ORIGINAL RESEARCH

Impact of the ARCH Project on National Capacity Development on Disaster Health Management among the ASEAN Member States and Japan

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Conflicts of interest/financial support: The ARCH Project was funded by JICA as part of the Official Development Assistance of the Government of Japan in collaboration with NIEM/MOPH Thailand as counterpart agencies. This publication was completely funded by JICA as a part of the ARCH Project. Shuichi Ikeda and Taro Kita are members of the expert team deputed by JICA. All other authors do not have any conflict of interest to declare.

Keywords: ARCH Project; ASEAN Leaders' Declaration on Disaster Health Management (ALDDHM); Emergency Medical Team (EMT); Plan of Action (POA) to Implement the ASEAN Leaders' Declaration on Disaster Health Management (ALDDHM) (2019-2025); Standard Operating Procedure (SOP) for the Coordination of International Emergency Medical Teams (EMTs) in ASEAN

Abstract

Objective: This report tries to capture the impact of the Project for Strengthening the ASEAN Regional Capacity on Disaster Health Management (ARCH Project) in each ASEAN Member State (AMS) and Japan as a result of the ARCH Project implementation since July 2016.

Methods: Impact on AMS: The analysis of the impact on AMS was based on a comparison of the impact of the project on management and coordination of Emergency Medical Teams (EMTs), and application of the project outcome in actual emergency operations compared to the previous status in each AMS.

Impact on Japan: The history of the development of disaster medicine in Japan was reviewed, with an aim to analyze the impact of supporting AMS through the ARCH Project on Japan, and the possibility of bi-directional cooperation in the future.

Abbreviations:
AAR: After Action Review
ALD: ASEAN Leaders' Declaration
AMS: ASEAN Member States
APCDM: Asia Pacific Conference on Disaster Medicine
ARCH Project: Project for Strengthening the ASEAN Regional Capacity on Disaster Health Management
BDHM: Basic Disaster Health Management
CPD: Continuing Professional Development
CPE: Continuing Medical Education
DMAT: Disaster Medical Assistance Team
DOH: Department of Health
EM-DAT: Emergency Events Database
EMIS: Emergency Medical Information System
EMT: Emergency Medical Team
EMTCC: Emergency Medical Team Coordination Cell
EOC: Emergency Operation Center
EWARS: Early Warning Alert and Response System
GEJE: Great East Japan Earthquake
GHAE: Great Hanshin-Awaji Earthquake
HNA: Health Needs Assessment
JADM: Japanese Association for Disaster Medicine
JDR: Japan Disaster Relief Team
JMTDR: Japan Medical Team for Disaster Relief
MCI: Mass Casualty Incident
MDMC: Muhammadiyah Disaster Management Centre
MDS: Minimum Data Set
MERT: Medical Emergency Response Team
MRED: Medical Record for Emergency and Disaster
MISP: Curriculum of Minimum Initial Services Packages for Disaster
NBH: National Burn Hospital
NTB: Nusa Tenggara Barat
PEMAT: Philippine Emergency Medical Assistance Team
POA: Plan of Action
RCD: Regional Collaboration Drill
RRT: Rapid Response Team
SOP: Standard Operating Procedure
SPEED: Surveillance in Post Extreme Emergencies and Disasters
TOT: Training of Trainers
VNADEM: Vietnam Association of Disaster and Emergency Medicine
WHO: World Health Organization

Received: November 21, 2021
Accepted: December 4, 2021

doi:10.1017/S1049023X22000073

Results: Impact on AMS: Since the initiation of the ARCH Project, AMS has made significant progress in WHO EMT accreditation, strengthening EMTCC capacity for receiving international assistance, as well as the development of legislation or strategic plans related to DHM, and application of the Project products such as standard operating procedures or regional tools in actual disasters/emergencies.

Impact on Japan: Disaster medicine in Japan originated from the Cambodian refugees' relief mission in 1979. Since then, the management system has been strengthened including the foundation of the Japan Disaster Relief (JDR) Team, a structure with a legal foundation. The experience gained through international operations has contributed to the development of Japan's domestic disaster response system. Japan learned the operational effectiveness of the post-disaster health surveillance system through the disaster response operation in 2013 Typhoon Yolanda Disaster in Philippines and introduced a modified system in Japan for domestic disaster response, which was later refined and proposed for an international standard.

Conclusion: ARCH Project is highly appreciated by AMS as the opportunity to share knowledge and experience among countries and thereby contributing to achieving the "One ASEAN, One Response" concept, as well as the driving force for each AMS to develop its capacity in DHM. While the ARCH Project started to support AMS to strengthen its regional capacity in disaster health management, it is important to build a bi-directional relationship between ASEAN and Japan in terms of mutual learning and support to tackle future disasters.

Kita T, Limpaporn S, Silapunt P, Koido Y, Toyokuni Y, Ikeda S. Impact of the ARCH Project on National Capacity Development on Disaster Health Management among the ASEAN Member States and Japan. ***Prehosp Disaster Med.*** **2022;37(Suppl. 1): s44–s50.**

I. Comparison of National Capacity on DHM in AMS Before and After the ARCH Project Implementation

A. Introduction

This study tries to capture the impact of the Project for Strengthening the ASEAN Regional Capacity on Disaster Health Management (ARCH Project) in each ASEAN Member State (AMS) as a result of the ARCH Project implementation since the initiation of the project in July 2016.[1]

The analysis is based on a comparison of the impact of the project on legislative and policy framework, training/education programs, management and coordination of Emergency Medical Teams (EMT), application of the project outcome in actual disaster/emergency operations, compared to the previous "pre-ARCH" status in each AMS, identified through a survey on the Situation of Disaster/Emergency Medicine System in the ASEAN Region that was conducted, prior to the formulation of the ARCH Project, from November 2014 to August 2015.[2]

The pre-project survey identified that it would be necessary to establish a coordination platform for information sharing, and develop common and minimum tools to coordinate medical response and rapid health needs assessment (HNA) in the affected areas. It was also emphasized that every country would need to fulfill a certain level of minimum standards both administratively and technically in order to apply the developed common tools.

B. Methodology

The necessary data and information to identify the current status "post-ARCH" in each AMS were mainly collected through a questionnaire survey on the impact of the ARCH Project. The survey was conducted from December 2020 to January 2021 with supplementary information from the needs and potential survey for capacity development of disaster health management (DHM) in AMS conducted from September 2019 to March 2021.[3]

C. Results: Impact of the ARCH Project Observed in AMS

1. Legislative and Policy Framework—As shown in Table 1, the development of legislation or strategic plans related to DHM has been in progress in several AMS based on the knowledge and experience gained through the ARCH Project. In Cambodia and Lao PDR, recent incidents such as mass-casualty incidents (MCI) and heavy flooding after a dam collapse have led to an increased emphasis on DHM.

2. Training and Education Program—AMS have developed and organized short-term training courses in different areas of DHM, and common topics taken by all AMS are the MCIs and public health emergencies.

Many AMS indicated that support is required for the implementation of training of trainers (TOT) and standardization of the training curriculum for DHM. Table 2 and Table 3 indicate the list of training introduced or improved and relevant impacts observed through the implementation of the ARCH Project.

The methodology adopted in the ARCH Project events such as the simulation exercises of regional collaboration drill (RCD) has influenced several AMS in developing their training curricula, and Lao PDR has referred to the Thailand Medical Emergency Response Team (MERT) training example when developing its national EMT training curriculum.

3. Management of EMT and Coordination of EMTs—The national target set in the Plan of Action (POA) to realize the ASEAN Leaders' Declaration on DHM requires AMS to develop the I-EMT that is compliant with either ASEAN or WHO I-EMT minimum standards and EMTCC standard.[4,5]

Table 4 shows that Thailand EMT has been accredited by the WHO EMT initiative, while Indonesia and the Philippines are in the process, and Viet Nam has a plan to apply in future.

Table 5 indicates progress in developing EMT coordination mechanisms. Several countries have developed legislation or SOP to strengthen their EMT coordination capacity.

4. Emergency Medical Operation in Actual Disaster/Emergency—Table 6 indicates the application of the ARCH Project outcome in actual disasters/emergencies. As indicated in the Table, not only regional tools such as forms for Medical Record for Emergency and Disaster (MRED) or HNA, but also knowledge and experience obtained through the project activities have been used in real disaster/emergency response.

D. Summary of the Impact of ARCH Project to AMS

The ARCH Project developed a POA to realize the ASEAN Leaders' Declaration on Disaster Health Management (POA/ALD on DHM).[4] This POA/ALD on DHM was later adopted by the ASEAN Health Ministers Meeting (2019, Cambodia), in which seven national targets including the development of I-EMT in accordance with ASEAN or WHO I-EMT minimum standards, the establishment of EMTCC, and development of a

Country	Description of the impact
Cambodia	• National Strategic Plan on Disaster Risk Management for Health 2020- 2024. • National Climate Change Action Plan for Public Health 2020-2024. • Recent experiences of MCI as well as climate change, which caused the country to review the emergency preparedness and response, have led to increasing the country's awareness in strengthening DHM.
Indonesia	• Ministry of Health Regulation No. 75 (2019) on Health Crisis Management.
Lao PDR	• The health sector in Lao PDR had accorded priority to reduce maternal mortality, infectious diseases, and non-communicable diseases in the past. However, having faced a number of disasters in recent years, especially heavy flooding after the dam collapse in July 2018, the Lao government realized the importance of DHM and placed disaster management as its policy priority.
Philippines	• Department of Health (DOH) Administrative Order No. 2018-0018 on the National Policy on the Mobilization of Health Emergency Response Teams (HERTs). • The order was influenced by the development process of regional disaster management tools of the ARCH Project such as the EMT standard operating procedure (SOP), EMT database and minimum requirements.
Viet Nam	• Program cooperation with the ARCH Project has been integrated into the annual disaster prevention plan of the Ministry of Health (MOH) (2016-2020).

Table 1. National Legislation, Policy, and Strategy Developed/Amended since 2016

national procedure to receive international assistance, as well as the establishment of disaster health training systems, are set out for AMS to achieve.

Since the initiation of the ARCH Project in 2016, Thailand EMT has been accredited by the WHO EMT initiative, while Indonesia and the Philippines have been in the process, and some more countries have expressed interest in a future application.

As ASEAN is a disaster-prone region and every country has a risk of becoming a disaster-affected country, some AMS have been strengthening EMTCC management capacity for receiving international assistance. This progress is evident, particularly in Thailand, Viet Nam, the Philippines, and Indonesia, all of which are former RCD host countries.

It is also important to note that Cambodia and Lao PDR, formerly considered less disaster-prone countries and with different areas of interest, have begun giving importance to DHM in terms of curricula development, the establishment of EMTCC structure, as well as an interest in developing EMT in accordance with the WHO minimum requirements in future.

Products of the ARCH Project such as forms of MRED or HNA have been applied by a few AMS into their domestic disaster management framework and utilized in actual disaster responses. Furthermore, not only the substantial products but also their development process, in which all AMS were highly involved, have impacted AMS significantly as part of knowledge sharing.

A regional network established through the ARCH Project is beginning to function, with Lao PDR referring to the Thailand model for their N-EMT training curriculum design.

A peer-review activity is planned in the forthcoming ARCH Project Phase 2 to follow up the progress of each AMS made in achieving national targets set out in the POA/ALD on DHM; thus, this established regional network with trust will be an important foundation for mutual support among AMS, and towards sustainable development of DHM in ASEAN.

The ARCH Project is highly appreciated by AMS as an opportunity to share knowledge and experience among countries, thereby contributing to achieving the "One ASEAN, One Response" concept, as well as the driving force for each AMS to develop its capacity in DHM.

II. Impact of the ARCH Project on Japan

A. Introduction

Japan is a country with many disasters. Natural disasters such as typhoons, heavy rains, heavy snowfalls, floods, tornadoes, volcanic eruptions, and earthquakes are experienced almost every year. In addition, Japan has experienced many disasters other than natural disasters such as the Japan Airlines crash in 1985, 1995 the Sarin Gas Attack on the Tokyo Subway, and the nuclear accident at the Fukushima Daiichi Nuclear Power Plant during the Great East Japan Earthquake in 2011. Japan's disaster medical system has improved significantly over the past 30 years by gaining experience of such a wide variety of disasters that is unprecedented in the world. Japan is implementing one of the world's leading disaster medical systems. The ARCH Project exports all those Japanese experiences and knowledge to neighboring ASEAN countries which often experience natural disasters and help develop their own capacity to sustain from disasters. In recent years, ASEAN countries have shown rapid economic growth, and the disaster medical system is also developing rapidly. This development of ASEAN has also become another eye-opener for Japan. This review provides an overview of the impact of the ARCH Project on Japan.

B. History of Disaster Medicine in Japan (from International to Domestic)

In Japan, there is a saying, "Fools learn from experience, wise people learn from history," and it is essential to take history into account in order to understand the position of the ARCH Project. Therefore, it is started with the history of disaster medicine in Japan.

Disaster medicine in Japan began with the Cambodian refugees' relief mission in 1979. The response of medical teams to Cambodian refugees is the first response of the Japanese medical team, both domestically and internationally. This was a significant achievement and is said to be the origin of disaster medicine in Japan. For this medical response to Cambodian refugees, the medical team had delay in response because the dispatching system was not established at that time, and no systematic operations were conducted since the team members consisted of only medical personnel without logisticians at that moment. The Japan Medical Team for Disaster Relief (JMTDR) was established in 1982 based

https://doi.org/10.1017/S1049023X22000073 Published online by Cambridge University Press

Cambodia
Pre-service training
• Newly introduced Disaster Management Module under Emergency Medicine Course (for medical students: after completing 6-year education, and for nursing students: after 4-year education).
• Nursing Disaster Management (Technical school for medical care in Phnom Penh City) 2007 is in the process of updating.
In-service training
• Curriculum of Minimum Initial Services Packages for Disaster (MISP) (2020-2024), and Climate Change and Health (2020-2024).
Indonesia
Pre-service training
• EMT deployment process and relevant regional forms are applied in Hospital Disaster Plan at Gadjah Mada University.
• DHM for district and provincial health office.
In-service training
Training curricula such as the DHM, Response Map and Contingency Plan were updated in 2020.
Lao PDR
Pre-service training
• Emergency Medicine as an elective subject for undergraduate medical education (short term programs inviting resource persons from other institutes such as Nippon Medical School and Japan Disaster Medical Assistance Team (DMAT) twice a year).
In-service training
• MOH is currently developing a guideline for EMT training including its duration.
• Training Curriculum for National EMT in accordance with the WHO minimum requirements is in the process of development by Mittaphab Hospital with the Ministry of Health. They are referring to the training curriculum of Thailand MERT.
Philippines
In-service training
• EMT Basic Induction Course for the members of the Philippine Emergency Medical Assistance Team (PEMAT) to enable them with the competencies to meet the EMT global standards to successfully perform national and international response operations, that contains simulation exercises inspired by the ARCH Project Regional Collaboration Drill (RCD).
Thailand
Pre-service training
• Mass Casualty and Disaster Management is set as a subject for Paramedic students under the Department of Emergency Medicine, Faculty of Medicine, Vajira Hospital, Navamindradhiraj University.
• Coordination forms and protocols developed by the ARCH Project are introduced in the course.
In-service training
• Basic DHM course that focuses on the coordination of Mini MERT; small-sized medical emergency response team, and national/provincial emergency operations center (EOC), aims to build capacities on DHM on offering and receiving medical assistance teams, the reporting system and limited resources management. The course curriculum was developed with reference to the knowledge gained through the ARCH Project activities.
• Function Mini MERT Model; Health Regional 1 Workshop is a training course for Mini MERT that focuses on the coordination of Mini MERTs, hospitals and EOC. The session was held in September 2018 with the participation of 80 Mini MERTs.
• Disaster Workshop, in the 4th Annual Meeting of Thai College of Emergency Physicians: Ultramodern in Emergency Medicine 2020, focused on the coordination of Mini MERTs, hospitals, and EOC. The workshop was held in October 2020.
• Preparedness Trauma in Disaster Training Course, Rajavithi Hospital applied the ARCH Project's training model on DHM, which includes table-top exercises and the After-Action Review (AAR), to practice in disaster responses. The course was held in July 2020.
Viet Nam
In-service training
• Two training courses for prehospital care were organized for staff of the Department of Health and the Government Hospitals in two provinces of Laocai and Cantho in 2019.
• Development of training materials and curriculum for prehospital and N-EMT is underway in 2021 expecting to scale up to the national level after testing in some provinces.

Table 2. Training or Education Program on DHM Introduced or Improved Since 2016

on this Cambodian experience. As a result, a system was established to register medical personnel as volunteers in peacetime, and to dispatch a team to respond quickly to disasters overseas. Japan International Cooperation Agency (JICA) took a secretarial role of JMTDR. After accumulating responses such as dispatching to Ethiopia, the Act on Dispatch of the Japan Disaster Relief Team (JDR Law) was enforced in 1987 for legal support.[6] After the JDR Law was enforced, the JDR team responded 59 times by 2020.[7]

With international disaster response development, the academic field was also developed internationally. Although there was no domestic academic society on disasters in Japan at that time, the first international academic society called Asia Pacific

https://doi.org/10.1017/S1049023X22000073 Published online by Cambridge University Press

Country	Impact
Cambodia	• Implementation of the Project for Strengthening System of Human Resource Development for Emergency Medical Service in Cambodia (2021- 2024) Implementing agency: Kokushikan University, Japan; JICA Partnership Program Projects (Main activity: Development of materials for remote learning, TOT follow-up training, EMT basic training).
Thailand	• Thai Simulation (Thai Sim); a workshop with tabletop exercise, that is targeting the Mini MERT, was held in August 2020. The workshop provides knowledge on the coordination among EMTs, hospitals, and the EOC, a systematic referral system and EOC management as well as a reporting and data management system, developed by the ARCH Project.
Viet Nam	• National Burn Hospital (NBH) is setting up the National Center for Emergency and Disaster Medicine under the Department of Disaster Medicine with missions of training, research, coordination, and cooperation in emergency medicine, which will be conducted under the direct supervision of MOH. • It aims to establish the center for training, conduct national-level drills, as well as the system for Continuing Medical Education (CME) training course or the Continuing Professional Development (CPD) of DHM. • The Vietnam Association of Disaster and Emergency Medicine (VNADEM) was established and located at the National Burn Hospital in December 2020.

Table 3. Other Impacts Related to Training or Education on DHM

Country	Progress in the organization of EMT
Cambodia	• The country has Rapid Response Team (RRT) that is similar to local EMT. • The Ministry of Health requests relevant hospitals to dispatch medical team(s) to accident/disaster scenes. • It is interested in developing I-EMT in accordance with the WHO minimum standards and relevant ASEAN standards.
Indonesia	• Formulation of EMT module in 2017. • EMT management structure and training system has been strengthened in accordance with the WHO EMT minimum requirements. • Development of national EMT guideline. • Muhammadiyah Disaster Management Centre (MDMC), one of the country's NGOs, has applied for the WHO EMT accreditation.
Lao PDR	• Planning to develop N-EMT in accordance with the WHO minimum standards. • One-day orientation will be provided for EMT members before the deployment.
Philippines	• Organizing the PEMAT in 2017. • Three teams have applied for the WHO EMT accreditation. • SOPs for Clinical/Logistics and Operational Guide have been drafted for EMT management with reference to the knowledge and experience gained through the ARCH Project RCD such as the process of offer and acceptance of I-EMTs and various scenarios as well as the project products such as regional forms.
Thailand	• Thai EMT has been accredited by the WHO EMT initiative since 2019.
Viet Nam	• Planning to develop N-EMT in 2 provinces in 2021. • Selection of I-EMT members is ongoing. • Planning to apply for the WHO EMT accreditation in 2022.

Table 4. Progress in the Management of EMT

Conference on Disaster Medicine (APCDM) was established in 1988 by Dr. Muneo Ota and Dr. Yasuhiro Yamamoto who is the founder of JMTDR. Dr. S. William A. Gunn of the World Health Organization and the heavyweights of ASEAN countries, Dr. H. Abdul Radjak, and Dr. Wayne Greene from Canada cooperated in the creation of APCDM. It is worth noting that at this point, an attempt was made to strengthen cooperation in the Asia-Pacific region.

During the course of the advancement of international disaster medicine, the lack of domestic disaster medical system was revealed in 1995 when the Great Hanshin-Awaji Earthquake (GHAE) happened. Of the 6,434 deaths, 500 were reported as preventable disaster deaths.[8,9] One of the main reasons for the delay in preparing for domestic disaster medical system was that major disasters did not hit Japan after the 1959 Isewan Typhoon (Typhoon Vera) until the 1995 GHAE. After GHAE, disaster medicine and disaster medical system in Japan made rapid progress.[10] The Japan Disaster Medicine Study Group was established in 1996 and is now the Japanese Association for Disaster Medicine (JADM). The rapid progress of domestic disaster medicine was possible because Japan had rich experience in international disaster response. For example, the people who created the JDR medical team founded Japan Disaster Medical Assistant Team (DMAT); Japan DMAT training is based on JDR medical team member training.[10] The Ministry of Foreign Affairs of Japan has jurisdiction over JDR and the Ministry of Health, Labour, and Welfare has jurisdiction over Japan DMAT. Although both JDR and Japan DMAT are under the jurisdictions of different Ministries, the fact that the membership of both teams is the same reduces the negative effects of the vertically divided administration

https://doi.org/10.1017/S1049023X22000073 Published online by Cambridge University Press

Country	Progress
Cambodia	• MOH Cambodia would like to develop and organize EMTCC as identified in the SOP for receiving I-EMTs, as well as conducting training on EMTCC in case the country needs to request assistance from other countries.
Indonesia	• SOP for organizing EMTCC, receiving I-EMTs and management of composite EMT (an emergency medical team consisting of multi-national medical professionals that are formed in emergency response situations based on needs) was developed in 2018.
Lao PDR	• The EMTCC is already set up in the cabinet office of MOH and the field; however, it is not fully functional yet.
Philippines	• The DOH Administrative Order No. 2018-0018 aims to serve as a guide for timely and appropriate mobilization of Health Emergency Response Teams (HERTs) in order to address concerns such as lack of coordination and communication, poor information management, non-submission of reports, non-endorsement of EMT, for the continuity of care of affected people, and teams arriving without the right equipment, medicines and supplies, and skills to match the need of the affected areas. • A training on EMTCC was conducted in 2018 with participants from all the regions of the country and experts from WHO Headquarters as resource persons.

Table 5. Progress in Strengthening EMT Coordination Mechanism

Country/Impact	Disaster/Emergency (Year)
Cambodia Application of Medical Record for Emergency and Disaster (MRED) and Health Needs Assessment (HNA) forms.	Flash Flood (2020), Storm (2019), Drought (2018)
Indonesia Introduction of Pre-deployment management kit for EMTCC (management of health volunteer, incoming health resources). Strengthened ASEAN regional and domestic network. Implementation of EMT registration at HEOC. Implementation of EMTCC activity such as coordination meeting, EMT assignment, reporting/evaluation. HNA was conducted by EMT. Standardized minimum data set introduced in EMT-CC, enhance the timeliness and completeness of early warning alert and response system (EWARS)) and integrated with district health information software (DHIS) 2 platform.	Earthquake, West Sulawesi (2021) Flash Flood, South Sulawesi (2020) Flash flood, Jayapura (2019) Tsunami, Banten and Lampung (2018) Earthquake, Tsunami, and Liquefaction, Central Sulawesi (2018) Earthquake, Nusa Tenggara Barat (NTB) (2018)
Lao PDR Formulation and deployment of EMT by MOH following the deployment of the first responder from the Mittaphab Hospital.	Dam collapse and Flood (2018)
Thailand MRED form (English) for the affected people of the incident. Registration form (translated to the local language) for the registration of N-EMTs.	Tham Luang Cave Rescue Mission for the 13 Wild Boar Academy (2018)
Viet Nam HNA form for the assessment of the impact and status after disasters in 5 central provinces.	Typhoon, Flood (2020)

Table 6. Impact (Utilization of Outputs and/or Products) of the ARCH Project in Actual Disaster/Emergency Response

and enables Japan for quick decision making at the time of disaster response.

C. Current Japanese Disaster Medical System (Domestic to Overseas)

Japan DMAT, Disaster Base Hospitals, Emergency Medical Information System (EMIS), etc. are now world-class disaster medical systems. Japan DMAT currently has approximately 1,700 teams and over 15,000 members nation-wide. Seven hundred forty-three Disaster Base Hospitals have been designated and maintained. EMIS has been implemented in all 8,000 hospitals throughout the nation. According to the Centre for Research on the Epidemiology of Disaster's Emergency Events Database (EM-DAT), 80% of the world's natural disasters occur in Asia. If Japan can transfer knowledge that has been accumulated to Asia, it will eventually provide relief to the affected people. Japan inevitably has the responsibility to give knowledge back to Asia because Japanese disaster medicine developed well through all those international responses. From 2013 to 2015, the Ministry of Health, Labour, and Welfare of Japan conducted research on "Study on technology transfer of earthquake disaster response and reconstruction scheme in Japan's health care system" to export Japan's disaster response knowledge to other countries.[11] This became one of the foundations of the ARCH Project. Since

https://doi.org/10.1017/S1049023X22000073 Published online by Cambridge University Press

then, Japan has been trying to transfer knowledge of disaster medicine to ASEAN countries. While the ARCH Project had started as knowledge and technique transfer of disaster medical response from Japan, Japan started to face a lot of opportunities to learn from other countries.

D. From Overseas to Domestic Again Positive Spiral Effects

Japan's disaster medicine has consistently learned from the international response and maintains an attitude of sharing knowledge that has been earned from the international response to other countries. Japan learned the practicality of Surveillance in Post-Extreme Emergencies and Disasters (SPEED) in the Philippines through the dispatch of JDR to the super typhoon Yolanda that hit the Philippines in 2013, and developed the Japanese version of SPEED (J-SPEED). J-SPEED has transformed Japan's disaster medicine into a form that can be adjusted based on data. Japan proposed J-SPEED to WHO for the international sharing of this knowledge. Based on the proposal, WHO established a Working Group to develop the EMT Minimum Data Set (MDS) and adopted it as the WHO International Standard.[12]

The academic spiral effect has also begun. The Sendai Framework for Disaster Risk Reduction 2015-2030 and WHO Health Emergency and Disaster Risk Management (H-EDRM) Framework are recommending promoting and enhancing the training capacities in the field of disaster medicine and supporting and training community health groups in disaster risk reduction approaches in health programs, in collaboration with other sectors, at national level and implementation of regional cooperation mechanism.[13,14] The ARCH Project is exactly the ASEAN platform. ARCH's SOP has developed from learnings from WHO's SOP. Now ARCH's SOP is becoming the foundation for creating SOPs for accepting medical teams from overseas in the event of a catastrophic disaster in Japan.

E. Summary of Impact of the ARCH Project on Japan

The primary purpose of the ARCH Project was to improve the disaster response capabilities of AMS and strengthen cooperation between AMS together with Japan and some other countries. Disasters are occurring frequently and intensifying every year globally; therefore, a one-way vector of transferring disaster medicine knowledge overseas is not suitable. It is important to build a bi-directional relationship between ASEAN and Japan to manage future expected disasters. Japan is anticipating the Nankai Trough earthquake in near future and is expecting to be overwhelmingly short of medical resources. At the time of the 2011 Great East Japan Earthquake (GEJE), Japan officially accepted medical support from the Israel Medical Support Team, Jordan Medical Support Team, Thai Medical Support Team, and Philippine Medical Support Team and has a track record of entering Japan as a medical team to help the people. But SOPs are yet to be established for accepting medical teams from overseas.

Considerations of providing medical assistance to disaster-affected countries and receiving international medical assistance as a set will lead to the improvement of international disaster medicine. In that sense, the mission of ARCH is actually a mission for Japan. It was reconfirmed that it is important to exchange information quickly across countries in recent coronavirus disasters. A personal face-to-face network can be a great force in an emergency. Globalization is also essential for young Japanese human resources, and ARCH is the best field.

III. Conclusion

ARCH Project is highly appreciated by AMS as the opportunity to share knowledge and experience among countries and thereby contributing to achieving the "One ASEAN, One Response" concept, as well as the driving force for each AMS to develop its capacity in DHM. While the ARCH Project started to support AMS to strengthen its regional capacity in disaster health management, it is important to build a bi-directional relationship between ASEAN and Japan in terms of mutual learning and support to tackle future disasters.

Author Contribution

This manuscript was conceptualized and contributed by the following authors: Taro Kita and Shuichi Ikeda (Impact on AMS), Yuichi Koido, and Yoshiki Toyokuni (Impact on Japan). All authors have read through the final manuscript and agreed to publication.

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