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EXECUTIVE SUMMARY OF MEMBERS' REPORTS 2014

(submitted by AWG Chair)

Summary and Purpose of Document:

This document presents an overall view of the progress and issues in meteorology, hydrology and DRR aspects among TC Members with respect to typhoons and related hazards in 2014.

Action Proposed

The Committee is invited to:

(a) take note of the major progress and issues in meteorology, hydrology and DRR aspects under the Key Result Areas (KRAs) of TC as reported by Members in 2014; and

(b) review and refine the draft Executive Summary in the APPENDIX with the aim of adopting a finalized version for reference by Members' governments and other collaborating or potential sponsoring agencies.

APPENDIX: Executive Summary of Members' Reports 2014 (draft version – Dec 2014)

APPENDIX

EXECUTIVE SUMMARY OF
MEMBERS' REPORTS 2014

Edwin S.T. Lai (AWG Chair)

This executive summary is based on Members' Reports submitted by Members of the Typhoon Committee at the 9th IWS in Bangkok, Thailand on 20 – 23 October 2014, details of which can be found in: *http://www.typhooncommittee.org/9IWS/index.html*

1. Objectives

1.1 The objectives of this Executive Summary are to extract the key aspects of tropical cyclone impact and related topical issues of regional interest in Members' countries or territories, and to consolidate the information and observations for:

(a) the attention of Members' governments with a view to allocating the necessary resources strategically for the purposes of operational effectiveness and readiness, disaster mitigation and risk reduction, or leveraging available resources and support for technology transfer and capacity-building through regional cooperation initiatives; and

(b) reference by sponsoring agencies with a view to coordinating and synergizing effort in the planning of relevant projects and programmes for such purposes, as well as channelling resources and aids into identified areas of gaps or needs.

2. Key Observations in 2014

2.1 Overview

2.1.1 There were only 23 (JMA-numbered) tropical cyclones over the western North Pacific and the South China Sea in 2014, more than 20% below the yearly average of about 30 for the whole basin. In particular, the normal peak period of August was unusually quiet. The two typhoons early in the month actually formed towards the end of July. As such, there was no cyclogenesis over the western North Pacific in August and no cyclone activity at all over the South China Sea. Overall, genesis areas in 2014 concentrated mostly over the sea areas east of the Philippines and near the Mariana Islands, and tropical cyclone activities over the South China Sea were in general significantly less than usual. Nevertheless, the passages of a couple of typhoons, namely Rammasun and Kalmaegi, did produce an extensive impact on a number of Members around the South China Sea region.

2.1.2 Initiatives pursued by Members under relevant Key Result Areas (KRAs; see Annex) against the five major activity components of the Typhoon Committee were summarized in the table below. It was based on input from ten Members. Philippines and Viet Nam only provided qualitative input with no detailed breakdown, and hence their effort cannot be reflected in the summary table here. Lao PDR was also not included as no such information was provided in its Members' report, while Cambodia had not submitted any report at all. Among the KRAs of TC, KRA 3 (Enhanced Beneficial Typhoon-related Effects for the Betterment of Quality of Life)

received relatively less attention, while noting that drought or drier conditions were reported this year in quite a few places, such as DPR Korea, Micronesia, Thailand and Lao PDR, and rainfall brought by tropical cyclones could bring relief to the shortage of water supply. Nevertheless, it was also evident that many countries were still vulnerable to hazards such as flooding and mudslides associated with heavy rain triggered by tropical cyclones. In some cases, as reported in the Philippines, the operation of dams and reservoirs could actually aggravate the flooding risks in the surrounding areas. As such, how to reap the potential benefits and at the same time mitigate the hazardous impact of heavy rain remained a challenge.

KRA =	1	2	3	4	5	6	7
Meteorology	29	23	2	19	12	36	10
Hydrology	9	11	0	9	7	7	3
DRR	8	16	3	16	20	8	7
Training and research	2	0	4	2	1	11	10
Resource mobilization or regional collaboration	2	3	1	2	2	2	6
Total:	**50**	**53**	**10**	**48**	**42**	**64**	**36**

2.2 Summary of Members' Reports

2.2.1 No report was received from **Cambodia** in 2014. Apparently, no tropical cyclones had made landfall near the country or produced any direct impact on its weather.

2.2.2 While only five tropical cyclones (Hagibis, Rammasun, Matmo, Kalmaegi and Fung-wong) made landfall over **China,** those that did land produced impact that extended across several provinces. Heavy rain occurred in such affected regions, and widespread flooding was reported in 13 provinces and more than 60 rivers. Some rivers in Hainan and Guangxi had water levels exceeding twice the alerting threshold, and Nandu River in Hainan in particular experienced a record-high flood event close to a 100-year return period. Tide gauges at Haikou in Hainan recorded the highest tide since operation began in 1973. Death toll in China as a result of cyclone-related hazards or disasters totalled 116, with more than 25 million people affected and direct economic loss amounting to RMB 66.7 billion.

2.2.3 Among the initiatives highlighted by **China**, they were linked to TC KRAs and activities as below:

KRA =	1	2	3	4	5	6	7
Meteorology	6	6	2	1		5	3
Hydrology	1	1				1	1
DRR	3	4	1	1			
Training and research	2						2
Resource mobilization or regional collaboration			1				

2.2.4 **DPR Korea** was affected by two tropical cyclones (Matmo and Nakri) in 2014. While some buildings and facilities were damaged by the strong winds of Matmo, heavy rain associated with Matmo actually brought some relief to the drought that affected the country in the early part of the year. The resultant flooding over the west coast region was not serious and no loss of life was reported. The impact caused by Nakri was also insignificant.

2.2.5 Among the initiatives highlighted by **DPR Korea**, they were linked to TC KRAs and activities as below:

KRA =	1	2	3	4	5	6	7
Meteorology	4						
Hydrology	2	1		2			
DRR	1	5		2	5	1	
Training and research			1	1		1	1
Resource mobilization or regional collaboration							1

2.2.6 **Hong Kong, China** had four tropical cyclones (Hagibis, Rammasun, an un-named TD and Kalmaegi) necessitating the issuance of warning signals, of which gale signals were required for Kalmaegi which, under the combined influence of the northeast monsoon, had an extensive gale coverage area. During the passage of Kalmaegi, at least 29 people were injured amidst reports of fallen trees and collapsed objects. Despite insignificant direct impact in the case of Hagibis, coastal hazards again posed life-threatening risks. Two people swept away by freak waves had to be rescued, and six canoeists reported missing were later found.

2.2.7 Among the initiatives highlighted by **Hong Kong, China**, they were linked to TC KRAs and activities as below:

KRA =	1	2	3	4	5	6	7
Meteorology	3	3		2	4	7	2
Hydrology					2	1	
DRR		2	1	2	4	1	
Training and research						4	2
Resource mobilization or regional collaboration						1	2

2.2.8 **Japan** was affected by nine tropical cyclones (Neoguri, Matmo, Nakri, Halong, Fung-wong, Kammuri, Phanfone, Vongfong and Nuri) during the year, with four of them (Neoguri, Halong, Phanfone and Vongfong) making landfall over Japan. Major hazards were associated with high waves and flooding, as well as the susceptibility to mudslides and sediment disasters triggered by heavy rain. Three people were killed in mudslide and flooded rivers and canals during the passage of Neoguri in July. Later in the season, Japan was twice affected by tropical cyclones in quick succession, Nakri and Halong in early August, and Phanfone and Vongfong in early October. Although Nakri did not make landfall over Japan, heavy rain brought by Nakri and the tornadoes spawned in the aftermath of Halong led to the deaths of six people. There were also reports of fatalities during the passages of Phanfone and Vongfong, with the former also affecting the 2014 Japanese Grand Prix where a serious crash occurred under heavy rain and poor visibility conditions.

2.2.9 Among the initiatives highlighted by **Japan**, they were linked to TC KRAs and activities as below:

KRA =	1	2	3	4	5	6	7
Meteorology	6	5		6	3	8	
Hydrology	1	1		2		1	
DRR				1		1	2
Training and research				1			2
Resource mobilization or regional collaboration							1

2.2.10 In **Lao PDR,** the rainy season started later than normal and only two tropical cyclones (Rammasun and Kalmaegi) produced some indirect effects during the year. Enhanced southwest

monsoon brought heavy rain to the country. Inundation flood as a result of heavy rain and tropical cyclones occurred mostly over the southern provinces in 2014. However, gusting winds, flash floods and landslides during the passage of Kalmaegi also affected the northern part where two people were killed.

2.2.11 **Macao, China** had three tropical cyclones (Rammasun, an un-named TD and Kalmaegi) necessitating the issuance of local warning signals. For the passage of Kalmaegi, gale signals were issued, with flooding occurring in downtown areas and reports of loosened objects and structures under the windy conditions.

2.2.12 Among the initiatives highlighted by **Macao, China**, they were linked to TC KRAs and activities as below:

KRA =	1	2	3	4	5	6	7
Meteorology	3	3		2	1	1	
Hydrology	1	1					
DRR	2	2		2	2	2	1
Training and research							
Resource mobilization or regional collaboration	2	2					

2.2.13 For **Malaysia,** no tropical cyclone came close enough to cause significant loss of life or property, directly or indirectly, in 2014. Impact over the Malaysian region was mostly in terms of heavy rainfall events and strong gusts associated with the tail effect of tropical cyclones.

2.2.14 Among the initiatives highlighted by **Malaysia**, they were linked to TC KRAs and activities as below:

KRA =	1	2	3	4	5	6	7
Meteorology	2	1		3	1	3	
Hydrology	1	2			2	3	1
DRR		1		3		1	
Training and research			1			1	3
Resource mobilization or regional collaboration				1			1

2.2.15 In **the Philippines**, seven tropical cyclones (Kajiki, Rammasun, Kalmaegi, Fung-wong, Sinlaku, Hagupit and Jangmi) made landfall in 2014. Over 100 deaths and more than PHP 40 billion in damage were reported, with the devastating Rammasun causing significant impact both in terms of casualties and economic loss. On the other hand, a relatively weak TD without making landfall back in January was just as deadly, killing 70 people as a result of days of heavy rain triggering severe flooding and landslides in Mindanao. For more developed areas like Metro Manila, rainfall brought by tropical cyclones was a source for domestic water supply. However, operation of dams and reservoirs and the dumping of excess water at times of heavy rain could also contribute to flooding in the surrounding regions.

2.2.16 Among the initiatives highlighted by **Philippines**, they were linked to TC KRAs and activities as below:

KRA =	1	2	3	4	5	6	7
Meteorology	x	x	x	x	x	x	x
Hydrology	x	x	x	x	x	x	
DRR							

Training and research							
Resource mobilization or regional collaboration							

2.2.17 Three tropical cyclones (Neoguri, Halong and Nakri) affected **Republic of Korea** directly or indirectly during the year. While they were not particularly intense in terms of wind strength, rain associated with the cyclones got quite heavy with rainfall as much as 1,130 mm recorded at Jeju mountain areas in the case of Nakri. As a weakening Nakri approached the west coast of the Korean peninsula, strong winds and heavy rain also impacted on the southwestern part of the country where two people were killed.

2.2.18 Among the initiatives highlighted by **Republic of Korea**, they were linked to TC KRAs and activities as below:

KRA =	1	2	3	4	5	6	7
Meteorology	3	1		1		5	2
Hydrology	1	1		1		1	1
DRR			1	1	2	1	3
Training and research						2	
Resource mobilization or regional collaboration					1	1	

2.2.19 Tropical cyclones did not produce any impact on the weather of **Singapore** in 2014.

2.2.20 Among the initiatives highlighted by **Singapore**, they were linked to TC KRAs and activities as below:

KRA =	1	2	3	4	5	6	7
Meteorology	1	2		2		2	
Hydrology	1						
DRR							
Training and research			2			2	
Resource mobilization or regional collaboration							

2.2.21 While **Thailand** had not been directly affected by any tropical cyclones in 2014, the remnant of Rammasun brought enhanced southwest monsoon and heavy rain over its northern and northeastern regions in late July.

2.2.22 Among the initiatives highlighted by **Thailand**, they were linked to TC KRAs and activities as below:

KRA =	1	2	3	4	5	6	7
Meteorology	1	1				1	1
Hydrology	1	3		3	1		
DRR	1	1			3		
Training and research					1		
Resource mobilization or regional collaboration							1

2.2.23 In the **USA** (western North Pacific Region), Micronesia was dominated by tropical cyclones that intensified in the western half of Guam's Area of Responsibility. The genesis locations were generally a little more east in 2014 and hence closer to Guam, and as such had an

effect on a greater number of inhabited islands. While cyclone occurrences were enhanced after several relatively quiet years, there were some unusual spurts in activity with six numbered tropical cyclones before the end of April, very low activity in May and June and an increase in activity during the month of July. The month of August, normally the busiest month of the year, however, was highly unusual with no new cyclone forming during the month in the entire western North Pacific basin, apart from two cyclones that formed towards the end of July and Genevieve that moved in from the Central Pacific basin. A near-normal September was followed by the development of several intense cyclones including Phanfone, Vongfong, Nuri and Hagupit in the final quarter of the year.

2.2.24 Among the initiatives highlighted by **USA**, they were linked to TC KRAs and activities as below:

KRA =	1	2	3	4	5	6	7
Meteorology		1		2	3	4	2
Hydrology		1		1	2		
DRR	1	1		4	4	1	1
Training and research						1	
Resource mobilization or regional collaboration		1		1	1		

2.2.25 **Viet Nam** had a relatively quiet year and was affected by only two tropical cyclones (Rammasun and Kalmaegi; the effects of two weakening cyclones, Sinlaku and Hagupit, that approached the coast of central and southern Viet Nam occurred later in the year after October and were not included in the report). Heavy rain and river flooding associated with the two cyclones affected mainly the northern part of the country.

2.2.26 Among the initiatives highlighted by **Viet Nam**, they were linked to TC KRAs and activities as below:

KRA =	1	2	3	4	5	6	7
Meteorology	x	x		x	x	x	x
Hydrology	x	x		x	x	x	x
DRR	x	x		x	x	x	x
Training and research	x	x		x			
Resource mobilization or regional collaboration							

Annex

Key Result Areas (KRAs)

KRA 1: Reduced Loss of Life from Typhoon-related Disasters

KRA 2: Minimized Typhoon-related Social and Economic Impacts

KRA 3: Enhanced Beneficial Typhoon-related Effects for the Betterment of Quality of Life

KRA 4: Improved Typhoon-related Disaster Risk Management in Various Sectors

KRA 5: Strengthened Resilience of Communities to Typhoon-related Disaster

KRA 6: Improved Capacity to Generate and Provide Accurate, Timely and Understandable Information on Typhoon-related Threats

KRA 7: Enhanced Typhoon Committee's Effectiveness, Efficiency and International Collaboration