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Original Article

An Analysis of Topics of APEC Health Projects and Participation of APEC Member Economiesin the Projects duringthe Post-SARS Period

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Abstract

Data on health-related projects approved and implemented by APEC during 2003-2009 were collected from APEC's official website in order to analyze the development of health-related projects submitted to APEC, to calculate the percentage of budget subsidized by APEC for health-related projects, to understand the involvement of APEC member economies in health-related issues, and to explore the extent of APEC's commitment to health-related issues through an analysis of the level of offices in charge of health issues within APEC during 2003-2009. A total of 26 projects were implemented during this period, among which projects addressing the issues of avian influenza and pandemic influenza accounted for the largest share (50%), followed by those about health information technology (23%). A participation rate analysis shows that Chinese Taipei, the USA, and Canada shared the first rank position (0.54), followed by China (0.38). The weighted participation index indicated that the USA had the highest accumulated score (21), followed by Canada (18), and Chinese Taipei (17). In addition, the percentage of budget subsidized by APEC for health-related projects increased from 17.77% in 2003 to 50% in 2009, which was a significant growth in subsidies. The impact of the SARS outbreak on the economy and trade has brought more attention to health-related issues in the international community. Chinese Taipei has been actively participating in various health-related projects, and it has transitioned from the role of a mere participant in the past to that of an active proposer in recent years. Therefore, we suggest that health authorities should put more effort into getting subsidies for projects from APEC, systematically proposing projects for cross-national cooperation, and sharing our advanced medical and health technology. All these are very important in advancing international health diplomacy and elevating the international visibility of this country.

Keywords:：Asia-Pacific Economic Cooperation (APEC), Health Task Force (HTF), Health Working Group (HWG), health-related issue

Introduction

A. Establishment of APEC and participation of Taiwan

The original goals of the Asia-Pacific Economic Cooperation (APEC), when it was established in 1989, were to construct an intergovernmental regional forum and negotiation mechanism, to integrate the economic development of the Asia-Pacific region, and to push for the implementation of trade and investment liberalization and facilitation [1]. After more than ten years of effort and development, APEC has gradually become the most important mechanism for economic cooperation in the Asia-Pacific region. The number of APEC economies has increased from 12 at its beginning to 21 at present[1], which account for 45% of the world's population and cover more than half of the volume of global trade, making this organization an influential player in the global economy [2].

Taiwan was accepted as an APEC economy in the name of Chinese Taipei in 1991, the same time when China and Hong Kong became member economies. Since then, Chinese Taipei has actively participated in relevant APEC activities on an ongoing basis. As the issues covered by APEC have expanded annually and become more multi-dimensional, almost all ministries in the government have been involved in APEC affairs. With the consideration of ensuring economic growth and prosperity in the Asia-Pacific region, APEC, for the first time, officially called to member economies to pay more attention to emerging infectious diseases in 1995. [2] The infectious disease control authorities in Taiwan started to join relevant APEC activities and meetings in 1997.

B. Level of units in charge of health-related issues within the APEC structure

Recognizing the impact of emerging infectious diseases on the development of the Asia-Pacific economy, APEC, which had traditionally focused on economic issues, started to pay attention to health problems. Moreover, the level of units responsible for dealing with health issues has been elevated from year to year in light of the huge impact of emerging infectious diseases, such as SARS and avian influenza, on economic development. Detailed descriptions of this evolution are as follows：

a. Industrial Science and Technology Working Group (ISTWG) in 1997

ISTWG was created in 1990 for the purpose of promoting cooperation in industrial development and information technology among member economies. In response to the severe impact of emerging infectious diseases on the economy, APEC advocated for the first time that cooperation in the control of emerging infectious diseases (EIDs) should be strengthened in the first APEC Ministers Conference on Regional Science and Technology Cooperation in 1995, and ISTWG was assigned to coordinate relevant programs associated with this advocacy. Subsequently, member economies were encouraged to propose

health-related projects starting 1997. As a result, a total of 11 projects were submitted by the United States, Korea, Australia, and Chinese Taipei during 1997-2001, including projects for sharing information through electronic websites, for cooperation in laboratory testing, for collaboration on training courses, and for the monitoring of EIDs. Among these projects, the Children-Enterovirus 71 Epidemic Watch Program proposed by Chinese Taipei in 2000 has received support and approval from member economies [3].

In 2003, SARS devastated countries around the world and severely affected international trade and economic development among APEC member economies. APEC was forced to reconsider the operation mechanism for dealing with health issues. Since the current operation was ineffective and incapable of effectively responding to the pandemic crisis because of the low participation rates among member economies in issues of emerging infectious diseases, it was suggested during the 24th ISTWG conference held in May 2003 that a special mission group or a new working group should be created under the APEC structure [4]. This suggestion was further discussed in the first minister conference on health held in June for effectively implementing APEC's communicable disease control strategy and executing the APEC's function as an emergency contact network for communicable disease control [5-6]. Following this discussion, Chinese Taipei, United States, and Thailand all advocated for the creation of a Health Task Force, and this was approved by the Concluding Senior Officials' Meeting in October [7]. Finally, this suggestion was submitted to the Ministerial Meeting held in 2003, where the establishment of a Health Task Force within the APEC structure was announced [8]. This was one of the significant achievements of Taiwan in participating in APEC activities.

b. Health Task Force (HTF) in 2003

The Terms of Reference (TOR) for HTF were endorsed by the First Senior Officials Meeting held in March 2004. [9] The HTF comprised full-time senior officials or health specialists designated by 21 member economies from their health departments and was charged with strengthening and integrating health-related units and forums within APEC. The issues discussed had expanded from its original focus on emerging infectious diseases to medical and health care [2]. Chinese Taipei won approval for hosting the first HTF Meeting in Taipei, which was attended by more than 100 delegates from 18 member economies [10], reflecting an intense interest in HTF from member economies.

However, the HTF was defined as a provisional mission group and, in order to meet APEC's principle of structural downsizing, a two-year sunset clause was formulated at the time when it was created. [6-7] Therefore, the HTF had to be re-evaluated in 2005 on whether it should continue to exist or it would become a formal group within the APEC structure. Considering that the threat from traditional and emerging infectious diseases had not been eliminated, Chinese Taipei made a suggestion to extend HTF for two more years during the 2005 Senior Officials Meeting. This suggestion was endorsed by the majority of member economies and, therefore, the HTF was allowed to continue its operation [11].

c. Health Working Group (HWG) in 2008

In 2006, the APEC Senior Officials Meeting (SOM) Steering Committee on Economic and Technical Cooperation (SCE) conducted a review on the effectiveness of all Task Forces and Mission Groups. Considering the importance of health issues to economic development, SCE suggested that HTF should be converted into a permanent HWG. This proposal was endorsed by member economies in the 2007 APEC Ministerial Meeting [12] .

The HWG hosted its first meeting in February 2008. Based on the trend of health issues of topmost international concern, three major topics were considered as priorities, including 'enhancing preparedness for and response to avian influenza, human pandemic influenza, and vector-borne diseases,' 'fighting against HIV/AIDS,' and 'improving health outcomes through advances in health information technology' [13] .

Materials and Methods

A. Purpose

The purpose of this study is to analyze the following areas of the health issues proposed by APEC member economies during the post-SARS, HTF and HWG operation periods (2003-2009), including participation rate of member economies, weighted participation index, attribute distribution, and budget allocation.

B. Study design

Data for this study were collected from the section of Project Database[2] on APEC's official website, including 26 projects that were approved during 2003-2009 and have been implemented (Table 1). The variables for analysis include the name of member economies involved, title of project, implementation situation, budget granted by APEC, total budget for implementation, proposing economy, and cosponsoring APEC economies. To facilitate comparison between different studies, this study uses the calculation method advanced by the 'Analysis on Participation of Member Economies in APEC Health Projects-2002' [3] and analyzes the participation rate of member economies and their weighted participation index. The 'participation rate' was calculated to understand the number of projects participated by a member economy in relation to the total number of projects addressing health-related issues. The formula for calculating 'participation rate' was: the sum of projects proposed plus projects participated divided by 26. Since proposing a project requires the investment of more resources than merely participating in a project, the degree of participation is higher for a member economy proposing a project than for those just taking part in a project. Therefore, the weighted participation index was calculated by giving more weight to a member economy proposing a project. For member economies proposing a project and implementing it, two points for each proposal were given to them. For those just participating in a project, one point for each proposal was given to them. Therefore, The formula for calculating 'weighted participation index' was: multiplying the number of projects proposed by 2 and then adding to it the number of projects participated.

Table 1: Projects on health-related issues approved and implemented by APEC during 2003-2009

Project Name	Project Number	Proposing Economy	Cosponsoring APEC Economies
Control of Dengue Outbreaks Regional Cooperation Project	IST 05/2003	Chinese Taipei	Canada; United States
Pandemic Influenza Preparedness Planning	IST 08/2003	United States	Chinese Taipei
Situation Assessment: Influenza Surveillance, and Pandemic Planning and Preparedness	HTF 01/2004	United States	Brunei Darussalam; Canada; Singapore; Chinese Taipei; Malaysia
Enhancing Influenza Surveillance, and Pandemic Planning and Preparedness	HTF 01/2005	United States	Brunei Darussalam; Canada; Singapore; Chinese Taipei; Malaysia
APEC e-Health Initiative	HTF 03/2005	Republic of Korea	Singapore; Chinese Taipei; United States
APEC Workshop on HIV/AIDS Management in the Workplace	HTF 05/2005	Thailand	The Republic of the Philippines; People's Republic of China
Enhanced APEC Health Communications: Collaborative Preparedness in Asia Pacific	HTF 01/2006	United States	Chinese Taipei; Republic of Korea
Functioning Economies in Times of Pandemic	HTF 01/2006A	Australia	Canada; Viet Nam
Pandemic Preparedness Communications Workshop	HTF 02/2006	Canada	Australia; People's Republic of China; United States; New Zealand
APEC Symposium on Emerging Infectious Diseases	HTF 02/2006A	People's Republic of China	Australia; Thailand; United States
APEC e-Health Action Project	HTF 03/2006	Republic of Korea	Chinese Taipei; Thailand; Viet Nam
APEC Capacity Building Seminar on Avian Influenza	HTF 03/2006A	Japan	Canada; Indonesia; United States; Viet Nam
Implementation of APEC Action Plan on the Prevention and Response to Avian and Influenza Pandemics: Progress review and building capacity for future work	HTF 01/2007A	Viet Nam	Peru; Canada; People's Republic of China; Indonesia; United States
Pandemic Risk Communications: Building Capacity in International Media and Stakeholder Relations	HTF 02/2007A	Canada	Australia; United States
APEC Training for Program Managers on TB/HIV	HTF 03/2007A	Thailand	Canada; Chinese Taipei
Training Course for Rapid Response Team (RRT) on Human Highly Pathogenic Avian Influenza (HPAI) Containment	HTF 01/2008A	People's Republic of China	Australia; Canada; Viet Nam; Mexico
Enhanced APEC Health Communications: Collaborative Preparedness in Asia Pacific	HTF 02/2008A	United States	Chile; People's Republic of China; Thailand
Development of an Information platform for Avian Influenza (AI) community Management and Engagement	HTF 04/2008A	People's Republic of China	The Russian Federation; Hong Kong, China; Thailand
APEC Workshop for the Control Practice of Dengue Fever	HTF 05/2008A	Chinese Taipei	Australia;Peru; Brunei Darussalam; Republic of Korea
Follow-up to the HIV/AIDS Workplace Guidelines: A Workshop on HIV as an episodic disability in the workplace	HTF 06/2008A	Canada	Peru; Chinese Taipei; Thailand
Capacity Building Seminar on Social Management Policies for Migrants to Prevent the Transmission of HIV/AIDS	HTF 07/2008A	Viet Nam	Canada; People's Republic of China
Animal Health, Human Health and the Environment. Exploring the 'One Health, One World' Concept and Applying it to Risk Communications	HTF 08/2008A	Canada	Peru; Chinese Taipei
E Health Initiative Seminar	HTF 09/2008A	Republic of Korea	Australia; Singapore; People's Republic of China; Chinese Taipei; Thailand; Japan
APEC Conference for the Surveillance, Treatment, Laboratory Diagnosis and Vaccine Development of Enteroviruses	HTF 01/2009A	Chinese Taipei	Canada; Republic of Korea
Leveraging Advances in Health IT to Prevent and Combat the Spread of Avian Influenza and other Infectious Diseases	HTF 02/2009A	United States	People's Republic of China; Thailand; Viet Nam; Republic of Korea
APEC Emerging Infectious Disease Network (EINet): Expert Roundtable Series on Hot Topics in Emerging Infectious Diseases	HTF 04/2009A	United States	Brunei Darussalam; Singapore;Chinese Taipei

Results

A. Participation rate and weighted participation index

A total of 26 projects were approved and implemented by APEC member economies during 2003-2009. The participation situation of each member economy for the 26 projects was summarized in Table 2. The United States had proposed a total of seven projects, the highest among all member economies, while Chinese Taipei had participated in the largest number of projects, with a total of 11 projects. For participation rate, although Chinese Taipei had proposed a lower number of projects than the United States and Canada, Chinese Taipei had taken part in more projects than both of them so Chinese Taipei shared the highest participation rate, 0.54, with the United States and Canada, followed by China and Thailand. The weighted participation index analysis shows that the United States obtained the highest accumulated score, 21 points, followed by Canada, 18 points, and Chinese Taipei, 17 points.

A further analysis was conducted by dividing the member economies into three groups based on participation rate. The first group was the member economies with high participation rate (>0.5), including the United States, Canada, and Chinese Taipei in descending order; the second group was those with medium participation rate (between 0.2 and 0.5), including China, Korea, Vietnam, and Australia; and the third group was those having low participation rate (<0.2), including the remaining 13 member economies. A total of 25 projects were proposed by the eight member economies belonging to the first two groups, accounting for 96% of the 26 projects.

Table 2. Participation rate and weighted participation index of APEC member economies for projects endorsed during 2003-2009

Degree of participation	Name of member economies	No. of projects proposed	No. of projects participated	Participation rate*	Weighted participation index**
High participation rate	U.S.	7	7	0.54	21
	Canada	4	10	0.54	18
	Taiwan	3	11	0.54	17
Medium participation rate	China	3	7	0.38	13
	Thailand	2	7	0.35	11
	Korea	3	4	0.27	10
	Vietnam	2	5	0.27	9
	Australia	1	6	0.27	8
Low participation rate	Singapore	0	5	0.19	5
	Peru	0	4	0.15	4
	Brunei Darussalam	0	4	0.15	4
	Japan	1	1	0.08	3
	Indonesia	0	2	0.08	2
	Malaysia	0	2	0.08	2
	Philippines	0	2	0.04	1
	Chile	0	1	0.04	1
	Hong Kong	0	1	0.04	1
	Mexico	0	1	0.04	1
	New Zealand	0	1	0.04	1
	Russia	0	1	0.04	1
	Papua New Guinea	0	0	0.00	0
	Total	26	81		

* The denominator is 26 (a total of 26 projects endorsed), and the numerator equals the sum of the number of projects proposed plus the number of projects participated.

**The weighted participation index was calculated by giving two points to a member economy proposing a project and one point to that participating in a project.

B. Attribute distribution

In this study, the 26 projects were classified into five categories based on the topic addressed and the classification of HWG's three priority issues. They are avian influenza and pandemic influenza, HIV/AIDS, health information technology, dengue fever, and enterovirus. Figure shows that 13 projects were about the issue of avian influenza and pandemic influenza, accounting for 50% of the 26 projects. This indicates that the threat potentially caused by avian influenza and pandemic influenza has drawn much attention from member economies after they suffered from the devastation of the SARS outbreak. Six projects (23%) addressed the issue of health information technology and were mainly proposed by developed member economies, such as Korea (3 projects) and USA (3 projects). The project of e-Health initiated by Korea focused on the trend of the development of an electronic medical information system while the project of Emerging Infectious Network (EINet) put forward by the USA emphasized the surveillance and notification of infectious diseases. There are four projects (15%) associated with the issue of HIV/AIDS, and they were proposed by Thailand (2 projects), Vietnam (1 project), and Canada (1 project). This suggests that the developing member economies are more focused on HIV/AIDS issue. Two projects (8%) associated with dengue fever were proposed by Chinese Taipei in 2003 and 2008, respectively. Another project related to enterovirus was proposed by Chinese Taipei in 2009.

C. Budget allocation

APEC allocates about 1.9 million US dollars per year from its Operation Account (OA) for subsidizing member economies on an application-by-application basis. In addition, an APEC Support Fund (ASF) was created in 2005 to assist developing countries in capacity building. The issues considered for subsidy from ASF include human security and avian influenza. Thus, budgets needed for implementing health-related projects have been mostly dispensed from the ASF since 2005. [14] All applications for subsidized grants from APEC have to be sent to the Budget and Management Committee (BMC) and be reviewed by the Meeting of BMC, and the amount of subsidies eventually granted is based on the resolution of the BMC Meeting.

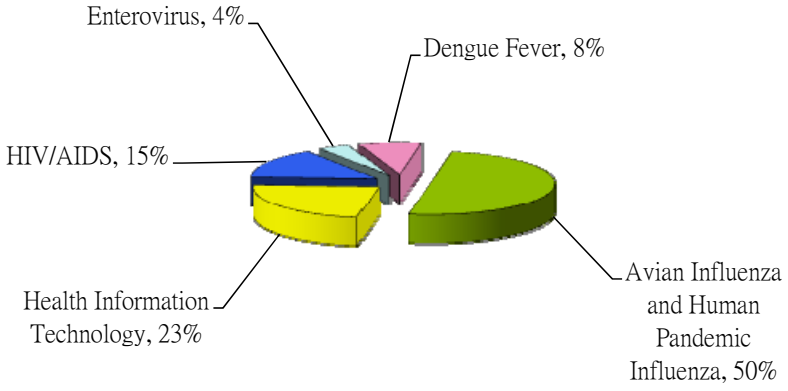

Figure Analysis of attributes of projects proposed by APEC member economies during 2003-2009

The percentage of budget subsidized by APEC had increased from 17.77% of the total amount for all proposed health-related projects in 2003 to 50% in 2009. During this period, the percentage of budget subsidized by APEC was the highest (70.50%) in 2007. This was mainly because the project of APEC Training for Program Managers on TB/HIV coordinated by Thailand in 2007 had 94.41% of its total budget subsidized by APEC, making the average percentage of budget subsidized by APEC in 2007 the highest in history. In 2008, member economies were active in proposing projects, which resulted in a total of eight projects receiving subsidies and the total amount of budget subsidized reaching a record high. In 2009, however, APEC decided that the priority regarding the allocation of subsidies would be given to projects addressing issues consistent with APEC's core targets and priority interests, in order to improve the quality and efficiency of projects from its working groups. Since health-related issues were set as the second priority, the number of projects receiving subsidies from APEC decreased. As a whole, $1,746,313 out of the 3,670,910 US dollars spent on the 26 projects proposed during 2003-2009 was subsidized by APEC, accounting for an overall subsidy rate of 47.57% (Table 2). This reveals that health-related issues have received more attention from APEC after the SARS outbreak and the amount of budget subsidized presented an upward trend.

Discussions

During the ISTWG operation stage, Chinese Taipei had proposed one project and participated in three projects, with a participation rate of 0.4 and a weighted participation index of 5 [3]. Since Taiwan was not a member of the World Health Organization (WHO), it was very difficult to obtain timely information on international epidemics. Therefore, after experiencing the devastation of the SARS outbreak, Taiwan has become more active in participating in projects initiated by APEC to increase the chances of joining international health cooperation activities [15]. As a result, the participation rate and weighted participation index have exhibited a growth of 0.54 and 17, respectively, as compared to those published by Hsu et al [3].

Table 2. Analysis of budget subsidized for health-related projects proposed during 2003-2009

Year	No. of projects approved	Budget subsidized by APEC (USD)	Total budget allocated (USD)	Percentage of budget subsidized (%)
2003	2	34,420	193,659	17.77%
2004	1	37,500	90,500	41.44%
2005	3	234,050	719,900	32.51%
2006	6	366,795	801,650	45.76%
2007	3	243,002	344,660	70.50%
2008	8	621,275	1,101,980	56.38%
2009	3	209,271	418,561	50%
total	26	1,746,313	3,670,910	47.57%

The United States has sought more resources for conducting research through APEC channels and has played a significant role in APEC's health-related affairs. It therefore has the highest participation rate and weighted participation index. In contrast, the weighted participation index in other member economies, such as Indonesia, Mexico, and Philippines, has decreased noticeably, as compared with those presented in the ISTWG stage. The rankings in the weighted participation index for these member economies have fallen from third, fourth, and fourth to twelfth, thirteenth, and thirteenth, respectively. On the other hand, after the SARS outbreak, Canada and China have actively participated in the competition for and have subsequently earned the positions of APEC chairperson and vice-chairperson, and they have also actively participating in APEC's health-related projects. Their rankings in the weighted participation index have elevated from the same position, sixth, to second and fourth, respectively.

This study demonstrates that the trend of health-related issues dominating APEC was shaped by both problems attracting international attention and the issues important to member economies. For example, in the ISTWG and HTF periods, APEC was directed by the USA, and consequently HIV/AIDS was one of the most important issues. Afterwards, due to the threats posed by SARS, avian influenza, and pandemic influenza to the Asia-Pacific region, issues related to these infectious diseases have surged in importance to member economies. Subsequently, the APEC Health Ministers Meeting was held after the SARS outbreak in 2003, during which member economies were required to enforce their SARS action plan and were encouraged to propose an emergency response plan against influenza [5]. In 2004, owing to the attack of avian influenza, eight projects regarding emergency preparedness for and response to avian influenza were proposed in the first HTF meeting [16]. Moreover, the application of information technology to health-related issues has also become one of the important trends in the HTF stage. Besides communication purposes, the electronic network system can facilitate the establishment of a platform for inter-regional cooperation in science, especially in the surveillance of emerging infectious diseases [17]. Previous research found that strengthening the electronic network system in the field of public health would make the global linking mechanism more mature and would also lead to more effective control of infectious diseases [18]. However, connecting national electronic network systems in the ISTWG stage was very difficult for some developing APEC member economies since their information technology systems did not mature until after the SARS epidemic when their electronic network systems were starting to gradually become mature. In this respect, Chinese Taipei has actively participated in and been devoted to the initiation of the APEC EINet, the APEC e-Health project, and the construction of a HTF website system and video conference network communication platform. Furthermore, the issue of health technology and information was gradually gaining momentum under the lead of Chinese Taipei, the US.A, and Korea[19].

Regarding budget subsidies, the total amount of budget subsidized by the APEC for various projects had increased annually after the SARS outbreak. Especially, after the Project Management Unit was created by the APEC Secretariat in 2007, the quality of projects was enhanced and the opportunity for obtaining subsidies for each project was increased, resulting in the overall percentage of budget subsidized rising from 17.77% in 2003 to 50% in 2009. In 2010, in order to enhance the transparency and efficiency of the project reviewing and managing procedure, to allocate the limited APEC resources more effectively, and to ensure that the projects proposed by each working group meet the priority and quality requirements of APEC policy, APEC began to adopt a new project reviewing procedure.

The analysis of participation in APEC health-related issues shows that Chinese Taipei had proposed or participated in 14 health-related projects, and the forms of participation included proposing projects, co-sponsoring projects, being a speaker at seminars, being a consultant, assisting in filling out the form of Quality Assessment Framework, and having staff attend meetings. In addition to contributing to the launch of APEC HTF and APEC HWG, Chinese Taipei was also concerned about the substantive progresses of each working group. For example, the website http://www.apechwg.org/portal/PortalHome.asp was constructed as a communication platform for member economies based on the suggestion made by Chinese Taipei. Moreover, Chinese Taipei has prompted the HWG to add the issue of vector-transmitted diseases to the priority list by approving the TOR. As a result, the issue of ‘enhancing preparedness for and response to avian influenza and human pandemic influenza’ was expanded to ‘enhancing preparedness for and response to avian influenza, human pandemic influenza, and vector-borne diseases.’ In addition, Chinese Taipei proposed an APEC enterovirus project in 2008. Although this issue was not one of the three priority issues, the project has received support from member economies and subsidies from APEC. This indicates that Chinese Taipei has gradually transformed from the role of a participant in the past into that of a proposer. In 2009, Chinese Taipei competed for the position of HWG vice-chairperson. Although the HWG chairperson and APEC Secretariat decided to give the position of vice-chairperson to the candidate from Vietnam based on the principles of geographic balance and encouraging developing member economies to be involved in core administrative affairs, Chinese Taipei was chosen by the HWG chairperson as the priority candidate for the 2010 HWG vice-chairperson, in consideration of the contribution of our country to HWG. [20] As expected, the Chinese Taipei obtained the position of HWG vice-person in 2011.

In contrast to the WHO, APEC is one of the small number of international intergovernmental organizations where health authorities of our country are eligible to attend officially and have the rights and opportunities equal to other member economies in making our voice heard and in participating in all activities. Our country has a certain level of participation and involvement in APEC health security issues. Therefore, we suggest that health authorities should more actively and judiciously use the international stage at APEC,

formulate relevant projects with good quality, compete to host relevant international conferences, systematically guide the development of APEC health-related issues, and actively propose projects for cross-national cooperation. These activities will help elevate the international visibility of Taiwan, extend our external relationships, and increase the influence of our country over APEC health-related issues, which will in turn make Taiwan a member economy essential and indispensible to HWG.

Note

1. The 12 member economies of APEC when it was established in 1989 are USA, Canada, Australia, New Zealand, Japan, Korea, Singapore, Philippines, Indonesia, Malaysia, Thailand, and Brunei Darussalam . Then, China, Hong Kong, and Chinese Taipei joined in 1991; Mexico and Papua New Guinea in 1993; Chile in 1994; Peru, Vietnam, and Russian in 1998. Therefore, the 21 member economies currently include Australia, Brunei Darussalam, Canada, Chile, China, Hong King, Indonesia, Japan, Korea, Malaysia, Mexico, New Zealand, Papua New Guinea, Peru, Philippines, Russian, Singapore, Chinese Taipei (Taiwan), Thailand, USA, and Vietnam.
2. The relevant data can be obtained by first applying a password for getting access to APEC's official website (http://www.apec.org/) and then entering the website and registering the section of Project Database.

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Current Detection Methodology for Enterovirus 71

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Abstract

Enterovirus infections occur frequently in China, Taiwan, Singapore, Korea, and Malaysia for the last couple of years, especially in Mainland China with significant high number of fatal cases. The high risk group for the severe and fatal cases of EV infection, especially EV71, is children less than 5 year olds. There are still no vaccines or antiviral drugs available specific against EV 71 infection. In addition, detection of EV71 infection still needs to be processed in advanced laboratory and operated by experienced & well-trained working staffs, these diagnostic techniques including virus isolation by cell culture, immunofluorescence assay (IFA), or EIA to detect anti-EV71 IgM, RT-PCR and sequencing for EV71, rtRT-PCR for pan-Enterovirus and CODEHOP for EV infections. It usually will take days to get the final result for the whole process. Therefore, a rapid test to quickly screen for EV71 infection will be helpful for medical doctor and public health officer. Immunochromatographic test (ICT) is the most used platform to do the rapid test and it needs no reading machine and well trained personnel to perform the test in the first line when facing suspected cases. Therefore, it can provide preliminary data for health care worker and public health worker to adopt appropriate medical support and preventive measure to stop the infection immediately.

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