MEMBER REPORT [THAILAND]

ESCAP/WMO Typhoon Committee

15th Integrated Workshop of Typhoon Committee Innovative Strategies and Measures for Typhoon-related Disaster Risk Reduction under Public Emergencies

Vietnam Virtual Meeting 01 – 02 December 2020 via the WEB-EX 09.00 – 12.30 HK Time(UTC+8)

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- 2. Dam management operation during flood situation in October in the Northeast region

I. Overview of tropical cyclones which have affected/impacted Member's area since the last Committee Session

Meteorological Assessment (highlighting forecasting issues/impacts)

Summary of tropical cyclones affected/impacted Thailand from 1 October 2019 to 31 October 2020.

• There were three significant tropical cyclones originated over the South China Sea and the Northwest Pacific Ocean directly affected Thailand from October 2019 to October 2020, as shown in figure 1.



Figure1: Track of the tropical cyclones entering Thailand from 1 October 2019 to 31 October 2020

They were: -

- **1. Tropical Storm "SINLAKU" (2003)** in early August 2020
- 2. Tropical Storm "NOUL" (2011) in mid-September 2020
- **3. Typhoon "MOLAVE" (2018)** in late October 2020
- Moreover, there were 9 tropical cyclones over the South China Sea having some effects on rainfall of Thailand from 1 October 2019 to 31 October 2020, as shown in Figure 2.
 They were : -



• Under the influence of tropical cyclones in October 2020, many areas of Thailand received rainfall and flooding in October. Flooding triggered by days of heavy rain. Runoff, landslide and gusty wind had hit 2,299 villages in 140 districts of 34 provinces across the country since October 7, namely Ubon Ratchathani, Nakhon Ratchasima, Chaiyaphum, Si Sa Ket, Buriram, Surin, Prachin Buri, Sa Kaeo, Chachoengsao, Chantaburi, Chonburi, Rayong, Uthai Thani, Samut Songkhram, Samut Sakhon, Suphan Buri, Kanchanaburi, Nakhon Sawan, Chainat, Singburi, Ratchaburi, Nakhon Pathom, Pathum Thani, Phetchaburi, Prachuap Khiri Khan, Chumphon, Nakhon Si Thammarat, Surat Thani, Phang-nga, Krabi, Phuket, Trang, Satun and Songkhla provinces.

1.1 Tropical Storm "SINLAKU" (2003)

SINLAKU was the first tropical cyclone entering Thailand in this period. It formed as a tropical depression over the upper South China Sea in the morning of July 31. Then it moved over the coast of Hainan on August 1 which later intensified into the tropical storm "SINLAKU" (2003) over the Gulf of Tonkin and made landfall over upper Vietnam in the morning of August 2. Then it moved through Laos and downgraded into the tropical depression in the evening of the same day before entering Thailand over Nan province at 2100UTC and finally degenerated into the active low-pressure cell covering upper northern part and Myanmar in the next time. The track of SINLAKU is shown in figure 3.

Under the influence of SINLAKU, rainfall increased both amount and distribution with widespread rain and heavy to very heavy rainfall in upper Thailand especially in the northern and northeastern parts. During August 1-3, the maximum daily rainfall in upper Thailand was 350.4 mm at Amphoe Mueang in Bueng Kan province on August 2. Flash floods were reported in Lampang, Nan, Phayao, Chiang Rai, Chiang Mai, Phrae, Loei, Nong Bua Lam Phu, Udon Thani, Nakhon Phanom and Kalasin provinces on August 2, in Uttaradit province on August 2-3. Gusty wind was reported in Surin province on August 1 and in Amnat Charoen province on August 2.



Figure 3: Thai Meteorological Figure 4: The comparison between the quantitative precipitation Department plotted track of From Satellite(left) and quantitative precipitation from Radar SINLAKU (2003) starting from Observation (right) July 31 to August 3.



Figure 5: The Daily observation of rainfall totals map from 1-3 August 2020.

	Update 4 July 2020														
	Tropical storm SINLANU (2005) Aug 2020	Between 1 - 3 August 2020													
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		8	134.0	Nam Som District, Udon Thani Province	1 August 2020										
	Takana Angele An	9	130.5	Tha Bo District, Nong Khai Province	1 August 2020										
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Figure 6: The track of SINLAHU and the top 10 maximums accumulated of rainfall during 1-3 August 2020.

Department of Disaster Prevention and Mitigation (DDPM), Ministry of Interior (Thailand) reported that a total of 1,399 households located in 24 districts in the 10 provinces in the north and northeast were affected by flash floods from August 1 until August 4.

Sinlaku has also brought heavy rains and flash floods to many villages in Loei Province, northeast Thailand, submerging around 550 households and damaging farmland. No injuries or deaths were reported.

Meanwhile in Phitsanulok, another province in the northeast, the body of a school principal has been found stuck to a tree trunk in Khan River where flash floods occurred. His body has been transported to hospital for autopsy to determine the cause of death.



Figure 7: The northeastern province of Loei was the worst affected by flooding. credit: Thai PBS world



Figure 8: The remains of the new highway between the northern cities of Chiang Mai & Chiang Rai. credit: citylife.com

1.2 Tropical Storm "NOUL" (2011)

NOUL was the second tropical cyclone entering Thailand in this period. The low pressure cell in Philippines intensified into a tropical depression at 0600 UTC on September 15 and reached tropical storm strength "NOUL" (2011) over the middle South China Sea at 1800UTC. It moved northwesterly before making landfall at Danang, upper Vietnam in the morning of September 18, then moved through Laos entering Thailand in Mukdahan province at 0700 UTC after that it passed through Amnat Charoen, Yasothon, Roi Et, Mahasarakham provinces before weakening into the tropical depression in Khon Kaen province at 1800UTC then moving through Chaiyaphum and Phetchabun provinces and degenerated into an active low pressure cell covering Phitsanulok province in the afternoon of September 19.





Figure 9: Himawari-8 satellite and Radar composite image show the tropical Storm NOUL over the Northeast of Thailand at 1230 UTC on 18 September 2020.

Figure 10: TMD-WRF 24 hrs. precipitation forecast from 00 UTC 18 September to 00 UTC 19 September 2020 (initial time: 12 UTC 17 September 2020)



Figure 11: The overview track of NOUL (2011) between 17-19 September 2020 plotted by Thai Meteorological Department.



These conditions caused widespread rain with heavy to very heavy rainfall in some places inducing flash flood in several areas. The heaviest daily rainfall in upper Thailand was 243.7 millimeters at Wichian Buri in Phetchabun province on September 18. Flooding was reported in Phetchabun, Kamphaeng Phet, Khon Kaen, Chaiyaphum, Mukdahan, Ubon Ratchathani, Surin, Si Sa Ket, Nakhon Ratchasima, Lop Buri, Chanthaburi and Trat provinces on September 18 and in Tak, Buriram and Prachin Buri provinces on September 19 and in Lamphun, Lampang, Pichit and Loei provinces on September 20.

Top 10 Maximum rainfall from TC "NOUL"													
	Between 18 - 20 September 2020												
and the second	Rank	Rainfall (mm.)	Station	Date									
	1	243.8	Wichian Buri District, Phetchabun Province	18									
	2	240.4	Watthana Nakhon District, Sa Kaeo Province	18									
	3	202.4	Khao Khiao Radar Sta., Mueang Dist., Nakhon Nayok Prov.	18									
	4	200.8	Ubon Ratchathani agro. Ubon Ratchathani Province	18									
	5	200.0	Sub Lanka Forest Park, Lam Sonthi District, Lopburi Prov.	18									
	6	199.0	Ban Maha Pho School, Sa Thanon District, Lopburi Province	18									
	7	195.0	Nam Kleaeng District, Sisaket Province	18									
20 manua 2603 gran 2603 gr	8	190.0	Meteorological Center, Ubon Ratchathani Province	18									
	9	189.5	Tak Fah Election Commission, Nakhon Sawan Province	18									
	10	187.7	Mueang District, Trat Province	19									
	1	-	Source : Meteorological Developement Bureau TMD										
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Figure 13: The track of NOUL and the top 10 maximums accumulated of rainfall during 18-20 September 2020.

Department of Disaster Prevention and Mitigation (DDPM), Ministry of Interior (Thailand) reported the flash floods and excessive rainwater, caused by the tropical storm NOUL covering all regions of the country, have damaged infrastructures, farms, villages, and other property in 22 provinces. Some 1,400 households in 224 villages in those provinces have been damaged due to the tropical storm, which has caused the flash floods and flowing rainwater as well as high tides in the Gulf of Thailand and the Andaman Sea.



Figure 14 : The northeastern province of Loei was the worst affected by flooding. credit: TNN News



Figure 15: Big waves hit the lower southern coast of Thailand credit: Bangkok Post



Figure 16: Tropical Storm Noul Breaks Off Part of Island,

A large section of an island in the Mu Ko Angthong National Marine Park in Surat Thani Province has split off from the main island, probably because heavy rain and strong waves caused the limestone to crumble into the sea credit: ChiangmaiONE

1.3 Typhoon "MOLAVE" (2018)

In late October, the third tropical cyclone entered the lower northeastern Thailand namely MOLAVE (2018). MOLAVE formed as a tropical depression in the morning of October 24 over the northwest Pacific. It moved westward and reached tropical storm strength in the evening of the same day. It intensified into typhoon "MOLAVE" (2018) in the evening of October 25 as it moved through Philippines into the middle South China Sea. Typhoon "MOLAVE" made landfall over Quang Ngai, Vietnam at 0300UTC on October 28 and downgraded into tropical storm over Quang Nam, Vietnam in the evening. It moved through Laos and downgraded into tropical depression before entering Thailand in Ubon Ratchathani province at 1900UTC and later degenerated into the active low pressure cell covering northeastern part on October 29 then dissipating in the next day. Under the influence of Typhoon "MOLAVE", rainfall was relatively increased to widespread rain with heavy rainfall in several areas and very heavy rainfall in some areas of Thailand, especially in the northeastern part. The highest daily rainfall of 108.5 mm was recorded at Amphoe Na Chaluai in Ubon Ratchathani province on October 28. Flash flood and gusty wind was reported in Ubon Ratchathani and Nakhon Ratchasima provinces on October 28-29 and in Chantaburi province on October 30.



Figure 17: Himawari-8 IR-Enh satellite image show the tropical Storm MOLAVE over the central Vietnam at 0300 UTC on 28 September 2020.



Figure 18: The Daily observation of rainfall totals map from 28-30 October 2020.



Figure 19: Under the influence of Typhoon "MOLAVE", rainfall was relatively increased to widespread rain with heavy rainfall in several areas and very heavy rainfall in some areas of Thailand, especially in the northeastern part. The highest daily rainfall of 108.5 mm was recorded at Amphoe Na Chaluai in Ubon Ratchathani province on October 28.

On October 30, Department of Disaster Prevention and Mitigation (DDPM), Ministry of Interior (Thailand) reported that Typhoon Molave had bashed four Thai provinces including Chumphon, Phuket, Satun and Krabi, with flash floods and landslides. The typhoon also led to storms, hitting seven provinces of Nakhon Sawan, Chai Nat, Sing Buri, Kanchanaburi, Phang Nga, Chumphon and Ubon Ratchathani.

Moreover, water discharged from the Lam Takhong dam in Nakhon Ratchasima province overflowed from the Moon River, sending water flooding into the 437 village houses were inundated when the Moon River burst its banks in flooding caused by typhoon Molave.



Figure 20: water discharged from the Lam Takhong dam in Nakhon Ratchasima province credit: Thairath Online



2 Hydrological Assessment (highlighting water-related issues/impact)

2.1 By the Royal Irrigation Department (RID)

The hydrology aspect of Thailand in 2020 can be divided in 2 periods of time. At the beginning, from January to July, it happened to be drought in many areas. The water storages in most of the large-scale dams were less than the average as same as the precipitations all the regions except the South East Coast Region. And the second period starts from late July until November. There are many storms, depression, low-pressure area and the monsoon trough attack Thailand from the east side attack the Northeast, the East and the Central regions.

Royal Irrigation Department of Thailand, by SWOC (Smart Water Operation Center), is in charge of monitoring 24-hour flood situations by integrating meteo-hydrological data as well as hydraulics structures data from related agencies in order to set up operation plans and making warning messages for the expected risky area through the RIO (Regional Irrigation Office) and relate to the local government.

On the 1st August, a heavy rain which was accompanied from Tropical Storm "SINLAKU" That ravaged the North and Northeast of Thailand, bringing downpours, landslides, gusty and flash flood. And The active monsoon trough lies across the North and the upper Northeast in August.



Figure 22: The storms tracking of SINLAKU and NOUL



Figure 23: Flood area by SINLAKU At Nan River Basin



Figure 24: Flood area by SINLAKU At Kok River Basin



Figure 25: Flood area by Monsoon Though at the village of Nan Province (Inundation 1-2 days)



Figure 26: Flood area by Monsoon Though at Yom River Basin

In September, Tropical storm "NOUL" expected to hit Thailand. It moved into the Northeast and the North of Thailand from 18-20 September caused heavy rainfall in these areas, nevertheless it's advantage for the dam.



Figure 27: The Forecasting, the Observation and Flood stations by NOUL



Figure 28: Flood area in Nakhon Nayok, Khonkaen and Prachinburi Province by NOUL

Furthermore, in October, Thailand confront with the tropical storms from the Pacific Ocean as below:

- 11 13 Oct. Tropical Storm "LINFA"
- 14-16 Oct. Tropical Storm "NANGKA"
- 16 18 Oct. Tropical Depression
- 26 27 Oct. Tropical Storm "SAUDEL"
- 28 30 Oct. Tropical Storm "MOLAVE"



Figure 29: Weather Map of LINFA, NANGKA, SAUDEL and MOLAVE provide by TMD

The impact of these heavy rainfall caused the flood in 14 provinces mostly in the Northeast and the East region. Fourteen provinces as Ubon Ratchathani, Nakhon Ratchasima, Buri Ram, Sa Kaeo, Prachin Buri, Chon Buri, Nakhon Pathom, Kanchanaburi, Chai Nat, Sing Buri, Ang Thong, Suphan Buri, Uthai Thani, and Surat Thani were reported flood situation from the heavy rainfall in October.



Figure 30: Flood over the underpass Tublan in Prachinburi in October

There were 12 out of 35 large-scale dams that the water condition were more than 80% of their capacity, even 5 dams were over capacity.

Meanwhile the Northeast and the East of Thailand still had the floods, the others liked the North, Central and West of Thailand happened to be drought because of the amount of precipitations were less than the average.

For summary, the flood situations in Thailand 2020 occurred in 30 provinces, mostly in the Northeast region.



Figure 31: Flood occurred in 30 Provinces and the storage capacity in Large-scale dams (As on 31st October 2020)



Figure 32: Lam Phra Phloeng Dam : Over Morning Glory Spillway around October.



Figure 33: Munbon Dam Spillway draining caused over capacity around October.

In flood situation RID and related agencies provide the instruments and machines such as water-pushing machines, water pumps, sandbags, backhoes, etc. to mitigate and help the people and monitoring, report and announce to the Government and public.

2.2 By the Office of National Water Resources (ONWR)

The Office of National Water Resources (ONWR) of Thailand was instituted on October 25th, 2018 under Office of the Prime Minister as the main organization that systematically regulate and manages the policies of integrated national water resource management, to see the whole picture of the water resources management 38 water – related agencies. The ONWR equally values the work of all related agencies and operational-level staff in all sectors, toward achieving genuine integration and to move towards in the most efficient manner.



The National Water Command Center (NWCC) was established under ONWR to monitor and integrate coordination on the water situation, to plan and be prepared to immediately deal with the flood and drought situation, as this preparation is very necessary. NWCC works together with 38 water – related agencies and look after on the country's key networks and management as below.

- National Primary Stations
- Rain gauge 171 stations
- Discharge gauge 51 stations
- Water quality monitoring gauge 54 stations
- Water Situation Monitoring
- Water Quality
- Water Management
- Daily report for the Deputy Prime Minister

3 Socio-Economic Assessment (highlighting socio-economic and DRR issues/impacts)

Overview of Disaster Prevention and Mitigation (DDPM) of Thailand

As one of intermediary agencies in Thailand Disaster Management, Department of Disaster Prevention and Mitigation (DDPM) is primary responsible for imposing and implementing program policy, formulating operational guidelines, and establishing criteria on disaster management. In addition, DDPM still organizes and conducts training activities which are related to all disaster management by collaboration with local and international organizations. Moreover, disaster management in Thailand has been focused on preparedness activities to reduce the vulnerability impacts and increase the resilience in disaster prone areas as well as public using Community-Based Disaster Risk Management (CBDRM) approaches. The CBDRM approaches were religiously practiced at the local level as well as the establishment of temporary shelters for evacuation in the event of large or serious disasters such as tsunami, floods, and storms.



The latest development with the integration of National Disaster Warning Center (NDWC) into the structure of DDPM has been a positive force and increase in disaster early warning capacity of Thailand. DDPM is now fully equipped with disaster early warning capacity both authority and mechanisms. With the integration of NDWC, DDPM had acquired 345 tsunami warning towers (especially along Andaman Coast area) and Broadcast Alert System which link with 694 early warning towers both manually and automatically operated.



Overview of Tropical Cyclones which have affected/impacted Member's area in 2020

During 1 January to 18 October 2020, Thailand was affected by the influence of roughly 4 Tropical Storms: Sinlaku, Higos, Nouel, and Goni, and 3 Depressions: Lin-fa, Sodel, and Molabe.

The effects of the storms and depression were mostly in the Northeast, East and part of the South provinces of Thailand. Events arising from the case of a tropical storm since August which are many times as reported by Thai Meteorological Department caused floods and damaged a lot of houses and agricultural areas especially in the Northeast, North and East provinces of Thailand. The South provinces were mainly affected by the Southwest Monsoon. From May to September, tropical storms did not have a direct impact, but they cause some indirect impacts. For examples, they created stronger monsoons at times which led to heavy rains and floods.

In the situation of the COVID-19 epidemic, DDPM is supporting Thai government in implementation of national COVID-19 measures especially within our organization by implementing the Business Continuity Plan (BCP) to be able to prepare ourselves to response to any disasters which might occur during the pandemic. For example, DDPM has developed the Multi-Hazards Response Plan in case of floods during the COVID-19 outbreak as an operation guideline in an emergency. The plan consists of an assessment of preparedness situation, emergency management procedures and guidelines for responding to emergency situations. This will help elevate the level of emergency operation during complex and cascade emergency and will provide directions for agencies to be able to adapt to the New Normal situation with the help of technology. DDPM developed an application called "COVID SCAN" to be used as a monitoring and reporting tool for daily temperature check among officers working at DDPM offices around Thailand. The COVID SCAN is also used as data collecting tools for village level daily temperature check by our Civil Defense Volunteers and Village Health Volunteers. By using COVID SCAN, we can display real-time data and identify the people's locations while measuring the temperatures.

4 Regional Cooperation Assessment (highlighting regional cooperation success and challenges.

4.1 GMAS-A and CAP Implementation

TMD has implemented and provided alerts and warnings on severe weather in CAP format since 2019 which have been linked and made available on the GMAS-A platform. TMD has participated in the RAII pilot to enhance Meteorological Disaster Risk Reduction Capability as all RAII members were officially invited by the President of RAII. TMD intends to improve this service for more effective in the future. While the advisory products from SWFP and RSMCs are utilized to support our forecast and warning service regularly.

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From November 18 to 19, 2020 Global Multi-Hazard Alert System in Asia (GMAS-A) Workshop was held in Haikou, Hainan. Representatives and experts from World Meteorological Organization (WMO) and 16 countries and territories of Asia in the field of disaster preparedness have carried out discussions over GMAS-A construction. This workshop is co-sponsored by China Meteorological Administration (CMA), WMO, Hong Kong Observatory (HKO), Thailand Meteorological Department, and Department of Meteorology and Hydrology of Myanmar. Mr. Yu Yong, Deputy Administrator of CMA, Dr. Zhang Wenjian, Assistant Secretary General of WMO, Mr. Phuwieng Prakhammintara, Director General of Thailand Meteorological Department, and Mr. Win Maw, Deputy Director General of Department of Meteorology and Hydrology of Myanmar attended the workshop. (credit: WMO)

II. Summary of Progress in Priorities supporting Key Result Areas

- 1. Enhancement of Numerical Weather Prediction Product
- 2. Flood Management and Operation Center, Chi-Mun Basin by RID (Front Part)

1. Enhancement of Numerical Weather Prediction Product

Main text:

TMD applied product from a TMD-WRF model at 2km grid resolution predict 24hrs accumulate rainfall in specific areas as: Tambon and muban. (Tambon is a local governmental unit in Thailand. Below district and province, they form the third administrative subdivision level. As of 2016 there were 7,255 tambons, Tambon are further subdivided into 69,307 muban (villages)).



In case study of Tropical storm "NOUL" expected to hit Thailand. It moved into the Northeast and the North of Thailand from 18-20 September caused heavy rainfall in these areas. The comparison between rainfall forecast from model on September 18, with the Observation as shown in figure below







The Daily observation of rainfall totals map on 18 September 2020.

Identified opportunities/challenges, if any, for further development or collaboration:

- Intend to improve the comparison and verification of the forecast with observations.
- Increasing the knowledge and implementations of Data Assimilation.

Priority Areas Addressed:

KRA 2: Enhance capacity to generate and provide accurate, timely and understandable information using multi-hazard impact-based forecasts and risk-based warnings.

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.

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II. Summary of Progress in Priorities supporting Key Result Areas

1. Dam management operation during flood situation in October in the Northeast region.

Main text:

In October, the downgraded of 4 tropical storms as LINFA, NANGKA, SAUDEL and MOLAVE partly effect Thailand. The impact of these heavy rainfall caused the flood in 14 provinces as Ubon Ratchathani, Nakhon Ratchasima, Buri Ram, Sa Kaeo, Prachin Buri, Chon Buri, Nakhon Pathom, Kanchanaburi, Chai Nat, Sing Buri, Ang Thong, Suphan Buri, Uthai Thani, and Surat Thani, mostly in the Northeast and the East region.

There are 12 out of 35 large-scale dams that the water condition was more than 80% of their capacity, even 5 dams were over capacity. RID had set up the task team to monitoring, operate and manage the drainage of the dams for dam safety and the lower area. This task team gathering by the local officer and the officer in HQ.

Identified opportunities/challenges, if any, for further development or collaboration:

RID task team used the radar rainfall forecasting by Thai Meteorological Department to forecast the inflow of the dam and operate the outflow for drain the water to the lower area that also in flood situation. Therefore, RID also provide the instruments and machines such as waterpushing machines, water pumps, sandbags, backhoes, and contained life support etc. to help the people downstream who was affected by the dam operation by cooperate with the other agencies.



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ณ์อ			<u> </u>	() 														
ปฏาหร.	13,462	13,462	9,662	9,023	5,535	5,930	44	5,419	40	1,619	12	17	5,566	13.29	2,081.51	37.40	1.00	1,811.23
3388.	10,508	9,510	6,660	7,382	4,812	5,314	58	5,821	61	2,971	31	45	5,676	7.76	4,272.37	75.27	5.08	3,068.04
หม่อัดสมบูรณ์ขอ	323	265	253	266	152	154	58	141	53	128	49	51	308	0.17	113.94	36.59	0.03	26.35
สม่าวอุลเสารา	295	263	249	147	75	72	27	105	40	91	35	37	186	0.31	134.31	72.21	0.25	89.56
กั่วชม	106	106	103	92	56	57	54	47	44	44	41	43	555	0.69	241.37	43.49	1.10	247.60
ດັ່ວກອາເພາ	209	170	164	182	107	116	68	100	59	94	55	67	236	0.09	97.49	41.31	0.16	87.47
ທາງທີ່ແຫ່ງຮູນຄອ	1,080	939	896	650	436	499	63	461	49	418	45	47	1,402	1.77	570.59	40.70	1.73	524.76
isisaan	110	110	94	46	34	42	38	42	38	26	24	28	244	0.18	37.85	15.51	0.02	24.07
ะแกากทะเมือ	26,093	24,825	18,090	17,788	11,205	12,183	49	12,136	49	6,391	22	30	14,174	24.27	7,549.43	63.26	9.35	5,877.07
ะวันระกะใดลหพื่อ			<u> </u>	(–)														Γ
ค้ามหลวง	136	136	129	59	69	77	67	63	47	67	42	44	163	0.31	64.25	39.42	0.11	38.22
น้ำสูน	780	620	475	399	276	316	61	238	46	193	37	41	454	0.89	163.01	35.90	0.39	177.91
ผ้าหุละ	200	165	167	118	88	91	55	84	61	76	46	48	135	0.21	83.28	61.69	0.00	56.73
จหากรณ์*	181	164	127	122	45	51	31	154	94	117	71	92	160	0.64	167.03	104.40	1.04	52.64
ดูแลวัดน่ ะ	4,640	2,431	1,850	772	492	602	25	1,293	53	712	29	39	2,493	14.75	1,208.64	48.48	0.31	111.82
ຄຳປາວ	2,450	1,980	1,880	1,143	1,408	1,616	82	939	47	839	42	45	2,276	5.78	773.03	33,96	1.20	923.02
กำหากอง	445	314	292	248	155	178	67	347	110	325	103	111	263	1.39	281.16	106.90	0.00	60.71
6194 <mark>2198</mark> 64	242	155	164	76	22	33	21	167	101	155	100	101	165	0.00	263.29	159.57	0.57	133.19
Hun.	360	- 14.1	434	60	40	63	17	130	92	423	87	42	- 04	0.60	412.26	110.41	0.02	20.64
ล์พระ	325	275	268	163	85	108	39	192	70	185	67	69	197	0.95	183.58	93.19	0.03	61.31
ล่านกลรอง	197	121	118	39	23	25	21	83	76	89	74	76	49	0.98	86.98	177.50	0.00	5.56
สระสระ	1,966	1,966	1,135	1,206	1,710	1,862	95	1,678	85	847	43	75	1,677	0.00	1,051.47	62.70	10.16	479.87
20010 9894	11,911	8,368	6,718	4,414	4,413	5,010	60	5,367	64	3,717	44	55	8,126	26.60	4,437.96	54.61	13.81	2,121.5
233				<u> </u>							1							
บ้าลักรอสิทธิ์	960	960	967	555	228	365	38	663	70	665	69	69	2,322	7.53	721.54	31.07	0.44	183.51
พับเสลา	190	160	143	42	37	36	23	122	76	105	65	73	133	1.34	91.61	68.88	0.00	6.65
กระเพียว	390	299	259	72	61	84	28	189	63	149	50	67	331	0.14	148.66	44.91	0.02	8.65
13840100814	1,540	1,419	1,359	668	325	485	34	978	69	918	65	68	2,785	9.01	\$61.80	34.54	0.45	198.81
ระวันกอ																		
กวีนกวินกว์+	18,770	17,745	7,480	16,199	14,993	15,581	88	13,098	74	2,833	16	38	4,651	18.53	2,658.41	67.16	0.96	3,753.81
วซีราอมกรณา	11,000	8,860	5,848	7,257	6,972	7,835	88	4,774	54	1,762	20	30	5,500	15.11	2,157.59	39.23	1.00	3,975.12
รวมภาคละวันตก	29,770	26,605	13,328	23,456	21,965	23,416	88	17,872	67	4,595	17	34	10,151	33.64	4,816.00	47.44	1.95	7,734.0
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autoordon sur	225	224	219	177	159	210	94	224	100	219	48	100	310	0.63	268.99	86 77	0.64	197.58
กลองสีขัด	450	420	390	310	109	146	35	201	48	171	41	44	289	0.32	177.26	61.33	0.00	67.93
บหมะ	127	117	105	84	53	64	55	63	54	51	44	49	50	0.65	89.80	179.60	0.23	78.67
หมดต่อเรียด	206	164	160	150	67	99	60	176	108	163	99	108	211	0.41	241.94	114.66	0.00	32.96
ประหตร์	322	295	275	233	122	148	50	235	80	215	73	78	276	0.32	195.45	70.82	0.00	99.12
หลุมสิมภาจิหลา	338	295	276	263	216	274	93	232	79	212	72	77	355	0.68	185.12	62.15	0.00	151.32
รวมภาคตะวังเออก	1,668	1,515	1,415	1,217	715	942	62	1,131	75	1,032	68	73	1,490	2.91	1,158.55	77.76	0.85	627.58
á																		
แก่งกระจาม	900	710	645	614	445	556	78	479	67	414	58	64	901	4.61	601.36	66.74	1.30	524.71
ปราคญรี	490	391	373	363	269	295	75	302	77	285	73	76	458	2.70	273.28	59.67	0.14	206.71
วัดธประกาะ	6,144	5,639	4,287	4,708	3,739	3,869	69	3,550	63	2,199	39	51	2,662	16.89	1,760.86	66.15	2.94	1,844.01
UHEN*	1,590	1,454	1,178	1,073	1,070	857	59	843	58	667	39	48	1,575	7.35	1,311.18	83.25	6.03	1,492.45
เวณกาคให้	9,124	8,194	6,484	6,749	5,623	6,677	68	6,174	63	3,464	42	63	6,596	31.55	3,946.68	70.54	10.41	4,063.0
าวแก้มประเทศ	80,106	70,926	47,384	54,290	44,146	47,612	67	42,659	60	19,117	27	40	36,727	127.97	22,870.42	62.27	36.84	20,626.9
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Lam Phra Phloeng Dam In Nakhon Ratchasima



Lam Mun Bon Dam In Nakhon Ratchasima





Khun Dan Prakarn Chon Dam In Nakon Nayok

Nong Pla Lai Reservoir In Rayong



The situation back to normal stage around mid of November. The task team operation and report to the government and public around 1 month.

Priority Areas Addressed:

- KRA 1: Enhance capacity to monitor mortality and direct economic loss caused by typhoonrelated disasters
- 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.

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