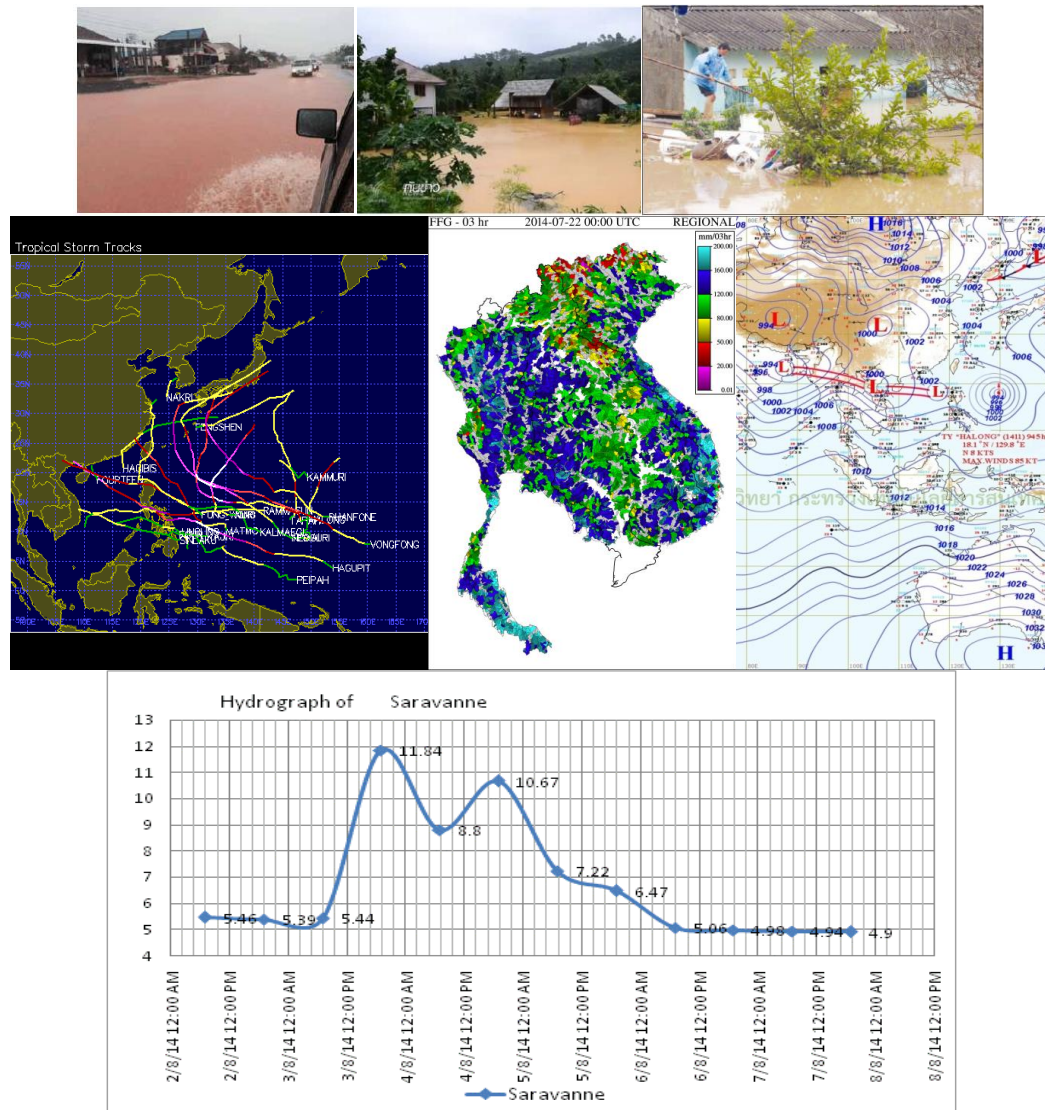




# Mekong River Commission

## Flood Management and Mitigation Programme

### Evaluation Report on Flash Flood Guidance System For Flood Season 2014 (June - December 2014) Final



December 2014





**Mekong River Commission**  
**Flood Management and Mitigation Programme**

**Evaluation Report on Flash Flood Guidance System**  
**For Flood Season 2014**

**(June - December 2014)**  
**Final**

Prepared by  
Regional Flood Management and Mitigation Center  
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## **Certification of Approval of Internal FMMP Technical Document**

Evaluation Report on Flash Flood Guidance System for Flood  
Season 2014  
(June - December 2014)

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## 1. BACKGROUND INFORMATION

To respond to regional and national needs and in order to address the problems of flash floods in each MRC Member Country of the Mekong River Commission (MRC), the MRC and the Hydrological Research Centre (HRC) in San Diego, California, USA, with the financial support from the Office of US Foreign Disaster Assistance (OFDA) of the US Agency for International Development (USAID) have jointly implemented flash-flood mitigation in Cambodia, Lao PDR, Thailand and Viet Nam under the MRC Flood Management and Mitigation Programme (FMMP).

In late 2009 the computational and dissemination servers for the MRC-FFG system were installed at MRC's Regional Flood Management and Mitigation Centre (RFMMC) in Phnom Penh, Cambodia, which allowed the line agencies of the MRC member countries and the RFMMC to get access to the FFG products for training as well as for operational purposes. A five-day MRC-FFG system in-depth regional training course, combined with hands-on operation, and a three-day national training course were successfully organized in 2010. Presently the MRC-FFG system is put in an operational testing mode in order to fine-tuning as well as to gain further experience.

During the 2010 flood season the Flash Flood Guidance System (FFGS) has been operating successfully. Reference is made to the records of tropical storms and records of tropical depressions.

During the 2013 flood season the flood forecasting team of RFMMC continued operating the Flash Flood Guidance System; the information received from FFG system was processed, updated and posted in the MRC flood forecasting webpage in parallel with the river flood forecast. During the severe weather condition in the 2013 flood season, such as tropical storms BEBINCAN, RUMBIA, JEBI, MANGKHUT, WUTIP and the Inter Tropical Convergence Zone (ITCZ), the MRC-FFG system did detect very clearly the flash flood risk areas in villages and districts of the four MRC Member Countries. During the 2014 flood season the flood forecasting team of RFMMC continued operating the Flash Flood Guidance System. The MRC-FFG system detected very clearly the flash flood risk areas in villages and districts of the LMB during the severe weather condition of flood season 2014 such as Tropical storm RAMMASUN, KALMAEGI, SINLAKU, HAGUPIT and several ITCZ and low pressure. In March 2012 the first evaluation report on MRC-FFG system was produced, to evaluate the performance of FFG system for period from May until 31<sup>st</sup> October 2011.

The present evaluation report is a fifth evaluation report of MRC-FFG system, it produced to evaluate the performance of FFG system for the detection of the risk areas of potential flash floods in villages and districts in Cambodia, Lao PDR, Thailand and Viet Nam during the flood season from May until 15<sup>th</sup> December 2014.



## **2. METHODOLOGY TO EVALUATE FLASH FLOOD GUIDANCE PRODUCT**

The methodology for evaluation of flash flood guidance product used in the present report is based in two concepts. The first concept evaluates the feed-back of the FFG system from the users or from other sources of information such as the media or the press. As the link between the regional flood center and the local people (through the focal person at national line agencies) is not yet fully established, the feed-back information on flash flood areas was mainly collected from the national media, such as online newspapers.

The second concept evaluates the FFG system through the recorded water levels that are available in the operational database of RFMMC. If FFG occurs in the sub-areas where water level stations are available, the FFG product can be evaluated by studying the changing (rising) water level records at stations located in the downstream part of sub-catchments.

The recorded daily rainfall of the observed stations that were available for the flash flood risk areas were also used as support data for the flash flood evaluation.



### 3. FLASH FLOODING IN THE MEKONG REGION

There were 19 tropical storms which developed over the Pacific Ocean or over the East Sea (also South China Sea) during 2014 (data available up to 15<sup>th</sup> December 2014); four of them caused serious flash floods, affected the 4 MRC Member Countries of Lower Mekong Basin (LMB). Figure 3-1 presents the track of the tropical storm during the year 2014.

The other cause of flash flood in the region was ITCZ, low pressure and tropical depression, which also led to flash flood occurrences at some Mekong tributaries. Figure 3-2 presents an example of weather chart during the ITCZ occurrence in Mekong region. The next paragraphs describe examples of flash floods, which occurred at some tributaries during the severe weather condition of the 2014 flood season.

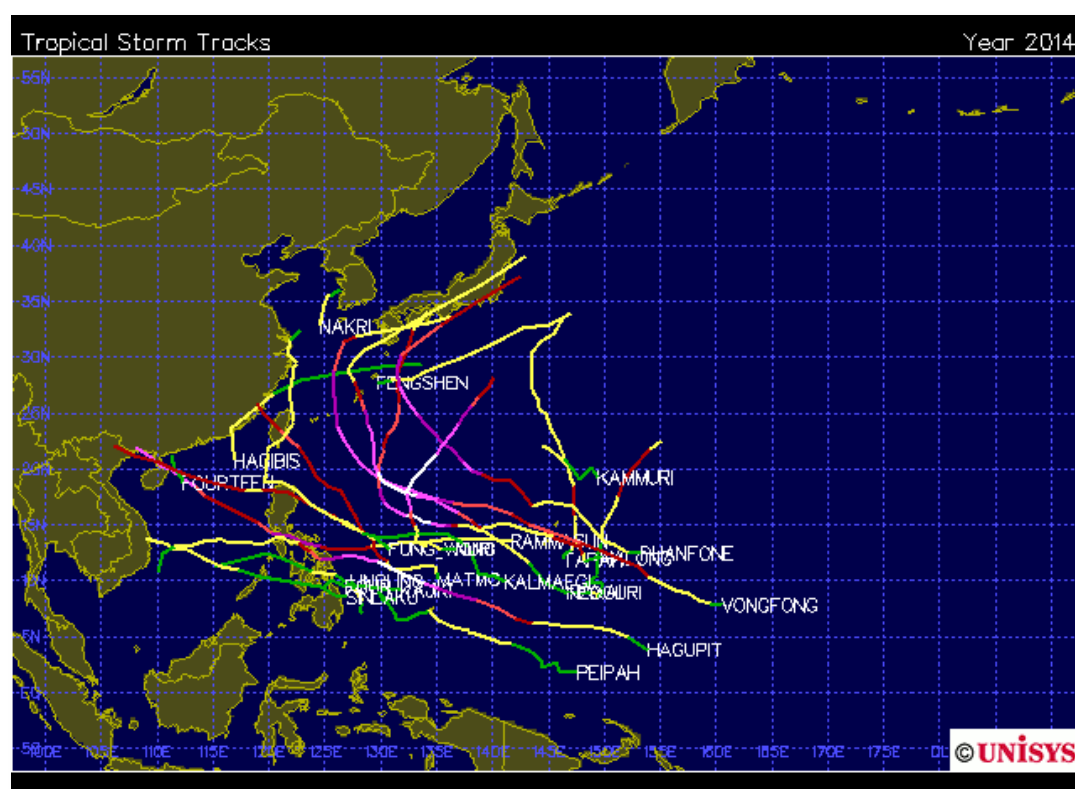
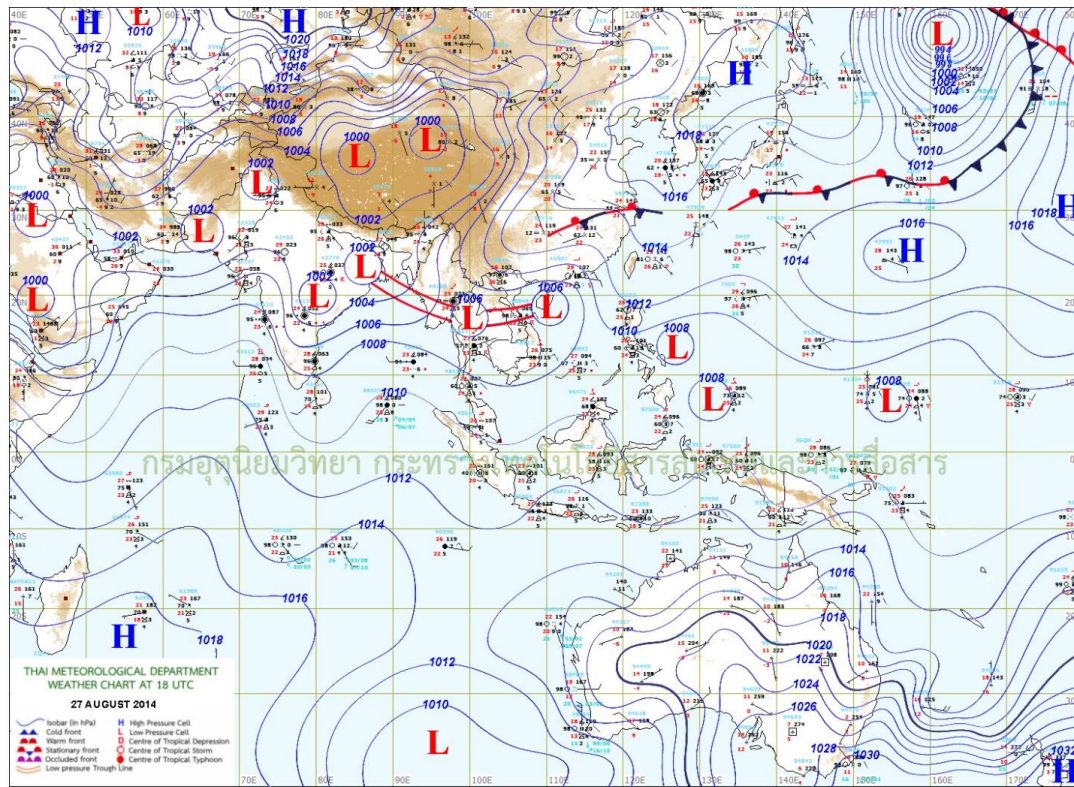


Figure 3-1 Tropical Storm Tracks during the year 2014, Source: UNISYS.



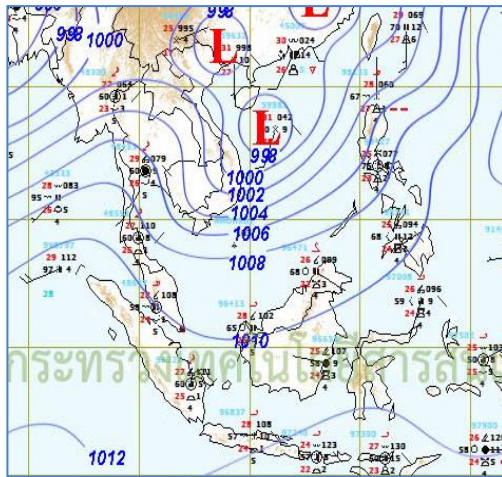
Source: Thai Meteorological Department

Figure 3-2 Weather Chart issued at 18:00 UTC on 27<sup>th</sup> August, 2014.

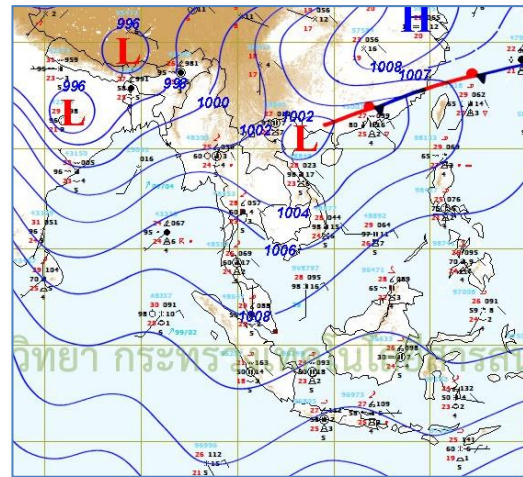
### 3.1 Flash flooding in the central part of Lao PDR, caused by low pressure during 21<sup>st</sup> - 24<sup>th</sup> June 2014

#### 3.1.1 Weather condition during the third week of June

During the third week of June, from 21<sup>st</sup> to 24<sup>th</sup> June 2014 the Lower Mekong Basin was covered by low pressure, which laid across upper Thailand to northern part of Viet Nam via the central part Lao PDR. During this period some areas of central and southern part of Lao PDR, eastern part of Thailand, central and northern parts of Viet Nam, were covered by the heavy rain. Figure 3.1-1 and Figure 3.1-2 present the weather chart of Mekong region during the third week of June 2014.



Source: TMD

Figure 3.1-1 Weather chart issued at 18:00 UTC on 21<sup>st</sup> June 2014.

Source: TMD

Figure 3.1-2 Weather chart issued at 18:00 UTC on 23<sup>rd</sup> June 2014.

### 3.1.2 Heavy rainfall during the period 21<sup>st</sup> - 24<sup>th</sup> June 2014

From 20 to 25<sup>th</sup> June 2014 the central and southern Provinces of Lao PDR were covered by a low pressure cell, which caused heavy rainfall. Within 24 hours, the accumulated rainfall at some hydrological stations, located in the Bolikhamxay and Khammouane Provinces rose up to 150 to 220 mm. Figure 3.1-3 to Figure 3.1-12 show 24 hours accumulated rainfall of hydro-meteorological stations located in Bolikhamxay and Khammouane Province from 21 to 25<sup>th</sup> June 2014. Figure 3.1-13 to Figure 3.1-14 present the 24 hours accumulated rainfall from Hydroestimator (satellite rainfall estimated).

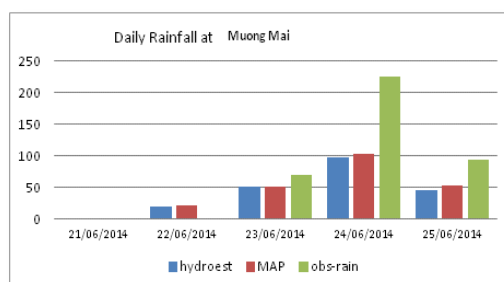


Figure 3.1-3 24 hours accumulated rainfall at Muang Mai station.

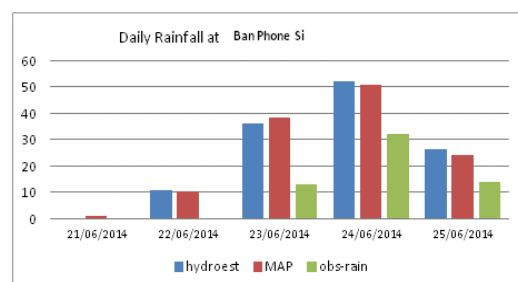


Figure 3.1-4 24 hours accumulated rainfall at Ban Phonsi station.

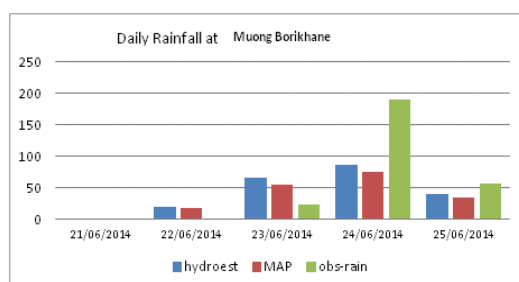


Figure 3.1-5 24 hours accumulated rainfall at

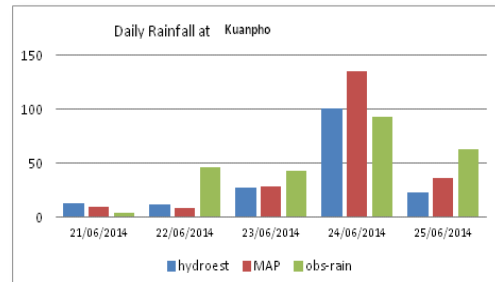


Figure 3.1-6 24 hours accumulated rainfall at

Meuang Borikhane station.

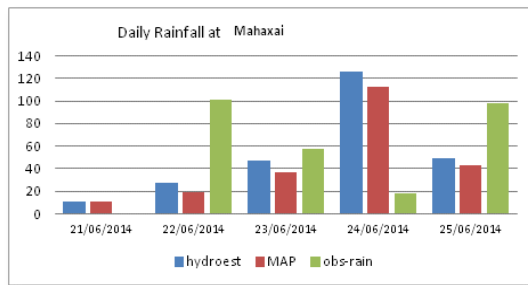


Figure 3.1-7 24 hours accumulated rainfall at Mahaxai station.

Khuanpho station.

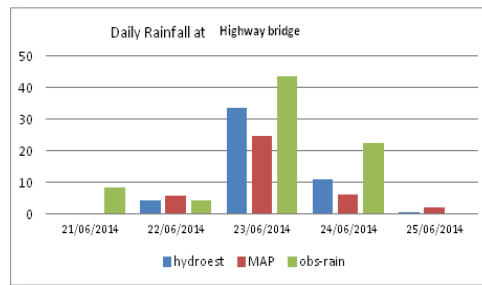


Figure 3.1-8 24 hours accumulated rainfall at Highway bridge station.

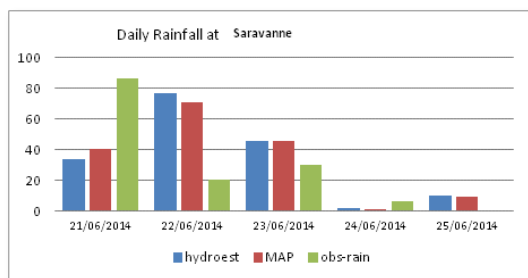


Figure 3.1-9 24 hours accumulated rainfall at Saravane station.

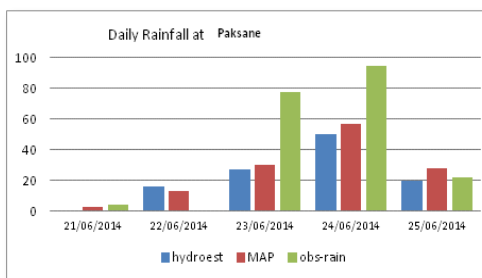


Figure 3.1-10 24 hours accumulated rainfall at Paksane station.

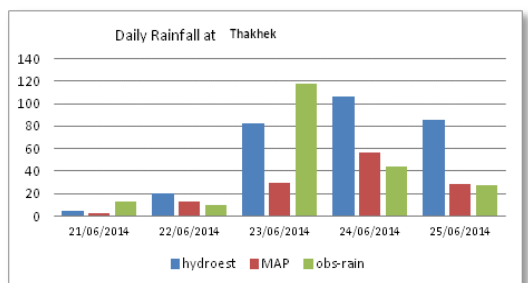


Figure 3.1-11 24 hours accumulated rainfall at Thakhek station.

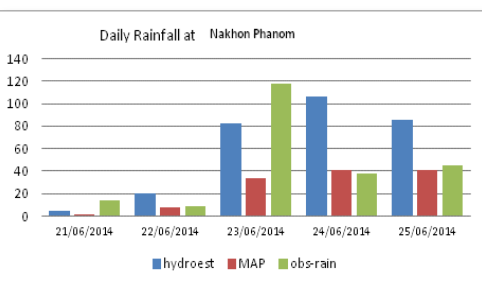


Figure 3.1-12 24 hours accumulated rainfall at Nakhon Phanom station.

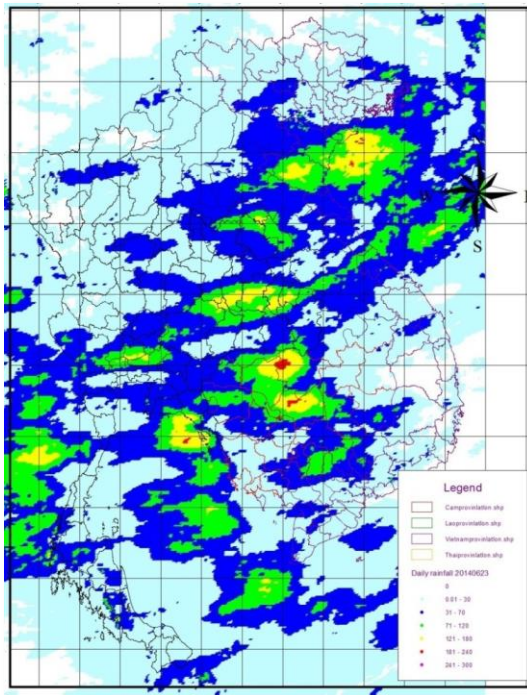


Figure 3.1-13 24 hourly satellite rainfall estimate from 00:00 UTC on 22<sup>nd</sup> June to 00:00 UTC on 23<sup>rd</sup> June 2014.

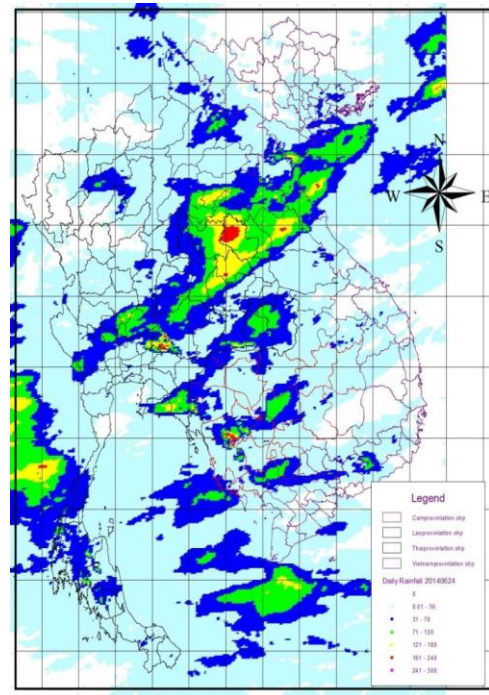


Figure 3.1-14 24 hourly satellite rainfall estimate from 00:00 UTC on 23<sup>rd</sup> June to 00:00 UTC on 24<sup>th</sup> June 2014.

### 3.1.3 Flash flooding in the central and southern Provinces of Lao PDR

On 22<sup>nd</sup> June 2014 at 12:00 UTC (19:00 local time) the MRC-FFG system detected that some areas covering villages in the central Provinces of Lao PDR, such as Xaysomboun, Bolikhamxay and Khammouane Provinces, were at risk of flash flood occurrence. Figure 3.1-15 presents the 3 hourly FFG value at some areas of central Provinces of Lao PDR.

The information on flash flood risk areas that was detected by the MRC-FFG system on 22<sup>nd</sup> June 2014 at 12:00 UTC was confirmed by the information published in the Lao PDR newspaper “Vientiane Times” on 25<sup>th</sup> June 2014. Some flash flood risk areas that were detected by the FFG system on 22<sup>nd</sup> June 2014 at 12:00 UTC corresponded with the reported flash flood areas.

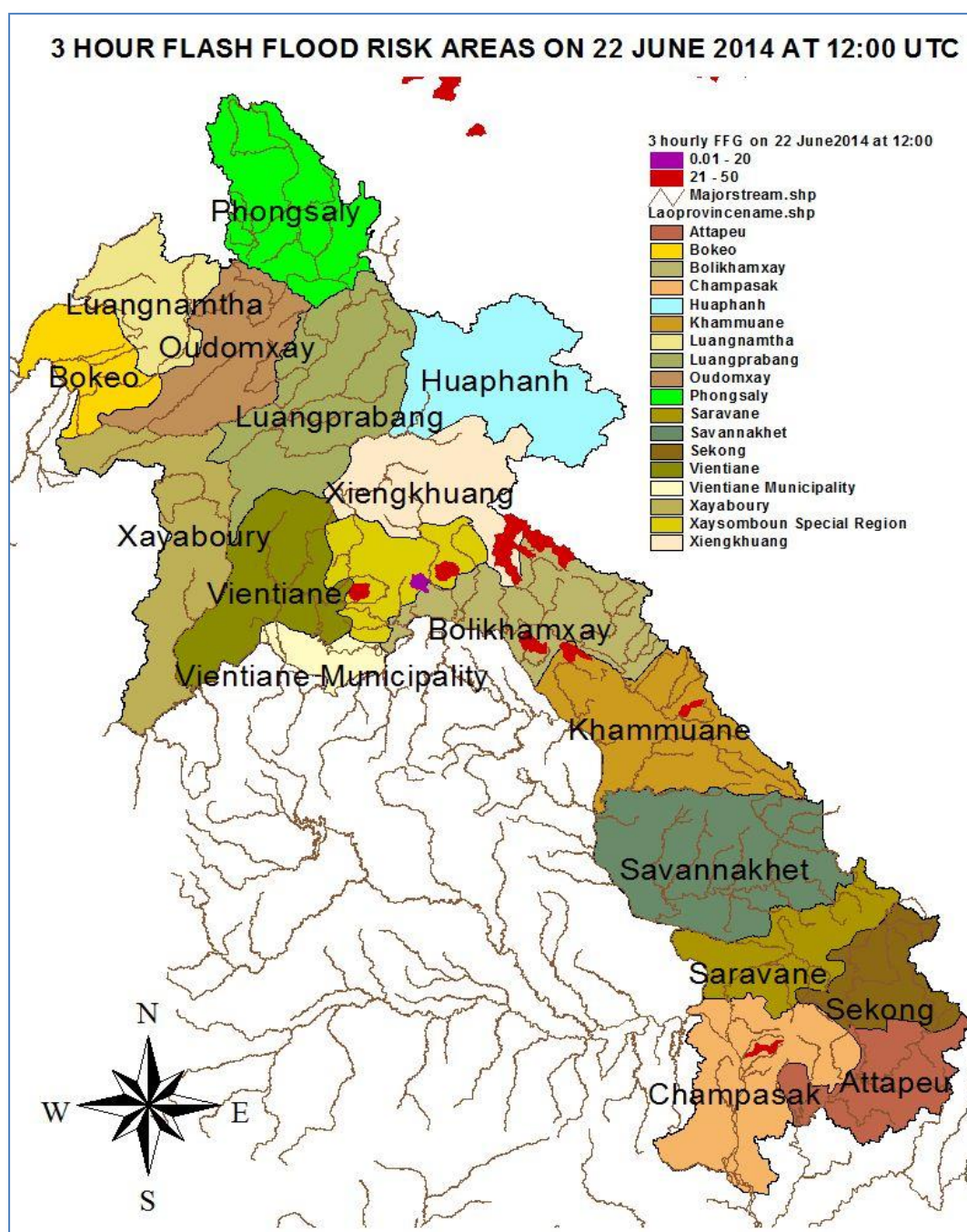


Figure 3.1-15 Flash flood risk areas detected by MRC-FFG system on 22<sup>nd</sup> June 2014.

### 3.1.4 Impacts of low pressure weather to the water levels in some tributaries of the Mekong River Basin

Heavy rainfall occurred at some Mekong sub-catchments located in central and northern parts of Lao PDR during the low pressure period, which led to a quick increase of water level at some tributaries of Nam Khan, Nam San, Nam Ngiep, Nam Ngum, Nam Kading sub-catchments on 22<sup>nd</sup> – 25<sup>th</sup> June 2014. For example, in the hydrological station Mong Mai in the Nam Ngiep catchment, the water level increased from 2.5 m at 7:00 AM on 22<sup>nd</sup> June to 4.5 m at 7:00 AM of 24<sup>th</sup> June 2014, while at the hydrological station Ban Phonesi in the Nam Kading sub-catchment the water level increased from 3.0 m at 07:00

AM on 22<sup>nd</sup> June to 6.3 m at 7:00 AM on 24<sup>th</sup> June 2014. The same situation of increasing water levels could be identified at other stations such as Mueng Keo (Nam Sane catchment). Figure 3.1-16 to Figure 3.1-19 present the hydrograph at some hydrological stations of the Mekong tributaries.

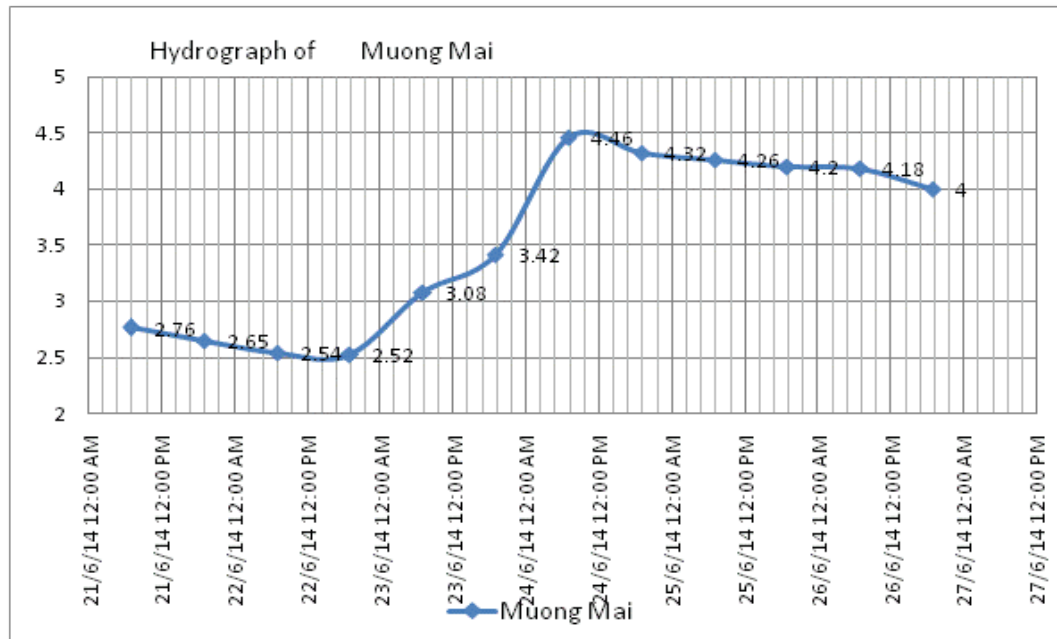


Figure 3.1-16 Hydrograph at hydrological stations of Mekong tributaries at Mueng Mai in Lao PDR during the low pressure period from 22<sup>nd</sup> to 25<sup>th</sup> June 2014.

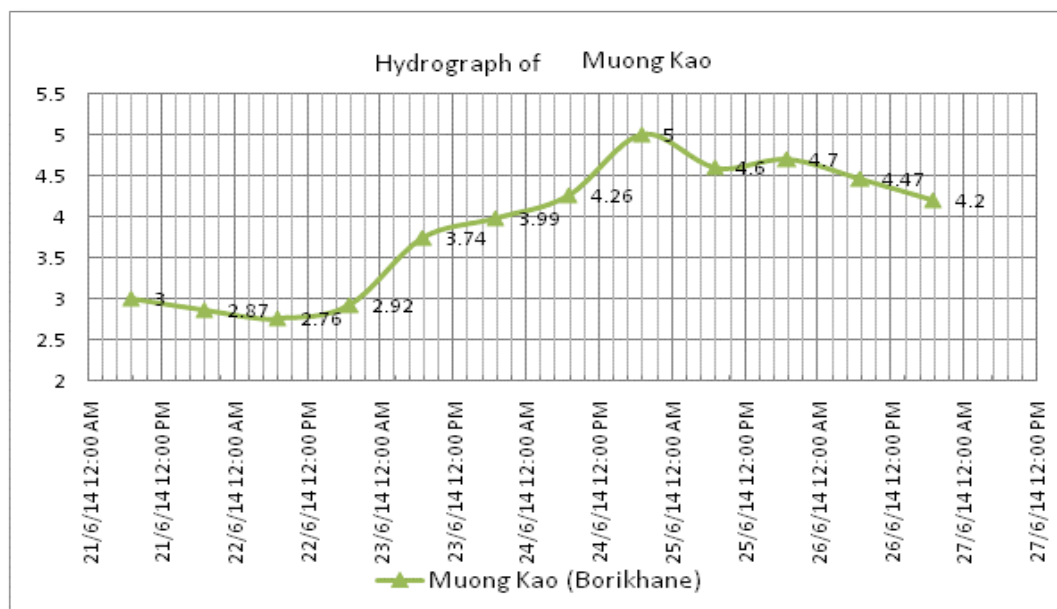


Figure 3.1-17 Hydrograph at hydrological stations of Mekong tributaries at Mueng Keo in Lao PDR during the low pressure period from 22<sup>nd</sup> to 25<sup>th</sup> June 2014.

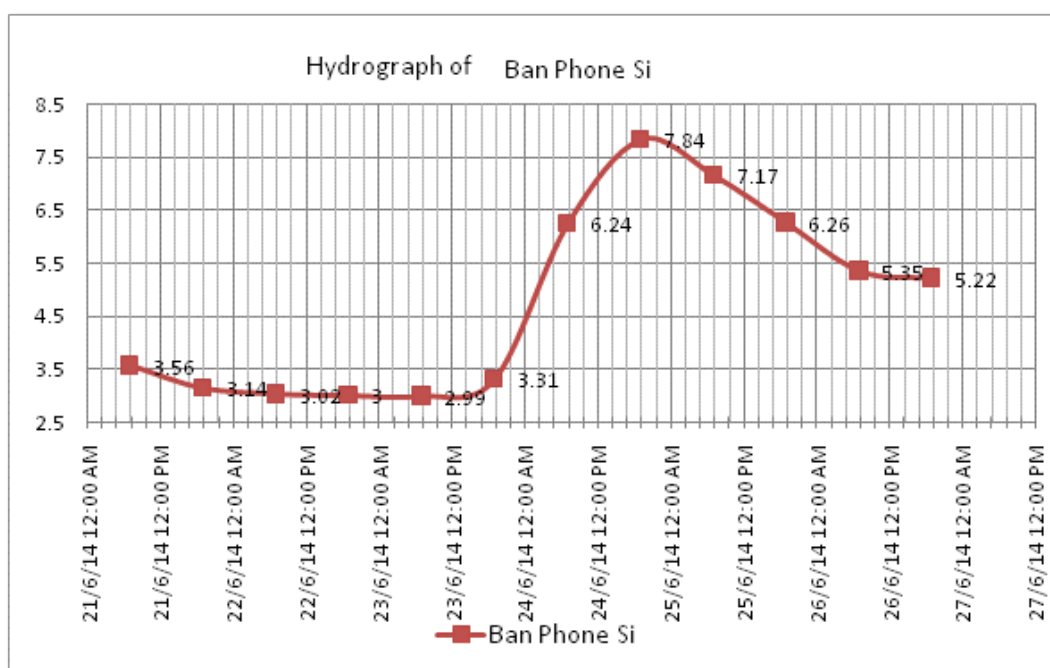


Figure 3.1-18 Hydrograph at hydrological stations of Mekong tributaries at Ban Phonesi in Lao PDR during the low pressure period from 22<sup>nd</sup> to 25<sup>th</sup> June 2014.

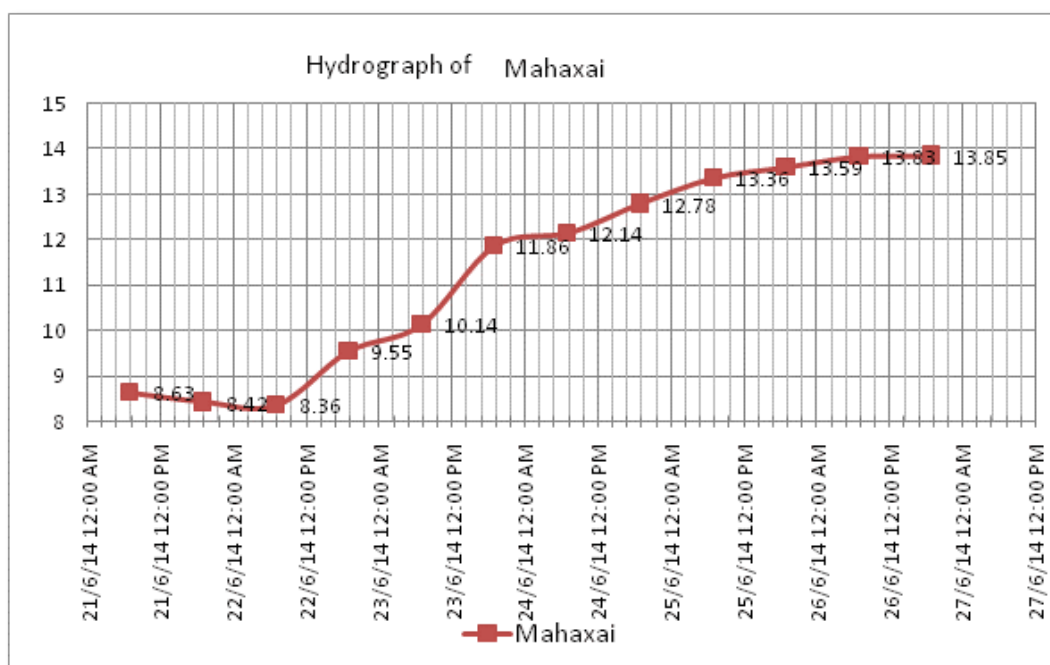


Figure 3.1-19 Hydrograph at hydrological stations of Mekong tributaries at Mahaxai in Lao PDR during the low pressure period from 22<sup>nd</sup> to 25<sup>th</sup> June 2014

Table 3.1-1 List of villages, districts and Provinces where the MRC-FFG system detected a high risk of flash flood on 22<sup>nd</sup> June 2014 at 12:00 UTC (19:00 local time).

Date of FFG produc 22/06/2014 12:00 UTC time							
1hour Flash Flood Guidance in Lao				3hour Flash Flood Guidance in Lao			
Provinces	Districts	Villages	FFG Value	Provinces	Districts	Villages	FFG Value
Khammuane	Hinboon	PHON THONG	24.29	Xiengkhuang	Morkmay	NAMHONG	46.42
Khammuane	Hinboon	KHOUN NGEUN	24.29	Xiengkhuang	Morkmay	THONGPEU	48.96
Khammuane	Hinboon	KHOUN KHAM	24.29	Xiengkhuang	Morkmay	NAMOUANG	46.42
Khammuane	Hinboon	NAM SA NAM	24.29	Xiengkhuang	Morkmay	MAI(LAOLOUM)	46.42
Khammuane	Hinboon	THAM TAME	24.29	Xiengkhuang	Morkmay	PHOULOM	46.42
Khammuane	Hinboon	NA KHAM	24.29	Xiengkhuang	Morkmay	NATHEU	46.42
Khammuane	Hinboon	VANG TA KHON	24.29	Xiengkhuang	Morkmay	NAMYEUN	46.42
Xaysomboun	Spe Longxan	NAMYING	18.59	Xiengkhuang	Morkmay	THASOI	48.96
Xaysomboun	Spe Longxan	XIENGMI	18.59	Xiengkhuang	Morkmay	THONG	48.96
Xaysomboun	Spe Longxan	NAPHO	18.59	Xiengkhuang	Morkmay	KHANGVIENG	46.42
Xaysomboun	Spe Longxan	VANGLUANG	18.59	Bolikhamxay	Vienthoun	NAMNGAAT	45.72
Xaysomboun	Spe Hom	VIENGKEO	11.12	Xiengkhuang	Morkmay	NAMXONG	48.96
Xaysomboun	Spe Thathom	PHUPHA	17.98	Xiengkhuang	Morkmay	NAMBUAK	48.96
Xaysomboun	Spe Thathom	LAK 37	22.84	Bolikhamxay	Pakkading	NAMDEUA	45.11
Xaysomboun	Spe Thathom	NIHOUASEAU	22.84	Bolikhamxay	Pakkading	NAKHEUA NOK	45.11
Xaysomboun	Spe Thathom	LAK 18	17.98	Bolikhamxay	Pakkading	NAKHEUA NAY	45.11
Xaysomboun	Spe Thathom	LAK 33	17.98	Bolikhamxay	Pakkading	NAHIN	45.11
Xaysomboun	Spe Thathom	NAMTAE	22.84	Bolikhamxay	Pakkading	THONGHURB	45.11
Xaysomboun	Spe Thathom	NAMKAI OR NAM	22.84	Bolikhamxay	Pakkading	NABOY	45.11
Xaysomboun	Spe Thathom	NAKOUANG (NE	17.98	Bolikhamxay	Pakkading	NAMKHOU	43.52
Xaysomboun	Spe Thathom	PHONTHONG (N	17.98	Bolikhamxay	Pakkading	THONGNAMI	43.52
				Khammuane	Hinboon	PHON THONG	32.76
				Khammuane	Hinboon	KHOUN NGEUN	32.76
				Khammuane	Hinboon	KHOUN KHAM	32.76
				Khammuane	Hinboon	NAM SA NAM	32.76
				Khammuane	Hinboon	THAM TAME	32.76
				Khammuane	Hinboon	NA KHAM	32.76
				Khammuane	Hinboon	VANG TA KHONG	32.76
				Champasak	Pathoomph	NAMPAAK	49.41
				Xaysomboun	Spe Longxan	NAMYING	26.23
				Xaysomboun	Spe Longxan	XIENGMI	26.23
				Xaysomboun	Spe Longxan	NAPHO	26.23
				Xaysomboun	Spe Longxan	VANGLUANG	26.23
				Xaysomboun	Spe Hom	VIENGKEO	16.36
				Xaysomboun	Spe Thathom	PHUPHA	25.79
				Xaysomboun	Spe Thathom	LAK 37	30.98
				Xaysomboun	Spe Thathom	NIHOUASEAU	30.98
				Xaysomboun	Spe Thathom	LAK 18	25.79
				Xaysomboun	Spe Thathom	LAK 33	25.79
				Xaysomboun	Spe Thathom	NAMTAE	30.98
				Xaysomboun	Spe Thathom	NAMKAI OR NAMP	30.98
				Xaysomboun	Spe Thathom	NAKOUANG (NEW	25.79
				Xaysomboun	Spe Thathom	PHONTHONG (NE	25.79

### 3.1.5 Conclusions

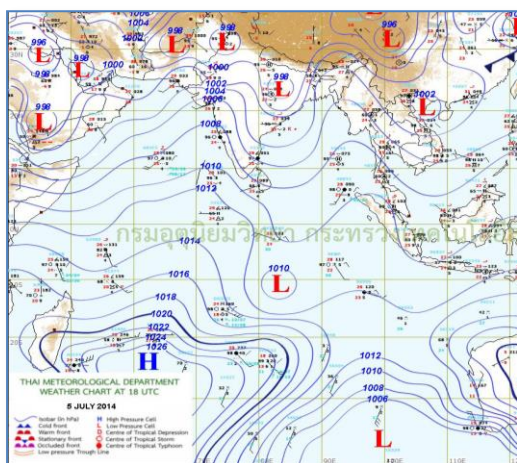
1. During the third week of June, from 21<sup>st</sup> to 25<sup>th</sup> June 2014, the Lower Mekong Basin was covered by low pressure, which was positioned across upper Thailand to the northern part of Viet Nam via the central part of Lao PDR. During this period some areas of central and southern parts of Lao PDR, eastern part of Thailand, and central and northern parts of Viet Nam, have been covered by heavy rainfall.
2. The daily rainfall at some hydro-meteorological stations located in the Bolikhamxay and Khammouane Provinces of Lao PDR increased to levels of 150 - 220 mm.
3. Water levels at some hydrological stations of tributaries of the Nam Khan, Nam Sane, Nam Ngiep, Nam Ngum, Nam Kading sub-catchments increased about 3 - 4 m on the 22 to 25<sup>th</sup> June 2014.
4. On 22<sup>nd</sup> June 2014 at 12:00 UTC (19:00 local time) the MRC-FFG system detected that some areas villages of the central Provinces of Lao PDR, such as Xaysomboun,

Bolikhamxay and Khammouane Provinces of Lao PDR, were at the risk of flash flood occurrence. The information on flash flood risk areas, detected by MRC-FFG system on 22<sup>nd</sup> June 2014 at 12:00 UTC, was confirmed by the information published in the Lao PDR newspaper “Vientiane Times” on 25<sup>th</sup> June 2014. Some flash flood risk areas, detected by the FFG system on 22<sup>nd</sup> June 2014 at 12:00 UTC, corresponded with the reported flash flood areas.

### 3.2 Flash flooding in Chiang Rai Province of Thailand, caused by low pressure on 7<sup>th</sup> - 8<sup>th</sup> July 2014

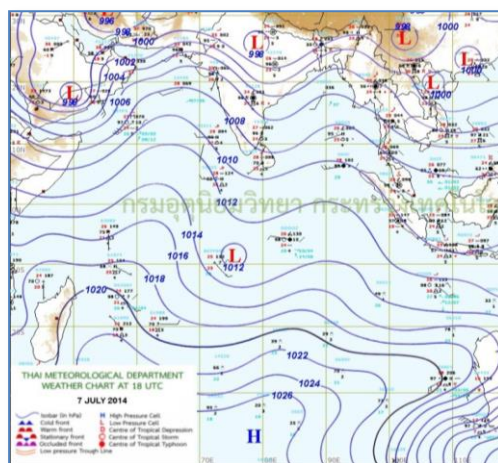
#### 3.2.1 Weather condition during the first week of July 2014

During the first week of July the upper part of the Mekong Basin was covered by low pressure, which was over upper Thailand and northern part of Viet Nam. During this period some areas of northern part of Thailand, central and northern parts of Viet Nam, were covered by heavy rain. Figure 3.2-1 and Figure 3.2-2 present the weather chart of Mekong region during the first week of July 2014.



Source: TMD

Figure 3.2-1 Weather chart issued at 18:00 UTC on 5<sup>th</sup> July 2014.



Source: TMD

Figure 3.2-2 Weather chart issued at 18:00 UTC on 7<sup>th</sup> July 2014.

#### 3.2.2 Heavy rainfall at northern part of Thailand

From 7<sup>th</sup> to 8<sup>th</sup> July 2014 the upper part of lower Mekong Basin was covered by a low pressure cell, which generated heavy rain at some Provinces in northern part of Thailand and Lao PDR. The daily rainfall at many stations increased from 100 to 130 mm, especially at rainfall stations located at Chiang Rai, Thoeng, Chiang Saen. Figure 3.2-3 to Figure 3.2-6 present the daily rainfall of stations located in the upper part of LMB. Figure 3.2-7 and Figure 3.2-8 present the 24 hours accumulated rainfall from Hydroestimator (satellite rainfall estimate).

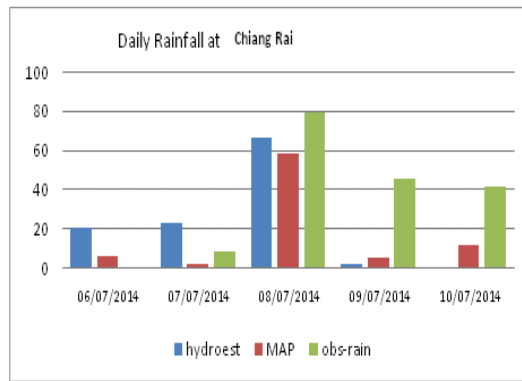


Figure 3.2-3 24 hours accumulated rainfall at Chiang Rai station.

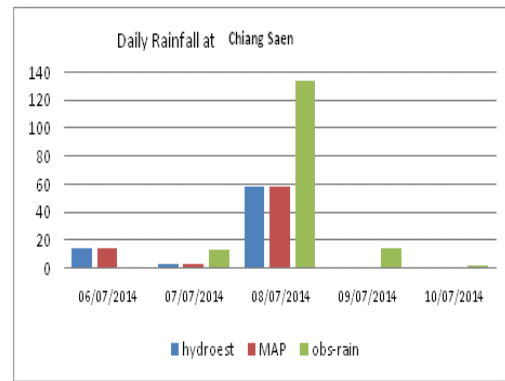


Figure 3.2-4 24 hours accumulated rainfall at Chiang Saen station.

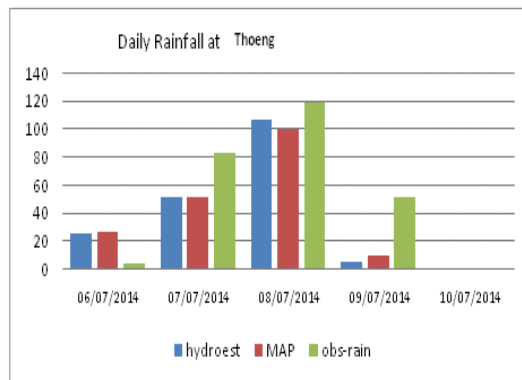


Figure 3.2-5 24 hours accumulated rainfall at Thoeng station.

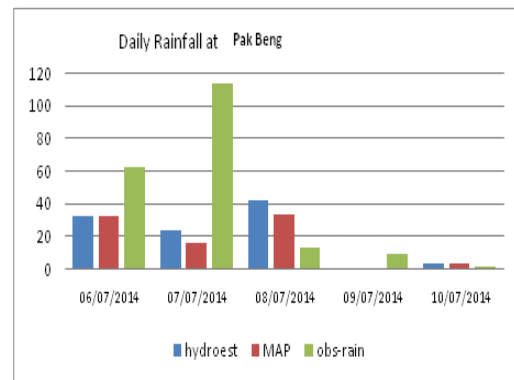


Figure 3.2-6 24 hours accumulated rainfall at Pak Beng station.

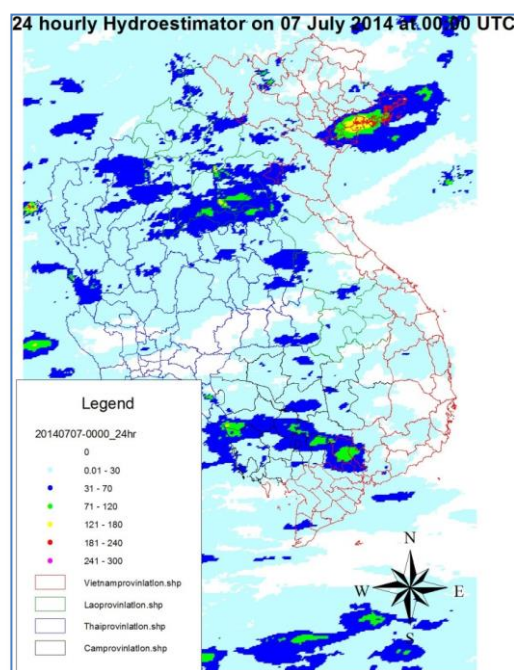


Figure 3.2-7 24 hourly satellite rainfall estimate from 00:01 UTC on 6<sup>th</sup> July to 00:00 UTC on 7<sup>th</sup> July 2014.

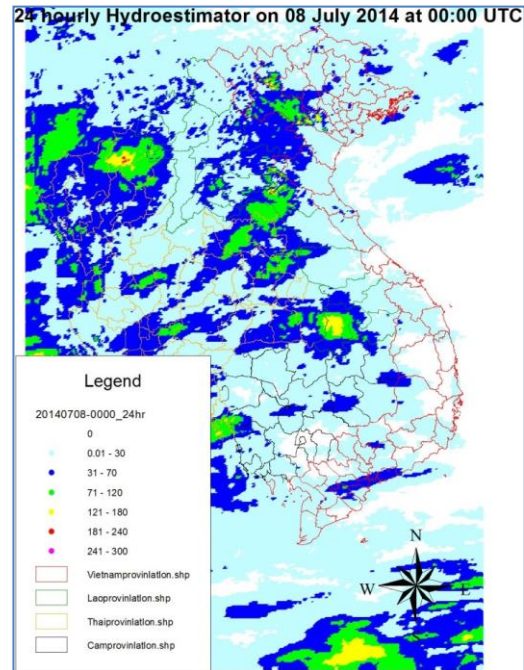


Figure 3.2-8 24 hourly satellite rainfall estimate from 00:01 UTC on 7<sup>th</sup> July to 00:00 UTC on 8<sup>th</sup> July 2014.

### 3.2.3 Flash flooding in the northern Provinces of Thailand

On 7<sup>th</sup> July 2014 at 00:00 UTC (07:00 AM local time) the MRC-FFG system detected some districts in Nan Province at the northern part of Thailand that were at the risk of flash flood occurrences. On 8<sup>th</sup> July at 00:00 UTC other districts of Chiang Mai and Chiang Rai Provinces were detected by the MRC-FFG system as high risk areas for flash flood occurrences. Figure 3.2-9 and Figure 3.2-10 present the 3 hourly FFG risk areas in northern Provinces of Thailand on 7<sup>th</sup> July 2014 at 00:00 UTC and on 8<sup>th</sup> July 2014 at 00:00 UTC.

The information on flash flood risk areas that were detected by the MRC-FFG system, was confirmed by the information published on the online news (National News of Thailand – NNT), dated 10<sup>th</sup> – 13<sup>th</sup> and 15<sup>th</sup> July 2014. Some flash flood risk areas, detected by MRC-FFG system on 7<sup>th</sup> and 8<sup>th</sup> July, corresponded with the reported flash flood areas. Annex 1.2 provides the information collected from the online newspaper.

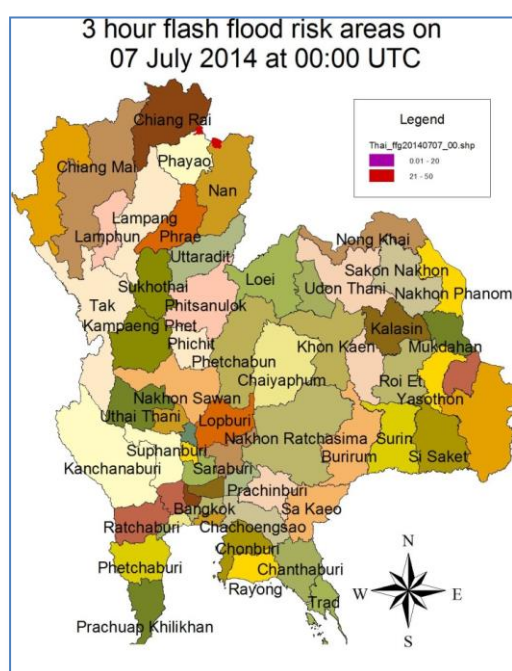


Figure 3.2-9 3 hourly flash flood risk areas detected by the MRC-FFG system on 7<sup>th</sup> July 2014 at 00:00 UTC.

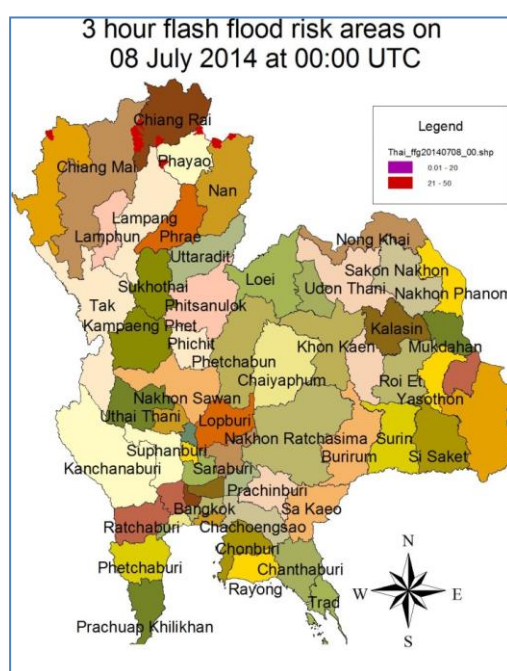


Figure 3.2-10 3 hourly flash flood risk areas detected by the MRC-FFG system on 8<sup>th</sup> July 2014 at 00:00 UTC.

Table 3.2-1 Flash flood risk districts of the northern Provinces of Thailand, detected by the MRC-FFG system on 7<sup>th</sup> July 2014 at 00:00 UTC

Date of FFG products 07/07/2014 00:00 UTC time					
1hour Flash Flood Guidance in Thailand			3hour Flash Flood Guidance in Thailand		
Provinces	Districts	FFG Value	Provinces	Districts	FFG Value
No Risk Areas	to Flash Flood	Occurrence	Chiang Rai	Thoeng	41.27
			Nan	Thung Chang	48.96
			Nan	King Amphoe Song Khae	48.36
			Nan	Song Kwae	48.96
			Phayao	Chiang Kham	45.12

Table 3.2-2 Flash flood risk districts at the northern Provinces of Thailand, detected by the MRC-FFG system on 8<sup>th</sup> July 2014 at 00:00 UTC. The area was later extended to other districts of Chiang Rai, Chiang Mai and other Provinces at the northern part of Thailand.

Date of FFG products 08/07/2014 00:00 UTC time					
1hour Flash Flood Guidance in Thailand			3hour Flash Flood Guidance in Thailand		
Provinces	Districts	FFG Value	Provinces	Districts	FFG Value
Chiang Rai	Thoeng	23.74	Chiang Rai	Thoeng	35.64
Chiang Rai	Mae Suai	22.72	Chiang Rai	Phan	49.52
Chiang Rai	Wiang Pa Pao	22.26	Chiang Rai	Mae Suai	34.83
Chiang Mai	Fang	23.33	Chiang Rai	Wiang Pa Pao	30.78
Chiang Mai	Phrao	22.26	Chiang Mai	Fang	36.75
Chiang Mai	King Amphoe Chaipak	22.72	Chiang Mai	Phrao	30.78
Nan	Thung Chang	24.75	Chiang Mai	Mae Ai	41.32
Nan	Song Kwae	24.75	Chiang Mai	King Amphoe Chaipakan	31.59
Mae Hong Son	Muang Mae Hong Son	23.44	Nan	Thung Chang	39.15
Phayao	Chiang Kham	24.25	Nan	King Amphoe Song Khae	44.23
			Nan	Song Kwae	33.26
			Mae Hong Son	Muang Mae Hong Son	32.00
			Lampang	Ngao	34.13
			Lampang	Wang Nua	34.13
			Phayao	Muang Phayao	34.13
			Phayao	Mae Chai	49.52
			Phayao	Chiang Kham	34.39

### 3.2.4 Conclusions

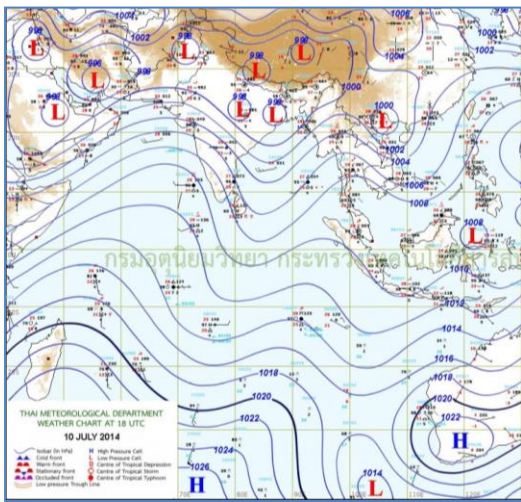
1. During the first week of July 2014 the upper part of the Mekong Basin was covered by low pressure, which laid across of upper Thailand to northern part of Viet Nam. During this period some areas of northern part of Thailand, and central and northern parts of Viet Nam were covered by heavy rain.
2. From 7<sup>th</sup> to 8<sup>th</sup> July 2014 the upper part of lower Mekong Basin was covered by a low pressure cell, which generated heavy rainfall at some Provinces in the northern part of Thailand. The daily rainfall for many hydro-meteorological stations located in Chiang Rai, Thoeng and Chiang Saen Provinces increased from 100 to 130 mm.
3. On 7<sup>th</sup> July 2014 at 00:00 UTC (07:00 AM local time) the MRC-FFG system detected some districts of Nan Province at the northern part of Thailand that were at the risk of the flash flood occurrences. On 8<sup>th</sup> July at 00:00 UTC the MRC-FFG system detected that also the districts of Chiang Mai and Chiang Rai had to be considered high risk areas for the flash flood occurrences. Some flash flood risk areas that were detected by the MRC-FFG system on 7<sup>th</sup> and 8<sup>th</sup> July corresponded with the reported flash flood areas reported by National News of Thailand, dated 10-13<sup>th</sup> July 2014.

## 3.3 Flash flooding in the northern Provinces of Viet Nam, caused by low pressure on 13<sup>th</sup> - 14<sup>th</sup> July 2014

### 3.3.1 Weather condition during the second week of July 2014

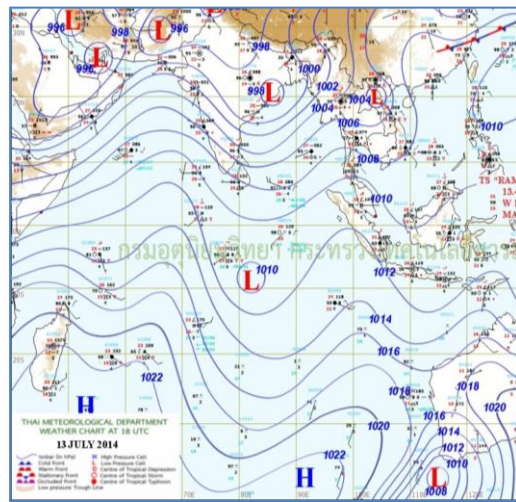
During the second week of July, from 9<sup>th</sup> to 14<sup>th</sup> July 2014, the upper part of the Mekong Basin was still covered by low pressure that was positioned across upper Thailand and the northern part of Viet Nam. During this period some areas of the northern part of

Thailand and central and northern parts of Viet Nam were covered by heavy rain. The Figure 3.3-1 and Figure 3.3-2 present the weather chart of Mekong region during the second week of July 2014.



Source: TMD

Figure 3.3-1 Weather chart issued at 18:00 UTC on 10<sup>th</sup> July 2014.



Source: TMD

Figure 3.3-2 Weather chart issued at 18:00 UTC on 13<sup>th</sup> July 2014.

### 3.3.2 Heavy rainfall in the Northern Provinces of Viet Nam

During the second week of July some rainfall stations located in the northern Provinces of Viet Nam, especially at Sin Ho rainfall station, the daily rainfall was more than 100 mm for 12<sup>th</sup> and 13<sup>th</sup> July. Figure 3.3-3 to Figure 3.3-6 present the daily rainfall of stations located in the northern part of Viet Nam. Figure 3.3-7 and Figure 3.3-8 present the 24 hours accumulated rainfall from Hydroestimator (satellite rainfall estimated).

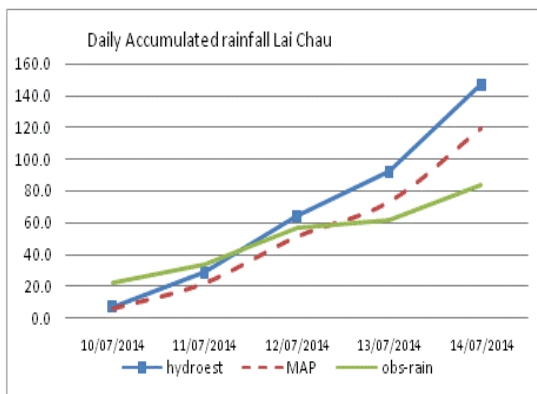


Figure 3.3-3 Daily accumulated rainfall at Lai Chau station of Lai Chau Province of Viet Nam.

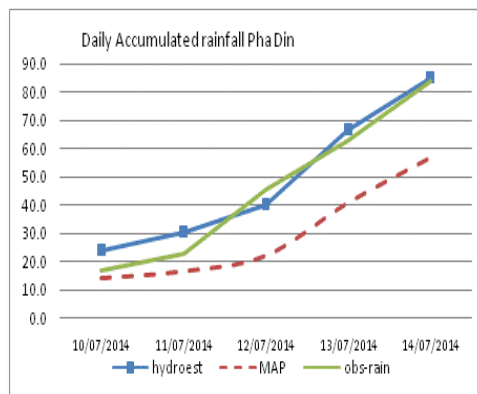


Figure 3.3-4 Daily accumulated rainfall at Pha Din station of Lai Chau Province of Viet Nam.

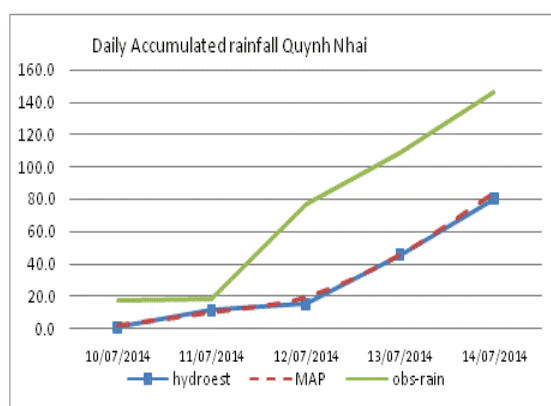


Figure 3.3-5 Daily accumulated rainfall at Quynh Nhai station of Son La Province of Viet Nam.

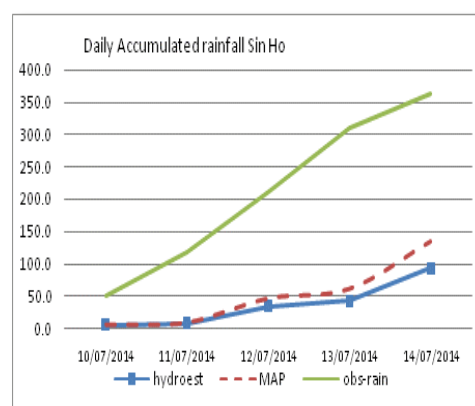


Figure 3.3-6 Daily accumulated rainfall at Sin Ho station of Lai Chau Province of Viet Nam.

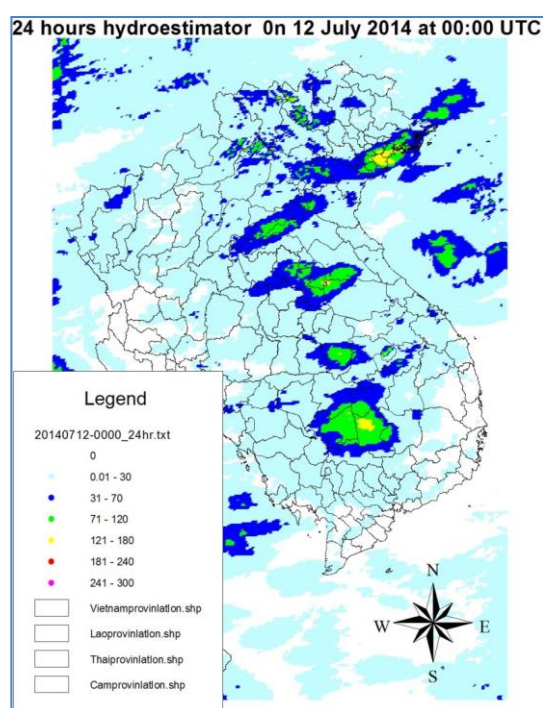


Figure 3.3-7 24 hourly satellite rainfall estimate from 00:01 UTC on 11<sup>th</sup> July to 00:00 UTC on 12<sup>th</sup> July 2014.

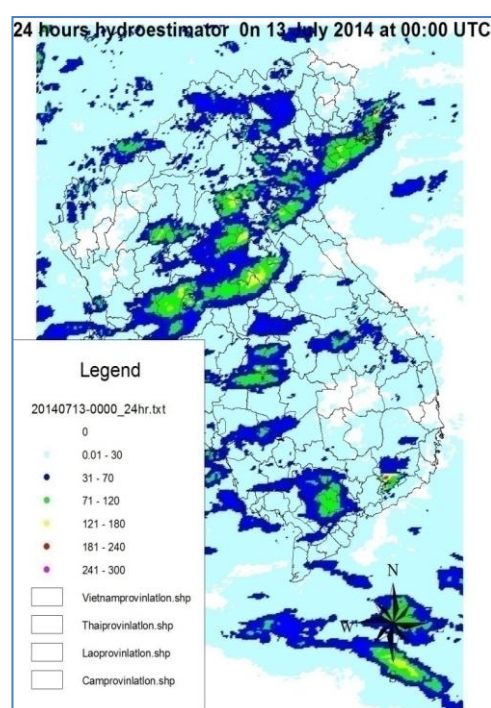


Figure 3.3-8 24 hourly satellite rainfall estimate from 00:01 UTC on 12<sup>th</sup> July to 00:00 UTC on 13<sup>th</sup> July 2014.

### 3.3.3 Flash flooding in the northern Provinces of Viet Nam

On 13<sup>th</sup> July 2014 at 00:00 UTC (07:00 AM local time) the MRC-FFG system detected some districts of northern Provinces of Viet Nam, such as Lai Chau, Lao Cai, Ha Giang, Son La, Yen Bai, that were at the risk of the flash flood occurrences. Figure 3.3-9 presents the 3 hourly flash flood risk districts, detected by MRC-FFG system on 13<sup>th</sup> July 2014 at 00:00 UTC. Table 3.3-1 presents the list of flash flood risk districts that were detected by MRC-FFG system.

The information on the flash flood risk areas that were detected by the MRC- FFG system was confirmed by the information published on the online news called “Than Nien”, dated 15<sup>th</sup> July 2014. The online newspaper informed that on Monday 14<sup>th</sup> July 2014 the Baxat District of Lao Cai Province was flooded. Some flash flood risk areas that were detected by MRC-FFG system on 7<sup>th</sup> - 8<sup>th</sup> July, corresponded with the reported flash flood areas. Annex 3 provides the information collected from the online newspaper.

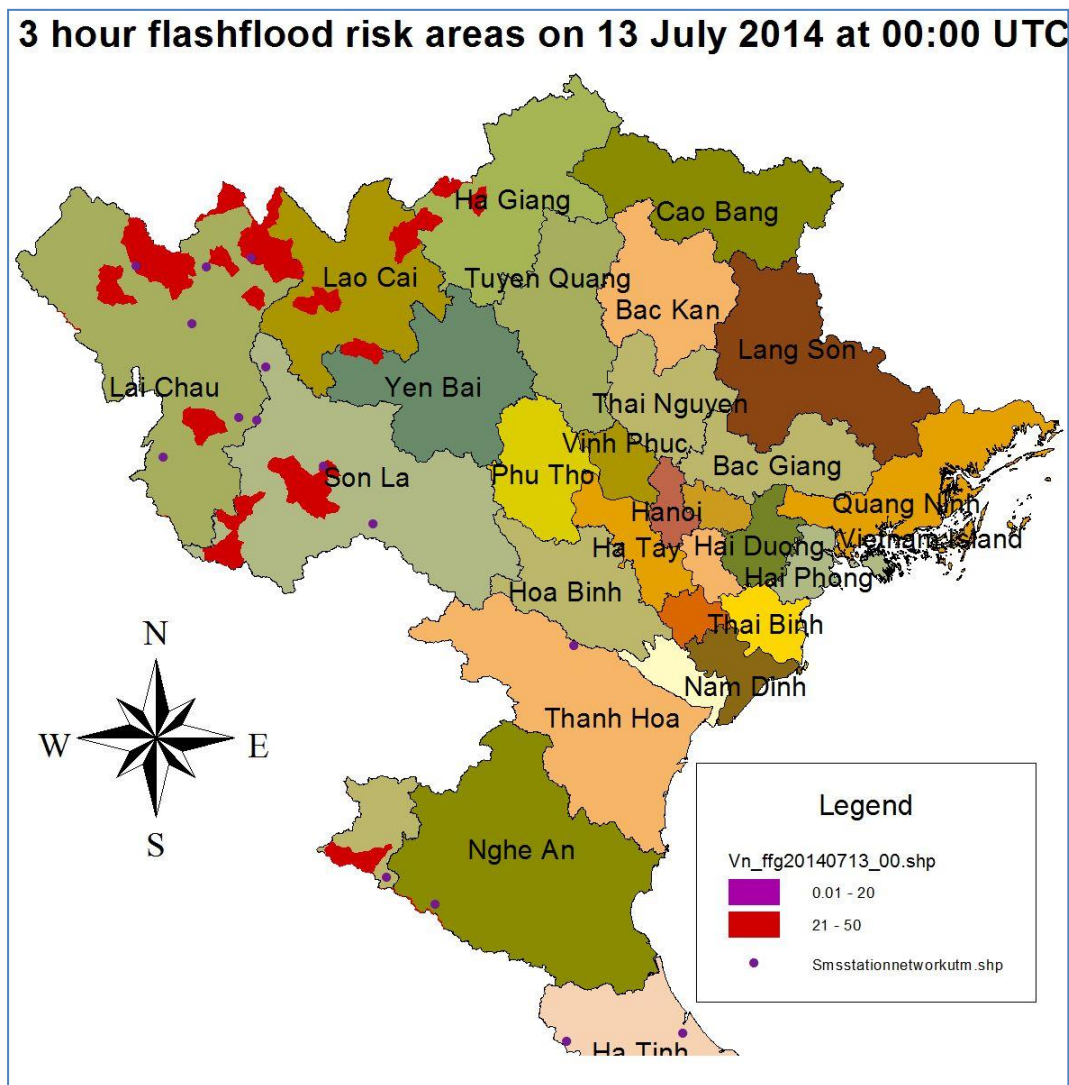


Figure 3.3-9 3 hourly flash flood risk map of the northern Provinces of Viet Nam on 13<sup>th</sup> July 2014 at 00:00 UTC.

Table 3.3-1 The flash flood risk districts of northern Provinces of Viet Nam, detected by the MRC-FFG system on 13<sup>th</sup> July 2014 at 00:00 UTC.

Date of FFG products 13/07/2014 00:00 UTC time					
1hour Flash Flood Guidance in Vietnam			3hours Flash Flood Guidance in Vietnam		
Provinces	Districts	FFG value	Provinces	Districts	FFG Value
Ha Giang	Hoang Su Phi	23.53	Ha Giang	Hoang Su Phi	30.53
Ha Giang	Vi Xuyen	23.53	Ha Giang	Vi Xuyen	30.53
Ha Giang	Xin Man	22.35	Ha Giang	Xin Man	38.95
Lao Cai	Bat Xat	21.85	Lao Cai	Bat Xat	27.23
Lao Cai	Sa Pa	19.87	Lao Cai	Bac Ha	43.89
Lao Cai	Than Uyen	20.12	Lao Cai	Sa Pa	31.35
Lai Chau	Muong Te	24.09	Lao Cai	Bao Yen	45.57
Lai Chau	Phong Tho	21.92	Lao Cai	Than Uyen	33.65
Lai Chau	Sin Ho	24.09	Lao Cai	Van Ban	47.98
Lai Chau	Dien Bien Dong	20.67	Yen Bai	Mu Cang Chai	46.97
Son La	TX. Son La	22.00	Lai Chau	Muong Te	38.96
Son La	Thuan Chau	23.08	Lai Chau	Phong Tho	31.28
Son La	Mai Son	23.08	Lai Chau	Sin Ho	39.25
Son La	Song Ma	20.89	Lai Chau	Muong Lay	47.93
Hoa Binh	Ky Son	21.78	Lai Chau	Tuan Giao	43.16
Nghe An	Tuong Duong	21.47	Lai Chau	Dien Bien	43.41
Nghe An	Con Cuong	23.36	Lai Chau	Dien Bien Dong	38.20
Binh Thuan	Ham Thuan Nam	19.71	Son La	TX. Son La	29.50
Binh Thuan	Tanh Linh	19.71	Son La	Thuan Chau	31.85
			Son La	Mai Son	31.85
			Son La	Song Ma	32.80
			Hoa Binh	Ky Son	30.18
			Nghe An	Tuong Duong	31.54
			Nghe An	Con Cuong	31.75
			Lam Dong	TX. Bao Loc	40.32
			Lam Dong	Bao Lam	40.32
			Lam Dong	Da Huoai	40.32
			Binh Thuan	Ham Thuan Nam	27.31
			Binh Thuan	Tanh Linh	33.82
			Binh Thuan	Duc Linh	40.32

### 3.3.4 Conclusions

1. During the second week of July, from 9<sup>th</sup> to 14<sup>th</sup> July 2014, the upper part of the Mekong Basin was still covered by low pressure that was positioned across upper Thailand to northern part of Viet Nam. During this period some areas of the northern part of Thailand, central and northern parts of Viet Nam have been covered by the heavy rain.
2. During the second week of July some rainfall stations located in the northern Provinces of Viet Nam, especially at Sin Ho rainfall station the daily rainfall was more than 100 mm for 12 and 13<sup>th</sup> July.
3. On 13<sup>th</sup> July 2014 at 00:00 UTC (07:00 AM local time) the MRC-FFG system detected that some districts of northern Provinces of Viet Nam, such as Lai Chau, Lao Cai, Ha Giang, Son La, Yen Bai were at the risk of the flash flood occurrences. The information on the flash flood risk areas that were detected by the MRC-FFG system, was confirmed by the online news called Than Nien, dated on 15<sup>th</sup> July 2014.

### 3.4 Flash flooding in the northern Provinces of Viet Nam and Lao PDR, caused by tropical storm RAMMASUN

#### 3.4.1 Weather condition during the third week of July 2014

At 7:00 PM local time on 10<sup>th</sup> July 2014 over the Pacific Ocean, tropical depression RAMMASUN developed. Figure 3.4-1 presents the position of tropical depression at the Pacific Ocean. The storm then moved in westerly direction. On Tuesday 15<sup>th</sup> July at around 01:00 PM, it began making first landfall at Philippines island (see Figure 3.4-2), after that it continued in north-westerly direction and made the second landfall at the island Hainan (see Figure 3.4-3). On Friday 18<sup>th</sup> July 2014 around 1:00 PM the storm increased its capacity to category 5. The last landfall of storm RAMMASUN happened on Saturday 19<sup>th</sup> July 2014 afternoon at the north-eastern of Quang Ninh Province of Viet Nam. Figure 3.4-4 presents the track of tropical storm RAMMASUN when it made landfall at the northern part of Viet Nam.

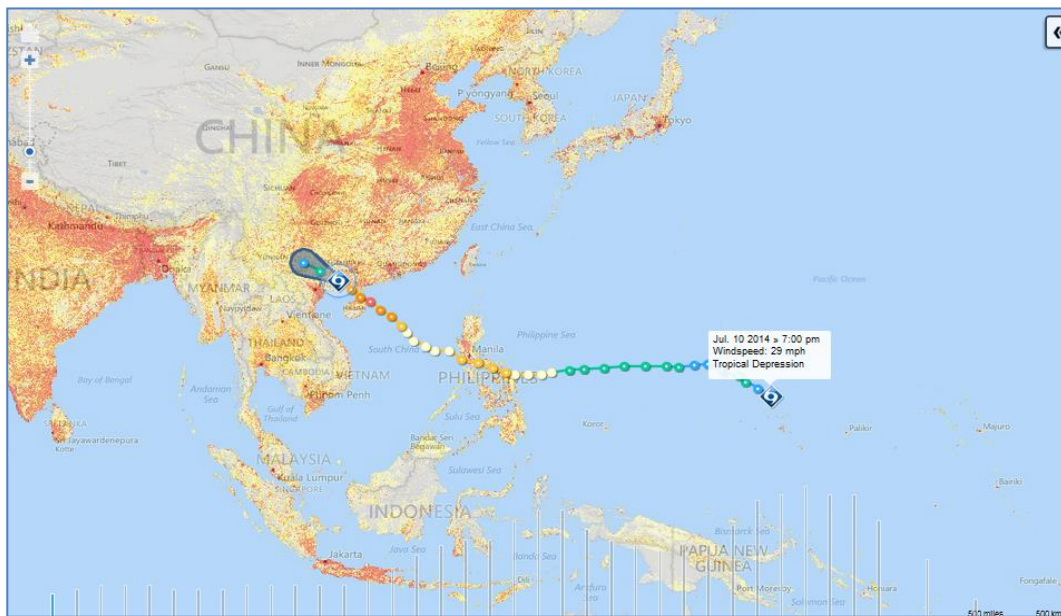


Figure 3.4-1 On 10<sup>th</sup> July 2014 at 7:00 PM at the Pacific Ocean the tropical depression RAMMASUN was formed.

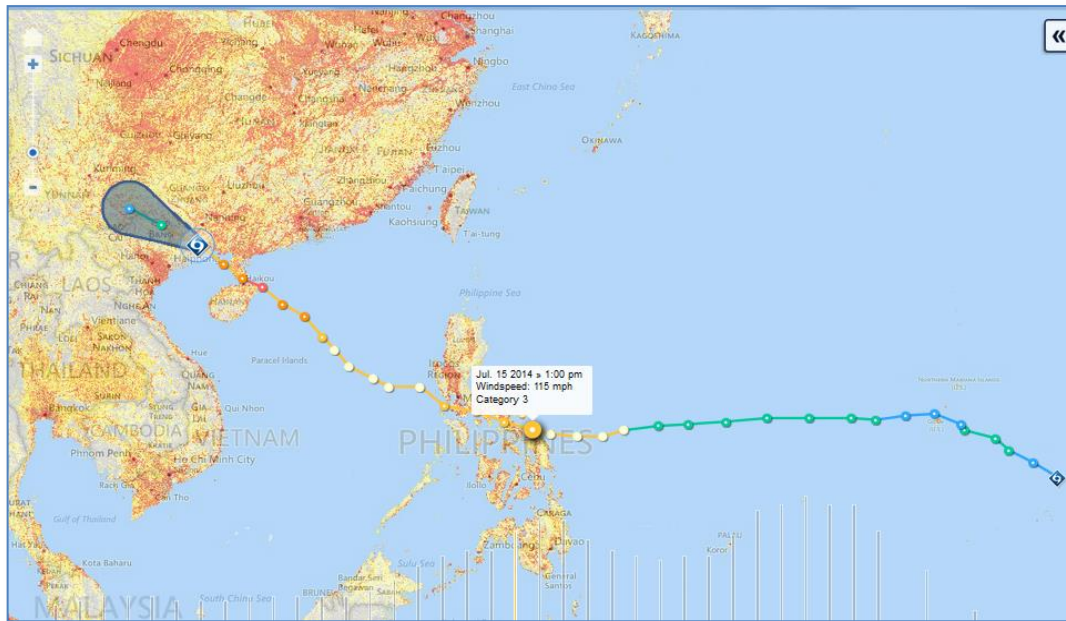


Figure 3.4-2 On 15<sup>th</sup> July 2014 at 1:00 PM tropical storm RAMMASUN made its first landfall at the Philippines island.

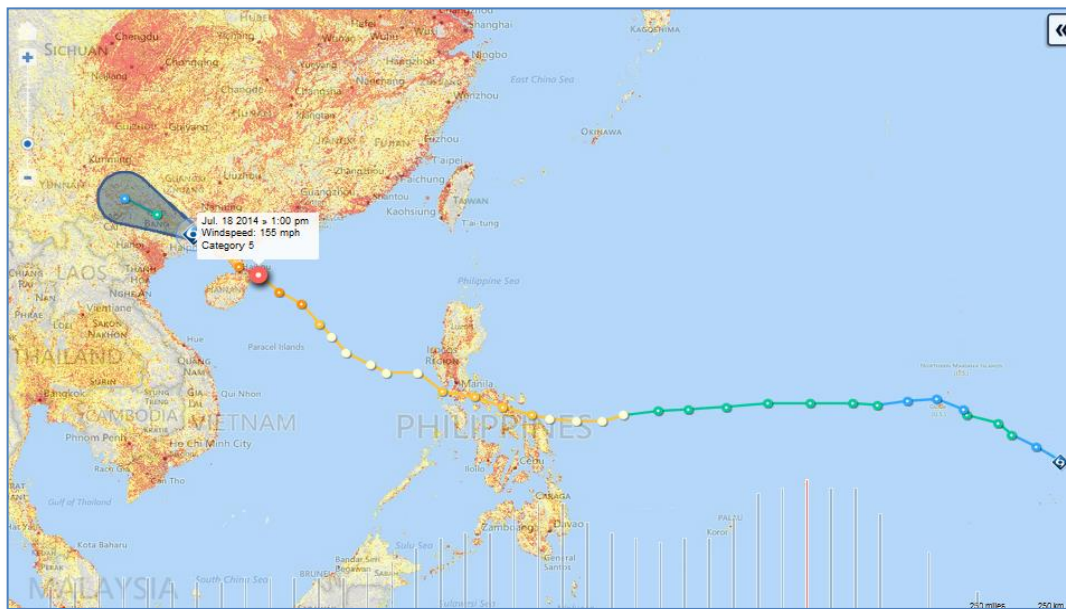


Figure 3.4-3 On 18<sup>th</sup> July 2014 at 1:00 PM tropical storm RAMMANSUN made its second landfall at Hainan.

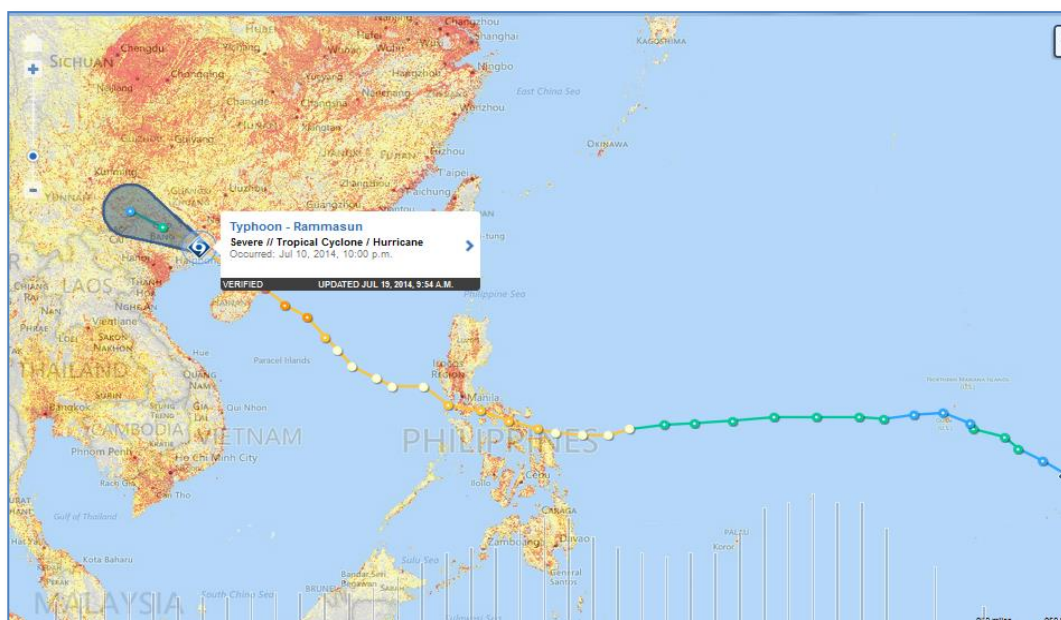


Figure 3.4-4 On Saturday 19<sup>th</sup> July 2014 afternoon tropical storm RAMMASUN made its last landfall at Quang Ninh Province in Viet Nam.

### 3.4.2 Heavy rainfall during the period of tropical storm RAMMASUN

During the period from 20<sup>th</sup> to 23<sup>rd</sup> July 2014, when typhoon storm RAMMASUN was active in the region, heavy rainfalls occurred at some areas in the northern part of Viet Nam, as well as at some sub-catchments of Lower Mekong Basin located in the northern and central part of Lao PDR, such as Nam Kading, Nam Sane, Nam Ngiep, Nam Ngum, Xedone. Figure 3.4-5 to Figure 3.4-6 present the daily accumulated rainfall at some stations located at the northern Provinces of Viet Nam, where the daily rainfall during this period almost reached 150 to 200 mm. Figure 3.4-14 to Figure 3.4-20 present the daily accumulated rainfall at some stations located at the northern and central Provinces of Lao PDR, where the daily rainfall almost reached 80 mm per day.

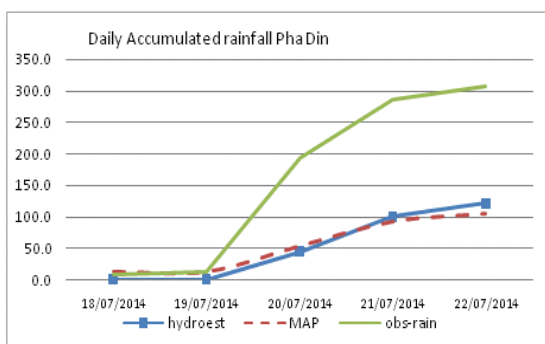


Figure 3.4-5 Daily accumulated rainfall (in mm) at Pha Din station.

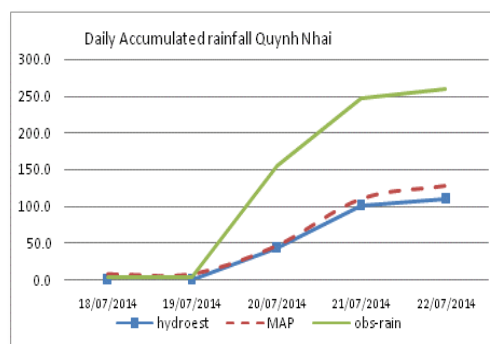


Figure 3.4-6 Daily accumulated rainfall (in mm) at Quang Nhai station.

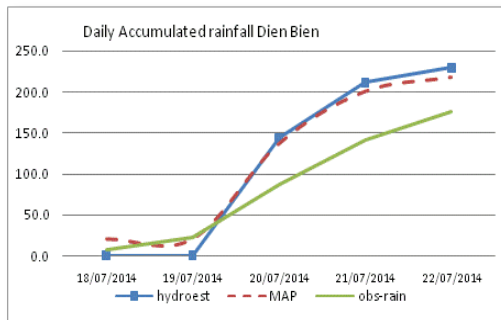


Figure 3.4-7 Daily accumulated rainfall (in mm) at Dien Bien station

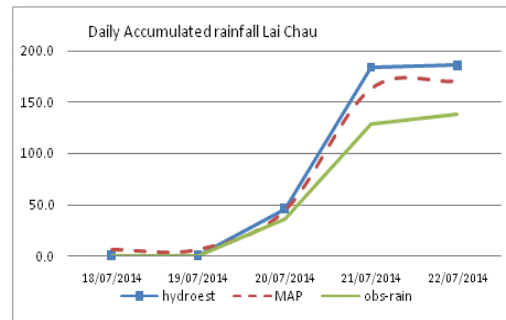


Figure 3.4-8 Daily accumulated rainfall (in mm) at Lai Chau station.

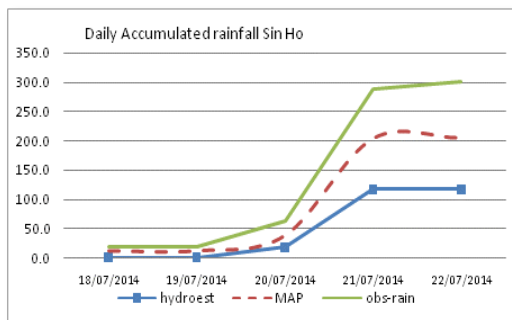


Figure 3.4-9 Daily accumulated rainfall (in mm) at Sin Ho station.

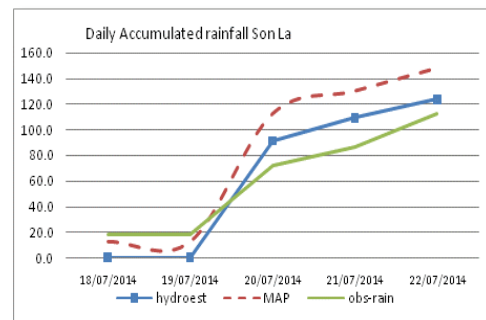


Figure 3.4-10 Daily accumulated rainfall (in mm) at Son La station.

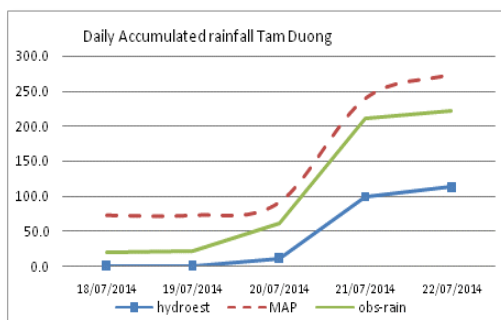


Figure 3.4-11 Daily accumulated rainfall (in mm) at Tam Duong station.

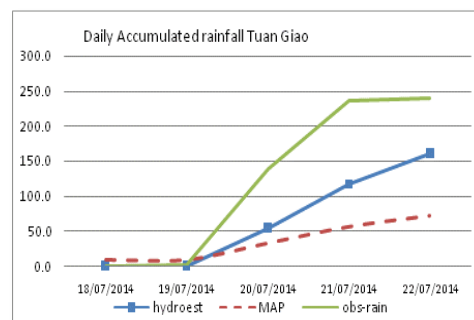


Figure 3.4-12 Daily accumulated rainfall (in mm) at Tuan Giao station.

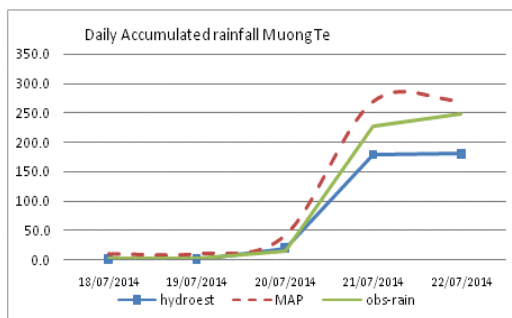


Figure 3.4-13 Daily accumulated rainfall (in mm) at Meoauing Te station.

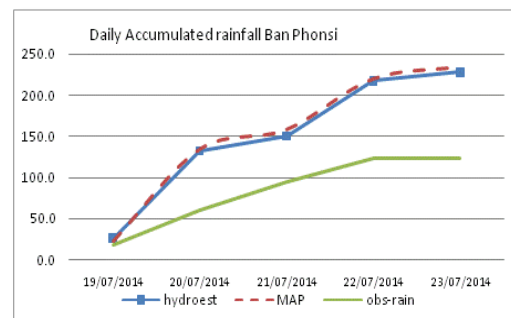


Figure 3.4-14 Daily accumulated rainfall (in mm) at Ban Phonsi station of Nam Kading catchment.

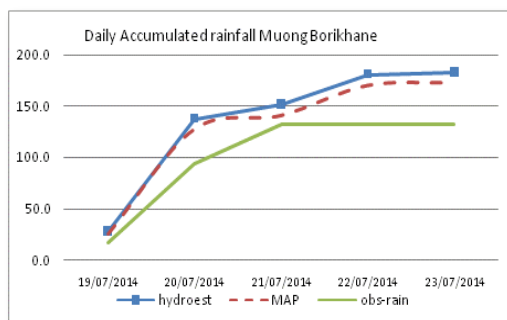


Figure 3.4-15 Daily accumulated rainfall (in mm) at Muong Borikane station of Nam Sane catchment.

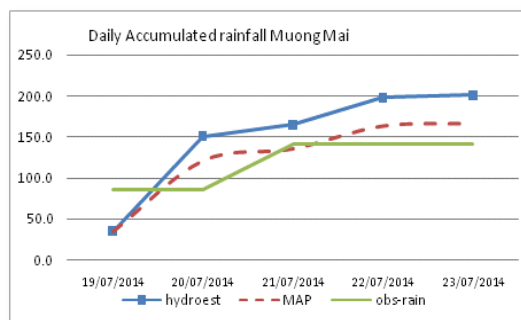


Figure 3.4-16 Daily accumulated rainfall (in mm) at Muang Mai station of Nam Ngiep catchment.

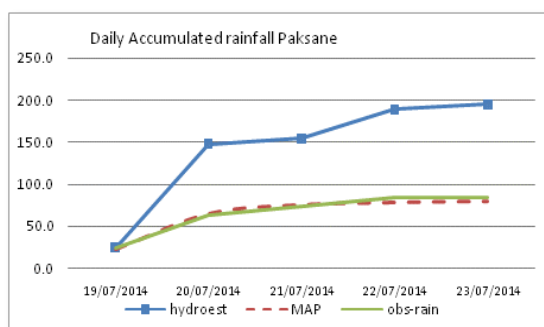


Figure 3.4-17 Daily accumulated rainfall (in mm) at Paksane station of Mekong mainstream.

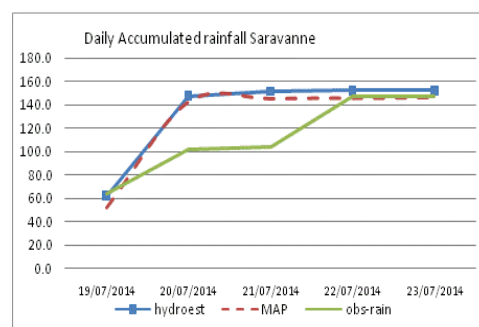


Figure 3.4-18 Daily accumulated rainfall (in mm) at Saravane station of Xedone catchment.

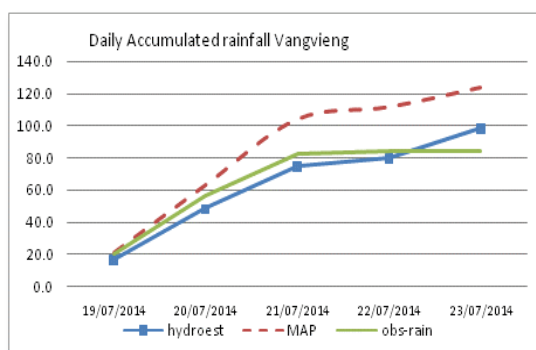


Figure 3.4-19 Daily accumulated rainfall in mm at Vang Vieng station of Nam Ngum catchment.

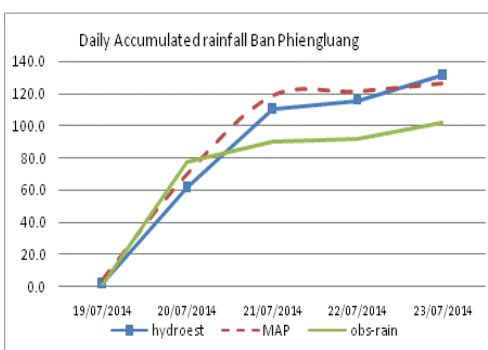


Figure 3.4-20 Daily accumulated rainfall (in mm) at Piengluang station of Nam Ngum catchment.

### 3.4.3 Rising water levels in some tributaries of the Mekong River

During the period from 20<sup>th</sup> to 22<sup>nd</sup> July 2014 the tropical storm hit the Mekong region and transformed into a low pressure cell. The heavy rainfall generated from the depression of the tropical storm RAMMASUN affected to the flow regime at many monitoring stations located in the northern and central parts of Lao PDR. Water levels increased 2 to 3 m for some hydrological stations such as Nam Ngiep (at Muang Mai), Nam Ngum (at Phiengluang), Nam Phao (at Ban Nape), Nam Ou (at Muang Ngoy). Figure 3.4-21 to Figure 3.4-30 present the hydrograph of stations located at the northern and central part of Lao PDR.

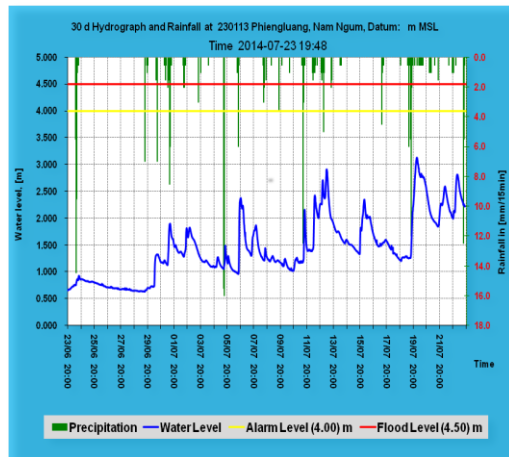


Figure 3.4-21 Hydrograph of Nam Ngum River at Phienluang stations.

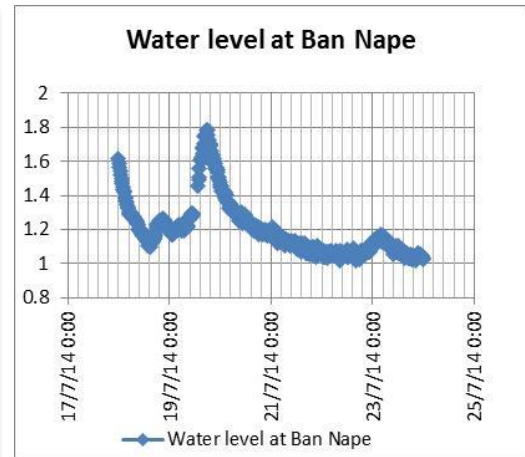


Figure 3.4-22 Hydrograph of Nam Phao River at Ban Nape station.

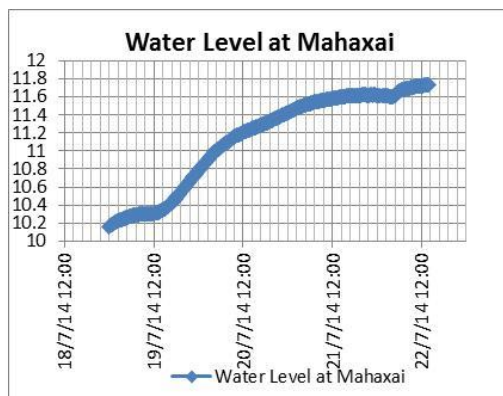


Figure 3.4-23 Hydrograph of Xe Bang Fai River at Mahaxai station.

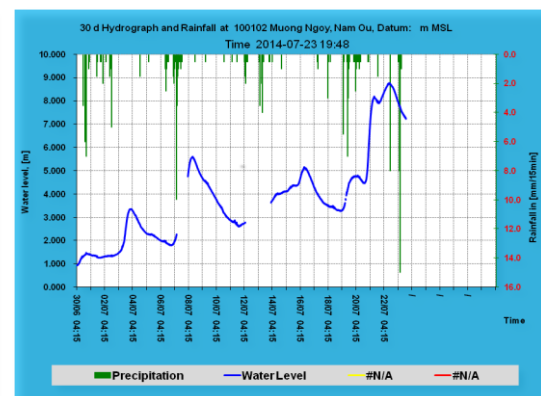


Figure 3.4-24 Hydrograph of Nam Ou River at Muang Ngoy station.

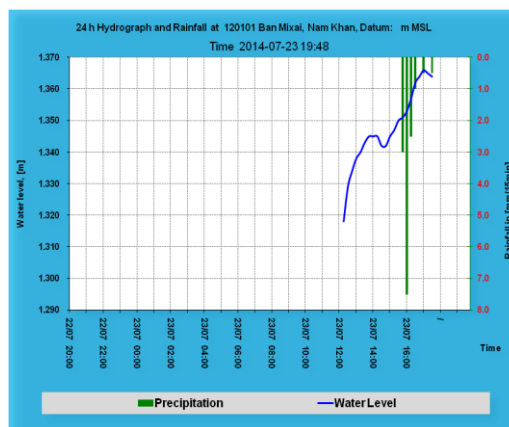


Figure 3.4-25 Hydrograph of Nam Khan River at Ban Mixai station.

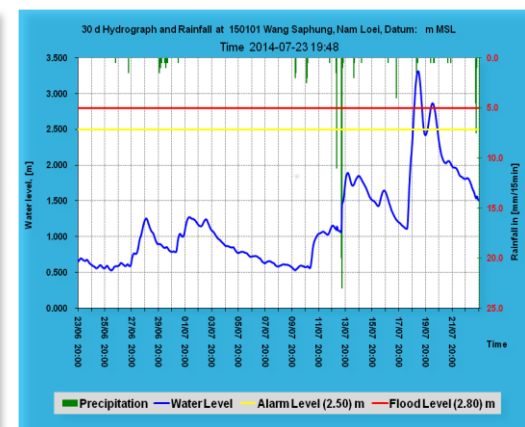


Figure 3.4-26 Hydrograph of Nam Loei River at Wang Saphung station.

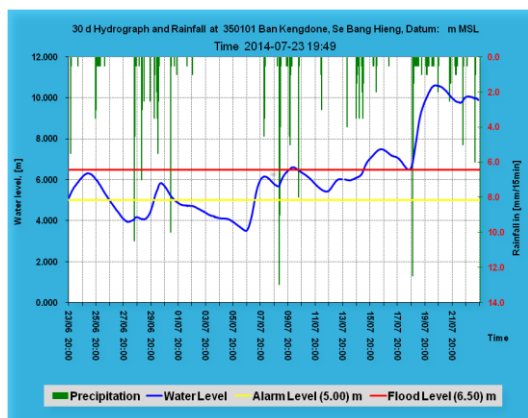


Figure 3.4-27 Hydrograph of Xe Bang Hieng River at Ban Kengdone station.

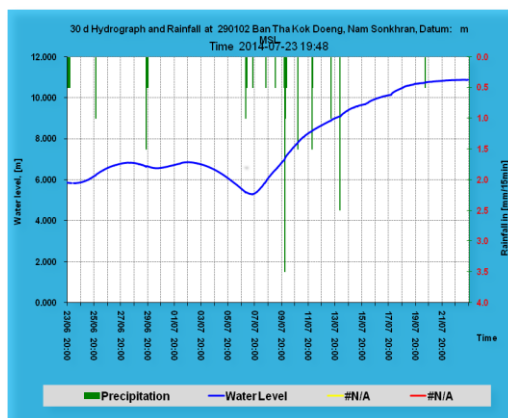


Figure 3.4-28 Hydrograph of Namsonkran River at Ban Tha Kok Daeng station.

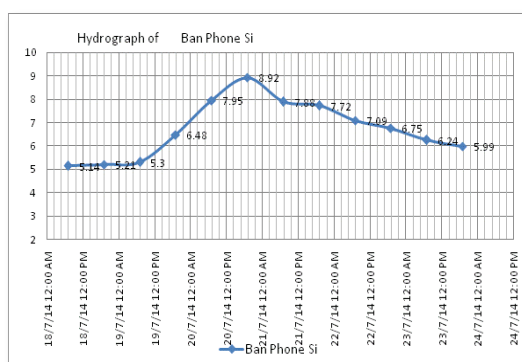


Figure 3.4-29 Hydrograph of Nam Kading River at Ban Phonsi station.

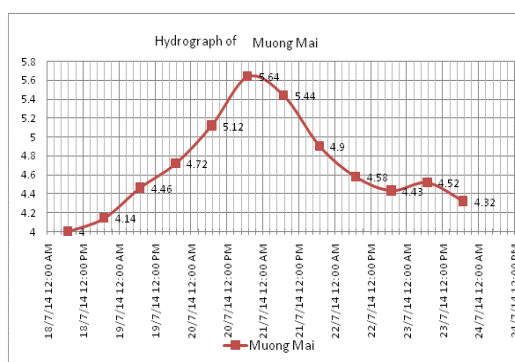


Figure 3.4-30 Hydrograph of Nam Ngiep River at Muang Mai station.

### 3.4.4 Flash flooding in the northern Provinces of Viet Nam, caused by typhoon storm RAMMASUN

From 19<sup>th</sup> July 2014 at 18:00 UTC (01:00 AM of 20<sup>th</sup> July 2014 local time) the MRC-FFG System detected that various district of the northern Provinces (Lao Cai, Lai Chau, Ha Giang, Tuyen Quang, Cao Ban) of Viet Nam were at the risk of flash flood occurrence. Figure 3.4-31 presents the 3 hours flash flood risk areas at some districts of the northern Provinces of Viet Nam. Figure 3.4-32 presents the location of 3 hours flash flood risk areas at some districts of northern Provinces of Viet Nam on 20<sup>th</sup> July 2014 at 00:00 UTC (7:00 AM local time). This area was later extended to other Provinces. The information on flash flood areas on 19<sup>th</sup> July 2014 at 18:00 UTC and on 20<sup>th</sup> July 2014 at 00:00 UTC was confirmed by the Viet Nam online newspaper “Nhan Dan” and “VNA” on Monday 21<sup>st</sup> July 2014. This information also provided in Annex 4.

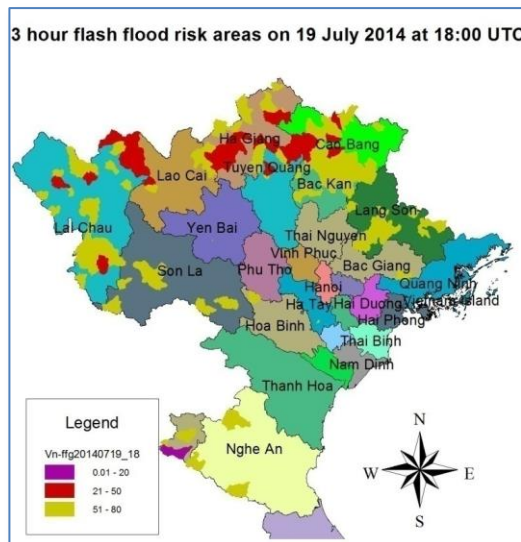


Figure 3.4-31 Present the 3 hours flash flood risk areas at some districts of northern Provinces of Viet Nam on 19<sup>th</sup> July 2014 at 18:00 UTC.

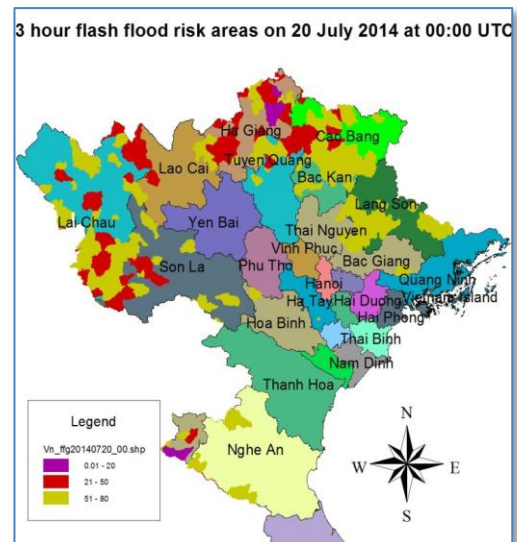


Figure 3.4-32 present the 3 hours flash flood risk areas at some districts of northern Provinces of Viet Nam on 20<sup>th</sup> July 2014 at 00:00 UTC, where the risk areas extended to some areas in Son La Province.

### 3.4.5 Flash flooding in the northern and central Provinces of Lao PDR, caused by tropical storm RAMMANSUN

The MRC-FFG system on 20<sup>th</sup> July 2014 at 00:00 UTC and on 21<sup>st</sup> July 2014 at 00:00 UTC detected some flash flood risk areas at some villages in the northern and central Provinces of Lao PDR (see Figure 3.4-33 and Figure 3.4-34). Only the Lao newspaper “Vientiane Times”, published on Wednesday 23<sup>rd</sup> July 2014, informed about heavy rainfall caused by TS RAMMANSUN that led to increased water levels in the Xe Bang Fai River, a tributary of the Mekong River. These water levels affected some rice fields along the Xe Bang Fai River in Khammouane Province. Based on the water level analysis at some stations located in tributaries of the Mekong River and downstream of the flash flood risk areas that were detected by MRC-FFG system, it was noted that the water level in the river at some stations, such as Phiengluang, Meuang Ngoy, Ban Kengdone, Mahaxai, increased 2 to 3 m within a day. For example, at the Meuang Ngoy station of the Nam Ou catchment, the water level started to rise from 4.6 m on 20<sup>th</sup> July 2014 at 09:00 PM to 8.1 m on 21<sup>st</sup> July 2014 at 09:00 AM (an increase of 3.5 m within 12 hours). The same situation occurred at the Phiengluan station of Nam Ngum catchment, where water level started to rise from 1.26 m on 19<sup>th</sup> July 2014 at 11:30 AM to 3.07 m on 20<sup>th</sup> July 2014 at 01:45 AM (an increase of 1.81 m within 14 hours).

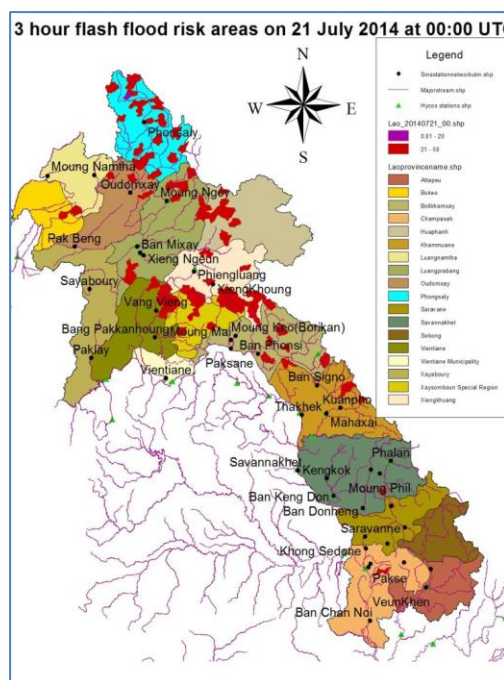


Figure 3.4-34 The 3 hourly flash flood risk areas at some districts in northern and central Provinces of Lao PDR on 20<sup>th</sup> July 2014 at 00:00 UTC.

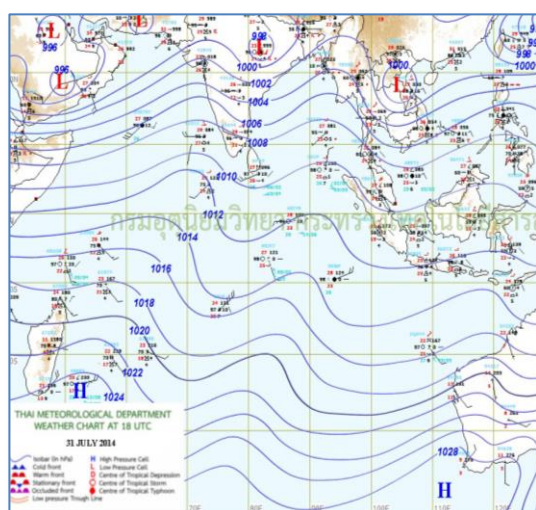
1. The tropical storm RAMMASUN is the ninth storm of the year, which was also the second storm that hit Viet Nam, and caused a serious damage to the northern Provinces of Viet Nam.
2. Many rainfall stations, located in the northern part of Viet Nam, recorded heavy rainfall during the period that TS RAMMASUN hit the Mekong Region. Some of those rainfall stations recorded an amount of daily rainfall up about 150 to 200 mm.
3. When TS RAMMASUN was present over the region the values of Hydroestimator (satellite rainfall estimate) and MAP (Mean Aerial Precipitation) of the MRC FFG system for 2 stations (Pha Din and Quang Nhai) were underestimated, compared with ground observed rainfall. For the remaining stations the values of Hydroestimator and MAP were similar to the value of ground observed rainfall.
4. During TS RAMMASUN the water level increased 2 - 3 m in any hydrological stations along some tributaries of Mekong River.
5. Since 19<sup>th</sup> July 2014 at 18:00 UTC the MRC-FFG system detected that various districts in the northern Provinces of Viet Nam (Lao Cai, Lai Chau, Ha Giang, Tuyen Quang, Cao Ban) were at the risk of flash flood occurrences.
6. The information from the newspaper indicated that flash floods occurred on 21<sup>st</sup> July 2014 at 03:00 AM at the same districts that were detected by the MRC-FFG

system on 19<sup>th</sup> July 2014 at 18:00 UTC and on 20<sup>th</sup> July 2014 at 00:00 UTC. See the information in Annex 4.

### 3.5 Flash flooding in the southern and central Provinces of Lao PDR on 2<sup>nd</sup> - 4<sup>th</sup> August 2014

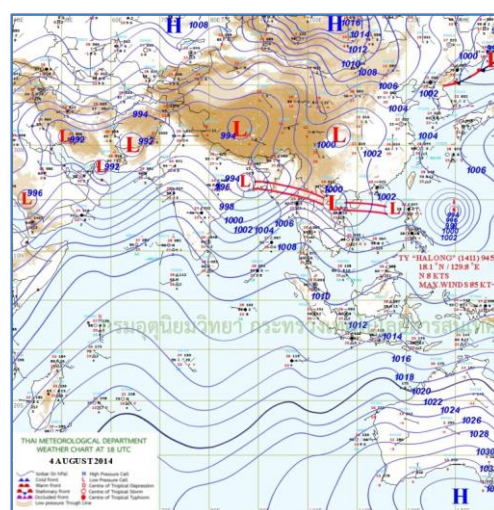
#### 3.5.1 Weather condition at beginning of August 2014

During the first week of August 2014, the Lower Mekong Basin was covered by the low pressure and ITCZ which caused heavy rain at some areas in the central part of the LMB, especially in the southern and central Provinces of Lao PDR. Figure 3.5-1 and Figure 3.5-2 present the weather chart of the Mekong region during the first week of August 2014.



Source: TMD

Figure 3.5-1 Weather chart of the Mekong region during the 1<sup>st</sup> August 2014 at 01:00AM local time.



Source: TMD

Figure 3.5-2 Weather chart of the Mekong region during the 5<sup>th</sup> August 2014 at 01:00 AM local time.  
Source: TMD.

#### 3.5.2 Rainfall during the 1<sup>st</sup> August 2014

On 1<sup>st</sup> August 2014 heavy rainfall occurred in the southern Provinces of Lao PDR, eastern part of Thailand and also central part of Cambodia. This occurrence caused a serious flash flood at those areas. Figure 3.5-3 and Figure 3.5-4 present the 24 hours accumulated rainfall from the hydroestimator (satellite rainfall estimate), which showed the two days estimate at the southern part of Lao PDR and the eastern part of Thailand.

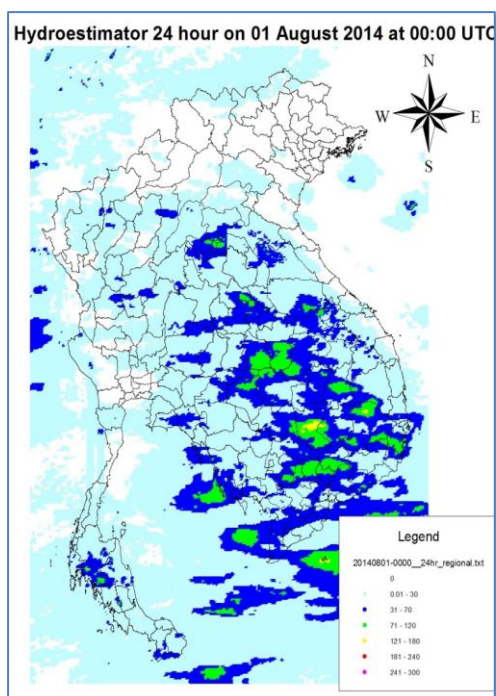


Figure 3.5-3 24 hour accumulated satellite rainfall estimate (Hydroestimator) on 1<sup>st</sup> August 2014 at 00:00 UTC.

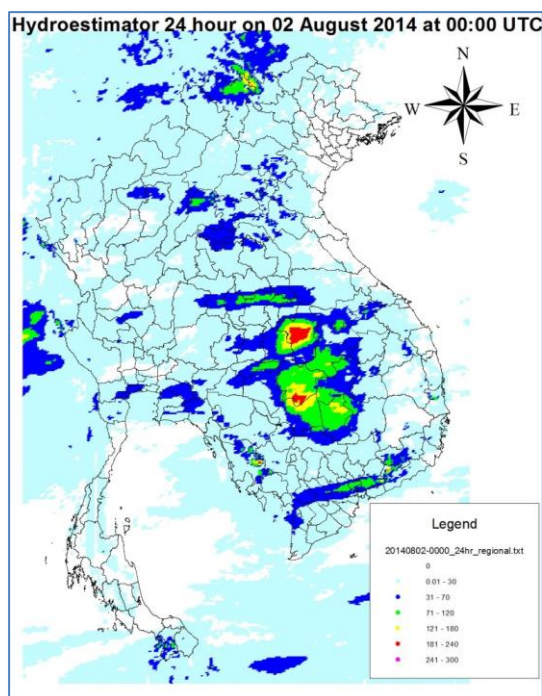


Figure 3.5-4 24 hour accumulated satellite rainfall estimate (Hydroestimator) on 2<sup>nd</sup> August 2014 at 00:00 UTC.

### 3.5.3 Flash flooding in Champassack Province in Lao PDR on Saturday 2<sup>nd</sup> August 2014

In the morning of the 2<sup>nd</sup> August, some villages in the districts Soukouma, Khon, Champassack and other locals in Champassack Province experienced flash floods that were also reported by the Lao newspaper “Vientiane Times” published on 4<sup>th</sup> August 2014.

Unfortunately during the 2<sup>nd</sup> August at 00:00 UTC to 3<sup>rd</sup> August 2014 at 00:00 UTC the MRC FFG system did not detect the flash flood risk areas at the above mentioned districts of Champassack Province; the MRC-FFG system detected the above mentioned districts (Soukouma, Khon, Champassack) are under the flash flood risk level 2 (yellow scale color). Figure 3.5-5 to Figure 3.5-6 present the 3 hourly flash flood risk areas on 2<sup>nd</sup> and 3<sup>rd</sup> August 2014, where the districts Soukouma, Khon and Champassack of Champassack Province still under flash flood risk level 2.

The cause of the inaccuracies of flash flood risk areas detection during this period was the low value of the satellite rainfall estimate (underestimated by Hydroestimator) compared to the ground rainfall station. Figure 3.5-7 to Figure 3.5-10 present the accumulated rainfall during the period from 31<sup>st</sup> July to 4<sup>th</sup> August for the rainfall observed stations in Champassack and Sekong Provinces.

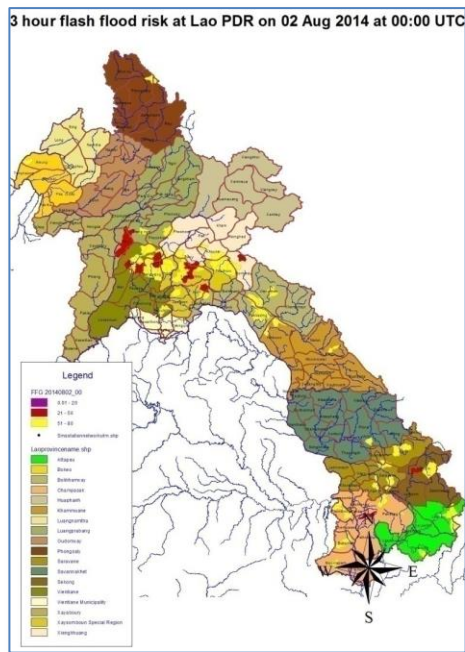


Figure 3.5-5 3 hourly FFG on 2<sup>nd</sup> August 2014 at 00:00 UTC show that the southern and central Provinces of Lao PDR are under flash flood threat.

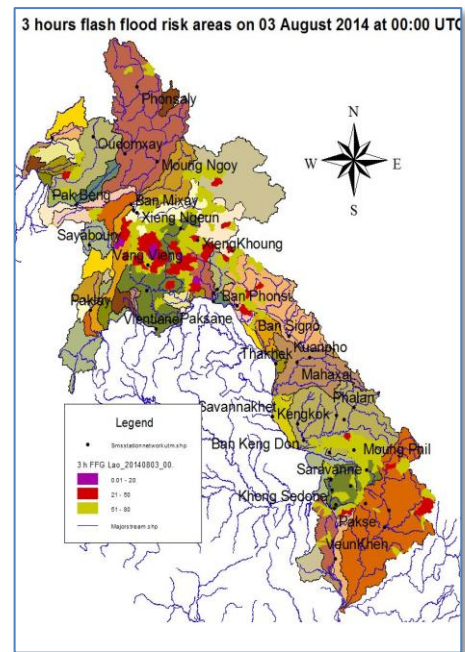


Figure 3.5-6 3 hourly FFG on 3<sup>rd</sup> August 2014 at 00:00 UTC show an increase of the flash flood risk areas in the central Provinces.

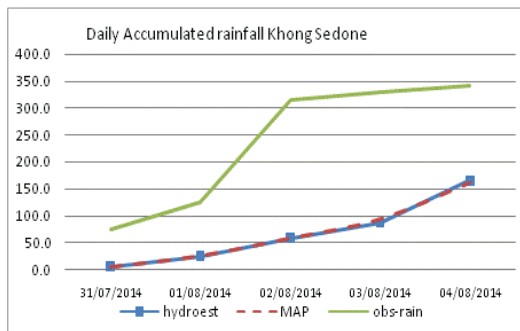


Figure 3.5-7 Accumulated rainfall at Kong Xedone station, where the amount of observed rainfall was higher than the Hydroestimator value.

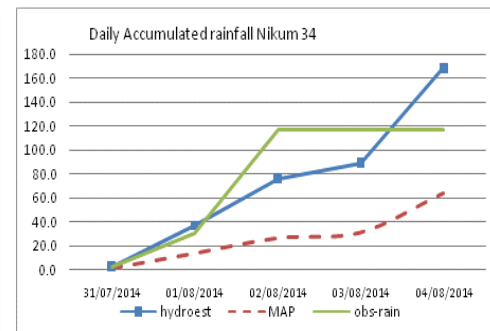


Figure 3.5-8 Accumulated rainfall at Nikum 34 station, where the amount of observed rainfall was higher than the Hydroestimator value.

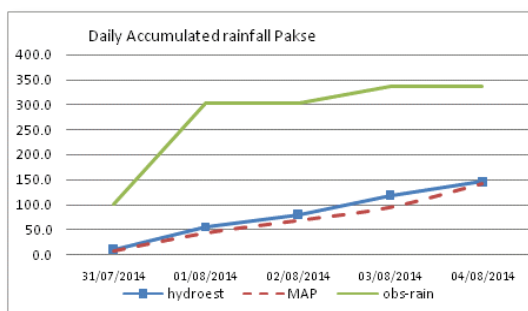


Figure 3.5-9 Accumulated rainfall at Pakse station, where the amount of observed rainfall was higher than the Hydroestimator value.

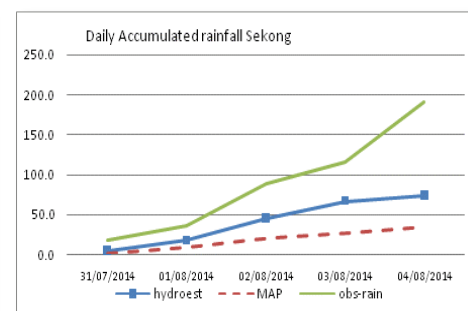


Figure 3.5-10 Accumulated rainfall at Sekong station, where the amount of observed rainfall higher than the Hydroestimator value.

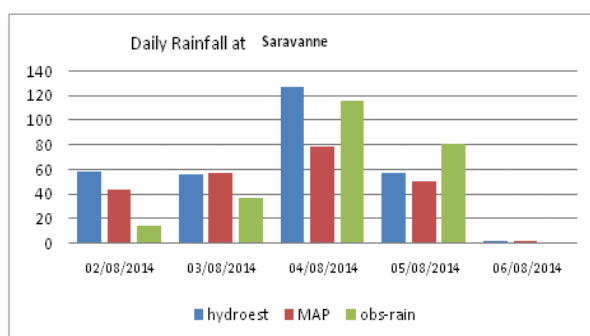


Figure 3.5-11 Daily rainfall at Saravane station.

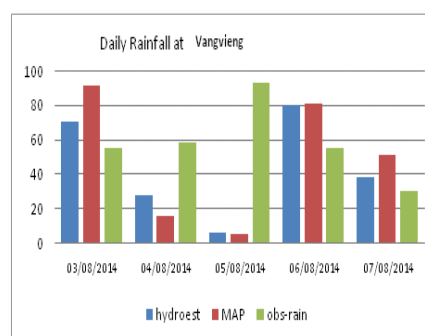


Figure 3.5-12 Daily rainfall at Vangvieng station.

### 3.5.4 Flash flooding in Saravane Province of Lao PDR on 3<sup>rd</sup> August 2014

Heavy rain occurred from 3<sup>rd</sup> to 4<sup>th</sup> August 2014 at many stations located in the Se Done, Nam Ngum sub-catchment of the Lower Mekong Basin. The amount of daily rainfall on 3<sup>rd</sup> August was approximately 100 mm. That caused flash floods in many locations in the Saravane and Vientiane Provinces. Figure 3.5-11 to Figure 3.5-12 present the daily rainfall from the observed stations and satellite rainfall estimates. Figure 3.5-13 and Figure 3.5-14 present the satellite rainfall estimate (24 hours accumulated rainfall) on 3<sup>rd</sup> August 2014 and 4<sup>th</sup> August 2014 respectively.

On 3<sup>rd</sup> August 2014 at 00:00 UTC the MRC-FFG system detected flash flood risk areas in the border zone of Savannakhet and Saravane Provinces (see Figure 3.5-6). The FFG detection was verified with the available information of recorded water levels at Saravane hydrological station that showed that the water level of Saravane station rapidly increased about 6 m within 6 hours; it was 5.44 m at 07:00 AM on 3<sup>rd</sup> August and reached a peak level of 11.88 m at 07:00 PM on 3<sup>rd</sup> August 2014. Figure 3.5-15 presents the hydrograph of the Saravane hydrological station during the first week of August.

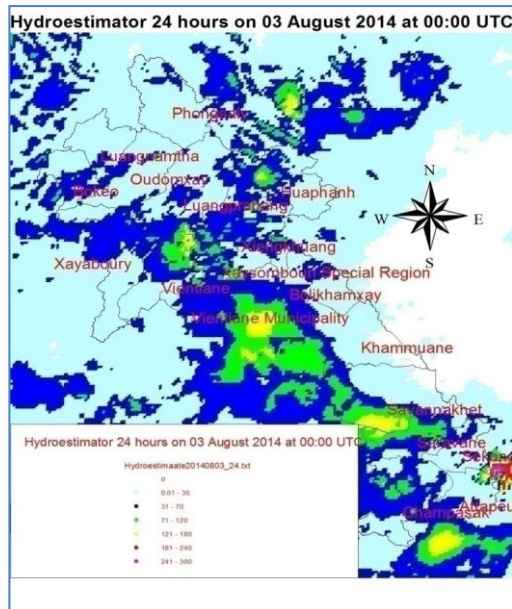


Figure 3.5-13 24 hours accumulated satellite rainfall estimate (Hydroestimator) on 3<sup>rd</sup> August 2014 at 00:00 UTC.

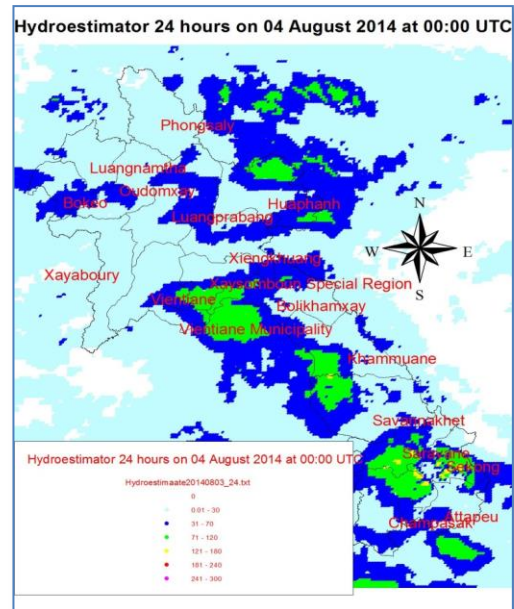


Figure 3.5-14 24 hours accumulated satellite rainfall estimate (Hydroestimator) on 4<sup>th</sup> August 2014 at 00:00 UTC.

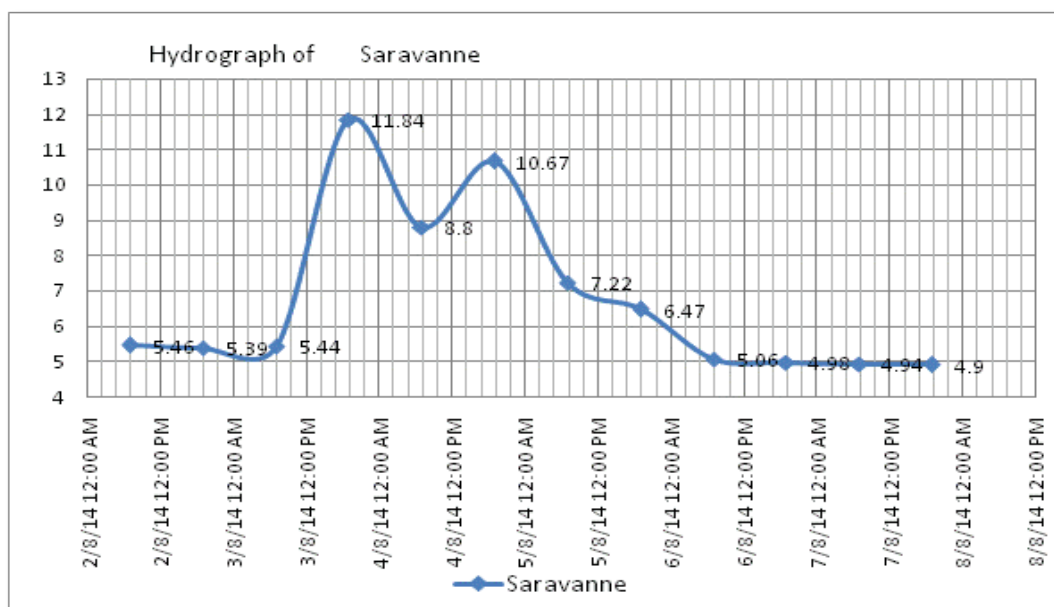


Figure 3.5-15 Hydrograph at Saravane hydrological station.

### 3.5.5 Flash floods in central Province (Xiengkhuang) of Lao PDR on 4<sup>th</sup> August 2014

On 4<sup>th</sup> August 2014 at 00:00 UTC the MRC-FFG system detected many flash flood risk areas in the central Provinces of Lao PDR. Figure 3.5-16 present the 3 hourly flash flood risk areas in the central Provinces of Lao PDR on 4<sup>th</sup> August 2014 at 00:00 UTC. This FFG detection was verified with the available information of recorded water levels at Phiengluang hydrological station. These showed that the water level of Phiengluang

station quickly increased about 4 m within 7 hours; it was 2.19 m at 07:00 AM on 5<sup>th</sup> August and the water level reached a peak of 5.90 m at 14:00 on 5<sup>th</sup> August 2014. Figure 3.5-17 presents the hydrograph of the Phiengluang hydrological station during the first week of August.

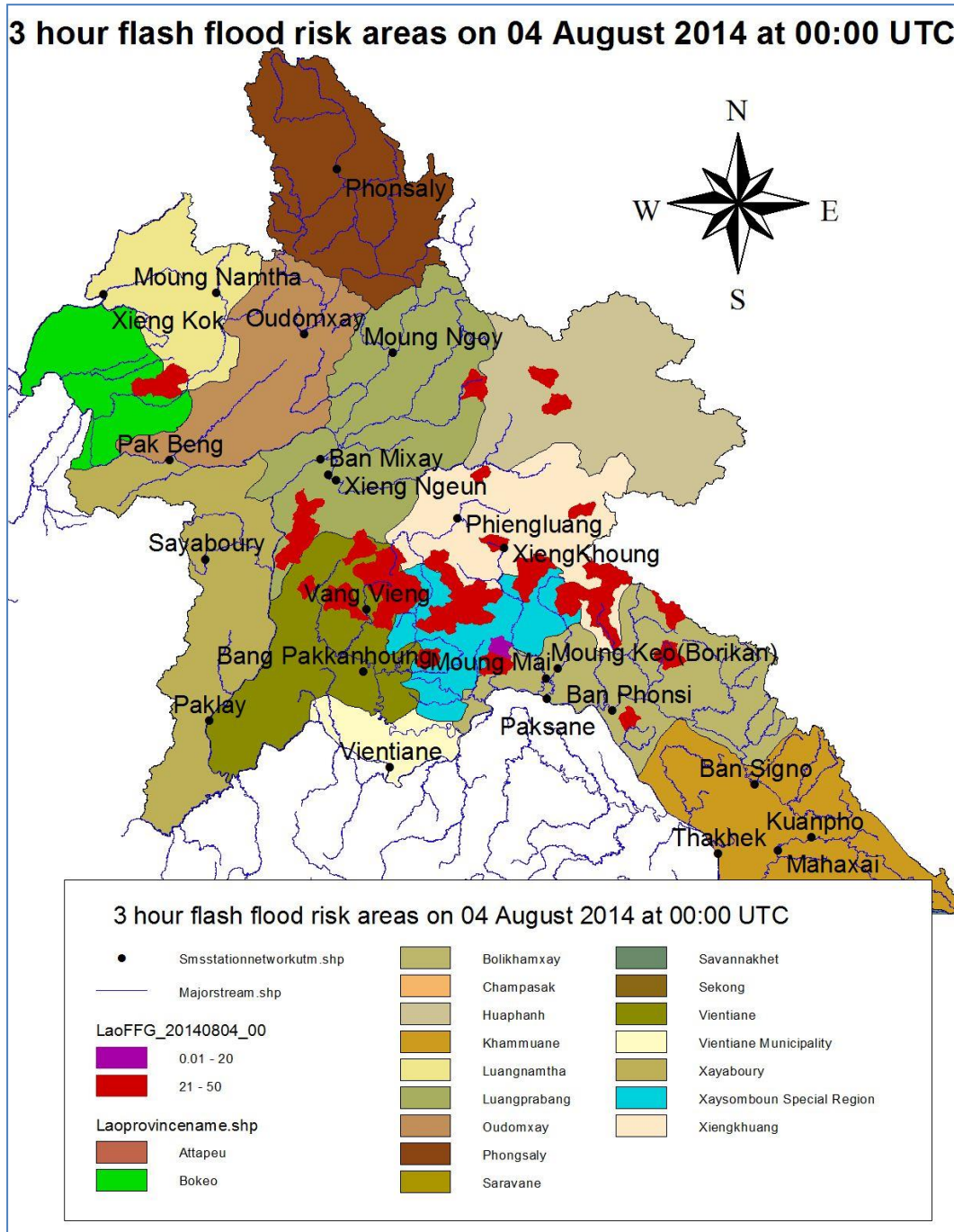


Figure 3.5-16 3 hourly flash flood risk areas detected by MRC-FFG system on 4<sup>th</sup> August 2014 at 00:00 UTC.

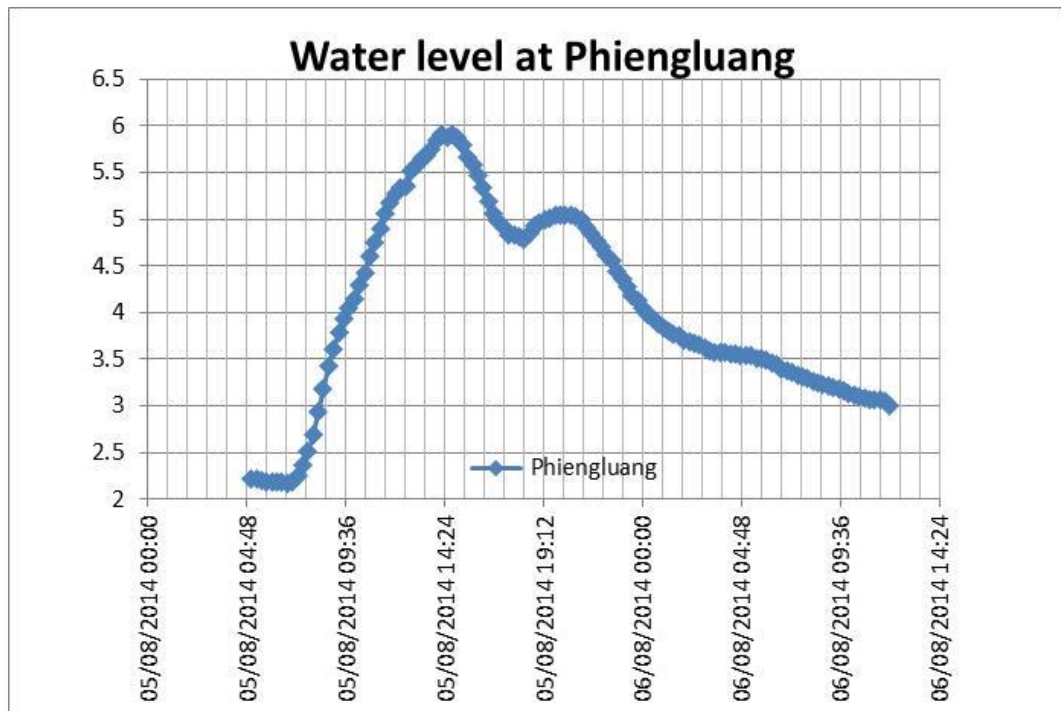


Figure 3.5-17 Hydrograph of Nam Ngum River at Phiengluang hydrological station during the flash flood on 5<sup>th</sup> August 2014.

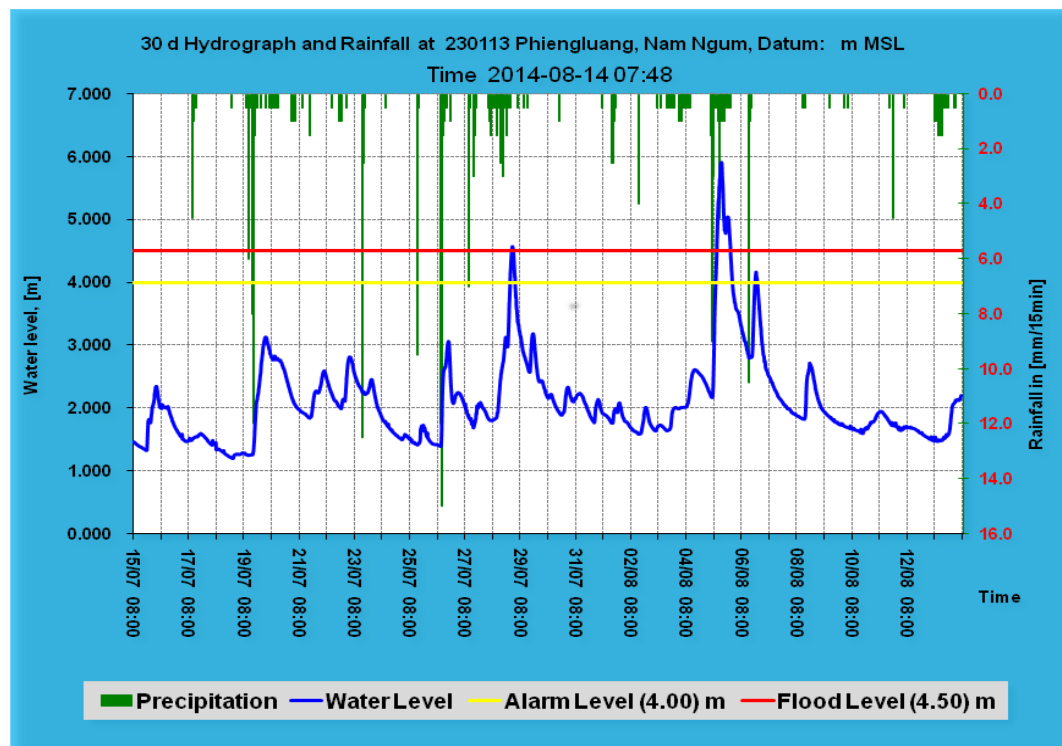


Figure 3.5-18 30 days hydrograph and rainfall of Nam Ngum River at Phiengluang station. Source M-Hycos.

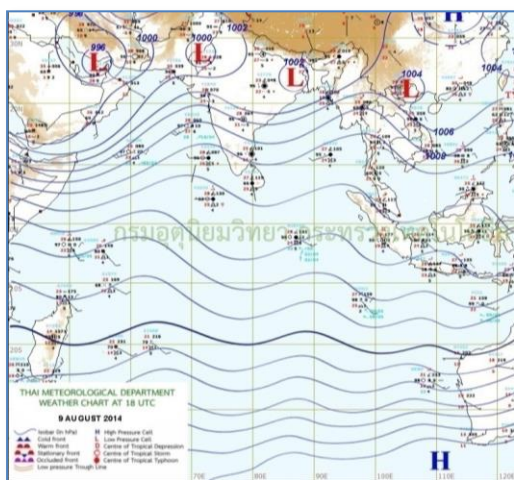
### 3.5.6 Conclusions

1. During the first week of August the Lower Mekong Basin was covered by severe weather conditions such as low pressure and ITCZ.
2. Due to the severe weather conditions, many villages at the central and southern Provinces of Lao PDR experienced flash floods.
3. Many flash floods were properly detected by the MRC-FFG system, except the flash flood at Champassack Province where the FFG system apparently did not perform satisfactory.
4. The preliminary investigation of the inaccuracies of flash flood detection by the MRC FFG system shows that the Satellite Rainfall Estimates in those areas were underestimated compared to ground observations.
5. It is therefore recommended to review the Bias Correction factor of Hydroestimator for some areas where rainfall values are underestimated.

## 3.6 Flash flooding in Lai Chau Province of Viet Nam, caused by low pressure on 11<sup>th</sup> - 12<sup>th</sup> August 2014

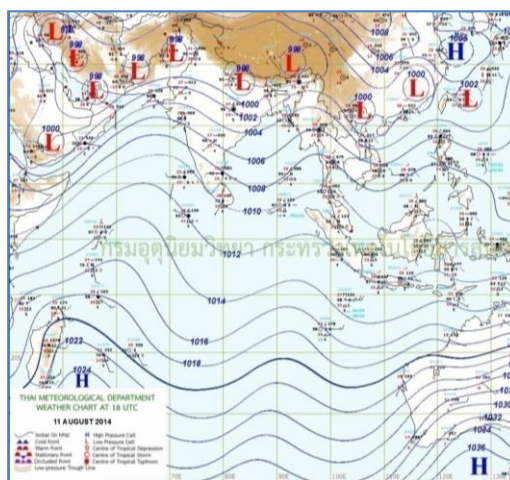
### 3.6.1 Weather situation on the second week of August

A low pressure cell covered the upper Mekong Basin and the northern part of Viet Nam during the second week of August. During this period of the low pressure some Provinces of the northern part of Viet Nam received heavy rain, especially in the northern Provinces near the border with China. Figure 3.6-1 and Figure 3.6-2 present the weather chart of the Mekong region during the second week of August 2014.



Source: TMD

Figure 3.6-1 Weather chart of the Mekong region during the 10<sup>th</sup> August 2014 at 01:00 AM local time.



Source: TMD

Figure 3.6-2 Weather chart of the Mekong region during the 12<sup>th</sup> August 2014 at 01:00 AM local time.

### 3.6.2 Rainfall during the second week of August 2014

During the second week of August many rainfall stations in the northern Provinces of Viet Nam recorded almost daily rainfall. The daily recorded rainfall at some stations reached 120 mm. Figure 3.6-3 and Figure 3.6-8 present the daily accumulated rainfall at rainfall stations of the northern Provinces of Viet Nam; Figure 3.6-9 to Figure 3.6-10 present 24 hours accumulated satellite rainfall (Hydroestimator) on 11<sup>th</sup> and 12<sup>th</sup> August 2014. This shows that heavy rain occurred at the border of Lai Chau Province with China.

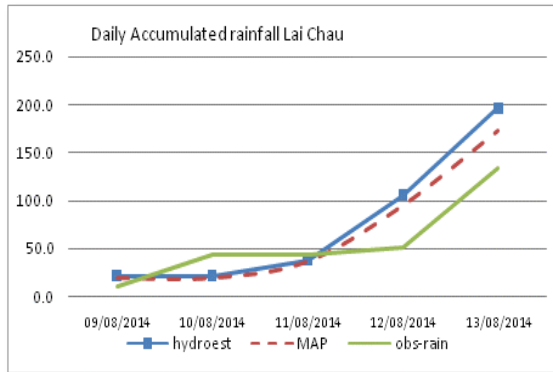


Figure 3.6-3 Accumulated rainfall at Lai Chau station of Lai Chau Province.

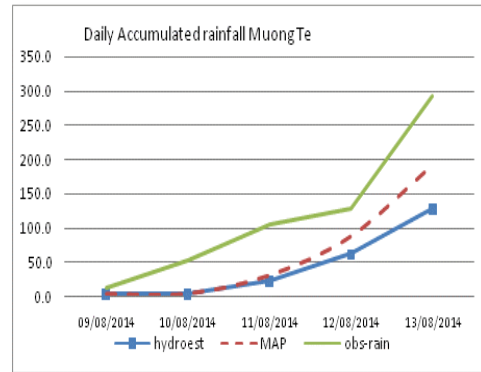


Figure 3.6-4 Accumulated rainfall at Mueng Te station of Lai Chau Province.

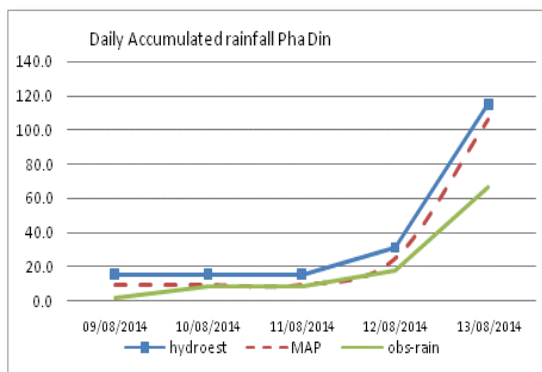


Figure 3.6-5 Accumulated rainfall at Pha Din station of Lai Chau Province.

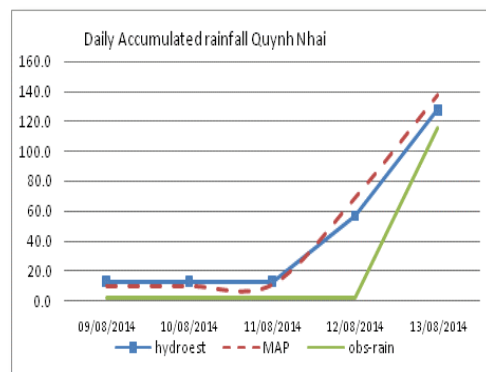


Figure 3.6-6 Accumulated rainfall at Quynh Nhai station of Son La Province.

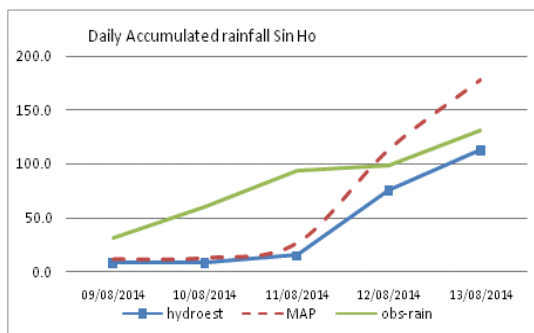


Figure 3.6-7 Accumulated rainfall at Sin Ho station of Lai Chau Province.

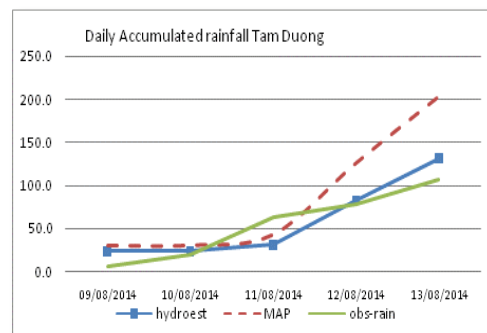


Figure 3.6-8 Accumulated rainfall at Tam Dong station of Lai Chau Province.

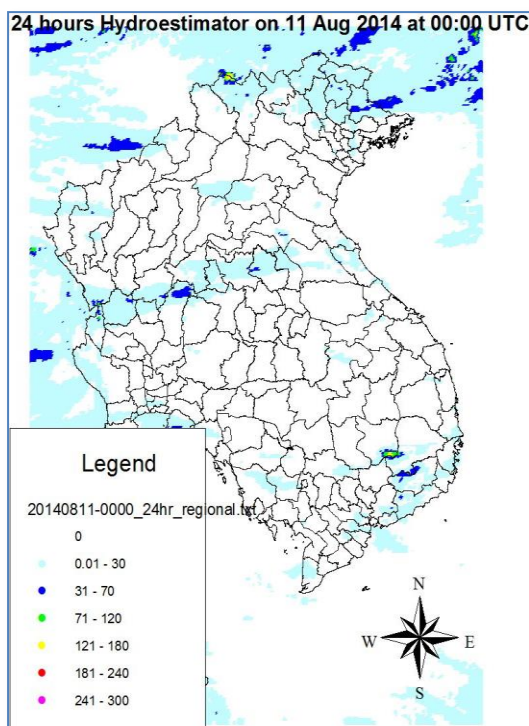


Figure 3.6-9 24 hour accumulated satellite rainfall estimate (Hydroestimator) on 11<sup>th</sup> August 2014 at 00:00 UTC.

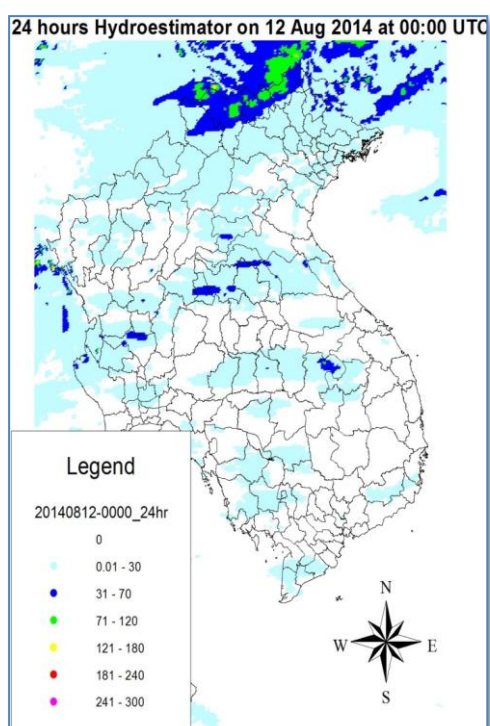


Figure 3.6-10 24 hour accumulated satellite rainfall estimate (Hydroestimator) on 12<sup>th</sup> August 2014 at 00:00 UTC.

### 3.6.3 Flash flooding caused by low pressure in the northern Provinces of Viet Nam

On 11<sup>th</sup> August 2014 at 00:00 UTC the MRC-FFG system detected some flash flood risk areas at Lai Chau Province in the northern part of Viet Nam. Figure 3.6-11 presents the 3 hourly flash flood risk areas in the Lai Chau Province of Viet Nam on 11<sup>th</sup> August 2014 at 00:00 UTC, the high risk areas in Lai Chau Province was Meuang Te, Tam Dong and Phong Tho districts. The FFG detection was verified by the available information from the online newspaper “Viet Nam Plus”, dated 12<sup>th</sup> August 2014 at 05:00 PM, which informed that flash floods occurred at Tam Dong District of Lai Chau Province of Viet Nam in the morning of 12<sup>th</sup> August 2014.

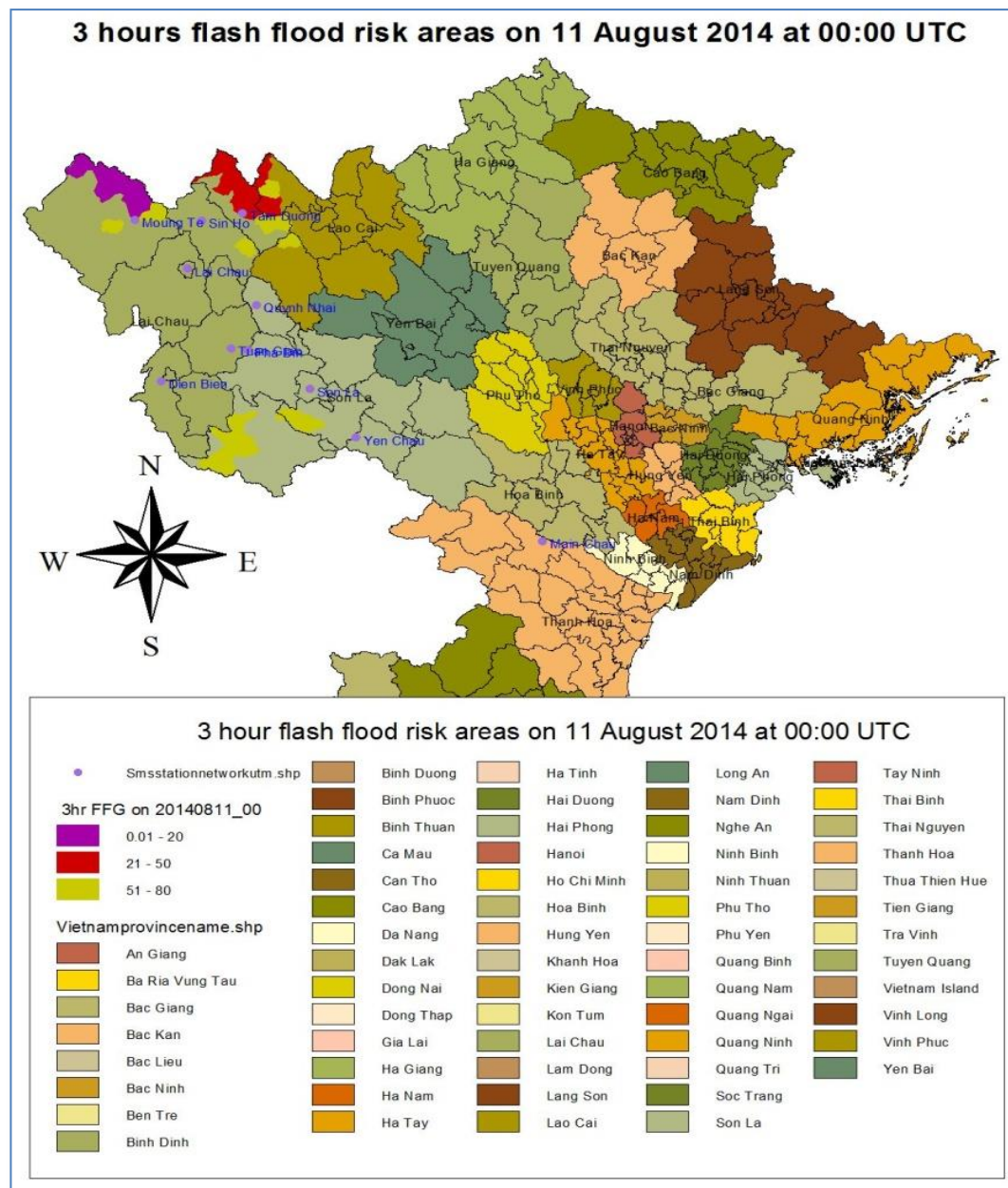


Figure 3.6-11 3 hourly flash flood risk areas, detected by the MRC-FFG system on 11<sup>th</sup> August 2014 at 00:00 UTC.

### 3.6.4 Conclusions

1. During the second week of August 2014 the upper Mekong basin and the northern part of Viet Nam were covered by low pressure cell. During this period some Provinces of the northern part of Viet Nam had heavy rain.
2. The daily rainfall at some hydro-meteorological stations located in the northern Provinces of Viet Nam recorded up to 120 mm.
3. On 11<sup>th</sup> August 2014 at 00:00 UTC the MRC-FFG system detected some flash flood risk areas at Lai Chau Province of northern part of Viet Nam; the high risk areas were identified as Meuung Te, Tam Dong and Phong Tho districts in Lai Chau

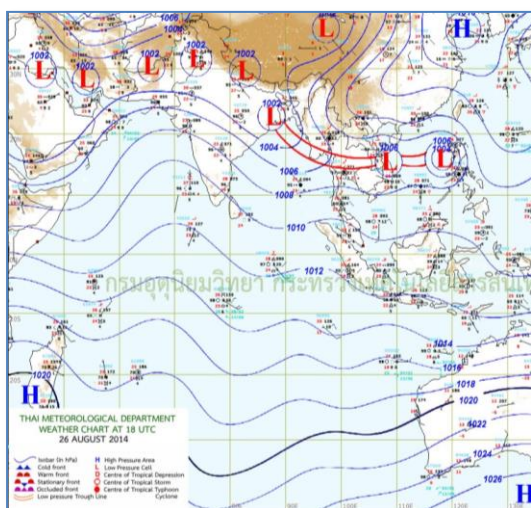
Province. The FFG detection was verified with the available information from the online newspaper “Viet Nam Plus”, which informed that the flash flood occurred at Tam Dong District of Lai Chau Province in Viet Nam in the morning of 12<sup>th</sup> August 2014.

### 3.7 Flash flooding in Thanh Hao Province in Viet Nam, caused by ITCZ on 27<sup>th</sup> - 29<sup>th</sup> August 2014

#### 3.7.1 Weather situation on the last week of August

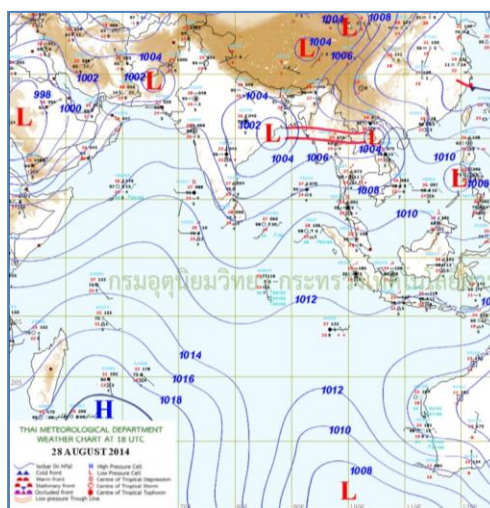
On 27<sup>th</sup> August 2014 at 01:00 AM Local Cambodia Time (LCT), the latitude from 0°N to 28°N and the longitude from 90°E to 125°E, the Inter Tropical Convergence Zone (ITCZ) was positioned across the upper South of Myanmar, the middle of Thailand and Indochina Peninsular while the Southwest monsoon prevails over Myanmar, the Andaman Sea, the Gulf of Thailand, Thailand and Indochina Peninsular (See Figure 3.7-1).

During 27 - 29<sup>th</sup> August, the ITCZ stationary lies across the South of Myanmar, the middle of Thailand and Indochina Peninsular while the active cell low pressure at the end of ITCZ will develop as Tropical Depression. More rain with heavy and very heavy rain will be most likely over Myanmar, Thailand, Lao PDR, the Lower Mekong Basin and Viet Nam (See Figure 3.7-2)



Source: TMD

Figure 3.7-1 Weather chart of the Mekong region during the 27<sup>th</sup> August 2014 at 01:00AM local time.



Source: TMD

Figure 3.7-2 Weather chart of the Mekong region during the 29<sup>th</sup> August 2014 at 01:00AM local time.

#### 3.7.2 Rainfall on the last week of August 2014

On 29<sup>th</sup> and 30<sup>th</sup> August, some Provinces of central-northern part of Viet Nam were covered by heavy rainfall, especially at Than Hao, Hao Binh, Quang Ninh, Hai Phon

Provinces. The heavy rainfall also was observed at some rainfall stations located in Lao PDR. The daily rainfall on 29<sup>th</sup> August 2014 at those above mentioned Provinces reached 180 - 250 mm. Figure 3.7-3 to Figure 3.7-10 present the daily accumulated observed rainfall, MAP and Hydroestimator at some rainfall stations located in Viet Nam and Lao PDR during the last week of August 2014. Figure 3.7-11 and Figure 3.7-12 present the 24 hours accumulated satellite rainfall estimated for 29<sup>th</sup> and 30<sup>th</sup> August 2014.

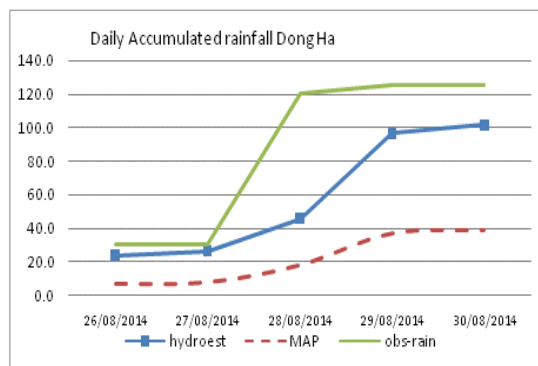


Figure 3.7-3 Accumulated rainfall at Dong Ha station of Quang Tri Province.

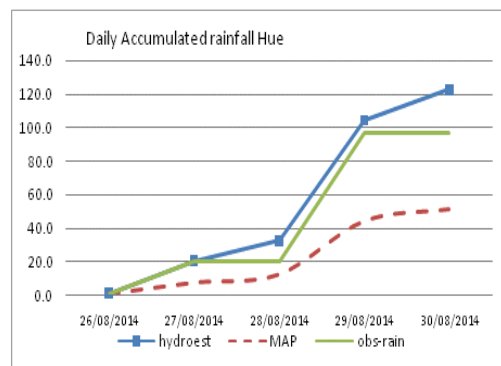


Figure 3.7-4 Accumulated rainfall at Hue station of Thua Thien Hue Province.

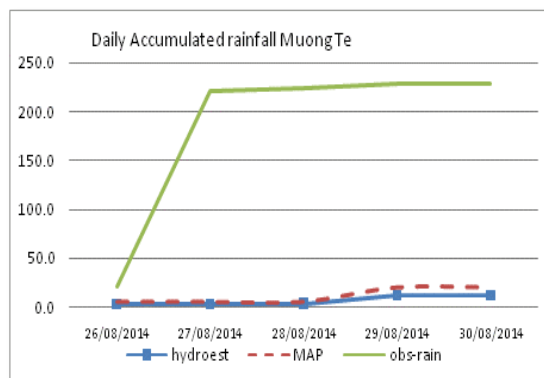


Figure 3.7-5 Accumulated rainfall at Muong Te station of Lai Chau Province.

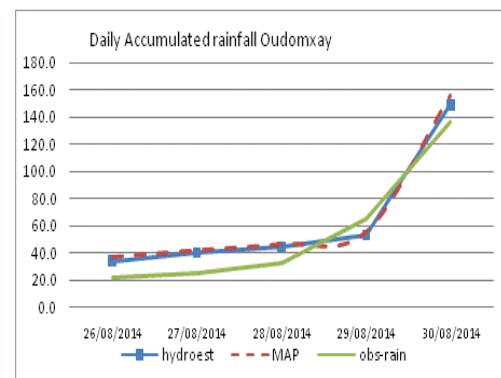


Figure 3.7-6 Accumulated rainfall at Oudomxay station of Oudomxay Province.

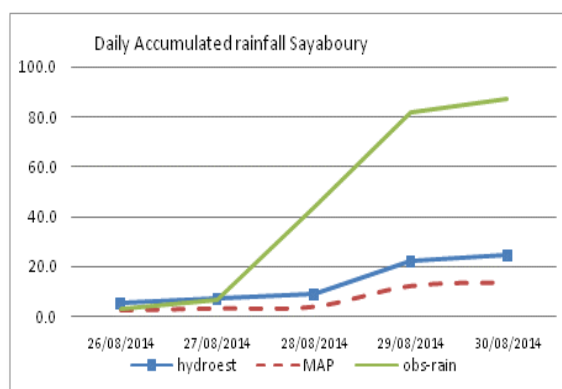


Figure 3.7-7 Accumulated rainfall at Sayaboury station of Xayaboury Province.

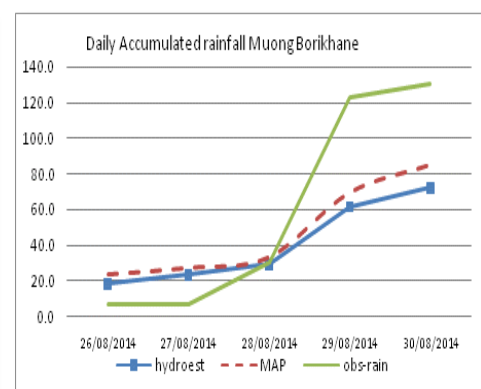


Figure 3.7-8 Accumulated rainfall at Muang Borikhane station of Muang Borikhane Province.

## Bolikhamxay Province.

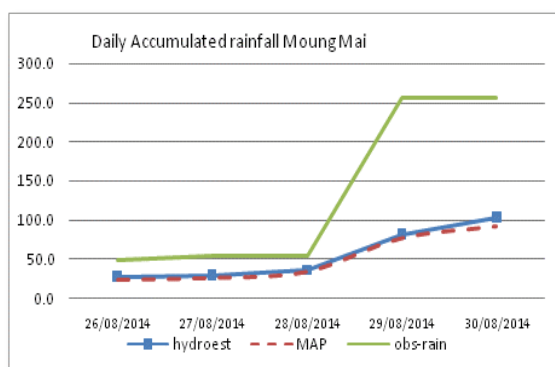


Figure 3.7-9 Accumulated rainfall at Meuang Mai station of Bolikhamxay Province.

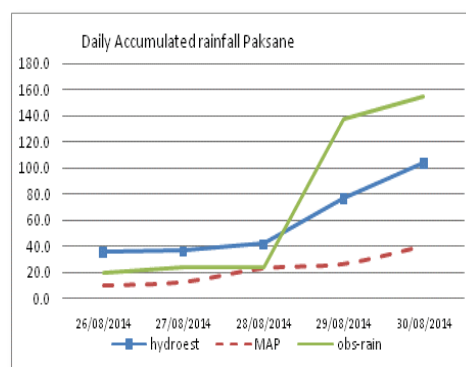


Figure 3.7-10 Accumulated rainfall at Paksane station of Bolikhamxay Province.

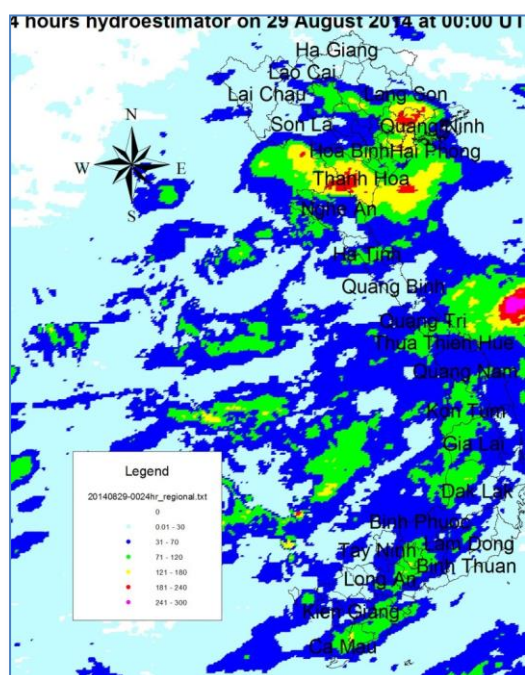


Figure 3.7-11 24 hour accumulated satellite rainfall estimate (Hydroestimator) on 29<sup>th</sup> August 2014 at 00:00 UTC.

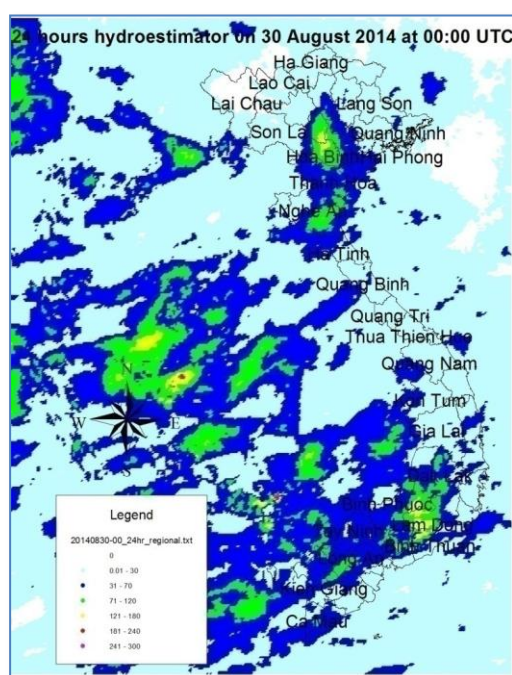


Figure 3.7-12 24 hour accumulated satellite rainfall estimate (Hydroestimator) on 30<sup>th</sup> August 2014 at 00:00 UTC.

### 3.7.3 Flash flooding in Thanh Hao Province of Viet Nam, caused by ITCZ

On 29<sup>th</sup> August 2014 at 00:00 UTC the MRC-FFG system detected some flash flood risk areas at Thanh Hao Province of central-northern part of Viet Nam. Figure 3.7-13 presents the 3 hourly flash flood risk areas in the Thanh Hao Province of Viet Nam on 29<sup>th</sup> August 2014 at 00:00 UTC. Thuong Xuan and Nhu Xuan in Thanh Hao Province were the high risk districts. See Table 3.7-1. This FFG detection was verified with the available information from the online newspaper “Viet Nam Plus”, dated 1<sup>st</sup> September 2014, which informed that the flash flood had occurred at Nhu Thang District of Thanh

Hao Province of Viet Nam on Saturday 30<sup>th</sup> August 2014. There was a little difference between the districts detected by the MRC FFG and the districts that were mentioned by the Viet Nam newspaper. “Viet Nam Plus” referred to Nhu Thang District located downstream of Thuong Xuang District (See Figure 3.7-13).

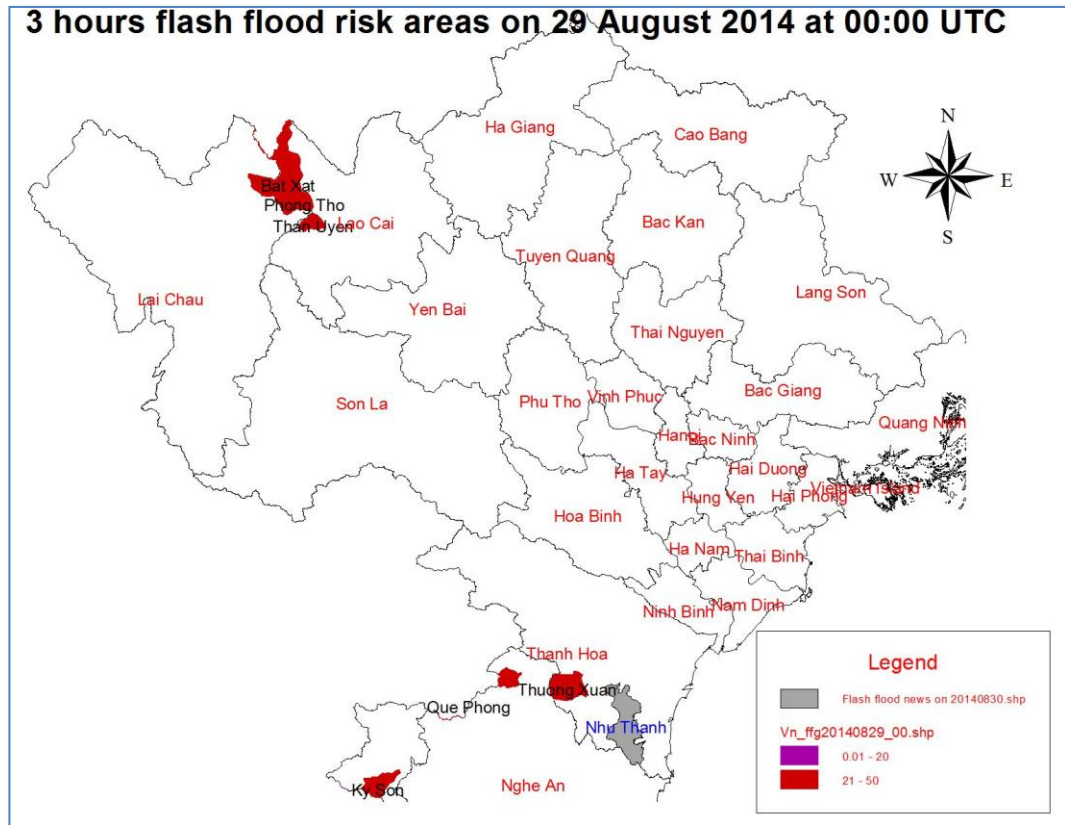


Figure 3.7-13 3 hourly flash flood risk areas in the northern Provinces of Viet Nam on 29<sup>th</sup> August 2014 at 00:00 UTC , compared with location where flash flooding occurred, based on information from “Viet Nam Plus”.

Table 3.7-1 Flash flood risk districts detected by MRC-FFG system on 29<sup>th</sup> August 2014 at 00:00 UTC

Date of FFG products 29/08/2014 00:00 UTC time					
1hour Flash Flood Guidance in Vietnam			3hours Flash Flood Guidance in Vietnam		
Provinces	Districts	FFG value	Provinces	Districts	FFG Value
Lao Cai	Bat Xat	16.03	Lao Cai	Bat Xat	37.46
Lao Cai	Sa Pa	16.40	Lao Cai	Sa Pa	31.77
Lao Cai	Than Uyen	16.40	Lao Cai	Than Uyen	21.28
Lai Chau	Phong Tho	16.03	Lai Chau	Phong Tho	39.07
Hoa Binh	Ky Son	17.48	Hoa Binh	Ky Son	27.36
Nghe An	Tuong Duong	20.36	Thanh Hoa	Thuong Xuan	38.52
Nghe An	Con Cuong	22.00	Thanh Hoa	Nhu Xuan	38.52
Kon Tum	Sa Thay	15.72	Nghe An	Que Phong	39.03
Gia Lai	Chu Pah	16.72	Nghe An	Quy Chau	38.52
Gia Lai	Ia Grai	17.56	Nghe An	Tuong Duong	30.12
Dak Lak	Dak R'Lap	22.11	Nghe An	Con Cuong	30.15
Dak Lak	Dak Nong	21.27	Kon Tum	Dak Glei	37.62
Lam Dong	Bao Lam	22.11	Kon Tum	Ngoc Hoi	36.12
Binh Thuan	Ham Thuan Nam	23.83	Kon Tum	Sa Thay	31.93
Binh Thuan	Tanh Linh	23.83	Gia Lai	Chu Pah	24.08
			Gia Lai	Ia Grai	25.16
			Dak Lak	Dak R'Lap	33.08
			Dak Lak	Dak Nong	27.62
			Lam Dong	Bao Lam	34.68
			Binh Phuoc	Bu Dang	37.70
			Binh Thuan	Ham Thuan Nam	31.58
			Binh Thuan	Tanh Linh	31.58

### 3.7.4 Flash flooding in Xayaboury Province of Lao PDR on 29<sup>th</sup> August 2014

On 29<sup>th</sup> August 2014 at 00:00 UTC the MRC-FFG system detected some flash flood risk areas at Xayaboury Province of northern part of Lao PDR. Figure 3.7-14 presents the 3 hourly flash flood risk areas in the Xayaboury, Xiengkhuang, Bolikhamxay, Huaphan Provinces of Lao PDR on 29<sup>th</sup> August 2014 at 00:00 UTC. The FFG detection was verified with the available information from the online newspaper “Vientiane Times”, which informed that some districts of Xayaboury Province, such as Ngeun, Hongsa districts were flooded on 29<sup>th</sup> August 2014 due to heavy rainfall. Those districts were detected as the high risk areas for the flash flood occurrence on 29<sup>th</sup> August 2014 at 00:00 UTC.

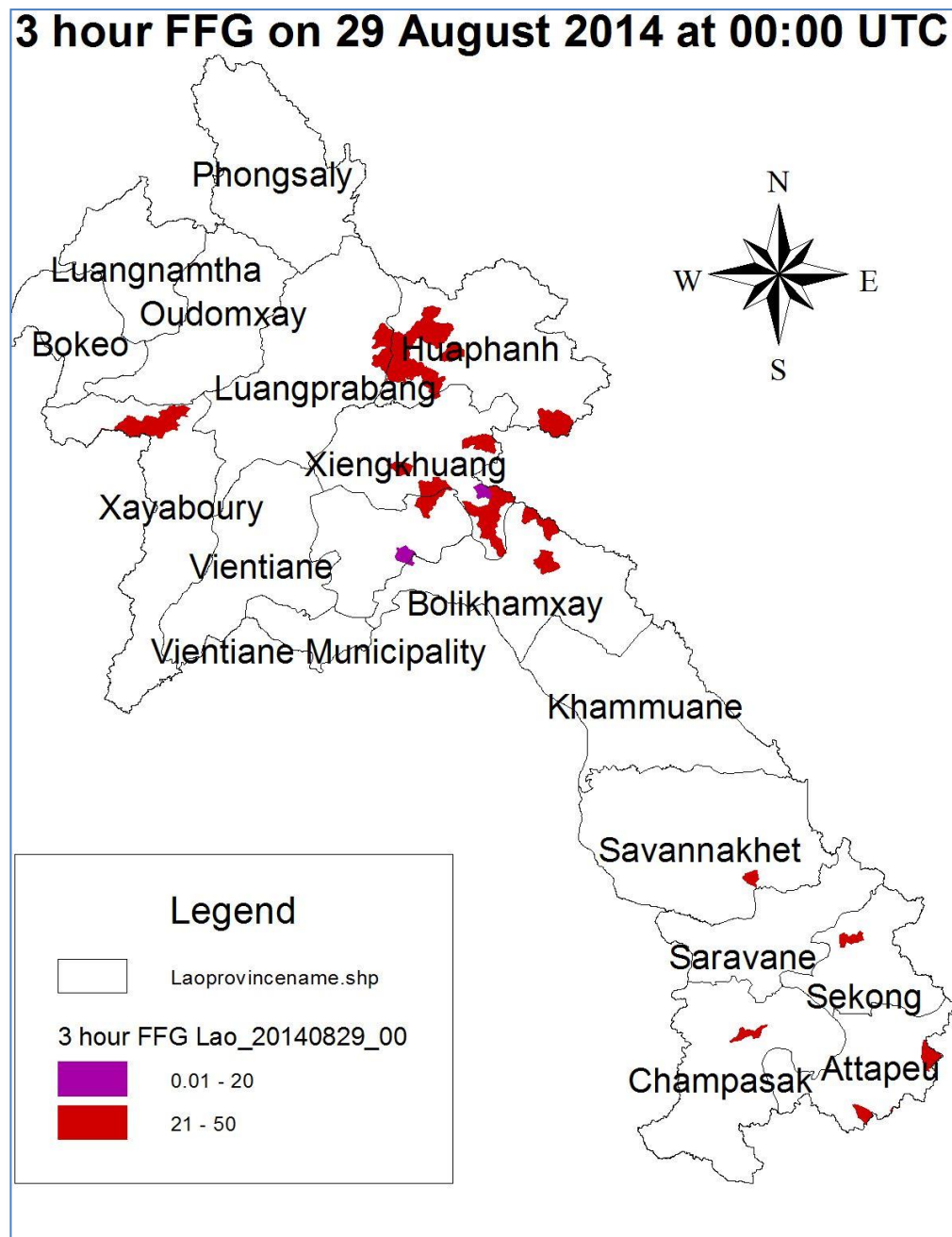


Figure 3.7-14 3 hour FFG detection in Lao PDR on 29<sup>th</sup> August 2014 at 00:00 UTC.

### 3.7.5 Rising water level at some hydrological stations of Mekong River mainstream

Due to the flash flood in the Xayaboury Province the water levels at many hydrological stations from Pak Beng to Paklay remarkably increased. The water level at all of the above mentioned stations started to rise from the evening of 29<sup>th</sup> August 2014. Figure 3.7-15 to Figure 3.7-17 present the hydrograph of some monitoring stations along the Mekong mainstream.

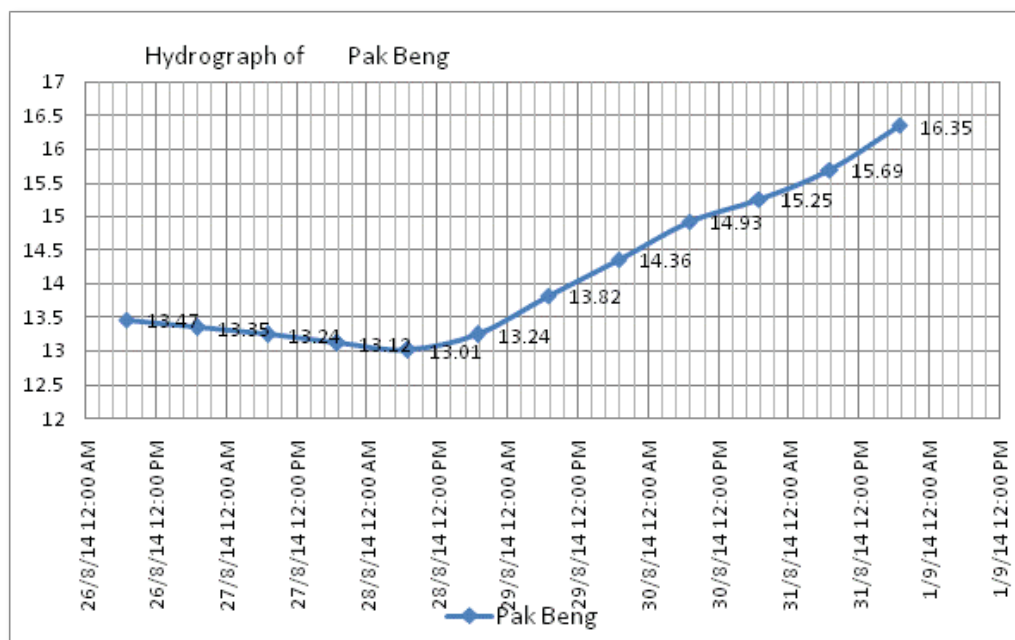


Figure 3.7-15 Hydrograph of Mekong mainstream at Pak Beng station during the last week of August 2014.

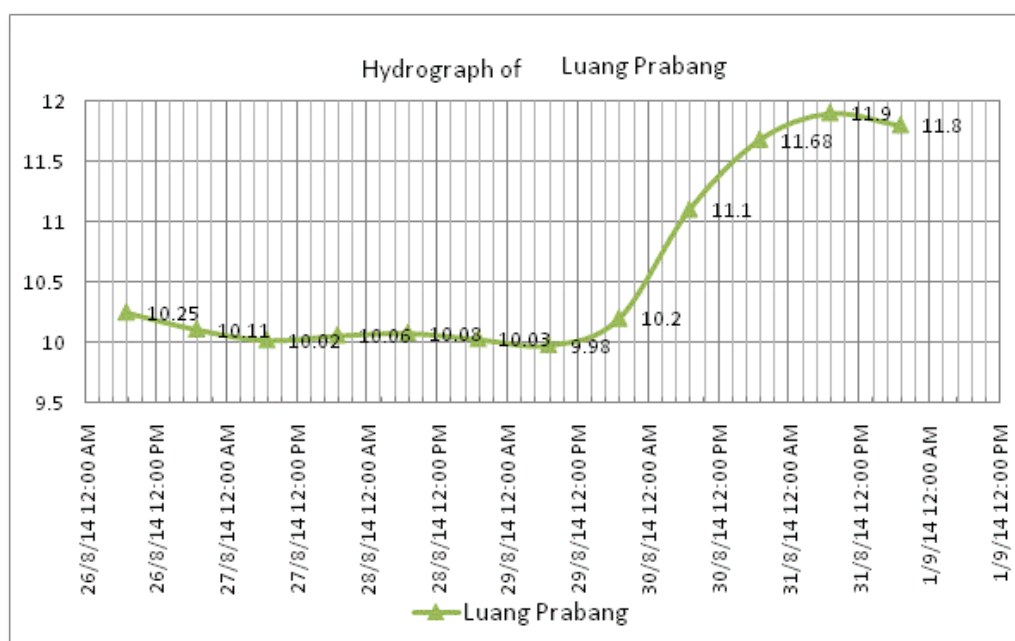


Figure 3.7-16 Hydrograph of Mekong mainstream at Luang Prabang station during the last week of August 2014.

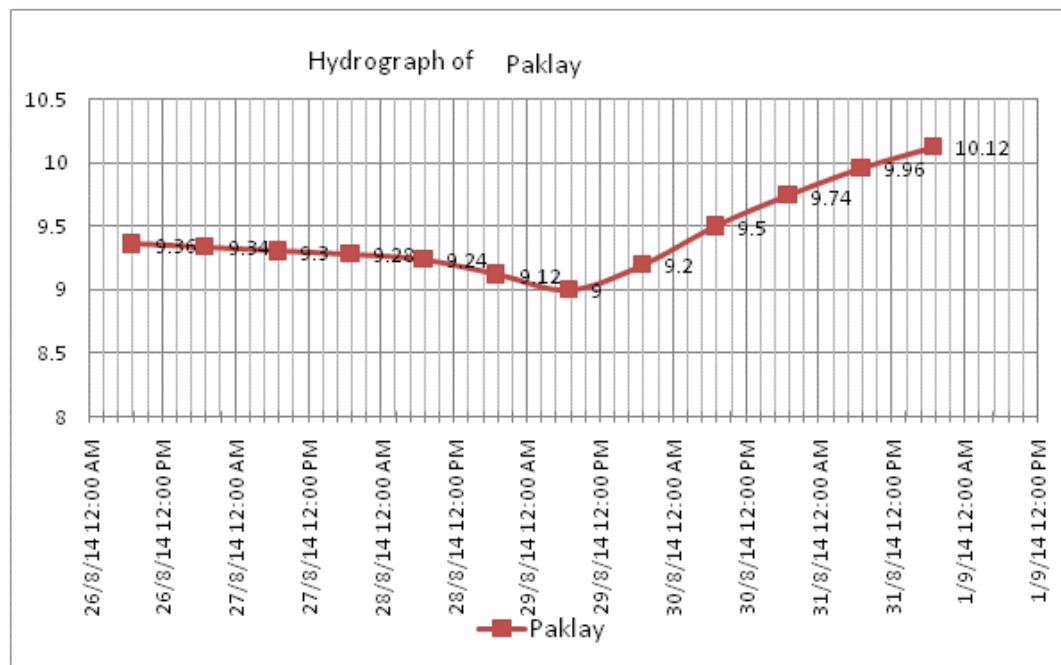


Figure 3.7-17 Hydrograph of Mekong mainstream at Paklay station during the last week of August 2014.

### 3.7.6 Conclusions

1. During 27<sup>th</sup> - 29<sup>th</sup> August, the ITCZ stationary was positioned across the South of Myanmar, the middle of Thailand and Indochina Peninsular while the active cell low pressure at the end of ITCZ developed as Tropical Depression. More rain with heavy and very heavy rainfall fell most likely over Thailand, Lao PDR, the lower Mekong Basin and Viet Nam.
2. On 29<sup>th</sup> and 30<sup>th</sup> August some Provinces of central-northern part of Viet Nam were covered by heavy rainfall, especially at Thanh Hao, Hao Binh, Quang Ninh, Hai Phong Provinces. The heavy rainfall also was observed at some rainfall stations located in Lao PDR. The daily rainfall on 29<sup>th</sup> August 2014 at those above mentioned Provinces reached 180-250 mm.
3. On 29<sup>th</sup> August 2014 at 00:00 UTC the MRC-FFG system detected some flash flood risk areas at Thanh Hao Province of central-northern part of Viet Nam. This FFG detection was verified by the available information from the online newspaper Viet Nam plus, which informed that flash floods occurred at Nhu Thang District of Thanh Hao Province of Viet Nam on Saturday 30<sup>th</sup> August 2014.
4. On 29<sup>th</sup> August 2014 at 00:00 UTC the MRC-FFG system detected some flash flood risk areas at Xayaboury Province of northern part of Lao PDR. This FFG detection was verified by the available information from the online newspaper Vientiane Times, which informed that some districts of Xayaboury Province such as Ngeun, Hongsa districts was flooded on 29<sup>th</sup> August 2014. It caused by the heavy rainfall.

### 3.8 Flash flooding in the northern Provinces of Viet Nam, caused by typhoon storm KALMAEGI

#### 3.8.1 Tropical storm KALMAEGI

At 01:00 AM on 11<sup>th</sup> September 2014 at the middle of the Pacific Ocean, tropical depression KALMAEGI developed and started to move in westerly direction. Figure 3.8-1 presents the position of the tropical depression at the middle of the Pacific Ocean. During the evening of Sunday 14<sup>th</sup> September 2014, the tropical storm KALMAEGI made the first landfall at the northern part of the Philippines. Then it continued to the west across the East Sea, and made the second landfall at the Chinese Island on the morning of 16<sup>th</sup> September. It made the last landfall at the northern Provinces of Viet Nam on the evening of 16<sup>th</sup> September 2014. See Figure 3.8-2. On the 18<sup>th</sup> September 2014 at 01:00 AM the tropical storm KALMAEGI transformed to a depression cell over the northern part of Lao PDR and Viet Nam. See Figure 3.8-3. During this period the northern Provinces of Lao PDR and Viet Nam were covered by heavy rainfall.

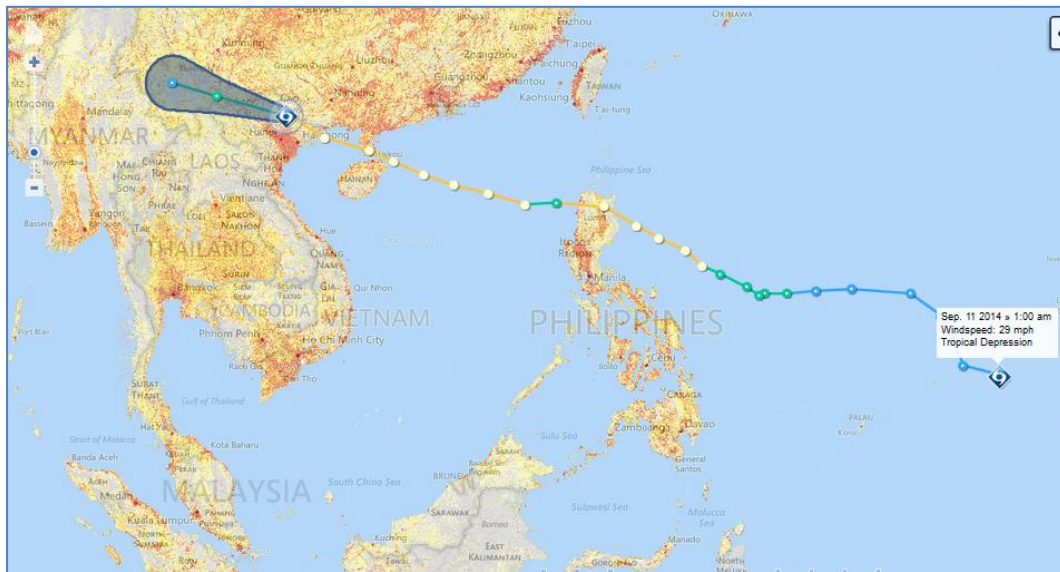


Figure 3.8-1 On 11<sup>th</sup> September 2014 at 01:00 AM at the middle of the Pacific Ocean, the tropical depression KALMAEGI was formed and started moving to the west.

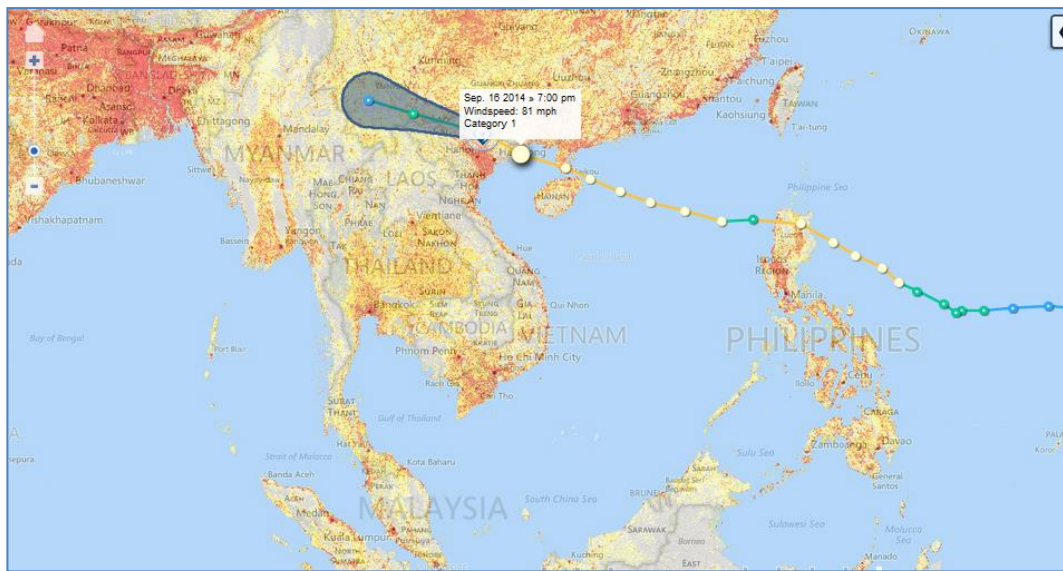


Figure 3.8-2 On 16<sup>th</sup> September 2014 at 07:00 PM, tropical storm KALMAEGI made the last landfall at the coastal areas northern part of Viet Nam.

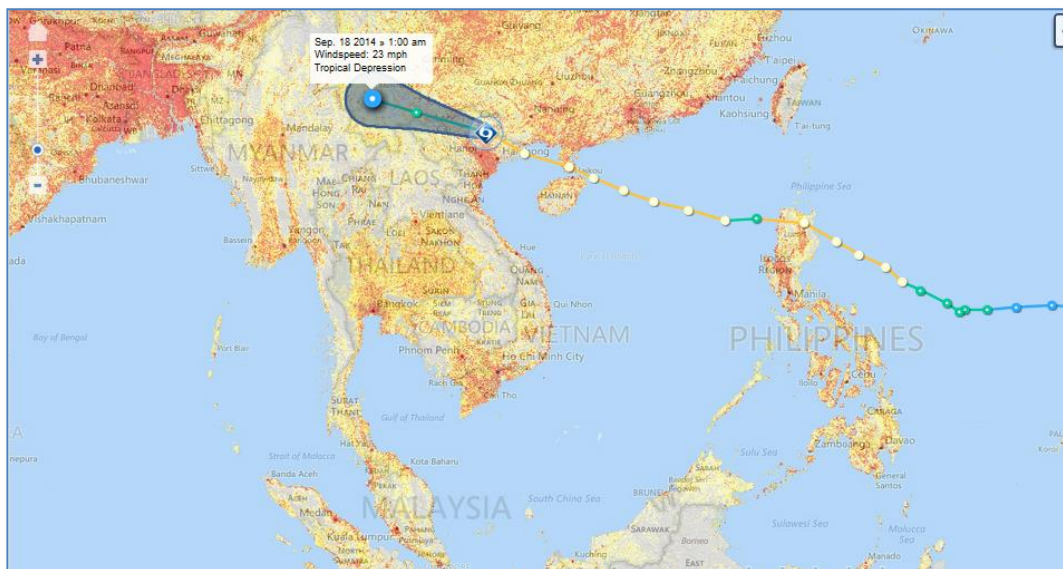


Figure 3.8-3 On 18<sup>th</sup> September 2014 at 01:00 AM tropical storm KALMAEGI was transformed into a depression cell over the northern part of Viet Nam, Lao PDR and Thailand.

### 3.8.2 Heavy rainfall at the northern part of Viet Nam and Lao PDR during tropical storm KALMAEGI

From 17<sup>th</sup> to 18<sup>th</sup> September TS KALMAEGI made a landfall at the northern Provinces of Viet Nam and moved across the northern part of Viet Nam to the northern part of Lao PDR, where it transformed into a depression cell. Heavy rainfall occurred at some areas of the northern Provinces of Viet Nam and also at some areas of central and northern Provinces of Lao PDR. The daily rainfall at some hydro-meteorological stations of those above mentioned areas reached almost 100-150 mm. Figure 3.8-4 to Figure 3.8-11 present the records of daily rainfall (daily rainfall defined as the 24 hour accumulated rainfall from 07:00 AM on the previous day to 07:00 AM at the reported day) of central

and northern Provinces of Lao PDR. Figure 3.8-12 and Figure 3.8-13 present the satellite rainfall estimated during the 17<sup>th</sup> and 18<sup>th</sup> September 2014.

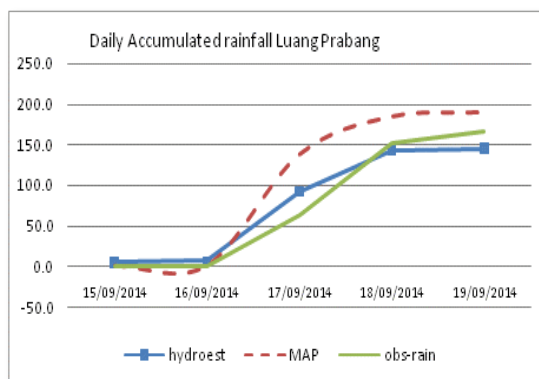


Figure 3.8-4 Accumulated rainfall at Luang Prabang station of Luang Prabang Province.

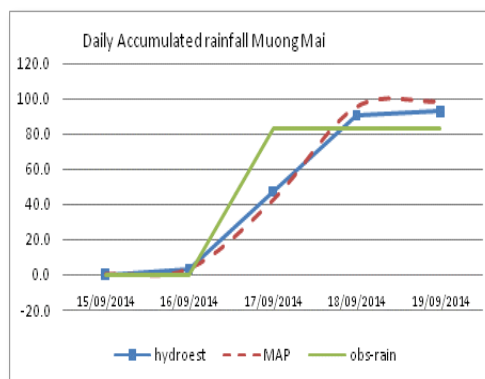


Figure 3.8-5 Accumulated rainfall at Muong Mai station of Borikhamxay Province.

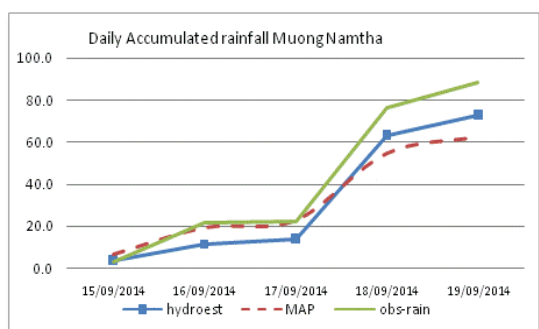


Figure 3.8-6 Accumulated rainfall at Muong Namtha station of Luang Namtha Province.

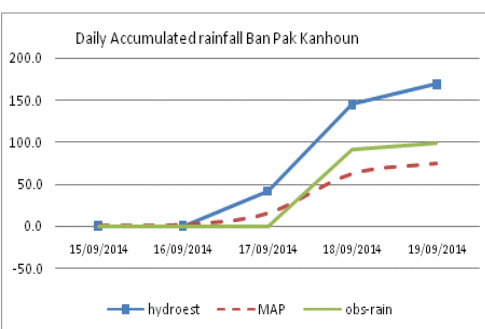


Figure 3.8-7 Accumulated rainfall at Ban Pak Kanhoun station of Vientiane Province.

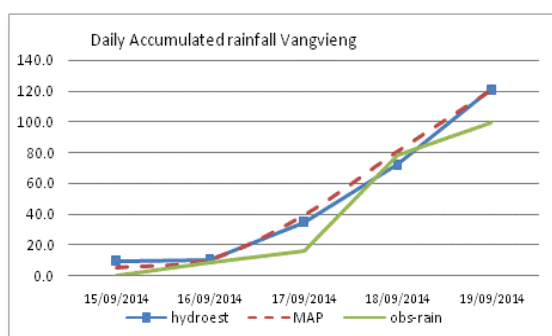


Figure 3.8-8 Accumulated rainfall at Vangvieng station of Vientiane Province.

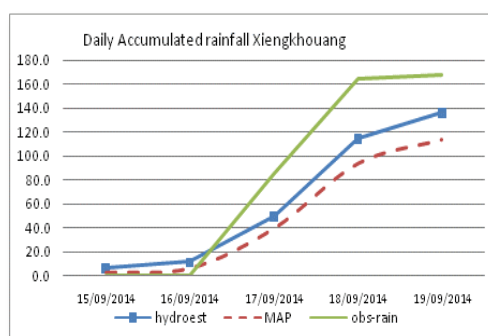


Figure 3.8-9 Accumulated rainfall at Xiengkhouang station of Xiengkhouang Province.

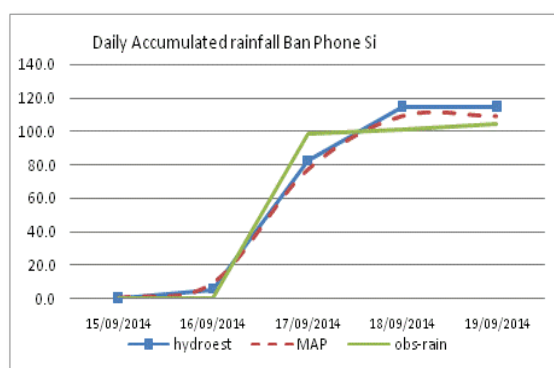


Figure 3.8-10 Accumulated rainfall at Ban Phonesi station of Borikhamxay Province.

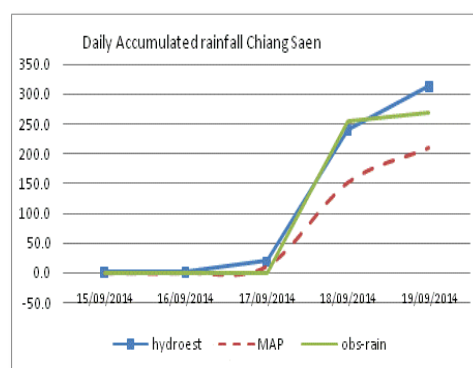


Figure 3.8-11 Accumulated rainfall at Chiang Saen station of Chiang Rai Province.

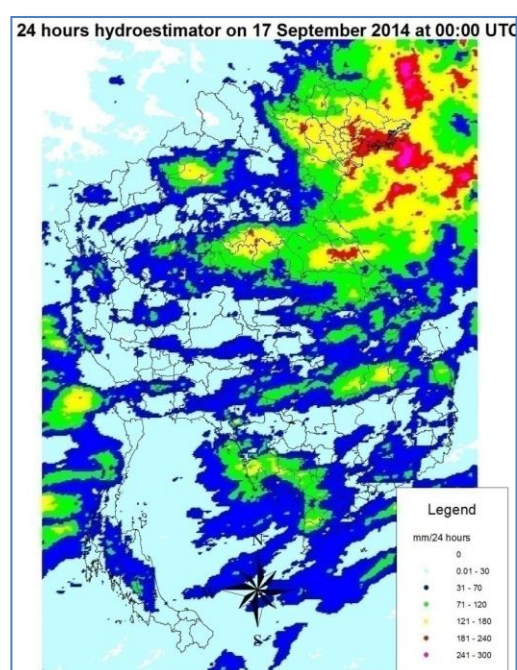


Figure 3.8-12 24 hour accumulated satellite rainfall estimate (Hydroestimator) on 17<sup>th</sup> September 2014 at 00:00 UTC.

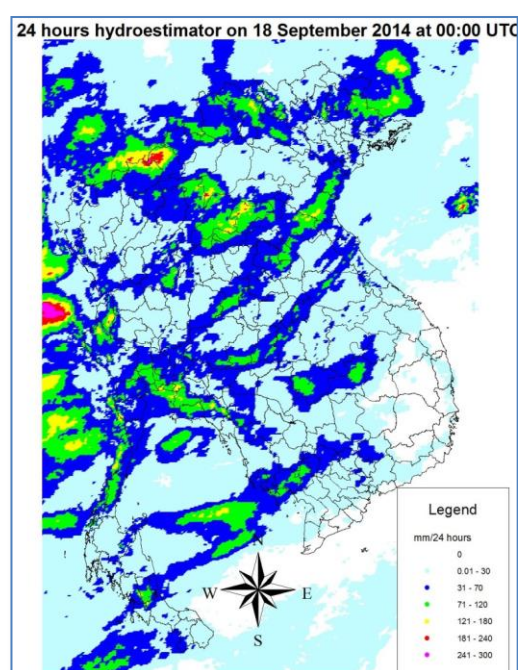


Figure 3.8-13 24 hour accumulated satellite rainfall estimate (Hydroestimator) on 18<sup>th</sup> September 2014 at 00:00 UTC.

### 3.8.3 Flash flooding in the northern Provinces of Viet Nam, caused by TS KALMAEGI

From 16<sup>th</sup> September to 17<sup>th</sup> September 2014 the MRC-FFG system detected various districts in the northern Provinces of Viet Nam, such as Ha Giang, Lao Cai, Lai Chau, Cao Bang, Bac Kan, Quang Nam, were at the risk of flash flood occurrence. Figure 3.8-14 presents the flash flood risk areas on 17<sup>th</sup> September 2014 at 00:00 UTC. The information on the flash flood risk areas detected by the MRC-FFG system on 17<sup>th</sup> September 2014 at 00:00 UTC was confirmed by the information published in Viet Nam newspaper “Viet Nam News”, dated 18<sup>th</sup> and 19<sup>th</sup> September. This information provided in Annex 8 of this report.

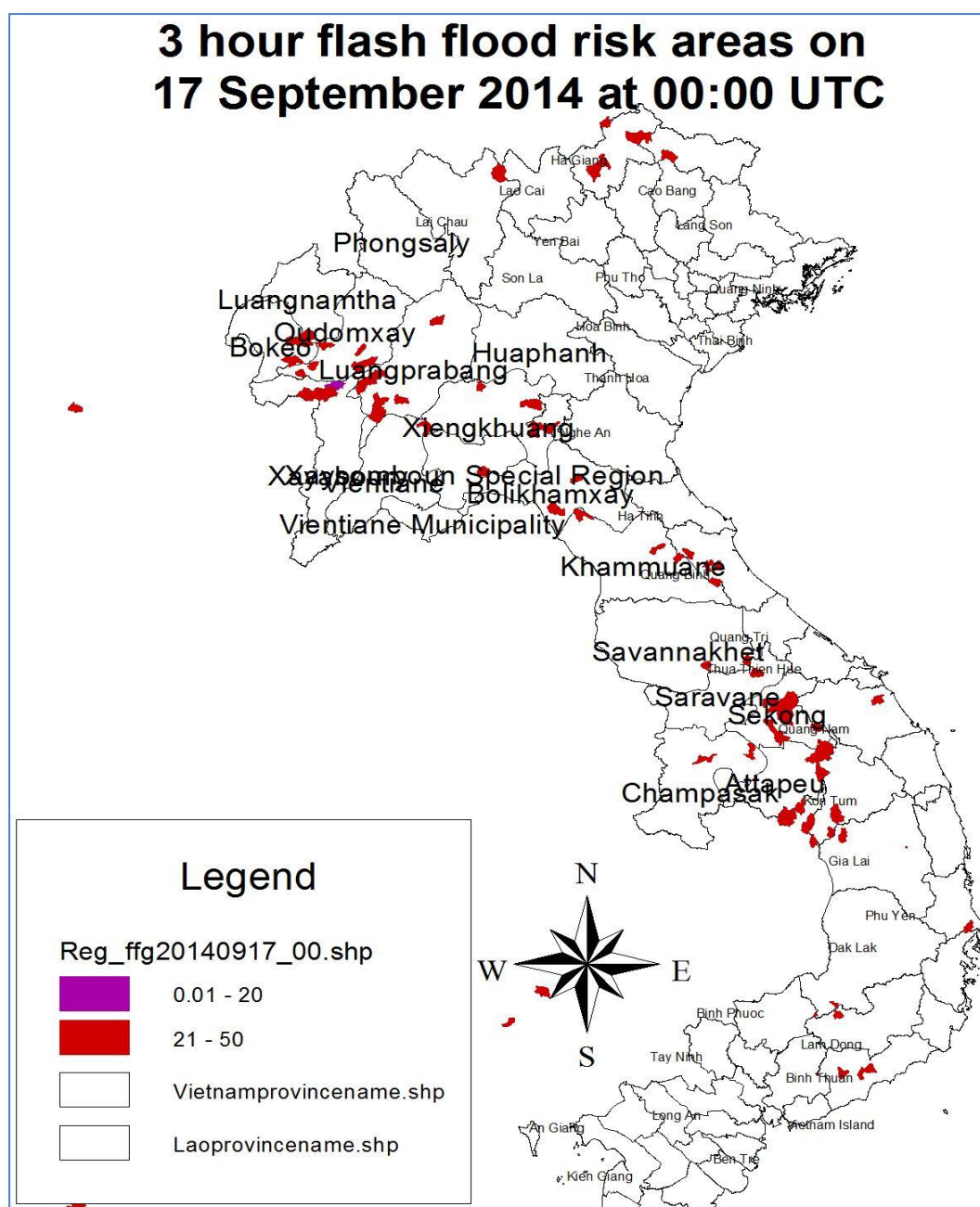


Figure 3.8-14 3 hour flash flood risk areas on 17<sup>th</sup> September 2014 at 00:00 UTC.

### 3.8.4 Flash flooding to the northern and central Provinces of Lao PDR, caused by tropical storm KALMAEGI

During the same period the MRC-FFG system detected that some villages of northern and central Provinces, such as Luang Prabang, Luang Namtha, Oudomxay, Bokeo, Xayaboury, Khammouane, Bolikhamxay of Lao PDR, were exposed to flash flood risk. See Figure 3.8-14. The information on the flash flood risk areas detected by the MRC-FFG system on 17<sup>th</sup> September 2014 at 00:00 UTC in Lao PDR was confirmed by the newspaper “Vientiane Times”, dated 19<sup>th</sup> September 2014, which informed that Luang Prabang was flooded at noon of 17<sup>th</sup> September 2014 by heavy rain from the depression of TS KAMAEGI. This information provided in Annex 8 of this report.

### 3.8.5 Impact tropical storm KALMAEGI to the flow regime of some tributaries in the Mekong River Basin

From 17<sup>th</sup> to 18<sup>th</sup> September 2014, TS KALMAEGI was active in the region and transformed into a low pressure cell, causing heavy rainfall at some areas in central and northern parts of Lao PDR. Increased rainfall in a number of sub-catchments of Mekong Basin affected the flow regime of some tributaries of the Mekong River, such as Nam Kading, Nam Ngum, Nam Sane, Nam Khan, Nam Ngiep; water level at hydrological stations of those rivers increased from 5 to 6 m within 12 hours to one day. Figure 3.8-15 to Figure 3.8-20 present the hydrograph of hydrological stations located at northern and central part of Lao PDR.

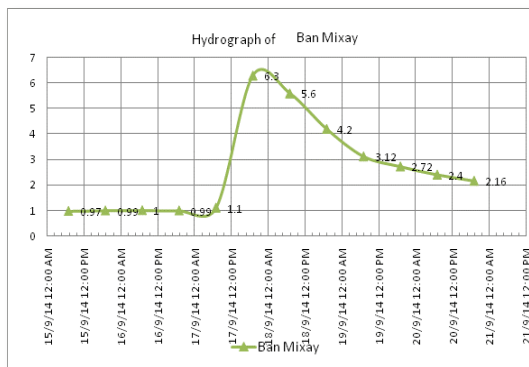


Figure 3.8-15 Hydrograph of Nam Khan River at Ban Mixay station during TS KALMAEGI.

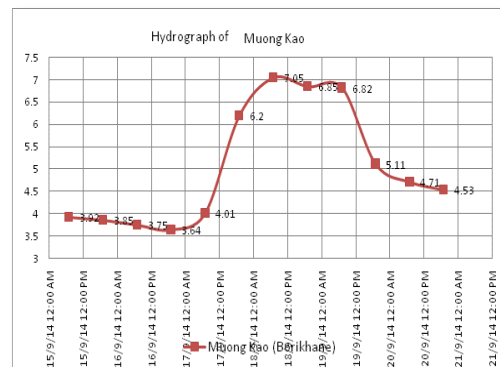


Figure 3.8-16 Hydrograph of Nam Sane River at Muong Kao station during TS KALMAEGI.

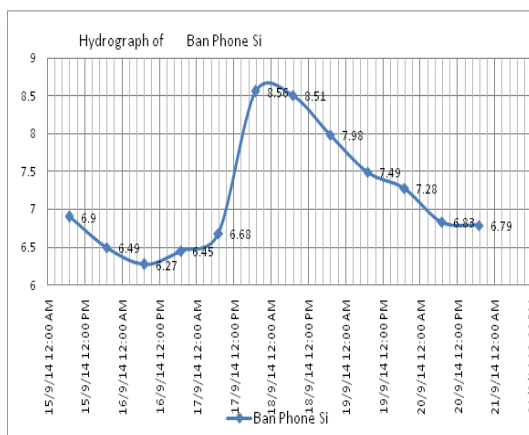


Figure 3.8-17 Hydrograph of Nam Kading River at Ban Phonesi station during TS KALMAEGI.

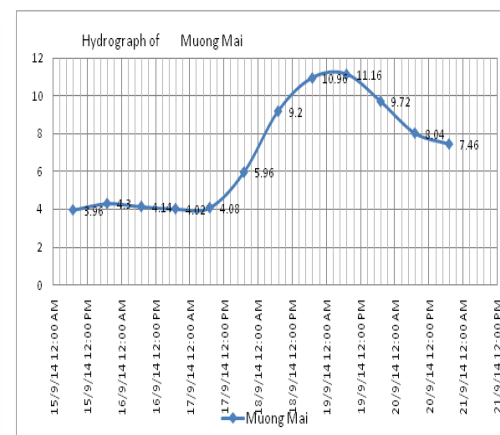


Figure 3.8-18 Hydrograph of Nam Ngiep River at Muong Mai station during TS KALMAEGI.

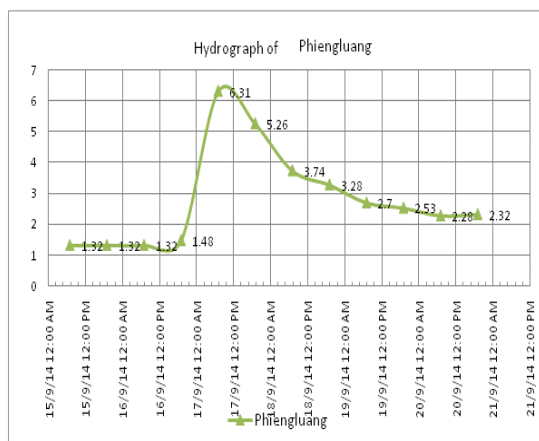


Figure 3.8-19 Hydrograph of Nam Ngum River at Phiangluang station during TS KALMAEGI

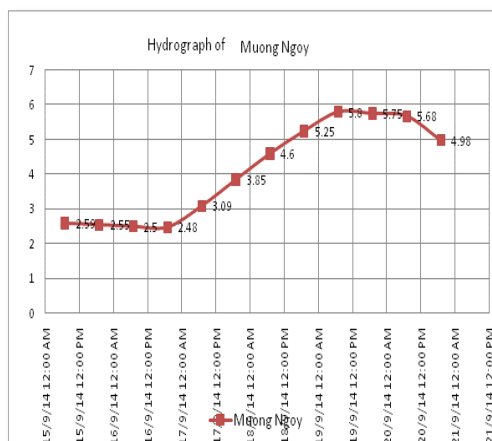


Figure 3.8-20 Hydrograph of Nam OU River at Muong Ngoy station during TS KALMAEGI.

### 3.8.6 Impacts by tropical storm KALMAEGI to the water levels in the Mekong River mainstream

Quick rising water levels in tributaries of northern and central parts of Lao PDR led to increasing water levels in the Mekong mainstream in some monitoring stations from Luang Prabang to Paksane. For those monitoring stations mentioned above, water levels increased and reached a peak level at 23<sup>rd</sup> to 25<sup>th</sup> September 2014 (23<sup>rd</sup> September for Luang Prabang station), which was the highest and last peak level of the flood season 2014. Figure 3.8-21 and Figure 3.8-25 present the hydrographs of monitoring stations along the Mekong mainstream from Luang Prabang to Paksane.

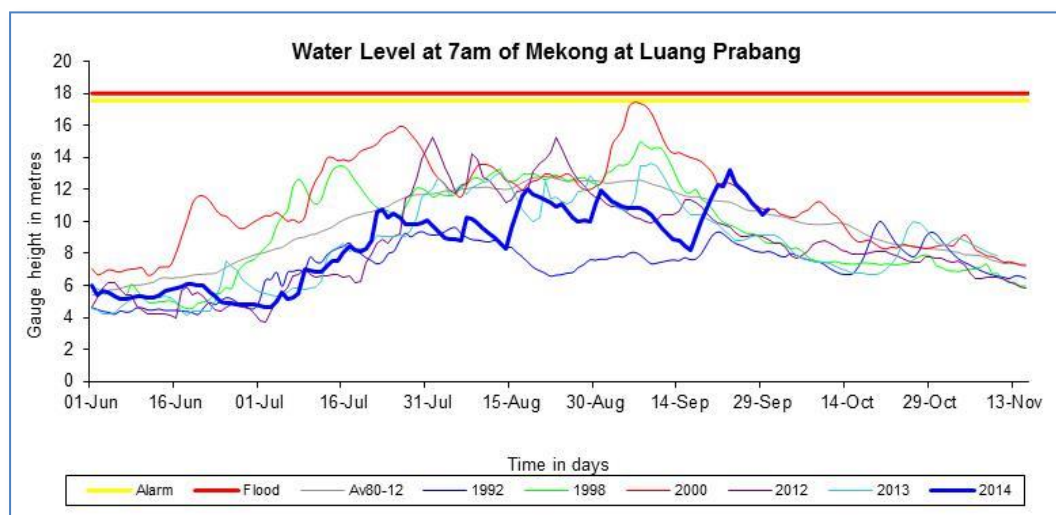


Figure 3.8-21 Hydrograph of Mekong River at Luang Prabang station, where water levels rose due to TS KALMAEGI

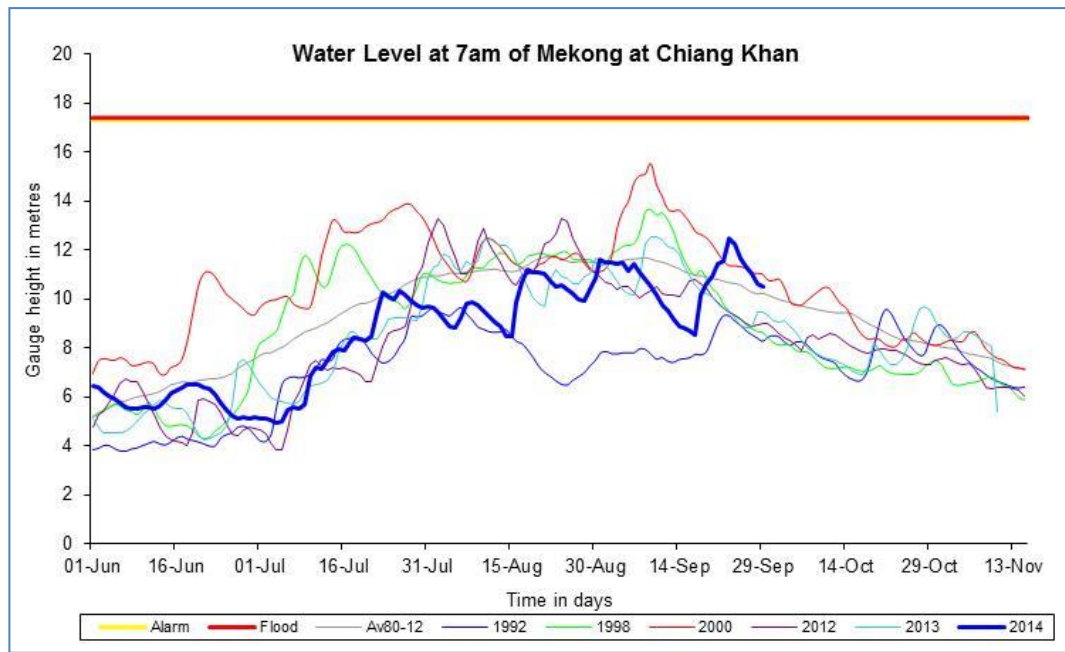


Figure 3.8-22 Hydrograph of Mekong River at Chiang Khan station, where water levels rose due to TS KALMAEGI.

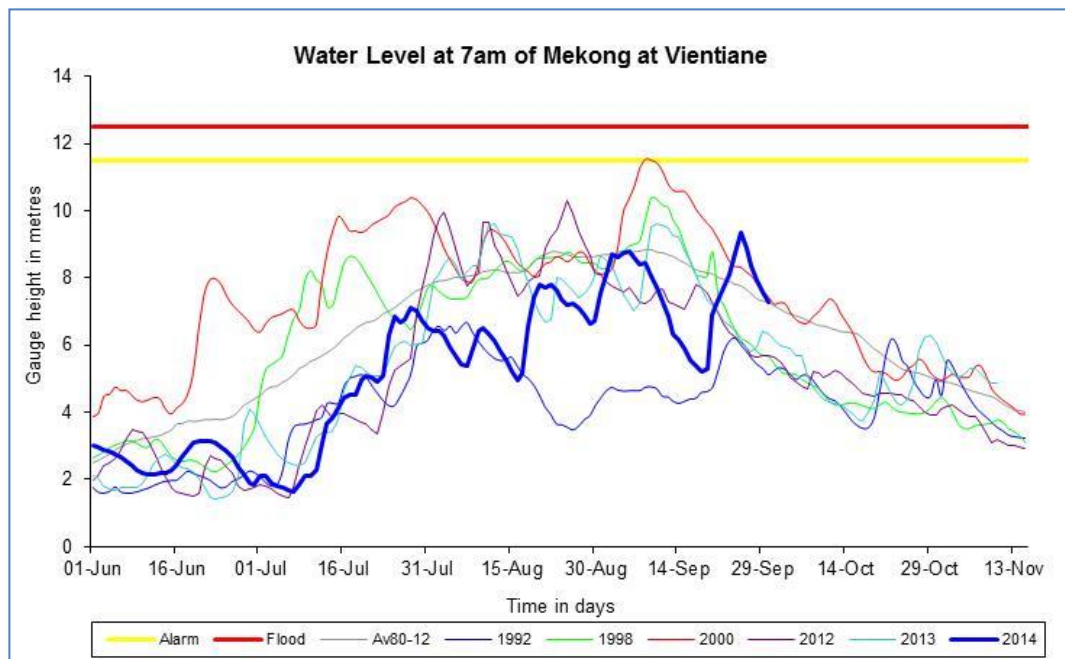


Figure 3.8-23 Hydrograph of Mekong River at Vientiane station, where water levels rose due to TS KALMAEGI.

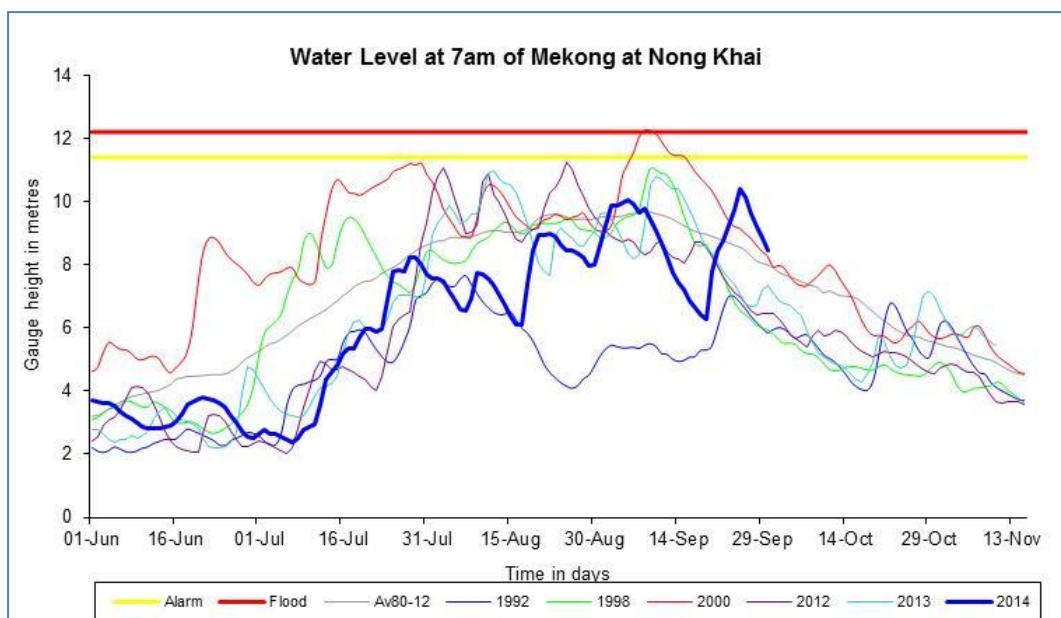


Figure 3.8-24 Hydrograph of Mekong River at Nong Khai station, where water levels rose due to TS KALMAEGI.

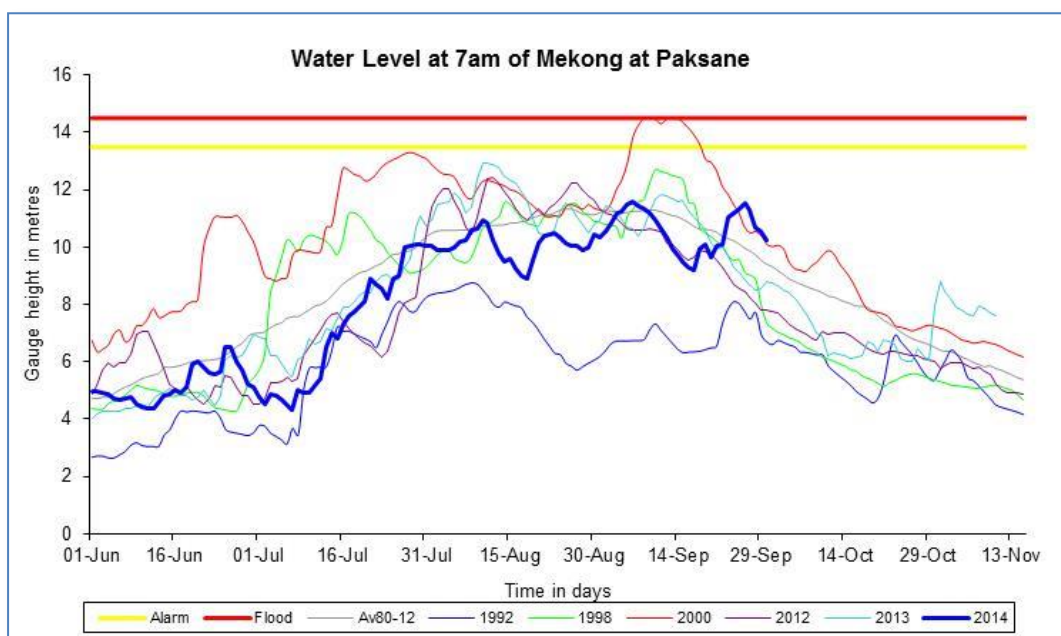


Figure 3.8-25 Hydrograph of Mekong River at Paksane station, where water levels rose due to TS KALMAEGI.

### 3.8.7 Conclusions

1. In the evening of 16<sup>th</sup> September 2014 Tropical storm KALMAEGI made the last landfall at the northern Provinces of Viet Nam. On 18<sup>th</sup> September 2014 at 01:00 AM the tropical storm KALMAEGI transformed into a depression cell over the northern part of Lao PDR and Viet Nam. During this period the northern Provinces of Lao PDR and Viet Nam were covered by heavy rainfall.

2. From 17<sup>th</sup> to 18<sup>th</sup> September 2014 heavy rainfall occurred at some areas of the northern Provinces of Viet Nam, as well as at some areas of central and northern Provinces of Lao PDR. The daily rainfall at some hydro-meteorological stations of those above mentioned areas almost reached 100 - 150 mm.
3. From 16<sup>th</sup> to 17<sup>th</sup> September 2014 the MRC-FFG system detected that various districts of the northern Provinces of Viet Nam, such as Ha Giang, Lao Cai, Lai Chau, Cao Bang, Bac Kan and Quang Nam, were at risk of flash flood occurrence. The information on the flash flood risk areas detected by the MRC-FFG system on 17<sup>th</sup> September 2014 at 00:00 UTC was confirmed by the Viet Nam newspaper "Viet Nam News", dated 18<sup>th</sup> and 19<sup>th</sup> September 2014.
4. At the same period the MRC-FFG system detected that some villages of northern and central Provinces, such as Luang Prabang, Luang Namtha, Oudomxay, Bokeo, Xayaboury, Khammouane, Bolikhamxay of Lao PDR were exposed to flash flood risk. The information on the flash flood risk areas, detected by the MRC-FFG system on 17<sup>th</sup> September 2014 at 00:00 UTC in Lao PDR, was confirmed by the newspaper "Vientiane Times", dated 19<sup>th</sup> September 2014.
5. Increased of rainfall at some sub catchments of the Mekong Basin affected the flow regime of some tributaries of Mekong River, such as Nam Kading, Nam Ngum, Nam Sane, Nam Khan, and Nam Ngiep. Water levels at hydrological stations of those rivers increased 5 to 6 m within 12 hours or one day.
6. Quick rising water levels in tributaries of northern and central parts of Lao PDR also led to an increase of water levels of Mekong Mainstream in monitoring stations from Luang Prabang to Paksane. For those above mentioned monitoring stations, the water level continued to increase up to the peak level on 23<sup>rd</sup> to 25<sup>th</sup> September 2014.

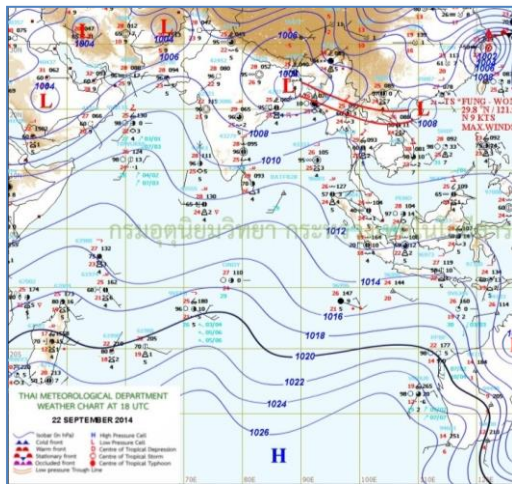
### **3.9 Flash flooding in the northern Provinces of Lao PDR, caused by ITCZ during the last week of September 2014**

#### **3.9.1 Weather condition during the last week of September**

On 23<sup>rd</sup> September 2014 at 01.00 AM Local Cambodia Time (LCT), the latitude from 0°N to 28°N and the longitude from 90°E to 125°E, the Inter Tropical Convergence Zone (ITCZ) was located across the middle Myanmar, the North and the Northeast of Thailand, the lower North of Lao PDR and Viet Nam, while the weak Southwest monsoon prevailed over Myanmar, the Andaman Sea, the Gulf of Thailand, Thailand and Indochina Peninsular. See Figure 3.9-1.

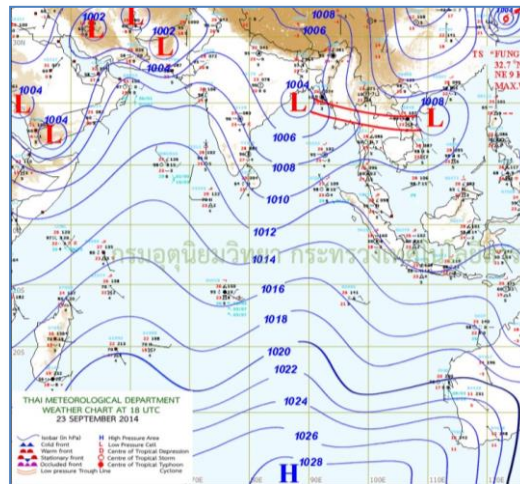
During 23<sup>rd</sup> - 25<sup>th</sup> September 2014, the ITCZ was located across the middle of Myanmar, the North and the Northeast of Thailand, the lower North of Lao PDR and the middle of Viet Nam. The weak Southwest monsoon prevailed over the Andaman Sea, the Gulf of Thailand, Thailand and Indochina Peninsular. Scattered rain with isolated heavy rain happened in the West and in the South of Myanmar, the North and the Northeast and the East of Thailand, the Central and the South Lao PDR, the Southeast, the Central, the

North and the Northeast Cambodia, the North and the Central of Viet Nam during 23<sup>rd</sup> - 25<sup>th</sup> September 2014. See Figure 3.9-2.



Source: TMD

Figure 3.9-1 Weather chart of the Mekong region during the 23<sup>rd</sup> September 2014 at 01:00AM local time.



Source: TMD

Figure 3.9-2 Weather chart of the Mekong region during the 24<sup>th</sup> September 2014 at 01:00AM local time.

### 3.9.2 Rainfall condition during the ITCZ 23<sup>rd</sup> - 25<sup>th</sup> September

As the result of the ITCZ phenomena scattered rainfall with isolated heavy rain occurred in the West and in the South of Myanmar, the North and the Northeast and the East of Thailand, the Central and the north Lao PDR, the Southeast, the Central, the North and the Northeast Cambodia, the North and the Central of Viet Nam during the period 23<sup>rd</sup> - 25<sup>th</sup> September 2014. Figure 3.9-3 to Figure 3.9-14 present the daily accumulated rainfall at some rainfall stations in the LMB during the ITCZ. The rainfall charts covering 22 to 23<sup>rd</sup> September show that the daily rainfall was up to 100 mm.

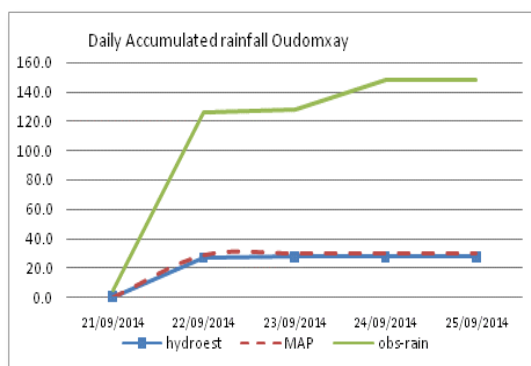


Figure 3.9-3 Accumulated rainfall at Oudomxay station of Oudomxay Province.

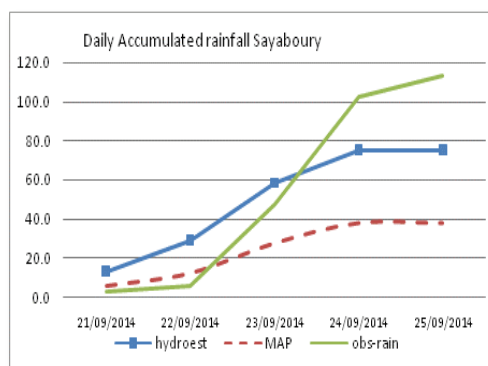


Figure 3.9-4 Accumulated rainfall at Sayaboury station of Sayaboury Province.

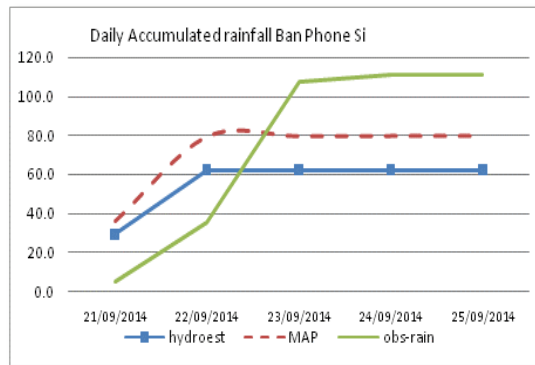


Figure 3.9-5 Accumulated rainfall at Ban Phonesi station of Borikhamxay Province.

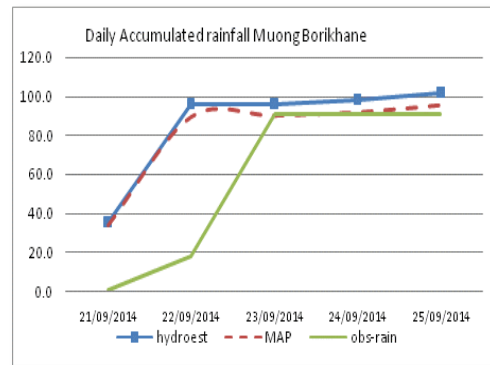


Figure 3.9-6 Accumulated rainfall at Muang Borikhane station of Borikhamxay Province.

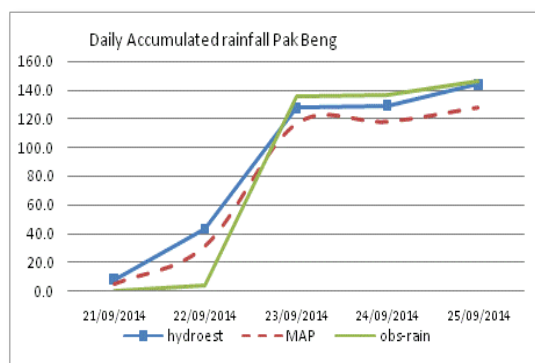


Figure 3.9-7 Accumulated rainfall at Pak Beng station of Xayaboury Province.

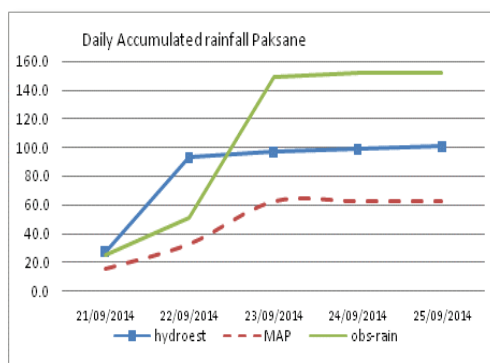


Figure 3.9-8 Accumulated rainfall at Paksane station of Borikhamxay Province.

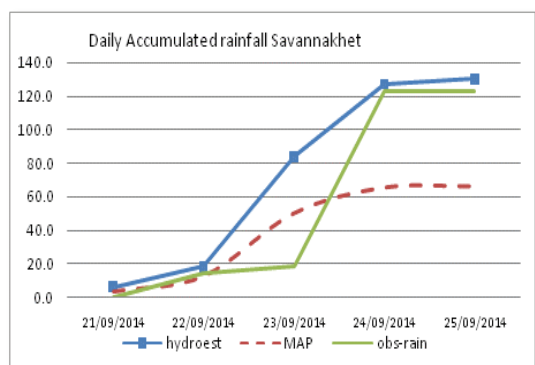


Figure 3.9-9 Accumulated rainfall at Savannakhet station of Savannakhet Province.

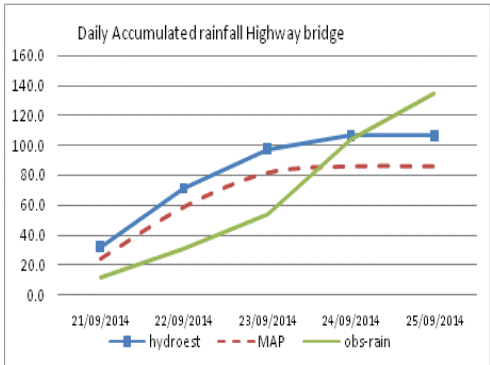


Figure 3.9-10 Accumulated rainfall at Highway Bridge station of Savannakhet Province.

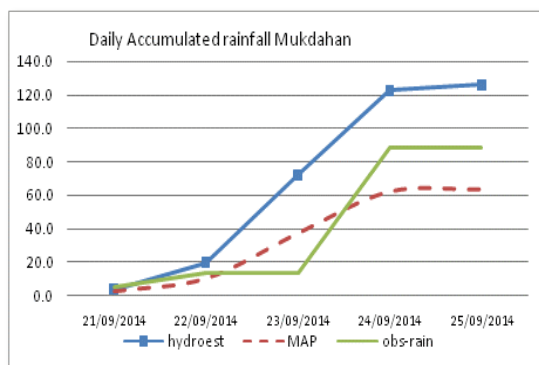


Figure 3.9-11 Accumulated rainfall at Mukdahan station of Mukdahan Province.

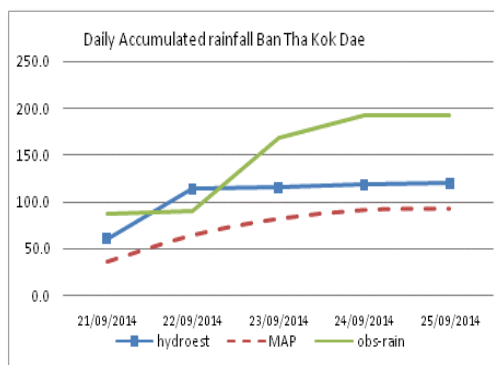


Figure 3.9-12 Accumulated rainfall at Ban Tha Kok Daen station of Sakhon Nakhon Province.

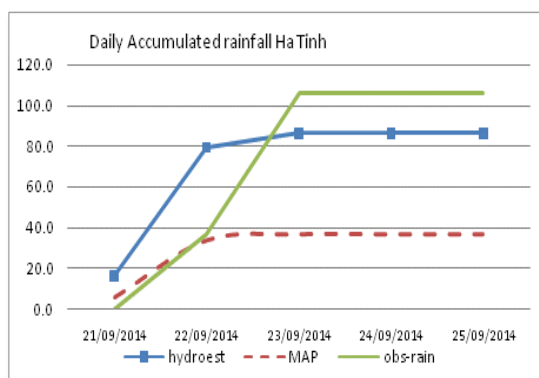


Figure 3.9-13 Accumulated rainfall at Ha Tinh station of Ha Tinh Province.

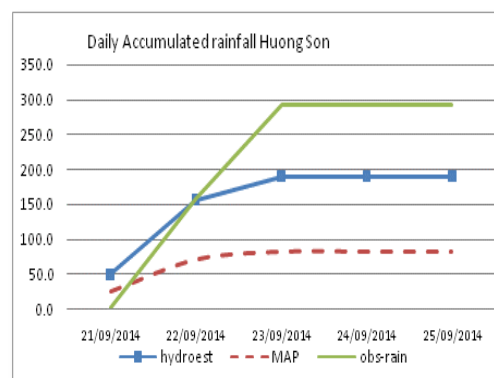


Figure 3.9-14 Accumulated rainfall at Houng Son station of Ha Tinh Province.

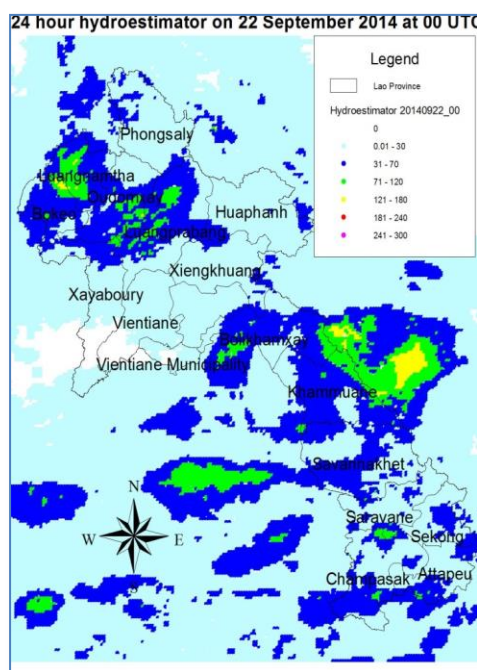


Figure 3.9-15 24 hour accumulated satellite rainfall estimate (Hydroestimator) on 22<sup>nd</sup> September 2014 at 00:00 UTC.

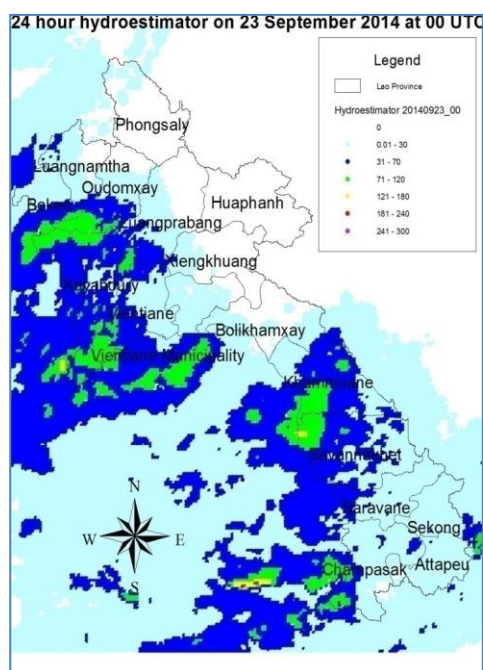


Figure 3.9-16 24 hour accumulated satellite rainfall estimate (Hydroestimator) on 23<sup>rd</sup> September 2014 at 00:00 UTC.

### 3.9.3 Flash flooding in the northern Provinces of Lao PDR, caused by ITCZ on 23<sup>rd</sup> - 24<sup>th</sup> September 2014

From 23 to 24<sup>th</sup> September 2014 the MRC-FFG system detected that various villages of the northern Provinces of Lao PDR, such as Xayaboury, Bokeo, Luang Namtha, Oudomxay, Luang Prabang, were at the risk of flash flood occurrence. Figure 3.9-17 presents the flash flood risk areas on 23<sup>rd</sup> September 2014 at 00:00 UTC. The information on the flash flood risk areas detected by the MRC-FFG system on 23<sup>rd</sup> September 2014 at 00:00 UTC was confirmed by the information published in Lao newspaper “Vientiane Times”, dated 25<sup>th</sup> September 2014. The “Vientiane Times” informed that some villages of the Khongsa District in Xayaboury Province were affected by the flash floods on 24<sup>th</sup> September 2014.

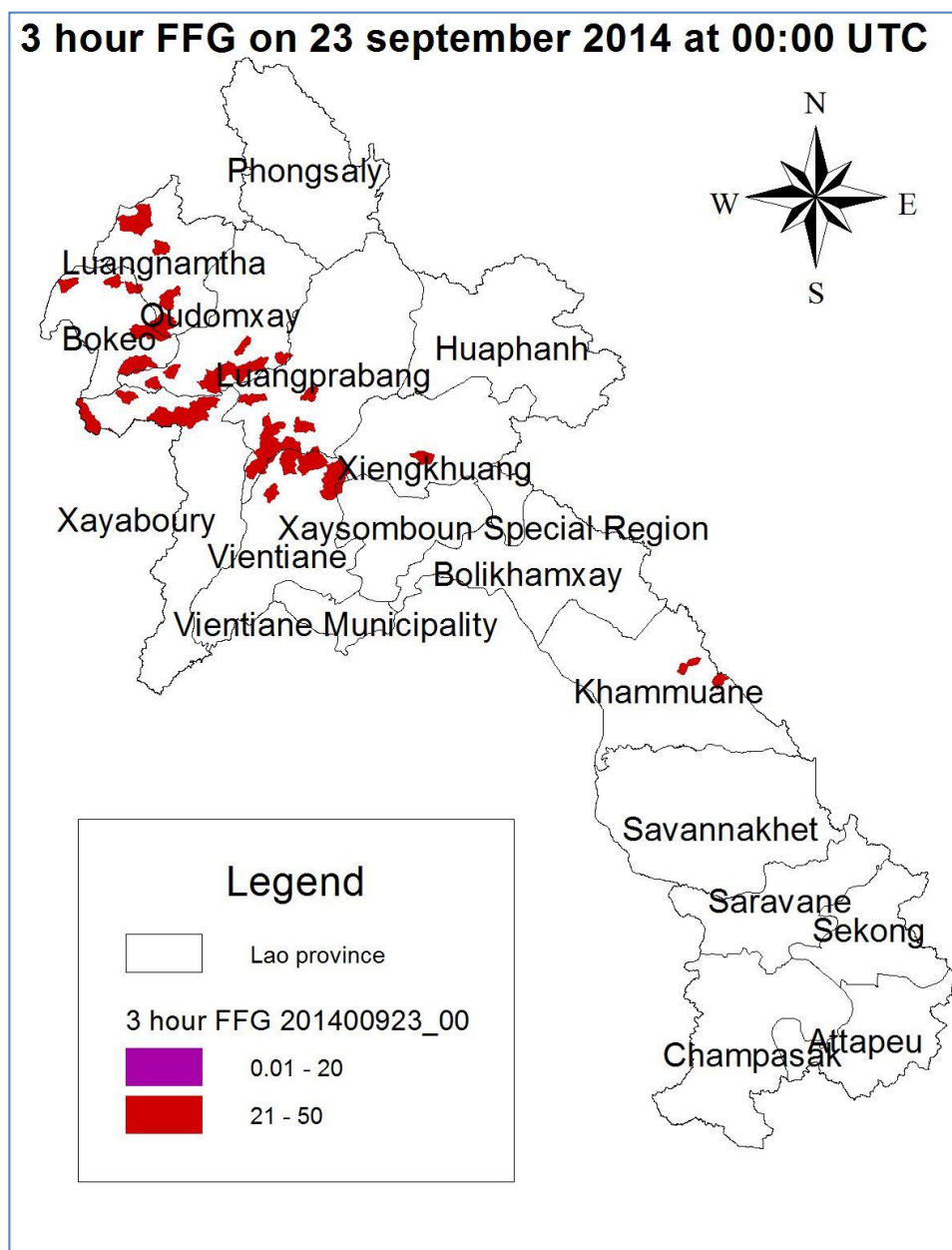


Figure 3.9-17 3 hours flash flood risk areas at some Provinces of Lao PDR detected by MRC-FFG system on 23<sup>rd</sup> September 2014 at 00:00 UTC.

### 3.9.4 Impact by ITCZ on flow regime of tributaries of Mekong Basin

The increase of rainfall at some sub catchments of Mekong Basin during the ITCZ at the end of September affected the flow regime of some tributaries of Mekong River, such as Nam Ngum, Nam Sane, Nam Khan, Nam Ngiep. The water level at hydrological stations of those rivers increased from 2 to 3 m within 12 hours or one day. Figure 3.9-18 to Figure 3.9-21 present the hydrograph of hydrological stations located at northern and central part of Lao PDR.

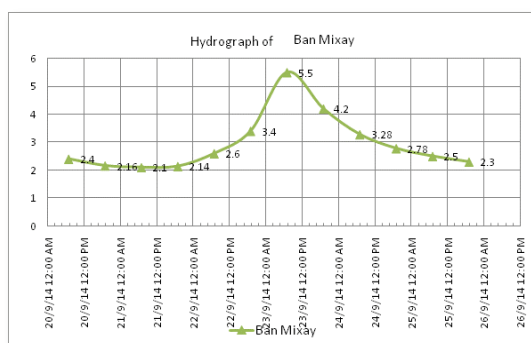


Figure 3.9-18 Hydrograph of Nam Khan River at Ban Mixay station during ITCZ.

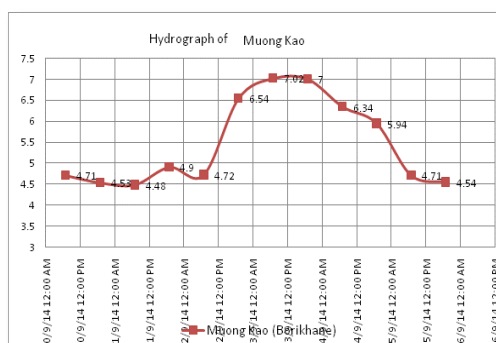


Figure 3.9-19 Hydrograph of Nam Sane River at Mueng Kao station during ITCZ.

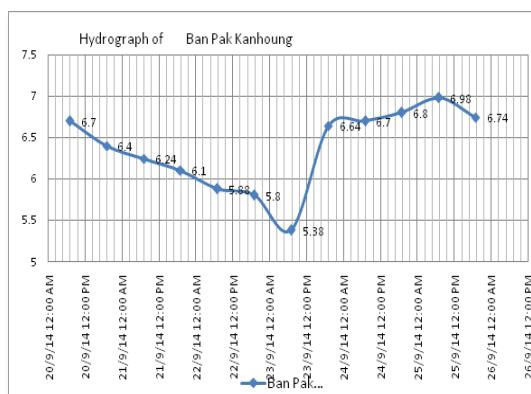


Figure 3.9-20 Hydrograph of Nam Ngum River at Pak Kanhoung station during ITCZ.

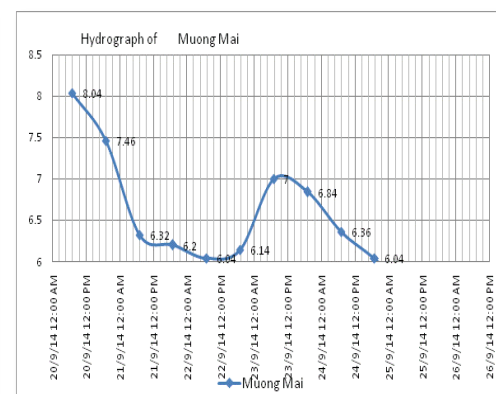


Figure 3.9-21 Hydrograph of Nam Ngiep River at Mueng Mai station during ITCZ.

### 3.9.5 Conclusions

1. During 23<sup>rd</sup> – 25<sup>th</sup> September 2014, the ITCZ was located across the middle of Myanmar, the north and the northeast of Thailand, the lower north of Lao PDR and the middle of Viet Nam. Scattered rainfall with isolated heavy rainfall occurred in the West and in the south of Myanmar, the north and the northeast and the east of Thailand, the central and the south Lao PDR, the southeast, the central, the north and the northeast Cambodia, the north and the central of Viet Nam.

2. The daily accumulated rainfall at some rainfall stations in the LMB during the ITCZ went up to 100 mm. During this period the value of observed rainfall for station in Oudomxay and Ban Phonesi was higher compared to the MAP and Hydroestimator.
3. From 23<sup>rd</sup> to 24<sup>th</sup> September 2014 the MRC Flash Flood Guidance system detected that various villages of the northern Provinces of Lao PDR, such as Xayaboury, Bokeo, Luang Namtha, Oudomxay and Luang Prabang, were at risk of flash flooding. The information on the flash flood risk areas detected by the MRC-FFG system was confirmed by the information published in Lao newspaper “Vientiane Times”, dated 25<sup>th</sup> September 2014.
4. Water level at some tributaries of Mekong River, such as Nam Ngum, Nam Sane, Nam Khan, Nam Ngiep, increased 2 to 3 m within 12 hours or one day.

### 3.10 Flash flooding caused by tropical storm SINLAKU

#### 3.10.1 Tropical storm SINLAKU

At 01:00 PM local time of 26<sup>th</sup> November 2014 the tropical depression SINLAKU developed over the Pacific Ocean near the Philippines. Figure 3.10-1 presents the position of tropical depression at the Pacific Ocean. The storm then moved to the west. On Saturday 29<sup>th</sup> November at around 04:00 PM; it began making landfall at the Coastal areas of south central of Viet Nam. See Figure 3.10-2. It continued in westerly direction and transformed into a tropical depression over the border areas of Thailand, Lao PDR and Cambodia on Monday 1<sup>st</sup> December 2014 around 1:00 AM. See Figure 3.10-3.

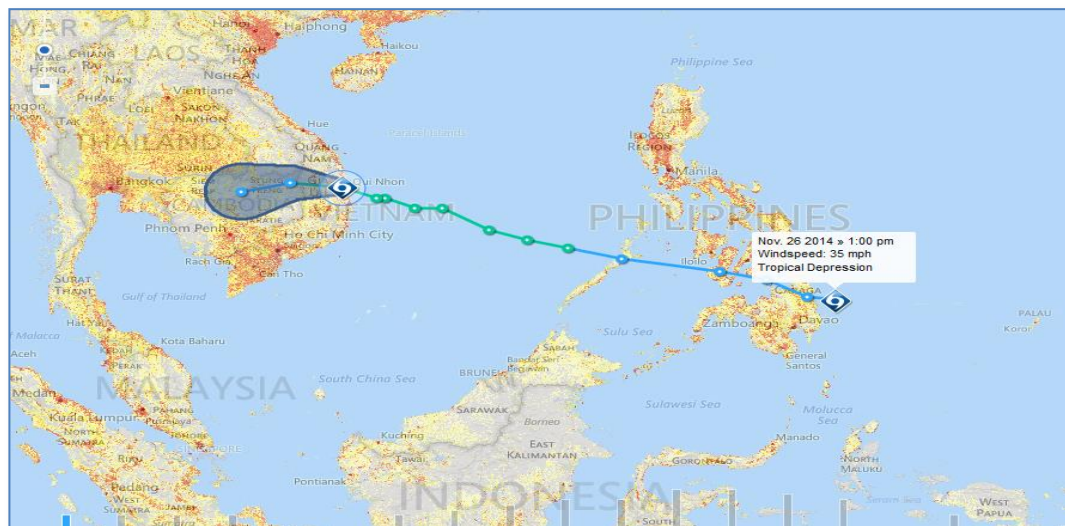


Figure 3.10-1 On 26<sup>th</sup> November 2014 at 01:00 PM the tropical depression SINLAKU was formed in the Pacific Ocean.

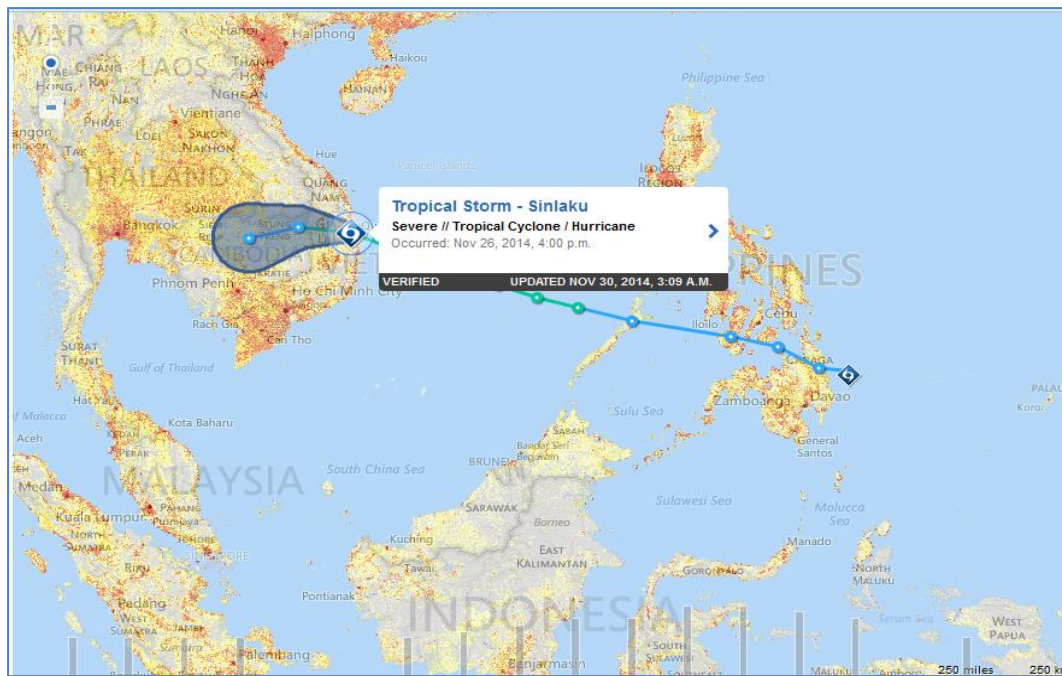


Figure 3.10-2 On 29<sup>th</sup> November at 4:00 PM tropical storm SINLAKU made the landfall at the coast of south central Viet Nam.

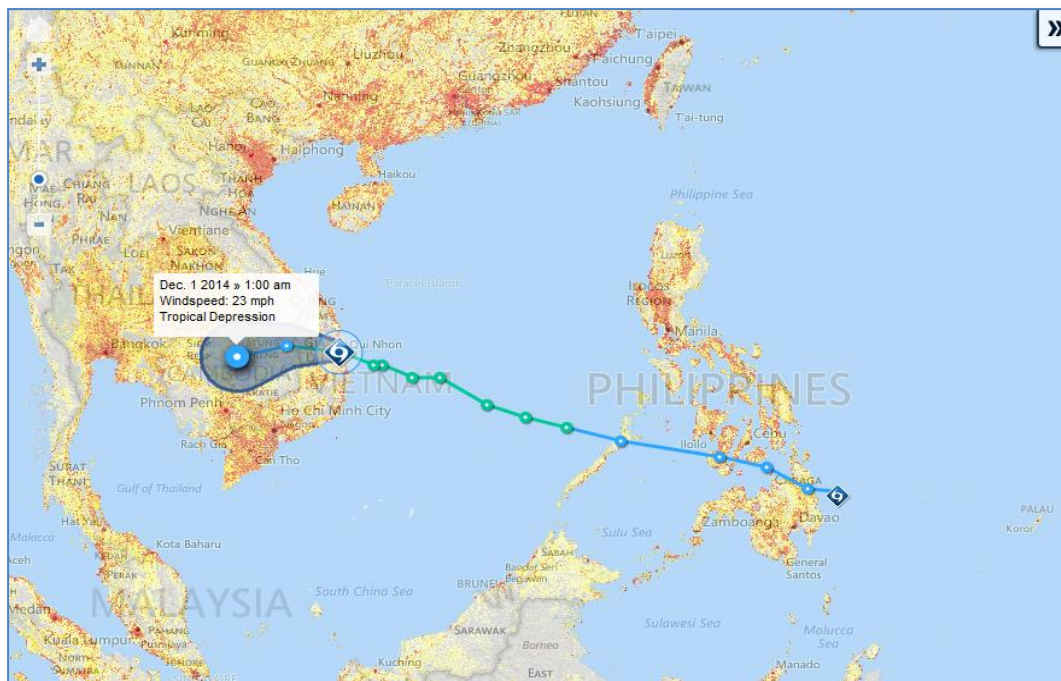


Figure 3.10-3 On 1<sup>st</sup> December 2014 at 01: 00 AM SINLAKU transformed into a tropical depression.

### 3.10.2 Rainfall during tropical storm SINLAKU

During the period from 29<sup>th</sup> November to 3<sup>rd</sup> December 2014, when the tropical storm SINLAKU made a landfall and transformed to the tropical depression on the region, heavy rainfall occurred at some areas of south central part of Viet Nam. Figure 3.10-4 to

Figure 3.10-9 present the daily accumulated rainfall at some stations located at the central highland and south central Provinces of Viet Nam, where the daily rainfall at that period reached levels from 80 to 120 mm. Figure 3.10-10 and Figure 3.10-11 present the 24 hours accumulated rainfall from the Hydroestimator (satellite rainfall estimate) on 30<sup>th</sup> November and 1<sup>st</sup> December 2014.

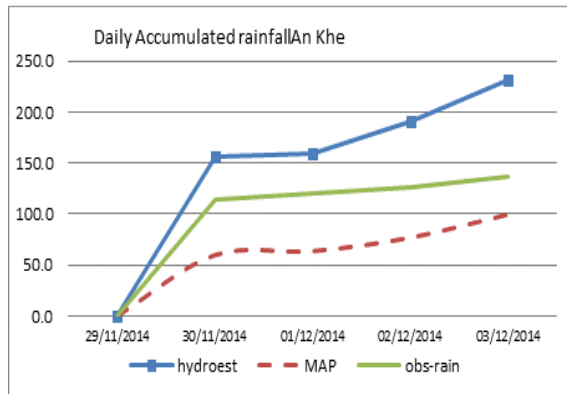


Figure 3.10-4 Daily accumulated rainfall at An Khe station during the TS SINLAKU.

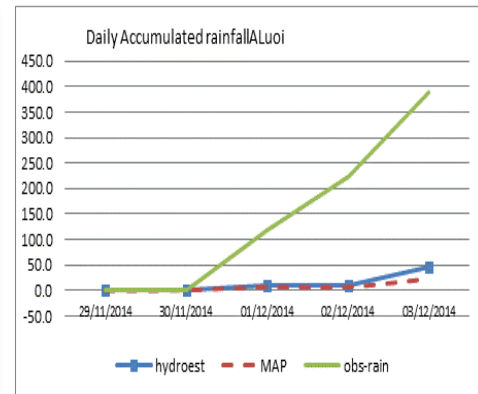


Figure 3.10-5 Daily accumulated rainfall at A Luoi station during the TS SINLAKU.

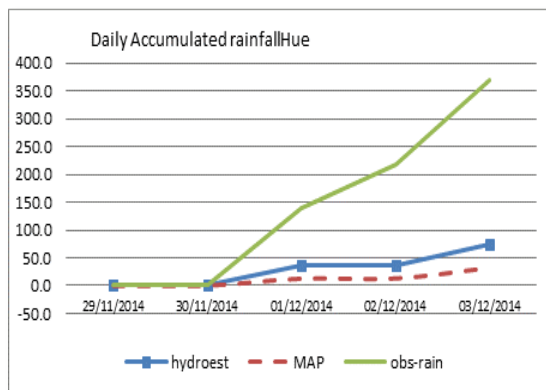


Figure 3.10-6 Daily accumulated rainfall at Hue station during the TS SINLAKU.

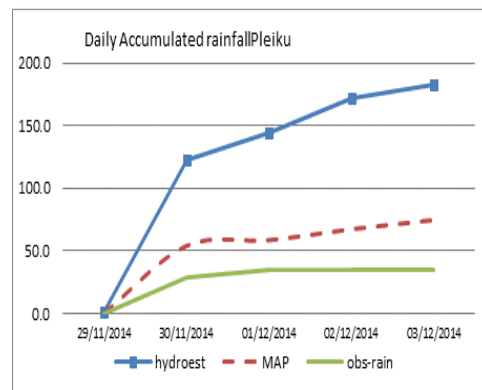


Figure 3.10-7 Daily accumulated rainfall at Pleiku station during the TS SINLAKU.

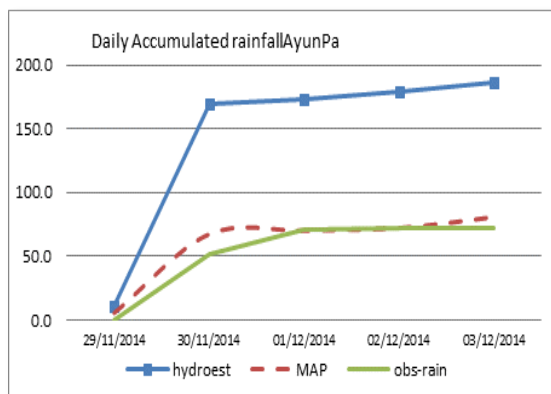


Figure 3.10-8 Daily accumulated rainfall at Ayunpa station during the TS SINLAKU.

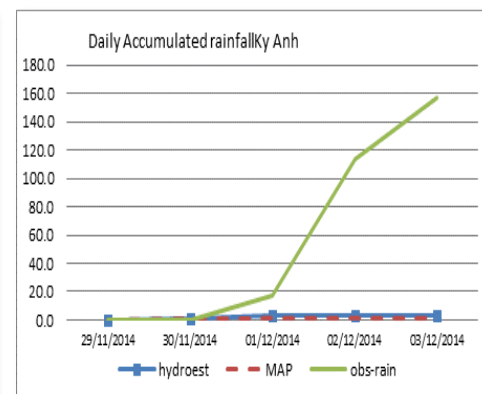


Figure 3.10-9 Daily accumulated rainfall at Ky Anh station during the TS SINLAKU.

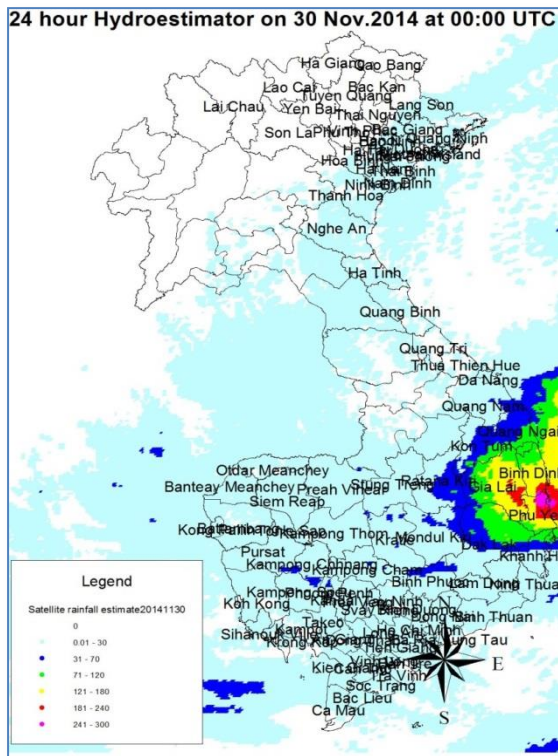


Figure 3.10-10 24 hours accumulated satellite rainfall estimate (Hydroestimator) on 30<sup>th</sup> November 2014 at 00:00 UTC.

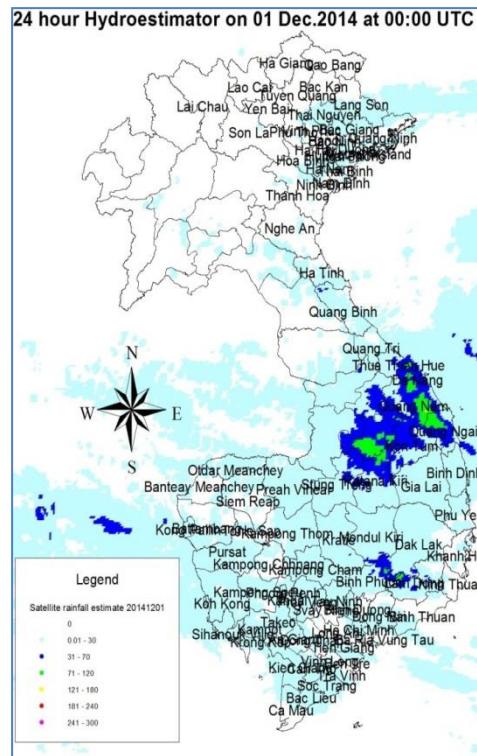


Figure 3.10-11 24 hours accumulated satellite rainfall estimate (Hydroestimator) on 1<sup>st</sup> December 2014 at 00:00 UTC.

### 3.10.3 Flash Flood Guidance System during tropical storm SINLAKU

Roughly one day after the TS “SINLAKU” hit the coastal areas in the south central part of Viet Nam, the FFG system detected flash flood risk areas in the Phu Yen Province of southern part of Viet Nam on the morning of 30<sup>th</sup> November. Figure 3.10-12 shows the flash flood risk areas in Phu Yen Province of Viet Nam on the 30<sup>th</sup> November 2014 at 00:00 UTC (07:00 AM local time). According to the local newspaper “Thanh Nien”, dated Sunday 30<sup>th</sup> November, TS SINLAKU made landfall at 21:00 in the coastal area of Viet Nam. Many streams located in the south central Provinces of Viet Nam, such as Quang Ngai, Phu Yen, Gia Lai, Kontum Provinces, quickly reached the alarm level 2 and 3, while many areas were flooded on Sunday. The Information from newspaper “Thanh Nien” provided in Annex 10.

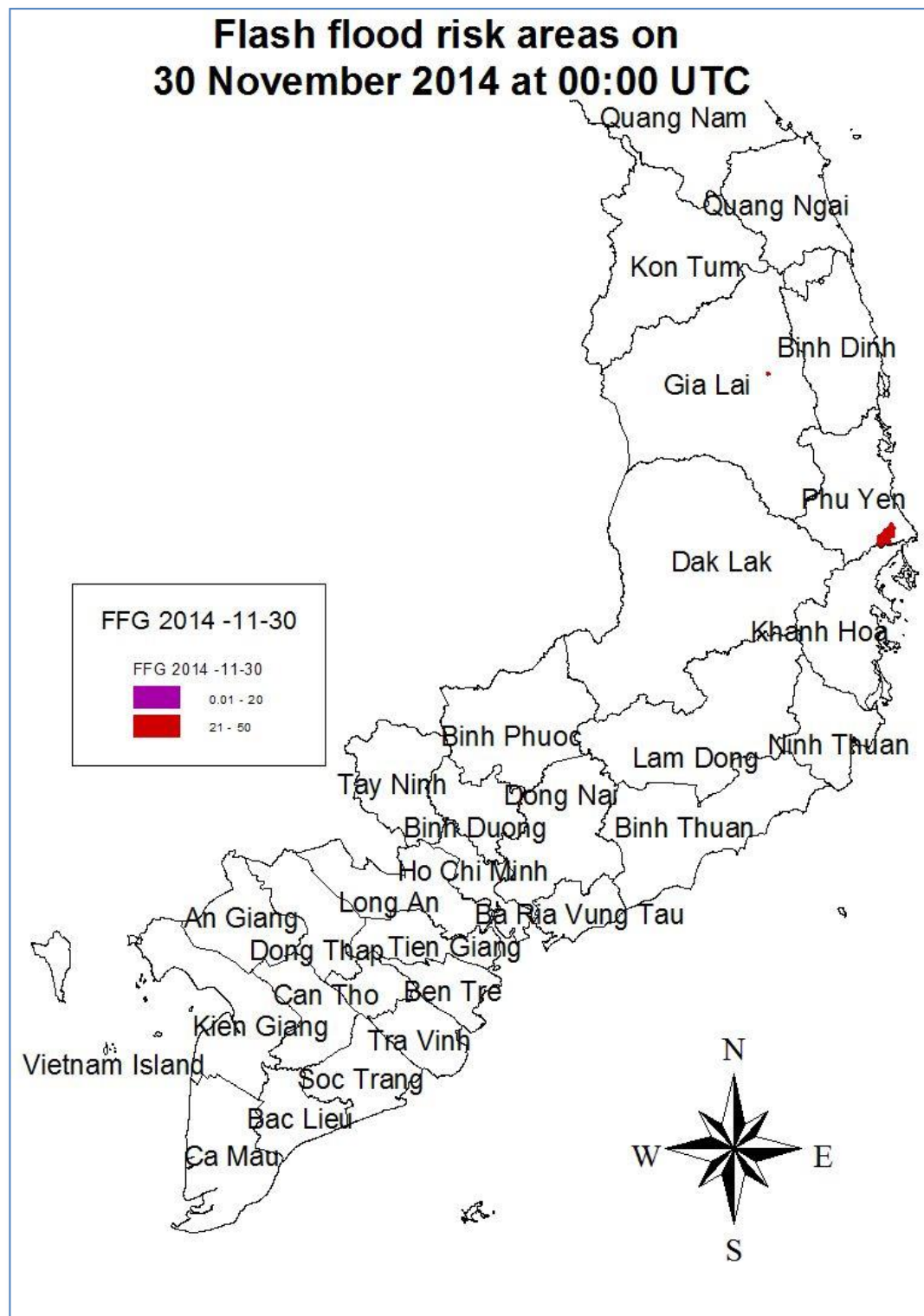


Figure 3.10-12 The flash flood risk area detected by MRC-FFG system on 30<sup>th</sup> November 2014 at 00:00 UTC.

### 3.10.4 Conclusions

1. Typhoon SINLAKU, the fourth tropical storm that hit Viet Nam this year, weakened into a depression after slamming into south central part of Viet Nam.

2. During this period some rainfall stations located in the central highland and south central Provinces of Viet Nam have recorded daily rainfall between 80 and 120 mm.
3. Many streams located in the central highland and also in the south central Provinces of Viet Nam, such as Quang Ngai, Phu Yen, Gia Lai and Kontum Provinces, quickly reached alarm level 2 and 3, and also inundated around 4,000.00 hectare of paddy field.
4. On the Sunday 30<sup>th</sup> November 2014 at 07:00 local time the MRC-FFG system detected a flash flood risk areas at some districts of Phu Yen and Gia Lai Provinces.
5. As the information on the flood areas during the tropical storm SINLAKU provided by the newspaper indicated only the Province name (not detail to the district level), that is given a difficulty to evaluate the accuracies of the MRC-FFG system. It is recommended collaborating with the Viet Nam National Flood Expert to collect more detail information about the areas where flooding occurred during tropical storm SINLAKU.
6. Base on the result from the comparison of rainfall value from the ground observation stations with the rainfall value from the Hydroestimator and MAP, show that some station the value of rainfall from Hydroestimator and MAP are underestimated. It is recommended reviewing the bias correction factor of MAP.

### **3.11 Flash flooding caused by tropical storm HAGUPIT**

#### **3.11.1 Tropical storm HAGUPIT**

At 7:00 AM local time of 1<sup>st</sup> December 2014 the tropical depression HAGUPIT developed over the Pacific Ocean. Figure 3.11-1 presents the position of tropical depression in the Pacific Ocean. The storm moved in westerly direction. On Saturday 6<sup>th</sup> December at around 07:00 PM the tropical storm HAGUPIT increased into the storm category 3. The TS began making its first landfall at the Philippines islands and then continued across the Philippines to the west. See Figure 3.11-2. On Thursday 11<sup>th</sup> December, when HAGUPIT entered the East Sea and approached the coastal areas of southern part of Viet Nam, the storm category was downgraded into a tropical depression, and moved slowly along the coastline of the southern part of Viet Nam. Figure 3.11-3 presents the buffer zone of the tropical depression HAGUPIT along the coastline of the southern part of Viet Nam.



Figure 3.11-1 The tropical depression HAGUPIT formed at the Pacific Ocean.

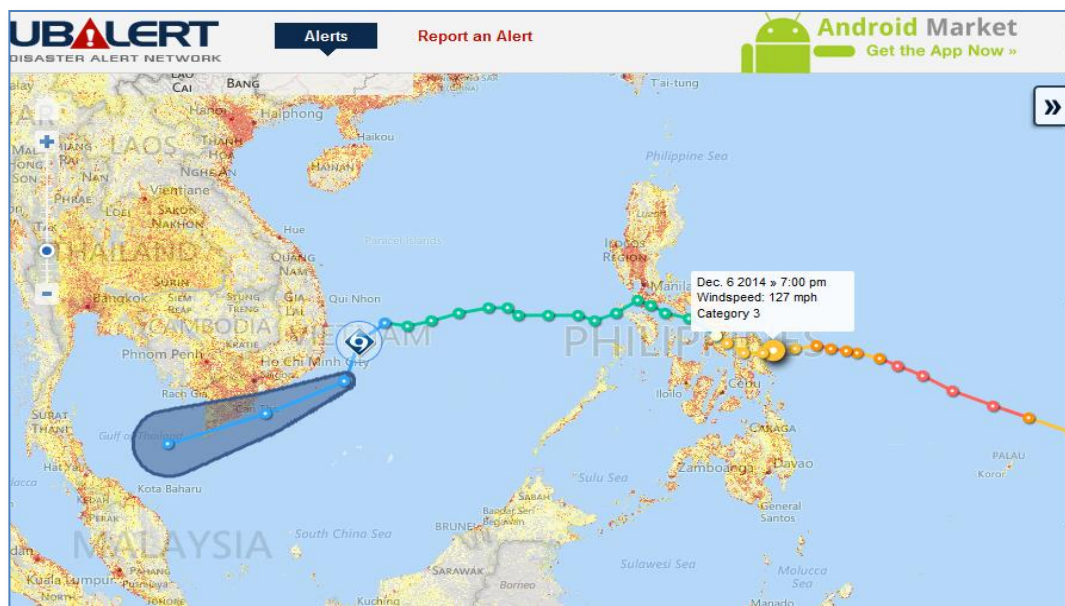


Figure 3.11-2 The Tropical Storm HAGUPIT increased to category 3 when it hit the Philippines.

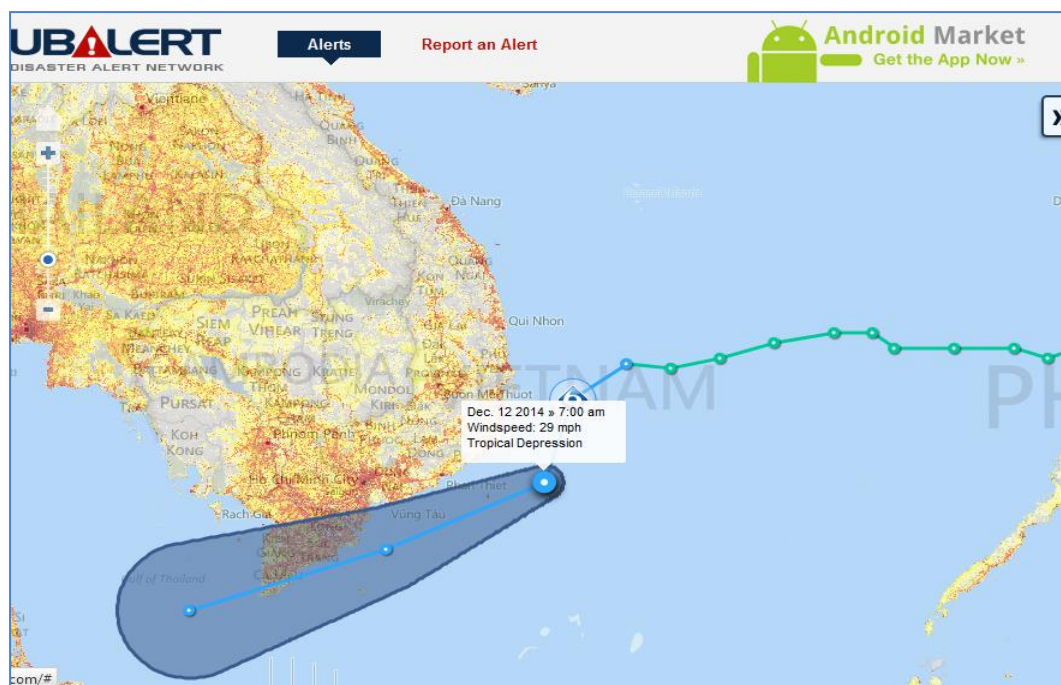


Figure 3.11-3 The Tropical Storm HAGUPIT transformed into a tropical depression when it approached the coastline of the southern part of Viet Nam.

### 3.11.2 Rainfall during the tropical storm HAGUPIT

From 12 to 13<sup>th</sup> December 2014, when the tropical depression HAGUPIT moved along the coastline of the southern part of Viet Nam, heavy rainfall occurred at some areas of southern part of Viet Nam. Figure 3.11-4 presents the daily accumulated rainfall at rainfall station “MDARK” located at the southern Province of Viet Nam, where the daily rainfall at that period reached almost 50-60 mm. Figure 3.11-5 to Figure 3.11-6 present the 24 hours satellite rainfall estimate (Hydroestimator) at Lower Mekong Region during the period of tropical depression HAGUPIT.

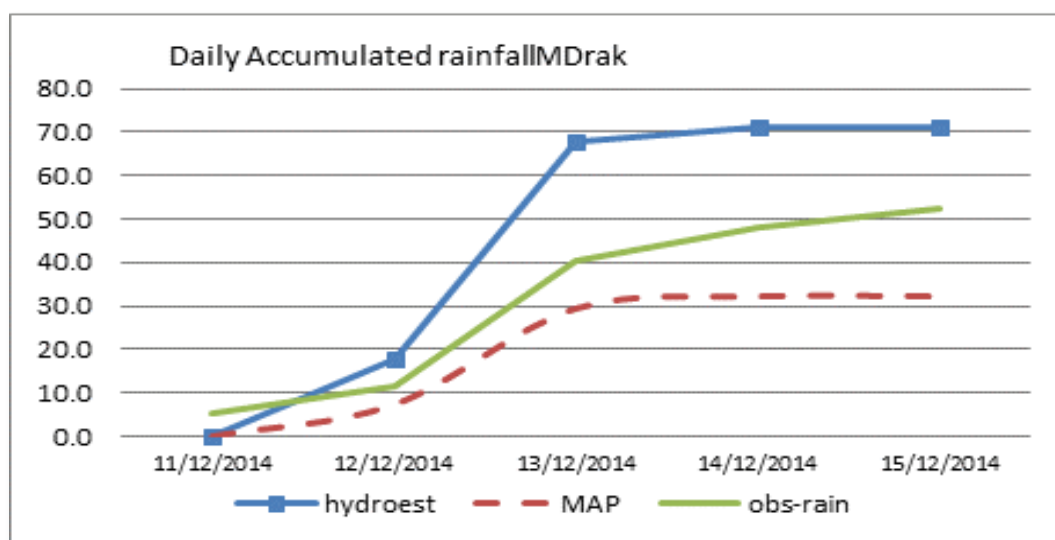


Figure 3.11-4 Daily accumulated rainfall at rainfall station MDARK during the tropical depression HAGUPIT.

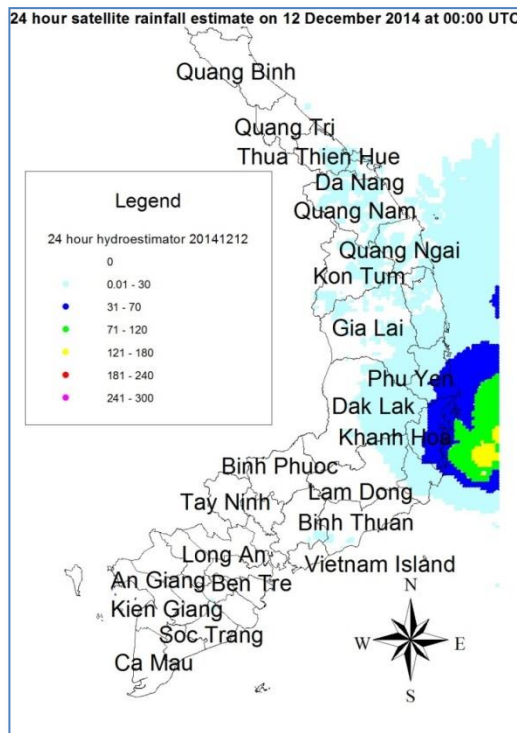


Figure 3.11-5 24 hour satellite rainfall estimate on 12<sup>th</sup> December 2014, when TD HAGUPIT approached the coastline of southern part of Viet Nam.

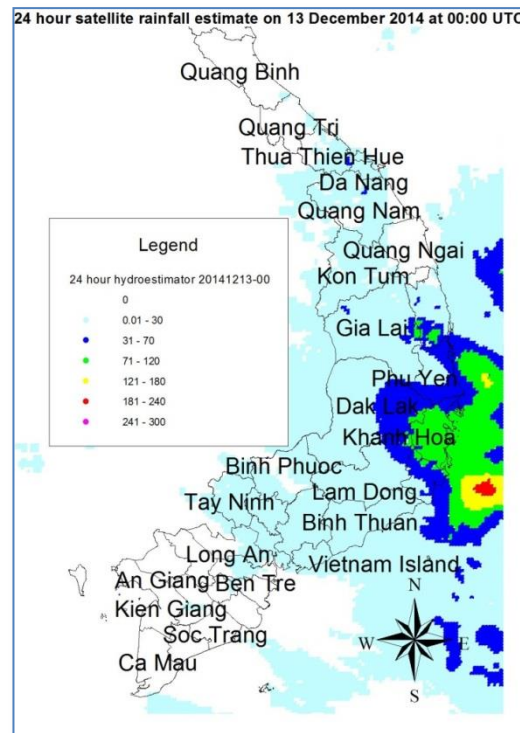


Figure 3.11-6 24 hour satellite rainfall estimate on 13<sup>th</sup> December 2014, when TD HAGUPIT approached the coastline of southern part of Viet Nam.

### 3.11.3 Flash Flood Guidance System during the tropical storm HAGUPIT

On the evening of 12<sup>th</sup> December 2014, the MRC-FFG system detected flash flood risk areas in the Phu Yen Province of the southern part of Viet Nam. Figure 3.11-7 shows the flash flood risk areas at Phu Yen Province of Viet Nam on the 12<sup>th</sup> December 2014 at 12:00 UTC (07:00 PM local time). According to the local newspaper “Viet Nam News”, dated Monday 15<sup>th</sup> December, flooding occurred in many areas of Tuy Hoa District of the Phu Yen Province when the TS HAGUPIT approached the coastal area of Viet Nam. On Saturday 13<sup>th</sup> December 2014 many streams located in the south central Provinces of Viet Nam quickly reached alarm level 2 and 3. The information from newspaper “Viet Nam News” is provided in Annex 11.

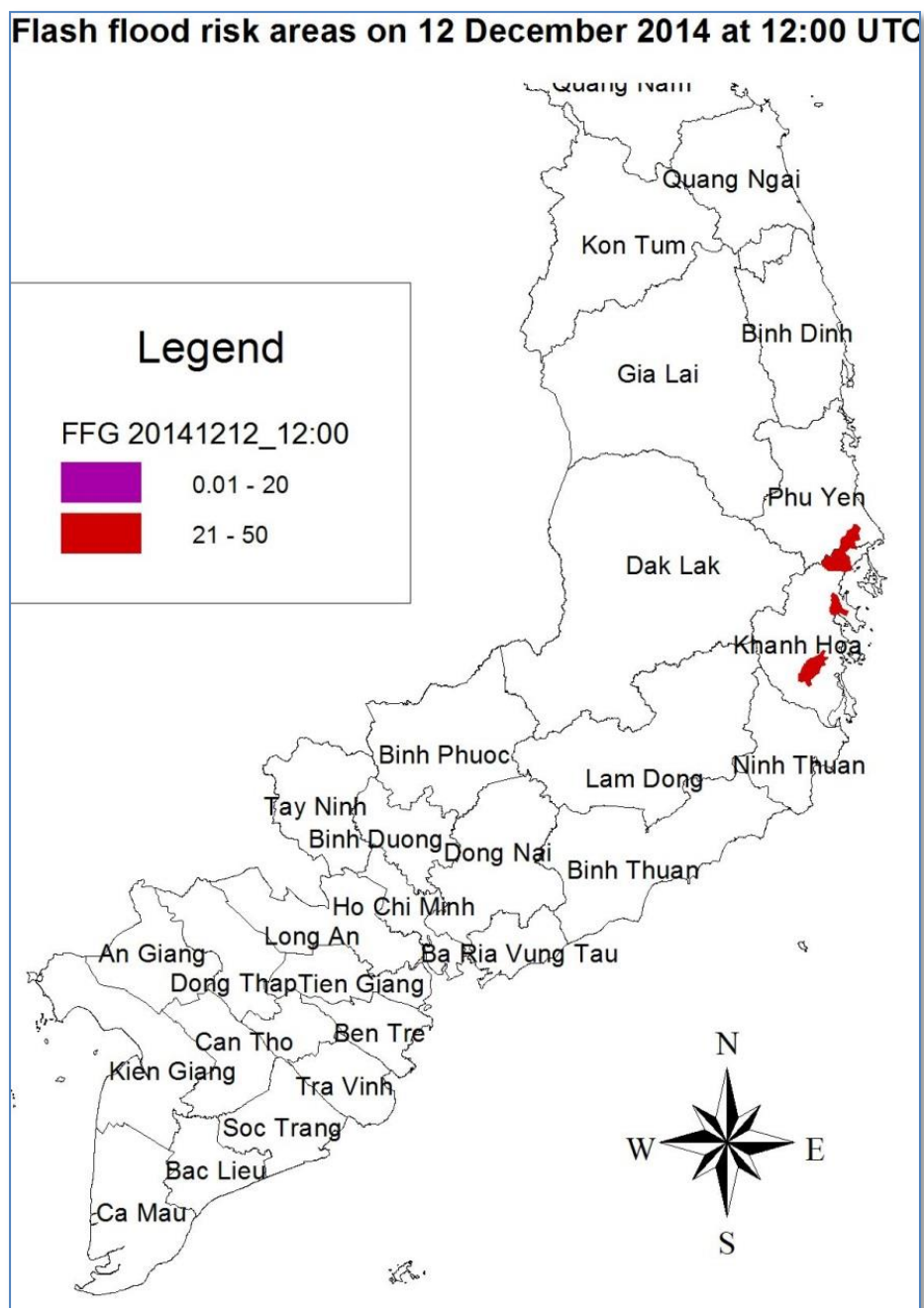


Figure 3.11-7 Flash flood risk areas detected by MRC-FFG system on 12<sup>th</sup> December 2014 at 12:00 UTC.

Table 3.11-1 List of flash flood risk district detected by MRC-FFG system on 12<sup>th</sup> December 2014 at 12:00 UTC.

Date of FFG products 12/12/2014 12:00 UTC time					
1hour Flash Flood Guidance in Vietnam			3hours Flash Flood Guidance in Vietnam		
Provinces	Districts	FFG value	Provinces	Districts	FFG Value
Phu Yen	Tuy Hoa	19.16	Phu Yen	Tuy Hoa	36.155
Khanh Hoa	Van Ninh	19.16	Phu Yen	Song Hinh	46.49
			Khanh Hoa	TP. Nha Trang	48.82
			Khanh Hoa	Van Ninh	36.155
			Khanh Hoa	Ninh Hoa	45.545
			Khanh Hoa	Dien Khanh	48.82
			Khanh Hoa	Cam Ranh	48.82
			Khanh Hoa	Khanh Son	48.82

#### **3.11.4 Conclusions**

1. Typhoon HAGUPIT, the fifth tropical storm that hit Viet Nam (approached) this year, weakened into a tropical depression after slamming into the coastline of the south central part of Viet Nam.
2. During this period some rainfall stations located in the central highland and south central Provinces of Viet Nam recorded daily rainfall of 50 - 60 mm.
3. Many streams located in the south central Provinces of Viet Nam have quickly reached to the alarm level 2 and 3, and also inundated some areas in the Tuy Hao District of the Phu Yen Province of Viet Nam.
4. On the Friday 12<sup>th</sup> December 2014 at 07:00 PM local time the MRC-FFG system detected flash flood risk areas at some districts of Phu Yen and Khanh Hoa Province.
5. As the information on the flood areas during the tropical storm HAGUPIT provided by the newspaper indicated that only one district “Tuy Hao“ of Phu Yen Province was flooded, it is recommend collaborating with the Viet Nam National Flood Expert to collect more detailed information about the areas that were flooded during TS HAGUPIT.
6. Based on a comparison of rainfall value from the ground observation stations with the rainfall value from the Hydroestimator and MAP, it is concluded that the rainfall value of the Hydroestimator and MAP are underestimated. It is recommended reviewing the bias correction factor of MAP.



## 4. Conclusion and Recommendations

The current report is fifth evaluation report of MRC Flash Flood Guidance (MRC-FFG) system after 5 years of operation. Although this evaluation report does not cover all of the flash flooding that occurred in 2014 flood season (from 1<sup>st</sup> May to 15<sup>th</sup> December 2014), it is based on the available flash flood information that was collected from newspaper of four riparian countries.

The other alternative evaluation method is to compare the flash flood risk areas detected by the MRC-FFG system with changing water levels downstream of these areas. This method has been used in this report. However these do not fully reflect the flash flood characteristics, because the available water level and rainfall data in the operational database of the RFMMC are recorded once daily, while the flash flood mostly occur within a 6 hourly period.

Notwithstanding this, it can be concluded that the MRC-FFG system during the severe weather condition in the region, such as tropical storms, tropical depressions or ITCZ, and low pressure, detected almost all flash flood risk areas in the Mekong region. There were only a few flash flood events that could not be detected by the system. Based on the experiences hitherto a number of recommendations are presented below, which are considered useful for further fine-tuning of MRC-FFG products during the 2015 flood season implementation:

1. Improve the Mean Aerial Precipitation (MAP) product by updating the bias correction factor for satellite rainfall (Hydroestimator) processing.
2. After updating the bias correction factor for satellite rainfall processing, the MRC-FFG operator should rerun the FFG system and check the results with the available flash flood information.
3. Update the GIS provincial administration database. The current GIS information (provincial administrative database, villages, districts and provincial name) was collected from national line agencies in 2003. It may be concluded that this information does not reflect the real condition, as some countries in the region recently revised provincial boundaries.
4. According to the information from the newspaper, flooding occurred also in many districts under flash flood risk level 2 (yellow color scale). It is recommended that the MRC-FFG operator should also provide the flash flood watch list for districts that are under the risk level 2 (yellow color scale).
5. There is a need for close cooperation between the RFMMC and HRC to develop of short-term forecast rainfall (6 to 12 hours) which is necessary to help the FFG operator improving the accuracies of FFG warning.
6. Strengthen the connection between the RFMMC and the National FFG operations for the region in order to receive additional information about areas where flash

floods occurred. Such information will improve the present FFG evaluation report. Establish the connection between RFMMC staff (FFG operators) and the National Flood Expert, who working at the National line agencies under the FMMP's contract, for collection the flash flood information from the each country.

7. Conduct Refreshment Training Courses of FFG system operation in combination with the Annual Flash Flood Gathering with the purpose: a) to improve the knowledge on FFG operation, b) to introduce the new tool for FFG operation, and c) to exchange the experiences between National Center's and the RFMMC operators.
8. The MRC-FFG operator should develop, in close cooperation with the GIS expert of IKMP, an additional tool for the identification of Mekong sub-catchments, where flash floods occurred, as well as the location of hydrological stations in those sub-catchments, where rising water levels may have been recorded. If possible this tool should be connected "real time" with the FFG website.
9. Update the MRC-FFG information on the MRC webpage three times during daytime with 6 hourly intervals, at 07:00 AM, 01:00 PM and at 07:00 PM. During severe weather conditions such as tropical storms, tropical depressions, ITCZ etc. flash floods can occur at any time in any area of the LMB.

# ANNEXES

## Annex 1 Flash flooding in the central part of Lao PDR, caused by low pressure on 21<sup>st</sup> June 2014

2 | Home news | Wednesday June 25, 2014

Vientiane Times



Deputy Minister of Finance Ms Thipphakone Chanthavongsa (second left) and Vice President of World Bank for the East Asia and Pacific Region Mr Axel van Trotsenburg (second right).

### New World Bank office set for 2016

#### Times Reporters

The World Bank Group (WBG) is planning to build a new office and facilities for its staff by early 2016.

The event to celebrate the new office was held on Monday in Xieng Ngeun village in Chanthabouly district, Vientiane.

Deputy Minister of Finance Ms Thipphakone Chanthavongsa and the World Bank Vice President for East Asia and the Pacific Region Mr Axel van Trotsenburg attended the ceremony.

The three-storey Lao-inspired building will

accommodate 100 staff members and will be going green with a solar energy system, rainwater collection, emphasis on natural lighting, a sewage treatment plant and use of various sustainable materials.

The office, which will house all branches of WBG, including the International Finance Cooperation (IFC), will also feature archeological findings for the public to view.

The project of this new building is a testament to WBG's long term commitment in developing a strong partnership with the Lao

government and its people.

Laos became a member of the World Bank more than 50 years ago and joined the IFC in 1998. The first WBG office was built in 1999, near the Patuxay monument.

The partnership between Lao government and WBG has evolved and strengthened over the decades, with their aim of reducing poverty and promoting shared prosperity.

World Bank has also provided over US\$1.4 billion in grants and interest-free credits, analytical work and policy advice on key development issues in Laos.

### Thadeua – Xiengkhuang road set for upgrading

#### Times Reporters

The existing road linking Thadeua village via Xiengkhuang village in Hadsaxong district to neighbouring Pakneum district in Vientiane is set for upgrading to a concrete road, officials have announced.

Work to upgrade the 28km road in Hadsaxong district is expected to begin within this year with completion slated for March next year, the Ministry of Public Works and Transport has confirmed.

The confirmation was made in response to an issue raised by a member of the public through the hotline of the National Assembly (NA) at its ordinary session convened in December last year.

state offices located along the road including the district administrative office.

In addition, the road also leads to neighbouring Pakneum district.

In its document submitted to the NA in response to the hotline issue, the ministry stated that Vientiane authorities have had to make plans to upgrade the road to concrete and that it will eventually stretch to Phao village in Pakneum district.

The total length of the concrete road from Thadeua village in Hadsaxong district to Phao village in Pakneum district will be about 65 km, according to the head of the Vientiane Road and Bridge Division, Mr Khambai Sithurath.

district has already begun.

The Ministry of Public Works and Transport has explained that the long-standing poor condition of the road is due to the fact that the road has been used by heavy trucks carrying sand and rocks for construction purposes and the places where these materials are being taken from are located on that road.

In addition to this road upgrading project, Vientiane authorities have been pushing efforts to accelerate developing the road network in the capital. The authorities said recently that they will increase pressure on companies to continue road projects which have been delayed due to financial difficulties.

### Project launched to protect marginalised urban women

#### Phetsamone Chandala

Marginalised women who work in urban districts will be better protected through the implementation of a new Lao Federation of Trade Unions (LFTU) project.

Director General of LFTU's Labour Protection Department Mr Ounkham Bounnaseng spoke yesterday in Vientiane at an inception workshop for the project, entitled Protection and Choice for Marginalised Urban Women.

Mr Ounkham said the increasing number of factories, enterprises and service units in the capital were leading to a large number of people leaving their farming jobs and moving into the city.

These people often do not have stable jobs or income. Some work at restaurants, nightclubs or hotels, while others work as housemaids or mobile vendors.

They often move to work at other places if their employers stop paying their salary, putting them at risk of having their rights and interests impinged upon.

"They may not be protected by the government and society,



Mr Ounkham Bounnaseng.

so we will implement this project to protect these marginalised women's legitimate rights and interests," Mr Ounkham said.

He said the project would be implemented in Sikhottabong, Chanthabouly and Sisattanak districts in Vientiane.

The project will run from now until 2017, with financial support from Care International in Laos.

Mr Ounkham said LFTU and Care International in Laos would also collaborate with relevant ministries, mass organisations and district authorities to implement the project.

"We will enhance understanding, knowledge

and capacity for them and draw up a collective labour agreement between employers and all employees, in which a union representative is also involved," he said.

According to Care, the purpose of the project is to strengthen the capacity of local groups and implementing partners to lead development actions for stronger protection and positive choices among marginalised urban women.

It builds on previous experience in strengthening legal literacy, community mobilisation and life skills amongst marginalised women, as well as strengthening the motivation and skills of duty bearers to implement protections.

The project will focus on three sub-impact groups of women: entertainment workers, women working in factories and domestic workers. The latter is a new sub group and there is very limited information on its size and situation.

The project focus areas are labour protections, legal awareness, protection from violence and information and services on both reproductive health and nutrition.

### Southern Laos suffers flash flooding

#### Phonesavanh Sangsomboun

People travelling to the south of Laos have been told to check the weather conditions carefully after roads in Borikhamxay and Khammuan provinces experienced flash flooding.

Road No. 8A in Huayphet and Khounkhom villages on the way to Khamkeuth district in Borikhamxay province and the Vietnamese border were also affected by flash flooding due to the heavy rain over last weekend.

Road No. 13 in Khammuan province also experienced flooding and proved difficult for vehicles using the road.

The junction of Road No. 13 and Road No. 8, known as 'Km 20', in Pakading district, Borikhamxay province, saw heavy traffic and was greatly affected as it is one of the country's main intersections.

Pakading District Governor Mr Bounyu Phomvongsa said road users found it hard to travel along those roads on Monday due to the heavy rain with small vehicles unable to pass through the overflowing water.

"The excess water on Km 20 was caused by the drains being blocked by garbage,"



Constant rainfall since the weekend has caused flooding on the Km 20 road and South Road No. 13.

Mr Bounyu said, adding that many houses had been built on stilts which allowed the water to overflow onto the main road.

The Public Works and Transport Department has already sent diggers to sort out the problem areas and to ensure that water from the mountains and streams nearby flows better through the low lying areas.

Last year the Km 20 junction also suffered from flooding which caused several problems for transport.

The bridge in Namthone village was also damaged from the strong current and flooding.

Officials explained that if it rained constantly and the drains were not fixed then the area will most likely flood.

Mr Bounyu said drivers should monitor the weather forecast closely before travelling on roads such as 8A as water from the forests, streams and mountains tends to rise quickly after constant heavy rainfall.

## Annex 2 Flash flooding in the northern part of Thailand, Chiang Rai Province, caused by low pressure on 5<sup>th</sup> - 6<sup>th</sup> July 2014

### Chiang Rai hit again by landslide, flash flood



Date : 10 กรกฎาคม 2557

CHIANG RAI, 10 July 2014 (NNT) – The northernmost province of Chiang Rai has been hit again by landslides and flash floods following three days of abundant raining.

Heavy raining over the past three days has triggered a landslide that threw dirt onto the Mae Chan-Doi Mae Salong Rd., effectively making the route impassable. Officials had to bring in excavators to clear a small path through the 50-meter stretch of dirt to allow cars to pass. As many as a thousand families in 8 districts of Chiang Rai have reportedly been afflicted by the heavy raining. Flooding has also been reported in Thoeng District.

The provincial administration has issued a hazards warning in all 18 districts, urging people to be on guard against forest runoffs, landslides and mudslides until Saturday.

The Meteorological Department warned on Wednesday that strong winds and heavy seas will prevail in provinces lining the Andaman coast and the Gulf of Thailand until Monday (July 14).

#### PICTURE

ไม่มีรายการภาพ

#### VDO

Military, police team up to help residents in Chiang Mai's Chaiprakarn affected by flash floods



Date : 13 กรกฎาคม 2557

CHIANG MAI, 13 July 2014 (NNT) –At Baantha and Baanpangkuai, Chaiprakarn District, Chiang Mai province, about a hundred military and police officers led by Chaiprakarn district chief Chatree Kittithanadit, Commander of the Fourth Cavalry Special Division, and Commander of the 334th Border Patrol Police Company are hastening to help local people affected by flash floods. As a first response, residents are offered basic necessities to assist in daily life while displaced. Meanwhile, the water level is reducing gradually.

Information and Source

### Royal assistance to victims of floods and mudslide



Date : 15 กรกฎาคม 2557

NAN, 15 July 2014 (NNT) - Their Royal Highnesses Crown Prince Maha Vajiralongkorn and Princess Srirasmi have designated a royal representative to distribute bags of necessities to people who are suffering from flash floods and mudslide in Bo Klua district, Nan province.

Captain Paiboon Sukjetani of the Bureau of the Royal Household, brought royal bags of necessities to the hands of victims of the disaster at Ban Bo Yuak School in Tambon Bo Klua Nua.

Governor of Nan Ukrit Pheungsopa and military representatives in the district also assisted in distributing 1,000 royal relief packages to affected people and Buddhist monks. His Royal Highness the Crown Prince also instructed a mobile medical unit to provide free medical checkups and treatment to people in the area.

Bo Klua District has faced flash floods and mudslide since July 7 after several days of heavy rain, causing several village roads inaccessible and hardship to hundreds of villagers.

#### PICTURE

ไม่มีรายการภาพ

#### VDO

ไม่มีรายการภาพ

### Annex 3 Flash flooding in the northern Provinces of Viet Nam, caused by low pressure on 13<sup>th</sup> - 14<sup>th</sup> July 2014

## Floodwaters pummel northern Vietnam ahead of tropical storm

By Thanh Nien staff, Thanh Nien News

July 15, 2014 16:00

(mailto:email@domain.com?subject=Floodwaters%20pummel%20northern%20Vietnam%20ahead%20of%20tropical%20storm%207C%20Society%207C%20Thanh%20Nien%20Daily&body=http%3A%2F%2Fwww.thanhniennews.com%2Fsociety%2Ffloodwaters-pummel-northern-vietnam-ahead-of-tropical-storm-28588.h

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Fishermen in Lao Cai Province pull a boat swept far away from the Red River banks due to floodwaters July 14. Photo: Ngoc Bang

Floodwaters emanating from the Hong (Red) River swept away boats and 42.7 hectares of crops in Lao Cai Province's Xat Bat District on Monday morning.

Deputy Head of the District Agricultural Department Phi Trung Kien told *Thanh Nien* that the sudden floods began just after midnight of July 14 have also swept away 20 ships docked along the riverbank -- one of which sank with 30 tons of goods on board.

The floods racked up damages of around VND8 billion (US\$380,000), according to Kien.

Dozens of wards have already been evacuated.

More than 20 communities along the Provincial Road 158 and many small paths were swallowed by the floodwaters causing heavy traffic throughout.

## Annex 4 Flash flooding in the northern Provinces of Viet Nam and Lao PDR, caused by TS RAMMASUN

Monday  
July 21, 2014  
Volume XXIV, Number 3191  
28 pages VND 6,000

# Việt Nam News

THE NATIONAL ENGLISH LANGUAGE DAILY



#### TODAY'S WEATHER

Hà Nội: ..... rain, 26-32°C  
Hải Phòng: ..... rain, 27-31°C  
Đà Nẵng: ..... rain, 26-33°C  
HCM City: ..... rain, 24-33°C

## Longest VN expressway gets moving

HCM CITY — Ground was broken for the country's most expensive and longest expressway from Bến Lức in Long An Province to Long Thành in Đồng Nai Province on Saturday.

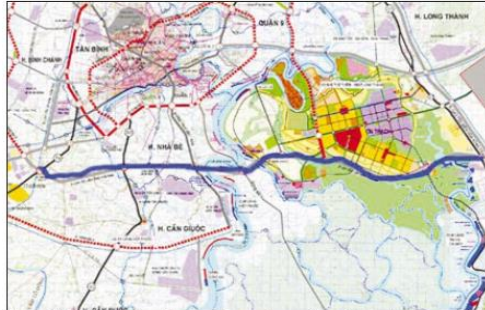
"This project will make a great contribution to the development of the Key Southern Economic Region, especially the south-eastern region, besides promoting the economic potential and generating more opportunities for investment and tourism in HCM City, Long An, and Đồng Nai Provinces," Prime Minister Nguyễn Tấn Dũng told the ceremony held in HCM City's Cần Giuộc District.

He told local authorities to focus on completing compensation payments and supporting affected households in accordance with regulations to ensure the handover of all the requisite land.

The 57.1km key national project is an important part of the North-South Highway.

On completion, the expressway will help create connectivity between the western and south-eastern regions without having to pass through HCM City, and connect the National Highway, Thị Vải - Cái Mép, Sao Mai - Bến Đình International Port systems, and Long Thành International Airport.

It will be part of Ring Road No.3 connecting National Highway No.1, National Highways No.50 and No.51....



A map indicates the route of the country's most expensive and longest expressway from Bến Lức in Long An Province to Long Thành in Đồng Nai Province. The 57.1km national project is an important part of the North-South Highway. — VNA Photo

On completion, the expressway will help create connectivity between the western and south-eastern regions without having to pass through HCM City, and connect the National Highway, Thị Vải - Cái Mép, Sao Mai - Bến Đình International Port systems, and Long Thành International Airport.

It will be part of Ring Road No.3 connecting National Highway No.1, National Highways No.50 and No.51....

## AIDS forum pays tribute to MH17 victims

MELBOURNE — A six-day world forum on AIDS got underway yesterday to tributes to six campaigners killed on Malaysia Airlines flight MH17 and fresh vows to crush a disease that has claimed twice as many lives as World War I.

Thousands of delegates at the 20th International AIDS Conference in Melbourne stood for a minute's silence in honour of six colleagues who had been aboard the plane.

They included Joep Lange, a Dutch scientist who had played a frontline role in the 33-year war on AIDS.

"Let our silence represent our sadness, our anger and our solidarity," said French scientist Françoise Barre-Sinoussi, who co-won the Nobel Prize for helping to discover the virus that causes AIDS.

CONTINUED PAGE 2

CONTINUED PAGE 10

# Typhoon Rammason: 6 dead, 3 missing

Storm batters northern region with heavy floods, triggers deadly landslides

HÀ NỘI — At least six people have been killed and three more are missing since Typhoon Rammason made landfall on north-eastern Quảng Ninh Province's Móng Cái City on Saturday morning.

In northern mountainous Lạng Sơn Province, a 32-year-old man from Xuất Lễ Commune was swept away by floods while crossing a local stream on Saturday afternoon, with his body found six hours later.

Also on Saturday afternoon, three residents of Xuân Hòa Commune in neighbouring Lào Cai Province were also tragically killed after being struck by lightning.

A Ngọc Phái Commune man was also swept away while crossing a stream in northern mountainous Bắc Kạn Province, while a local man in Bình Trung Commune (Chợ Đồn District) was seriously injured during a landslide.

Three people are still missing, including a 60-year-old woman, after being swept away by local streams in the northern mountainous provinces of Lạng Sơn and Sơn La during the storm.

Initial statistics from the National Steering Committee on Flood and Storm Prevention and Control showed the storm had blown roofs off 136 houses and destroyed 9 others in Quảng Ninh, Lạng Sơn and Bắc Giang provinces.

CONTINUED PAGE 3



A resident of Mai Pha Commune in the northern province Lạng Sơn leaves his inundated house in a makeshift raft on Saturday. The flooding was triggered by typhoon Rammason which battered Viet Nam's northern provinces and left at least six people dead. — VNA/VNS Photo Thăng Trung

## FROM PAGE 1

The storm also uprooted 300 trees in Quảng Ninh Province.

In Yên Bái Province, torrential rains triggered by the storm damaged dozens of hectares of rice and other crops.

Torrential rains up to 201mm bashed Mù Căng Chải District between Saturday night and Sunday morning.

Landslides occurring near National Highway 32 and 3 brought traffic to a standstill, reported the provincial Steering Committee on Disaster Prevention, Search and Rescue.

Authorised agencies have since resolved the

build-up, the committee said.

In Bắc Kạn Province, hundreds of crops and rice paddies were inundated, while 36 houses sustained flood and landslide damage.

The landslides also caused traffic to accumulate along a stretch of National Highway 3B. Local authorised agencies have advised they are working to bring the situation under control.

In Sơn La Province, the initial damage from the storm was estimated at about VNĐ2 billion (US\$94,300).

Local authorities are working quickly to overcome the damage left by the storm and help residents resume daily activities. — VNS

Society

Print page

## Typhoon Rammasun death toll rises to ten

Monday, 21/07/2014 - 10:52 AM (GMT+7)



The storm destroyed dozens of houses in Chieng Bang and Ca Nang communes in Quynh Nhai district, Son La province. (Image credit: Nhan Dan)

Nhan Dan/VNA – At least ten people were killed, four were injured and two went missing as typhoon Rammasun swept through the northern mountainous provinces over the weekend, according to initial reports.

>>> Typhoon Rammasun weakens into depression

>>> Typhoon Rammasun makes landfall in Quang Ninh

Lang Son province reported four deaths and Lao Cai province suffered three. Bac Kan, Cao Bang and Lai Chau provinces had one fatality each.

Heavy rains caused flooding in many localities, including Quang Ninh, Son La, Yen Bai, Ha Giang, Bac Kan, Lai Chau, Dien Bien, Lang Son and Cao Bang.

Landslides blocked traffic on many national and provincial roads including National Road 3 in Yen Bai, National Road 279 in Lai Chau and National Roads 1B, 4A and 4B in Lang Son.

Many houses collapsed and large areas of crops were submerged.

Quang Ninh and Son La suffered serious economic damage from the tropical typhoon, the second to hit Vietnam this year, with each estimating losses of VNĐ 2 billion (US\$95,200).

## Landslides kill 7 people in northernmost Ha Giang

PANO - PANO - Monday, July 21, 2014, 20:8 (GMT+7)

 [Print](#)



Rescuers finding bodies of the victims. Photo: TTO

Landslides triggered by torrential rains as a result of storm Rammasun killed seven people in Hoang Su Phi district, the northernmost mountainous province of Ha Giang, local officials said.

Five people, including one child, lost their lives when three houses in Thieng Ray village, Nang Don commune, were buried under earth at 3am on July 21.

Two other people died while sleeping in a tent at the construction side of a road from Ho Thau to Nang Don communes.

Fallen earth and rocks blocked the inter-provincial road 177 traversing Hoang Su Phi, causing serious traffic congestion.

Heavy rains also caused land erosion in fields cultivated by ethnic minority people in many communes.

Secretary of the Hoang Su Phi Party's Committee Hoang Hai Ly said the district has sent hundreds of military and police officers to help the communes deal with the situation.

By early July 21 morning, initial reports said 11 people were killed, four injured and two missing after typhoon Rammasun swept through northern mountainous provinces last weekend.

Source: VNA

Date of FFG products 20/07/2014 00:00 UTC time

1hour Flash Flood Guidance in Vietnam			3hours Flash Flood Guidance in Vietnam		
Provinces	Districts	FFG value	Provinces	Districts	FFG Value
Ha Giang	TX. Ha Giang	15.09	Ha Giang	TX. Ha Giang	22.65
Ha Giang	Dong Van	13.91	Ha Giang	Dong Van	28.65
Ha Giang	Meo Vac	13.10	Ha Giang	Meo Vac	20.12
Ha Giang	Yen Minh	12.83	Ha Giang	Yen Minh	23.86
Ha Giang	Quan Ba	14.83	Ha Giang	Quan Ba	22.30
Ha Giang	Bac Me	14.03	Ha Giang	Bac Me	21.09
Ha Giang	Hoang Su Phi	16.40	Ha Giang	Hoang Su Phi	31.61
Ha Giang	Vi Xuyen	14.23	Ha Giang	Vi Xuyen	24.42
Ha Giang	Xin Man	20.27	Ha Giang	Xin Man	37.35
Ha Giang	Bac Quang	16.46	Ha Giang	Bac Quang	27.98
Cao Bang	Bao Lac	14.20	Cao Bang	Bao Lac	21.43
Cao Bang	Ha Quang	15.94	Cao Bang	Ha Quang	22.86
Cao Bang	Thong Nong	18.52	Cao Bang	Thong Nong	25.90
Cao Bang	Nguyen Binh	16.66	Cao Bang	Nguyen Binh	27.07
Cao Bang	Hoa An	18.52	Cao Bang	Hoa An	25.90
Lao Cai	Bat Xat	20.86	Lao Cai	Bat Xat	37.20
Lao Cai	Sa Pa	24.68	Lao Cai	Bac Ha	41.89
Lao Cai	Than Uyen	24.68	Lao Cai	Sa Pa	40.77
Bac Kan	TX. Bac Kan	16.84	Lao Cai	Bao Yen	41.89
Bac Kan	Ba Be	16.23	Lao Cai	Than Uyen	40.18
Bac Kan	Bach Thong	16.84	Bac Kan	TX. Bac Kan	23.45
Tuyen Quang	Na Hang	15.91	Bac Kan	Ba Be	25.60
Tuyen Quang	Chiem Hoa	14.61	Bac Kan	Ngan Son	35.77
Lai Chau	Phong Tho	20.86	Bac Kan	Bach Thong	23.45
Lai Chau	Muong Lay	15.72	Tuyen Quang	Na Hang	23.53
Lai Chau	Tuan Giao	16.31	Tuyen Quang	Chiem Hoa	21.88
Lai Chau	Dien Bien	18.02	Lai Chau	TX. Lai Chau	46.86
Lai Chau	Dien Bien Dong	19.04	Lai Chau	Muong Te	35.66
Son La	TX. Son La	14.10	Lai Chau	Phong Tho	39.22
Son La	Thuan Chau	17.41	Lai Chau	Sin Ho	45.35
Son La	Mai Son	17.41	Lai Chau	Muong Lay	35.20
Son La	Song Ma	19.07	Lai Chau	Tuan Giao	23.39
Hoa Binh	Ky Son	13.17	Lai Chau	Dien Bien	27.42
Nghe An	Tuong Duong	19.26	Lai Chau	Dien Bien Dong	29.17
Nghe An	Con Cuong	24.26	Son La	TX. Son La	20.80
Quang Binh	Minh Hoa	18.71	Son La	Thuan Chau	30.99
Quang Nam	Dien Ban	20.83	Son La	Mai Son	24.72
Quang Nam	Duy Xuyen	20.83	Son La	Song Ma	37.76
Quang Nam	Que Son	20.83	Hoa Binh	Ky Son	27.34
Phu Yen	Tuy Hoa	22.43	Nghe An	Tuong Duong	26.42
Khanh Hoa	Van Ninh	22.43	Nghe An	Con Cuong	32.64
Dak Lak	Dak Nong	16.43	Quang Binh	Minh Hoa	26.81
Lam Dong	Bao Lam	25.00	Da Nang	Hoa Vang	34.50
			Quang Nam	Hien	34.50
			Quang Nam	Dai Loc	34.50
			Quang Nam	Dien Ban	27.45
			Quang Nam	Duy Xuyen	27.45
			Quang Nam	Que Son	27.45
			Phu Yen	Tuy Hoa	29.41
			Khanh Hoa	Van Ninh	29.41
			Kon Tum	Sa Thay	41.75
			Gia Lai	Chu Pah	40.96
			Gia Lai	Ia Grai	42.04
			Dak Lak	Dak R'Lap	38.62
			Dak Lak	Dak Nong	32.96
			Lam Dong	Bao Lam	38.32
			Binh Phuoc	Bu Dang	33.64
			Binh Thuan	Ham Thuan Bac	45.04
			Binh Thuan	Ham Thuan Nam	43.08

## Rice farmers fear flooding along Xebangfay

### Times Reporters

Rice growers living near the Xebangfay River fear that their rice fields will be submerged after the river began overflowing on Tuesday.

The river, which flows along the border of Khammuan and Savannakhet provinces, is overflowing after a series of heavy rain events in the wake of Rammasun typhoon that hit the northern part of Vietnam last week.

Xebangfay district

Governor Mr Bounsy Phimmamaxay said, "The rain stopped on Tuesday morning but the water is still rising."

The water level in the river was seen to be at 17-18 metres on Tuesday morning.

If the river rises to a level between 18.5 to 18.81 metres, then several hundred hectares of rice fields will be flooded.

If the river rises to 19 metres then hundreds of homes in Xebangfay district will be flooded instantly.

CONTINUED PAGE 3

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## Rice farmers fear... FROM PAGE 1

Mr Bounsy said, "The district is located on the banks of Xebangfay River and I believe that several houses will suffer flooding if the river continues to rise in the next few days."

The homes located on the Savannakhet side of the river did not experience any flooding as they had built a small embankment to prevent the river from overflowing.

The Department of Meteorology and Hydrology issued a warning on Monday for people living near the river in both Khammuan and Savannakhet provinces.

The department said the river may flood from July 22 to

23 due to the rising water levels and urged residents to move to higher ground.

Xebangfay River's water level reached 16.52 metres at 7am on Monday morning.

In 2011, more than 1,000 people living in eight villages in Xebangfay district were affected by flooding.

Flooding across the country last year damaged or destroyed more than 29,300 hectares of rice crops at an estimated cost of 267 billion kip.

It wasn't just rice crops that were damaged by the floods; there was also extensive damage to irrigation systems, roads, schools and health centres, as well as houses and

livestock.

In Khammuan province, the total damage was around 362 billion kip after more than 400 villages in six districts were flooded. About 35,300 families and 180,000 people were affected.

The six worst affected districts were Nongbok, Xebangfay, Hinboun, Mahaxay, Nhommalath and Phoukham, with major flooding along the Xebangfay and Hinboun river catchments.

About 10,000 people were evacuated from low lying areas until floodwaters receded and provincial authorities could help residents return to their homes.

## Annex 5 Flash flooding in the southern and central Provinces of Lao PDR on 2<sup>nd</sup> - 4<sup>th</sup> August 2014

Vientiane Times

Monday August 4, 2014 | Home news | 3

### Education ministry to promote labour skills

Phaisyong Chandra

State owned vocational schools around the country will accept more students for this academic year amid a rising demand for skilled labour, a senior education official has said.

An official from the Ministry of Education and Sport's Technical and Vocational Education Department told *Vientiane Times* recently that more than 20 state owned technical and vocational schools around the country will accept over 10,000 students for this academic year.

Meanwhile the number of students studying at vocational schools is expected to increase over the next few years to meet the demand of the labour market, he said.

The official explained that the ministry's decision to accept more students into vocational education programmes was also part of the development plan to boost skilled labour from 2010 to 2015.

"Accepting more students will produce more skilled human resources in preparation for integration with the Asean Economic Community in 2015," he said.

The vocational courses provide skills to suit the needs of the labour market and give young students the expertise needed for the development of their communities.

To meet market demand the vocational schools have introduced new courses including mining, electrical engineering, construction, electronics, auto mechanics, hospitality and other related subjects, for which Laos is currently facing a shortage.

Courses can improve the

students' chances of setting up a business and are offered as either a two or three year programme.

With support from its development partners, the ministry provides financial incentives for the students so as to encourage them to study at vocational schools.

At present, most secondary school graduates do not want to go to vocational schools as they believe that they will not get good jobs at the end of it. Some think that if they finish vocational school, they will only end up working as labourers for paltry salaries.

Demand for skilled labour saw a rapid increase over the past few years thanks to the government policy to promote foreign investment. At present a number of foreign firms are having to import foreign labour due to a shortage in the domestic supply.

Besides state-owned vocational institutes, the ministry plans to encourage the private sector to build vocational colleges and schools in order to produce skilled labour to help develop national socio-economic growth.

At present, there are over 80 private vocational institutes around the country offering courses in business, IT, agriculture and other related subjects.

These institutes also offer opportunities for school leavers to attend short or long-term courses locally, according to the department.

Although student numbers entering vocational education have gradually increased over the past few years, Laos is still suffering from a lack of skilled labour.

### Borikhamxay villagers to be paid for environment services

Times Reporters

The Lao government has identified payments for environmental services as a way to achieve environmental management goals and improve smallholder livelihoods.

It is recognised that villagers in Laos need some financial incentive and long term interest in the preservation of biodiversity if they are to be recruited to participate in conservation efforts.

However the issue now for policy makers is how they can be rewarded financially for not degrading forests or ecosystems through inappropriate harvesting of trees or forest products or the illegal hunting of wildlife.

In this regard, a Memorandum of Understanding to implement a Payments for Environmental Services (PES) scheme in Borikhamxay province was signed recently between the project 'Effective Implementation of Payments for Environmental Services in the Lao PDR and the Provincial Department of Natural Resources and Environment.

The MOU was signed in Borikhamxay province between the project leader Mr Khamphan Nanthavong from the Ministry of Natural Resources (MONRE) and the Director of the Provincial Department of Natural Resources and Environment Mr Khampasong Vongtana.

The event was also



The MOU is signed in Borikhamxay province to implement the PES scheme.

attended by Deputy Governor of Borikhamxay province Ms Bounhong Sisouvanakhone as well as representatives from the Environment Protection Fund (EPF), the Forestry Department within the Ministry of Agriculture and Forestry (MAF), project team members and other government officials.

The project coordinator, Associate Professor Phouphet Kyophilavong from the National University of Laos, said that the overall project aim was to develop PES policy options for the Lao government.

PES schemes aimed to increase the amount and quality of environmental services. This

is achieved by establishing and sustaining a financial link between those with a demand for environmental services and those who have the potential to supply them.

PES schemes provide financial benefits to smallholders who improve environmental conditions through changing their land use practices. The payment for villagers will be funded by Thein Hinboun Power Company though the Environment Protection Fund (EPF).

The payments are expected to commence next year but the officials and advisors concerned have yet to determine exactly

how the payments will be calculated or how they will be divided up amongst local communities.

However if the pilot project in Borikhamxay proves to be successful it will be proposed to the government for upgrading the scheme into national policy and rolling it out nationwide.

The research activities are being funded by the Australian Centre for International Agricultural Research within the Australian government and undertaken by MONRE, MAF, the National University of Laos, the Australian National University (ANU) and the University of Western Australia (UWA).

### Child drowns in Champassak province

Times Reporters

One child drowned in a river in Champassak province on Saturday after flash flooding caused it to rise rapidly. Deputy Governor Mr Somsanith Bouthavong told *Vientiane Times* on Sunday.

The child was two years of age, he said. Apparently, the child's father did not see his son following him while he was wading out to check the gill nets he had set across the Khakaeng River.

In a tragic outcome, the man checked the net and found that it did not contain any fish but had entangled his son instead.

The preliminary report from local authorities stated that the

districts of Soukhouma, Khong, Champassak, Sanasomboun and other localities in the province experienced flash flooding after heavy rains on Friday.

Soukhouma district experienced the most serious flooding, which saw flash flooding and inundation of low lying areas in 36 villages after torrential rains.

The report did not detail exactly how many households, the rice fields, roads and schools suffered damages due to the flooding because each district will report this information separately, according to the provincial administration office.

The heavy rains and flash flooding also saw the level of

the Mekong river rise over the weekend as flood waters made their way down the catchment.

Officials from Soukhouma district office reported on Sunday morning that the flood waters had receded by about 3cm.

People in all 36 villages have now moved their livestock and possessions to higher ground where necessary, authorities reported.

According to the Meteorology and Hydrology Department on Sunday, the level of the Mekong River in Champassak province had fallen by about 5 cm and is not expected to flood unless further heavy rains arrive.

There are about 20 major storms that occur yearly in

the region between June and September and so far nine have been recorded this year.

Typhoon Rammasun formed near the Philippines and then brushed past Laos last month before hitting Vietnam and China.

Laos was fortunate on this occasion as the typhoon's path meant that it only caused some rain to fall on the country without the major devastation that struck neighbouring countries.

According to the Meteorology and Hydrology Department, a new tenth storm for the season has developed near the Philippines but is still only relatively small in size. However, weather authorities will keep monitoring its path.

#### Weather forecast

Xiang Khuang				
Date	Temperature in (C)		Weather	
	Min	Max		
04/08/2014	20	29		Partly cloudy
05/08/2014	20	30		Partly cloudy
06/08/2014	21	30		Scattered showers
Luang Namtha				
Date	Temperature in (C)		Weather	
	Min	Max		
04/08/2014	22	31		Isolated showers
05/08/2014	23	31		Light rain
06/08/2014	23	32		Light rain
Luang Prabang				
Date	Temperature in (C)		Weather	
	Min	Max		
04/08/2014	24	34		Isolated showers
05/08/2014	25	34		Isolated showers
06/08/2014	25	34		Light rain
Vientiane Capital				
Date	Temperature in (C)		Weather	
	Min	Max		
04/08/2014	26	34		Isolated showers
05/08/2014	26	34		Light rain
06/08/2014	27	34		Light rain
Savannakhet				
Date	Temperature in (C)		Weather	
	Min	Max		
04/08/2014	25	31		Isolated showers
05/08/2014	26	32		Isolated showers
06/08/2014	27	32		Isolated showers
Champassak				
Date	Temperature in (C)		Weather	
	Min	Max		
04/08/2014	24	28		Scattered showers
05/08/2014	23	28		Scattered showers
06/08/2014	24	29		Isolated showers



Some houses were flooded in Pakxe district of Champassak province over the weekend.

## 57 people sentenced for illegal state land deals in Phonhong

Somxay Sengdara

Vientiane province People's Court has sentenced 49 residents and eight government officials and civil servants to 10 months or longer terms of imprisonment for conducting illegal trade deals of more than 2,000 hectares of state land in the province's Phonhong district.

The verdict of the provincial court delivered on June 5 was revealed to *Vientiane Times* by the province's Inspection Authority yesterday.

The sentences concerned the illegal trade of state property, the abuse of power, or both offences.

According to the report from the authority, the illegal deals were made intensively in the period when the government was preparing to dissolve the Land Management Authority as the new Ministry of Natural Resources and Environment was established.

While this was happening, some officials and civil servants seized the opportunity during the transition to cheat with land traders and village authorities by creating unauthorised documents for transferring state owned land to individuals so that they could have legal ownership before selling on to companies and individuals.

Following a public speculation, the province's Party Standing Committee assigned a taskforce to inspect land concessions, land title deed issuing, land rights transference and revenue

collection from land in all 13 districts of the province last year (the period before two of the districts were handed over to the newly established Xaysomboun province).

With the inspection authority as the leading body, the taskforce reported the results of the 15-day inspection conducted in Phonheun, Phontong, Huaydeua and Nongkhone villages to the concerned officials for investigation, which found cases of document forgery, with one piece of land having several title deeds and several people claiming ownership of the same land.

"One piece of land was sold to several people who were all claiming ownership of the land at the same time," The provincial Inspection Authority Head Mr Boumpheng Saynorady said.

The investigation also found cases of transferring state-owned lands to individual ownership, back-tax payments for claiming ownership in past years and bribery provisions for officials and village authorities.

The officials involved in the offences included a land official from the Vientiane Department of Natural Resources and Environment Mr Souphon, 43, two civil servants from Vientiane's Naxaythong district administration office Mr Ounhuan, 51, and Mr Boumtem, 56, four land civil servants from Phonhong district Mr Kam Xaysith, 31, Mr Sengphet, 32, Mr Phoukhiew, 51, and Mr Vieng Sengdala,

53, and a land civil servant from Viengkham district in the province Mr Sisaveuy, 35.

The court sentenced Mr Souphon, Mr Sengphet, Mr Phoukhiew, Mr Vieng, Mr Sisaveuy, Mr Ounhuan and Mr Boumtem to 13 months imprisonment and fined them 1.1 million kip for each illegal deal of state property and each abuse of power.

The court sentenced Mr Kam Xaysith for illegal deals with state property and the abuse of power to two years and 10 months imprisonment and fined him 1.8 million kip.

The offences caused a loss of around 2 billion kip in state property although some 700 million kip has been successfully recovered.

The trial and sentences relating to corruption was the third such case revealed to the media this year after Huaphan People's Court sentenced 10 government officials in May for laundering teachers' salaries and last month sentenced eight men and one woman to lengthy terms of imprisonment for embezzlement of the state budget, amounting to almost 10 billion kip.

In Vientiane province the taskforce also found illegal deals on state land in Hinheup district which had government officials' involvement and bribery provision.

According to the official from the inspection authority, the provincial people's prosecutors are summarising the cases for submission to the court.



The rising level of the Xong River in Vang Vieng district has damaged guesthouses located along the river, as shared on social media.

## Officials warn of flooding in central and southern Laos

PhoonsabThevongsas

The Department of Meteorology and Hydrology of the Ministry of Natural Resources and Environment has issued a flood warning this week to people who live along main rivers due to continuing rainfall this month.

Following the depression that swept through the central and the northern parts of Laos, southwest winds through the country have been bringing heavy rainfall mostly to the central and southern part of Laos.

Deputy District Governor of Vangvieng district, Vientiane province, Mr Bounchan Malavong said, "The heavy rain that fell this week caused the rise of the Xong River

damaging rice fields and guesthouses located along the river. We are now in the process of surveying and estimating the damage. Currently the level of the river seems constant but we are unsure and are prepared to give warnings to people who live along the river to keep following the weather forecast news, move their valuable possessions and cattle away to higher locations and prepare sand bags for the at risk locations."

Apart from Vientiane province there were also reports of flood damage in Luang Prabang, Champassak, Attapeu, Saravan and Xekong provinces.

According to the warning that was announced on August 5, the level of the Mekong

River in Champassak province on the same day had risen above the standard level of 11 metres, over the alert level of 11.5 metres and it was predicted to rise up to the danger level of 12 metres.

At the same time other major rivers that link to the Mekong have also risen. The Xe Champhone has risen to 8.1 metres, which is over the lookout level of 7.5 metres, the Xe Bangfai has risen to 18.88 metres, which is above the danger level of 18.5 metres and other rivers are apparently continuing to rise.

Authorities urge people to frequently follow the weather forecasts and information of river levels from the Department of Meteorology and Hydrology.

## Murder-suicide in Luang Namtha

Times Reporters

A woman and a man were found dead inside a rubber tree plantation in Oudomsin village, Sing district, Luang Namtha province on July 13.

Luang Namtha Provincial Police believe the incident was a murder-suicide, with the two victims being husband and wife.

They suggested the couple was under the influence of drugs when a heated argument broke out.

Mr Puekor-nhai, aged 28 and his wife Ms Menai, aged 29, lived in Phayathung village of Sing district, Luang Namtha province.

According to *Khuansangop Newspaper*, police questioned the couple's relatives who said Mr Puekor-nhai and Ms Menai had been in a string of heated

arguments and Mr Puekor-nhai had taken amphetamines.

On the day of the incident, residents from the village went to work at the plantation in the evening. They claimed to have heard a male and female arguing, adding that they were not surprised as Mr Puekor-nhai and his wife were always quarrelling.

Further police investigations revealed that Mr Puekor-nhai had three wounds to his abdomen, while his wife suffered 11 knife wounds to her abdomen, chest and arms.

Police took a knife away as evidence and also discovered 24 amphetamine pills inside Ms Menai's underwear.

Police suspect that Mr Puekor-nhai had taken drugs when he began to argue with his wife and in the height of his rage, murdered his wife before

taking his own life.

In another recent case in Khoun district of Xieng Khuang province, Ms Karesong, aged 27 and her 1-year-old daughter from Namha village, Anouvong district, Xaysomboun province were murdered.

Xieng Khuang Provincial Police investigations revealed that Ms Karesong had a 10 centimetre wound on the back of her neck, while her supraorbital ridge was fractured after possibly being hit with a hard object.

Ms Karesong's face was covered in blood and bruises, while her daughter suffered a knife wound to her jaw.

Currently Xieng Khuang Provincial Police are searching for the suspect involved in this tragic double-murder.

Xayxana Leukai

Ministry of Health officials are keeping a close eye on travellers, who are travelling to or from African countries, where a severe outbreak of Ebola has occurred.

Deputy Minister of Health Assoc Prof. Dr Bounkong Syhavong told *Vientiane Times* yesterday that even though Laos was at low-risk of being infected with Ebola, the ministry was not hesitating with preparations to fight against the virus.

Dr Bounkong said, "Lao officials and people may not work in the African countries (Guinea, Liberia, Nigeria and Sierra Leone), where a severe epidemic of Ebola is ongoing but foreign technicians and experts working in Laos may visit these countries from time to time."

"As a result, it is necessary for Laos to prepare some measures to fight the virus."

"People who have travelled from these countries should receive a health check-up from a medical team at the airport or at the Friendship Bridge in order to gain entry into Laos."

Health check-ups will be practiced in a similar fashion to methods used to fight against Severe Acute Respiratory Syndrome (SARS) and avian influenza.

In hospitals located in

Vientiane, a single room has already been vacated to accommodate patients suffering from the Ebola virus.

In order to prevent the spread of Ebola, Dr Bounkong advised the public to consistently wash their hands with soap.

It is extremely important to properly wash your hands after using the toilet, visiting the hospital, cooking food such as meat, touching pets, before touching infants or children, after collecting and throwing out garbage and after sneezing, coughing or blowing your nose.

We should remember that we can get infected with diseases even at home, so it is necessary to teach good hygiene practices to family members, especially children.

Dr Bounkong said that Ebola was more dangerous than SARS and avian influenza due to the disease having a high mortality rate: often killing between 50 percent and 90 percent of those infected with the virus.

There is no specific treatment for the disease; efforts to help persons who are infected include giving either oral rehydration therapy (slightly sweet and salty water to drink) or intravenous fluids.

According to World Health Organisation, as of August 1, 2014, the cumulative number of

cases attributed to Ebola virus disease in the four countries stands at 1, 603 including 887 deaths. The distribution and classification of the cases are as follows: Guinea, 485 cases (340 confirmed, 133 probable and 12 suspected) including 358 deaths; Liberia, 468 cases (129 confirmed, 234 probable and 105 suspected) including 255 deaths; Nigeria, 4 cases (0 confirmed, 3 probable, 1 suspected) including 1 death; and Sierra Leone, 646 cases (540 confirmed, 46 probable and 60 suspected) including 273 deaths.

Ebola was first recognised in 1976 as the cause of twin outbreaks of disease near the Ebola River in the Democratic Republic of the Congo (then known as Zaire) and in a region of Sudan. Some 300 people in each country became infected. The mortality rate was 88 percent in Zaire and 53 percent in Sudan (the Zaire subtype is the most deadly).

Health officials believe that bats and monkeys are an Ebola carrier to humans. Person-to-person transmission by means of direct contact with infected persons or their body fluids/secretions is considered the principal mode of transmission. Efforts are ongoing to develop a vaccine; however, none yet exists.

## US\$5.6 million illegal... FROM PAGE 1

to take part in illegal logging in Laos and then transfer the logs back into Vietnam. However, the actions allegedly conducted by residents of the neighbouring country were not found in this recent investigation.

Illegal logging has been reported as an ongoing issue occurring in many provinces across Laos. A police report showed 257 cases involving the illegal trading of timber in 2013, topping the year's list of 559 economic-related cases.

### French language magazine

Le Rénovateur is a weekly magazine of general information written in French and discussing current events in Laos. Readers can enjoy articles about culture, consult their horoscope and find out about radio and TV programmes, as well as check on current movies at the French Language Centre. There are also cookery items as well as personal profiles. The magazine costs only 10,000 kip per issue, and is published every Monday. You can buy it at kiosks or directly from our office on Nampou Square at the Lao Press in Foreign Languages on Fangkhim Street in Vientiane.

You can also read it on our website: [Lerenovateur.org.la](http://Lerenovateur.org.la)

## Annex 6 Flash flooding in the northern Province (Lai Chau) of Viet Nam on 12<sup>th</sup> August 2014

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### Lai Chau: flash flood kills two, injures two

12/08/2014 | 17:08:08

Two people were killed while three went missing and two others were injured during a flash flood in Tam Duong district, the northern mountainous province of Lai Chau in early morning of August 12.

According to Hoang Tho Trung, Chairman of the district People's Committee, at 2am, the flash flood swept away a house in Thac Can hamlet, Tam Duong town with seven inside. Two people escaped with injuries.

Among five people swept away, search teams have only found the bodies of two. Three others remain missing.

The same day, a rock fell onto a house in Chu Va 8 hamlet, Son Binh commune, also in Tam Duong district, killing a child. The parents are under treatment at the district's hospital.-VNA

Date of FFG products 11/08/2014 00:00 UTC time

1hour Flash Flood Guidance in Vietnam			3hours Flash Flood Guidance in Vietnam		
Provinces	Districts	FFG value	Provinces	Districts	FFG Value
Lao Cai	Bat Xat	20.88	Lao Cai	Bat Xat	41.76
Lai Chau	Muong Te	11.61	Lai Chau	Muong Te	17.32
Lai Chau	Phong Tho	20.88	Lai Chau	Phong Tho	42.37

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### Flash floods in northern provinces claim one more life

14/08/2014 | 11:02:39



Floods inundate National Road 4D in Lai Chau's Binh Lu commune (Photo: VNA)

Floods triggered by torrential rains in northern mountainous provinces claimed a life and left another missing on August 13, said the Central Steering Committee on Flood and Storm Control.

A ten-year-old boy in Sin Ho district, Lai Chau province was killed when he was passing a dam spillway. A 19-year-old man in Van Ban district of Lao Cai province was swept away when he was crossing a stream.

In early morning of August 12, five people were killed, while two others were injured during a flash flood in Tam Duong town in Tam Duong district.

Heavy rains and floods also destroyed houses, damaged rice fields and many sections of roads in the two provinces of Yen Bai, Ha Giang, Lao Cai and Lai Chau.

The Lai Chau authorities asked local relevant agencies to continue keeping a close watch on the developments of the

natural calamities, outlining evacuation plans while inspecting the system of dykes and embankments and irrigation works.

According to the Lai Chau Centre for Hydro-Meteorology Forecasting, rains continue in the locality in several days to come.-VNA

Date of FFG products 12/08/2014 00:00 UTC time

1hour Flash Flood Guidance in Vietnam			3hours Flash Flood Guidance in Vietnam		
Provinces	Districts	FFG value	Provinces	Districts	FFG Value
Ha Giang	Dong Van	17.05	Ha Giang	Dong Van	32.45
Ha Giang	Hoang Su Phi	12.93	Ha Giang	Yen Minh	47.19
Ha Giang	Vi Xuyen	12.93	Ha Giang	Quan Ba	38.73
Ha Giang	Xin Man	12.93	Ha Giang	Hoang Su Phi	25.45
Lao Cai	Bat Xat	11.63	Ha Giang	Vi Xuyen	29.12
Lao Cai	Sa Pa	11.82	Ha Giang	Xin Man	32.43
Lao Cai	Than Uyen	10.82	Lao Cai	Bat Xat	16.04
Lai Chau	Muong Te	14.21	Lao Cai	Bac Ha	46.62
Lai Chau	Phong Tho	13.50	Lao Cai	Sa Pa	24.08
Lai Chau	Sin Ho	17.23	Lao Cai	Bao Yen	46.62
Lai Chau	Muong Lay	15.14	Lao Cai	Than Uyen	27.52
			Lai Chau	TX. Lai Chau	40.53
			Lai Chau	Muong Te	25.94
			Lai Chau	Phong Tho	18.62
			Lai Chau	Sin Ho	29.13
			Lai Chau	Muong Lay	30.71

## Annex 7 Flash flooding in Thanh Hao, Viet Nam, on 30<sup>th</sup> August 2014, caused by ITCZ

Monday September 1, 2014

### NATIONAL

vietnamnews.vn Việt Nam News 3

## Government funds local flood shelters

**HÀ NỘI** — Prime Minister Nguyễn Tấn Dũng has ordered the release of aid that will enable each poor household in Việt Nam's central region to build storm- and flood-resistant homes.

The Prime Minister wants each qualified household in the region, estimated to number in the thousands, to receive between VND12 million to VND16 million (US\$570 to 760) in funds sourced from the State and provincial budgets for the purpose.

Beneficiaries will also be provided with a maximum preferential loan of VND15 million from the Bank for Social Policy for the construction of the homes. This policy is to be carried out from now till 2016.

An estimated eight to

nine typhoons and storms pass through the central region every year and cause much harm to lives and property. Last year, exactly 285 people were killed and VND28 trillion (\$1.3 billion) worth of property destroyed during the rainy season, as a result of typhoons and storms.

Earlier this year, the Construction Ministry asked the Government to promulgate policies on building storm-resistant homes for more than 86,000 households in 20 coastal provinces from Quảng Ninh in the north to Bà Rịa-Vũng Tàu in southern Việt Nam.

The estimated number of affected households is based on survey and evaluation results on the housing situation in areas prone to typhoons, storms and low pressure areas. — VNS

## Police keep holiday traffic under control

**HÀ NỘI** — Transportation remained under control in Việt Nam's major cities on the second day of the four-day Independence Day break.

However, the National Traffic Safety Committee reported at least 16 people killed and 20 others injured in 32 traffic accidents yesterday. It also reported that traffic policemen across the country charged a total of VND4.8 billion (US\$218,000) in fines and dealt with more than 8,000 cases of traffic violations.

In HCM City, traffic will be rerouted from 7 p.m. to 9:15 p.m. tomorrow from some routes near the Sài Gòn River such as Nguyễn Huệ, Hàm Nghi, Hồ Tùng Mậu and Tôn Đức Thắng, in preparation for firework displays.

Officials reported that thousands of people marked the holiday yesterday by returning to their

**Traffic policemen charged VND4.8 billion (US\$218,000) in fines and dealt with more than 8,000 cases of traffic violations.**

increased by 3,000 compared with that of the same period last year, and that the station had been monitoring ticket pricing, ensuring that prices would only rise by 30 per cent compared with that of normal days.

At Binh Khanh ferry in the Nhà Bè-Cần Giẽ districts of HCM City, thousands of people and vehicles lined up along a two-kilometer stretch, waiting to cross the ferry to reach the city. Officials estimated about 46,000 passengers crossed the ferry yesterday, an increase of 16,000 compared with that

## War martyrs laid to rest in Đồng Nai province

**ĐỒNG NAI** — More than 100 martyrs who lost their lives in the war against the US were laid to rest in Nhơn Trạch district, in the southern province of Đồng Nai yesterday.

The burial was carried out following a three-year search for the martyrs' remains. At the event were President Trương Tấn Sang, Permanent

Member of the Party Central Committee's Secretariat Lê Hồng Anh, National Assembly Vice Chairwoman Nguyễn Thị Kim Ngân and Defence Minister Phùng Quang Thanh.

During the war against the US, the battlefields of Nhơn Trạch saw some of the most severe fighting in the southeastern region that led

to the deaths of countless soldiers from all over Việt Nam, most of them still quite young.

On June 20, 2013, a mass grave containing the remains of more than 20 soldiers was discovered in Đồng Nai. Last August 18, another grave was found with the remains of more than 100 martyrs. — VNS

### No more cars



Work begins on installing "no cars" signs at the Xuân Thủy-Hồ Tùng Mậu intersection yesterday in Cầu Giấy District. Despite cars being banned by officials from entering the Cầu Giấy-Xuân Thủy route, a number of drivers have been seen using the street and have been instructed by police to divert their route. — Photo vnexpress.net

## Official calls for approval of HIV / AIDS prevention project

**HCM CITY** — A deputy head of the Administration of HIV/AIDS Control last Friday urged people's committees in provinces and cities to quickly approve a project on the local HIV/AIDS prevention and allocate funds for it.

At a meeting between the National Assembly's Committee for Social Affairs and relevant agencies in the southern region, Phạm Thị Thu Hương said only 26 provinces and cities have so far approved and funded the HIV/AIDS prevention programme, which has been handed down to them by the Government since foreign aid for it has

decreased.

Hà Tĩnh Province has earmarked VND4.5 billion (US\$214,300) annually for the next five years, while Khánh Hòa has approved VND7.7 billion (\$366,660) for the next two years, she said.

The total number of people with HIV in the country was 219,163 as of June, with 67,557 others having full-blown AIDS.

Though new HIV and AIDS incidence as well as the number of deaths have reduced since 2007, there is a fear that if the funding is not adequate to maintain preventive activities, the incidence could rise again, she said.

An upward trend is al-

ready seen in the south-eastern and northern mountainous regions, she said.

Also bucking the trend of falling incidence is the 30-39 age group, which has been contracting HIV at an increasing rate since 2002.

Only one third of the people with HIV in the country have received treatment so far.

Nguyễn Văn Cường, deputy head of the Tây Ninh Province Department of Health, said the Government should increase allocation for HIV prevention since many provinces and cities lack resources and thus push the issue to the back burner. — VNS

### BRIEFS

#### 1.6m children to get free measles vaccine

**HÀ NỘI** — The capital city will provide a free vaccine combining measles and rubella to around 1.6 million of children, aged one to 14 years, in a campaign that begins this October.

During the campaign, children aged under five years will receive the vaccine at commune and ward health clinics while those aged six to 14 years will receive the vaccine at primary and secondary schools.

The City's Preventive Medicine Centre plans to safely provide the vaccine to at least 95 per cent of targeted children.

#### Coach, motorbike collision kills 3

**QUẢNG TRỊ** — Three people were killed on Saturday after a passenger bus and a motorbike collided on National Highway 9 in Đắk Rông District of Quảng Trị.

The coach was traveling to Đồng Hà city and was being driven by 30-year-old Nguyễn Việt Quỳnh from Lào Bào town.

The three motorbike passengers died instantly. The case is under investigation.

Meanwhile, traffic police in Quảng Nam Province are looking for the driver of a vehicle that apparently encroached its side of the road and hit a motorbike on Saturday afternoon in the area of Tam An commune in Phú Ninh District of Quảng Nam.

One of the motorbike passengers was killed, with the victim's body dragged more than 10 metres, according to witnesses.

#### Floods leave 2 girls dead, 1 missing

**THANH HOÀ** — Two girls drowned while one remains missing after they were swept away by floods in the mountainous Núi Thành District in Thanh Hóa Province on Saturday. District authorities yesterday said they had already recovered the two bodies while search teams were still looking for the missing girl.

The victims, two of them 12-year-old students, are residents of Hố Cầu Hamlet in the Mậu Lâm Commune of Núi Thành District. They were reportedly trying to pass a spillway at Mậu Lâm Commune when the accident happened. — VNS

Date of FFG products 29/08/2014 00:00 UTC time

1hour Flash Flood Guidance in Vietnam			3hours Flash Flood Guidance in Vietnam		
Provinces	Districts	FFG value	Provinces	Districts	FFG Value
Lao Cai	Bat Xat	16.03	Lao Cai	Bat Xat	37.46
Lao Cai	Sa Pa	16.40	Lao Cai	Sa Pa	31.77
Lao Cai	Than Uyen	16.40	Lao Cai	Than Uyen	21.28
Lai Chau	Phong Tho	16.03	Lai Chau	Phong Tho	39.07
Hoa Binh	Ky Son	17.48	Hoa Binh	Ky Son	27.36
Nghe An	Tuong Duong	20.36	Thanh Hoa	Thuong Xuan	38.52
Nghe An	Con Cuong	22.00	Thanh Hoa	Nhu Xuan	38.52
Kon Tum	Sa Thay	15.72	Nghe An	Que Phong	39.03
Gia Lai	Chu Pah	16.72	Nghe An	Quy Chau	38.52
Gia Lai	la Grai	17.56	Nghe An	Tuong Duong	30.12
Dak Lak	Dak R'Lap	22.11	Nghe An	Con Cuong	30.15
Dak Lak	Dak Nong	21.27	Kon Tum	Dak Glei	37.62



# Vientiane Times

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SATURDAY SEPTEMBER 6, 2014 ISSUE 209

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4500 kip

## Vientiane reopens truck weigh stations



More and more heavy trucks are travelling on Lao roads. (File photo)

### Times Reporters

Four weigh stations and a mobile inspection unit have reopened in Vientiane to monitor trucks in a bid to reduce the amount of damage done to roads by heavy vehicles.

Weigh stations are designed to monitor the

weight of trucks and enforce load limits on bridges and roads.

It is increasingly evident that roads and bridges are rapidly deteriorating in Vientiane, with many being damaged by trucks carrying timber, cement, rocks and other heavy loads. Trucks are also accelerating the break up

of roads across the country.

Some roads are also suffering from flooding that washes out thin layers of asphalt, while others are poorly maintained due to budget constraints.

The government closed weigh stations in 2011, but since then many roads have been damaged due to

the proliferation of heavy vehicles.

Individual provinces can identify monitoring points for heavy-vehicle weigh stations if they find that overloaded trucks are causing roads to deteriorate, Deputy Director General of the Transport Department of the Ministry of Public Works and Transport, Mr Boualit Phathoumthong, told *Vientiane Times* on Thursday.

"We're rechecking heavy vehicles as they are the main cause of damage to roads and bridges, as well as depositing dirt on city roads," he said.

The four weigh stations are located outside the city centre at Chaengsavang village on Road No. 13 North, Khoksa-ath village on Road No. 13 South, Dongphosy village at the Lao-Thai Friendship Bridge, and Nongda village on National Road No. 11.

The mobile unit will travel around Vientiane to monitor all heavy vehicles including those carrying sand and gravel.

The regulations state that trucks cannot carry loads in excess of 9.1 tonnes per axle.

Vientiane officials issued fines to 2,600 overloaded trucks from 2013 to 2014, generating 760 million kip for the Road Maintenance Fund.

Roads in Laos are not being maintained to the standard they should be and many are breaking up as the government budget for road maintenance falls well short of what is required.

The Road Maintenance Fund needs about 800 billion kip each year to maintain roads throughout the country, but the government can only source 30 to 35 percent of what is required.

The Fund currently receives income from three main sources: gasoline and diesel oil excise taxes, charges levied on vehicles crossing the Mekong at international borders, and fines imposed on overloaded trucks at heavy-vehicle weigh stations at border checkpoints and inside the country.

The percentage of roads rated excellent to good has fallen in recent years. In 2013 it had fallen to about 19 percent, the other ratings being fair, poor and bad.

## Xayaboury residents hit hard by recent flooding

### Phomphong Laoin

Almost 700 families in Ngeun district, Xayaboury province have been affected by recent flooding, with the damage amounting to more than 10 billion kip.

According to reports from local authorities, August 29 brought extremely heavy rains which led to widespread flooding.

More than 3,000 people are cut off from neighbouring towns and districts as a result of the flooding, with landslides and washouts preventing traffic from passing on many roads.

Authorities reported that some 666 families in 15 villages of the district were affected by the flooding, with almost 400 hectares of land being inundated.

A significant area of

farmland was flooded including 15 hectares of rice fields, 81 hectares cornfields, 80 hectares of job's tear fields, two hectares of banana plantations, 3.5 hectares of sugarcane and some tree plantations.

Many livestock were also lost including 49 pigs, seven cows and almost 4,000 poultry birds while 69 fish farms were inundated.

Ngeun District Governor Mr Boumany Chanthip told *Vientiane Times* the authorities were continuing to check other damage in the district and referring the results to the concerned departments.

They also mobilised residents and soldiers to clean the flooded towns and villages and provide assistance to residents in need.

Meanwhile the affected villagers are still waiting for



Flooding in Ngeun district, Xayaboury province.

supplies of food and clean water, not only in Ngeun district but also Hongsa district, where there is moderate flooding as well.

Ngeun district residents are no strangers to flooding, as it flooded last year as well, but not as seriously as this time around.

Currently the authorities are working to prepare for dry season planting in a bid to compensate for the crops lost to flooding.

### INSIDE

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**Education to boost development in Borikhamxay**  
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## Annex 8 Flash flooding in central and northern Provinces of Lao PDR and the northern Provinces of Viet Nam, caused by TS KALMAEGI

Thursday

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# Việt Nam News

THE NATIONAL ENGLISH LANGUAGE DAILY

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TODAY'S WEATHER

Hà Nội: ..... rainy, 24-31°C  
 Hải Phòng: ..... rainy, 23-29°C  
 Đà Nẵng: ..... cloudy, 26-35°C  
 HCM City: ..... cloudy, 24-32°C

## Nine dead, 10 injured in wake of Typhoon Kalmaegi

HÀ NỘI — Typhoon Kalmaegi left at least nine people dead and 10 injured after making landfall in northern provinces Tuesday night.

Six men were buried and five others were injured in northern mountainous Lạng Sơn Province's Kéo Kham Village when a landslide triggered by

the typhoon hit the shed where they were sleeping. The victims were porters for Xuân Cường Co Ltd.

CONTINUED PAGE 4



Local people pass the Tân Ấp spillway of Phúc Thuận Commune, Phố Yên District, Thái Nguyên Province. Typhoon Kalmaegi killed at least nine people and injured 10 after making landfall in northern provinces on Tuesday night.— VNA/VNS Photo Thu Hằng

## UN chief urges nations to take action against IS

UNITED NATIONS — UN Secretary-General Ban Ki-moon urged countries with the capacity to do so to take decisive action against Islamic State militants, who have taken over large swaths of Iraq and Syria.

"I... urge the international community, and those with the means, to act decisively and after sober reflection," Ban told reporters on Tuesday.

"It is critical to keep at the forefront the protection of civilians," Ban didn't say what steps he hoped UN member states would take, but praised recent US air strikes against IS militants, aimed at helping besieged civilians in Iraq.

"These air strikes and military operation which was done at the request of the government of Iraq was able to help the United Nations and other actors to... save a lot of human lives," he said.

"The United Nations was able to deliver humanitarian assistance

to many trapped people in and around Mount Sinjar," Ban said. "It is clear that (IS) militants are a threat to international peace and security, as has already been declared by the Security Council."

UN diplomats said that while carrying out air strikes in Iraq didn't raise any legal issues because the Baghdad government has requested it, the legality of bombing militant targets in Syria was problematic.

Many Western states no longer recognise the government of Syrian President Bashar al-Assad as a legitimate authority but diplomats said it was unclear whether the opposition Syrian National Coalition would have the legal authority to invite military action on Syrian territory.

In theory, the Security Council could authorise military action against IS in Syria.

Ban said he expected the 15-nation Security Council to...

CONTINUED PAGE 6

## Nine dead, 10...

FROM PAGE 1

Local authorities mobilised soldiers to deal with the situation. The injured victims were taken to the Đồng Đăng General Health Clinic.

Preliminary investigation revealed that the victims hired the shed from a local resident named Âu Mộc Ký. Authorised agencies disciplined Ký many times for building the shed in a dangerous area, but he ignored their warnings.

A five-year-old girl died when her house in Cao Lộc District collapsed in the

storm. Meanwhile, a nine-year-old girl in Bình Gia District was swept away by a flood.

In central Nghệ An Province, a 49-year-old woman was swept away by a flood while returning home on Tuesday afternoon, while her husband was injured. A 32-year-old fisherman was also injured when the anchor line of his fishing boat was cut as he sought to avoid the storm in Hoàng Mai Town.

In northern Quảng Ninh Province, the storm caused about VNĐ20 billion (US\$944,000) worth of damages when it made landfall

on Tuesday night, according to the provincial Steering Committee for Flood and Storm Control. The storm destroyed over 5,000 ha of crops, blew away the roofs of 147 houses and damaged 20 electric poles. No casualties were reported.

In northern Hải Phòng City, the anchor line of a fishing vessel moored off Cát Bà Island was cut during the storm, injuring a fisherman, according to the Central Committee for Flood and Storm Control. Border soldiers took the man to hospital and towed the drifting fishing vessel to the mainland.

In northern mountainous Bắc Kạn Province, a land-

slide caused about 8,000 cubic metres of soil to block a 20-metre section of a provincial road through Chợ Đồn District. The storm also blew away the roofs of 93 houses, inundated 21 others and damaged 225ha of crops.

The National Centre for Hydro-meteorological Forecasting said that heavy rain triggered by the typhoon raised water levels between three and six metres in the Hồng (Red)-Thái Bình river system, putting the Cầu, Lô, Lục Nam, Thao and Thương river areas on high alert.

By 7am yesterday, the storm had weakened into a tropical low-pressure system. — VNS

Friday, September 19, 2014

## NATIONAL

vietnam

## Typhoon Kalmaegi leaves 2 more dead

**HÀ NỘI** — Rain from typhoon *Kalmaegi* caused the deaths of two children in northern mountainous Hà Giang Province on Wednesday, bringing the typhoon's death toll to 11.

An eight-month-old baby died on Wednesday when his house collapsed due to torrential rain and whirlwinds in Phùng Bung Village. On the same day, a four-year-old girl in Phúc Thuận Commune was swept away by floods. Local rescue teams found her body after a two-hour search, which was difficult due to the heavy rain.

Due to the storm, 10 people were injured in the provinces of Lạng Sơn, Hải Phòng and Nghệ An. A 46-year-old woman is still missing after being swept away by floods in Thái Nguyên Province.

The Việt Nam Red Cross Society will support the family of each victim in northern mountainous Lạng Sơn Province with VNĐ3 million (US\$141). The Lạng Sơn Red Cross Society previously provided VNĐ2 million (\$94) to each family.

The storm blew away the roofs of 790 houses, damaged more than 42,000ha of rice and

nearly 9,800ha of crops, inundated 200 ha of aquaculture farms and caused about 3,400 trees to fall in northern provinces, according to the Central Committee for Flood and Storm Control. In Hà Giang alone, the initial damage was estimated to be about VNĐ4 billion (US\$189,000).

Nguyễn Đình Hợp, director of the provincial Centre for Hydro-meteorological Forecasting, said that torrential rains triggered by the storm on Tuesday night had raised the water level of the Lô River, causing heavy floods and submerging rice and crops. Torrential rains also inundated houses, schools and streets, disrupting the lives of local residents in Hà Giang City for days.

By 4pm yesterday, the water level of the Lô River was 103.46 metres, 0.46 metres higher than the highest alert level. The National Centre for Hydro-meteorological Forecasting warned yesterday that water levels in the Lô, Cầu and Chảy rivers were still rising.

Northern mountainous provinces Lào Cai, Hà Giang, Tuyên Quang and Thái Nguyên have been put on high alert for landslides and flash floods. — VNS

## Erosion puts dyke network at risk in northern province

**PHÚ THỌ** — Serious erosion has affected riverbanks in the northern province of Phú Thọ, endangering local dyke systems.

In Phú Ninh District, erosion of the Tiên Du drain gate area was nearing the foot of the Lô dyke.

"Heavy rains last month together with water runoff have eroded the riverbanks in the Tiên Du drain gate area," said Tiên Du commune People's Committee Deputy President Lê Đức Thê.

He added that apart from the Lô dyke, the road running along the river was also being threatened with ero-

sion getting closer to the road's base.

Another drain gate in the district, Cầu Đen, could not function at normal capacity due to four sewers collapsing from erosion.

Meanwhile, some 30 metres of the riverbank in the neighbouring district of Thanh Thủy were in need of urgent repairs after being battered during the rain season, said Yến Mao commune People's Committee President Đinh Thanh Hùng.

He said that erosion would not only threaten the dike, but also pose a danger to households in the area. It

would also endanger the road connecting the district to Hòa Bình province.

"We have reported the situation to the province's leaders but there is not yet any plan to solve this," Hùng said.

The two communes have put up signs warning residents to stay away from dangerous areas while awaiting orders from higher authorities.

Some eroded parts of other communes including Tam Nông, Lâm Thao and Đoan Hùng were also on the waiting list of those urgently needing repairs. — VNS

## Fighting crime



Date of FFG products 17/09/2014 00:00 UTC time

1hour Flash Flood Guidance in Vietnam			3hours Flash Flood Guidance in Vietnam		
Provinces	Districts	FFG value	Provinces	Districts	FFG Value
Ha Giang	Meo Vac	19.09	Ha Giang	Meo Vac	35.66
Ha Giang	Yen Minh	19.09	Ha Giang	Yen Minh	26.07
Ha Giang	Quan Ba	19.09	Ha Giang	Quan Ba	39.41
Ha Giang	Bac Me	19.09	Ha Giang	Bac Me	26.07
Ha Giang	Vi Xuyen	19.09	Ha Giang	Hoang Su Phi	49.61
Cao Bang	Bao Lac	17.68	Ha Giang	Vi Xuyen	41.76
Cao Bang	Nguyen Binh	16.27	Ha Giang	Xin Man	49.24
Lao Cai	Bat Xat	17.71	Ha Giang	Bac Quang	49.61
Bac Kan	TX. Bac Kan	13.86	Cao Bang	Bao Lac	31.65
Bac Kan	Ba Be	16.27	Cao Bang	Nguyen Binh	23.63
Bac Kan	Bach Thong	13.86	Lao Cai	Bat Xat	29.11
Lai Chau	Phong Tho	17.71	Bac Kan	TX. Bac Kan	20.16
Hoa Binh	Ky Son	20.29	Bac Kan	Ba Be	23.63
Quang Binh	Minh Hoa	17.33	Bac Kan	Bach Thong	20.16
Phu Yen	Tuy Hoa	20.70	Lai Chau	Phong Tho	31.27
Khanh Hoa	Van Ninh	20.70	Hoa Binh	Ky Son	37.70
Kon Tum	Sa Thay	22.81	Quang Binh	Minh Hoa	33.56
Gia Lai	Chu Pah	23.02	Quang Binh	Bo Trach	43.07
Gia Lai	Ia Grai	22.40	Quang Binh	Quang Ninh	42.68
Dak Lak	Dak R'Lap	20.62	Quang Nam	Hien	35.75
Dak Lak	Dak Nong	19.83	Quang Nam	Dien Ban	41.84
Lam Dong	Bao Lam	20.61	Quang Nam	Duy Xuyen	41.84
Binh Phuoc	Bu Dang	20.62	Quang Nam	Nam Giang	48.76
Binh Thuan	Ham Thuan Bac	19.02	Quang Nam	Que Son	41.84
Binh Thuan	Ham Thuan Nam	18.94	Phu Yen	Tuy Hoa	27.53
Binh Thuan	Tanh Linh	18.86	Khanh Hoa	Van Ninh	27.53
			Kon Tum	Dak Glei	43.17
			Kon Tum	Ngoc Hoi	35.16
			Kon Tum	Sa Thay	34.91
			Gia Lai	Chu Pah	32.64
			Gia Lai	Ia Grai	32.47
			Gia Lai	An Khe	47.50
			Gia Lai	Kong Chro	47.50
			Dak Lak	Dak R'Lap	27.12
			Dak Lak	Dak Nong	25.92
			Lam Dong	Bao Lam	32.47
			Binh Phuoc	Bu Dang	27.61
			Dong Nai	Xuan Loc	47.30
			Binh Thuan	Ham Thuan Bac	31.06
			Binh Thuan	Ham Thuan Nam	29.50
			Binh Thuan	Tanh Linh	26.38
			Binh Thuan	Duc Linh	47.30



# Vientiane Times



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## Typhoon causes Luang Prabang flooding

Khoneasavanh Latsaphao

A torrential downpour caused by the effects of Typhoon Kalmaegi hitting Luang Prabang province yesterday morning has resulted in flooding at several locations around the World Heritage listed town.

The heavy rainfall began around 5am and by 8am, houses and streets were submerged.

Some houses and temples saw the water reach around roof level while numerous streets were inundated with flood water up to one and a half metres deep.

Typhoon Kalmaegi struck China's south, on Tuesday and headed to Vietnam before its effects were felt in Luang Prabang province, the northern part of Laos.

I found the roads were too congested and dusty from houses was being blown

around in the wind at 8.30am when I took my son to go to school," a resident of Luang Prabang district, Mr Mongkhon Vongsam-ang, told *Vientiane Times* on Wednesday.

In the rush hour from 8am to 9am, the wild weather caused traffic chaos with many streets flooded. Additionally, some people claimed that traffic police were not present, meaning road users had to fend for themselves.

Parents yesterday morning experienced difficulties taking their children to school. Unfortunately, some teachers could not make it in to school owing to their homes being inundated.

Mr Mongkhon said it was an extremely heavy downpour yesterday, which resulted in the flash flooding happening very quickly.

Flooding mostly occurs in from houses was being blown



Flash flooding in the town of Luang Prabang came with the arrival of Typhoon Kalmaegi.



President Choummaly Sayasone (front row centre) joins a group photo with delegates of the 35th Asean Inter-Parliamentary Assembly.

## President receives AIPA delegates

Times Reporters

President Choummaly Sayasone received a courtesy visit from delegates of the 35th Asean Inter-Parliamentary Assembly (AIPA) yesterday, which is being hosted in Vientiane from September 14-20.

Welcoming the delegates at the Presidential Palace, the Lao president spoke highly of the visit to Laos in order to attend the 35th AIPA. He said it was his honour and he was delighted to receive the guests.

President Choummaly congratulated and thanked the heads of delegations and their delegates for their attendance at the 35th AIPA hosted by Laos, saying that their participation reflected the support from the AIPA member parliaments being extended to Laos in hosting the meeting.

In his welcoming remarks, President Choummaly spoke of the important status of the AIPA member parliaments in representing the rights and interests of the people.

He acknowledged that the parliaments were playing an important role in bridging the people and the governments.

He spoke of the important

mandates of the parliaments in considering critical issues, lawmaking and amendments, which was proven in the fact that laws and regulations of Asean member countries have been increasingly aligned.

The parliaments' important role is also to consider ratifying various treaties signed among Asean countries.

For these reasons, the president said the parliaments had contributed significantly in fostering cooperation within Asean and between Asean and their external partners, which had enabled them to gain a number of benefits.

The 35th AIPA provided an opportunity for the delegates to discuss important issues to boost cooperation among the AIPA member parliaments, President Choummaly said.

As the Asean member states are striving to establish the Asean community by 2015, the Lao president said the 35th AIPA, which is being run under the theme 'Strengthening Parliamentary Cooperation in the Asean Community Building', was significant and coincided with the important time.

"I am confident that the outcome of this AIPA will

contribute to increasing the cooperation of AIPA and relevant sectors of Asean in order to contribute to the Asean community integration, which comprises of three pillars," he told the guests. The three pillars are the Asean Political-Security Community, Asean Economic Community and Asean Socio-Cultural Community.

As Asean member states are in the discussion process to draft a post-2015 vision, President Choummaly told the delegates that he hoped the outcomes of the 35th AIPA would contribute to the drafting effort.

Laos will resume presidency of Asean for the second time in 2016, the first year after the Asean community is set to be

established.

The president expressed his confidence that Laos would continue to receive support from Asean member countries, AIPA, dialogue partners, friendly countries and regional and international organisations.

On this occasion, President Choummaly told the delegates that Laos had consistently adhered to its foreign policy of peace, independence, friendship and cooperation.

He informed the guests that Laos had enjoyed political stability and social order since the Lao People's Democratic Republic was proclaimed in 1975, with living conditions of the people also gradually improving.

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## Typhoon causes... FROM PAGE 1

low lying areas where there are open concrete drainage channels and bridges crossing streams.

After the incident, the Luang Prabang administration office gathered officials to assess the damage with the involved sections.

An official from Luang Prabang province Mrs Phetdavanh Phommany told *Vientiane Times* at 10.40am that the flood water in the streets had started receding and some roads were passable for vehicles to wade their way through.

Several areas were still flooded around Luang Prabang yesterday morning including Nasamphan, the teacher teaching college, Phonphaeng, the provincial stadium and the main Road No. 13 North into town.

However, floodwaters are receding but the sky remains very dark under heavy clouds and showers after the extreme downpour stopped.

Provincial skies around the country were also cloudy on Wednesday morning including Vientiane, meanwhile

Champassak province recorded heavy rainfall but no flooding.

The typhoon was sending winds of 137 to 144 kilometres per hour over southern mainland China, according to the National Metrological Centre of China.

Vietnam ordered residents in high-risk areas to evacuate and fishing boats to take shelter.

Typhoon Kalmaegi slammed into the northern Philippines on Monday, unleashing flooding and killing at least two people.



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FRIDAY SEPTEMBER 19, 2014 ISSUE 220

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## Road linking Xieng Khuang cut by landslides

Khone Savanh Latsaphao

Access to Xieng Khuang province is being severely hampered with a seven kilometre section of National Road No. 7 being covered with landslides.

The blockade is also causing traffic to queue up on the roadside of Road No. 13 North at the Phoukhoun junction area in the northern part of the country.

A queue of vehicles almost one kilometre long were stopped along the main northern route on Wednesday evening as a result of heavy rains causing large amounts of red soil and trees to slide down mountainsides along National Road No. 7.

"No vehicle can get past the landslides as it has completely blocked the road, and we still cannot say at what time transportation will be returned to normal," an official from the Public Works and Transport in Phoukhoun district, Mr. Latnamy Vongxay told *Vientiane Times* on Thursday morning.

Road workers from the Luang Prabang Road-Bridge Construction Company No. 1 said they could only just go to begin clearing debris from the

landslides after the rain stopped on Thursday morning.

About 42km from Phoukhoun junction on the border between Luang Prabang and Xieng Khuang provinces a seven kilometre section of Road No. 7 has been affected.

Officials from the provincial Department of Public Works and Transport commented that they've never seen landslides of this magnitude on roads in the province before.

The landslides occurred because of heavy downpours when Typhoon Kalmaegi hit Luang Prabang after it struck China's south on Tuesday and headed to Vietnam and Laos.

According to the Vietnam National Centre for Hydro-Meteorological Forecasting report at 7am on Wednesday, the storm had weakened to a tropical low-pressure system after hitting the northern mountainous areas.

Hundreds of local people and foreign visitors travelling on buses, mini-buses and cars including cargo trucks slept in their vehicles along the road overnight.

From Kasy district in  
CONTINUED PAGE 2

## President highly values bilateral ties between Laos and Cuba

Times Reporters

President Choummaly Sayasone told the visiting high-level Cuban delegation that he highly values the bilateral relations between Laos and Cuba.

The delegation led by Cuban State Council Vice President, Ms. Lazara Mercedes Lopez Acea paid a courtesy call to the Lao president at the Presidential Palace yesterday.

The three-day official visit to Laos by the delegation was made in accordance with cooperation plan between the Lao People's Revolutionary Party and the Communist Party of Cuba.

Welcoming the delegates, President Choummaly, who is also the Party Secretary General, said he highly valued relations and cooperation between the two countries over the past years.

The Lao leader reiterated that Laos will continue to work with Cuba to enrich the

bilateral relations and expand cooperation in a more effective manner.

President Choummaly expressed thanks and gratitude to the Party, government and people of Cuba for the tremendous assistance they have extended to Laos during the fight for national liberation in the past and during the current task of national development.

The Lao president spoke highly of the visit to Laos by the delegation, saying the visit would contribute to further enhancing the friendly relations between the Parties, governments and peoples of Laos and Cuba.

He briefed the guests on the socio-economic development situation of Laos over the recent years.

For her part, Ms. Acea, who is also member of the politburo of the Communist Party of Cuba, thanked the Lao president for warmly

CONTINUED PAGE 3



President Choummaly Sayasone welcomes Ms. Lazara Mercedes Lopez Acea.

## Laos, Australia to combat human trafficking

Souknilundon Southivongnorath

Both the governments of Laos and Australia agreed yesterday to work in cooperation to combat human trafficking throughout the region.

The Ministry of Public Security and the Australian Embassy to Laos arranged a signing ceremony in Vientiane of a subsidiary agreement on the Australia-Asia Programme to Combat Trafficking in Persons (AAPTIP) aiming to fight against human trafficking, in particular in Asian nations.

Acting Minister of Public Security, Brigadier General

Somkeo Silavong said that human trafficking is a major crime in society and is becoming a political and international problem because human trafficking is a violation of human rights, which affects socio-economic development, stability and national security.

"The governments of Laos and Australia will cooperate on combating this menace having recognised the urgent need to do so," he explained. "The Lao government will guide the involved sectors to support and facilitate the implementation of AAPTIP to achieve the goal."

Australian Ambassador to Laos Mr. John Williams

explained that his government viewed trafficking in persons as a grievous breach of human rights and as a crime that stifles economic development.

"Australia is now the largest national anti-trafficking donor in the region, and we are proud of our leadership role on

CONTINUED PAGE 3



Local residents await floodwaters to recede in Xieng Khuang province.

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Date of FFG produc 17/09/2014 00:00 UTC time

1hour Flash Flood Guidance in Lao				3hour Flash Flood Guidance in Lao			
Provinces	Districts	Villages	FFG Value	Provinces	Districts	Villages	FFG Value
Luangnamtha	Viengphou	NAMTIENG	24.66	Luangnamtha	Viengphou	NAMTIENG	32.48
Luangnamtha	Viengphou	TONGMANG	18.73	Luangnamtha	Viengphou	TONGMANG	26.58
Luangnamtha	Viengphou	LAIYANG	24.66	Luangnamtha	Viengphou	LAIYANG	32.48
Luangnamtha	Nalae	LA ANG	18.73	Luangnamtha	Nalae	LA ANG	26.58
Luangnamtha	Nalae	TAKHEUNG	18.73	Luangnamtha	Nalae	TAKHEUNG	26.58
Luangnamtha	Nalae	KAYE	24.66	Luangnamtha	Nalae	KAYE	32.48
Luangnamtha	Nalae	KHANEUNG	24.66	Luangnamtha	Nalae	KHANEUNG	32.48
Luangnamtha	Nalae	SALEUANG	24.66	Luangnamtha	Nalae	SALEUANG	32.48
Luangnamtha	Nalae	MONGKHO	24.66	Luangnamtha	Nalae	MONGKHO	32.48
Luangnamtha	Nalae	SAKRANG	24.66	Luangnamtha	Nalae	SAKRANG	32.48
Luangnamtha	Nalae	NEUNGPHET	24.66	Luangnamtha	Nalae	NEUNGPHET	32.48
Oudomxay	Nga	HUAYCHI	18.35	Oudomxay	Nga	HUAYCHI	25.68
Oudomxay	Nga	BANKHUANG	18.35	Oudomxay	Nga	BANKHUANG	25.68
Oudomxay	Nga	HUAY O	18.35	Oudomxay	Nga	HUAY O	25.68
Oudomxay	Nga	HUAYPHANG	18.35	Oudomxay	Nga	HUAYPHANG	25.68
Oudomxay	Nga	PHOUVIENG	14.03	Oudomxay	Nga	PHOUVIENG	21.28
Oudomxay	Nga	NAXAAN	14.03	Oudomxay	Nga	NAXAAN	21.28
Oudomxay	Nga	HOUAY MO	14.03	Oudomxay	Nga	HOUAY MO	21.28
Oudomxay	Nga	PHOUSOUNGYA	18.35	Oudomxay	Nga	PHOUSOUNGYA	25.68
Oudomxay	Nga	NAMOUANG	18.35	Oudomxay	Nga	NAMOUANG	25.68
Oudomxay	Nga	NGONYAI	18.35	Oudomxay	Nga	NGONYAI	25.68
Oudomxay	Nga	NGONNOI	18.35	Oudomxay	Nga	NGONNOI	25.68
Oudomxay	Hoon	PHOUKHOI	14.31	Oudomxay	Hoon	PHOUKHOI	21.53
Oudomxay	Hoon	PHOUXAN	14.31	Oudomxay	Hoon	PHOUXAN	21.53
Oudomxay	Hoon	KEO	13.94	Oudomxay	Hoon	KEO	20.8
Oudomxay	Hoon	CHORMCHAENG	13.94	Oudomxay	Hoon	DEUA	39.22
Oudomxay	Hoon	KEWYAAB	13.94	Oudomxay	Hoon	SAKOI	39.22
Oudomxay	Hoon	XIENGDI	13.94	Oudomxay	Hoon	CHORMCHAENG	20.8
Oudomxay	Hoon	MOKCHAAK	13.94	Oudomxay	Hoon	KEWYAAB	20.8
Oudomxay	Hoon	NAMPHAOYAI	13.94	Oudomxay	Hoon	XIENGDI	20.8
Oudomxay	Hoon	DOU	13.94	Oudomxay	Hoon	MOKCHAAK	20.8
Oudomxay	Hoon	KONLANG	13.94	Oudomxay	Hoon	NAMPHAOYAI	20.8
Oudomxay	Hoon	TAT	13.94	Oudomxay	Hoon	DOU	20.8
Oudomxay	Hoon	PHONEKHAM	13.94	Oudomxay	Hoon	KONLANG	20.8
Oudomxay	Hoon	MOKSALEUANG	13.94	Oudomxay	Hoon	TAT	20.8
Oudomxay	Pakbeng	PHIENG	21.57	Oudomxay	Hoon	KANG	39.22
Oudomxay	Pakbeng	PING	21.57	Oudomxay	Hoon	MOKKACHORK	39.22
Oudomxay	Pakbeng	PHOUSOUNG	14.31	Oudomxay	Hoon	PHONEKHAM	20.8
Oudomxay	Pakbeng	MOKKHAE	14.31	Oudomxay	Hoon	MOKSALEUANG	20.8
Oudomxay	Pakbeng	KHAM	21.57	Oudomxay	Pakbeng	PHIENG	29.57
Oudomxay	Pakbeng	HUAYXAENG	21.57	Oudomxay	Pakbeng	PING	29.57
Oudomxay	Pakbeng	CHAENG	21.57	Oudomxay	Pakbeng	PHOUSOUNG	21.53
Oudomxay	Pakbeng	NGON	21.57	Oudomxay	Pakbeng	MOKKHAE	21.53
Oudomxay	Pakbeng	PHOUHONGTHE	21.57	Oudomxay	Pakbeng	KHAM	29.57
Oudomxay	Pakbeng	PHOUHONGLOI	21.57	Oudomxay	Pakbeng	HUAYXAENG	29.57
Oudomxay	Pakbeng	TONHAI	21.57	Oudomxay	Pakbeng	CHAENG	29.57
Oudomxay	Pakbeng	MOKCHONGNO	14.31	Oudomxay	Pakbeng	NGON	29.57
Bokeo	Pha Oudo	KANG	17.18	Oudomxay	Pakbeng	PHOUHONGTHE	29.57
Bokeo	Pha Oudo	MOKPORN	17.18	Oudomxay	Pakbeng	PHOUHONGLOI	29.57
Bokeo	Pha Oudo	MOKSOUK	17.18	Oudomxay	Pakbeng	TONHAI	29.57
Bokeo	Pha Oudo	BONGLAOSOUN	18.73	Oudomxay	Pakbeng	MOKCHONGNOI	21.53
Bokeo	Pha Oudo	HANGDOI	18.73	Bokeo	Pha Oudo	KANG	24.67
Bokeo	Pha Oudo	MOKKHA KANG	17.18	Bokeo	Pha Oudo	MOKPORN	24.67
Bokeo	Pha Oudo	SIBOUNHEUAN	17.18	Bokeo	Pha Oudo	MOKSOUK	24.67
Bokeo	Pha Oudo	PHA OU DOM	17.18	Bokeo	Pha Oudo	BONGLAOSOUN	26.58
Bokeo	Pha Oudo	THINKEO NEUA	17.18	Bokeo	Pha Oudo	HANGDOI	26.58

Bokeo	Pha Oudo	SAMIN	18.73	Bokeo	Pha Oudo	MOKKHA KANG	24.67
Luangprabang	Xieng nge	NAMLIN	15.15	Bokeo	Pha Oudo	SIBOUNHEUAN	24.67
Luangprabang	Xieng nge	NONGPA	15.15	Bokeo	Pha Oudo	PHA OU DOM	24.67
Luangprabang	Xieng nge	NALENG	15.15	Bokeo	Pha Oudo	THINKEO NEUA	24.67
Luangprabang	Xieng nge	PAKSANAM	15.15	Bokeo	Pha Oudo	SAMIN	26.58
Luangprabang	Nan	PHANIP	15.15	Luangprabang	Xieng nge	NAMLIN	22.28
Luangprabang	Nan	KHORNLONG	15.15	Luangprabang	Xieng nge	NONGPA	22.28
Luangprabang	Nan	PADONG	15.15	Luangprabang	Xieng nge	NALENG	22.28
Luangprabang	Nan	NAMOUANG GN	15.15	Luangprabang	Xieng nge	PAKSA	43.15
Luangprabang	Nan	NAMOUANG KA	15.15	Luangprabang	Xieng nge	PHAKHOK GNA	43.15
Luangprabang	Nan	PONGDEUA	15.15	Luangprabang	Xieng nge	PHAKHOK NOY	43.15
Luangprabang	Nan	HOUAYLATH	15.15	Luangprabang	Xieng nge	PAKSANAM	22.28
Luangprabang	Nan	DAN	15.15	Luangprabang	Xieng nge	KIOUKACHAM	43.15
Luangprabang	Nan	HOUAYHOY	15.15	Luangprabang	Xieng nge	KIOUTALOUN GI	43.15
Luangprabang	Nan	NAMPHAK	15.15	Luangprabang	Xieng nge	NONG-ONH	43.15
Luangprabang	Nan	HOUAYME	15.15	Luangprabang	Xieng nge	KIOUKHAMPOM	43.15
Luangprabang	Nan	HOUAYLONG	15.15	Luangprabang	Xieng nge	PAGNAKHA	43.15
Luangprabang	Nan	SISAATH	15.15	Luangprabang	Xieng nge	NAMXA	43.15
Luangprabang	Nan	PHOKHAM	20.56	Luangprabang	Xieng nge	PHASANIN	43.15
Luangprabang	Nan	PAKLAN	20.56	Luangprabang	Xieng nge	KIOUMAYLOR	43.15
Luangprabang	Nan	PHONXAY	20.56	Luangprabang	Xieng nge	PHAKHAO	43.15
Luangprabang	Nan	HOUAYTHIP	20.56	Luangprabang	Nan	PHANIP	22.28
Luangprabang	Nan	HOUAYXI	20.56	Luangprabang	Nan	KHORNLONG	22.28
Luangprabang	Nan	PHONSANA	20.56	Luangprabang	Nan	PADONG	22.28
Luangprabang	Nan	HOUAYPHAKNA	20.56	Luangprabang	Nan	NAMOUANG GN	22.28
Luangprabang	Nan	PHONTHONG	20.56	Luangprabang	Nan	NAMOUANG KAI	22.28
Luangprabang	Nan	HOUAYHIA	20.56	Luangprabang	Nan	PONGDEUA	22.28
Luangprabang	Chomphet	KEWPAN	17.68	Luangprabang	Nan	HOUAYLATH	22.28
Luangprabang	Chomphet	HUAYHAK	17.68	Luangprabang	Nan	DAN	22.28
Luangprabang	Chomphet	NA ANG	17.68	Luangprabang	Nan	HOUAYHOY	22.28
Luangprabang	Chomphet	PHOUNANGWA	17.68	Luangprabang	Nan	NAMPHAK	22.28
Luangprabang	Chomphet	NAXAO	17.68	Luangprabang	Nan	HOUAYME	22.28
Luangprabang	Chomphet	PHOUNANGWA	21.48	Luangprabang	Nan	HOUAYLONG	22.28
Luangprabang	Chomphet	HUAYTHAM	21.48	Luangprabang	Nan	SISAATH	22.28
Luangprabang	Chomphet	KOKNGEW	21.48	Luangprabang	Nan	PHOKHAM	28.24
Luangprabang	Chomphet	HUAYMIENG	21.48	Luangprabang	Nan	PAKLAN	28.24
Luangprabang	Chomphet	CHOK	21.48	Luangprabang	Nan	PHONXAY	28.24
Luangprabang	Chomphet	KEUAB	21.48	Luangprabang	Nan	HOUAYTHIP	28.24
Luangprabang	Chomphet	HUAY ON	21.48	Luangprabang	Nan	HOUAYXI	28.24
Luangprabang	Chomphet	XAM OR	21.48	Luangprabang	Nan	PHONSANA	28.24
Luangprabang	Chomphet	HUAYMAAT	21.48	Luangprabang	Nan	HOUAYPHAKNA	28.24
Luangprabang	Chomphet	THAPHO	21.48	Luangprabang	Nan	PHONTHONG	28.24
Luangprabang	Chomphet	LAATKHOK	21.48	Luangprabang	Nan	HOUAYHIA	28.24
Luangprabang	Chomphet	BUAMLAO	21.48	Luangprabang	Ngoi	HUAYLAAN	49.29
Luangprabang	Chomphet	BUAMXIENG	21.48	Luangprabang	Ngoi	LONGKHOUN	49.29
Luangprabang	Chomphet	KHOKSAWAANG	21.48	Luangprabang	Ngoi	CHORMYING	49.29
Luangprabang	Chomphet	NONGPHOU	17.68	Luangprabang	Ngoi	HUAYTHONG	49.29
Luangprabang	Chomphet	CHONG	17.68	Luangprabang	Ngoi	PHONEXAI	49.29
Luangprabang	Chomphet	NAKHAM	17.68	Luangprabang	Ngoi	HUAYNGONE	49.29
Luangprabang	Chomphet	DONXAI	17.68	Luangprabang	Ngoi	HUAYKHONG T/	49.29
Luangprabang	Chomphet	PHADAO	17.68	Luangprabang	Ngoi	HUAYKHONG NE	49.29
Luangprabang	Chomphet	PARKLUEM	16.73	Luangprabang	Ngoi	KEWKAAN	49.29
Luangprabang	Chomphet	NAKEUA	16.73	Luangprabang	Chomphet	KEWPAN	25.93
Luangprabang	Chomphet	NAKHAENG	16.73	Luangprabang	Chomphet	HUAYHAK	25.93
Luangprabang	Chomphet	HUAYKHAAN	16.73	Luangprabang	Chomphet	NA ANG	25.93
Luangprabang	Chomphet	NANGEW	16.73	Luangprabang	Chomphet	PHOUNANGWA/	25.93
Luangprabang	Chomphet	HUAYDEUA	16.73	Luangprabang	Chomphet	NAXAO	25.93
Luangprabang	Chomphet	NAHAI	16.73	Luangprabang	Chomphet	PHOUNANGWA/	29.72
Luangprabang	Chomphet	NALAE	16.73	Luangprabang	Chomphet	HUAYTHAM	29.72

## Annex 9 Flash flooding in the northern Provinces of Lao PDR on 23<sup>rd</sup> September, caused by ITCZ

2 | Home news | Thursday September 25, 2014

Vientiane Times



Road subsidence in Xayaboury province.

### Xayaboury reopens road after heavy rain causes landslide

Khone Savanh Latsaphao

A local road linking Hongsa district with the main town in Xayaboury district, Xayaboury province was reopened on Wednesday afternoon after heavy rain in the night had washed a section away.

The section lost was at Km 38 in Xayaboury district, a result of the heavy rain that had been falling in the province for the previous two days.

An official from the provincial Public Works and Transport Department Mr. Thanousin Vilaylack told *Vientiane Times* at 3pm yesterday that he had just finished emergency landfill work to reopen the road after it became impassable.

"Four-wheel drive vehicles can pass over the red soil surface after we filled in the part that was washed away, but cars without this feature will find it difficult as the temporary surface is only mud and the rain hasn't stopped

yet," he said.

About 50 or 60 vehicles were waiting since early morning yesterday until the road was re-opened in the afternoon. An even longer queue of vehicles had been waiting but the road maintenance workers told them it wasn't possible to reopen it that morning.

The point where the road was lost is a storm water drain and it cannot be repaved with asphalt for some weeks because of the magnitude of the land loss which was 13m deep and across.

The department now plans to rebuild the drainage system and repave with asphalt in the dry season. At the moment they are unable to quantify the damage because they're still assessing it.

Mr. Thanousin added that the rain, which has been falling for two days, did not just wash away this section of road but also flooded many streets in the town on Wednesday morning. The road runs for about 85

kilometres from the town to Hongsa district and was rebuilt and resurfaced with asphalt in 2010.

Last week, some sections of Road No. 13 North and National Road No. 7 in Luang Prabang province were covered with landslides and a number of local roads and bridges in the province were damaged by the torrential downpour and flash flooding caused by Typhoon Kalmaegi.

Typhoon Kalmaegi hit Luang Prabang, Xieng Khouang and Vientiane provinces after it struck China's south last Tuesday and headed on to Vietnam and Laos.

This year, Laos has been impacted by major floods on two occasions. The first was seen at the end of June into early August, while the second flooding occurred towards the end of August to the early part of this month.

A preliminary assessment of the damage put the losses at almost 35 billion kip.

### Xieng Khuang targets more poverty reduction

Khone Savanh Latsaphao

Authorities in Xieng Khuang province anticipate that many families in local villages will be lifted out of poverty following scrutiny of the latest statistics next year.

The province will conduct a survey into the rate of poverty early next year so officials can ascertain the true state of the problem. Deputy Governor Mr. Khamphien Sinounthong, told local media on Tuesday in Vientiane at the meeting between the government cabinet, Vientiane mayor and provincial governors.

More than 110 villages or over 22 percent of rural communities across the region are yet to be developed and 1,123 families or over 2 percent are classified as living in poverty.

"However, we expect that the rate of village poverty and number of poor families will be reduced somewhat," he pointed out.

The province hopes that after the survey next year the

rate of poor villages will fall from over 22 percent to 20 percent and poor families in the population will drop from over 2 percent to around 1.8 percent.

Xieng Khuang is encouraging local villagers to use better access to bank loans to expand their production of crops and goods, which is a tactic used by provincial authorities to rectify the rate of poverty.

For families that are identified as being very poor, officials will utilise funding to support them with income creation schemes such as purchasing breeding pairs of cattle, which in turn will raise livestock numbers as the animals give birth.

These domestic animals are suitable for sale in local markets and for export to Vietnam as well as adding to poor families incomes.

In other development efforts, Xieng Khuang has collaborated with Vietnam for a project in the province, aiming to build irrigation systems to boost rice growers' yields by producing both

annual dry and wet season harvests.

Currently, the two major factors causing families in villages to live in poverty are a lack of road access and clean water. As a result, in the worst affected areas the rate of poor families is over 50 percent in some villages.

According to the Lao National Committee for Rural Development and Poverty Eradication, Laos had 47 poor districts in 2010 but the number was only 37 districts in 2013.

The government aims to reduce the rate of poor families remaining to nine percent in 2015 as part of its poverty reduction strategy plan to graduate out of United Nations' list of least-developed country status by 2020.

In 2010 the proportion of poor families was 20.40 percent, but in 2013 it had fallen to 10.57 percent.

However, rural development and poverty eradication continue to pose a challenge because of insufficient funding.

### Officials promise to arrest more suspects

Souknilundon Southivongnorath

Officials have reported that they still have several suspects, who they are investigating and hoping to arrest regarding crimes in the capital.

Vientiane Police Headquarters told *Vientiane Times* yesterday that officials from the Vientiane Police Office had been working hard to arrest major gangsters, who were attacking villages from



Date of FFG produc		23/09/2014 00:00		UTC time			
1hour Flash Flood Guidance in Lao				3hour Flash Flood Guidance in Lao			
Provinces	Districts	Villages	FFG Value	Provinces	Districts	Villages	FFG Val
Luangprabang	Xieng nge	NAMLIN	23.18	Luangnamtha	Sing	CHAPHOUTHON	42
Luangprabang	Xieng nge	NONGPA	23.18	Luangnamtha	Sing	MEUTO KAO	42
Luangprabang	Xieng nge	NALENG	23.18	Luangnamtha	Sing	PAXANG	42
Luangprabang	Xieng nge	PAKSANAM	23.18	Luangnamtha	Sing	PHADENG	42
Luangprabang	Nan	PHANIP	23.18	Luangnamtha	Sing	CHAKHEUN	42
Luangprabang	Nan	KHORNLONG	23.18	Luangnamtha	Long	SOMPAN KAO	49
Luangprabang	Nan	PADONG	23.18	Luangnamtha	Long	SOMPAN MAI	49
Luangprabang	Nan	NAMOUANG GN	23.18	Luangnamtha	Long	MEKHONG NEU,	42
Luangprabang	Nan	NAMOUANG KA	23.18	Luangnamtha	Long	MEKHONG TAI	42
Luangprabang	Nan	PONGDEUA	23.18	Luangnamtha	Long	PHAKHAM	49
Luangprabang	Nan	HOUAYLATH	23.18	Luangnamtha	Long	SOP I MAI	46
Luangprabang	Nan	DAN	23.18	Luangnamtha	Long	SOP I KAO	46
Luangprabang	Nan	HOUAYHOY	23.18	Luangnamtha	Long	MAKKOUAY	46
Luangprabang	Nan	NAMPHAK	23.18	Luangnamtha	Long	HOUANAMBAK	46
Luangprabang	Nan	HOUAYME	23.18	Luangnamtha	Long	HOUAYNA	46
Luangprabang	Nan	HOUAYLONG	23.18	Luangnamtha	Long	KONMEUANG	46
Luangprabang	Nan	SISAATH	23.18	Luangnamtha	Long	CHAKHI	46
Luangprabang	Nan	PHOKHAM	21.71	Luangnamtha	Long	CHAKHAMSENG	46
Luangprabang	Nan	PAKLAN	21.71	Luangnamtha	Long	HOUAYTHOU K	46
Luangprabang	Nan	PHONXAY	21.71	Luangnamtha	Long	PAXOT	49
Luangprabang	Nan	HOUAYTHIP	21.71	Luangnamtha	Long	SAMMEUANG M	46
Luangprabang	Nan	HOUAYXI	21.71	Luangnamtha	Long	SENCHOU MPOL	46
Luangprabang	Nan	PHONSANA	21.71	Luangnamtha	Long	CHAKHAMSEN T	46
Luangprabang	Nan	HOUAYPHAKNA	21.71	Luangnamtha	Long	HOUAYHON	49
Luangprabang	Nan	PHONTHONG	21.71	Luangnamtha	Long	CHETA	49
Luangprabang	Nan	PASACK	17.77	Luangnamtha	Viengphou	NAMKIENG	43
Luangprabang	Nan	BANKANG	17.77	Luangnamtha	Viengphou	NAMSEUA	43
Luangprabang	Nan	SAENGSAVANG	17.77	Luangnamtha	Viengphou	PHOULET	43
Luangprabang	Nan	HOUAYHIA	21.71	Luangnamtha	Viengphou	KATANGKOUAK	43
Luangprabang	Nan	PHONXAY	17.77	Luangnamtha	Viengphou	NAMTIENG	40
				Luangnamtha	Viengphou	TONGMANG	43
				Luangnamtha	Viengphou	LAIYANG	40
				Luangnamtha	Nalae	LA ANG	43
				Luangnamtha	Nalae	TAKHEUNG	43
				Luangnamtha	Nalae	KAYE	40
				Luangnamtha	Nalae	KHANEUNG	40
				Luangnamtha	Nalae	SALEUANG	40
				Luangnamtha	Nalae	MONGKHO	40
				Luangnamtha	Nalae	SAKRANG	40
				Luangnamtha	Nalae	NEUNGPHET	40
				Oudomxay	Nga	NOKLAVAAN	49
				Oudomxay	Nga	HUAYCHI	41
				Oudomxay	Nga	BANKHUANG	41
				Oudomxay	Nga	HUAY O	41
				Oudomxay	Nga	HUAYPHANG	41
				Oudomxay	Nga	PHOUVIENG	42
				Oudomxay	Nga	KHOKPHOU	49
				Oudomxay	Nga	HUAYKHAYAIYA	49
				Oudomxay	Nga	MOKCHALAENG	49
				Oudomxay	Nga	HUAYKHAYAINC	49
				Oudomxay	Nga	MOKMIN	49
				Oudomxay	Nga	NAXAAN	42
				Oudomxay	Nga	HOUAY MO	42
				Oudomxay	Nga	PHOUSOUNGYA	41
				Oudomxay	Nga	NAMOUANG	41
				Oudomxay	Nga	NGONYAI	41

Luangprabang	Xieng nge	PHAKHAO	39.19
Luangprabang	Nan	PHANIP	30.86
Luangprabang	Nan	KHORNLONG	30.86
Luangprabang	Nan	PADONG	30.86
Luangprabang	Nan	NAMOUANG GN	30.86
Luangprabang	Nan	NAMOUANG KAI	30.86
Luangprabang	Nan	PONGDEUA	30.86
Luangprabang	Nan	HOUAYLATH	30.86
Luangprabang	Nan	DAN	30.86
Luangprabang	Nan	HOUAYHOY	30.86
Luangprabang	Nan	NAMPHAK	30.86
Luangprabang	Nan	HOUAYME	30.86
Luangprabang	Nan	HOUAYLONG	30.86
Luangprabang	Nan	SISAATH	30.86
Luangprabang	Nan	PHOKHAM	29.46
Luangprabang	Nan	PAKLAN	29.46
Luangprabang	Nan	PHONXAY	29.46
Luangprabang	Nan	HOUAYTHIP	29.46
Luangprabang	Nan	HOUAYXI	29.46
Luangprabang	Nan	PHONSANA	29.46
Luangprabang	Nan	HOUAYPHAKNA	29.46
Luangprabang	Nan	PHONTHONG	29.46
Luangprabang	Nan	PASACK	23.72
Luangprabang	Nan	BANKANG	23.72
Luangprabang	Nan	SAENGSAVANG	23.72
Luangprabang	Nan	HOUAYHIA	29.46
Luangprabang	Nan	PHONXAY	23.72
Luangprabang	Chomphet	PARKLUEM	45.65
Luangprabang	Chomphet	NAKEUA	45.65
Luangprabang	Chomphet	NAKHAENG	45.65
Luangprabang	Chomphet	HUAYKHAAN	45.65
Luangprabang	Chomphet	NANGEW	45.65
Luangprabang	Chomphet	HUAYDEUA	45.65
Luangprabang	Chomphet	NAHAI	45.65
Luangprabang	Chomphet	NALAE	45.65
Luangprabang	Chomphet	HUAYXAIKHAO	45.65
Luangprabang	Phoukhoun	BANGKALO	36.73
Luangprabang	Phoukhoun	VIENGKHAM	36.73
Xayaboury	Khop	DONE MOUNE	36.82
Xayaboury	Khop	HOUA MOUANG	36.82
Xayaboury	Khop	MOUANG	36.82
Xayaboury	Khop	THONG MENH	36.82
Xayaboury	Khop	NAM KHA	36.82
Xayaboury	Khop	PA SANG	36.82
Xayaboury	Khop	DOI HARE	34.22
Xayaboury	Khop	DONE TON	34.22
Xayaboury	Khop	NAM TOM	34.22
Xayaboury	Khop	HOUY NGEUN	34.22
Xayaboury	Hongsa	VIENGKEO	33.6
Xayaboury	Hongsa	YAI	33.6
Xayaboury	Hongsa	NA SANE	33.6
Xayaboury	Hongsa	MOUANG HANE	33.6
Xayaboury	Hongsa	XIENG KONG	33.6
Xayaboury	Hongsa	PHONE CHANH	33.6
Xayaboury	Hongsa	NAM KHAM	33.6
Xayaboury	Hongsa	NA XAI KHAM	33.6
Xayaboury	Hongsa	HOUY DOU	36.45
Xayaboury	Hongsa	HOUY LAI	36.45
Xayaboury	Hongsa	NAM TUP	36.45

Xayaboury	Hongsa	CHAM PA	33.6
Xayaboury	Hongsa	NONG VY	38.31
Xayaboury	Hongsa	PHOU LENG KAI	38.31
Xayaboury	Hongsa	PHOU LENG TAI	38.31
Xayaboury	Hongsa	KIEW NGIEW	38.31
Xayaboury	Hongsa	THENE	38.31
Xayaboury	Hongsa	NA POUNG	38.31
Xayaboury	Hongsa	NAM KENE	38.31
Xayaboury	Hongsa	HOUY CHUOAN	38.31
Xayaboury	Hongsa	SI BOUN HEUAN	33.6
Xayaboury	Hongsa	PUNG KIET	33.6
Xayaboury	Hongsa	KEW PEUAK	36.45
Xayaboury	Hongsa	HOUY SUUNE	36.45
Xayaboury	Hongsa	KOK KOR	38.31
Xayaboury	Hongsa	DONE XAI	38.31
Xayaboury	Hongsa	PHONE SUNG	33.6
Xayaboury	Hongsa	HOUY KHAI	33.6
Xayaboury	Hongsa	PHONE XAI	33.6
Xayaboury	Hongsa	DOK KHAM	33.6
Xayaboury	Hongsa	NAM LEUAK	33.6
Xayaboury	Ngeun	KHONE	36.01
Xayaboury	Ngeun	DONE KEO	36.01
Xayaboury	Ngeun	PHIA NGAM	36.01
Xayaboury	Ngeun	BI MI	36.01
Xayaboury	Ngeun	KANG	36.01
Xayaboury	Ngeun	LUANG	36.01
Xayaboury	Ngeun	DONE MOUNE	36.01
Xayaboury	Ngeun	DONE XAI	36.01
Xayaboury	Ngeun	NONG VENE	36.01
Xayaboury	Ngeun	NA YANG	36.01
Xayaboury	Ngeun	DONE KHAM	36.01
Xayaboury	Ngeun	NA NGOUA	36.01
Xayaboury	Ngeun	HOUY HOK	36.01
Xayaboury	Ngeun	PUNG FAT	36.01
Xayaboury	Xienghoun	MOK SA KIEN	33.62
Xayaboury	Xienghoun	HONG KHOU	33.62
Xayaboury	Xienghoun	KEW KENE	33.62
Xayaboury	Xienghoun	NGEW	33.62
Xayaboury	Xienghoun	NAM BENG	33.62
Xayaboury	Xienghoun	LAO OU	33.62
Xayaboury	Xienghoun	LAO SA NO	33.62
Xiengkhuang	Khoune	NAXAI	47.82
Xiengkhuang	Khoune	HUAYCHAE	47.82
Xiengkhuang	Khoune	NASI	47.82
Xiengkhuang	Khoune	XANG	47.82
Xiengkhuang	Khoune	NA-OU	47.82
Xiengkhuang	Khoune	THAMHOIXAI	47.82
Xiengkhuang	Khoune	PHONEXAI	47.82
Xiengkhuang	Khoune	DONGDAAN	47.82
Xiengkhuang	Khoune	NONGPHUE	47.82
Xiengkhuang	Khoune	MEUANG	47.82
Xiengkhuang	Khoune	NA TO	47.82
Xiengkhuang	Pek	HOY	47.82
Xiengkhuang	Khoune	NA BONG	47.82

## Annex 10 Tropical storm SINLAKU

# Heavy rains lash central Vietnam as Typhoon Sinlaku weakens into tropical depression

By Nguyen Bang, Thanh Nien News

Sunday, November 30, 2014 21:44

Email

Print



A map provided by the National Center for Hydrometeorological Forecast charted the path Typhoon Sinlaku will take towards Vietnam's south-central coast on Sunday

Typhoon Sinlaku, the fourth tropical storm that hit Vietnam this year, has weakened into a depression after slamming into the south central coast and causing torrential rains on Saturday.

According to the National Center for Search and Rescue, the depression brought strong winds and heavy rains to Phu Yen, Binh Dinh and Gia Lai provinces on Sunday.

As of press time, no human fatalities were reported, the center said. But in Binh Dinh and Phu Yen provinces, the rains blew off the roofs of hundreds of houses, capsized dozens of boats and inundated around 4,000 hectares (9,884 acres) of paddy fields, the center said.

Water levels on rivers in Quang Ngai, Phu Yen, Gia Lai and Kon Tum also rose quickly and reached alarming levels 1 and 2 on Sunday. Level 3 is the highest.

Coastal areas of Binh Dinh and Phu Yen measured strong winds at the speed of 39-49 km per hour on Sunday morning and rough waves of 2-4 meters high.

On Saturday, Sinlaku brought downpours, strong winds and rough waves to communities between the central provinces of Quang Ngai and Khanh Hoa, which includes the resort town of Nha Trang.

## RELATED NEWS

Typhoon Sinlaku heads to Nha Trang, endangering fishermen  
(/society/typhoon-sinlaku-heads-to-nha-trang-endangering-fishermen-34660.html)

Typhoon Sinlaku approaches Vietnam's south central coast  
(/society/typhoon-sinlaku-approaches-vietnams-south-central-coast-34632.html)

Date of FFG products 30/11/2014 00:00 UTC time

1hour Flash Flood Guidance in Vietnam			3hours Flash Flood Guidance in Vietnam		
Provinces	Districts	FFG value	Provinces	Districts	FFG Value
No Risk Areas	to Flash Flood	Occurence	Phu Yen	Tuy Hoa	33.35
			Khanh Hoa	Van Ninh	33.35
			Gia Lai	An Khe	36.86
			Gia Lai	Kong Chro	36.86

## Annex 11 Tropical storm HAGUPIT

Monday December 15, 2014

## NATIONAL

vietnamnews.vn Việt Nam News 3

## KOVA awards honour influential researchers

**HÀ NỘI** — The 12th annual KOVA Awards on Saturday honoured four groups and eight individuals for their outstanding contributions to the fields of applied science and technology and social welfare.

Nguyễn Thị Doan, chairwoman of the KOVA Awards Committee, said at the ceremony that the KOVA Awards have heightened the country's socio-economic development.

The awards should be expanded to include scientists working for the army and police forces, and highlight female scientists' achievements, Doan said.

Established by the KOVA Paint Group in 2002, the awards have been given to more than 230 groups and individuals. The organisation aims to encourage students, individuals and groups — especially those from disadvantaged backgrounds — to pursue innovation in science, technology and social welfare.

One applied science and technology award went to a group from the Institute of Medical Equipment and Construction Design under the Ministry of Health. To solve a growing problem of bacterial contamination in medical units and hospitals, the group built 1,500 automatic hand-washing facilities with filtered hot and cold water.

A group of pharmacists and engineers from Binh Dinh Pharmaceutical and Medical Equipment Company received an award for creating and manufacturing a generic freeze-drying injection, which has been used to treat cancer at 25 hospitals.

A group award for outstanding contributions to society went to the Kon Chieng Commune's Women's Union in Mang Yang District for their hunger and poverty reduction programme aimed at ethnic minority women in the Central Highland province of Gia Lai. — VNS

## Medical workers victims of assault

**HÀ NỘI** — The Ministry of Health has reported that at least 14 medical workers had been assaulted since the beginning of 2013.

"Medical workers have been assaulted at major medical institutes, which often deal with a large number of patients," said Trần Đức Long, an official from the ministry.

The killing of a doctor at the Vũ Thử General Hospital in Thái Bình Province in August 2011 shocked the country, but since then, attacks on medical staff have continued.

Recent incidents have occurred at Thanh Nhân, Bạch Mai and Hà Tĩnh general hospitals, that resulted serious injuries to several medical workers.

Nguyễn Trọng Khoa, deputy head of the Medical Services Administration, said there was a number of factors that contributed to violent attacks at medical institutes across the country, such as a lack of security and inadequate punishments for assaults.

On the other hand, medical workers needed to improve their professionalism and manner while dealing with patients and their families.

"The first solution is for doctors to reflect on their own behaviour and manner. We are treating patients, not

just diseases. Doctors tend to think they are doing patients a favour. We must see them as our customers and they must be treated with respect and kindness," said the deputy head.

"Medical workers often face enormous pressure in their jobs. Accidents, mistakes and complications can happen anytime and anywhere, not just in Việt Nam," said Dr Trần Quý, former director of Bạch Mai General.

Although there were no statistics to show how many fatalities were due to medical errors, attacking staff in a blind rage was wrong, said Quý.

Medical workers needed to excel in their professional fields and attend training courses to improve their communication skills and comfort patients and their families, according to experts at the conference.

Hospitals also needed to upgrade security measures, build fast response teams and co-operate with local police to respond to violent assaults.

The report was released in a conference titled "Protection for medical workers and say no to violence in medical institutes", co-organised by the Ministry of Health and the Lao Động (Labour) newspapers last week. — VNS

## PM orders agencies to step up food safety oversight



Doctors rehearse taking care of employees with food poisoning at Nobland Việt Nam Company in HCM City. The Prime Minister has asked ministries to control the amount of chemicals in food products and origin labeling of foods to prevent food poisoning. — VNA/VNS Photo Phụng Vy

**HCM CITY** — Prime Minister Nguyễn Tấn Dũng has instructed relevant agencies to improve food safety and hygiene across the board.

The Government website quoted him as saying they have to ensure harmful chemicals in agricultural products do not exceed prescribed limits and foods without origin are not sold in the market and prevent the food poisoning cases that keep occurring in industrial parks and export processing zones despite authorities' efforts.

He instructed the Ministry of Health to strengthen oversight of manufacturing, trading, and use of food additives.

It should work with the Ministry of Information and Communications to ensure advertising about food is accurate, especially supplements, and throw the book at violators.

The violent tide flooded the house of Đào Đức Chung, one of the residents of the coastal village, located in Tuy Hòa city's Phú Đông commune in Phú Yên province.

Chung said he and his neighbours were ready to evacuate if the tide got stronger.

The tide also filled Đà Diên Port with sand, reducing its depth to 1m.

Previously, Phú Yên Province's People's Committee proposed the Government fund the upgrading of the embankment in Rô village, as well as Xuân Hải commune and Sông Cầu town.

The ministry should expand effective models of street-food safety and hygiene, and work with other authorities to improve monitoring of urban water quality.

He ordered the agriculture ministry to monitor agricultural, forestry and aquatic produce and ensure safe slaughter and transport of poultry.

Safe food chain models where the quality of essential items is controlled from the farm to the market should be expanded, he said.

The Ministry of Industry and Trade should improve oversight of manufacturing and distribution of alcoholic beverages, soft drinks, and baby formula.

He called on local authorities to improve the functioning of food safety and hygiene agencies, those overseeing quality management of agricultural, forestry and aquatic products, and market management agencies.

Inspection and communication should be improved, he added.

On Saturday the Food Safety and Hygiene Department and HCM City's Department of Health held an emergency response drill to food poisoning.

Organised at the Tân Thới Hiệp Industrial Park in outlying District 12, it involved 200 "victims".

It was the second this year following an earlier one in the Red River Delta province of Nam Định in October.

Nguyễn Hùng Long, the department's deputy head, said such rehearsals are vital for improving the capacity of relevant agencies and company managers in dealing with food poisoning.

Every year 11-25 cases occur at industrial parks and export processing zones with an average of 1,400 workers taking ill, according to the department. — VNS

## Coastal provinces hit by violent seas, flood tides

**PHUYỀN** — High waves isolated a dozen households in Rô village on Saturday night sweeping away 100m of embankment made from rock and sand bags.

The violent tide flooded the house of Đào Đức Chung, one of the residents of the coastal village, located in Tuy Hòa city's Phú Đông commune in Phú Yên province.

Chung said he and his neighbours were ready to evacuate if the tide got stronger.

The tide also filled Đà Diên Port with sand, reducing its depth to 1m.

Previously, Phú Yên Province's People's Committee proposed the Government fund the upgrading of the embankment in Rô village, as well as Xuân Hải commune and Sông Cầu town.

In other areas of Phú Yên province, students skipped class for the last two days due to heavy rain, which also raised the water level of several rivers including the Kỳ Lộ and the Bảnh Lái and flooded 130ha of rice and 20ha of vegetables, causing estimated losses of VNĐ2 billion (US\$395,000).

On Lý Sơn Island in Quảng Ngãi province, the rough sea prevented boats from departing, forcing hundreds of visitors to stay on the island and preventing officials from going home for the weekend, said vice chairman of the Lý Sơn People's Committee Phạm Thị Hương.

Đặng Quang Sơn, director of Sa Kỳ Harbour's Management Unit, said that the storm had shut down sea traffic for the last three days, cutting off the flow of supplies.

Under the influence of

strong cold air yesterday, Quảng Ngãi seas were rough with 2-3.5m high waves and level six wind power. The province saw 50-100mm of rain.

River level was expected to rise to the second warning level on the Trà Chu River in Đức Phổ District and first warning level on the Vệ River. Local authorities and residents were told to be aware of flooding and land erosion in mountainous areas.

According to the National Centre for Hydrometeorological Forecasting (NCHMF), it would be cold during the night and early morning in the north of Việt Nam, but sunny in the afternoon.

The Centre also predicted scattered rain from Đà Nẵng City to Bình Thuận Province and sun in the Central Highlands and south. — VNS

## BRIEFS

## Huế students learn about climate change

**THỪA THIÊN - HUẾ** — Students at 235 primary schools in central Thừa Thiên - Huế Province will learn about climate change and its impacts as part of an educational programme run by UNESCO in Việt Nam and the Ministry of Education and Training.

Over 95,000 students will take part in the programme, which covers topics such as natural disaster preparation, mitigation and adaptation and biodiversity protection.

A two-year pilot programme was conducted in lowland areas of the province, where locals experienced severe climate change impacts in recent years.

## Rare pheasant spotted in central province

**QUẢNG BÌNH** — A silver pheasant listed as rare and threatened in Việt Nam by the International Union for Conservation of Nature (IUCN) has been spotted in a forest in central Quảng Bình Province.

The pheasant was photographed by a trapping camera in the Núi Nùng forest in the province's Lệ Thủy District.

Silver pheasants live throughout Southeast Asia and China. In Việt Nam, the species is threatened due to Agent Orange sprayed during war, as well as deforestation and illegal hunting.

The province's Forest Ranger Department said silver pheasants were rarely seen in the area, although the Vietnamese pheasant was a common sight.

## Two detained for human trafficking

**LAI CHÂU** — Border army officers in Lai Châu Province said yesterday that they detained two residents of Sin Hồ border district for alleged involvement in a human trafficking network.

The two were identified as Tao Văn Pân, born 1979, and Lê Thị Châm, born 1991. On Saturday, they were caught while trying to transport Phan Thị Nhun, born 1999, from Sin Hồ District's Nậm Chà Commune to sell in China.

They promised her a job in Phong Thổ District. Pân said he went to China in February and met a woman who told him that he could sell Vietnamese women for 23,000 - 25,000 yuan (US\$3,700-4,000).

The case has been transferred to Lai Châu police.

## Troubled cargo vessel saved by Coast Guard

**ĐÀ NẴNG** — Coast Guard officers of the Second Regional Coast Guard based in Quảng Nam managed yesterday to bring a troubled cargo vessel to Đà Nẵng.

Hòa Mai-25 issued a distress signal on December 12, while carrying 1,500 tonnes of cement from Hải Phòng to Đà Nẵng in stormy weather. When the ship was anchored near Cồn Cỏ Island, its anchor broke.

A Coast Guard rescue boat found the vessel 40km off the coast of Đà Nẵng. Nine sailors were on board. — VNS



