology, Engineering, Agri-Fisheries and Mathematics, b) scientists and researchers from health, science and technology research and development institutes, and d) recognized government policy makers in science, technology, health and innovation who are engaged in research, teaching or extension or policy making undertakings involving another higher education institution, research and development institution, or intergovernment collaborations on science, technology, health and innovation in the APECmember economies.

15. We propose to explore within the year the composition and structure of a body, including its leadership, which can guide decisions, by consensus and through a step-by-step approach, on such key matters as a) the framework design and b) terms of reference for the STEM Card that define and outline the definition and requirements of an "S&T expert," the vetting process, card printing and security features, the visa concerns, border security measures, fees, and other considerations towards the realization of the STEM Card.

B. Advancing Cross-Border Education and Inter-University Collaboration

- 16. In consonance with realizing the APEC 2012 Leaders' Declaration in Vladivostok on Promoting Cross-Border Educational Cooperation, we propose time-bound targets and mechanisms to better facilitate mobility of students, researchers, faculty, and providers in the region.
- 17. We recommend the formation of a technical working group to develop operating framework governing equitable Cross-Border Education and Inter-University Collaboration that can craft a regional framework for academic mobility that will allow student, researcher, and other academic exchanges in science and technology.
- 18. We suggest that the technical working group specifically defines and operationalizes matters that are pivotal to Cross-Border Education and Inter-University Collaboration such as: a) cross-border supply, where services are transmitted across borders (such as twinning and distance education programmes), b) credit transfer of students involved in study-abroad S&T programmes, c) recognition and validation of short-term studies and research internships in the context of the field of S&T through the regional platform, d) institutional mobility (i.e., cross-border education service providers with branch campuses, franchises, and other similar commercial arrangements), and e) transnationalindividual service providers (i.e., individual educators and researchers crossing borders to provide academic and research services).
- 19. In the interest of catalyzing regional innovation in S&T, we propose that immediate focus be given to establishing mechanisms for twinning programmes on Ph.D. degrees in Science, Technology, Engineering, Agriculture, Marine Science and Fisheries.
- 20. In light of this evolving terrain in higher education, we propose that the technical working group also look into novel quality assurance control mechanisms that can

- guarantee equity and quality of an expanding higher education system in the APEC region.
- 21. We propose that the aforementioned technical working groups be constituted within the HRDWG and PPSTI, as the "friends" of the HRDWG Chair and the PPSTI Chair.

Conclusion

- 22. We express our deep gratitude for the hospitality and all arrangements made by the Philippines for the success of this meeting.
- 23. We will encourage, explore and promote a closer link between human capacity building in science and technology in higher education, STEM career pathways, occupational and employment needs as well as the needs of business and industry in science and technology in order to develop and harness regional innovations in science and technology and build more inclusive economies.
- 24. We intend to continue and step up our opening initiatives in the succeeding High-Level Policy Dialogues on Science and Technology in Higher Education.