

ESCAP/WMO Typhoon Committee
Fifty-two Session
25 to 28 February 2020
Hong Kong, China

FOR PARTICIPANTS ONLY
WRD/TC.51/8.1
04 March 2018
ENGLISH ONLY

**WORKING GROUP ON DISASTER RISK REDUCTION ACTIVITIES
ANNUAL REPORT 2019**

(Submitted by WGDRR)

ACTION REQUIRED:

The Committee is invited to:

- a. Review the activities of TC WGDRR conducted in 2019
- b. Approve the recommendations and AOPs with the Budget of WGDRR in 2020

APPENDIX:

- I. Draft text for inclusion at session report**
- II. Report on activities of Working Group on WGDRR in 2019**

APPENDIX I
DRAFT TEXT FOR INCLUSION AT SESSION REPORT

Disaster Risk Reduction Component

- The Committee reviewed the activities of WGDRR in implementing the TC Strategic Plan and its Annual Operating Plans (AOPs) in relation to DRR component during the past year. Details of which are presented in Appendix II.
- The Committee was informed that 14th WGDRR Annual Workshop was successfully held in Ulsan, Republic of Korea from 18 to 20 June 2019 with the theme of “Disseminating and Sharing of Data on Disaster Risk Reduction”, which was hosted and fully supported by National Disaster Management Institute (NDMI). ESCAP, WMO and AWG Members were also invited to join the meeting, beside WGDRR Members.
- The Committee expressed its appreciation to National Disaster Management Institute (NDMI) for their kind contribution and continued support on WGDRR activities.
- The Committee was informed that the Working Group on DRR Chair, Mr. Kim Seokhyun from Republic of Korea has already moved to other department in the Ministry of the Interior and Safety. The Committee expressed its appreciation for his remarkable contribution for serving as the Chair of WGDRR in the past.
- The Committee was informed that the Working Group Vice Chairs, Ms. Genevieve Miller from USA will retire from the role of Vice Chair. The Committee expressed its appreciation for her remarkable contribution for serving as the Vice Chair of WGDRR.
- The Committee expressed that Dr. Yuntae KIM from Republic of Korea for their contribution and effort on Working Group as the role of Vice Chair and noted that Dr. Yuntae KIM will continue to serve as the Vice Chair of WGDRR in 2020.
- The Committee was informed that the projects (AOPs) for 2020 recommended by WGDRR as follows:
 - i. AOP1: Capacity Building/Knowledge Sharing in DRR- the project aims to improve the capacity in DRR especially related to typhoon disaster among the Members by capacity building and knowledge sharing. NDMI, ROK will organize the expert team to the selected Member in order to share the knowledge and is going to invite another WGs to join the project.
 - ii. AOP2: Setting up early warning and alert systems – The project is funded by NDMI. With installation of the EW and Alert Systems NDMI, it improves the capacities of resilience for typhoon related disaster for participating members. NDMI will continue carrying out the project in Laos and Vietnam in order to further improve the systems. In 2020, there will be also maintenance work for Northern Mindanao Project which was conducted in Philippines from 2013 through 2015. In maintenance work, NDMI and PAGASA will check all systems including rainfall gauges, water-level gauges, warning posts, and flood monitoring systems which were installed during the project period.
 - iii. AOP3: 15th WGDRR Annual Meeting- NDMI will continue hosting and funding the WGDRR annual workshop in 2020 in order to facilitate follow-up on the WGDRR

activities and information sharing related to DRR, as well as the communication among members.

- iv. AOP4: Benefit evaluation of typhoon disaster prevention and preparedness project- this project is led by Shanghai Typhoon Institute (STI), China that functions to establish a set evaluation index and provide an evaluation report that assists in decision-making basis for the optimization of typhoon disaster behavior. STI, China will continue conducting the fellowship program to the interested Members for the project research in 2020. Ms. Chen Peiyan from STI, China will continue serving as the coordinators of the project.
- v. AOP5: Sharing information related to disaster risk management- In order to improve the capacities of Members' Disaster Risk Reduction, WGDRR will continue promoting information sharing and exchange related to DRR through the established forum on TC website.
- vi. AOP6: Making education videos related to DRR- WGDRR will continue producing DRR education videos especially related to tropical cyclone for Members to use on public education in order to raise the public awareness on typhoon disaster.
- vii. AOP7: Seminar for TC Crowd-sourcing high density non-conventional weather data- The project aims to share experience on concept and methodology of crowd-sourcing high density non-conventional weather data (e.g. pressure data from smart phone/AWS/photo/video) for impact analysis and micro-climate study.

Conclusion of WGDRR

On the basis of the information provided by the Members, the reports presented by project coordinator/leader and findings of the parallel session on WGDRR, the following conclusions were reached:

- 1) Members have made important progress in the implementation of the TC SP during 2019
- 2) The 14th WGDRR annual workshop was successfully conducted in Ulsan, Republic of Korea from 18 to 20 June with the theme of "Disseminating and Sharing of Data on Disaster Risk Reduction". At the workshop, Working Group followed up on the projects in 2019 and shared information related to DRR among the Members. AWG Members and outside TC DRR experts were also invited to attend the meeting to provide valuable comments to Working Group activities. Meanwhile, The Working Group annual meeting will continue to be held in Republic of Korea and hosted by NDMI in 2020.
- 3) WGDRR decided to continue conducting the projects which can improve capacities of disaster management among TC Members through the project of information exchange and sharing such as participation in the important DRR world conferences or meeting, organizing the expert team to selected member and using effective platform to exchange DRR information, as well as holding the WGDRR annual meeting.
- 4) WGDRR decided to continue the projects related to public education on DRR in the coming future which can facilitate raising public awareness on typhoon related disasters among TC Members such as producing educational videos and social media use on DRR. HKO expressed that they can continue providing DRR education videos especially related to tropical cyclone. The selected videos would be translated into English with subtitles and voiceover for sharing with TC Members.

- 5) WGDRR decided to tentatively suspend the project of promoting TC and PTC cooperation by inviting PTC Member to attend the WGDRR annual meeting in order to discuss the two regions cooperation until the channel to communicate with PTC can be solved.
- 6) With Hong Kong, China suggestion, WGDRR decided to conduct a project of Seminar for TC Crowd-sourcing high density non-conventional weather data that will be led by HKO and held in Hong Kong tentatively in early 2021. After discussion, Working Group is going to invite participants of other Working Groups to attend the seminar. (One of Cross Cutting Project)
- 7) The project of Expert Mission will be changed the name as Capacity Building/Knowledge Sharing in DRR. NDMI will continue to organize an expert team and will select a member state in order to exchange information and share knowledge related to typhoon disaster. At the parallel meeting, Working Group also is going to invite another Working Groups to join the Mission. (One of Cross Cutting Project)
- 8) For implementation of the proposed projects in 2020, WGDRR proposed the request of **USD, 30,000** to be allocated TCTF for the following items:
 - i) To allocate USD **10,000** budget of TCTF in 2020 for Capacity Building/Knowledge Sharing in DRR
 - ii) To allocate USD **6,000** budget of TCTF in 2020 for supporting the research fellowship, which will be held in STI, CHINA, related to benefit evaluation of Typhoon disaster prevention and preparedness.
 - iii) To allocate USD **2,000** budget of TCTF in 2020 for Making Education Video related to DRR
 - iv) To allocate USD **12,000** budget of TCTF in 2020 to Seminar for TC Crowd-sourcing high density non-conventional weather data

Recommendation of WGDRR

On the basic of the conclusion of discussion and deliberations, the WGDRR made the following recommendations:

- a) As the Director General of NDMI has been changed and Genevieve C. Miller (USA) will retire the role of Vice Chair. Working Group on DRR has to reappoint the Chairpersons. After discussion at the meeting, the recommendation for reappointment of WGDRR Chairpersons as follows:

Chair: Mr. Sang Kwon LEE (New Director General of NDMI)
Vice Chairs: Mr. Marcus AYDLETT (USA) and Dr. Yuntae KIM (NDMI)
- b) To request Hong Kong, China to conduct the Seminar for TC Crowd-sourcing high density non-conventional weather data
- c) To request NDMI to organize the team to the selected member for the project of capacity building and knowledge sharing in DRR

- d) To request STI, China to continue conducting the research fellowship of the project of benefited evaluation of typhoon disaster prevention and preparedness for the interested TC Members.
- e) To request Hong Kong, China to continue providing a video related to typhoon disaster and translate it into English version (voiceover and subtitles) for Members to use on public education on DRR.
- f) To request NDMI, Republic of Korea to continue supporting and hosting the 15th WGDRR Annual Workshop in 2020 in ROK.
- g) To request NDMI to continue supporting the establishment and improvement of the early warning and alert systems related to typhoon disaster in the participating members.
- h) To encourage the Members to share information related to DRR on the forum established on TC Website.
- i) To request the committee to approve the proposed projects and related budget in 2020.

APPENDIX II
REPORT ON ACTIVITIES OF WORKING GROUP ON DISASTER REISK REDUCTION
OF TC IN 2019

1. Introduction

In 2019, Working Group on Disaster Risk Reduction (WGDRR) implemented a series of projects and conducted the DRR annual meeting to share the information related to DRR according to the plan derived from 51th TC Session. This report was drafted based on the outcome of WGDRR parallel meeting at 14th IWS, which was held on 05-06 November 2019 in Guam, USA.

The report will show the main progress and achievement on DRR component due to the great cooperation and effort from the Members in the past year. It will also cover the status of implementation of the projects 2019 and the plan of 2020 for WGDRR including the AOPs and budget allocation for TCTF.

2. WGDRR Member (Focal points)

| | |
|--------------------|---|
| <i>Chair</i> | Mr. Seokhyun Kim (Republic of Korea) |
| <i>Vice Chairs</i> | Ms. Genevieve Miller (USA) Mr. Yuntae Kim (Republic of Korea) |
| <i>Members</i> | No name provided by (Cambodia) Mr. Wang Yawei (China) Mr. Kim Choi (DPR Korea) Ms. Sandy M.K. Song (Hong Kong, China) Ms. Setsuko Saya Ms. Kenta NAGAMURA and Mr. Takaaki MUKAIDO (Japan) Mr. Akhom Thammalangsy (Lao PDR) Mr. Ho Su Hon (Macao, China) Ms. Che Siti Noor bint koh Poh Lee (Malaysia) Mr. DIR Edgar L. Posadas (Philippines) Mr. Chihun Lee (Republic of Korea) Mr Cheong Wee Kiong (Singapore) Mr. Saharat Wongsakulwiwat (Thailand) Mrs. Dam Thi Hoa (Vietnam) |

3. The major progresses of activities on DRR component of Members in 2019

With the support from all TC Members and coordination by TCS, WGDRR successfully implemented the action plan in 2019, which was endorsed at 51th TC Session. The status of the progress of the project and activities of WGDRR as follows;

3.1 AOP1: Expert Mission

The project is aimed at improving the capacities of Disaster Management among TC Members especially typhoon related disaster through exchange of information such as policies, technologies, experiences, etc. among the Members.

According to the decision of the TC51, Working Group planned to conduct the Expert Mission in Macau or Thailand in 2019. In this regard, after 50th TC Session, TCS started contacting Macau,

China and Thailand focal points and sent out the information including the proposed theme and tentative schedule. However, before the 14th annual WGDRR meeting to be held in Ulsan, Republic of Korea in May, TCS was informed by Macau and Thailand Focal point that they are not able to join the project.

3.2 AOP2: Installation of warning and alert systems related to typhoon disaster

The project is funded by NDMI that aims to improve the members' capacities of resilience for typhoon related disaster through the installation of the EW and Alert Systems for the interested members.

Since 2016, NDMI has launched the project for strengthening capabilities of disaster risk reduction with Vietnam and Lao PDR. From 2016 through 2018, NDMI had implemented the project including feasibility studies, installations and inspections, and education programs. This year, the project is proceeding in Yen Bai Province, Vietnam and Bolikhamxai, Lao PDR.

3.3 AOP3: WGDRR Annual Meeting

The 14th WGDRR Annual Meeting has been successfully held at Lotte Hotel in Ulsan, Republic of Korea with the theme of "Disseminating and Sharing of Data on Disaster Risk Reduction" from 18 to 20 June 2019 that was fully supported and funded by NDMI, Republic of Korea. Around 30 participants from DRR Members, namely China, Hong Kong, China, Macau, China, Malaysia, Republic of Korea, Thailand, USA, VIETNAM, AWG Members, representatives from ESCAP, WMO, TCS and DRR experts from Japan University and Republic of Korea attended the meeting.

The meeting was fully support and hosted by National Disaster Management Research Institute (NDMI), Republic of Korea. The objectives of WGDRR Annual Meeting are to strengthen regional cooperation and exchange DRR information in order to improve capacities of disaster management among TC members. In addition, WGDRR took the opportunity to follow up on Annual Operating Projects (AOPs) 2019 and discussed the future projects. During the meeting, Members had shared information related to DRR policies, mechanism and case studies. In addition, some completed projects were also shown at the meeting such as the producing video for DRR public education. The video was provided by Hong Kong Observatory and completed translation of subtitle and voiceover into English. TCS reported that the video has already been posted on TC website for Member to download. Meanwhile, Members had discussed the way on the project of participation in World Bosai Forum, which will be held in Sendai, Japan in November. As a result, it was decided that TC Working Groups will take part in the Bosai Forum by the Chair or their representatives for holding an oral session.

As last year, Advisory Working Group (AWG) Members also were kindly invited to attend the meeting. Taking this occasion, AWG Members has discussed the TC important issues and cross cutting matters, as well as the preparation for the IWS in Guam and the Session in Hong Kong. Overall, the 14th DRR annual meeting was very successfully and achieved the expected result.

3.4 AOP4: Promote TC and PTC Cooperation

In order to promote TC and PTC Cooperation, WGDRR planned to invite PTC Member (Oman) to join the 14th WGDRR annual meeting. By approaching to PTC, it was hoped that an exchange of information and experience related to DRR between two regions, as well as discussions of future cooperation TC and PTC.

For implementation of the project, after TC51, NDMI and TCS had started contacting Oman and sent them the invitation. As practice, it was hard to contact and get response from PTC Member. Working Group finally did not receive any response from Oman for the invitation. During the 14th DRR annual meeting in Ulsan, Working Group has made discussion about the difficulty to communicate with PTC Members and requested ESCAP to provide help to contact PTC Member, also persuade PTC Member to make more cooperation with TC Member in the future.

3.5 AOP5: World Bosai Forum

In order to improve the capacities related to disaster management among the Members by participating world DRR conference, Working Group had a plan to take part in World Bosai Forum that will be held in Sendai, Japan from 09 to 12 November in 2019.

According to the decision at TC51, WGDRR will participate in the World Bosai Forum (WBF). At the 14th WGDRR annual meeting in Ulsan, Republic of Korea, WGDRR and AWG Members decided to take part in the Forum by holding a Plenary Oral Session in order to exchange the typhoon related DRR information and introduce Typhoon Committee to the Forum's participants. The Working Group Chairs consented that they or their representatives will attend the Session and give presentation related to Working Groups at the oral session. In addition, Some WGDRR Members were invited to share their experience related to typhoon disaster in the mentioned Session. Follow up on the progress, it reported that there will be 6 participants including 1 from WGM, 1 from WGH, 1 from TCS and 3 from WGDRR Member who have confirmed to attend the TC oral session to be held on 11 November 2019 in WBF after 14th IWS.

3.6 AOP6: Benefit Evaluation of Typhoon Disaster Project

Based on the tropical cyclone forecasts from operational ensemble prediction system and the tropical cyclone wind model for engineering application, a probability wind forecast technique for wind destruction risk assessment is developed. The project is developing a grid risk assessment model and a damage assessment model at country level. The resolution of grid is about 1km for special region.

Ms. Phetsakhone MISOMPHANE from Lao PDR Ministry of Natural Resources and Environment and Mr. NGO HUU HUY from Vietnam Disaster Management Policy and Technology Center participated in this year's fellowship from 13-26 October. They've summarized the typhoon lists from 2000-2019 and policy of their own country.

The project has conducted a questionnaire on the benefit behavior among Members. The website of the questionnaire is <https://www.surveymonkey.com/r/79CBXH9>

3.7 AOP7: SSOP Project Phrase II

The project Phrase II of SSOP is aimed to promote the capacity on the establishment of appropriate SOP at national level to coastal multi-hazards through extending the achievement of SSOPI in PTC and TC region by conducting training courses and workshops on mechanics of preparing and implementing SSOP for coastal multi-hazards early warning in beneficiary countries.

The project phrase II is composed of three activities. The activity1 (Workshop) was successfully held on 24-26 October 2017 in WMO Regional Training Center (RTC) Nanjing, China. The activity2 was also successfully conducted in RSMC, Tokyo and New Delhi. In last year, only the last activity (training workshops in TC and PTC) has not yet implemented due to the difficulty

to coordinate the training workshops in conjunction with RIMEs monsoon forum. In this regard, the project manager submitted the proposal to ESCAP to extend the project for one year until the end of 2019. The last activity finally could be implemented in TC (Thailand, Vietnam and Laos) and PTC (Myanmar and Sri Lanka) before the project's deadline on the end of November 2019 with the project manager 's effort and ESCAP's kind coordination, The details of the project's progress and outcome will be reported in the upcoming TC Session in Hong Kong by the project manager.

3.8 AOP8: Sharing information related to DRR

The project's idea is to improve the capacities of disaster management among TC Members by collecting and exchanging information related to DRR from and among Members.

TCS has developed a forum on TC website in order to achieve the implementation of information collection and facilitate Members sharing the information. In order to maintain integrity of security of information, TCS also set up the members own password to access to the forum so that members can share and get the information at any time. At the Parallel Meeting, Members was encouraged to actively share their information on the forum.

3.9 AOP9: Making Educational Video Related to DRR

In order to raise the public awareness related to typhoon disaster among the Members, WGDRR will produce video related to DRR that can be shared with Members for public education.

In past years, WGDRR has already produced some videos related to DRR sharing with the Members. In 2019, Working Group requested Hong Kong, China to provide a video related to storm surge and translated the voiceover and subtitle into English. The completed video was shown at the parallel session and plenary session in 14th IWS. Meanwhile, TCS reported that the video has been posted on TC website. Members can feel free to download it for public education purpose.

4. Review of budget for AOPs in 2019 and Proposal for budget of AOPs in 2020

4.1 Review of budget (proposal and expenditure) in 2019

| Project Number | <i>Name of Projects</i> | Proposed Budget | Actual and Estimated Expense |
|-----------------------|---|------------------------|-------------------------------------|
| AOP1 | <i>Expert Mission</i> | \$6,000 | No use |
| AOP2 | <i>Installation of warning system related to typhoon disaster</i> | Funded by NDMI | |
| AOP3 | <i>14th WGDRR Annual Meeting</i> | Funded by NDMI | |
| AOP4 | <i>Promote TC and PTC Cooperation</i> | Supported by NDMI | |
| AOP5 | <i>World Bosai Forum in Sendai, Japan</i> | \$8,000 | \$6,066.19 |
| AOP6 | <i>Benefit Evaluation of Typhoon Project</i> | \$6,000 | \$6,000 |
| AOP7 | SSOP II | Supported by ESCAP | |
| AOP8 | Sharing information related to DRR | No need | |
| AOP9 | Making video related to DRR | \$1,500 | \$1,486.39 |
| | Totally | \$ 21,500 | \$13,552.58 |

4.2 Proposal of budget for AOPs in 2020

| Project Number | Name of Project | Proposed Budget |
|-----------------------|--|------------------------|
| AOP1 | <i>Capacity Building/Knowledge Sharing</i> | \$10,000 |
| AOP2 | <i>Installation of warning system related to typhoon disaster</i> | Supported by NDMI |
| AOP3 | <i>14th WGDRR Annual Meeting</i> | Supported by NDMI |
| AOP4 | <i>Benefit Evaluation of Typhoon Project</i> | \$6,000.00 |
| AOP5 | Sharing information related to DRR | No need |
| AOP6 | Making video related to DRR | \$2,000 |
| AOP7 | Seminar for TC Crowd-sourcing high density non-conventional weather data | \$12,000 |
| | Totally | \$ 30,000 |

5. Conclusions

On the basis of the information provided by the Members, the reports presented by project coordinator/leader and findings of the parallel session on WGDRR, the following conclusions were reached:

- 1) Members have made important progress in the implementation of the TC SP during 2019
- 2) The 14th WGDRR annual workshop was successfully conducted in Ulsan, Republic of Korea from 18 to 20 June with the theme of “Disseminating and Sharing of Data on Disaster Risk Reduction”. During the workshop, Working Group followed up on the projects in 2019 and shared information related to DRR among the Members. AWG Members and outside TC DRR experts were also invited to attend the meeting to provide valuable comments to Working Group activities. Meanwhile, NMDI showed that they will continue organizing the 15th WGDRR annual meeting in 2020.
- 3) WGDRR decided to continue conducting the projects which can improve capacities of disaster management among TC Members through the project of information exchange and sharing such as participation in the important DRR world conferences or meeting, organizing the expert team to selected member and using effective platform to exchange DRR information, as well as holding the WGDRR annual meeting.

- 4) WGDRR decided to continue the projects related to public education on DRR in the coming future which can facilitate raising public awareness on typhoon related disasters among TC Members such as producing educational videos and social media use on DRR.
- 5) At the parallel meeting, Hong Kong, China expressed that they can continue producing DRR education videos especially related to tropical cyclone. The selected videos would be translated into English with subtitles and voiceover for sharing with TC Members.
- 6) WGDRR decided to tentatively suspend the project of promoting TC and PTC cooperation that invite PTC Member to attend the DRR annual meeting in 2020 in order to discuss the two regions cooperation until the channel to communicate with PTC is smoother.
- 7) With Hong Kong, China suggestion, WGDRR decided to conduct a project of Seminar for TC Crowd-sourcing high density non-conventional weather data that will be led by HKO and held in Hong Kong tentatively in early 2020. After discussion, Working Group planned to invite the participants of the other Working Groups to attend the Seminar. (One of Cross Cutting Project)
- 8) The project of Expert Mission will be changed the name as Capacity Building/Knowledge Sharing in DRR. NDMI will continue to organize an expert team from NDMI and Members and will select a member state in order to exchange information and share knowledge related to typhoon disaster. At the parallel meeting, Working Group also planned to invite another Working Groups to join the Mission. (One of Cross Cutting Project)
- 9) For implementation of the proposed projects in 2020, WGDRR proposed the request of **USD, 30,000** to be allocated TCTF for the following items:
 - I. To allocate USD **10,000** budget of TCTF in 2020 for Capacity Building/Knowledge Sharing in DRR
 - II. To allocate USD **6,000** budget of TCTF in 2020 for supporting the research fellowship, which will be held in STI, CHINA, related to benefit evaluation of Typhoon disaster prevention and preparedness.
 - III. To allocate USD **2,000** budget of TCTF in 2020 for Making Education Video related to DRR
 - IV. To allocate USD **12,000** budget of TCTF in 2020 to Seminar for TC Crowd-sourcing high density non-conventional weather data

6. Recommendation of WGDRR

On the basic of the conclusion of discussion and deliberations, the WGDRR made the following recommendations:

- a) As NDMI has changed the Director General and Genevieve C. Miller (USA) will retire the role of Vice Chair. Working Group on DRR has to reappoint the Chairpersons. After discussion at the meeting, the recommendation for reappointment of WGDRR Chairpersons as follows:
 - a. **Chair:** Mr. Sang Kwon LEE (New Director General of NDMI)
 - b. **Vice Chairs:** Mr. Marcus AYDLETT (USA) and Dr. Yuntae KIM (NDMI)

- b) To request Hong Kong, China to conduct the Seminar for TC Crowd-sourcing high density non-conventional weather data
- c) To request NDMI, Republic of Korea to organize the team to the selected member for the project of capacity building and knowledge sharing in DRR
- d) To request STI, China to continue conducting the research fellowship of the project of benefited evaluation of typhoon disaster prevention and preparedness for the interested TC Members.
- e) To request Hong Kong, China to continue providing a video related to typhoon disaster and translate it into English version (voiceover and subtitles) for Members to use on public education on DRR.
- f) To request NDMI, Republic of Korea to continue supporting and hosting the 15th WGDRR Annual Workshop in 2020 in ROK.
- g) To request NDMI, Republic of Korea to continue supporting the establishment and improvement of the early warning and alert systems related to typhoon disaster in the participating members
- h) To encourage Members to share information related to DRR on the established forum of TC Website.
- i) To request the Committee to approve the proposed projects and related budget in 2020.

Annex-Implementation Status of WGDRR AOPs 2019

Annex - Implementation Status Successor Indicators of WGDRR AOPs 2019

| SP's KRA and SG | Objective Number | Objective | Action | Other WGs Involved | TCS Responsibility | Expected Quarter Completed | Project leader/Other Organizations Involved | Success Indicators | Funding Required | Funding Sources | Completed YES/NO |
|------------------------------|------------------|---|--|--------------------|--------------------------------|----------------------------|---|--|------------------|-----------------|------------------|
| KEA3 KRA4 KRA5 | 1 | Expert Mission | To conduct expert mission in order to improve the capacities of DRR among Member by exchanging information and expertise related to DRR. | | Coordination and participation | Third | NDMI And participating member | Conducted the expert mission in interested Member state | USD\$6,000 | NDMI and TCTF | No |
| KRA2 KAR3 KRA4 KRA5 | 2 | Installation of warning systems related to typhoon disaster | To install the EW and Alert Systems in interested Members in order to improve the capacities of resilience for typhoon related disaster | | Coordination | Fourth | NDMI | NDMI assigned experts to Laos and Vietnam to install the system and provide the training | Unknown | NDMI | Yes/on going |

| SP's KRA and SG | Objective Number | Objective | Action | Other WGs Involved | TCS Responsibility | Expected Quarter Completed | Project leader/Other Organizations Involved | Success Indicators | Funding Required | Funding Sources | Completed YES/NO |
|------------------------------|------------------|--|---|--------------------|--------------------------------|----------------------------|---|--|------------------|-----------------|------------------|
| KRA1 KRA4 KRA5 | 3 | Holding the (14 th) WGDRR Annual Meeting | Holding the annual meeting to follow up on the working group's activities and exchange information | AWG Members | Coordination and participation | Second | NDMI and TC DRR Members | The meeting was held in ROK | Unknown | NDMI | Yes |
| KRA2 KRA4 KRA5 | 4 | Promote TC and PTC Cooperation | Invite PTC Member to join the annual meeting to discuss the cooperation between TC and PTC | | Coordination | Second | PTC | PTC member participated in the DRR annual meeting to discuss the cooperation by invitation | Unknown | NDMI | No |
| KRA2 KRA3 KRA4 KRA5 | 5 | Bosai World Forum | Taking part in the DRR Conference to improve the TC Members 'capacities of DRR and introduce TC to participants | | Coordination and participation | Third | Sendai, Japan | Members participated in the Conference | USD\$8,000 | TCTF | Yes |

| SP's KRA and SG | Objective Number | Objective | Action | Other WGs Involved | TCS Responsibility | Expected Quarter Completed | Project leader/Other Organizations Involved | Success Indicators | Funding Required | Funding Sources | Completed YES/NO |
|--------------------------------------|------------------|---|--|------------------------|---|----------------------------|--|---|------------------|-----------------|------------------|
| KRA1 KRA4 KRA5 | 6 | Benefit Evaluation of Typhoon Project | To promote the research concerning benefit evaluation of typhoon disaster prevention and preparedness. | | See above | Second | STI, China | Conducted a research fellowship for TC Member in STI, China | USD\$6,000 | TCTF | Yes |
| KRA1 KRA2 KRA3 KRA4 KRA5 | 7 | SSOP II | To encourage DRR member to support and participate in the project's activities. | All TC Working Members | See above | Third and forth | USA, ESCAP RTC, Nanjing, PTC, RIMES and RSMC | The last activity of the project has been completed | | ESCAP | Yes |
| KRA2 KRA3 KRA4 KRA5 | 8 | Sharing information related to disaster risk management | To share information such as policies or mechanism related to DRR among TC Members via the forum established on TC Website | | Establishment of the forum on TC website for facilitating the | Forth | NDMI, Republic of Korea and TCS | Members shared the information on the forum | No need | | Yes/on going |

| SP's KRA and SG | Objective Number | Objective | Action | Other WGs Involved | TCS Responsibility | Expected Quarter Completed | Project leader/Other Organizations Involved | Success Indicators | Funding Required | Funding Sources | Completed YES/NO |
|-------------------------------|------------------|---|---|--------------------|---------------------|----------------------------|---|---|------------------|-----------------|------------------|
| | | | | | information sharing | | | | | | |
| KRA2 KRA\$ KRA4 KRA5 | 9 | Making educational video related to DRR | To produce a video related to DRR education for raising public awareness. | | Coordination | Forth | Hong Kong, China | Completed the video with English subtitle and voiceover and shared with TC Member | USD\$1,500 | TCTF | Yes |

- KRA 1: Enhance capacity to monitor mortality and direct economic loss caused by typhoon-related disasters.
- KRA 2: Enhance capacity to generate and provide accurate, timely and understandable information using multi-hazard impact-based forecasts and risk-based warnings.
- KRA 3: Improve typhoon-related flood control and integrated water resource management.
- KRA 4: Strengthen typhoon-related disaster risk reduction activities in various sectors, including increased community-based resiliency with better response, communication, and information sharing capability.

- KRA 5: Enhance Typhoon Committee's Regional and International collaboration mechanism.