



# How the ARCH Project Could Contribute to Strengthening ASEAN Regional Capacities on Disaster Health Management (DHM)

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## Abstract

**Objective:** The Project for Strengthening the ASEAN Regional Capacity on Disaster Health Management (ARCH Project) developed Regional Collaboration Drills (RCDs) and is proposing an ASEAN Academic Network to strengthen capacity in disaster health management (DHM) in ASEAN Member States (AMS), as well as developing a standard training curriculum in DHM. This study aims to clarify the impacts and sustainability of the ARCH Project.

**Methods:** The four previous RCDs and the enhancement of academic activities were reviewed.

**Results:** The ARCH Project developed the RCDs with simulation exercises based on possible disaster scenarios in each host country to test and validate the capacity of AMS International Emergency Medical Teams (I-EMTs), the Standard Operating Procedure (SOP) for I-EMT coordination, and regional tools, as well as the relevant domestic SOPs of the host countries for receiving international assistance. Following the RCD in

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**Keywords:** ARCH Project; ASEAN Academic Network; ASEAN Institute for Disaster Health Management (AIDHM); Regional Collaboration Drill (RCD); Standard Curriculum on Disaster Health Management

## Abbreviations:

AAR: After Action Review  
AHA Centre: ASEAN Coordinating Centre for Humanitarian Assistance on disaster management  
AIDHM: ASEAN Institute for Disaster Health Management  
AMS: ASEAN Member States  
ARCH Project: Project for Strengthening the ASEAN Regional Capacity on Disaster Health Management  
ASEAN: Association of Southeast Asian Nations  
DHM: Disaster Health Management  
DMAT: Disaster Medical Assistance Team

DOH: Department of Health  
 EAS: East Asia Summit  
 EMT: Emergency Medical Team  
 EMTCC: Emergency Medical Team Coordination Cell  
 EOC: Emergency Operation Center  
 FTX: Field Training Exercise  
 HEOC: Health Emergency Operation Center  
 HNA: Health Needs Assessment  
 ICS: Incident Command System  
 I-EMT: International Emergency Medical Team  
 JAC: Japanese Advisory Committee  
 JADM: Japanese Association for Disaster Medicine  
 JCC: Joint Coordinating Committee  
 JDR: Japan Disaster Relief  
 JICA: Japan International Cooperation Agency  
 MDS: Minimum Data Set  
 MOH: Ministry of Health  
 MOPH: Ministry of Public Health  
 MRED: Medical Record for Emergency and Disaster  
 NIEM: National Institute for Emergency Medicine  
 N-EMT: National Emergency Medical Team  
 PHEOC: Public Health Emergency Operation Center  
 PWG: Project Working Group  
 RCC: Regional Coordination Committee  
 RCCDHM: Regional Coordination Committee on Disaster Health Management  
 RCD: Regional Collaboration Drill  
 RDC: Reception Departure Center  
 SASOP: Standard Operating Procedure for Regional Standby Arrangements and Coordination of Joint Disaster Relief and Emergency Response Operations  
 SOP: Standard Operating Procedure  
 TTX: Tabletop exercise  
 WHO: World Health Organization

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Thailand, three AMS: Viet Nam, Philippines, and Indonesia, all of which are considered disaster-prone, successfully hosted RCDs with significant improvements. The project also established a sub-working group (SWG) to develop a standard curriculum in DHM. Two curricula developments, the Basic Course on DHM and In-Country Course for Coordination on EMTs, are on-going as part of the project activity. The establishment of the ASEAN Academic Network and the ASEAN Institute for DHM (AIDHM) are currently in the endorsement process of the ASEAN health sector.

**Conclusion:** The RCDs are very effective to test and to validate the SOP and regional tools developed, providing opportunities for AMS I-EMT to familiarize the tools, as well as for host countries to assess their coordination capacity for receiving international assistance and identifying the country's specific challenges, and verifying ASEAN regional coordination mechanism. The development of the standard curriculum can enhance regional capacity both in supporting disaster-affected countries and in receiving international assistance. A sustainable capacity development mechanism in DHM is envisaged through the establishment of the ASEAN Academic Network and AIDHM toward the goal of One ASEAN One Response.

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## I. Regional Collaboration Practice - Regional Collaboration Drill (RCD)

### A. Overall/Startup/First RCD (Thailand)

RCD is one of the major activities in the development of the ASEAN standard International Emergency Medical Team (I-EMT), as well as in developing and validating the ASEAN standard operating procedure (SOP) for I-EMT coordination, and ASEAN Medical Record for Emergency and Disaster (MRED) and Health Needs Assessment (HNA) forms. Each drill was comprehensively prepared by the Project Working Group (PWG) and the Project for Strengthening the ASEAN Regional Capacity on Disaster Health Management (ARCH Project) team. Advanced planning on objectives, materials, and activities was initiated to achieve overall project outcomes.

The startup drill in 2016 was initiated to examine the current status of ASEAN Member States (AMS) I-EMTs and personal capacity, team capacity, and collaboration capacity in DHM. A variety of field operation skill-oriented stations were set up: EMT coordination, Type I fixed field hospital, and HNA. Outcomes based on an after-action review (AAR) platform were implemented and incorporated into the drill objective and activities. The major comments can be categorized into team capacity building, team collaboration capacity building, personal capacity building, and collaboration capacity building as follows: (1) Team capacity building: training in DHM (eg, information management, leadership and teamwork, coordination, survival in disaster, and field medical care); (2) Team collaboration capacity building: standard forms (eg, registration, MRED, daily report, rapid HNA, referral, and summary) and SOP for I-EMT coordination are needed; (3) Personal capacity building: knowledge and skills in health emergency management (trauma and non-trauma), public health emergency management, risk assessment, and understanding in the incident command system (ICS) concept and international standards in humanitarian assistance; and (4) Collaboration capacity building: essential information package for I-EMT, SOP, and handbook, and reporting forms must be compatible with existing regional Standard Operating Procedure for Regional Standby Arrangements and Coordination of Joint Disaster Relief and Emergency Response Operations (SASOP) and the standard daily reporting methodology which is now known as the WHO Emergency Medical Team (EMT) Minimum Data Set (MDS).<sup>1</sup>

Following are the issues for future consideration: (1) Including all AMS to participate in the training; (2) Lengthening the drill period and conducting the training annually; and (3) Training in both medical care and coordination for designated personnel in Ministry of Health or Ministry of Public Health (MOH/MOPH) to strengthen the DHM system. Feedback and comments from all participants and instructors were gathered and analyzed by the Project Team to be an input for the planning of the next drill and presented in the AMS representative meeting.

Date (2017)	Activities
February 8	Thai Task Force Meeting (1)
February 13-15	Project Team Meeting (1) (During JADM)
End of February to early March: <b>Scenario (version1) is drafted</b>	
March 17	Project Team Meeting (Tools) (2)
March 22	Venue visiting + Special Project Team Meeting
March 28	Thai Task Force Meeting (2)
End of March to early April: <b>Scenario (version2) is drafted</b>	
Early April to mid-May: Organize staff and clarify equipment	
April 20	Thai Task Force Meeting (3)
April 21	Project Team Meeting (Tools & Drill) (3)
May 8-9	Present conceptual design and draft scenario in PWG1 Meeting (Finalize all tools and drill concept)
May 9	Project Team, JICA, JAC meeting (Tools & Drill)
Mid-May: <b>Scenario (version3) is drafted</b>	
End of May: Confirmation of materials and documents	
June 6	Thai Task Force Meeting (4)
June 8-9	Project Team Meeting (4)
June 9	Project Team Meeting (4) JAC
June 14-16	1st check of all components (Venue, materials, manual, facilitators, etc.)
June 22-27	2nd check of all components (Venue, materials, manual, facilitators, etc.)
June 28	Thai Task Force Meeting (5)
July 12	Project Team Meeting (Drill, RCC, PWG meeting, JCC) (5) <b>Finalize scenario</b>
July 16	Rehearsal for 1st Regional Collaboration Drill Check all materials, documents and equipment
July 17-18	<b>Conduct 1st Regional Collaboration Drill</b>
July 19	Summarize the output and lesson learned
July 20	PWG meeting
July 21	RCC meeting

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**Table 1.** Planning Schedule and Designated Team Responsibilities of the First RCD

Note: Number in parenthesis: serial number of the meeting.

The ARCH Project team planned to organize the first RCD immediately after the start-up drill in 2016. A planning schedule and the team responsibilities (Table 1), drill objectives and outlines (Table 2), methodologies (Table 3), and the conceptual framework (Figure 1) were designed and implemented. Comprehensive literature review and an informative discussion between PWG, experts, and the advisory committee were organized to set up the drill to be most practical for I-EMTs. The objective of the first RCD was to examine the implementation of the MRED and HNA forms and a reporting procedure of I-EMTs in the disaster relief operations.

Regional and international SOPs including SASOP, WHO Emergency Medical Team Coordination Cell (EMTCC) standard, and MOH/MOPH procedures were reviewed, discussed, and summarized as crucial material for drafting the ASEAN coordination SOP for I-EMTs in disaster relief operations. The coordination platform is based on the WHO EMTCC standards and in accordance with the SASOP and MOH/ MOPH procedures.<sup>1</sup>

Literatures relevant to medical records and the HNA for I-EMT were reviewed. The ASEAN MRED and HNA forms were drafted by the ARCH Project team under the supervision of experts.

The scenario is based on a host country's risk, previous disaster events, and simulated actual activities in disaster relief operations. Field medical activities (both table-top and field operation) were organized according to standard competencies of I-EMT in disaster relief operations. Table-top exercises were undertaken to prepare participants prior to field exercises both in medical care and coordination procedures. The coordination platform, information flow, and reporting were aligned with MOH/MOPH procedures and WHO EMTCC standards. I-EMT coordination was compulsory for the designated host country's personnel in MOH or MOPH. They were trained on the coordination by experts and instructors to strengthen their competencies prior to attending the table-top and field exercises. The outcome-based AAR platform relevant to drill objectives and activities was implemented, as shown in Figure 2 and Figure 3.

Feedback received from different participants and experts were divided into the following four categories: (1) team capacity building: team management, workflow, standardized medicine, and equipment; (2) team collaboration capacity building: evaluation of the standardized forms (eg, registration, MRED, and HNA forms) and the knowledge of functions of other relevant agencies;

<p><b>Objectives</b>  <b>To identify challenges relevant to:</b>  <b>(1) Assistance provided for National Emergency Medicine Team (N-EMT) by I-EMT in the affected country;</b>  <b>(2) Collaboration and coordination among I-EMTs, and between N-EMT and I-EMT; and</b>  <b>(3) Coordination, collaboration, and information sharing between EMTs and the AHA Centre.</b></p>		
<p><b>Methods</b></p> <ul style="list-style-type: none"> <li>- Experience the process of the AHA Centre introductory training and Emergency Medical Team Coordination Cell (EMTCC) training.</li> <li>- Combine the procedures related to domestic, departure, and immigration based on SASOP, EAS toolkits, and ASEAN coordination processes.</li> <li>- Basically, a problem identification approach will be taken, while the medical care part will apply a problem-solving approach.</li> <li>- After the 2nd session, participants will confirm if the challenges identified in the previous session have been solved, and simulation training will be added to identify new challenges.</li> <li>- Simulation training is to be designed based on the topics discussed in PWG 1 meeting.</li> <li>- All forms used for simulation training (Tabletop exercise (TTX), Field Training Exercise (FTX)) will be based on the consensus of the PWG 1 meeting.</li> </ul>		
<b>Location</b>		Conference room (Days 1 and 3), Field (Day 2)
<b>Dates</b>	Preparation	Rehearsal: 1 day for TTX and 1 day for FTX Meeting: 1 day per week and 3 days before the drill
	Implementation	Day 1: Tabletop exercise Day 2: Field exercise Day 3: Review workshop
<p><b>Participants</b></p> <ul style="list-style-type: none"> <li>- I-EMTs from the ASEAN countries (five participants from each country, two persons from Singapore; criteria are shown in Table 3-4).</li> <li>- JDR registered members' team (five persons x two teams).</li> <li>- Coach (Japan and Thailand).</li> <li>- ASEAN Secretariat (two persons from health and disaster areas).</li> <li>- AHA Centre (two persons).</li> <li>- Thai stakeholders (NIEM, MOPH).</li> <li>- Japanese concerned personnel (JICA, Japanese Advisory Committee).</li> <li>- Observers (less than 20 persons).</li> </ul>		

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**Table 2.** First RCD Objectives and Outlines

(3) personal capacity building: basic and advanced knowledge and skills in health emergency management (trauma and non-trauma), ICS concept, and legal provision; and (4) collaboration capacity building: evaluation of drafted ASEAN SOP.

The first RCD in 2017, which was well-planned and organized, became a great success and became the standard for subsequent drill preparations. Information collected from all drills by the outcome-based AAR was a major input for the development of a standard curriculum on the DHM training course. Furthermore, the drilling activity encouraged and facilitated AMS I-EMT to achieve both regional and global standards. All planning processes, activities, and recommendations of the first RCD were documented and became the resource material for future drill preparation.

*B. Second RCD (Viet Nam)*

*1. Experience in Hosting the Second RCD in Viet Nam*—As a country with frequent natural disasters, in the framework of the ARCH Project, Viet Nam decided to host the second RCD in March 2018 in Da Nang City. The main objective of the second RCD was to improve coordination and resource deployment capacity in the region and each AMS and to respond quickly and effectively to the health needs in the event of a disaster. The drills are a good opportunity not only to complete the standard process of coordinating ASEAN countries, but also to help Viet Nam improve the process of domestic coordination in responding to health emergencies and

disasters. Therefore, Viet Nam decided to host it. The second RCD had three specific objectives: implementing an emergency operation center (EOC); checking the appropriate forms to be used for disaster situations; and practicing medical assistance plan and emergency HNA of I-EMT in Viet Nam, as well as ensuring the cooperation of both the national EMT (N-EMT) and I-EMT functions. First of all, it was necessary to discuss and develop the appropriate scenario, so the situation was chosen of medical response to a super typhoon by enlisting the participation of supporting I-EMTs from nine AMS and Japan. The implementation strategies and plans included: reporting to the Government and authorities of Da Nang City where the drill took place to get permission and to set up the venue; establishment of the Organizing Committee by the Ministry of Health under the leadership of Deputy Head, and seeking collaboration from departments and agencies of the Ministry of Health; reporting to relevant departments including Ministry of Agriculture and Rural Development, Ministry of Foreign Affairs, Ministry of Transport, and Interior Ministry, Viet Nam.

In order to conduct the field site where the drill is to be conducted, it was critical to:

1. Organize meetings and negotiations with donors, the Japan International Cooperation Agency (JICA), and consultants of Thailand National Institute for Emergency Medicine (NIEM) on logistics and professional support;



Day	Objectives and Methodology
1	<p><b>Objectives</b></p> <ul style="list-style-type: none"> <li>-To form a common understanding about the following two points by confirming their relationships and existing rules:               <ul style="list-style-type: none"> <li>• Capacity to perform medical activities required in the affected areas.</li> <li>• Requirements for coordination and cooperation among multiple teams.</li> </ul> </li> <li>- To validate the common reporting forms among EMTs, between EMTs and AHA Centre.</li> </ul> <p><b>Methodology</b></p> <p><u>Tabletop Exercise</u></p> <ul style="list-style-type: none"> <li>- The workshop is carried out by dividing the groups into ten tables (one team per table).</li> <li>- Two facilitators, one each from Thailand and Japan.</li> <li>- Two recorders (Japanese expert), one each for a table: The record will be used on Day 3.</li> <li>- Simulation of the following processes with assuming that the host country of the drill is disaster-prone:               <ul style="list-style-type: none"> <li>• Decision for dispatch;</li> <li>• Procedures at the time of entry into the affected country;</li> <li>• Participation in the team coordination meeting; and</li> <li>• Preparations for team activities at the activity sites by each country.</li> <li>• Coordination between EMTs using common reporting forms.</li> <li>• Coordination between affected country and the AHA Centre using SASOP and EAS toolkits.</li> </ul> </li> </ul>
2	<p><b>Objectives</b></p> <ul style="list-style-type: none"> <li>-To improve understanding of the above two points, using the draft SOP.</li> </ul> <p><b>Methodology</b></p> <p><u>Field Exercise</u></p> <ul style="list-style-type: none"> <li>- Based on the preparation for the team activities at the end of the first day, the field activities will be carried out.</li> <li>- Two to three fields will be prepared with different themes.</li> <li>- EMTs will coordinate with the local public health emergency operation center (PHEOC), national emergency operations center (EOC) (ie, EMTCC) by using the common reporting forms.</li> <li>- EMTs' joint tasks will be designed and the teams will work together with others (eg, Type I Mobile from one country will work with Type I Fixed or Type II from other countries).</li> <li>- A tutor for each site collects the topics on challenges identified to be discussed on Day 3.</li> </ul>
3	<p><b>Objectives</b></p> <ul style="list-style-type: none"> <li>- To identify challenges in coordination by using common reporting forms among the teams for efficient and effective medical activities in the affected areas.</li> </ul> <p><b>Methodology</b></p> <p><u>Workshop</u></p> <ul style="list-style-type: none"> <li>- Challenges will be identified and lessons learned will be drawn through the above activities.</li> <li>- Issues will be identified for the next step.</li> </ul>

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**Table 3.** The First RCD Methodologies

2. Organize to select and train participants: N-EMTs, victim role players, reception and logistics departments to help I-EMTs, etc. from leading medical facilities in Viet Nam including the central hospitals and medical schools; and
3. Organize the test drills in the field to adjust accordingly.

*2. RCD Exercise Results were Fascinating and Very Encouraging*—Ten I-EMTs from nine ASEAN countries and Japan were the participants in the second RCD. The Vietnamese side had two N-EMTs; established a Reception Departure Center (RDC) and three Public Health Emergency Operation Centers (PHEOC) in one region and two provinces. The drill included a day for table top exercise (TTX) and another day for field training exercise (FTX) at Hoa Xuan Stadium, Da Nang. TTX included the operation of the RDC, which supports

the I-EMTs to complete procedures to enter and leave Viet Nam at the beginning and the end of their duties, familiarizing and practicing to fill out all the forms (15 forms according to standard ASEAN procedure guidelines) under detailed hypothetical scenarios (Figure 4). FTX included administration of regional and provincial PHEOCs, triage, providing first aid, and referral practices by collaborating I-EMTs and N-EMTs and HNA practices in the affected and isolated areas, making reports in accordance with the WHO EMT MDS, and sending data to the control center (Figure 5, Figure 6, Figure 7, Figure 8).

The general assessment shows that the drills were successful in achieving the goals and safety. Both I-EMTs and N-EMTs updated their knowledge, practiced their skills in providing first aid and referring the affected people, and coordinated well between I-EMTs and N-EMTs. Few shortcomings such as poor

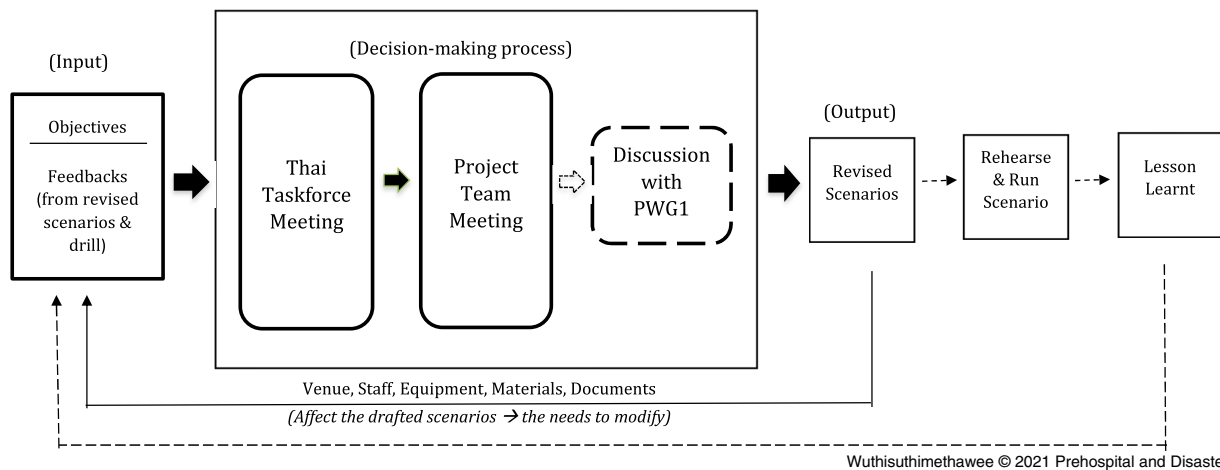


Figure 1. Conceptual Framework of The First RCD.



Figure 2. Emergency Medical Team Coordination Activity in the 1st Regional Collaboration Drill.

communication, complicated forms, no standards of first aid skills between I-EMT and N-EMT, insufficient language translators, and the role of EOCs in coordinating and analyzing data still exist, all of which needs to be improved.

The drill was successful with many experiences gained including planning for disaster response, deploying and operating health resources, EOC function, and reporting statistics for the disaster. The results of the drill formed the basic premise for organizing international drills on a larger scale and ensuring the readiness for future disaster response that Viet Nam is aiming to build.

### C. Third RCD (Philippines)

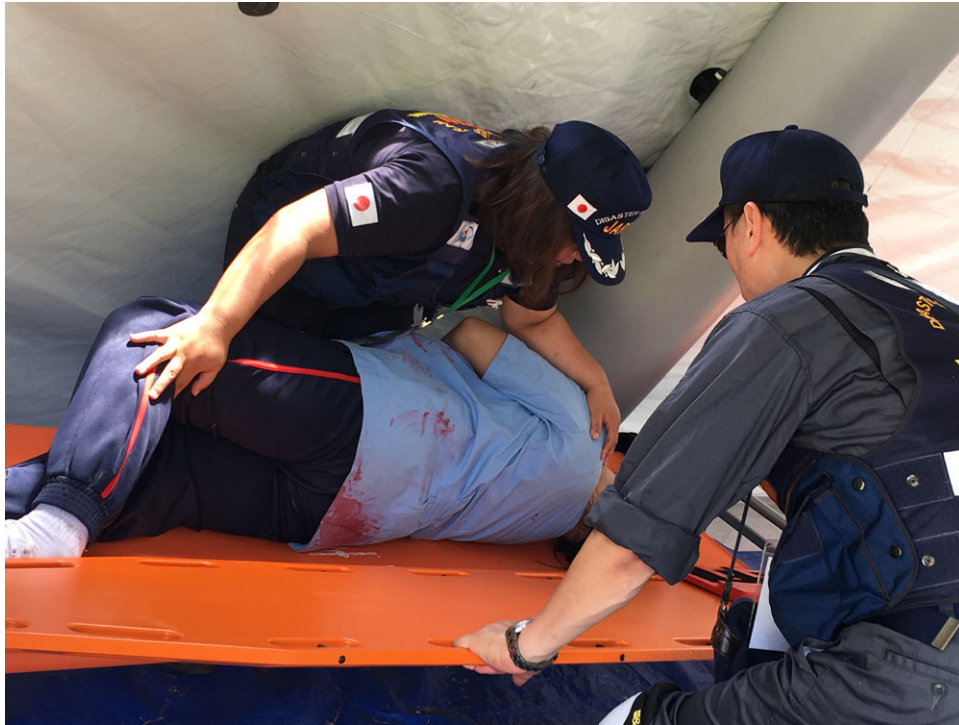
The year 2018 ended with a bang as the Philippines hosted the third RCD under the ASEAN Regional Capacity on DHM. The drill (at that time) was applauded as the most sophisticated and most organized drill (in all aspects) by the ASEAN Community.

Over 300 local players and more than 100 participants, players, and observers from the AMS, Japan, and Taiwan participated in the activity (Figure 9).

The strategies used by the Philippines in the conduct of the said drill, which was reflected in the RCD Guidebook developed under the ARCH Project, included: having a solid scenario based on the experience of the Philippines, forming of working committees, conducting a dry run, and developing various drill templates.

The RCD was a combination of a two-day tabletop exercise held on 3 and 5 December 2018 in Makati City, and a one-day field exercise on 4 December 2018 at the Philippine Army Grandstand (Figure 10).

The drill aimed to examine the current draft regional collaboration mechanism and tools on DHM which were developed through the ARCH Project. The exercise also aimed to further refine EMT operations at all levels in terms of command and control, coordination and collaboration, and communication.



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Figure 3. Medical Care Activity in the 1st Regional Collaboration Drill.



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Figure 4. Japanese Team at TTX (Indoor Exercise).

The tabletop exercise focused on the arrival and registration of EMTs, including the demobilization of assistance. The said exercise included a mock set-up of the airport which highlighted the quarantine, immigration, customs, and humanitarian assistance processes manned by experienced personnel from the Department of Health (DOH), Bureau of Quarantine, Bureau of Immigration, Bureau of Customs, Department of Foreign Affairs, and DOH – Operation Center (Figure 11).

On the other hand, the field exercise involved two phases of patient care for trauma and public health cases. The exercise also

emphasized the concept of EMTCC and camp management (Figure 12).

The Philippine hosting of the drill is in line with the preparation of the country to respond to a possible 7.2 magnitude earthquake in Metro Manila. Hosting an international drill is an opportunity for many health emergency response teams all over the country to participate and learn from the other response teams of the AMS. Almost 200 players from all the 17 regions of the Philippines and other government and non-government organizations participated in this RCD. In the end, the drill benefited the country to





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Figure 5. Hoa Xuan Stadium for FTX (Field Exercise).



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Figure 6. Village Assessment Conducted by AMS - I-EMT.

enhance inter-agency collaboration and coordination both at the national and international response operation activities. Likewise, the RCD also contributed to the effort of the Philippines to organize the Philippine Emergency Medical Assistance Team through the enhancement of the existing draft operational guides and SOPs based on the learnings from the drill.

For a country with several experiences of disaster, ranking ninth among the 180 countries in terms of disaster risk, the Philippines recognizes that coordination saves lives.<sup>2</sup> And therefore, it is needed to improve the coordination between countries, among local responders, and that of civilian and military workers.

#### *D. Fourth RCD (Indonesia)*

Indonesia is one of 35 disaster high-risk countries and geographically located in Southeast Asia, the most disaster-prone area of the world.<sup>2</sup> The commitment of Indonesia to global disaster risk

reduction (DRR) is enhanced into the policy of disaster and health crisis management, as well as preparedness at national and sub-national levels.<sup>3</sup> Indonesia can be considered as a disaster laboratory. Therefore, Indonesia agreed to host the fourth RCD in 2019 in order to contribute to strengthening the regional coordination capacity on DHM through cooperation and sharing experiences, to improve national capacities in responding to disaster events in ASEAN, and to propose a composite team model as the best practice of Indonesia's EMT management.

The impact of the fourth RCD exceeded expectations. First, the RCD represented a resemblant process of disaster management in ASEAN, including how to manage I-EMT, who will be deployed, and how to coordinate with AHA Centre and AMS via SASOP.<sup>1</sup> Second, the RCD showed an integrated simulation between medical and management skills, not only the patient treatment skills of EMT, but also the management process on RDC, permission, and





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Figure 7. Viet Nam N-EMT.



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Figure 8. Japanese Team on Medical Care.

coordination in health emergency operation center (HEOC), how to make a daily report and coordinate with EMTCC, as well as teach EMTCC and HEOC to organize all operation, information, and data. Moreover, it was found that some items need to be improved such as the request and verification process of health care volunteers or EMTs from each country. Thus, the Section of Prevention, Mitigation, and Preparedness Health Crisis Center MOH Indonesia has adopted the DHM simulation of the RCD into their annual disaster simulation. They adopted the revised material and model of DHM simulation and added management simulation on health cluster activation (Figure 13, Figure 14, and Figure 15).

The achievements of Indonesia in this RCD were as outlined below: (1) A composite team model of EMTs, consisting of multiple medical and health professionals with a core team that

is formed in emergency response situations based on needs, was able to practice on trial for future disaster response in Indonesia; (2) The results were appreciated by most of the participants as the overall activity was satisfying; and (3) Participants received valuable inputs from mentors.

Nevertheless, it was not easy for Indonesia to prepare for the RCD. Many coordination meetings and communication with many platforms were necessary because of the distance between Jakarta and Bali as the simulation location. It was not an easy task to ensure that the related agencies, national ministries, and departments, Bali Province, and Karangasem District were involved, and the collaboration with academia, researchers, and practitioners who supported all processes of RCD as the committee, participants, and observers was obtained.



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**Figure 9.** All the Players, Participants, Observers, Victim-Actors, and Facilitators during the Field Exercise at the Philippine Army Grandstand.



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**Figure 10.** Department of Health (DOH) Secretary Francisco T. Duque III Giving Welcome Message during the Opening Program for the 3rd Regional Collaboration Drill at Dusit Thani Hotel.

## II. Academic Approach

### A. Development of the Standard Curriculum on DHM

The standard curriculum of the DHM training course is one of the extraordinary outputs initiated by the ARCH Project. The main objective of this development was to set up an ASEAN standard of I-EMT and finally to achieve the WHO I-EMT standard and accreditation.<sup>4,5</sup>

The ARCH Project team reviewed all materials relevant to the I-EMT standard, I-EMT training courses both in ASEAN and globe especially by WHO, the country survey reports in AMS, the AAR from RCDs, summaries from AMS representative meetings, and direct observation of the disaster medical assistance team (DMAT) training in Japan.





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**Figure 11.** The EMT from Myanmar during the Tabletop Exercise Using the Mock Airport at Dusit Thani.



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**Figure 12.** The EMT from Malaysia during the Field Exercise (Patient Care for Trauma Cases) at the Philippine Army Grandstand.

The curriculum was drafted by the ARCH Project team and experts in accordance with the learning pyramid theory (Figure 16) to achieve objective-based learning and outcome-oriented activities.<sup>6</sup>

A sub-working group (SWG), consisting of two representatives from each AMS, was established to support the development of the standard curriculum.

Objective-based modules were designed to achieve the necessary knowledge and skills in disaster medical relief operation and coordination. The outcome-oriented activities and materials such as interactive discussion and brainstorming workshops were applied to facilitate the learning and critical thinking experience of all participants. The tabletop exercise was held to formulate all knowledge and skills learned from previous sessions while the





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Figure 13. Participants of 4th RCD.



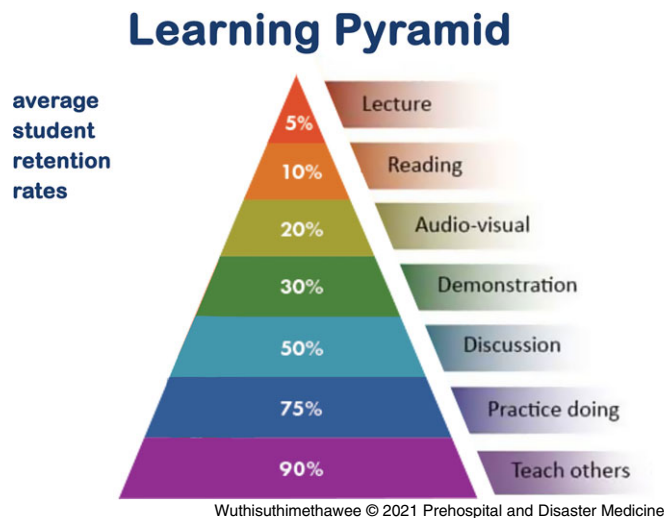
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Figure 14. Indoor Exercise of EMT Daily Meeting.



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Figure 15. Mock Airport Simulation.



**Figure 16.** Learning Pyramid Theory.

Note: Adopted from Susman K: How do we know they are learning?<sup>6</sup>

field training exercise was set up to test both personal and team performance in EMT operation during disaster medical assistance.

The pilot DHM training courses were implemented a couple of times for the Thai participants. Feedback and suggestions were used to modify the DHM training curriculum prior to presenting in the SWG meeting. Comments from the SWG and common agreement on training curriculum were input into the ASEAN standard curriculum of DHM training course. The implementation of the ASEAN standard DHM training course was the next step of the project (Figure 17, Figure 18).

### B. ASEAN Academic Network

An in-country survey on DHM of all 10 ASEAN countries by the ARCH Project team in 2015 revealed four major challenges:<sup>7</sup> (1) Each country has a different situation: needs, priority, capacity,

development plans, institutional arrangements, and human resources according to the country's context and system; (2) There are needs for collaboration mechanism on DHM to exchange information both in peacetime and during the event; (3) DHM should be well-coordinated with other sectors, especially disaster management and emergency response; and (4) There are needs for capacity building in DHM (personal capacity, team capacity, team collaboration capacity, and collaboration capacity) for all AMS.

Therefore, capacity building in DHM for AMS is required and specified as the essential goal within the POA on DHM to establish the ASEAN Academic Network on DHM with mandates and functions as follows<sup>8</sup>:

1. Promote and support educational and training activities by mobilizing resource persons or provision of curriculums and/or learning materials as requested by member states;
2. Organize regional conferences on DHM every two years;
3. Establish ASEAN Journal/E-Bulletin on DHM and publish the aforementioned publications twice a year; and
4. Conduct joint research among the network of member institutes.

The purpose of this academic network is to coordinate, facilitate, and support all AMS in DHM academic activities. Members of the network consist of academic organizations that are interested in DHM and each member state assigns a national focal point to coordinate with domestic networks and ASEAN networks. Membership of the network is not limited to only the AMS, but also is open to other countries in order to expand opportunities of knowledge, skills, and experience exchanges among the AMS and non-AMS states.

The ASEAN Institute for DHM (AIDHM) is an organization that acts as the coordination center of this academic network supervised by Regional Coordination Committee on Disaster Health Management (RCCDHM) as its board committee. The academic network and AIDHM are crucial mechanisms of the RCCDHM to drive capacity development and academic activities related to DHM in ASEAN. The initiative of an ASEAN DHM training



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**Figure 17.** Activity in Pilot DHM Training (Indoor Exercise).





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Figure 18. Activity in Pilot DHM Training (Field Exercise).

system along with the ASEAN coordination mechanism in DHM is an essential step for sustainable development of the ASEAN DHM to achieve the ultimate goal of “One ASEAN, One Response.”<sup>9</sup>

The ARCH Project developed the draft terms of reference for the ASEAN Academic Network and AIDHM and has submitted them to the ASEAN health sector for endorsement.

### III. Conclusion

The RCDs are very effective to test and validate the SOP and regional tools developed, providing opportunities for AMS I-EMT to familiarize the tools, as well as for host countries to assess their coordination capacity for receiving international assistance, identifying the country’s specific challenges, and verifying regional coordination mechanism. The development of the standard curriculum can enhance regional capacity both in supporting

disaster-affected countries and in receiving international assistance. A sustainable capacity development mechanism in DHM is envisaged through the establishment of the ASEAN Academic Network and AIDHM toward the goal of One ASEAN, One Response.

### Author Contribution

This manuscript was conceptualized and contributed by following authors: Prasit Wuthisuthimethawee (Startup/ 1st RCD), Nguyễn Công Sinh (2nd RCD), Janice Palad Feliciano, and Alfonso C. Danac (3rd RCD), Madelina Ariani, Bella Donna, and Ina Agustina Isturini (4th RCD), Phummarin Saelim (standard curriculum development), and Phumin Silapunt (ASEAN academic network/Institute on DHM). All authors have read through the final manuscript and have unanimously agreed to publication.

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