**Asia-Pacific
Economic Cooperation**

Enhancing Mutual Recognition and Regional Cooperation for Skills and Job Qualifications in the APEC Region

Final Report

APEC Human Resources Development Working Group

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Acknowledgement

The views expressed and the conclusions reached are those of the author and not necessarily the consensus view of APEC member economies.

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1   Executive Summary

In line with the priorities of the APEC Human Resources Development Working Group to facilitate the mobility of labor and skills development and to develop common understanding about qualifications, skills, and professional recognition, this project seeks to raise awareness regarding the achievements and best practices of existing initiatives to mutually recognize skills and job qualifications and to build human resource development (HRD) capacity among APEC member economies.

Through literature research and interviews with 16 organizations from the public and private sectors across ten APEC economies, the project has assembled eight case profiles of initiatives in the APEC region. Each initiative was chosen through a quantitative and qualitative assessment process ensuring that the selected initiatives represented best practices in multiple areas and that they could present a good mix of participating economies well-distributed both geographically and economically. The resulting group of initiatives also include efforts led by both the public and private sectors. Each initiative has been considered through the experiences of one of the APEC economies that has had a leading role in the creation or implementation of the initiative. The eight initiatives are:

<Mutual Recognition Efforts>
1.   APEC Engineer [Japan]
2.   ASEAN Mutual Recognition Arrangement (MRA) on Architectural Services [The Philippines]
3.   IT Common Examination [Japan]
4.   Washington Accord [Japan & the United States]
5.   ASEAN Qualifications Reference Framework [Malaysia]

<Capacity Building>
6.   APEC Occupational Standards Framework [Australia]
7.   Pacific Alliance [Mexico]
8.   Thailand Automotive Human Resource Development Project [Japan & Thailand]

The findings from the literature research and interviews have been consolidated to a list of common challenges and best practice recommendations for APEC economies to enhance the effectiveness of skills and job qualification recognition initiatives and related regional cooperation activities. The key findings presented in this report are listed below:

- MRAs are providing numerous benefits to the APEC region, such as increasing the quality of workers by promoting qualification systems and monitoring organizations. The process of identifying and benchmarking occupational skills has encouraged several economies to revise their standards for professional education, in order to ensure that their educational standards match or exceed the standards in other economies. MRAs and various skills development efforts have encouraged cooperation between governmental organizations, academia, and industry partners. These efforts also help international employers to identify and recruit skilled local employees in other economies by applying mutually recognized qualifications to verify skills and experiences of potential employees. While many of the ongoing and recent MRA programs studied in the current research have not yet led to significant worker mobility, the benefits to workers and employers are expected to further accrue as new MRAs and multi-economy recognition efforts within the region are adopted.

- While the primary focus of MRAs to date has been on supporting the physical mobility of workers, emphasizing other benefits of the agreements, such as those listed in the above paragraph, can help economies to build stakeholder awareness of and support for future MRAs and other recognition efforts. With recent advances in technology and business practices in mind, APEC economies should consider various ways to support cross-border business activities through the mutual recognition of qualifications, including not

only by fostering the physical mobility of workers but also by contributing to capacity building in the human resource development (HRD) field.

- Economies face several common challenges in implementing initiatives for mutual recognition of skills and job qualifications. Several initiatives noted that significant national or regional differences in standards and processes/definitions were a key challenge. Others mentioned that the lack of incentives for workers resulted in low sign-up or renewal rates for mutually recognized qualifications. In particular, the lack of clear linkages between MRAs and the immigration policies of host economies may be discouraging workers from seeking these qualifications. In addition, with a few exceptions, regional efforts can often advance only as fast as the slowest member to implement agreements, which can lead to frustration over slow timetables or perceptions that some stakeholders are being overly protective. Especially when implementation is resource-intensive, developing economies may lack the capacity to keep pace with others. For these reasons, extensive planning, flexibility, and patience are necessary virtues for all stakeholders. Referencing projects can be a long and gradual process, so it is critical to set up realistic expectations.

- Given the above challenges, in several cases project managers noted that they found the best approach to multi-economy initiatives was to start small and build up through small groups of economies with similar characteristics and priorities. This approach allowed the participating economies to validate approaches and test expectations. Having a strong foundation in place was found to be very helpful to then expand the program to include additional economies, and makes it easier to reach widespread consensus.

- Some of the key best practices that were identified in interviews include 1) involving a wide range of stakeholders in project consultations (not only internationally but also domestically, including multiple governmental departments/ministries, regulatory bodies, employer organizations, professional organizations, educational and training institutions, etc.), 2) building support for close collaboration among stakeholders through tools such as site visits and regular meetings or consultation, 3) devoting sufficient long term resources and time to initiatives, and 4) approaching capacity building and MRAs with an open mind and an adaptive approach to consensus-building.

The research findings and recommendations from this project are expected to deepen the understanding of the current status of the mutual recognition of skills and job qualifications among APEC member economies, and will provide policymakers in APEC economies with key insights and recommendations for achieving the people-to-people connectivity laid out in the "APEC Connectivity Blue Print 2015-2025" by enhancing the mutual recognition of skills and job qualifications. With the spirit of the 1995 Osaka Action Agenda, and supported by recent declarations by APEC economic leaders and statements by APEC ministers, the project seeks to assist APEC's efforts in achieving trade and investment liberalization and facilitation in the Asia and Pacific region by stimulating labor mobility and assuring labor quality.

2 Project overview

2.1 Introduction

For decades, job seekers of all levels have relied on qualifications to establish the credibility of their knowledge and skills to employers. In the context of increasing globalization and resulting freer movement of people and goods over the past two decades, economies and other entities have also tried to establish mutual recognition of qualifications across borders. The goal of these efforts is to make a qualification granted in one economy recognized in another. For this purpose, various entities, like industrial organizations, accreditation agencies, and governments, have adopted differing methods and paths to recognize varying levels and sectors of education and training, making recognition efforts heavily fragmented.

At present, in the region covered by the Asia-Pacific Economic Cooperation (APEC), there are a variety of approaches towards mutual recognition at a variety of achievement levels. Furthermore, each APEC member economy has its own perspective and agenda for this movement. For example, it is expected for industrialized economies to want a common set of quality standards applied to workers in the region to make it easier for its businesses to evaluate and hire potential employees from other economies. On the other hand, developing economies would see value in having qualifications attained locally be recognized internationally, thereby increasing the employability of their workers, either as local workers or as immigrants, in the international labor market.

In order to make viable recommendations for APEC and related economies and entities, the current research seeks to grasp the current state of the existing efforts that 1) mutually recognize qualifications or 2) build the capacity to do so. The efforts under the second category of capacity building may include those that build basis for such mutual recognition as well as ones that simply facilitate human resource development in the region. The researchers sought to evaluate these efforts in light of the various expected benefits of mutual recognition. In other words, the scope of the research was not limited to the increased mobility of workers but also included other benefits including the shift to outcome-based education, increased involvement of stakeholders, and bridging inequality among workers; all of which may contribute to APEC's goal to liberalize and facilitate trade and investment within and beyond the region.

Nevertheless, because of the aforementioned fragmentation of recognition efforts, it is very difficult to track mutual recognition agreements/arrangements (MRAs) signed between individual economy governments. Since APEC HRD is expected to review national efforts[1] in the region, the current research focuses more on regional efforts taken by international entities and a group of economies, rather than the efforts of individual economies.

APEC is facing a real test of the current global economic and geo-political climate. Doubts have been cast towards the ideal of free and open economic relations across borders, which APEC has made strenuous efforts to achieve in the past decades. Building on APEC's past work, the current research seeks to consider these circumstances and base our recommendations for APEC on the experiences of early adopters in the region, while reflecting on the lessons learned by global pioneers.

2.1.1 Background

Realizing liberalization and facilitation of trade and investment, an ambitious goal, has been one of the main missions of APEC ever since its establishment in 1989, followed by the first APEC economic leaders meeting (AELM) in 1993 and the endorsement of the Bogor Goals[2] in the following year. Even after 2010, when industrialized economies were tasked to have achieved the Bogor Goals, the various efforts are still underway.[3]

For example, in November 2014, during the 22nd AELM held in China, leaders of APEC economies endorsed the "APEC Connectivity Blue Print 2015-2025[4]", which builds on APEC's accomplishments towards Bogor Goals. In the blue print, the leaders emphasized the importance

of connectivity and acknowledged the achievements made by APEC and member economies, while identifying shortfalls in three fields: physical connectivity, institutional connectivity, and people-to-people connectivity. To improve people-to-people connectivity, APEC economic leaders agreed to "strive to facilitate the movement of people across borders, and to facilitate the exchange of innovative ideas" and to address issues of "business travel mobility, cross-border education, tourism facilitation, and skilled labor mobility". The Connectivity Blue Print mentions various efforts in benchmarking and mutually recognizing skills and credentials as playing "an important role in facilitating skilled labor mobility" and states that "APEC can undertake work to help expand the number of bilateral and multilateral" MRAs.

The Human Resources Development Ministerial Meeting (HRDMM)[5], also held in 2014 in Viet Nam, focused on "Promoting Quality Employment and Strengthening People-to-People Connectivity" as the main theme. In 2015, leaders of APEC economies endorsed the APEC Services Cooperation Framework[6], affirming the importance of "facilitating the mobility of service suppliers and business persons", while APEC Ministerial Meeting (AMM), held in the Philippines, issued a Joint Statement[7] welcoming the on-going efforts "to facilitate the mobility of skilled labor".

The APEC Business Advisory Council (ABAC) has also called for the encouragement of mutual recognition of skills and job qualifications in their recommendations to leaders[8]; the latest 2016 report[9], directly calls for APEC's support for "initiatives to facilitate the region-wide recognition of qualifications" as one of three initiatives for "easing the mobility of skilled workers".

2.1.2 Past HRDWG analysis and projects

The APEC Human Resources Development Working Group (HRDWG) was established in 1990 under one of the four committees reporting to APEC's Senior Officials' Meeting (SOM): the SOM Steering Committee on ECOTECH (SCE). APEC HRDWG's goal is to promote human resources development through initiatives on education, labor and capacity building, and it works through three corresponding networks: the Education Network (EDNET), the Labor and Social Protection Network (LSPN), and the Capacity Building Network (CBN)[10].

In its work plan for the year 2016, the HRDWG lists efforts "to advance human resource development competitiveness in the region…, to facilitate the mobility of skilled labor and professionals, and to ensure the quality of skills and competencies…" There, the working group's various efforts related to mutual recognition of skills and job qualifications are also listed, including the current project.[11]

Though HRDWG has delegated reviews of the existing efforts in the past, these studies have been focused mainly on National Qualification Frameworks (NQFs), and there is no substantial information regarding the current state of MRAs in place.

For instance, in 2009, under the direction of HRDWG, scholars from Australia's Monash University[12], University of Melbourne[13] and Victorian Registration and Qualifications Authority (VRQA) conducted a review of NQFs in the APEC economies.[14] The research made recommendations for HRDWG and APEC economies to analyze and communicate about NQFs and to propose a regional framework. Regardless of this focus on NQFs and a possible Regional Qualifications Framework (RQF), it also explored alternative approaches and pointed out that other models of qualifications are prevalent in some APEC economies. The study particularly mentioned the United States, where private efforts through industrial and collegial credentials function as primary qualification systems for workers, as an example demonstrating a possibility of achieving many of NQFs desired benefits without establishing one.

In 2010, HRDWG delegated another study to scholars from the Central Institute of Vocational and Technical Education of China and others from the Philippines[15]. Through consultations with stakeholders and questionnaires distributed to representatives from APEC economies, the researchers analyzed the similarity and differences between NQFs in place at the time. The researchers also explored the possibility of establishing an RQF in the region but concluded that

it was too early, mentioning the lack of required conditions such as common legal and cultural foundation, established institutions capable of managing the RQF, and common momentum to develop RQF, as well as necessary funding for the establishment and maintenance of the RQF.

Though APEC HRDWG has not published any review and analysis of NQFs since the last two reviews[16], it has supported various projects establishing the base for mutual recognition of skills and job qualification in the region. These include: "Skills Mapping Across APEC Economies (Australia); "Strengthening Mobility and Promoting Regional Integration of Professional Engineers (Chinese Taipei)"; "Integrated Referencing Framework for Skills Recognition and Mobility (Australia)". The latest of all is the efforts around "APEC Occupational Standards Framework", has been tested in the transport and logistics and travel, tourism and hospitality industry sectors across APEC, led by Australia and Peru (See sections 3.3 and 3.4 for more details).

Furthermore, in May 2016, representatives attending HRDWG's annual plenary meeting in Peru adopted the HRDWG Annual Work Plan 2016.[17] The work plan lists various actions related to the mutual recognition of skills and job certification, including the current study under the section defined as follows:

> "1.5. Continue voluntary efforts to advance human resource development competitiveness in the region in accordance with domestic circumstances, to facilitate the mobility of skilled labor and professionals, and to ensure the quality of skills and competencies that meet the supply chain demands of the region."

Some of these past and on-going efforts are further analyzed in the later section of this report.

2.2   Research framework

2.2.1   Literature and interview research

From January 2017 through April 2017, the project team conducted a thorough review of available literature on the latest status of MRAs of skills and job qualifications among APEC economies. They also researched about capacity building efforts to foster such MRAs and facilitate human resource development in the region. Background literature research was conducted on global definitions of qualifications systems and mutual recognition, the history and current status of qualifications frameworks and MRAs, expected benefits and European experiences with mutual recognition.

In tandem with the literature research, the project team conducted expert interviews to obtain additional information and insights specific to particular case studies (see Section 2.2.2 Case Studies below) and research areas. For example, interview findings supported literature research on the ways that the regional efforts to mutually recognize qualifications across borders have been reflected in domestic policies and regulations in participating APEC economies. For this purpose, experts from 10 economies were consulted for their insights (see figure below).

Figure 1: Economies with Experts Interviewed in the Current Research

Japan

Chinese Taipei

The United States

Viet Nam*

The Philippines

Thailand

Malaysia

Peru

Australia

New Zealand

■ APEC Economies

* Viet Nam is represented by a workshop speaker.
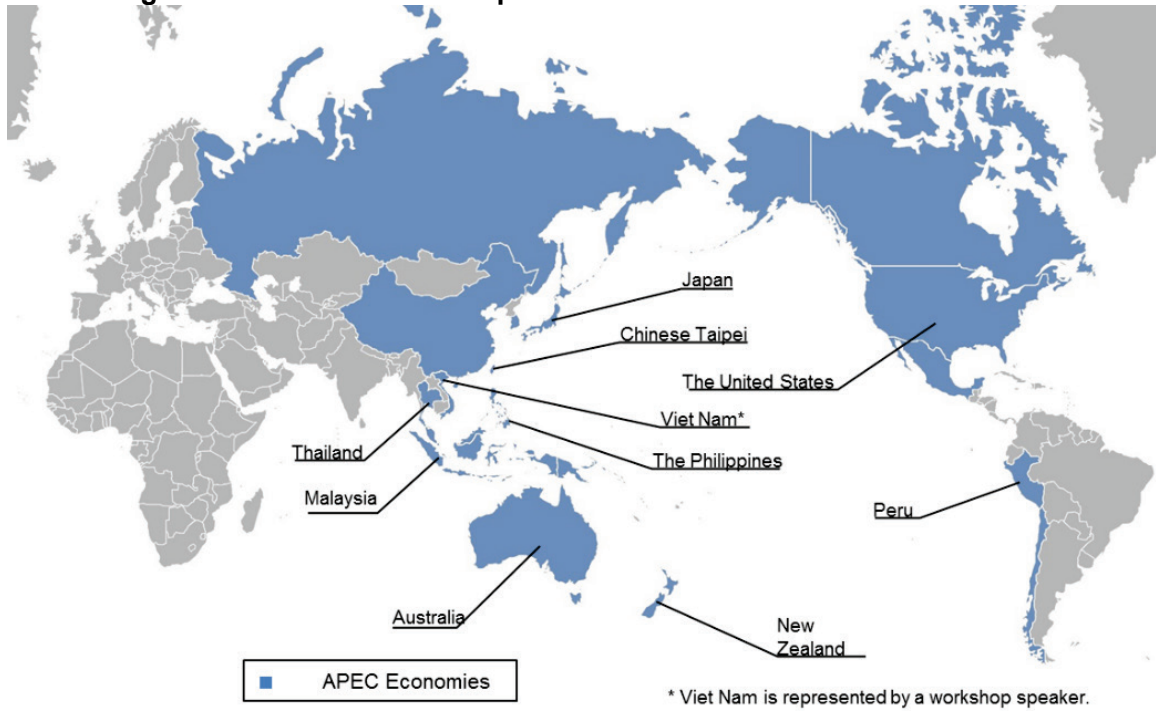
The table below provides a list of expert interviews conducted during the research, covering all of the case study initiatives.

Table 1: List of Interviews Conducted

Date	Economy	Organization	Topic Case[18]							
			A	B	C	D	E	F	G	H
3/16	Australia	Australian Government Department of Education and Training						○		
3/22		Accreditation Board for Engineering and Technology (ABET)						○		
3/17	The United States	ILO Regional Office for Asia and the Pacific				○				
3/22	Thailand	Ernst and Young (EY)		○			○			
3/24	Peru	(former staff) New Zealand Qualifications Authority (NZQA)							○	
3/30	New Zealand	Private Consulting Firm with past experience in supporting TVET and MRAs						○		
3/31	Australia	Japan Accreditation Board for Engineering Education (JABEE)				○				
3/31	Japan	The Institution of Professional Engineers, Japan (IPEJ)	○							
4/7	Japan	Nissan Learning Center								○
4/11	Japan	Information-technology Promotion Agency, Japan (IPA)			○					
4/11	Japan	Workforce Development Agency (WDA), Ministry of Labor	○							
4/13	Chinese Taipei[19]	General Chamber of Commerce of the R.O.C.	○							
		National Taipei University of Technology (NTUT)	○	○						
4/14	Malaysia	Malaysian Qualifications Agency (MQA)					○			
4/14	Japan	Research Institute of Economy, Trade and Industry (RIETI)					○			
4/19	The Philippines	Professional Regulatory Board of Architecture (PRBoA)		○						
		Number of Interviewees per topic	4	3	1	2	3	3	1	1

2.2.2   Case Studies

Through literature research, the following eight initiatives that encourage mutual recognition and build capacity in the APEC region were identified. For each initiative, the role and goals of a single participating economy were considered for insights on best practices at the economy level. Research for each case profile included both literature review and expert interviews as described in Section 2.2.1 of this report.

The case profiles and their associated economies are:

<Mutual Recognition Efforts>
1. APEC Engineer [Japan]
2. ASEAN MRA on Architectural Services [The Philippines]
3. IT Common Examination [Japan]
4. Washington Accord [Japan & the United States]
5. ASEAN Qualifications Reference Framework [Malaysia]

<Capacity Building>
6. APEC Occupational Standards Framework [Australia]
7. Pacific Alliance [Mexico]
8. Thailand Automotive Human Resource Development Project [Japan & Thailand]

Case Study criteria for selection

Cases in mutual recognition and capacity building efforts that represented best practices were selected based on their measurable achievements and implications for the global community within and beyond APEC. The individual case profiles are presented in this report in Section 6, Appendix A – Case Studies.

Fifteen initiatives were initially assessed regarding the quantitative data available about each initiative and their progress in implementation. The data studied included:

*   Number of years in existence
*   Number of APEC economies involved
*   Number of non-APEC economies involved
*   Number of industries studied involved from the five focus industries for this research (Manufacturing, Civil engineering, Automotive, ICT and Service industries)
*   (Only for Mutual Recognition) Number of professionals certified/ registered
*   (Only for Capacity Building: Basis for Mutual Recognition) Number of reports published
*   (Only for Capacity Building: Basis for Mutual Recognition) Number of workshops/events/conferences held
*   Number of mentions by international organizations

This data was converted into relative scores to calculate a total score for each initiative, and the top eight initiatives were selected as representative of best practices. This ensured that the selected initiatives represented best practices in multiple areas, and that they could present a good mix of participating economies that were well-distributed both geographically and economically. Each of the focus industry is covered by at least one initiative. Furthermore, while most of the initiatives are led by the public sector, the case profiles include some initiatives that are being led by the private sector.

Selected mutual recognition efforts include both sector-focused MRAs and comprehensive NQFs-based RQFs, representing both approaches to mutual recognition. The MRAs either provide universal qualifications that can be recognized between participating economies with bilateral MRAs (i.e. the "IT Common Examination"), while others are more flexible arrangements that encourage future negotiations of additional bilateral MRAs that would allow economies to actually recognize qualifications attained in other geographical locations.[20] The "ASEAN Mutual Recognition Agreements (MRAs)" initiative profile is an exception, as domestic policies affect whether a qualification is recognized and vary depending on the degree of regulation for the industry (e.g. medicine versus tourism).[21]

2.2.3 Workshop

On May 13, 2017, the APEC Human Resources Development Working Group (HRDWG) held a half-day workshop to better understand the importance and benefit of mutual recognition of skills and job qualifications. Project researchers presented an overview of current initiatives among APEC member economies. Speakers from several APEC economies presented on their experiences with implementing initiatives that support cross-border labor mobility and skills development. Following the presentations, there was a Q&A session in which the panel addressed questions submitted in advance by workshop attendees. The purpose of this workshop is listed below:

- To understand the importance and benefit of mutual recognition of skills and job qualifications.
- To provide organizers/administrators of studied cases with opportunities to present their efforts and achievements and to share best practices.
- To foster discussions among speakers and participants, including those from economies not covered in the current study, to encourage exchange of information and perspectives.

The workshop agenda is listed below:

Table 2: Contents of the Workshop

#	Activity	Main Speaker/Discussants
1	Opening Session 1. Remarks from Project Overseer 2. Remarks from CBN Coordinator	1. APEC Office, Ministry of Economy, Trade and Industry (METI) [Japan] 2. Mr Meng-Liang Tsai, Deputy Director General, Workforce Development Agency, Ministry of Labor [Chinese Taipei]
2	Research Presentation "How far have we come? A big-picture view of current initiatives & best practices"	Washington CORE
3	Speaker Presentations 1. MRAs, Engineering Mobility, the Australian Experience 2. Chinese Taipei's Occupational Competency Standards (OSC): Concurrent and Outlook 3. Promoting MRAs in ASEAN: Experiences of Viet Nam 4. IT Engineers Examination - A model case of enhancing skill recognition and capacity building for IT professionals in ASEAN region	1. Mr Glen Crawley, Registrar, Professional Standards, Engineers Australia [Australia] 2. Professor Jen-Chia (Richard) Chang, National Taipei University of Technology [Chinese Taipei] 3. Ms Nguyen Minh Thao, Director of Business Environment and Competitiveness Dept., Central Institute for Economic Management (CIEM) [Viet Nam] 4. Mr Kenji Ogawa, VP of IT HRD-HQ, Information-technology Promotion Agency (IPA) [Japan]
4	Coffee Break	---
5	Q&A Panel Discussion	Above speakers Moderator: Washington CORE
6	Final Thoughts	Washington CORE

At the workshop, the research team sought to report the result of its research and foster constructive discussions among participants. In addition, the research team also conducted a survey of the workshop attendees to seek feedback on the workshop as well as further information and insights for the report contents.

The findings from the workshop are included in this report in Appendix B – Workshop Summary.

2.2.1 Workshop Outputs Consolidation, Supplemental Studies and Report Finalization

The contents of the discussions in the workshop were combined with the literature and interview research to develop recommendations for the possible enhancement of mutual recognition and regional cooperation around skills and job recognition in the APEC region.

3 Current Status of Mutual Recognition and Capacity Building

3.1 Global Definition of Qualifications Systems and Mutual Recognition

Workers in many economies have long proved their knowledge and skills to their potential employers, using **qualifications**, as defined by "formal certificate(s) issued by official agenc(ies), in recognition that individual(s) ha(ve) been assessed as achieving learning outcomes or competencies to the standard(s) specified for the qualification title(s).[22]" The whole system of recognized learning within an economy can be broadly defined as a **qualifications system**, regardless of whether there is an explicit framework or not, and whether the qualifications are issued by a single governmental agency, multiple industry organizations, and/or educational institutions.

A national qualification system is typically composed of a structure for **quality assurance** and a **qualifications framework**. Quality assurance ensures that individuals with qualifications meet the required standards, sometimes explicitly defined as **occupational standards**[23] for some occupations, and it is integrated into the education and training system of an economy in the form of "planned and systematic processes that provide confidence in the design, delivery and award of qualifications[24]". On the other hand, a qualifications framework is defined as "an instrument for the development and classification of qualifications (e.g. at national or sectoral level) according to a set of criteria (e.g. using descriptors) applicable to specified levels of learning outcomes[25]". An economy's structure for quality assurance and its qualifications framework are often closely linked to form a functional qualification system.

Figure 2 Qualification System with Quality Assurance and Qualifications Framework
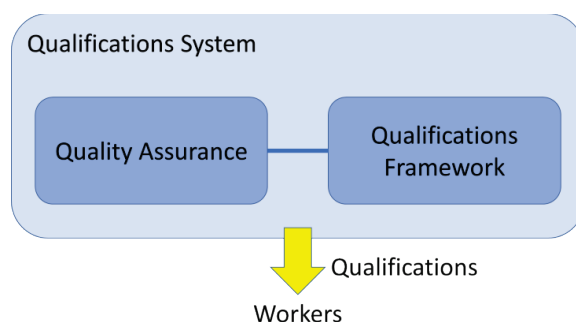
Source: Washington CORE

A qualifications framework coordinated within an economy could be defined as a **National Qualifications Framework (NQF)**. An NQF could be designed in various forms; for instance, it may either include all or only certain levels of education/training (comprehensive vs partial/sectoral); come with policies controlling the quality of qualifications or only communicate general levels of existing qualifications (regulatory <tight> vs communicative <loose>); or require included qualifications to meet certain quality principles or not (restrictive vs inclusive)[26]. Table 4 summarizes the differences and associated advantages.

Table 3: Various Designs of NQFs

Main advantages	Design characteristic from...to		Main advantages
Coherence across qualifications Genuine national system	inclusive of all qualifications	partial coverage of qualifications	Implementation easier Piloting possible Staged development strategy
System wide reform possible Linkage with other national policies	designed and managed by central agency	organic development by stakeholders	Encourages harmonisation Stakeholder buy-in Allows regional development
Policy coordination Quality assurance	regulatory framework for assuring quality	classification of all qualifications	Communication with stakeholders
Powerful authority for framework Sanctions for non compliance	legal basis	voluntary basis	Ownwership secured Stakeholders work together
Builds on existing learning infrastructure	descriptors composed of learning inputs	descriptors composed of learning outputs	Independent of institutional structure Linkage with external frameworks
Relevance across all parts of education and training possible Linkage with external frameworks	level defined by descriptor	level defined by national reference qualifications	Builds on existing infrastructure Confidence in new framework higher
Close relationship to labour market Linkage better between education and work	qualifications based on competency standards	qualifications based on units of learning or achievement	Continues traditions of skills supply Builds on existing infrastructure

Source: ETF report (2005)[27]

Furthermore, there have been attempts to recognize qualifications systems (and/or associated quality assurance or qualifications frameworks) across borders, thereby, ultimately, making it possible for a professional with a qualification in one economy to be recognized to have the same level of learning in another[28]. This could be done through **mutual recognition agreements/arrangements (MRAs)**, "a memorandum of understanding" that establishes substantial equivalence across existing qualifications systems. MRAs could be signed between various entities, including governments, industry/accrediting organizations, and/or educational institutions. Another way to accomplish this goal is to form **Regional Qualifications**

Frameworks (RQFs), to which each member economy reference its own qualifications levels (often, NQFs).

It is critical to note that, because of differing purposes and goals, NQFs and RQFs have essentially distinct characteristics. While NQFs seek to be "a benchmark for the level of learning recognized in the national qualification system" of a given economy, RQF simply provides "a translation device to enable comparisons of levels of qualifications…across member (economies)".

Additionally, there have been attempts to establish common structures of quality assurance among economies. These efforts are often taken on by education providers, such as educational institutions engaged in technical and vocational education and training (TVET).

For the purpose of the current study, both MRAs and RQFs will be considered as 1) efforts to mutually recognize skills and job qualifications, while efforts around quality assurance will be classified as 2) capacity building efforts.

3.2 Global Background of National and International Qualifications Systems

In the past three decades or so, there have been collective movements of stakeholders in various economies reaching out to each other to recognize qualifications granted in other economies. As described in section 3.1, this may be done through MRAs or RQFs. As shown in previous HRDWG studies[29], MRAs are preferred by economies like the United States, where explicit NQFs do not exist and qualifications are granted through academic bodies and industry organizations. However, one can see an advanced example of RQFs in Europe, where NQFs have been long established.

3.2.1 Current State and Patterns of MRAs

Regarding MRAs, in addition to bilateral and trilateral efforts between individual economies, there have been some multilateral (or regional) efforts to encourage negotiation and signing of MRAs. These efforts are often focused on specific industrial sectors. For example, in engineering fields, related to four of the focus industries of the current research: **manufacturing**, **civil engineering**, **automotive**, and **ICT** industries, one of the most prominent examples is Washington Accord, originally signed in 1989 by representatives from six economies: Australia, Canada, Ireland, New Zealand, the United Kingdom and the United States[30]. Each signatory organization of the accord accredited educational institutions for engineering programs in their own economies and recognized the degrees from accredited institutions in other signatory economies. To date, representatives from 18 economies have signed the Washington Accord[31], and similar accords were signed for educational programs for other professionals, including engineering technologists (Sydney Accord)[32], engineering technicians (Dublin Accord)[33] and computing and ICT-related professionals (Seoul Accord)[34]. Some **service** sectors with national licenses, like medicine and law, have seen limited international collaborations, but these efforts remain at an early stage,[35] possibly because these licenses are often closely monitored and regulated by each economy's government.

Similar types of agreements can be used to also recognize, or reduce requirements to recognize, professional qualifications across borders, not just academic degrees. For example, the International Engineering Alliance[36], an association of national professional organizations for engineers that oversees three of the above-mentioned accords (Washington, Sydney, and Dublin), also manages three associated agreements for engineers (International Professional Engineers Agreement: IPEA), engineering technologists (International Engineering Technologists Agreement: IETA) and engineering technicians (Agreement for International Engineering Technicians: AIET). Similar agreements can be seen between professional organizations of **service** sectors. For instance, the United States' National Association of State Boards of Accountancy (NASBA) forms the International Qualifications Appraisal Board (IQAB) that has

established MRAs with its counterparts in economies like Australia; Canada; Hong Kong, China; Ireland; Mexico; and New Zealand[37].

3.2.2   Brief History and Current State of Qualifications Frameworks

Evidence of the qualifications framework concept began to emerge in the mid-1980s to early 1990s[38]. Furthermore, in 1985, the European Centre for the development of vocational training (CEDEFOP)[39] built the framework for vocational qualifications[40], building on past attempts to build comparable qualifications by economies like France[41]. The framework was initiated partially as a way to cope with a rise in labor mobility in the European Union expected by CEDEFOP. Unfortunately, this five-level qualification framework did not gain traction due to little interest from member economies and industries. Some point out that this qualifications framework's focus on vocational education, excluding other forms of education, caused employers to view the framework in terms of its impact on qualifications for less qualified workers, making those with the qualifications less attractive than those with formal education (i.e. college degrees). Hence, the qualification provided little value for both workers and employers in the labor market at both regional and national levels[42].

Later in the mid-1990s, however, economies and international organizations took a renewed interest in the development of NQFs that include all types of education and training. Governments hoped that, "by accrediting all types of learning wherever it took place and whatever the age of the learner[43]", the establishment of NQFs would encourage workers to engage in lifelong learning on their own without government assistance.

This motive for developing NQFs later evolved in the early 2000s. In developed economies, like the United Kingdom, governments saw opportunities in "encouraging learning among low achievers[44]", who do not advance beyond secondary education, through NQFs. This is when some economies established credit-based frameworks, where learners can accumulate credits from various channels of learning, including informal education, to earn the same qualifications. On the other hand, especially in developing economies with historic social inequality, like South Africa, development of NQFs has been seen as a tool to mitigate the effect of such historic inequality in today's labor market.

By the year 2005, most of the major international organizations[45] had projects on NQFs, while economies with their own NQFs were engaging other economies, fueling the international movement to establish qualifications frameworks[46]. The economies leading the way at the time included the United Kingdom, Ireland, and South Africa, as well as two APEC economies: Australia and New Zealand. A current inventory of global efforts finds as many as 150 economies (three in four economies in the world) establishing NQFs and lists seven regional qualification frameworks (RQFs) in the table below [47].

Table 4: Established RQFs around the globe

Name of RQFs	APEC Economies		Region if not APEC
	#	Name	
Association of Southeast Asian Nations (ASEAN) Framework Arrangement	7	ASEAN economies	10 ASEAN economies
Caribbean Qualifications Framework	0		15 economies in Caribbean Community (CARICOM)
European Qualifications Framework	0		38 European economies
Gulf Qualifications Framework	0		Six Middle Eastern Economies in Gulf Cooperation Council (GCC)
Pacific Qualifications Framework	1	Papua New Guinea	22 Pacific Island economies and territories
Southern African Development Community (SADC) Qualifications Framework	0		15 SADC economies

Name of RQFs	APEC Economies		Region if not APEC
	#	Name	
Transnational Qualifications Framework for the Virtual University of Small States of the Commonwealth	2	Brunei Darussalam, Papua New Guinea	32 economies in the Commonwealth of Nations[48]

Source: Global Inventory of Regional and National Qualifications Frameworks[49]

3.2.3 "Expected" Benefits of RQFs

In establishing NQFs or mutually recognizing them through RQFs, governments and related organizations sought to justify the actions with expected benefit of these frameworks. Nevertheless, it is important to note that many of these "expected" effects are yet to be proven with evidence since many NQFs and RQFs are in either development or implementation phases.

For example, by connecting NQFs, typical RQFs have sought to[50]:

- "deepen integration and harmonisation;
- create a common identity;
- facilitate:
  - transparency of multiple complex systems;
  - mobility of workers and students;
  - recognition and credit transfer; and
- support economic imperatives such as removal of barriers to trade."

Also, although it is possible for an economy to reference its qualification system with a regional framework without an NQF[51], it is likely that the establishment of RQF encourages economies without NQFs to establish one. Therefore, benefits expected from the establishment of NQFs can be indirectly catalyzed within economies that fall within the coverage of RQFs to be established.

Nevertheless, in relation to the labor mobility, Michael Young of University of London, writing for the International Labour Organization (ILO), pointed out that there is a big interest from developing economies to have qualifications in their economies to be recognized internationally[52]. Young warns that current evidence of the possible effects of international recognition of NQFs may be limited to developed economies, and it is important for economies to learn from these previous examples. Young expects that the effects and benefits of NQFs to be "far less dramatic than the hype".

3.2.4 European Experience

To see the possible results and outcomes of these qualification frameworks, one can look to Europe, a global pioneer in establishing a regional qualification framework linked to NQFs. There, conceptualization of qualification frameworks emerged in the 1980s and the region's RQF, European Qualifications Framework (EQF), was adopted in 2008. During the time, each member economy, led by Ireland, France, and the United Kingdom, worked to establish its own NQF and to link these frameworks to EQF. Regional organizations and entities, like CEDEFOP, systematically monitored and provided technical support, as requested, to governments seeking to develop their own NQFs. According to the analysis of NQFs in the region[53] published by CEDEFOP in 2015, EQF has 38 economies participating with 42 NQFs, of which 29 NQFs have been formally adopted, 18 economies have reached the operational stage, and seven economies had NQFs in full operation.

According to CEDEFOP's analysis, out of the various benefits and effects of EQF and NQFs initially expected, immediate effects were seen in the attitude towards policies on education and training; more stakeholders and policy-makers are emphasizing more on learning-outcomes than before. With overarching frameworks, like EQF and individual NQFs, this movement towards learning-outcomes is better organized and accelerated, compared to fragmented efforts taken by various stakeholders before the adoption of such frameworks. Similarly, the existence of national and regional frameworks has helped involved stakeholders to cooperate across institutional borders, among educational institutions and between academia and industry.

On the other hand, some expected effects of NQFs and EQF are still not evident. For example, there is no evidence that the adoption of EQF as well as the increasing number of NQFs linked to it has increased the mobility of labor between European economies. CEDEFOP explains that it is due to many NQFs being yet to being operational. Furthermore, one still cannot see the measurable evidence of the expected benefit that the adoption of NQFs will contribute to equality among workers possessing skills and knowledge gained through varying channels, by accrediting non-formal and informal learning. This is due to the structure of many NQFs that only provide loose connections between sector/institution specific qualification frameworks, which often only recognize formal education.

3.3   Mutual Recognition in the APEC Region

As described in previous sections, stakeholders from some of the APEC economies have been participating in various global initiatives to encourage MRAs, such as **Washington Accord** and others (Sydney, Dublin, and Seoul Accords) as well as their associated agreements. Furthermore, **APEC Engineer** program[54] provides a mechanism to support engineers qualified in one member economy to be qualified in other member economies with minimum additional requirements, facilitating industries like manufacturing. APEC agreements' standards are the same as those of its international counterpart: IPEA. Additionally, economies in the APEC region formed **APEC Architect**[55], an initiative to encourage MRAs in civil engineering field, which is not explicitly mentioned in the previously mentioned global efforts.

In ICT sector, large companies (e.g. Cisco) and industry organizations (e.g. CompTIA) in the United States have established some global standards for professionals. Regionally, this trend is also seen from Japan where its quasi-governmental organization, the Information-technology Promotion Agency (IPA), operates **Information Technology Common Examination**, recognized in eight Asia-and-Pacific economies (including five APEC economies)[56].

The Association of Southeast Asian Nations (ASEAN) is another regional block within APEC that seeks economic integration, and it formed **ASEAN Mutual Recognition Agreements (MRAs)**, a set of frameworks that encourage member economies to recognize qualifications of professionals who are certified in other economies, specialized in service sectors[57]. In addition to these regional MRAs, with assistance from Australia and New Zealand, the economic block has also developed **ASEAN Qualifications Reference Framework (AQRF)**, which facilitates the implementation of ASEAN MRAs. As shown in Table 4 in the section 3.2.2, this is the only RQF currently established with a group of APEC economies participating[58], which comprehensively covers all kinds of industries. Malaysia and the Philippines expect to complete referencing their NQFs with the AQRF by the end of 2017.[59] Two other economies, Indonesia and Thailand, are planning to implement partial referencing to the AQRF in 2018.[60]

In regards to RQFs other than aforementioned AQRF, some economies are working on establishing their own NQFs to, in part, facilitate the regional integration. Nevertheless, none of the APEC economies with NQFs were found having referenced their NQFs to any RQFs as of the year 2014, according to United Nations Educational, Scientific and Cultural Organization (UNESCO) Institute for Lifelong Learning (UIL)'s case studies of 11 such APEC economies along with 75 other economies around the globe[61]. For the development of NQFs in the APEC region, Oceania and Southeast Asia have been pioneers, later followed by East Asian economies, while economies in the Americas have been relatively reluctant to establish NQFs, though some efforts have recently been documented. At the time of 2009 research delegated by APEC HRDWG, out of 21 economies in five regions that are members of APEC, only a third (seven economies in three regions) had NQFs and none of them were linked to other frameworks, including regional frameworks[62]. The authors of the 2010 report, through a survey of experts from 11 APEC economies, identified nine economies (including four identified in 2009 study and five newly added) having NQFs[63]. Two studies combined, 12 economies in three regions (close to 60% of all APEC member economies) are listed in at least one of the studies as having established NQFs (See the following table).

Table 5: APEC economies with NQFs 2009-2010

#	Name	Region	HRDWB 2009	HRDWG 2010
1	Australia	Oceania	○	N/A
2	New Zealand		○	○
3	Papua New Guinea		×	N/A
4	Brunei Darussalam	Southeast Asia	△	N/A
5	Indonesia		×	○
6	Malaysia		○	○
7	The Philippines		○	○
8	Singapore		○	N/A
9	Thailand		○	N/A
10	Viet Nam		×	N/A
11	People's Republic of China	East Asia	×	○
12	Chinese Taipei		×	○
13	Hong Kong, China		○	○
14	Japan		×	×
15	Republic of Korea		△	○
16	Russia		△	N/A
17	Chile	South America	△	N/A
18	Peru		×	N/A
19	Canada	North America	△	×
20	Mexico		△	N/A
21	The United States		×	×
	Number of Economies		7	9

* ○=established NQFs; △=considering NQFs; ×=neither established or considered NQFs
Source: Washington CORE based on 2009 & 2010 APEC HRDWG reports[64]

3.4 Capacity Building in the APEC Region

At the regional level, APEC economies, through the APEC HRDWG, have engaged in various capacity building activities to facilitate efforts to mutually recognize qualifications across borders. Arguably, the Australian government has been the most active, initiating several efforts such as the **Skills Mapping Project**[65] in which labor statistics from each member economy is gathered in a web portal in order to make it easier to compare data on labor shortages among the economies. The business community, including ABAC, appreciates the effort and repeatedly requests member economies to contribute more data to the incomplete portal[66]. Chinese Taipei is another economy that is active in organizing information through establishment of web portals regarding skills and jobs – its "i-Cloud" manpower databank[67] contains data on certified "APEC engineers", and **APEC Career and Technical Education (CTE) and Licensing Portal[68]** aims to provide students, educational administrators, and potential employers with information on vocational and technical education standards and related qualifications.

These efforts to organize and exchange information on labor mobility have been succeeded by a recent APEC initiative to foster greater regional cooperation on labour mobility issues, including mutual recognition of qualifications and skills. The initiative, led by Australia, seeks to develop an APEC Labour Mobility Framework (ALMF)[69] through the APEC HRDWG. Initially noted by APEC Senior Officials in 2016, the initiative aims to create a framework where officials from APEC economies can exchange knowledge and best practices to encourage policies that are responsive to current and future needs of the APEC labor markets. According to the final draft of the framework, circulated through APEC HRDWG in November 2017, the framework will focus

on three areas of regional cooperation: 1) Data collection and building the evidence base, 2) Fostering an enabling environment, and 3) Addressing high labor mobility costs and regulatory complexity. The second area would include the "exchange of best practices and approaches to the harmonization of qualification, skills recognition and professional registration".

Other initiatives aim to facilitate quality assurance of qualifications in the region. For instance, also led by Australia, **APEC HRDWG project on transport and logistics** sector established occupational standards for five occupations in the sector[70]. Building on this success, Australia launched the "Integrated Referencing Framework for Skills Recognition and Mobility[71]" project which resulted in the drafting of the **APEC Occupational Standards Framework**, a set of protocols used when developing a regional occupational standard that lists set of skills needed for a given occupation. The framework was tested for some service sectors, namely travel, tourism and hospitality (tourism) industry in five economies, in a subsequent project[72] that was co-led by Australia and Peru[73].

At the economy level, although APEC economies with NQFs were found not having referenced their NQFs with either regional or other national frameworks, many of them showed individual capacity building collaborations with other economies and regions aiming to foster such referencing[74]. For example, New Zealand was most proactive, referencing its qualifications framework with Australia; Hong Kong, China; and potentially China. Within the APEC region, ASEAN members were working towards establishing a common framework through ASEAN, while working with Australia and New Zealand on capacity building projects through **ASEAN-Australia-New Zealand Free Trade Agreement Economic Cooperation Work Programme (AANZFTA ECWP)**. Additionally, going beyond the APEC region, Australia; Hong Kong, China; Mexico; New Zealand; and Russia; respectively had held dialogues with the European Union's EQF.

In addition, Central and South American economies of Chile; Mexico; and Peru; along with non-APEC economy of Colombia, has formed the **Pacific Alliance**, which aspires to form a stronger regional economic partnership like ASEAN does. Currently, the block does not mutually recognize skills and job qualifications. However, its attempt in increasing the movement of people for business and education is well documented[75], and mutual recognition of qualifications are discussed and recommended in related fora[76].

Finally, various global private enterprises have initiated their efforts in developing local human resources where they source talents. These efforts are generally aimed to improve the quality of the workforce in the region and, thus, sometimes contributes to the development of standards and qualifications for highly skilled professionals. For example, companies, like **Chevron**, **Microsoft**, and **Nissan**, have partnered with local government agencies, educators, and charity organization[77]s in APEC economies where they source their workforce to establish educational and training programs[78]. Nissan's efforts are especially noteworthy in that it has helped some APEC economies establish its own qualification systems and offered learning opportunities for professionals in the region to be trained in the company's core facilities in Japan, along with professionals from other parts of the world.

4   Findings

The research findings for this project encompass several key themes:

- **MRAs provide significant regional benefits in various forms, though not yet in physical mobility of workers**:
  MRAs are providing numerous benefits to the APEC region, such as increasing the quality of workers by promoting qualification systems and monitoring organizations. These efforts also help international employers to identify and recruit skilled local employees in other economies by applying mutually recognized qualifications to verify skills and experiences of potential employees. While many of the ongoing and recent MRA programs studied in the current research have not yet led to significant worker mobility, the benefits to workers and employers are expected to further accrue as new MRAs and multi-economy recognition efforts within the region are adopted.

- **There is a need to develop stakeholder awareness of and support for MRAs and other recognition efforts by emphasizing the benefits realized so far**:
  While the primary focus of MRAs to date has been on supporting the physical mobility of workers, emphasizing other benefits of the agreements, such as those listed in the above paragraph, can help economies to build stakeholder awareness of and support for future MRAs and other recognition efforts. With recent advancements in technology and business practices in mind, APEC economies should consider various ways to support cross-border business activities through the mutual recognition of qualifications, including not only by fostering the physical mobility of workers but also by contributing to capacity building in the human resource development (HRD) field.

- **Close and efficient collaboration among stakeholders is key to successful initiatives**:
  Some of the key best practices that were identified in interviews include 1) involving a wide range of stakeholders in project consultations (not only internationally but also domestically, including multiple governmental departments/ministries, regulatory bodies, employer organizations, professional organizations, educational and training institutions, academic institutions, and skills training organizations), 2) building support for close collaboration among stakeholders through tools such as site visits and regular meetings or consultation, 3) devoting sufficient long term resources and time to initiatives, and 4) approaching capacity building and MRAs with an open mind and an adaptive approach to consensus-building.

4.1   Common challenges

Economies face several common challenges in implementing initiatives for mutual recognition of skills and job qualifications. As expected, several initiatives noted that significant national or regional differences in standards and processes/definitions were a key challenge. In addition, with a few exceptions, regional efforts can often advance only as fast as the slowest member to implement agreements, which can lead to frustration over slow timetables or perceptions that some stakeholders are being overly protective.

Especially when implementation is resource-intensive, developing economies may lack the capacity to keep pace with others.[79] Some economies may not even have equivalent institutions for recognition of qualifications, which can impact an economy's ability to reference standards or implement agreements.[80] The cost of qualifications benchmarking can also be an impediment to implementation.[81]

Many of the common challenges that economies have faced in their efforts to establish MRAs result from differences in economies' priorities and capacity to implement agreements. For example, economies across the APEC region follow different methods to recognize foreign qualifications, and as MRAs don't mandate recognition, the result can be uneven recognition of

qualifications amongst the member economies. In the same way, the variation in member economies' levels of development can affect how quickly mutual recognition is implemented and when professional service providers in each economy are allowed to provide cross-border services.

Encouraging the free movement of workers is also sometimes a sensitive domestic topic in many economies, and building MRAs must therefore recognize the balance between international agreements and domestic stakeholders' concerns. [82] In particular, the economies participating in MRAs for skills and job qualifications maintain their individual authority over whether to permit qualified workers to work within their borders.[83] Therefore, if a host economy sets prohibitively strict or selective immigration policies for incoming workers, then workers with mutually recognized qualifications will not be able to use their qualifications in that host economy.

Furthermore, in facilitating the physical mobility of workers, the interviewees pointed out that many professionals, even after obtaining mutually recognized qualifications, do not take advantage of MRAs to actually work overseas.[84] In many cases, this is causing professionals to not renew such qualifications or not trying to obtain one to begin with, leading to the slow growth in number of professionals with mutually recognized qualifications. There are various reasons that could be leading to these professionals' decisions not to obtain or renew a qualification. For example, one interviewed expert mentioned that some occupations do not necessarily require qualifications to practice in a given economy, as long as the foreign workers have locally qualified colleagues performing the restricted acts (e.g. an architect working in a foreign economy as an employee of an international corporation with locally sourced architects).[85] According to the expert, in other occupations in which qualifications are necessary (e.g. nursing), the absence of linkages between MRAs and immigration policies of host economies is a major barrier. For this reason, some interviewees mentioned that the lack of incentives should be addressed in the form of preferential immigration treatment and other benefits.[86] Others also mentioned the lack of information about domestic regulations in each economy for international professionals as major challenge to be addressed.[87] In addition, there should also be circularity in mutual recognition, so that qualifications or career accreditation earned by workers abroad will also apply in their home economies.[88] There is also the risk that internationally recognized arrangements can become captive to vested interests in each economy, in situations where some professionals might gain qualifications to join a select circle that guarantees them high incomes across the region, but then excludes other professionals from opportunities.[89]

Transparency in managing programs for qualifications and accreditation is also key in order to encourage best practices and prevent corruption.[90] In general, to truly facilitate the physical mobility of workers, economies should be mindful of opportunities to reduce barriers through reforms of their domestic regulations, for instance, in immigration. For these reasons, extensive planning, flexibility, and patience are necessary virtues for all stakeholders.

4.2 Best practices

Extensive planning, resources, consultation amongst stakeholders, and flexibility are all important ingredients to successful MRAs and capacity building initiatives. Referencing qualifications can be a long and gradual process, so it is critical to be realistic in estimating time and resource needs, as well as the timeframe for achieving milestones.[91]

Achievable Objectives

Participating economies should closely collaborate to ensure realistic mutually acceptable targets for labor mobility and to pursue mutually acceptable parameters to achieve them.[92] In some cases setting realistic expectations may require beginning with a more limited set of goals that are more easily achievable in order to score some early successes and build momentum. For example, the approach taken by the APEC Occupational Standards Framework (OSF) committee was to focus on defining job roles and their comparability across economies, rather than trying to immediately accomplish the far more difficult goal of achieving qualifications equivalence (such as benchmarking on a qualifications-to-qualifications level) between widely

varying TVET policy standards in participating economies.[93] The APEC Business Advisory Council (ABAC) has recommended that APEC expands the OSF's skills mapping exercise to include all 21 APEC economies, in order to identify which skills are in short supply and which skills are in surplus in different economies.[94]

Stakeholder Involvement

A wide range of types of stakeholders should be included in all consultations, including multiple governmental departments/ministries, regulatory bodies, employer organizations, professional organizations, educational and training institutions, and so on. In particular, it is helpful to have private sector participants involved to validate the applicability of common standards.[95] One valuable way of fostering private sector engagement is site visits for employers to training providers. Another example of good practice can be drawn from Chinese Taipei where its Workforce Development Agency (WDA) has established the Integrated Competency and Application Platform (iCAP)[96] where industries are invited to contribute to WDA's effort in developing and maintaining the economy's Occupational Competency Standard.[97] In any efforts involving many stakeholders, the expected results of various activities and potential responsibilities of stakeholders should be clearly communicated, and stakeholder feedback solicited.

Managing Body with Stakeholder Representation

It is important to ensure that stakeholders' input is managed effectively. This may require the use of representative bodies so that the size of governing committees does not become unmanageable. At the same time, if some stakeholders are not directly involved in discussions, then it is paramount to practice regular communication and transparency.[98] If implemented and managed well, the mechanism of cooperation among stakeholders can play a crucial role in maintaining and improving the quality of MRAs, keeping the agreements relevant regardless of changes in the membership of the agreements and greater society.[99]

Dissemination of Best Practices from Early Adopters

Developing economies may be better able to keep up with the progress of advanced economies if the latter provide learning opportunities. For example, the Malaysian AQRF committee allows other ASEAN member states (AMSs) to participate as observers to understand Malaysia's direction and progress, while at the same time Malaysia has been directly helping Cambodia and Myanmar to develop their qualifications frameworks.[100] Similarly, the Japan International Cooperation Agency (JICA) helped Bangladesh join the ITPEC in 2014, closely working with the Bangladesh Computer Council. This resulted in Bangladesh establishing a national examination based on the Japanese ITEE, as well as becoming a member of ITPEC.[101] Japan's METI has also conducted a "Training Program on Instructors for ITEE" in Manila, Cebu, Davao, Ha Noi, Ho Chi Minh, Yangon, Ulan Bart and Bangkok, which help to develop leaders in each Asian economy to promote the ITEE.[102] Lastly, Australia has been active in disseminating its best practices (developed through cooperation with New Zealand) to other APEC economies: the economy was involved in the conceptualization of ASEAN Qualification Reference Framework through the ASEAN-Australia-New Zealand Free Trade Area (AANZFTA) Economic Cooperation Work Program (ECWP)[103], and Chinese Taipei's accreditation for competency-based training program has been developed partially with reference to Australia's.[104] For MRA and skills qualification programs that are being sponsored through APEC, the dissemination of best practices can be potentially be strengthened through a clear communication plan among APEC economies, involving all actors in the relevant industries.

Marketing and Incentivisation

As noted in the beginning of this chapter, many initiatives could benefit from better marketing and clarification of the program's goals and benefits, which could raise awareness of the program among key stakeholders and improve the program's overall value to the targeted occupations. For example, one issue cited by current APEC engineers is that the program is not well known among many employers and therefore doesn't impact engineers' employability. Some mentioned steps to raise awareness and increase the programs' benefits, such as linking the qualification to travel facilitation schemes (e.g. the APEC Business Travel Card) or publicizing a list of APEC

Engineers. The latter effort of publicizing the list of APEC Engineers is still in the discussion phase, initiated by Chinese Taipei and revived by Singapore.[105] One can also draw hints for possible future efforts from the examples from Japan's IPA's efforts to promote ITPEC Common Examination.[106]

Flexibility and Consensus
It is important to approach capacity building with an open mind and adapt the approach as necessary to optimize opportunities for consensus and progress. For example, the APEC Occupational Skills Framework chose to focus on defining job roles and their comparability across economies, rather than achieving qualifications equivalence (such as benchmarking on a qualifications-to-qualifications level between economies), which is a more difficult task.[107] Similarly, the Washington Accord has been characterized by voluntary recognition, which provides participating economies with the necessary flexibility to participate in consideration of individual economies' history and background.

Developing and Testing with a Small Group of Similar Economies
Given the above challenges, in several cases project managers noted that they found the best approach to multi-economy initiatives was to start small and build up. Developing several new MRA pilot programs is a key goal identified by ABAC, in order to identify a number of sectors where APEC economies can pursue a real world implementation of mutual recognition of skills.[108] Building up initiatives through small groups of economies with similar characteristics and priorities allows the participating economies to validate approaches and test expectations. Having a strong foundation in place is very helpful to then expand to other economies, and makes it easier to reach widespread consensus on a standard methodology.[109]

5   Concluding Discussion

Nearly three decades after the establishment of APEC and the endorsement of the Bogor Goals, APEC member economies have continued actively to pursue trade and investment liberalization and facilitation in the Asia-Pacific region. Significant progress has been made in mutually recognizing skills and job qualifications among member economies through a wide variety of bilateral and multilateral agreements. These agreements have taken place both within the APEC framework and through ASEAN and other organizations. Based on economies' experiences in achieving the progress to date, it is now an opportune time to adapt and redefine the objectives for MRAs to ensure that future efforts will best contribute to the region's economic prosperity and labor mobility.

Throughout the course of this project, a common finding across the eight case studies was that efforts to mutually recognize qualifications have successfully improved the availability of skilled labor in the APEC region. The process of identifying and benchmarking occupational skills has encouraged several economies to revise their standards for professional education, in order to enhance the quality of the education and to ensure that their educational standards match or exceed the standards in other economies. As a result, MRAs and various skills development projects have encouraged cooperation between governmental organizations, academia, and industry partners to define and improve existing standards. MRAs have also helped international employers to identify and hire foreign talent, by providing a trusted framework to reference when comparing the skills and knowledge of potential employees.

The contributions that MRAs potentially make to skills development are particularly valuable when considering the impact of technology on many service industries. Even in cases where online technologies have lessened the need for the presence of natural persons[110] to import and export various services, there is still a need to improve and standardize the quality of regional service providers.

Another key aspect of MRAs is their potential to support people-to-people connectivity by providing new opportunities for increased mobility of skilled workers. With time and effort, MRAs

can provide new avenues for skilled professionals to find employment overseas, by expanding their awareness of and participation in MRA programs. While many of the ongoing and recent MRAs studied in the current research have not yet led to significant worker mobility, we believe that the best practices laid out in this report will support stakeholders' efforts to overcome common challenges and realize the free movement of skilled workers. As the adoption of MRAs continues to expand, there will be new opportunities to explore their potential economic benefits and impact on worker mobility, which will in turn strengthen mutual trust in implementing future agreements. However, MRAs alone cannot solve the challenge of low labor mobility[111], and should be considered in the context of other initiatives and opportunities to overcome barriers to worker mobility, such as addressing rigid and complex work visa systems. For MRAs to increase physical labor mobility most effectively, it is critical to link them with immigration policies that allow skilled workers to participate in economic activities without the constraint of excessive red tape or prohibitively strict restrictions.

The recommendations provided in this report include steps for building awareness of MRA programs among potential beneficiaries (both workers and industry organizations), as well as various practices that support more efficient cooperation among stakeholders, such as disseminating best practices from early adopters, and emphasizing flexibility and consensus in multi-economy projects. Successful MRAs should provide developing economies with opportunities to increase the international competitiveness of their workers and provide new international opportunities for them, while helping industrialized economies to mitigate labor shortages in crucial industry sectors.

Given the current global political climate in which many governments are under domestic pressure to close their labor markets to foreign workers, it is important to continue to pursue multilateral efforts to develop MRAs that provide win-win solutions for stakeholders in both developed and developing economies. It is crucial to demonstrate the positive effects of MRA efforts by achieving successful labor and economic outcomes. By doing so, APEC economies can build up the momentum to expand to future MRA projects in the future, which will support economic growth and trade and investment liberalization and facilitation in the Asia-Pacific region.

6 Appendix A – Case Profiles

6.1 Case Profile 1: APEC Engineer (Japan)

6.1.1 Initiative Background

APEC Engineer, whose register was officially launched in 2000, is an agreement to recognize the "substantial equivalence" of competence standards for professional engineers within member economies. [112] Member economies also commit that any extra assessment required for engineers to be registered on the local professional engineering registers will be minimized for registered APEC engineers. The APEC Engineer Agreement requires a separate bilateral MRA at the government level between both economies for an APEC engineer from one economy to be recognized in the host economy. [113]

The program was first discussed at the APEC leaders' meeting in 1995 at Osaka, Japan, where a proposal by the Australian government was agreed upon to address the necessity of facilitating the mobility of qualified engineers among the member economies for the purpose of furthering economic development. Australia, jointly with Japan, drafted this proposal, leading to the APEC Engineer program. [114]

Following several meetings and workshops to assess each economy's best practices, the APEC Engineer Register (a practical system to assess the competence of foreign engineers) was officially launched in 2000 with seven founding economies, including Australia; Canada; Hong Kong, China; Japan; Korea; Malaysia; and New Zealand. [115]

The entire agreement was reexamined from 2009-2012. As a result, in 2012 the APEC Engineer Agreement was integrated into common frameworks called Competence Agreements along with the International Professional Engineers Agreement (IPEA) and the International Engineering Technologist Agreement (IETA).

6.1.2 Role of the economy within the initiative

Japan is a founding member of the APEC Engineer initiative. [116] After the 1995 proposal in Osaka, Japanese government agencies and other organizations, including the Institution of Professional Engineers, Japan (IPEJ), actively participated in the discussion in designing the APEC Engineer program. [117] After the establishment of APEC Engineer in 2000, IPEJ and other entities continue to represent Japan in international discussions on mutual recognition of engineering qualifications. Furthermore, as seen in the Table 6, Japan is one of the participating economies with the most engineers registered under the program.

Domestically in Japan, both the private and public sectors collaborate to work on establishing and participating in the APEC Engineer. On the government side, the Japanese Science and Technology Agency (later integrated into the Ministry of Education, Culture, Sports, Science, and Technology: MEXT) is the governmental body in charge of the internationalization and standardization of Japanese engineering. [118] Additionally, Japan's APEC Engineer monitoring committee was formed under the agreement between 12 ministries and agencies, which have since been reorganized into nine and still oversee the committee.[119] From the private sector, IPEJ, a professional organization, has been the driving force in the designing phase of the program. It now evaluates and qualifies applicants for APEC Engineer qualifications in Japan.

6.1.3 Goal of the economy

In the early 1990s, before Australia proposed the APEC Engineer program in 1995, Japanese engineers were largely concerned about falling behind their international peers.[120] Some had argued that Japan's engineer qualification system might not be compatible with the qualifications systems in other economies. IPEJ, which conducts the Japanese qualification system for engineers, felt the need to research the international standards and prove the equivalence of Japanese engineer qualifications. When the time APEC leaders met in Osaka in 1995, IPEJ was

equipped with the knowledge and motivation to involve itself in the international discussion on the mutual recognition of qualifications.

Japan needed to establish a globally recognized system mainly for Japanese graduates working in other economies. There were concerns in Japan that the Japanese training model lacked an effective system to prepare students to work abroad and did not provide them with essential assets, such as qualifying degrees and professional qualifications.[121]

6.1.4 Implementation

Progress to date

The APEC Engineer agreement encourages participating member economies to recognize "substantial equivalence" of APEC Engineers and to minimize the criteria for APEC Engineers to be registered in their own economies. In other words, regardless of an engineer's status as an APEC Engineer, an engineer from an economy still needs to follow the qualification and licensing procedures of another economy in order to practice there. However, it is possible for two or more economies to separately sign an agreement to recognize APEC Engineers from one economy to be recognized in another as equally qualified as registered engineers in the host economy.[122]

The figure below shows the current bilateral MRAs involving APEC Engineers based on reports submitted by each member economy, assembled and published in June 2014. Despite 14 out of 21 APEC members participating in the APEC Engineer Agreement, only two MRAs have been signed among participating economies (between Japan-Australia and Australia-Malaysia), with five memoranda of understanding currently established for future MRAs.[123]

Figure 3: Bilateral MRAs and MOUs under APEC Engineer (2014)
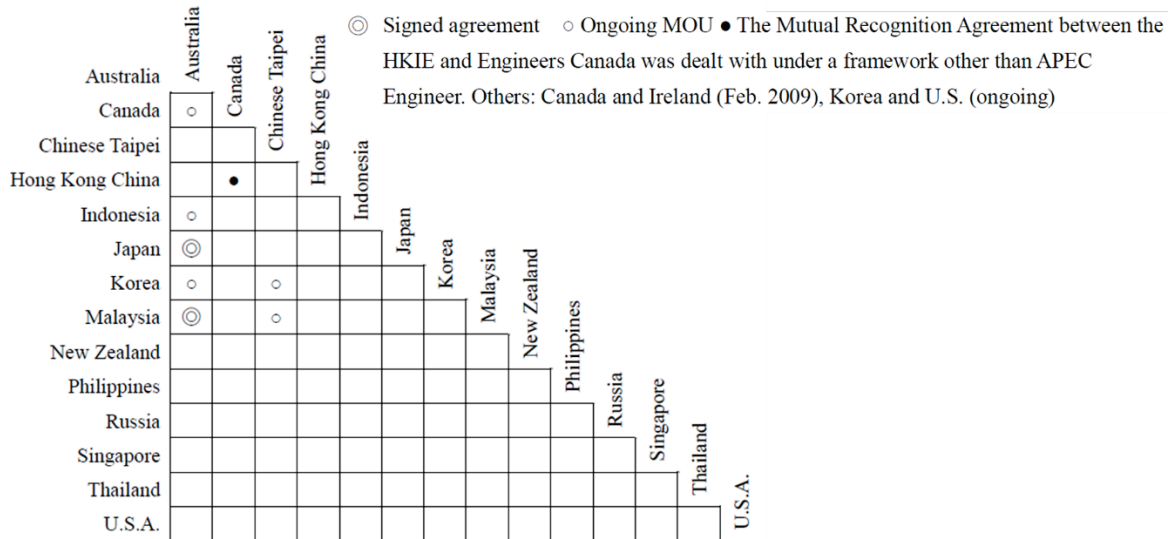
* The figure was edited based on the research conducted by Washington CORE[124].

Source: Report[125] by Dr Edward H. Wang of Minghsin University of Science and Technology, Chinese Taipei

In regards to Japan, in October 2003, Japan and Australia agreed to recognize professional qualifications under APEC Engineer in the fields of Mechanical, Electrical and Chemical engineering.[126] As of April 2017, there seems to be little interest for other bilateral agreements by Japan at the government level. IPEJ, on the other hand, maintains contact with its counterpart associations in other economies for organizational friendship and cooperation.[127]

Each participating economy has established an APEC Engineer monitoring committee to oversee the qualification process for engineers registering as APEC Engineers.[128] Seven overarching criteria are laid out in the APEC Engineer Agreement within the IEA[129] Competence Agreements.[130] Based on these criteria, the monitoring committee of each participating economy then drafts and adopts its Assessment Statement, which will be used to verify qualifications of

APEC Engineer applicants. The qualification process in a participating economy is evaluated by fellow economies every six years.

In Japan, the APEC Engineer monitoring committee consists of related experts and is overseen by nine related government ministries, with IPEJ operating as the secretariat. Evaluation of applicants is carried out by IPEJ.[131]

Challenges

Japan has the largest number of engineers registered as APEC engineers among participating economies. However, one issue the APEC Engineer program faces in Japan today is the decreasing number of APEC engineers. Engineers are required to renew their qualification periodically, but almost half of them do not renew their qualification, resulting in the decreasing number of APEC Engineers in Japan (see Table 6).[132]

One of the causes for this decrease may be the unclear benefit to the engineers who are registered as APEC engineers.[133] For example, it is said that the APEC Engineer program is not well known to the employers; in other words, it does not increase engineers' employability. Nevertheless, some argue that because APEC itself is well known among employers, it is more likely to be recognized than IPEA's IntPE qualification. Considering these circumstances, one can see that the need for effective marketing for the APEC Engineer program is apparent.

Future actions

In order to increase awareness about the existence and benefit of APEC Engineer, The Workforce Development Agency (WDA) of Chinese Taipei has initiated a project to establish a database of APEC Engineers ("i-Cloud" Manpower Data Bank). WDA's main goal was to help the mobility of workers between economies.[134] Such a database would also help employers identify reliable engineers who hold APEC Engineer status, while helping professional organizations encourage engineers to continue education and renew their qualifications.[135]

In September 2015, a workshop to gather input from APEC member economies to build the database was held in Chinese Taipei.[136] The database would include not only individual engineers' information, but also comprehensive information on job markets, potential development, codes and specifications, etc. to reinforce the ultimate purpose of mobility of engineers in the region. During the workshop, issues such as cost, language, security, privacy and content were brought up.[137] For example, in terms of cost, organizations representing each economy operate its APEC Engineer related projects using application fees paid by engineers, and may not have the budget to start, maintain, and update a national database. Furthermore, some attendees were wary of the idea of keeping and managing personal data on engineers from other economies.

These issues must be discussed and addressed in order to establish the database, and the discussion will likely continue under the leadership of Singapore, where the APEC Engineer Coordinating Committee is based. The committee, which coordinates between all monitoring committees of participating economies,[138] has proposed another workshop in the near future and is waiting for APEC approval.

6.1.5 Achievements

APEC Engineer has not yet had a significant impact on labor mobility in the region. For example, in spite of the bilateral MRA signed between the economies, only one APEC Engineer from Australia has been registered in Japan, and none from Japan are registered in Australia, as of April 2017.[139]

However, in terms of holding engineers to higher and substantially equal standards, the program has achieved some milestones: there were 7,580 engineers registered as APEC engineers as of June 2015.[140] The number of registered APEC engineers in Japan was the highest among participating economies between 2011 and 2013,[141] but was later outnumbered by New Zealand

in 2015 when the economies respectively counted 1,824 and 1,852 engineers registered as APEC engineers. [142]

When asked why so many Japanese engineers registered as APEC engineers in the initial phase of the program, officials from the Institution of Professional Engineers Japan (IPEJ) noted the high expectations and excitement engineers had for the program. [143] One of the expected benefits of becoming an APEC Engineer was increased credibility, especially outside of Japan where the term "APEC Engineer" can be indicated on business cards, presentations, or business proposals.[144]

The charts below show the number of registered APEC engineers in each participating economy.

Table 6: Number of registered APEC engineers by economy (2011-2015)

Economy	Represented by	2011	2012	2013	2015
Australia	Engineers Australia	400	400	58	403
Canada	Engineers Canada	16	16	18	19
Chinese Taipei	Chinese Institute of Engineers	80	92	94	70
Hong Kong, China	Hong Kong Institution of Engineers	54	33	31	46
Indonesia	Persatuan Insinyur Indonesia	26	26	26	N/A-
Japan	Institution of Professional Engineers Japan	2,202	2,004	1,971	1,824
Korea	Korean Professional Engineers Association	562	1,166	1,323	1,709
Malaysia	Institution of Engineers Malaysia	341	357	365	427
New Zealand	Institution of Professional Engineers NZ	1,472	1,472	1,699	1,852
The Philippines	Philippine Technological Council	51	45	50	55
Russia	Russia Association for Engineering Education	30	62	68	131
Singapore	Institution of Engineers Singapore	12	32	33	36
Thailand	Council of Engineers Thailand	37	37	174	320
United States	National Council of Examiners for Engineering & Surveying	334	334	428	688
Total		5,617	6,076	6,338	7,580

Source: Washington CORE[145]

Between the year 2011 and 2015, the total number of APEC Engineers had increased by 35% to a total of 7,580. During the same period, Thailand saw the largest expansion to 320 engineers in 2015, which is more than seven times the number of engineers registered in 2011. New Zealand has the most APEC Engineers registered in 2015 (1,852 engineers), with Japan and Korea following at 1,824 and 1,709 engineers respectively. The number of APEC engineers in Japan decreased the most over the years with a 17% decrease from 2,202 engineers in 2011 to 1,824 engineers in 2015. Other economies show an increase in engineers registered with the exception of a recent ups and downs in some economies like Hong Kong, China, and Chinese Taipei.

6.1.6 Lessons learned

The need to simplify application processes: Economies whose number of registered engineers are low tend to have numerous competing programs, reducing the value of outside recognition agreements. It has been suggested that the registration process to become an APEC engineer might be too complicated and requires additional processes in these economies compared to individual economies' registration, which does not encourage engineers of these economies to strive for the status of APEC engineer.[146]

Better marketing and clarification of the program's goals and benefits may improve the adoption and overall value of the program: One issue cited by current APEC engineers is that the program is not well known among many employers and therefore doesn't impact engineers' employability. More effective marketing about the program and the qualifications of APEC Engineers may raise awareness of the program among key stakeholders and improve its overall value.

Economies should be mindful of opportunities to reduce their immigration and labor regulatory barriers to skilled foreign workers: One impediment to registration is engineers' concern that regulatory barriers in host economies will hinder their success in finding work in those economies. Perhaps, for these economies, if becoming an APEC Engineer would actually increase engineers' probability of being hired overseas, the number of applicants would increase.[147] However, this would require the commitment and collaboration of other economies that would be hosting these engineers. Currently, the APEC Engineer framework does not address any immigration or labor regulatory barriers in member economies.[148]

Increased benefits or linking registration to other programs could spur adoption of the program: Other ideas to increase the benefit of the APEC Engineer qualification may include:[149] 1) requiring APEC Engineer qualification to bid for international cooperation/aide projects; 2) linking various business travel facilitation schemes (e.g. the APEC Business Travel Card) with international qualifications like APEC Engineer; 3) advancing initiatives to create and publicize a list of APEC Engineers, which would help employers to identify APEC Engineers. Further study of economies that have observed boosts in the number of successful applications for APEC engineers (e.g. New Zealand and Korea) might give new insights in tackling these challenges.

Integration with other programs has been successful in supporting international benchmarking efforts: The recent integration of APEC Engineer into the Competence Agreements, along with the International Professional Engineers Agreement (IPEA) and the International Engineering Technologist Agreement (IETA) has shown that APEC Engineer has played a significant role in setting the international benchmark for professional engineers, especially compared with other goals for the program, such as standardizing the equivalency of engineers in different economies and increasing their mobility. Similar trends can be seen in other occupational fields and qualifications, and this may alter or define the goals for future mutual recognition of qualifications in the region.

6.2 Case Profile 2: ASEAN MRA on Architectural Services (The Philippines)

6.2.1 Initiative background

The 1995 ASEAN Framework Agreement on Services (AFAS) provides a framework for the 10 ASEAN member states (AMS)[150] to recognize the education or experience obtained, requirements met, and license or certification granted in other AMS for licensing or certification of service suppliers. In 2001, ASEAN leaders mandated the start of negotiations on MRAs. The 2003 ASEAN Bali Concord II called for the completion of MRAs for qualifications in major professional services by 2008 to facilitate the free movement of skilled labor in the ASEAN region.

These MRAs facilitate the mobility of professionals who are authorized, licensed or certified by the respective authorities within the framework of the MRAs among ASEAN member states.[151] They also facilitate the exchange of information in order to promote adoption of best practices on standards and qualifications.

There are currently eight ASEAN MRAs:
  1) Engineering Services (2005)[152]
  2) Nursing Services (2006)
  3) Architectural Services (2007)

4) Surveying Qualifications (2007)
5) Dental Practitioners (2009)
6) Medical Practitioners (2009)
7) Accountancy Services (2009)
8) Tourism Professionals (2012)

This case study examines the implementation of the ASEAN MRAs through the experiences of the Philippines' implementation of MRA on Architectural Services.

The MRA on Architectural Services was signed in November 2007 by all ASEAN economies except for Cambodia and Brunei, which signed on in 2012 and 2013, respectively. The MRA states that professional architects registered in their home economy will be eligible to register as an ASEAN architect (within the host economy, the ASEAN Architect is referred to as a Registered Foreign Architect (RFA)).[153]

The MRA calls for each AMS to establish Monitoring Committees to monitor the influx and workings of ASEAN Architects. The MRA is managed through the ASEAN Architect Council (AAC), which is composed of one member from each economy's Monitoring Committee, and holds the rights to continue integration efforts and to grant the title of ASEAN Architect.[154]

The specific implementation of the MRA is unique to each AMS due to differences in immigration policies and labor laws. The MRA encourages the standardization of education and training policies. For example, one MRA program is the Graduate Internship Exchange Program (GIEP), which encourages companies to host and hire foreign interns in the architecture field.[155]

The Philippines was chosen as the case study economy due to its recent leadership role in the MRA from 2013-2015, and its progress in implementing the MRA.

6.2.2   Role of the economy within the initiative

The Philippines led the MRA on Architectural Services for a two-year term from 2013-2015, when leadership was then transferred to Indonesia.[156] The Professional Regulatory Board of Architecture (PRBoA) is the organization responsible for implementing the agreement, and authorizes the Philippine Monitoring Committee to assess Filipino architects for placement on the ASEAN Architects Register (AAR).[157]

Applications from ASEAN Architects to work as an RFA in the Philippines are processed through the PRBoA, and approved applicants are issued a Temporary Special Permit (TSP) that allow them to collaborate with designated local architects for the period of the approved project.[158] The figure below shows the Philippines' registration process for AAs.

Figure 4: The Philippines RFA Registration Process
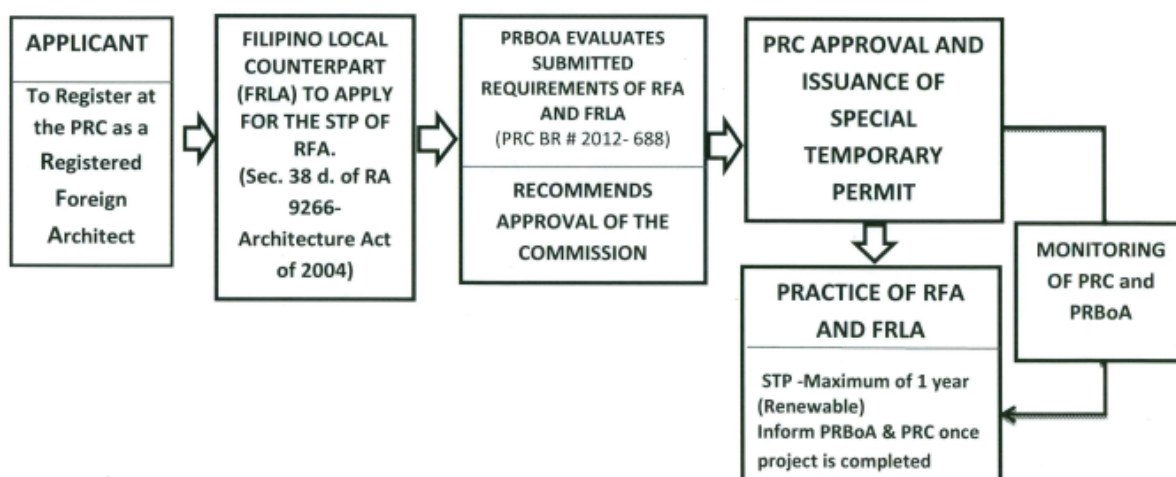
The Philippines allows intra-corporate transferee (executives, managers and specialists) to apply for a one-year renewable permit. Foreign architects are permitted to practice and take licensure examinations as long as their economy of origin allows Filipinos to do the same.[160]

The Philippines has nearly fully developed the appropriate committees and programs to implement the MRA. While all of the committees have been created, there are concerns regarding the laws about Temporary Special Permits (TSPs). Before entering into the MRA, the Philippines had a special temporary permit for foreign professionals to practice architecture.[161] However, since the permits are only valid for the duration that the architect is engaged in a project, there is uncertainty as to how architects are expected to live in the Philippines after they finish their project, and the permit does not allow the architect to conduct independent practices.[162]

6.2.3 Goal of the economy

The Philippines has the third largest group of registered ASEAN architects in the ASEAN community with 52 architects, behind Indonesia's 125 and Singapore's 86.[163] However, 52 architects remains a small fraction of the total of 34,866 registered architects in the Philippines.[164] The Philippines would like the MRA to better recognize the presence of foreign professionals in host economies, so there can be evidence of the mobility of Filipino professionals, and so that Filipino professionals can be properly recognized according to their skills, and receive the appropriate wages.[165]

The Philippines has two dedicated architectural universities with 83 other universities with programs recognized by the PRBoA, second only to Indonesia's 130. Approximately 5,000 students participate in these programs annually, once again only second to Indonesia's 8,410 (ASEAN Architect Council, n.d.) in total, as of April 13, 2017. The Philippines is intensifying attempts to popularize its continuing professional development (CPD) programs in order to make the ASEAN MRA more useful for Filipinos as well as foreign architects.[166]

There are many upcoming large-scale infrastructure projects in the Philippines in the next six years, with nine million pesos allocated to government projects alone. The Philippines would like for foreign architects to be able to participate, but under the Republic Act 9266, the Philippines can only recognize them as professionals if the sending economy also provides the same privilege to Filipino architects.[167]

6.2.4 Implementation

Progress to date

The MRA was signed in 2007 by all member economies except for Cambodia and Brunei, which signed on in 2012 and in 2013.The Philippines has completed all of the preparatory work for implementation of the agreement, and is still working on regulatory revisions to fully accommodate RFAs. The Philippines is among five economies (Brunei Darussalam, Malaysia, Singapore and Thailand) that have established rules and procedures to accommodate RFAs. Indonesia, Myanmar, and Viet Nam have almost completed the same preparatory work with the remaining necessity of establishing a system to authorize RFAs. Cambodia and Lao PDR are not yet at any level of substantive implementation.[168]

Recognition of architects has remained small in scale. The ASEAN Architect Council met to discuss progress on the initiative in February 2017.[169]

Challenges

One challenge noted by various AMS is the need for greater cross-agency coordination and approval, especially given the lack of accreditation boards for architectural education in some member economies.[170]

The Filipino Professional Regulatory Board (PRBoA) is concerned that the standards requirements to become an ASEAN architect are too difficult for many experienced architects to qualify. The agreement requires 10 years of continuous practice in addition to prior work experience with at least one "complex" project, which many architects do not have.[171]

The PRBoA has proposed that the MRA should be amended to allow architects that have previously been recognized as ASEAN architects and hired by a foreign architectural firm to then be automatically recognized by the host economy as an architectural professional. Currently, many Filipino architects have been recognized as APEC Architects but are still being excluded from professional recognition in other economies since they work for architectural firms rather than through collaborative agreements. There is also currently no template for collaboration agreements for ASEAN architect.[172] In addition, the PRBoA has raised concerns that the focus of the MRA has been on collaboration between solo architects, while in reality many collaborative projects involve architectural firms. The Architecture MRA's requirements are stricter than other similar initiatives such as the ASEAN Engineering MRA, which does not require a collaboration agreement and project. The Philippines would therefore like to see an agreement that provides for the mobility of heads of architectural firms.[173]

Additionally, many AMS have restrictive local partnership rules that restrict RFAs from practicing independently, and therefore many qualified architects perceive relatively few benefits from becoming an RFA.[174] This is representative of a larger trend across ASEAN member economies, which support liberalization of trade in services in terms of cross-border supply and consumption abroad, but are warier of the commercial presence and the temporary movement of natural persons.[175]

Another issue is the different levels of development of member economies, which may affect the potential uptake of mutual recognition and the readiness of the professional service providers in undertaking cross-border services. For instance, Cambodia is waiting for the AAC's approval of its assessment statement and Lao PDR has not yet begun the screening process for its domestic applicants to become ASEAN architects.[176]

Due to concerns about the effectiveness of the MRA to date in promoting the regional mobility of professionals, the Philippines is pushing for a review of the MRA's provisions.[177]

Future actions

In the 25th meeting of the ASEAN Architect Council in 2015, the members agreed that the role of the council in promoting the mobility of architects needed to be reexamined, and requested

further domestic consultation with the relevant domestic agencies on a proposed Accreditation Council.

In the 2015-2016 issue of UAP Post, the official news publication of the United Architects of the Philippines (UAP), a professional organization for architects, executive director Consuelo C. Buencamino discussed what the UAP and the Philippines would have to do in order to better implement the MRA and have Filipino professionals benefit, as well.[178] Buencamino said that the Philippines needs more external international accreditation of its institutions, as well as dissemination of information to Filipino Registered Licensed Architects (RLAs) who are not currently aware of and taking advantage of the MRA. In order to accomplish this, Buencambino recommended preparing for further integration and aligning standards.[179]

6.2.5   Achievements
The MRA has helped to motivate AMS to upgrade their domestic qualifications, and has supported the mobility of a limited number of professionals to date. The ASEAN Architect Council is working to consider future changes to the MRA to improve its effectiveness and encourage adoption by professionals in the ASEAN region.

6.2.6   Lessons learned
Some of the key lessons learned from the MRA to date include:

The need to set realistic requirements for program qualification: The Philippines Board of Architecture has expressed concerns that the requirements to become an ASEAN architect are too difficult for many experienced architects to qualify (due to high educational requirements as well as strict requirements for RFAs to participate in collaborative projects with engineers from the receiving economy), which has hampered interest by architects to seek recognition.[180] Due to concerns about the effectiveness of the MRA to date in promoting the regional mobility of professionals, the Philippines is pushing for a review of the MRA's provisions.[181]

Participating economies should work together to set targets for labor mobility: One of the challenges that has prevented more widespread adoption of the ASEAN architect program has been that professional regulatory authorities in some economies have had more stringent requirements for qualification than others. As a result, participants such as the Philippines have pushed for the participating AMS to loosen their restrictions for the mobility of professionals under multilateral initiatives like the ASEAN MRAs.[182]

6.3   Case Profile 3: IT Common Examination (Japan)

6.3.1   Initiative Background
Japan's efforts concerning qualifications for IT engineers is a unique case, in that they have established both MRAs between economies with established national exams, as well as a common exam for economies who have recently developed recognition initiatives based on programs modeled after Japan's national exam.

In Japan, the IT Engineers Examination (ITEE) was first administered by the Ministry of International Trade and Industry (MITI; later renamed Ministry of Economy, Trade and Industry) in 1969, and became a national exam in 1970. With its established history and scale (approximately 600,000 applicants every year), Japan started to establish qualification standards for IT engineers in Asia based on its own system.[183] In October 2000, Japan proposed the "Asian Common Skill Standard Initiatives for IT Engineer," which was adopted at the economic ministers meeting of the "ASEAN +3" group (which includes the 10 members of ASEAN and three other economies: China, Korea and Japan). Afterwards, the Japanese representative body, the Information-technology Promotion Agency of Japan (IPA), started to establish MRAs with other economies, eventually reaching a total of 12.[184]

For economies that already had their own ITEE, namely India, Singapore, Korea, China, and Chinese Taipei, MRAs were signed between the IPA and their counterpart organizations to recognize the equivalent values of their ITEEs.[185] For those economies who had not yet introduced ITEEs, the Information Technology Professionals Examination Council (ITPEC) was formed to work with the IPA to establish common IT examinations. And, then, MRAs were subsequently signed to recognize the equivalent values between the IPA's ITEE and the common ITEE in each economy, including Bangladesh, Malaysia, Mongolia, Myanmar, the Philippines, Thailand and Viet Nam.[186]

Currently, the ITPEC Common Examination consists of three exams: the IT Passport Examination (IP), the Fundamental Information Technology Engineer Examination (FE), and the Applied Information Technology Engineer Examination (AP). These three exams have increasing degrees of difficulty, with the AP being the most difficult. The exams are conducted in English and other local languages in all seven ITPEC participating economies twice a year (AP is conducted only once a year). The tests are considered to be reliable assessment tools, as they are administered on a national basis by each participating government, which in turn issues official certificates to the engineers who pass the exams.[187]

6.3.2   Role of the economy within the initiative

Japan started the trend of establishing qualification standards for engineers, and further prompted the establishment of the MRA in the ASEAN region. IPA initiated the formation of ITPEC within the economies that participated in the common IT exam, and, through ITPEC, IPA monitors and advises on the activities of its counterparts in each participating economy. [188] Specific activities include the ITPEC Executive Directors Meeting and ITPEC Question Formulation Meeting that are held annually and semi-annually by participating economies in turn. IPA also reviews and advises on draft questions submitted by each participating economy to improve and standardize questions in exams among all participating economies.

6.3.3   Goal of the economy

When ITEE was first conceptualized in the late 1960s, the Japanese IT industry was threatened by foreign competition, and thus was in dire need of highly skilled IT professionals.[189] IT professionals also wanted recognition and credentials from reliable authorities.

Now, these same objectives, fostering human resource development among IT professionals and providing credentials to accomplished professionals, are being applied to the ITPEC Common IT Exam as well. IPA lists the following as the goals of ITPEC:[190]
1) To raise the skill level of IT engineers in each economy,
2) To increase cross-border job opportunities
3) To promote the alliance of IT companies in each region.

Japan intends to enhance the competence of IT professionals across the Asian region, so that Japanese IT companies can employ them to support their businesses. If IT professionals take the ITPEC exams, which have the same content as the Japanese ITEEs or other mutually recognized exams, Japanese companies can assess both Japanese and foreign IT professionals equally.

This is also the case for foreign IT professionals working in Japan. The number of foreign IT professionals working in Japan predicted to increase from 30,000 to 60,000 by 2020, according to the "Japan Revitalization Strategy Amendment 2015," which was approved by the Japanese Cabinet.[191] For example, in response to this strategy, the Computer Software Association of Japan established the Asian IT Engineers Career Support Council of Japan in November 2015, which included 35 companies and one organization as members, for encouraging talented foreign IT engineers to work in Japan.[192]

6.3.4 Implementation

Progress to date

IPA, Japan was established in 1970 as a Special Law Entity and relaunched as an Independent Administrative Agency in 2004 under the Ministry of Economy, Trade and Industry. Japan Institute for Promotion of Digital Economy and Community (JIPDEC) had been administering the ITEE from 1969 until its incorporation into the IPA. The IPA helped to form the ITPEC with other participating economies in 2005. Participating organizations in each economy in the ITPEC are as follows: Philippine National IT Standards Foundation Inc. (PhilNITS; the Philippines), National Science and Technology Development Agency (NSTDA; Thailand), the Vietnam Training and Examination Center (VITEC; Viet Nam), the Myanmar Computer Federation (MCF; Myanmar), the Multimedia Technology Enhancement Operations Sdn Bhd (METEOR; Malaysia), the National IT Park (NITP; Mongolia) and the Bangladesh IT Engineers Examination Center (BD-ITEC; Bangladesh).[193] Each body is in charge of administering the standardized ITPEC common exams on the same date, with the same set of questions.[194]

The IPA also signed MRAs with other economies that have their own ITEEs. The representing bodies in each economy are as follows: the National Institute of Electronics and Information Technology (NIELIT; India), the Singapore Computer Society (SCS; Singapore), the Human Resources Development Service of Korea (HRD Korea; Korea), the Education and Examination Center of MIIT, PRC (CEIAEC; China) and the Institute for Information Industry and Computer Skills Foundation (III/CSF; Chinese Taipei).[195] Each body is in charge of administering its own ITEE, which is recognized as equally equivalent to the IPA's ITEE.

Challenges

There are several challenges to establishing MRAs for the IT exams. Firstly, for those economies that already had their own exams, exams are different in terms of awareness, purpose and pass rate (difficulty). For example, the Singaporean exams are primarily for public officials, and their pass rate is almost 100%, while, in contrast, the Japanese pass rate is only 16%, and the Chinese pass rate is only 50%. It requires a great deal of effort to establish and maintain MRAs among these vastly different exams.[196] Secondly, for those economies to which Japan has introduced its ITEEs, the number of applicants is not big enough to sustain the exams by application fees alone, and Japan's help is always required. The low number of applicants is due to a lack of awareness of the exam.

IPA officials mentioned other management issues as well.[197.] After launching the ITEE, many economies have faced problems running the test, especially with preparing exam questions. Some economies rely on the IPA for help, which IPA provides to some extent, but, without commitments from the economies themselves to independently operate the program, it is difficult to continue the ITEE. On the administration side, the most difficult problem is bridging gaps between domestic government offices which may have varying interests and concerns. Furthermore, the government offices overseeing the exam in participating economies have different jurisdictions, and, as time goes by, many organizations are reorganized. Under these circumstances, it is very difficult to operate one common system between many economies. Lastly, even if people work hard to introduce ITEE, implementation is difficult without a thorough understanding of the governance structure.

Future Actions

Currently, only the IT Passport Exam (IP) and Fundamental Information Technology Engineer Examination (FE) are being conducted in Bangladesh, whereas other economies conduct all three tests (the IP, FE, and AP) in accordance with the IPA.[198]

Though the IPA is not currently considering disseminating the IT Common Exam to the whole APEC region, it is open to considering the addition of more economies that are geographically close to Japan, such as ASEAN economies that have yet to participate in the program.[199] Should such an economy reach out, IPA, will review the potential member's capability to train exam writers and to promote and operate the exam on its own, in order to assess the economy's

capability, or lack thereof, to run the exam independently, before actually considering to add the economy.

6.3.5   Achievements

The total number of successful applicants to the IP is 6,713 (2010-2016), and number of successful applicants to the FE is 4,820 (2001-2016).[200] The statistics regarding AP have not been disclosed.

In regards to the mobility of workers, there is little evidence that the Common Exam encouraged substantial movement between economies. For example, the Japanese government offers a preferential immigration policy for those who have passed the IT common exams, as those who have passed the exam are considered to have met the same criteria as residential workers.[201] However, some have argued that this preferential treatment is not widely used. In 2007 alone, only one out of 471 Filipinos, one out of 43 Myanmarese, and none of the 552 Vietnamese who passed the exams have benefited from this policy. This is largely because those who pass the exams usually already have university degrees, and thus have already met the criteria to be a resident worker in Japan without passing the IT common exam, and the waiver of a visa requirement is not incentivizing them to take advantage of the preferential treatment.[202]

On the other hand, when looking at how IT professionals use the IT Common Exam, one can see that the program may have accomplished other goals, both in human resource development and increasing the worker's status and employability. Most of the applicants take the ITEE for different motivations, which vary not only from person to person, but also from economy to economy. As shown below, the IPA's survey reveals[203] that the motivations of examinees of each economy are different from one another, reflecting each economy's differing IT industries. For example, in the Philippines and Myanmar many examinees were employees of IT companies that have business relations with Japanese companies. These professionals are more likely to take the exam as a skills assessment, or at their managers' recommendations. In the case of Viet Nam, applicants are motivated to take the exam to obtain employment with Japanese companies. The reasons "for promotion or pay raise" and "for bonuses" account for 9% of test takers in the Philippines, 12% in Viet Nam and 17% in Myanmar. This indicates that some companies utilize ITEE as a qualification index for IT human resource development. As an indicator of IT skill, the introduction of the ITEE enabled each economy, each organization, and each examinee to utilize the exam for their own needs, whether they are self-assessment, qualification, and/or human development. It is expected that future challenges will arise in the effort to satisfy these diverse needs with one standardized exam.

Figure 5: Each Economy's Motivation to take ITEE (%)
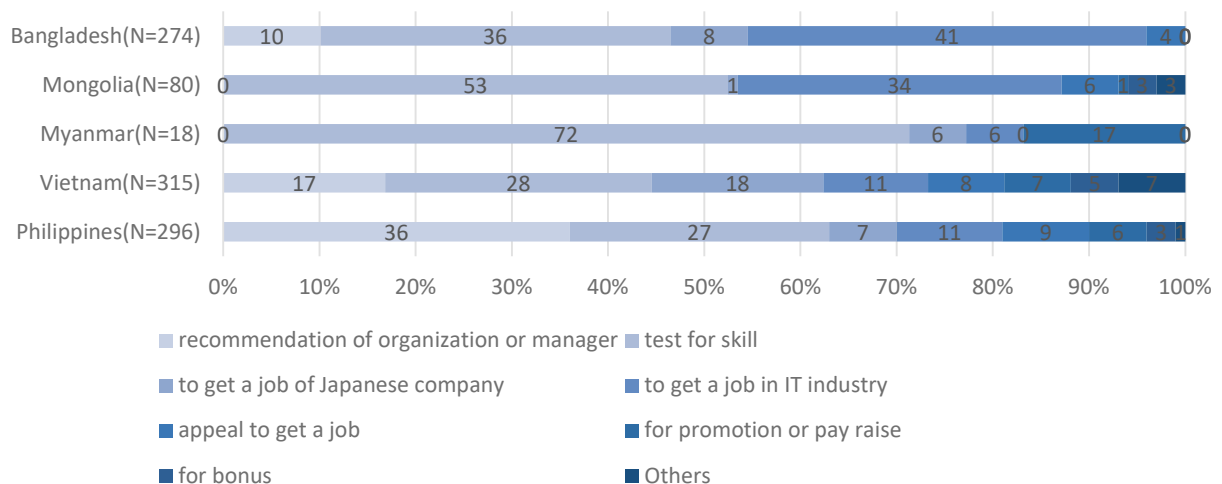
Source: "White Paper on IT human resource 2014" IPA, 2015, in Japanese

Many examinees' expectation for the ITEE is to be qualified to work in or with Japan, especially through an employment by off-shore developers that have business with Japan. One of companies that is popular among Vietnamese examinees' is the FPT Software Company. This company is interested in offshore projects with Japanese companies, and plans to produce 10,000 "Bridge IT Professionals" by 2018 who understand both Japanese and Vietnamese culture, and who can work in both economies effectively. In order to increase the quality of engineers and produce "Bridge IT Professionalss," FPT Software adopted the ITPEC exams in its educational courses.[204]

Qualification for job-hopping is also an important motivation for ITEE examinees in the other economies, such as the Philippines.[205] But, in the case of the Philippines, many applicants for PhilNITS are from Japanese subsidiary companies with other motivations. Those companies use the exam as a tool to motivate employees to increase their skills, and some even provide bonuses to successful applicants.[206] There are also companies in Japan that use ITEE to develop their human resources. Another use of the ITEE in Japan is for a company to create a press release which lists the number of employees who have passed the exam to demonstrate the company's level of technical skill. One Japanese subsidiary in the Philippines promoted the fact that two of its employees passed PhilNITS with top three scores, and were selected in the Top Gun program (for those who receive top-class scores).[207]

Additionally, the ITEE provides motivation for students. For example, The Myanmar Computer Federation (MCF), the organization conducting the ITPEC in Myanmar, holds seminars for ITPEC applicants in universities, and encourages students to take the exam as an opportunity to evaluate their skill level[208]

6.3.6   Lessons Learned

Japan's efforts pertaining to the IT Common Exam can be defined by two aspects: strong self-marketing strategies, and close attention to potential and newly joined participating economies. These aspects are strong contributing factors to success that can be transferred to other initiatives in the APEC region in the future.

Importance of marketing strategies: Other economies and programs may benefit from learning the importance of marketing strategies from Japan's efforts surrounding the IT Common Exam, and the MRAs between national IT professional exams. In order to increase awareness of the exams, the Japanese government and the IPA have led several initiatives. For example, in order to increase awareness of the exams, the Japanese IPA recently led a promotional campaign which distributed marketing materials branded with a Japanese animation character to potential applicants in ITPEC participating economies. The purpose of this campaign was to promote awareness of the exams, and potentially increase the number of the applicants.[209]

Another example is the IPA's Top Gun Campaign, where the IPA invited those who qualified ("Top Guns") to Japan for a short-term program, where they had exposure to the Japanese IT industry and were appointed as ITPEC ambassadors. This Asia Top Gun Program began in 2015, with the expectation that the participants would play a key role in promoting the exams and building a relationship with Japan after returning to their home economies.[210] In 2015, eight Top Guns from six economies participated in the inaugural program,[211] and 14 Top Guns from seven economies participated in 2016.[212]

Supporting international development of IT education: Another important aspect of this case is the Japanese agencies' close attention to the interests of the potential participating economies. For example, when the Japan International Cooperation Agency (JICA) helped Bangladesh join the ITPEC in 2014, it sent IT specialists to Bangladesh, and conducted workshops and model exams, closely working with the Bangladesh Computer Council. This resulted in Bangladesh establishing a national exam based on the Japanese ITEE, as well as becoming a member of ITPEC.[213]

To improve awareness of the ITEE, development of local leaders in IT education is critical. In collaboration with METI, the Overseas Human Resources and Industry Development Association

(HIDA) has conducted the "Training Program on Instructors for ITEE" in Manila, Cebu, Davao, Ha Noi, Ho Chi Minh, Yangon, Ulan Bator and Bangkok, which develops many leaders in each Asian economy to promote the ITEE.[214]

Lastly, those economies that were introduced to the ITEE by Japan tend to need Japan's guidance for the sustainable administration of the exams. The Japanese METI sends professionals to these economies to hold public seminars for future applicants, and to maintain the technical and administrative quality of the exam.[215] The IPA also publishes, translates, and disseminates study materials in Japan to prepare applicants for the exams in their own economies.

6.4   Case Profile 4:Washington Accord (Japan)

6.4.1   Initiative background

The Washington Accord was created in 1989 by the respective accreditation bodies of the six signatory jurisdictions: Australia, Canada, Ireland, New Zealand, the United Kingdom, and the United States. In accordance with the Washington Accord, students who graduate from engineering programs accredited by their signatories are recognized as equally qualified as graduates of counterpart engineering programs in other signatories.[216]

The Accord was established in the context of increasing globalization, which created the necessity for a mechanism to determine the equivalency of education as industries became increasingly transnational and graduates sought employment in jurisdictions other than their own.[217] The accord has been accelerated by the idea of the "Washington Consensus," in which economic development is believed to be achieved through open markets and trade, as well as deregulation and privatization, based on neoclassical economic theory.[218]

The Washington Accord is one of three accords on engineering education accreditations that are constituents of the International Engineering Alliance (IEA). The Washington Accord is the oldest of these accords and provides a foundation for educational programs for professional engineers. It differs from the Sydney Accord (2001) and the Dublin Accord (2002), which are concerned with engineering technologists and engineering technicians respectively.[219]

Table 7: International Engineering Alliance: Accords and Agreements

	Professional Engineers	Engineering Technologists	Engineering Technicians
Engineering Education Accords	Washington Accord	Sydney Accord	Dublin Accord
Professional Agreements	International Professional Engineers Agreement (IPEA)	International Engineering Technologists Agreement (IETA)	Agreement for International Engineering Technicians (AIET)
	APEC Engineer (regional agreement)		

Source: Washington CORE[220]

Signatory jurisdictions joined the Washington Accord with the intention of enhancing the standards of engineering education and the competence of their engineers in the international market. For instance, Hong Kong, China joined the Washington Accord in 1995 to secure its international influence, especially in English speaking markets, after the transfer of its sovereignty from the United Kingdom. Japan also joined the Washington Accord for the purposes of quality control and the international equivalency of its engineering education system.[221]

Table 8: Washington Accord Member Jurisdictions

Jurisdiction	Representative Body	Accession Year
Signatories		
Australia	Engineers Australia (EA)	1989
Canada	Engineers Canada (EC)	1989
China	China Association for Science and Technology (CAST)	2016
Chinese Taipei	Institute of Engineering Education Taiwan (IEET)	2007
Hong Kong, China	Hong Kong Institution of Engineers (HKIE)	1995
India	National Board of Accreditation (NBA)	2014
Ireland	Engineers Ireland (EI)	1989
Japan	Japan Accreditation Board for Engineering Education (JABEE)	2005
Korea	Accreditation Board for Engineering Education of Korea (ABEEK)	2007
Malaysia	Board of Engineers Malaysia (BEM)	2009
New Zealand	Institution of Professional Engineers New Zealand (IPENZ)	1989
Pakistan	Pakistan Engineering Council (PEC)	2017
Russia	Association for Engineering Education Russia (AEER)	2012
Singapore	Institution of Engineers Singapore (IES)	2006
South Africa	Engineering Council South Africa (ECSA)	1999
Sri Lanka	Institution of Engineers Sri Lanka (IESL)	2014
Turkey	Association for Evaluation and Accreditation of Engineering Programs (MÜDEK)	2011
United States	Accreditation Board for Engineering and Technology (ABET)	1989
United Kingdom	Engineering Council United Kingdom (ECUK)	1989
Provisional Signatories		
Bangladesh	Board of Accreditation for Engineering and Technical Education (BAETE)	-
Costa Rica	Colegio Federado de Ingenieros y de Arquitectos de Costa Rica (CFIA)	-
Mexico	Consejo de Acreditación de la Enseñanza de la Ingeniería (CACEI)	-
Peru	Instituto de Calidad Y Acreditacion de Programas de Computacion, Ingeniera Y Technologia (ICACIT)	-
The Philippines	Philippine Technological Council (PTC)	-

Source: Washington CORE[222]

The standards to join the Washington Accord require approval from two-thirds of the signatories for Provisional Signatories and unanimous approval for Signatories. Signatories must pass periodic reviews of membership standards, while accepting the substantial equivalence of academic programs in all signatory jurisdictions.[223]

6.4.2   Role of the economy within the initiative

The Japanese accreditation body, the Japan Accreditation Board for Engineering Education (JABEE), became a provisional signatory member in 2001, and after two onsite visits in Japan in 2003 and 2004, joined the Washington Accord in 2005 as the ninth member, and the first non-English speaking member. [224] Prior to the accession, JABEE tied a Memorandum of Understanding (MOU) with accreditation bodies of the United States and Australia in order to receive advice, and obtained endorsements from counterparts in Canada and New Zealand for its provisional accession.

Since Japan's induction, JABEE has participated in resolutions during IEA meetings, including International Engineering Meetings (IEM). JABEE also takes responsibility for fostering and dispatching international visiting investigators, who participate in the periodic review of signatories and in the investigation of provisional signatories, and gives advice to other jurisdictions who intend to join the Washington Accord.[225]

6.4.3   Goal of the economy

The primary mission of JABEE is to enhance the quality of Japanese engineering education and to provide a foundation for guidelines to train students to become competent engineers. This mission reinforces the Japanese industry as a leading workplace for engineers, and contributes to the national standing as leading pioneers of science, technology, and creativity. In this sense, engineers are required to have not only a knowledge of natural science and its practical application, but also the skills to solve complex real world problems.[226]

JABEE aims to ensure the international equality of engineering educations through the accreditation of education programs. JABEE accredited engineering programs aim to enhance the skills of engineers as professionals who are able to compete with their international counterparts, and also aim to open opportunities for individual engineers to work globally.[227]

6.4.4   Implementation

Progress to date

JABEE placed joining the Washington Accord as one of its key goals in ensuring its mission statement of "training internationally competitive engineers." Since its creation, JABEE has been constructing an accreditation evaluation system which aims to ensure substantial equivalency with other Washington Accord member jurisdictions in terms of accreditation standards, methods, and process of evaluation, all while simultaneously respecting Japanese education standards. After passing visiting investigations from the Washington Accord review team in November 2003 and April 2004, and by proving system establishment and record of accreditation, JABEE formally joined the Washington Accord in 2005. By virtue of the accession, engineering education programs accredited by JABEE are considered as substantially equivalent to the member jurisdictions' engineering education programs and accreditation systems.[228]

In Japan, JABEE made efforts to establish cooperation between engineering education and engineer licenses. In most of the signatory jurisdictions, completion of an accredited engineering education is considered to be the first step in becoming a professional engineer. All graduates from accredited institutions generally become training engineers/associate professional engineers, while in Japan these graduates previously were required to take a first-round examination (1st-Step Professional Engineer Examination).[229]

Figure 6: Process to be a Qualified Professional Engineer in Japan
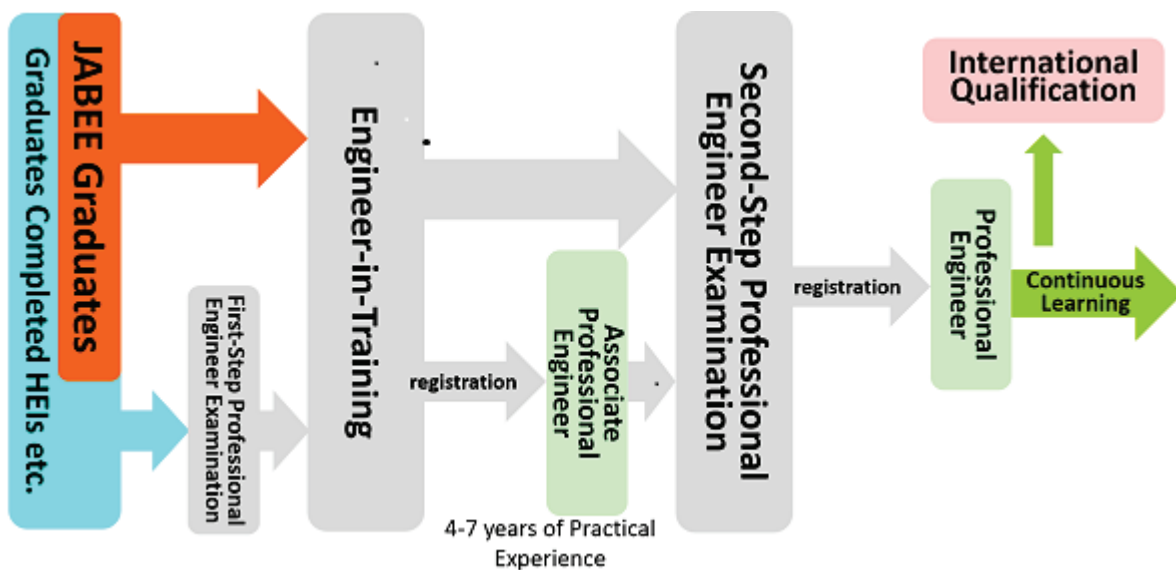
A Japanese government communiqué on March 26, 2004, on behalf of the Minister of Education, Science and Technology,[231] announced that all programs accredited by JABEE are exempt from

the first-round of examination for the Japanese National Professional Engineer license. This meant that cooperation between engineering education and the engineer license process had been officially integrated into the national regime. All graduates of the JABEE program would be exempt from the first-round examination, and immediately granted the national license of Associate Professional Engineer by registration.[232] Then, by completing at least four years of professional experience, and successfully completing the second round of examination (Second-Step Professional Engineer Examination), Associates can be qualified as a Professional Engineer (PE).[233]

In order to expand opportunities for Japanese PEs, JABEE and the Japan Society of Professional Engineers (JSPE) have signed the Memorandum of Understanding regarding cooperation for supporting engineers who are willing to obtain the license of PE in other jurisdictions, such as the United States. By virtue of the Washington Accord, graduates of the JABEE programs are treated as equals with US Accreditation Board for Engineering and Technology (ABET) graduates and graduating from the JABEE programs could be recognized as a condition to apply for a PE license in some US states.[234] However, there is not a broad acceptance of the Washington Accord as an MRA in the United States as state licensing bodies make the final decision on whether to recognize foreign engineers.

In terms of international cooperation, JABEE has taken the role of assisting and making recommendations to the engineering education of neighboring jurisdictions. Historically, JABEE has been assisting the accession accreditation bodies of Korea and Chinese Taipei in accordance with the MOU. JABEE assisted the China Association for Science and Technology (CAST) to make an accreditation system fit for the Washington Accord. CAST was admitted as a full signatory in 2016. Furthermore, JABEE has taken the responsibility of the endorsement on the occasion of Russia's provisional accession.[235]

Indonesia is currently preparing for provisional status in the Washington Accord in 2019. Japan, through its Japan International Cooperation Agency (JICA) and JABEE, has assisted Indonesia in developing accreditation system and required human resources.[236] In December 2014, JABEE carried out its first overseas evaluation in Bogor Agricultural University, Department of Mechanical and Biosystem Engineering, in Indonesia.[237]

Table 9: List of JABEE Accredited Programs in Indonesia

	Institutions	Programs	Departments
2014	Bogor Agricultural University	Mechanical and Biosystem Engineering	Department of Mechanical & Biosystem Engineering
2015	Islamic University of Indonesia	Civil Engineering	Department of Civil Engineering & Planning
2016	Universitas Indonesia	Chemical Engineering	Department of Chemical Engineering
	Insutut Teknologi Bandung	Metallurgical Engineering	Department of Metallurgical Engineering

Source: Washington CORE[238]

Challenges

JABEE considers a declining number of accredited programs as its top priority issue, according to its 2016 annual activity report.[239] Although the number of accredited programs had been steadily increasing until FY 2009, the number of programs that have stopped accreditation continuation has exceeded the number of newly accredited programs, and the number of certified programs has been gradually decreased since FY 2010.

In Australia, Malaysia, and most other signatories of the Washington Accord, graduating from their accredited engineering education program is mandatory to become a professional engineer. In Japan, however, it is not. With this in mind, some Japanese universities are not convinced that JABEE accreditation is advantageous, considering the burden of the procedures. Programs at

notable universities such as the University of Tokyo and Kyoto University have not been accredited as of March 2016.[240]

However, there has been an increase in exchange students at Japanese universities, and several problems have arisen when international students who graduated from non-accredited programs at Japanese universities could not become professional engineers when they returned to their own jurisdictions. Because of these incidents, the Malaysian Government, for example, has changed their rules and now requires that government scholarship students from Malaysia enroll in JABEE accredited programs.

JABEE is also concerned with issues regarding maintaining quality. According to the 2016 annual activity report,[241] the quality of some programs at Japanese universities have not improved, and have even worsened compared to previous years. Replacement of personnel and the vulnerability of the organizational structure necessary for maintaining activity often stagnate efforts. Additionally, evaluators sometimes did not make precise indications of quality.

Feedback from constituents in academia and the industry is important to continue functioning, however for JABEE, limited awareness of the accord by Japanese industry members is a major concern. Those who recognize JABEE are limited to major enterprises who take part of Keidanren (Japan Business Federation). JABEE recognizes the need to promote JABEE within the industry and society in order to disseminate the value of accreditation.[242]

In contrast to JABEE, ABET receives feedback and support from industry stakeholders. ABET requires each of the 3,700 accredited programs around the world to collect feedback from constituents, who are the primarily industries that hire graduates of these programs. ABET also has 35 member societies, mainly academic or practitioner focused in nature, which constitutes another source of feedback. There is also the Industrial Advisory Council, which advises the ABET board of directors on their interests and global issues. This Council includes companies such as General Motors, IBM and Boeing. ABET also signs memoranda of understanding agreements, of which there are 17, with foreign accrediting bodies as a means to improve the quality of their systems and exchange best practices.[243]

Regarding the signatories' responsibilities, there is a substantial globalization-driven demand for this recognition, as certain jurisdictions lack accreditation bodies, thus excluding them from the Accord, and seek accreditation from preeminent bodies such as ABET. ABET has accredited almost 400 programs outside the United States, in 29 jurisdictions.[244]

Unlike ABET, JABEE does not simply give accreditation to foreign programs. JABEE's assistance to the establishment of the accreditation organization in Indonesia is a highly innovative approach, and the accreditation of some universities in Indonesia was included as a part of this project. Indonesia aims to achieve the provisional accession to the Washington Accord by 2019 through establishing an accreditation system, making 25 programs compatible with international standards, and training 250 evaluators.

JABEE assists Indonesia in turning its education from input-based teaching to outcome-based learning, where programs are designed based on "what students shall acquire rather than what professors wish to teach.[245] Among the approximately 2,400 engineering educational programs, Indonesia aims to make 10% of them perform at an internationally competitive level.[246]

Since the Washington Accords admits the establishment of systems in accordance with the jurisdiction's history and backgrounds, Indonesia developed criteria specific to them, and established evaluation methods through advocacy, training of evaluators, consulting and pilot evaluations. Indonesia has determined what accreditation criteria was suitable for them through investigating the criteria of other signatories with the assistance of JABEE. As a result, Indonesia developed a new Indonesian criterion. Approximately 40 Indonesian professors have contributed to this project, understanding the value of accreditation.[247]

Future Actions

With respect to the challenges mentioned above, JABEE will implement several initiatives according to its 2016 annual activity report.[248]

JABEE plans to make efforts to reduce the burden on procedures in universities. In the case of evaluating multiple programs within the same university, JABEE has implemented a simultaneous evaluation method in order to level the evaluation results and, to reduce human resources and expenses of the evaluation procedures. JABEE will continue its efforts to make the simultaneous screening method more efficient.

In addition, JABEE organized a committee based on the knowledge that it is necessary to establish a system suitable for fostering internationally competitive engineers and their education. The Ministry of Education, Culture, Sports, Science and Technology (MEXT) supported the committee. There were four meetings between June 2016 to January 2017. Based on these discussions, JABEE is planning to examine the process of establishing a system to foster international engineers by the end of FY 2017 and will start new initiatives in FY 2018.[249]

JABEE revised the rule for the change notice and the change evaluation system for when an accredited program is changed. In the past, when a major change took place in an accredited program, JABEE checked the contents of the change submitted by the program, and judged whether to continue accreditation. However, based on deliberate examination of the past results of this system, and the circumstances surrounding educational institutions, JABEE decided to abolish the change notice and change evaluation in December 2016. According to 2016 annual activity report, there were few changes that affected the success or failure of the accreditation in the past. JABEE also believes that this decision further encourages universities to improve their programs voluntarily.

JABEE plans to raise the quality of evaluators by strengthening the content of trainings. JABEE will also encourage universities to maintain and improve related activities by holding workshops.

JABEE holds various workshops and international symposiums to improve the quality of engineer education, promote the JABEE accreditation system throughout the world, and encourage networking among engineering education accreditation institutions. JABEE will continue these efforts.

In order to raise awareness among industry stakeholders, JABEE invited industry people to onsite evaluations in FY 2016. According to participants, this visit helped them understand the effectiveness and the appropriateness of JABEE's accreditation. They also suggested that further devising the method of visits might help to deepen understanding of participants.

6.4.5   Achievements

175 universities and 501 programs are accredited by JABEE including four programs in Indonesia, and there have been over 250,000 graduates from accredited programs in Japan from 2001 to March 2016.[250]

Those who have completed the JABEE accreditation programs are exempt from the first round examination of the Japanese National Professional Engineer license. The first person who completed the accreditation program using these conditions passed the second-round examination in 2008. The number of successful applicants has increased steadily. According to the results of the second-round examination in FY 2016, the number of successful applicants has increased by 58% when compared to FY 2015. In addition, the average age of successful applicants was 43.1 years old, while those who completed the JABEE accredited program were 31.1 years old.

Figure 7: Number of Successful Applicants of the Second Round Examination for the Japanese National Professional Engineer License from JABEE Program Graduates
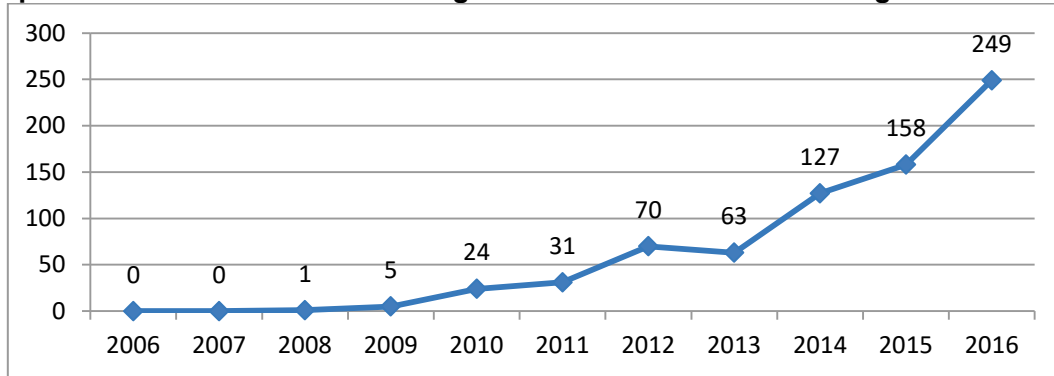
Since Japan's induction, JABEE has taken responsibilities as a Washington Accord signatory. For example, JABEE signed a Memorandum of Understanding with accredited organizations in Korea (2004), Chinese Taipei (2005), and China (2007) since 2004. Three organizations were approved as full signatories in 2007 (Korea and Chinese Taipei) and 2016 (China).

JABEE accredited 4 programs of 4 universities in Indonesia as part of the aforementioned project, although "substantial equivalence" as defined by the Washington Accord cannot be recognized for the graduates of these programs.[252]

6.4.6 Lessons learned

Priority on Improvement of Professional Engineering Education Standard Globally: The Washington Accord has had an impact on the educational systems in engineering in signatory jurisdictions, especially in the developing world. Through the process of meeting the Accord's standards, the accrediting bodies of signatories have drastically improved, as the process essentially accredits accreditors. Jurisdictions strive to meet the Accord's standards as a matter of prestige and pride. Since becoming the first non-English speaking member in 2005, JABEE has assisted to other Asian jurisdictions' efforts to improve their engineering education systems through MOUs and other initiatives.

Establish the Position of Professional Engineer: Another benefit has been the establishment of the Engineering Attributes for the Global Engineer, in which signatories agreed upon what engineering skills a graduate should have so that they are ready to work on projects in different parts of the world. This is essential, given that engineering is a very international discipline. However, mobility is largely a secondary benefit according to ABET.[253] JABEE continues to work towards the establishment of the engineering position as "professional" based on global standards, and aims to expand opportunities for Japanese engineers overseas as a result, but it does not state mobility of professional engineers as its main goal.

Make the Most of Flexibility of Voluntary Recognition: The Washington Accord is characterized by voluntary recognition, meaning that it is used and perceived differently depending on what jurisdiction is applying it. For example, graduating from a Washington Accord accredited engineering education program is mandatory to become a professional engineer in most original signatories, which appoint professional engineering associations as their representative body both to the Washington Accord and the IPEA. In Japan, however, JABEE represents the Washington Accord, and the Institution of Professional Engineers Japan (IPEJ) represents the IPEA. There are also other ways to become a professional engineer without graduating from JABEE accredited programs. Despite these differences, Japan became a signatory because of the Washington Accord's dedication to considering each jurisdiction's history and backgrounds. JABEE now applies this concept to improve activities within Japan, as well as when assisting other jurisdictions, such as Indonesia.

Mutual Support though Mentorship: Signatories are required to foster and dispatch international visiting investigators, who participate in the periodic review of signatories and in the investigation of provisional signatories, and assist other jurisdictions who intend to join the Washington Accord. These requirements help to improve signatories and other jurisdictions' professional engineering education systems, and also promote mutual understanding of other jurisdictions' systems and best practices.

Challenge to Raise Awareness: Governments of each signatory have little involvement in accreditation of engineering education, and representative bodies of signatories generally keep their independence as non-governmental organizations. Although this gives representative bodies freedom and greater flexibility to carry out activities, a lack of government involvement sometimes makes it harder to raise awareness of the Washington Accord and related efforts, especially where graduating from a Washington Accord accredited program is not required for professional engineers, such as in the United States and Japan. In order to raise awareness, JABEE organizes workshops, presentations and site visits.

Responding to Change: In response to changes in society surrounding professional engineers and their education, it is necessary for Washington Accord signatories to review and update their accreditation systems. While the IEA holds meetings to discuss important topics among signatories, each representative body, such as JABEE, must maintain and upgrade current accreditation systems based on the latest Washington Accord standards and the needs of their own jurisdiction.

6.5 Case Profile 5: ASEAN Qualifications Reference Framework (Malaysia)

6.5.1   Initiative background

The ASEAN Qualifications Reference Framework (AQRF) is a mechanism to transform national qualifications frameworks into mutually comparable regional standards among ASEAN member states (AMS).[254] The AQRF is a voluntary framework that is intended to establish minimum qualifications as well as a mechanism to "translate" national qualifications frameworks between members. The framework supports the recognition of qualifications, promotes labor mobility, aligns educational institution standards with international standards, and promotes student mobility.[255] It is intended to benefit qualified workers and students that are participating in basic, TVET, and higher education programs.

The AQRF concept was initially explored in 2010 through the Project on Education and Training Governance: Capacity Building for National Qualifications Frameworks, which was a component of the ASEAN-Australia-New Zealand Free Trade Area (AANZFTA) Economic Cooperation Work Program (ECWP). In 2012, a multi-sector task force was established to develop the AQRF. The framework was finalized in late 2014 and endorsed as a voluntary guideline by all relevant ASEAN Ministers in mid-2015, with a proposed target to implement the AQRF by 2018.[256]

This case study examines the implementation of the AQRF through Malaysia's experiences aligning its NQFs with the AQRF. Malaysia was chosen as the case study economy because it has been one of the leading AMS in developing the AQRF.[257]

6.5.2   Role of the economy within the initiative

Malaysia is one of the earliest ASEAN members to establish an NQF (the 2007 Malaysian Qualifications Framework (MQF)), while many other AMS are still in the process of implementing an NQF or have only recently done so.[258] Due to their past experience in implementing the MQF, Malaysia was asked to participate in the task force that developed the AQRF. Malaysian experts provided feedback on the initial AQRF framework, particularly in considering options that would work in the ASEAN region, given the diversity of stages in development of different AMS, and the complexity of education systems across the region.[259]

Malaysia is the furthest along in referencing its NQF with the AQRF, and expects to complete referencing its NQF with the AQRF by November 2017.[260]. Several other economies, including Indonesia, the Philippines, and Thailand, are planning to implement partial referencing to the AQRF in 2018.[261]

6.5.3 Goal of the economy

The member economies have a shared interest in creating opportunities for their skilled professionals within the region, to increase regional economic, integration and to create competitive labor markets. The AQRF will support labor mobility, allowing economies with labor shortages to import skilled workers and skilled professionals from economies with unemployment/underemployment in their sector find jobs. Increased opportunities for workers within ASEAN may also provide an alternative for workers that are considering working in OECD and BRICS economies.[262]

ASEAN members that are net importers of skilled labor (such as Malaysia) are expected to benefit from the implementation of the AQRF, since it will enhance the recognition of the expected level of education for skilled workers who may potentially work in those economies. In the long term, the AQRF will help Malaysia and other AMS to better understand their immigrant workforce and the kinds of certifications that those workers are bringing with them.

Separately from the AQRF, Malaysia has conducted compatibility (referencing) studies with New Zealand, Australia, Chinese Taipei, Japan, and South Africa to compare their qualifications frameworks. Engaging with other economies on these issues helps Malaysia to facilitate recognition of its qualifications systems, especially when working with quality assurance bodies. Referencing studies also help Malaysia to engage with associations, employers, students, and universities about qualifications and build trust in the qualifications system.[263]

6.5.4 Implementation

Progress to date

There have been four project phases since the AQRF concept was introduced in 2010:[264]

- Phase I (2010 – 2011) developed a policy concept paper and created regional and economy-level workshops;
- Phase II (2012 – 2015) developed AQRF implementation arrangements;
- Phase III (2013 – 2015) aimed to gather support and operational assistance through bilateral exchanges;[265] and
- Phase IV (2016 – 2018) is supporting the referencing processes of the ASEAN Qualifications Reference Framework (AQRF) by hosting meetings, workshops, and other outreach activities.[266]

The ASEAN committee that will determine referencing by NQFs to the AQRF held its first meeting in February 2017.

Several AMS are still developing their NQFs, which must be completed before referencing them to the AQRF. The table below shows the progress of the respective NQFs of each economy.

Table 10: ASEAN NQF Implementation Progress

Economy	Level of Establishment	Stage (1-8)
Brunei Darussalam	Inaugurated 2013, implemented	6
Cambodia	Inaugurated 2012, initial stages of implementation	5
Indonesia	Inaugurated 2012, initial stages of implementation	6
Lao PDR	Planned	3
Malaysia	Inaugurated 2007, fully implemented and at review stage	8
Myanmar	Planned	3

Economy	Level of Establishment	Stage (1-8)
The Philippines	Inaugurated 2012, initial stages of implementation	5
Singapore	Sector QF - Workforce Skills Qualifications system, Inaugurated 2003	7
Thailand	Inaugurated 2014, initial stages of implementation, three established sub frameworks (i.e. skills, professional, higher education	4
Viet Nam	Planned	3

*Stage definitions: **1**. No intent **2**. Desired but no progress made **3**. Background planning underway **4**. Initial development and design completed **5**. Some structures and processes agreed and documented **6**. Some structures and processes established and operational **7**. Structures and processes established for 5 years **8**. Review of structures and processes proposed or underway*

Source: ASEAN[267]

Once an AMS implements its NQF, it must then fulfill additional requirements to reference the NQF to the AQRF, such as establishing a national committee to oversee the referencing process.[268] Malaysia expects to complete referencing its NQF to the AQRF by November 2017.[269]

Challenges

In many ways, the challenges faced in the implementation of the AQRF are the same challenges faced by any AMS in the implementation of their respective NQFs. The slow implementation of NQFs by some economies can slow down the overall process for the full implementation of the AQRF across the entire region.[270] Because implementation is voluntary there is no compulsion for slower ASEAN members to reference their NQFs.[271]

As a regional framework, the AQRF must be easily referenced by national frameworks. However, differences among NQFs can be challenging to resolve.[272] For example, different NQFs may define domains or their level descriptors in a different way (one economy may organize skills training in eight levels while another may use six levels).[273] Similarly, qualifications may be present in comprehensive NQFs that are different from qualifications in other economies.[274] It may be difficult for an AMS to produce evidence to show that its qualification levels correspond with those in the AQRF, as levels are based on experience and national values that cannot necessarily be easily altered.[275]

For Malaysia, there do not currently appear to be any significant obstacles to the referencing work.

Future actions

The AQRF committee will implement Phase IV of the AQRF project through a series of committee meetings and technical workshops from June 2016 to June 2018.[276] In 2018 the committee will consider referencing reports submitted by Malaysia, the Philippines, Indonesia and Thailand.[277] Other regional qualifications frameworks and quality assurances will also be reviewed as AMS continue to develop NQFs.[278]

Although there has not yet been any collaboration between the AQRF and the European Qualification Framework (EQF), in the course of the development of the AQRF, participating economies have noted that the EQF is a strong model, due to its architecture, management governance, and simple and lifelong learning oriented structure.[279] Those involved in the EQF anticipate that future mutual referencing agreements may occur with the AQRF.[280]

6.5.5   Achievements

The creation of an AQRF Committee in February 2017[281] will support future AQRF meetings and workshops involving capacity development activities. The AQRF has served as a catalyst for the development of NQFs and globalization across ASEAN.

Malaysia has held two meetings of its committee to support referencing of the MQA to the AQRF to date.

6.5.6   Lessons learned

Devote sufficient long term national resources to the project: One insight from Malaysia's referencing exercise to date is that it is important to set appropriately realistic expectations for the time and resource allocation for referencing activities. Due to the scale and complexity of referencing activities, expectations should focus on medium to long term achievements. Planning should also take into account how to implement the framework once it is completed.[282]

Consolidate stakeholder representation through key organizations: Due to the potential number of stakeholders involved in skills and qualifications referencing, Malaysia consolidated its stakeholder organizations on the national committee to the government ministries that oversee the professional and regulatory bodies. This has helped to ensure that the size of the committee is manageable. However, as a result of the limited number of organizations participating in the national committee's direct discussions on the referencing exercise, transparency and communication about the committee's activities and plans are essential.[283]

Communicate with stakeholders about expected results and responsibilities: As noted above, transparency and good communication about the national qualifications and quality assurance system are important to achieving successful referencing exercises. Stakeholders (such as regulatory bodies, employer organizations, employee unions, academic institutions and skills training organizations) should be consulted about the expected changes and how they may be affected. Stakeholders should be able to understand the expected results of the referencing exercise, as well as their potential responsibilities. Stakeholders can participate through mechanisms such as providing comments to a national committee for the referencing exercise.[284]

Support other economies' efforts: The Malaysian national AQRF committee allows other AMS to participate as observers in the committee. Separately, Malaysia has been supporting Cambodia and Myanmar in their development of national qualifications frameworks.[285]

6.6   Case Profile 6: Occupational Standards Framework (Australia)

6.6.1   Initiative background

The Occupational Standards Framework (OSF) is an agreed protocol on the development and validation of regional occupational standards.[286] The OSF differs from an NQF or an RQF in that it is designed to enable a comparison of the skills required for specific occupations among different APEC economies, and is focused specifically on describing the expected scope of those specific occupations (rather than defining the requirements for licensing or certification), in order to facilitate a common understanding of occupations and occupational standards among participating economies. The OSF will help to identify core elements and skill levels in select occupations, provide a reference point for economies' occupational standards and capacity development activities, and support the exchange of information on best practices in competency-based training and assessment.

These benefits are expected to support labor and business mobility and enhance economic integration throughout APEC. The goals are in accordance with recent goals set by APEC, such as the APEC Human Resources Development (HRD) Ministerial Action Plan (2015 - 2018) and the APEC Connectivity Blueprint for 2015 - 2025.[287]

The OSF is a component of a broader project to explore the establishment of an APEC Integrated Referencing Framework for Skills Recognition and Mobility (IRF), commissioned by the Australian Government Department of Education and Training. The IRF project seeks to mobilize a cohesive architecture of three related frameworks:[288]

- An occupational standards framework, enabling a comparison of the skills required for specific occupations;
- A qualifications framework, enabling comparison of national qualification levels; and
- A quality assurance framework, enabling confidence in the relevance and quality of training and qualifications

In 2014 the concept of developing regional occupational standards reflecting the skills and knowledge required of workers in jobs across borders was tested in the transport and logistics industry sector. This involved the development of 47 occupational standards for five occupations (supply chain manager, warehouse supervisor, freight forwarder, logistics administrative officer and warehouse operator).

In September 2015, 12 APEC economies[289] participated in an initial meeting to discuss the development of the IRF.[290] Following the meeting, the OSF concept has been further explored in the Travel, Tourism and Hospitality Industry.

Through testing in these sectors, the technical working groups hope to create a strong foundation for improving the understanding of the skills held by workers across APEC, by establishing:[291]
- A flexible development process to enable each occupational sector to develop occupational standards to meet their needs;
- An avenue for member economies to contribute to the development and validation of regional occupational standards;
- Both industry and government representation in the development and validation of regional occupational standards; and
- Voluntary and flexible application within individual economies

The users of the framework are expected to include employers and training providers, as well as policy makers and recognition agencies within APEC economies.

6.6.2   Role of the economy within the initiative

Australia is engaged in international skills work in the APEC region through initiatives such as co-building occupational standards and benchmarking qualifications and standards systems. As part of these efforts, Australia has been the lead economy for the APEC occupational standards projects. The initial funding to explore the OSF concept came from the Australian Government Department of Foreign Affairs and Trade's APEC Economic Diplomacy Fund. As lead economy, Australia has prepared synthesis reports to lead discussions at initial project meetings, and has supported the ongoing development of the OSF projects.[292]

Australian Industry Standards[293] (AIS, previously known as the Transport and Logistics Industry Skills Council), a government-funded not-for-profit organization that develops skills standards across a range of Australian industries, provided technical project support for the implementation of the initial Transport & Logistics project, including site visits to participating economies and meetings with the industry organizations participating in the project. SkillsIQ Ltd[294], an Australian not-for-profit, independent skills service organization, provided technical support for the travel, tourism and hospitality project.[295]

In addition, Australia is pursuing the concept of an integrated referencing framework (IRF) through bringing together regional referencing frameworks to benchmark occupational standards, qualification levels and quality assurance systems. In addition to the APEC OSF initiative, Australia has been involved in qualifications and benchmarking work in ASEAN, and work through the East Asia Summit (EAS) on quality assurance systems of vocational education.[296]

The lessons from the OSF projects (see the 'Lessons Learned' section of this case study) were used to inform cooperation between the Australian Government Department of Education and Training and members of IORA (Indian Ocean Rim Association)[297] on the development of occupational standards in port sectors within the Indian Ocean Rim. Participants from APEC member economies Indonesia and Malaysia were also involved in this project.[298]

6.6.3   Goal of the economy

Australia has been motivated to focus on organizational standards by the recognition that work-forces and companies are increasingly mobile. Increasingly, Australian companies are working internationally, and it is useful for them to understand their work-forces abroad.[299] For example, if the occupational standards for a sector underpin the specific outcomes of training, this will allow companies to understand how local/national qualifications compare to other economies' in terms of what a worker needs to know to do a certain job, and what workers learn in training.

International occupational standards also accommodate foreign workers in Australia by validating their skills and experiences.[300] The project also supports Australian economic diplomacy initiative in the region as a way of working constructively with neighboring economies to improve the connections between the requirements of the labor market and TVET system delivery and therefore improve economies' overall productivity.[301]

There is regional interest in Australia's vocational education and training (VET) system due to its potential benefits, such as supporting productive workforces, global competitiveness, and using skills as a key enabler of economic growth.[302] However, Australian qualifications do not always meet the needs of offshore labor markets: a challenge which shared occupational standards can help to mitigate.[303] For example, Australian training providers are interested in working offshore, and systems that are similar and adaptable to Australian standards would assist them to do this.[304]

A framework could also support the outbound mobility of Australian vocational students, who are currently discouraged from overseas studies, since it is difficult to ensure that the educational and training systems in other economies will be recognized or relevant upon the student's return.[305]

6.6.4   Implementation

Progress to date

The draft OSF has been implemented through three test projects to date. The initial APEC Transport and Logistics Regional Skills Standards Project (2014-2016) brought together public and private sector participants from five economies[306] to benchmark and develop regional occupational standards for five occupations in the transport & logistics sector.[307] The transportation and logistics industry was chosen because it is an inherently transnational industry, with numerous international regulatory requirements for roles, and a high demand for workers.[308] Improving supply chain efficiency was also an APEC priority when the project was established, and this project has potential to improve the skills of workers in this sector.

Starting with a workshop in Australia in November 2014 to establish a shared understanding of skills standards in the Transport and Logistics Industry context and the development of a template for use in the final framework, each economy then prepared an initial draft of the standards for their selected occupation. Work then continued to finalize the standards, with site visits by the Australian Industry Standards[309] (AIS, previously known as the Transport and Logistics Industry Skills Council) to provide guidance on industry engagement in the development and validation of the skill standards, followed by a validation workshop held in the Philippines to validate the work and discuss an implementation strategy across the region.[310]

Following on from the APEC Transport and Logistics Project, the Australian Government Department of Education and Training led a project with Pacific Alliance[311] economies (Peru, Chile, Mexico, and Colombia[312]) to validate the occupational standards for the transport and logistics (T&L) sector. The project involved reviewing the suitability of the regional skills standards developed in the earlier APEC project for use in Pacific Alliance economies, and to extend the framework through the identification of an additional occupation (delivery driver).

Phase I of the IRF project recommended testing the OSF in a services industry sector. The "Test in the Travel, Tourism and Hospitality Industry" project involved the development of occupational

standards for six occupations in the travel, tourism and tourism industries with six APEC economies.[313] The occupations included housekeeper, cook, travel consultant, front desk attendant, bar attendant, and event coordinator. The main goals for the project were to explore whether the model developed in the transport & logistics projects was applicable to different industry sectors, and to build stronger linkages between economies' governments and industry in TVET systems development.

As with prior projects, the occupations chosen in the tourism project have a strong international component to them. Tourism is an important growth sector for many APEC member economies, including Australia, and represents part of the transformation of economies from a factory-driven model to a model that is more focused on services.[314]

Peru in particular is interested in tourism because the government has committed to a target to boost tourism by 2020, and needs a strong, internationally focused tourism workforce to reach its target.[315]

Following a technical workshop in Australia in November 2016, there was a follow-on workshop in March 2017 hosted by Peru with Australia and Pacific Alliance members.[316] A validation workshop was hosted by Viet Nam in May 2017 with the six technical working group economies. The project concluded in June 2017.

Challenges

According to participants in the initiative, achieving qualifications equivalence (such as benchmarking on a qualifications-to-qualifications level) is very difficult, since vocational educational systems and labor markets are very different between economies.[317] In order to mitigate these challenges, the approach used in the initiative's occupational standards benchmarking starts with the simpler metric of defining job roles and their comparability across economies, rather than trying to establish and oversee equivalency between TVET policy standards in participating economies, which is a more difficult task.[318]

Another significant challenge is that the training systems across the participating economies were at very different stages of development, and job roles were frequently different in scope. For example, a job such as automotive engineer might be handled by a generalist in one economy, while another economy might break the job role into a series of different jobs, such as one person responsible for braking systems and another person responsible for the transmission.[319]

The project managers have focused on flexibility related to project deadlines, milestones and setting dates for workshops, in order to accommodate participating organizations' competing demands.[320]

Cultural and linguistic differences in job functions were another challenge noted as part of the project.[321] This is addressed in the final product, a Companion Guide for each occupation which provides examples of work environments, conditions, resources and equipment which may affect performance in the job role and application of the occupational standards.

Qualifications benchmarking can also be costly for economies to undertake.[322]

Future actions

Looking ahead from 2017, future actions will include refining the OSF concept ,trialling the occupational standards in transport and logistics and tourism in 2019-2020, and testing the IRF concept across APEC. In addition, it is anticipated that participating economies will benchmark their national qualifications against the APEC occupational standards to inform industry relevant training courses.

While evaluation has not yet been a significant component of the project, there are several possible areas for evaluation, such as considering how each economy has used the common

standards that were developed. Other areas for evaluation could include feedback from the private sector on how common standards have affected their staffing needs, and tracking metrics on the outcomes and benefits of the qualifications framework efforts.[323] These areas for evaluation will be considered in the proposed trials during 2019-20.

6.6.5 Achievements

Some of the key milestones to date have been the creation of the draft OSF concept and the conclusion of the initial transport & logistics and tourism projects, involving the development of over 100 occupational standards across the two industry sectors.

In addition, this work has confirmed that it is possible to define the skills and knowledge required for jobs across different countries. Challenges in recognition arise when local TVET policies and labor market applications are applied through the delivery of qualifications.

Through these milestones, APEC has been able to start developing and benchmarking occupational standards across different regions (Southeast Asia and South America) as well as different industries.

One of the major benefits from the initiative to date has been in enhancing the way that individual economies approach their cooperation with industry to determine their industry's needs for occupational standards.[324] For example, China is exploring using the standards themselves to develop training programs.[325] Viet Nam and the Philippines are looking at how they can integrate the framework into their own qualifications.[326]

Aside from government actions, some of the private sector bodies from participating economies have been in discussions with the people who worked on the qualifications development and training providers on how to use the results of the project to upskill their workforces.[327]

As they are implemented, the standards will reduce the cost for industry to work in different economies as they can better understand other economies' training systems and qualifications, won't need to spend as much to learn how much additional training is needed, and can make more educated decisions on where to invest. This understanding will make it significantly easier for companies to import labor and address skill shortages.[328]

6.6.6 Lessons learned

Flexibility as a virtue: The OSF sought to preserve the flexibility of economies to identify and adopt the occupational standards that applied to their specific labor market. For example, where all economies agreed the occupational standard was required, it was defined as 'core'. When there was one economy that disagreed with this, the occupational standards was defined as 'elective'. The economies agreed that that requirements which weren't unanimous could be made in each economies' jurisdiction on a case-by-case basis.[329]

Strong involvement by industry members: Industry bodies were contracted as part of the project to discuss their needs from skills development, the core requirements of jobs, and to provide industry feedback. Every participating economy involved private sector participants to validate the common standards.[330]

Exploring unexpected areas for cooperation: Among project participants in the initial Transport & Logistics project, there was a widespread acknowledgement of opportunities for greater efficiency in the area of skills development, as the occupations studied had substantially more in common across economies than initially expected by the project participants.[331]

Recognizing opportunities to support industry: The ways that economies approach recognition of skills can vary significantly. For example, some economies have close linkages between government and the skills training fields, while other economies do not. The OSF initiative provided an opportunity for some economies to engage in a development process with

their industry members to ensure that the qualifications being developed were relevant to their industry's needs.[332]

Value of site visits: Participants noted that site visits were very helpful in fostering exchanges between industry members and the training sector and in understanding the core requirements of the job.

Focusing on achievable standards: While most professional MRAs are for highly professionalized and skilled occupations like engineering and architecture, several of the occupations in the OSF's pilot projects are semi-skilled and skills are often learned on-the-job. As a result, instead of focusing on achieving equivalency among different economies', the OSF project is instead focused on finding comparability among job descriptions in different economies. Setting different expectations from other MRAs has allowed the projects to move forward with initial successes, instead of being limited by the need to find equivalency.[333]

Building up through small groups to validate approaches: The OSF projects have focused on building consensus among groups of five or six economies on a small number of occupations at a time. By starting with smaller groups to develop and validate an approach to reach a consensus, the project team has helped to ensure that projects have had clear goals, and has worked to build the foundation for moving forward, with the eventual goal of broadening the framework and lessons learned to the rest of APEC. This approach has also helped some economies to better understand the nuances of mutual recognition as a concept and to work with their industry organizations on how to best develop future skills training policies.

6.7 Case Profile 7: Pacific Alliance (Mexico)

6.7.1 Initiative Background

The Pacific Alliance was formed by Chile, Colombia, Mexico, and Peru on April 28, 2011[334] with the intention of forming a regional free trading bloc and strengthening economic ties with the Asia-Pacific region through promoting the free flow of goods, services, capital and people. This initiative was started by then-Peruvian President Alan Garcia, who invited Chile, Colombia and Mexico to participate. The Alliance hopes to liberalize trade in goods and services, open foreign investment, integrate securities markets and allow the free movement of people between member economies.[335]

In June 2012 the Framework Agreement for the Alliance was signed, establishing the institutional basis for regional integration. It also established membership requirements, which include that members must be democracies, have bilateral agreements with all other members, have separation of the powers of state and protect, promote and guarantee human rights and fundamental liberties.[336] As of March 2017, the Alliance has held 11 presidential summits to discuss and advance its agenda.[337] In addition to the four founding members, Costa Rica and Panama are currently candidates for full membership, pending fulfillment of the requirements, and there are 49 observer economies that monitor the issues being negotiated, including Australia, Canada, China, Indonesia, Japan, Korea, New Zealand, Singapore, Thailand and the United States.[338]

Facilitating trade is the chief goal of the Alliance, with human capital capacity building as an important component of the Alliance's work. So far the Alliance's capacity building efforts have focused on strengthening educational integration. The Alliance's Education working group supports coordination of educational policies and collaboration with technical groups on priority issues such as human resource training and scholarships.[339] In the 2016 XI Presidential Summit of the Pacific Alliance in Puerto Varas, Chile, the Education working group declared its intent to pursue goals such as:[340]
- Exploring mechanisms that contribute to the recognition of grades and degrees of higher-education

- Evaluating alternatives that contribute to the construction of National Qualifications Frameworks
- Strengthening Technical and Vocational Education and Training (TVET)
- Promoting the mobility of human capital through a program of student internships in technical and technological programs and the cooperation of Observing economies for the strengthening of the English language in the Alliance

Labor mobility was a significant topic of discussion at the April 2016 "Labor Mobility within the Pacific Alliance" event, in which representatives of the four member economies, entrepreneurs and international experts met to discuss the issue. Speakers agreed on the importance of labor mobility for enhancing human capital, employment opportunities, and productivity.

The commitment to labor mobility was formalized in the Puerto Varas Declaration in July 2016, where it was declared that the Alliance would work toward goals including:[341]

- Prepare a study comparing the labor mobility of the four member economies, which will serve as the base for the establishment of public policy on the topic. Design and implement mechanisms and instruments to improve labor mobility in the Alliance.
- Discuss the free movement of persons with the European Union
- Create an analysis about the advances and successes in the extension of visas between the Alliance economies and prospective future measures
- Implement the necessary actions for the function of a Platform of Exchange of Immediate Information for the Migration Security of the Alliance

Based on a proposal by Peru, the Alliance is currently considering the formation of a technical group on issues of Labor and Employment that would be responsible for promoting effective labor mobility.[342]

In addition, the Alliance members recently collaborated with the Australian Government Department of Education and Training on two projects to expand existing draft APEC occupational standards frameworks to incorporate Alliance economies' standards.[343] These included the draft APEC Transport and Logistics Regional Skills Standards Framework and an expansion on the framework for the travel, tourism and hospitality industry. [344]

Mexico was chosen as the case study economy for this issue due to its strong economic influence in the Alliance.

6.7.2   Role of the economy within the initiative

Mexico is an equal partner to the other member economies, although it is by far the largest economic power, representing 61% of the combined gross domestic product.[345] Mexico took over the Alliance's rotating presidency for one year in 2014-2015, and soon after hosted the Alliance's Business Matchmaking Forum, including member economies plus Korea, China and Japan.[346]

6.7.3   Goal of the economy

Mexico sees the Pacific Alliance as a means to increase its economic presence in Latin America and leverage access to the Asia-Pacific region through cooperation with member economies, utilizing Mexico's significant experience in negotiating favorable trade terms, such as contractual relationships in the creation of trade agreements.[347] It is also seen as an opportunity to demonstrate the effectiveness of free trade and cooperation in light of a trend towards protectionism in some other economies.[348]

ProMexico, an agency under the Ministry of Economy responsible for trade and investment, views the Alliance as an opportunity for Mexican businesses to export and internationalize, whether directly or through global value chains. Toward this end, ProMexico has identified a range of promising industry sectors, including automotive and vehicle parts, construction materials/hardware, electronics, food, logistics and infrastructure, petrochemicals and services.[349]

6.7.4 Implementation

Progress to date

The leaders of the four economies make up the final decision-making body of the Alliance. In addition, there are several organizational institutions that have been established:

- The Council of Ministers is comprised of the foreign affairs and economic ministers of member economies. The council is responsible for making major decisions related to the objectives of the alliance; evaluating progress and results; approving programs and activities; defining the political guidelines related to the integration process; and other related activities.
- The High Level Group consists of member economies' vice-ministers of foreign affairs, commerce, and trade. It is charged with assessing the progress made by the technical working groups, identifying new areas in which the Alliance can further its objectives; and preparing proposals for interacting or cooperating with other entities or regional groups.
- The Pacific Alliance has established numerous working groups to address specific aspects of the negotiations and internal matters, including:
  - o Technical Cooperation: Promotes broad cooperation among member economies with a special focus on the environment and climate change, innovation, science and technology, social development, academic and student exchange, and tourism.
  - o Movement of Business People and Facilitation of Migration. Focuses on migratory movement and the free flow of business people, consular cooperation and work-study programs for students, as well as cooperation and information exchange on migration flows.[350]

Following on from the successful APEC Transport and Logistics Regional Skills Standards Project conducted during 2014 to 2016 (see Case Profile 6: Occupational Standards Framework for details), the Australian Government Department of Education and Training led a project with Pacific Alliance economies to validate the occupational standards for the transport and logistics (T&L) sector.

The new project was endorsed by the Pacific Alliance Education Technical Group, and industry and education representatives from Peru, Chile, Mexico and Colombia participated in the project working group. The purpose of the project was to:[351]

1. Review the suitability of the regional skills standards developed in the earlier APEC project for use in Pacific Alliance economies; and
2. Extend the framework through the identification of an additional priority transport and logistics occupation. Associated skills standards were be developed by the working group to meet the requirements of the new occupation.

The first meeting of the working group was held on 26-29 September 2016 in Lima, Peru. The meeting involved presentations from each of the participating economies about their Transport and Logistics Industry, as well as their VET systems. The meeting included several site tours to industry participants' locations, including AUSA Soluciones Logísticas, APM Terminals and SAVAR Corporación Logistica, to showcase their approaches to workforce skills development. At the meeting, it was agreed that the role of Delivery Driver would be the new occupation to expand the existing draft framework.

In addition, the Alliance also worked with Australia to build on another APEC skills standards development project for the travel, tourism, and hospitality industry that expands on the work done in the transportation sector (See Case Profile 6: Occupational Standards Framework for details on the project). Peru in particular has been interested in tourism because the government has committed to a target to boost tourism by 2020, and needs a strong, internationally focused tourism workforce to reach its target.[352] The Alliance held a workshop for the project in March 2017 hosted by Peru with Australia and Pacific Alliance members.[353] A validation workshop was

hosted as part of the APEC SOM conference in Viet Nam in May 2017 with the six technical working group economies. The project concluded in June 2017.

Challenges
It remains to be seen what challenges may emerge as the Alliance takes its initial steps to promote labor mobility. So far the Alliance has encountered few major challenges in implementation of trade integration initiatives, although the effectiveness of the initiatives in increasing trade has yet to be proven.[354]

Participants in the Transport and Logistics meeting found some significant variations in each economy's approach to VET, which will be kept in mind in future discussions.[355]

Future Actions
Alliance members are currently working on expanding facilitation measures for migration transit, agreements for the greater mobility of young people to travel and work, and mechanisms for consular cooperation, such as visa exemptions.[356] However, there is significant room for the Pacific Alliance to take on new objectives to support labor mobility.

In a 2016 review, the Atlantic Council recommended that the Pacific Alliance start focusing on technical issues such as accreditation of degrees and other technical certifications to allow for the free movement of labor among member economies.[357]

6.7.5   Achievements
The member economies share the common goal of promoting regional economic development by facilitating the free circulation of goods, services, capital and persons. As the four funding economies share similar economic and political ideals, they are moving forward quickly to accomplish this goal through various agreements to share the use of their facilities or embassies and consulates to further advance the objectives of the integration process.[358]

The Alliance has achieved several significant accomplishments to date in travel facilitation. In 2012, Mexico approved the exemption of visa requirements for Colombians and Peruvians for up to 180 days (Chileans were already exempt) for tourism and business trips. Peru provided similar visa exemptions for Chile, Colombia and Mexico. However, it is important to note that none of the active visa exemptions include working visas, and there are no mutual recognition frameworks for professional qualifications/certifications.

Other achievements toward the mobility of people include visa exemptions for periods up to six months for unpaid activities and a current initiative to facilitate measures for the mobility of young people to travel and work. In 2013, an exchange program was launched to enable mobility for undergraduate, graduate, doctoral students and teachers and researchers to contribute to highly developed human resources in member economies.[359] Between 2013 and 2016 a total of 1,200 scholarships were awarded through this scholarship program, and it was institutionalized into the Alliance's Platform of Student and Academic Mobility.[360] Through 2015, 855 students had been exchanged among member economies through the Alliance's initiatives.[361]

6.7.6   Lessons Learned
Due to the relatively brief experience of the Pacific Alliance with labor mobility efforts, the best practice areas below are preliminary and based on limited in-practice achievements to date.

Build on past accomplishments to support future activities on labor mobility: The Alliance has been successful to date in visa exemption and student exchanges. Future labor mobility and skills recognition initiatives could build on these areas. For example, the ties developed between education institutions could lead to future discussions on shared standards or recognizing equivalency in educational degrees.

Developing cooperation with economic support organizations with similar goals: The work by Alliance economies on building on the two APEC skills standards projects presents a good

model for ways that multiple economic support organizations can work together to support labor mobility and shared standards.

6.8 Case Profile 8: Thailand Automotive Human Resource Development Project (TAHRDP) in testing and certification (Japan & Thailand)

6.8.1 Initiative Background

The Thai Government determined that the auto industry was critical to the Thai economy and declared its intention to convert Bangkok and its surrounding area into the "Asian Detroit." The Japan International Cooperation Agency (JICA) launched a project to assist the idea in 2004. At that time, there were already eight institutes in Thailand that aimed to develop the automotive industry under the direction of Thai Ministry of Industry (MOI), one of which was the Thailand Automotive Institute (TAI). TAI was appointed as a designated agency and took responsibility to foster automotive industry in Thailand. Initially, JICA dispatched experts and volunteers (mostly employees and retirees of Japanese companies) to the institute to provide training and promote improvements in local parts manufacturers. JICA later launched a research and proposal project for human resource development, predicting a shortage in the skilled labor force where more foreign manufacturers would move their factories into the Thai market.[362]

Then, Nissan, a Japanese automotive company, and Unico International, an ODA consulting firm, conducted a research project and made a proposal to establish a skills certificate examination system for the auto industry. The recommendation was made so that corporate executives could be aware of the needs of their internal human resource development and so that autoworkers could become motivated to seek higher objectives. The Thai Ministry of Labor already had national skill certification systems, including those for workers in the auto industry that were limited to repair and maintenance areas, with no applicable certificates in place for auto manufacturing skills. Furthermore, the level of existing certifications did not meet the needs of the Japanese auto industry (e.g. the time limit for practical tests was three times longer than its Japanese counterpart).[363]

Japan External Trade Organization (JETRO) introduced, following the Nissan and Unico proposal, the first (highest) class level[364] of the Japanese national certificate in five fields: pressing, casting, machining, resin molding and metal molding. TAI played the role of JETRO's counterpart in this project. The Thailand Automotive Human Resources Development Project (TAHRDP) was launched in 2006, encouraged by the Japanese Ministry of Economy, Trade and Industry (METI). TAHRDP resulted in the streamlining of the skill certificate systems for seventeen fields with three levels, which created 51 certificates through the five-year project.[365]

Figure 8: Organizations Administering the Skill Tests for Automotive Industry
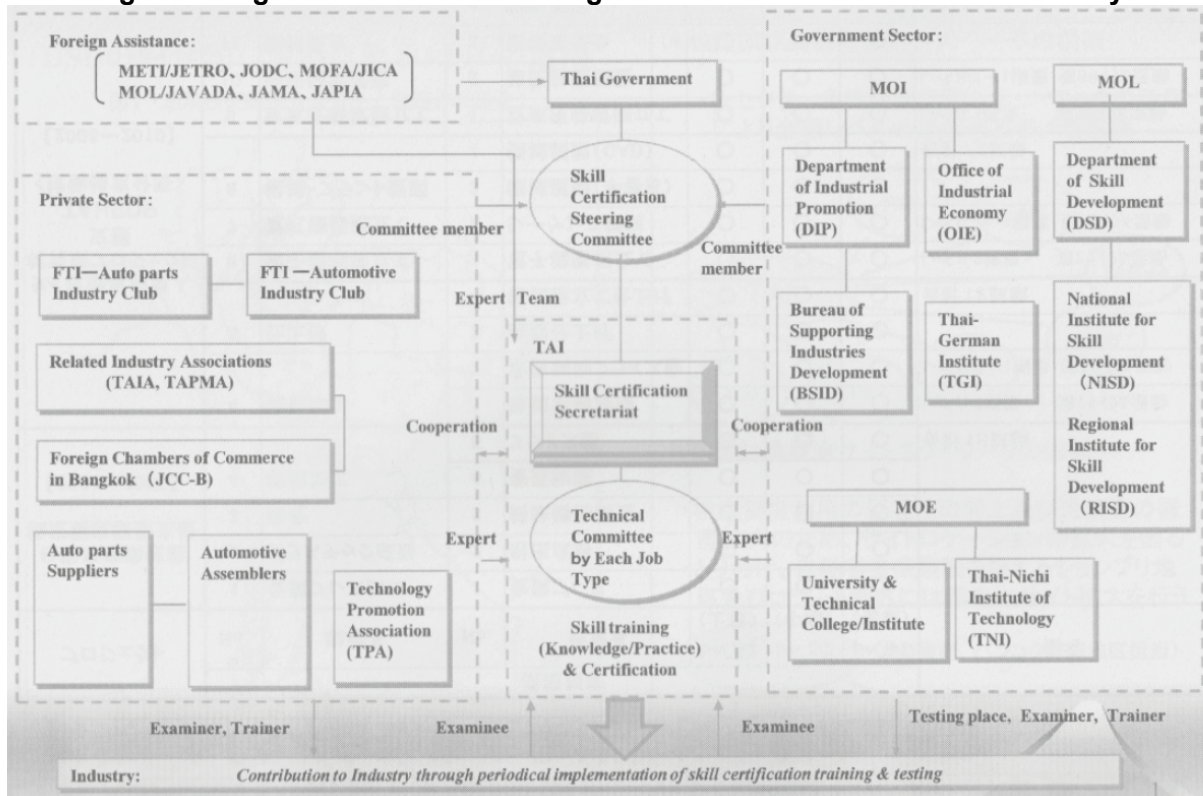
* "Foreign Assistance" represent Japanese ministries and agencies.
** "Government Sector" includes the following ministries of Thai government: Ministry of Industry (MOI), Ministry of Labour (MOL) and Ministry of Education (MOE)

Source: JETRO[366]

6.8.2 Role of the economy (Japan and Thailand) within the initiative

In the wake of the Asian Financial Crisis in 1997, restructuring the economy became a vital issue for Thailand. Thailand had experienced high economic growth until the crisis by accepting external investments and using its high-quality but cheap labor force, which eventually needed to be transformed to increase productivity as well as to shift toward high value-added areas. The critical economic environment at the time helped reform school and occupational education, and increased public awareness of the importance of capacity building. Initially, the 1999 National Education Act B.E.2542 (1999) was implemented to reform school education systems, which proceeded to create educational reforms, including the reorganization of central government ministries. The Council of Engineering (COE) was also established in 1999.

The project prior to the TAHRDP was based on the needs of the Thai industries. As more Japanese auto-related manufacturers operated plants in Thailand, high-skilled workers became scarce. Although the Thai government was cooperative, Japanese players (like Nissan) needed to be careful not to compete against already existing national certificate systems for fear that the Thai Ministry of Labor might take the Japanese assistance unfavorably. The ministry eventually became very cooperative in various ways, including by providing public occupational training centers as skill testing places.[367] Nissan facilitated the interaction between the Ministries of Industry and Labor, which made it possible to launch the testing of 51 skills.[368]

6.8.3 Goal of the economy

Japan assisted the Thai government in its intention to raise the technical skill levels of the local automotive industry in Thailand through TAHRDP.

At that time, the Thai automotive industry was enhancing production capability and gathering auto parts companies. Additionally, Japanese automotive manufacturers were moving their production of pick-up trucks to Thailand. Because cost and quality were crucial in order to

become competitive in global markets, finding qualified, skilled employees was imperative. Therefore, Japanese companies had and still has incentives to promote human resource development in Thailand.

Nissan's goal

Nissan's main purpose in its initiative of human resource development is to develop standardized skills in global locations and to control the quality of production regardless of where it is produced. For executives, on top of basic skills, training focuses on developing their management skills by exposing them to Nissan's corporate culture and by training them to improve quality control and reduce costs.[369] In developing economies, standardized facilities and management tools are in high demand, as the new facilities are constantly developed and human resources are scarce.[370]

As its manufacturing base is small in the Asia and Pacific, Nissan's contributions are social in nature, rather than directly benefiting the company. Nissan takes the initiative as an opportunity to enhance its corporate brand value and add more fans to Nissan's expanding base. It is currently carrying out another ODA project for Mexico's automotive industry.[371]

6.8.4   Implementation

Progress to date

Prior to the start of the TAHRDP, the Japanese government utilized a wide range of tools to support the efforts of the Thai government to develop human resources. In accordance with the Seventh National Economic and Social Development Five-Year Plan, the Japanese ODA loans supported the Strengthening Vocational and Technical Manpower Production Project (1994), aimed at fostering mid-level technicians with the skills and adaptability that met the technical standards of the industrial world. ODA loans also supported the Thailand-Japan Technology Transfer Project (1995), aimed at improving the level of scientific and technological advancement, and developing human resources in the departments of science and engineering at Chulalongkorn University. Other aid tools currently include programs that accept Thai trainees in Japan, as well as dispatching experts to Thailand, with the aim of transferring industrial technology and managerial expertise or developing local leaders (by The Association for Overseas Technical Scholarship (AOTS) and by the Japan Overseas Development Corporation (JODC)). JETRO conducts guidance programs that dispatch technical experts to small and medium-sized companies in the automotive parts industry, with the aim of facilitating field guidance in industrial management and individual techniques. The Japan International Cooperation Agency (JICA) supports programs that assist the expansion and enhancement of higher learning engineering institutions. Recent assistance includes the Thailand Automotive Human Resources Development Project (TAHRDP), which was initiated in December 2005. Based on a study by JETRO, this project aims to develop the skills of Thai technicians working for Japanese-affiliated companies and to provide a basis to further develop human resources. This program also develops the abilities and knowledge of Thai instructors by training them at Japanese human resource development organizations and having them attend workshops conducted by Japanese specialists; these Thai instructors then return to Thailand to train junior staff members and technicians at local Thai firms. More specifically, the program develops employees who can instruct others on a variety of techniques related to manufacturing, metal mold casting and engineering. Within 10 years, the program hopes to develop the expertise of thousands of people in the automotive industry.[372]

Japanese participants in TAHRDP are the Ministry of Economy, Trade and Industry, JETRO, JICA, JCCB, and four major automotive manufacturers (Toyota, Nissan, Honda and Denso). Toyota was in charge of TPS (Toyota Production System) training, Nissan was in charge of the technical skills certifications and examination system, Honda took charge of training in mold making, and Denso was in charge of training management and the like in manufacturing skills. Each manufacturer was to create a training curriculum as well as to send professional trainers who would nurture Thai master trainers and standard trainers.[373]

Challenges

After implementing the Japanese skill certification systems to Thailand, without modification as to the scope and difficulty, the Steering Committee was established, consisting of core members from the Japan Business Federation, the Japan Auto Parts Industries Association, and the Japanese Ministry of Health, Welfare and Labor. The challenge was to motivate each Thai company to have a certain number of their employees take the skill certificate examinations with the help of the Steering Committee. Another challenge was to structure a Technical Committee consisting of members of general managers of technical departments within private companies, in order to review and maintain the appropriateness of the skills certificate examinations.

A more concerning issue was whether both committees would be able to keep functioning after the initial Japanese members left. After Nissan departed, no follow-up review has been conducted. It seems that the certification secretariat of TAI is reviewing on a much smaller scale at five or six fields and levels out of the initial 51 fields. Additionally, Nissan fostered 80 certified examiners who were selected out of trainers based on their excellency on their examination scores and attitude and were to provide preparatory education prior to examinations as well as judge practical tests at testing places. It is questionable if the certified examiner system is well maintained as designed.[374]

Figure 9: Design of Examiner/Trainer Certification and Sustainability

Examiners were:
trained by the expert team from Japan, certified by the Technical Committee, and registered by TAI.

* Those examiners and trainers, belonging to formal employers like local businesses, were encouraged to be given clear positions and benefits by their employers.

Examiners

The steps towards higher certification.

Master Trainers

The skills passed down to larger workforces

Trainers in Local Branches

Examinees

Source: JETRO[375]

In a study that measured the effect of TAHRDP, it was difficult to measure the outcome of the technical skill certifications. It is assumed that the short duration of the study resulted in the effects of the certification system not being measured as significant. The two training areas were meant to contribute improvement of employee morale, as well as manufacturing skills, both of which require time to visualize outcomes. In addition, the improvement of employees' mindset, as well as improvement of manufacturing skills, is often affected by in-house training or steps to formulate skills. Taking these variable factors into account, it may be necessary to facilitate regular follow-up sessions after the trainings in order to reinforce the benefits of TAHRDP.[376]

A major complaint about TAHRDP expressed by the Japanese companies is the lack of mechanisms for examining how their trainings change participating trainees and companies and for conducting follow-up activities. Additionally, the project presented difficulties in ensuring the sustainability of activities after its completion. This is an issue that can obstruct any project of this type, where the private sector plays a central role as a resource provider. The third issue presents itself when balancing flexibility and the management of project implementation. For components of the project being operated separately, TAHRDP was implemented with insufficient awareness about the goal of the project as a whole. On the other hand, some believe

that too much emphasis on project management may discourage private companies that offer their cooperation.[377]

Future Actions
Although Thailand is an economy where the majority of workers are lower skilled, levels of certificate examination should not be lowered in order to facilitate the mutual recognition of certificates between economies. This would not be beneficial for Japan. Nissan has sought to foster high skilled workers so that 1st class workers are qualified to work for Japanese automotive manufactures. A common skill certificate system could help judge skill levels before hiring and mitigate the problem of paying higher salaries for work candidates who exaggerate their skills, particularly in a society where job-hopping is extremely frequent. Eventually, the certificate system could prevent such a misjudgment and economic loss, and could promote overall productivity.[378]

Many workers were motivated by the skill certificate systems because they took it as an opportunity to enhance their skills. The workers were very eager to participate in practical training sessions. In many cases, corporate executives promoted Grades 1 and 2 holders to the posts of supervisors and technical managers. Some executives, however, did not value the certificate systems, as they were afraid that workers might demand higher pay after they became certified and confident in their skills. Upon launching the project, Nissan conducted interviews with over one hundred corporate executives. They categorized the executives into two groups: supporters and opponents. They found that those that held a negative perception of the program were short-term profit seekers, and were not able, or unwilling, to invest in future management.[379]

6.8.5 Achievements
JICA assesses the overall impact of TAHRDP from the three aspects: Impact on the automobile industry; Impact on participant companies; and Impact on trainers and trainees.[380]

Impact on the automobile industry: The automobile industry currently accounts for 12% of Thailand's GDP, employing 400,000 workers, corresponding to 2% of the total Thai workforce. Since its inception in 2006, TAHRDP has fostered approximately 6,000 trainers or trainees corresponding to 1.5% of the total workforce in the automobile industry. In addition, the automobile industry in Thailand rapidly increased production and export of automobiles and auto-parts throughout the 2000s. The project has contributed to an increase in competitiveness of the local auto-parts industry, which was essential to the drastic growth of the industry.

Impact on participant companies: The surveys conducted by the study team for the local companies that sent their workers to the training programs indicate that the project had a great impact on the companies in regard to the categories of "more support to co-workers", "improvement of product quality", "improvement in work attitude", and "introduction of new technology". Some companies that participated in the Toyota Production System (TPS) training have produced remarkable results in terms of drastic reduction of production lead-time, improvement of productivity, and so on.

Impact on trainers and trainees: Our surveys of those who TAHRDP shows that almost all respondents are currently utilizing the knowledge and skills learned in the training programs. Trainees also recognize the impact of the training sessions on their workplace in terms of "more supports to co-workers", "improvement of product quality", and "improvement in work attitude." This coincided with the participant companies' views.

6.8.6 Lessons Learned
The lessons below were discussed during the interview with the members of THRDP from Nissan Education Center.[381]

Local commitment: The lessons learned for establishing certificate examination systems in different industries is to construct a structure that continually maintains the system functions. Three players, government, industrial associations and private corporations, need to work

together to maintain the system. An initial agreement is required, which would state that private corporations need to be cooperative and contribute to the fostering of both trainers and examiners. It also necessary to obtain a commitment from the local stakeholders, which would state that they will have a certain number of workers participate every year. Nissan was not able to get local involvement to that extent for the five years of the project. This commitment is required in any industry.

Neutral Project Lead: Even within the same economy, various entities often have varying objectives and interests. Regarding the THRDP, Nissan's expert team played a critical role in bridging the gap between government agencies, companies, economies, etc. It was necessary to draw funding and commitment from both the JICA and JETRO, to form a multi-disciplinary team of stakeholders to act as the steering committee and technical committee, and to gain support from local private companies in providing resources and encouraging their employees to take the qualification exams.

Understanding of the employers: It is natural that the workers are motivated to educate themselves and improve their skills once they are given tools like qualification exams, trainers and certifications. However, employers' view of employees who strive to improve their skills varies. In some cases, employers see this trend positively and embrace the motivation of their employees to learn. These employers tend to promote the workers who gained certifications to higher positions, with more responsibilities. Conversely, other employers resent their workers that participate in education programs and gain certifications. They fear that these employees will then ask for pay raise, not seeing the importance of human capital development adapting to a changing business climate.

Setting high standard for the qualification: Because the THRDP was led by a Japanese automaker that requires a high quality of work from workers, the requirement to receive the certification that came out of the demand for high quality was also very high. According to the project lead, if an MRA is established between two certifications with different standards, it will not benefit the employers. Rather than adjusting the requirements for qualifications to each economies' skill levels, accrediting authorities should aim to set a standard that is truly equivalent between economies. The project lead noted that Thai workers with the 1st Class certification from the THRDP were equally qualified as those with 1st Class certifications under the Japanese national qualification system. This is something other MRA initiatives can also strive for.

7 Appendix B – Workshop Summary

The research team[382] organized a half-day workshop on May 13, 2017 entitled "Enhancing Mutual Recognition and Regional Cooperation for Skills and Job Qualifications in the APEC Region" during APEC's Second Senior Officials' Meeting (SOM2) and High-Level Policy Dialogue on Human Resource Development in the Digital Age, held in Ha Noi, Viet Nam. The purpose of this workshop was to provide relevant stakeholders with an opportunity to exchange their knowledge and views and to share the research team's interim report. The workshop included presentations by four speakers from APEC economies[383] and brought together about 25 attendees from 10 economies.[384]

The workshop began with opening remarks by the Project Overseer[385] and by the APEC HRDWG Capacity Building Network (CBN) Coordinator[386]. The opening remarks covered several ongoing social issues that are creating new drivers for the mutual recognition of labor qualifications among member economies, such as declining birthrates and aging populations. Both speakers expressed their expectations for a productive dialogue among stakeholders throughout the workshop.

The research team then gave a presentation on their current research describing the project background, methods, results and conclusion. The presentation focused on the accomplishments, challenges and opportunities, and best practices and recommendations for further progress in mutual recognition efforts. Further details about the project findings can be found in Section 4 "Findings" of this report.

The research presentation was followed by the invited speakers' presentations. The first speaker, from Engineers Australia[387], described the challenges in the mutual recognition of engineering qualifications, and made several suggestions for improvements. He emphasized that mutual recognition must be accepted and carried out by both parties involved, whether through intergovernmental agreements or through arrangements between private occupational organizations. Ultimately, these agreements must be openly embraced by both partners; otherwise they will be ineffective and even counterproductive. Based on his personal experience as a construction engineer, the speaker believed that creating a clear definition of professionals' qualifications should be the foremost priority in mutual recognition projects. Finally, the speaker concluded his presentation by explaining that even without the physical movement of workers, the mutual recognition of qualifications will play a greater role in enabling workers to be hired across borders due to the development of information technology (IT).

The second speaker was from the National Taipei University of Technology (NTUT).[388] He introduced several initiatives for Occupational Competency Standards (OCS) in Chinese Taipei and explained the significance and methods for establishing the standards. He presented on how the Workforce Development Agency (WDA), a branch of Chinese Taipei's Ministry of Labor, established the OCS, using tools such as the Integrated Competency and Application Platform (iCAP), a national portal site for competency systems that has enabled WDA to collect input from industry stakeholders. He also noted that several Taiwanese educational institutions have received the US ABET accreditation, and that American accreditation has become the standard in Chinese Taipei. Finally, he introduced the case of Everlight Electronics, a private manufacturer of semiconductors that leads the establishment of occupational standards in its industry. In his conclusion, the speaker recommended that any economies willing to establish occupational standards should learn from the economies that have pioneered these practices, such as Australia. He also emphasized the importance of economies sharing best practices in establishing occupational standards with each other. He argued that it would make future mutual recognition efforts easier if economies were to base their efforts on a common model.

The third speaker, from the Central Institute for Economic Management (CIEM) in Viet Nam,[389] presented on the importance of mutual recognition in ASEAN service sectors. He noted that this sector holds particular benefits for Viet Nam since the mutual recognition of qualifications with other economies accelerated the improvement of the quality of labor in Viet Nam. This was

achieved by two means: 1) newly established qualification framework and managing bodies; and 2) an increased sense of competition among Vietnamese workers that was promoted by the inflow of labor forces from overseas. He noted that the tourism sector is an example of a sector that has the potential for a robust mutual recognition process in ASEAN. He also pointed out that in Viet Nam, in order to meet the growing demand from international tourists, tourism workers needed to be trained in foreign languages and the kind of services that appeals to international customers. Finally, he recommended that economies should not judge current efforts too critically, but instead should showcase the benefits of mutual recognition of qualifications through successful examples in order to garner support from stakeholders.

The fourth and final speaker was from the Information Promotion Agency (IPA) in Japan[390]. The speaker introduced the Information Technology Engineers Examination (ITEE), an international examination based on Japan's own IT Engineer Examination, which is administered by the IPA. After briefly introducing the history and management of the IT Engineer Examination in Japan, the speaker described the international examination in detail. This international examination has been exported to seven other economies, with the goal of realizing a common skill standard among Asian economies. He also highlighted the examination's success in promoting mobility among economies for IT engineers, establishing a common standard for the profession, and providing a comparative benchmark for private companies looking to hire IT engineers internationally. Furthermore, he emphasized the IPA's efforts to promote examinations, including the preferential treatment in the Japanese immigration system given to successful examinees. Finally, he mentioned that the Japanese government hopes to increase the number of highly-skilled IT engineers entering from other economies. The IPA has therefore been trying to establish a common standard for IT engineers within the Asia Pacific region; this is being achieved through the IPA's mutual recognition agreement with its counterparts in other economies in addition to the international examination.

In the Q&A Panel Session, the moderator[391] began the discussion by asking how to raise awareness of mutually recognized qualifications and other education or training programs among workers and employers in each economy, as well as in the APEC region as a whole. Speakers from Chinese Taipei, Japan, and Australia responded. In Chinese Taipei, educational institutions focus on implementing international standards and raising awareness about those standards. In addition, individual industries (such as the tourism industry) work to raise awareness among professionals who could be potential beneficiaries of MRAs. Comparatively, major Japanese IT companies such as Toshiba use the IT exam system as part of their human resources development, and provides bonuses or special consideration for promotion to employees that receive higher levels of IT test certification. The IPA encourages awareness of the IT test outside of Japan via advertising campaigns, such as a recent campaign that used recognizable mascots such as Hello Kitty to market the test. In Australia, the number of registered APEC Engineers has grown significantly due to increased awareness of the program among eligible engineers.

The moderator then asked about best practices in coordinating MRA programs and working with multiple stakeholders. The speaker from Australia noted that while every case is different, it is important that government agencies work to support professional organizations in this area by helping to facilitate discussions and organizing stakeholders.

The moderator then moved on to several questions from the audience. An attendee[392] from Viet Nam's Institute for Development Strategies[393] asked whether mutual recognition efforts should pay attention to the varied needs among different industrial sectors and different skill levels of workers, especially since some developing economies do not have many highly skilled workers, which is the main focus of ASEAN MRAs. The questioner suggested shifting the focus of MRAs to industries more relevant to each economy. Furthermore, she noted that the current flow of labor has been mainly from developing economies to developed ones. She suggested that this is due to the individual needs of each economy, as developed economies face workforce shortages while developing economies have many low-skilled workers. In the end, she suggested that it would be best for ASEAN and APEC MRA policies to reflect this reality. The speaker from Viet Nam replied that it is important to first establish successful practices by continuing efforts to

mutually recognize professional qualifications in the industrial sectors, where multiple economies have reached an agreement. He also noted that it is best to take a cautious approach to expanding the fields covered by MRAs. However, the speaker suggested that one possible area for expansion might be to explore an MRA for teaching services. He observed that APEC could provide a valuable forum for consensus building in parallel with the MRA process established by ASEAN.

An audience member from the Workforce Development Agency of Chinese Taipei[394] asked how the qualification management organizations ensure that qualification exams are credible and up-to-date. The speaker from Australia explained that the Australian engineer qualification is based on a Competency Assessment, which does not involve an examination, but it instead relies on candidates providing evidence of their academic degrees and professional experience. In contrast, the speaker from Japan explained that the questions on the Japanese IT engineer qualifying exam are carefully composed by examination committees, which consist of more than 400 participating specialists. Within the examination committees, specialists are divided into multiple groups that consider how to devise questions that will accurately challenge examinees. For the exams administered in ASEAN economies, about 60% of the questions are from the Japanese IT exam, and 40% of the questions are created by the experts from the participating ASEAN economies.

The last question from the audience was from an attendee from ABAC (Hong Kong, China).[395] He mentioned that the negative aspects of worker mobility have recently been emphasized in the global community, and he urged the officials from APEC economies working on HRD issues to focus on the positive aspects of mutual recognition of qualifications as much as possible. For instance, he suggested to avoid the usage of sensitive terms such as "migrant" and to replace terms such as "unskilled" with clearer terms like "low-skilled." Furthermore, he recommended that APEC should establish a mechanism in order to better realize the "Earn, Learn, and Return" model for international workers' skills mobility proposed by ABAC. For example, workers licensed in one economy should be able to reflect the professional experience they gain in other economies in their qualifications when returning to their home economy, and should also be able to keep their pension funds earned during their stay in another economy. In response, the speaker from Chinese Taipei noted that training programs for overseas workers (such as language or cultural lessons) could be very valuable to reduce culture shock and improve communication. The speaker from Viet Nam noted that there is a need to build on the APEC framework for labor mobility in selected areas, and emphasized the need to make it possible for laborers to find work between economies without unnecessary burden.

Following the panel discussion, a speaker from the research team[396] provided brief closing remarks for the workshop, and invited audience members to visit the project website to see the interim report and the speaker presentations.

8 Appendix C – Key Acronyms

AANZFTA ECWP	ASEAN-Australia-New Zealand Free Trade Agreement Economic Cooperation Work Programme
ABAC	APEC Business Advisory Council
ADB	Asian Development Bank
AELM	APEC Economic Leaders Meeting
AFAS	ASEA Framework Agreement on Services
AIET	Agreement for International Engineering Technicians
AMM	APEC Ministerial Meeting
AMS	ASEAN Member State
APEC	Asia-Pacific Economic Cooperation
ASEAN	Association of Southeast Asian Nations
CBN	(APEC HRDWG) Capacity Building Network
CEDEFOP	European Centre for the Development of Vocational Training
CTE	career and technical education
EDNET	(APEC HRDWG) Education Network
EQF	European Qualifications Framework
HRDMM	(APEC) Human Resources Development Ministerial Meeting
HRDWG	(APEC) Human Resources Development Working Group
ICT	information and communications technology
IEA	International Engineering Alliance
IETA	International Engineering Technologists Agreement
ILO	International Labour Organization
IPA	Information-technology Promotion Agency, Japan
IPEA	International Professional Engineers Agreement
ITPEC	Information Technology Professionals Examination Council
LSPN	(APEC HRDWG) Labor and Social Protection Network
MRA	Mutual Recognition Agreements/Arrangements
NQF	National Qualifications Framework
OECD	Organisation for Economic Co-operation and Development
RMCS	Regional Model Competency Standards
RQF	Regional Qualifications Framework
SCE	(APEC) SOM Steering Committee on ECOTECH
SOM	(APEC) Senior Officials' Meeting
TVET	technical and vocational education and training
UIL	UNESCO Institute for Lifelong Learning
UNESCO	United Nations Educational, Scientific and Cultural Organization

9 Appendix D – References

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[385] Ms Harumi Murakami, Assistant Director, APEC Office, Ministry of Economy, Trade and Industry (METI) of Japan

[386] Mr Meng-Liang Tsai, Deputy Director General, Work Force Development Agency (WDA), Ministry of Labor, Chinese Taipei

[387] Mr Glen Crawley, the Registrar of Professional Standards. Mr Crawley has been in charge of ensuring engineers maintain currency in continuing professional development, and of liaising between governments and industry on strategies for the national registration.

[388] Professor Jen-Chia (Richard) Chang, Professor at Graduate Institute of Technological & Vocational Education

[389] Mr Nguyen Anh Duong, Deputy Director in charge of Macroeconomic Policy and Integration Studies

[390] Mr Kenji Ogawa, Vice President of the IT Human Resources Development Headquarters

[391] Mr James Tetlow, Senior Research Analyst, Washington CORE

[392] Ms Quynh Trang Nguyen, Researcher of Department for Human Development and Social Affairs

[393] A research branch under the Ministry of Planning and Investment, Viet Nam

[394] Ms Kuei-Yen Liao, International Affairs Section Chief who is also APEC HRDWG CBN Deputy Coordinator

[395] Mr David Dodwell, Vice chairman, government relations of the British Chamber of Commerce; chairman of the Hong Kong Coalition of Service Industries, the policy think tank arm of the Hong Kong General Chamber of

Commerce; and Executive Director of the trade policy think tank Hong Kong-APEC Trade Policy Group. (http://www.hk-apec.com.hk/images/misc/files/David%20Dodwell%20Bio.pdf)
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