Disaster Risk Management In Cambodia

22-26 June 2014, Bangkok, Thailand



Kingdom of Cambodia







Disaster Management System in Cambodia





NCDM Mechanism Structure





Commune Coordination Mechanism





- Cambodia is considered one of the most hazardprone countries in South-East Asia;
- Cambodia is also vulnerable to climate change due to the increase of rising temperatures and shifts in the timing and duration of seasons;
- Cambodia has been experienced of several type of hazards such as: Flood, Lightning, Fire, Tropical Storm/Typhoon, Epidemic, Drought, Riverbank Collapse and Traffic Accident [*];
- Over decades, Floods, Drought, epidemics and storms had threatened the well-being of Cambodian people as well as economic of the country.



Cambodia Disaster Loss and Damage Database (CamDi)

DesConsultar - Charts / Q ×

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Sources: (CamDi), http://camdi.ncdm.gov.kh



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Cambodia Disaster Loss and Damage Database (CamDi)

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2013 Map of Flood Victims (CamDi)





Deaths From Multi-Hazards By Year (2000 – 2013)



<u>Sources</u>: (CamDi), http://camdi.ncdm.gov.kh



Deaths and Victims From Multi-Hazards By Year (2000 - 2013)

Event	F	lood	Light	ning	Fi	re	St	orm	Epid	emic	Dr	ought
Year	Deaths	Victims	Deaths	Victims	Deaths	Victims	Deaths	Victims	Deaths	Victims	Deaths	Victims
2000	347	3305582	5	0	29	0	7	66	0	0	0	0
2001	19	590026	5	0	0	489	912		0	0	0	20283
2002	11	960321	2	0	0	30	0	723	0	0	0	842563
2003	7	96999	4	0	0	108	0	5191	0	0	0	0
2004	2	8430	1	0	0	337	0	1713	0	0	0	455327
2005	9	72567	11	0	0	3082	5	1252	4	0	0	1024335
2006	15	807202	8	9	0	1002	4	2442	2	0	0	100592
2007	2	75156	29	4	1	1448	0	6238	1	0	0	0
2008	4	43601	45	4	0	1662	0	21507	0	1	0	31706
2009	32	528597	94	111	11	3330	40	17204	0	1	0	0
2010	11	141748	72	18	2	3936	5	20729	1	0	0	0
2011	250	1884402	200	5	0	1319	0	4093	8	0	0	358
2012	26	54909	139	37	20	3850	6	4235	3	0	0	25563
2013	184	1893198	136	2049	31	1396	10	24867	14	12	0	0
TOTAL	919	10,462,738	751	2237	94	21,989		111,172	33	14	0	2,500,727



Percentage of Deaths Caused by Multi-Hazards (2000 - 2013)





Percentage of Victims Caused by Multi-Hazards (2000 - 2013)





Deaths Caused by Floods (2000 – 2013)





Victims Caused by Floods (2000 – 2013)



Sources: (CamDi), http://camdi.ncdm.gov.kh



Disaster Damage and Loss

		Summa	ary of Dar	mage and	Losses (I	DaLA)			
	2009	Ketsana Typ	hoon		2011 Flood			2013 Flood	
Sectors and Sub- Sectors	Effe	cts (US\$ Mill	lion)	Effe	cts (US\$ Mill	lion)	Effe	cts (US\$ Mill	ion)
	Damage	Loss	Total	Damage	Loss	Total	Damage	Loss	Total
Infrastructure	17.26	11.49	28.75	375.70	34.70	410.40	134.27	0.00	134.27
Social Sector	39.55	3.33	42.89	34.70	n/a	34.70	16.46	38.45	54.91
Productive Sector	1.05	59.01	60.06	40.80	138.80	179.60	2.54	164.59	167.13
Cross-Cutting Sector	0.21	0.10	0.31	0.00	n/a	n/a	n/a	n/a	n/a
TOTAL	58.07	73.93	132.01	451.20	173.50	624.70	153.27	203.04	356.31

<u>Sources</u>: Ketsana Comprehensive Post-Disaster Needs Assessment (March 2010), ADB Flood Damage Emergency Reconstruction Project (Preliminary. Assessment, March 2012), and Post-Flood Early Recovery Needs Assessment (April 8, 2014) <u>Note</u>: Damage and Loss Assessment (DaLA)



Map of the 2013 Flood Extent in Cambodia

Overview of Flood Extent in Cambodia, October 2013





National Committee for Disaster Management

World Food

- Engineered buildings;
- Non-engineered buildings;
- Retrofit of existing buildings;
- Strengthening and protecting infrastructure;
- Protection of lifelines and critical facilities (high ground/ structure);
- Flood protection measures;
- Structural warning systems.



Non-Structural DRR Measures

- DRR & CCA action plan/ contingency plan;
- Warning systems;
- Business continuity plan;
- Strengthening building codes/ regulations;
- Land-use managements;
- Public awareness campaigns;
- Education/training/ exercises.



Concerned Ministries - Institutions

- Ministry of Water Resources and Meteorology (MOWRAM) is mandated to produce and disseminate the forecasting and early warning information to the entire country;
- NCDM in partnership with other stakeholders (Ministries-Institutions, PCDM/DCDM, humanitarian agencies etc.) assume the coordination role;
- Regional Flood Management and Mitigation Center (RFMMC) of the Mekong River Commission (MRC) based in Vientiane (Lao PDR) is responsible for producing and disseminating flood forecasting and early warning information for its member states in the Lower Mekong Basin, including Cambodia.



Weather Forecasting System (1)

Domestic Data and Information

A. Surface Observation

- Synoptic Station Consists of: 21-Synoptic Stations including 9-Automatic Stations;
- 21-Synoptic are operating with manned observational equipment;
- Data and information receiving by SMS, E-mail, Fax, and Phone.



Sources: MOWRAM



Weather Forecasting System (2)





GPV VIEWER SOFTWARE TO SEE GPV DATA



GPV Time 2011/10/08 00:00

'Wind Spd Dir Vec' 6-hour forecast values (10/08 06:00)

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SATAID TO SEE GPV AND SATTLITE DATA





Digital Atmosphere Software for Analysis





River Flood Forecasting System (1)

Domestic Data and Information

- River Flood Forecasting System in Cambodia is carried out by Department of Hydrology and River Works (DHRW) of the Ministry of Water Resources and Meteorology (MOWRAM);
- So far, the system could forecast 3-days flood levels at 7-stations located at the mainstream of rivers: Mekong River, Bassac River and Tonle Sap Lake;
- 4-stations were installed along Mekong River: Stung Treng, Kratie, Kampong Cham and Neak Loeung;
- 2-stations were installed along Bassac River: Phnom Penh and Koh Khel;
- 1-station was installed at Tonle Sap Lake: Prek Kdam;
- The multi-regression model has been applied as a tool to simulate the flood level forecasts.



Sources: MOWRAM

River Flood Forecasting System (2)

Flood Forecasting in the Flood Plain

- The multi-regression model has been applied as a tool to simulate the flood level forecasts;
- Understandable, applicable tools and methods available at communities (staff gauge, flood markers and flood emergency response boards);
- Flood forecasts carried out by the DHRW.







River Flood Forecasting System (3)

Regional Data and Information

- Basin-wide Real time Data Collection Network;
- Data Transmission every 15mn;
- Mekong-HYCOS: 12-stations in Cambodia among 32-stations of MRC Network;
- Real time data above are very important for flood forecasting and warning.

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4-Classifications of Flood Level In Cambodia

Based on Annual Maximum Water	Little Flood	Moderate Flood	Heavy Flood	Severe Flood
Chaktomuk Station	Lower	Between	Between	Higher
	<9.00m	>9.00m to <10.00m	10>00m to <11.00m	> 11.00 m

F	ood Travel time
Station	Flow Duration Arrives at Phnom Penh-Chaktomuk
Vientiane	9 days
Parkse	5 days
Stung Treng	3 days
Kratie	2 days
Kg Cham	1 day



Sources: MOWRAM









Satellite-Radar **Observation Station**

Station





Ministries-Institutions Sub-National Level Relevant Stakeholders Media

-117 MOWRAM

DOM & DHRW



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Dissemination of Forecasting and Early Warning Information



ព្រះព៩រណៈចក្រកន្ទុ៩រ ៩រតិ សាសនា ព្រះចសារក្សត្រ

สายานกับ เป็นการเรียน เป็นการเป็น เป็นการเป็น เป็นการเป็น เป็นการเป็น เป็นการเป็น เป็นการเป็น เป็นการเป็น เป็น เป็นการเป็น เป็นการเป็น เป็นการเป็น เป็นการเป็น เป็นการเป็น เป็นการเป็น เป็นการเป็น เป็นการเป็น เป็นการเป็น เป็

1.ស្ថានភាពអាភាសភាតុ ថ្ងៃនី 12 ខែតុលា ឆ្នាំ 2012



ព្រះរាជាណាចក្រកម្ពុជា *ទទួលឥទ្ធិពលពីជ្រំលងសម្ពាធទាបខ្សោយ លក្ខណៈបែបនេះធ្វើអោយអាកាសធាតុនៅថ្ងៃនេះ:* <u>៣.វាលចំនាប</u>:សីតុណ្ហភាពអប្បបរមាពី 23– 25 °C និងអតិបរមាពី30–32 °C ផ្ទៃមេឃមានពេកពីតិចទៅមធ្យម ខ្យល់បក់ មកពិចិសពាយ័ព្យមានល្បឿនពី 2–4 m/s នឹងអាចមានភ្លៀង ផ្លូវ រន្ទរៈ តិចតូចទៅថ្លែកខ្លះនៃរាជធានីភ្នំពេញ ខេត្តកណ្តាល

មកពទសពាយព្យមានល្បេ]អាន 2-4 m/s អងរាចមានភ្លោង ធ្លូវ រដ្ឋន តចតូចនោះឆ្នេកខ្លួនដេវាជធានភ្នពេញ ខេត្តកណ្តាល តាកែវ កំពង់ស្តី កំពង់ឆ្នាំង កំពង់ធំ ស្វាយរៀង និង ខេត្តព្រៃវែង ។ **8.ខ្លង់រាបៈ**សីតណភាពអបប្ររមាពី 23-25 °C និងអតិបរមាពី 30-32 °C ដៃមេឃមានពពកតីតិចទៅមធម្រ ខ្យល់បក់មក

មិទទួលកិច្ចសេសស្ត្រីពាក់ស្មើងចំពោះ 23-23 C ដែលកាច់ចំពោះ 30-32 C ឆ្នោះចំលេចដែលការចំនោះបង្អាង ហ្វីងចំពង។ ពីទីសបូព៌ាមានល្បឿនពី2- 4m/s នឹងអាចមានភ្លៀង ផ្គរ រន្ទះ តិចតួចនៅផ្នែកខ្លះនៃខេត្ត កំពង់ចាម ក្រចេះ ស្ទឹងត្រែង រតនៈគិរី មណ្ឌលគិរី និងខេត្តព្រះវិហារ ។

ព.ម៉ាត់សមុទ្រ: ស៊ីតុល្លភាពអប្បបរមាពី 21- 23 °C និងអតិបរមាពី 28- 30 °C ថ្ងៃមេឃមានពពកពីតិចទៅមធ្យម ខ្យល់ បក់មកពីទិសន៍វិតីមានល្បឿនពី2- 4m/s នឹងអាចមានភ្លៀង ផ្គរ រន្ទុះ តិចតួចនៅផ្នែកខ្លះនៃខេត្តកែប កំពត និងខេត្ត កោះកុង រលកសមុទ្រអាចមានកំពស់ពី 1.00m -1.50m ។

2.ត្យាភាពណ៍នាតុអាភាស ខ្ងៃនី 13 .15 ខែពុលា ឆ្លាំ2012



ยหมาญ่าย ลุทธิเมษ หาศาหลง ตอง อญอักหรฐ ยบทริชี[ทหรุมีปฏ เกณฑริฐักสญ ฐาณัญ : dtitt bim ก่องได้ดง Department of Meteorology, #364, Monivong Blvd,Khan Chamkamorn, Phnom Penh City Tel. No: 855 23 727446

ទ្រាសូចដននាននឹក និចឧតុនិយទ ទ្រាសូចដននាននឹក និចឧតុនិយទ

ព្រះពថាណាចក្រកម្ពុជា សារតំ សារសល ព្រះមហាក្សគ្រ

ទ៩លសាស្ត្រ និទភាទោរនេះនួ

ភ្លើឆ្អីមត្រព័ត៌តំបប់ពីបានៅថៃទី 14.10.2012 ដល

ទ្រឹឆ្លិច**គ្រេះក៍ទាត និទ ព្យាអារស័កម្ពស់នីអ**ទ័តតំ 14.10.2012 ដលាយ៉ាង 07 ពើក តាមបណ្តាសនីយដល់សាសេះ

ឈ្មោះស្តានីយ	ទឹកមានកម្ពស់	ធៀបម្សិលមិញ	ធៀបឆ្នាំមុន	ធៀបមធ្យម	ទឹកភ្លៀង (មម)	Wn
	(ម៉ែត្រ)	(ម៉ែត្រ)	(ម៉ែត្រ)	(ពីរ៉ូម៉ីវី)	13-10-2012	ម៉ែត្រ
1-ទន្លេមេគង្គ-ស្ទឹងត្រែង (Stung Treng)	5.17	+0.02	-3.53	-1.48	9.0	10.70
2-ទន្លេមេគង្គ-ក្រលេះ (Kratie)	13.44	-0.35	-6.52	-2.90	n	22.00
3-ទន្លេមេគង្គ-កំពង់ថាម(Kg.cham)	9.68	-0.45	-4.86	-2.33	0.3	15.20
4-ទន្លេជាសាក់-ចតុមុខ(Chaktomuk)	7.94	-0.23	-2.81	-1.46	n	10.50
5-ទន្លមេគង្គ-អ្នកលឿង (Neak Luong)	5.80	-0.15	-2.08	-0.94	14.8	7.50
6-ទន្លេបាសាក់-កោះខែល (Koh Khel)	6.69	-0.03	-1.17	-0.13	5.0	7.40
7-ទន្លេសាប-ព្រែកក្តាម (Prek Kdam)	7.47	-0.12	-2.67	-1.19	n	9.50
2-កម្ពស់ទឹកព្យាករណ៍សំរាប់ថ្ងៃទី	<u>15-10-2012</u>	ដល់ថ្ងៃទី <u>1</u>	7-10-2012	តាមបណ្ដ	ា ស្តានីយជល	សាស្ត្រ:

ឈ្មោះស្តានីយ	ñ	ម្គស់ទឹកព្យាក	រេណ៍តាមស្តានី៥	រជលសាស្ត្រ	(គិតជាម៉ែត្រ)	
	15-10-2	012	16-10-2	012	17-10-2	012
1-ទន្លេមេគង្គ-ស្ទឹងត្រែង (Stung Treng)	5.07	4	5.02	4	4.99	4
2-ទន្លេមេគង្គ-ក្រចេះ (Kratie)	13.34	4	13.19	4	13.14	4
3-ទន្លេមេគង្គ-កំពង់ចាម(Kg.cham)	9.45	4	9.32	4	9.21	4
4-ទន្លេបាសាក់-ចតុមុខ(Chaktomuk)	7.76	4	7.64	4	7.54	4
5-ទន្លមេគង្គ-អ្នកលឿង (Neak Luong)	5.65	4	5.50	4	5.36	4
6-ទន្លេបាសាក់-កោះខែល (Koh Khel)	6.63	4	6.57	4	6.52	4
7-ទន្លេសាប-ព្រែកក្តាម (Prek Kdam)	7.34	4	7.23	4	7.15	4

ស្ថានតាះធើអធរន្ល ៖ ស្ថានភាពទឹកទន្លេមេគង្គ ទន្លេសាប និងទន្លេបាសាក់ស្រកចុះជាបន្តបន្ទាប់។ កម្ពស់ទឹកនៅបឹង

ទន្លេសាប ស្ថានីយក្រគរ-កំពង់ល្ងងមានកម្ពស់7.47m ទាបជាងម្សិលមិញ០.02mៗ

ភ្នំពេញ.ថ្ងៃទី 14 ខែ ឆាំ 2012 10 រមនានភារិយាល័យសោទព្រាទ និទពក្កអរណ៍នីអបំនន់ อาลเซ็ตาลืออหลาก មេតុលាយអចេតីបូតាមេបូតជេស ຂຶ້ອຮ່າງຮອກຂອງເຮົາຮູງຂ 80_650 ទើវ ចារត

លេខ ៣៦៤ មហាវិថី ព្រះមុនីវិង្ស សង្កាត់ផ្សារជើមថ្កវ ភ្នំពេញ

ទូរស័ព្ទ/ទូរសារ : (៨៥៥) ២៣ ៧២៦ ០៤៤

#364 Preah Monivong Blvd, Sangkat Phsar Daerm Thkov, Phnom Penh, Cambodia E-mail: dhrw.cambodia@online.com.kh Web site http://www.diurw-cam.org



ទាង សាសនា ខ្លាំងទាំង សាសនា ខ្លាំងសាមអ្វី សាសនា ខ្លាំងទាំងទាំង សាសនា ខ្លាំងទាំងទាំង សាសនា ទាំងទាំង សាសនា ទាំង សាសនា ទាំង សាសនា ទាំង សាសនា ទាំង សាសនា ទាំង សាសនា សាសនា ទាំង សាសនា សាសនា ទាំង សាសនា សាសនា ទាំង សាសនា សាសន

เสพูอธลธาลลีส ล๊ออสุลิเยย

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សេចក្តីប៉ុនជំណី១បន្ថែម ស្តីពី ស្ថានភាពអាកាសចាតុ និចស្ថានភាពនីកបំនន់

ក្រសួងធនធានទឹក និងឧតុនិយម សូមជម្រាបជូនដំណឹងបន្ថែមដល់ក្រសួង-ស្ថាប័ន្ធពាក់ព័ន្ធ អាជ្ញាធរវែងនដី និងសាធារណជនឱ្យបានប្រាបថា : នៅវេលាម៉ោង 13 h 00 រសៀល នាថ្ងៃទី 01 ខែតុលា ឆ្នាំ 2012 វិសម្ពាធមួយ ដែលបានកើតឡើងនៅក្នុងសមុទ្រចិនខាងត្បូង បានវិវត្តខ្លួនទៅជាកូនព្យុះ មានឈ្មោះថា "GAEMI "។ មកដល់ព្រឹក ថ្ងៃទី 02 ខែតុលា ឆ្នាំ 2012 កូនព្យុះ GAEMI កំពុងស្ថិតនៅសមុទ្រចិនខាងត្បូង ត្រង់ចំណុចខ្សែស្របទី 17 អង្សា នៃរយៈទទឹងខាងជើង និងខ្សែវណ្ឌ័ទី 114 អង្សា 8 នៃរយៈបណ្តោយខាងកើត និងមានចម្ងាយប្រមាណ 700 Km ភាគខាងកើតទីក្រុងដាណាង ប្រទេសវៀតណាម ។

យោងតាមការព្យាករណ៍ កូនព្យុះនេះនឹងវិវត្តទៅជាព្យុះ ហើយនឹងធ្វើដំណើរទៅដល់ឆ្នេរប្រទេសវៀតណាម ភាតកណ្តាល នៅថ្ងៃទី 06 ឬទី 07 ខែតុលា ខាងមុខនេះ ។ ព្យុះនេះនឹងមានឥទ្ធិពលលើព្រះរាជាណាចក្រកម្ពុជា ចាប់ ពីថ្ងៃទី 04 ដល់ថ្ងៃទី 08 ខែតុលា ឆ្នាំ 2012 ដោយធ្វើឱ្យផ្ទៃមេឃមានសភាពអាប់អ៊ូរ មានពពកច្រើនមីរដេរដាស មានភ្លៀងធ្លាក់រាយប៉ាយស្ទើរច្រប់ទីកន្លែង ព្រមទាំងមានខ្យល់បក់បោកខ្លាំង និងអាចមានជំនន់ទឹកភ្លៀងនៅតាមបណ្តា ខេត្តមួយចំនួន ដូចជា :

១- តំបន់ខ្ពង់រាប : មានខេត្តកំពង់ចាម មណ្ឌលគិរី រតនគិរី ក្រចេះ ស្ទឹងត្រែង ឧត្តរមានជ័យ និងខេត្តព្រះវិហារ ។

២- តំបន់ទំនាបកណ្តាល : មានខេត្តស្យេមរាប និងខេត្តកំពង់ធំ ។

៣-តំបន់មាត់សមុទ្រ : មានខេត្តកោះកុង កែប កំពត និងខេត្តព្រះសីហនុ ។ រលកសមុទ្រអាចមានកំពស់ ពី 1,50 m ទៅ 2,50 m ។

ឥទ្ធិពលរបស់ព្យុះនេះ ក៏នឹងធ្វើឱ្យទឹកជំនន់ទន្លេមេគង្គហក់ឡើងផងដែរ ។

យោងលើស្ថានភាពអាកាសធាតុ ដូចបានជម្រាបជូនខាងលើ ក្រសូងធនធានទឹក និងឧតុនិយម សូមអំពាវនាវ ដល់ក្រសួង–ស្ថាប័ន្ធពាក់ព័ន្ធ អាជ្ញាធរដែនដី និងប្រជាពលរដ្ឋ ដែលរស់នៅតាមបណ្តាខេត្តដូចបានជម្រាបជូនខាងលើ ពិសេសតំបន់ជាប់នឹងផ្លូវទឹកនានា សូមបង្កើនការយកចិត្តទុកដាក់ប្រុងប្រយ័ត្តខ្ពស់ ដើម្បីចៀសវាងនូវក្រោះថ្នាក់ និង ការប៉ះពាល់ដល់ទ្រព្យសម្បត្តិផ្សេង១ ដែលអាចកើតមានឡើងជាយថាហេតុ ។ ចំពោះប្រជានេសាទសមុទ្រ សូមផ្អាក សកម្មភាពនេសាទតាមសមុទ្រ ចាប់ពីថ្ងៃទី 05 ដល់ថ្ងៃទី 07 ខ្មែតណ៍ ឆ្នាំ១០ខ្លួន ហើ



អពារលេខ ៤៧ មហាវិថី ព្រះនរោត្តម រាជធានីភ្នំពេញ ទូរស័ព្ទ / ទូរសារលេខ (៨៥៥ ២៣.៧២៥ ៩៨៩/ (៨៥៥ ២៣.៤២៦ ៣៤៥ # 47 Preah Norodom B V D. Phnom Penh, Fax/Phone: (855) 23.725 989 / (855) 23.426 345 E-mail : mowram@eambodia.gov.kh



කත & යය දාසු භාභනා ලිංකොස්දි විසා විසාකික්කර් කොස්දියි

សេចក្តីប៉ុនដំណើច ស្តីពី ស្ថានភាពនីគេបំឧន់ឧទ្លេមេគច្ច

បន្ទាប់ពីបានធ្វើការតាមដានលើស្ថានភាពអាកាសធាតុ និងស្ថានភាពទឹកទន្លេមេគង្គរួចមក ក្រសូងធនធានទឹក និង ឧតុនិយម សូមជម្រាបជូនដំណឹងដល់សាធារណជនឱ្យបានជ្រាបថា : បច្ចុប្បន្ន ប្រព័ន្ធសម្ពាធទាប (ITCZ) ដែលកំពុង អូសកាត់ពីលើអាងទន្លេមេគង្គ < ពីប្រទេសមីយ៉ាន់ម៉ា ទៅមហាសមុទ្រប៉ាស៊ីហ្វិកភាគខាងកើតប្រទេសហ្វីលីពីន) បាន និង កំពុងមានឥទ្ធិពលមកលើអាងទន្លេមេគង្គ ដោយបង្កឱ្យមានភ្លៀងធ្លាក់ច្រើននៅក្នុងប្រទេសកម្ពុជា ឡាវ ថៃ ពិសេសនៅ ក្នុងអាងទន្លេមេគង្គភាគខាងលើ ។

ស្ថានភាពនេះ នឹងបណ្តាលឱ្យទឹកទន្លេមេគង្គកម្ពុជា ទន្លេបាសាក់ ទន្លេសាប និងទឹកក្មុងបឹងទន្លេសាប ចាប់កើន ឡើង ធ្វើឱ្យតំបន់ទំនាបមួយចំនួនដែលស្ថិតនៅអមដងទន្លេខាងលើ ចាប់ផ្តើមលិចជាបន្តបន្ទាប់ ដែលការលិចនេះក៏នឹងធ្វើ ឱ្យមានការប៉ះពាល់ដល់ដំណាំកសិកម្មរបស់ប្រជាពលរដ្ឋនៅតំបន់ទាំងនោះផងដែរ ។

អាស្រ័យដូចបានជម្រាបជូនខាងលើ សូមអាជ្ញាធរដែនដី និងប្រជាពលរដ្ឋ ដែលរស់នៅតាមដងទន្លេមេគង្គកម្ពុជា ទន្លេសាប ទន្លេបាសាក់ និងនៅតំបន់ជុំវិញបឹងទន្លេសាប សូមមានវិធានការប្រមូលកសិផលឱ្យទាន់ពេលវេលា និងសូម បង្កើនការយកចិត្តទុកដាក់ប្រុងប្រយ័ត្តខ្ពស់ ចំពោះស្ថានភាពទឹកជំនន់ខាងលើ ដើម្បីច្បេសវាងនូវគ្រោះថ្នាក់ផ្សេង១ ដែល អាចកើតមានឡើងជាយថាហេតុ។



អគារលេខ ៤៧ មហាវិថី ព្រះនរោត្តម រាជធានីភ្នំពេញ ចូរស័ព្ទ / ចូរសារលេខ (៨៥៥ ២៣.៧២៥៩៨៩ / (៨៥៥ ២៣.៤២៦ ៣៤៥ # 47 Preah Norodom B V D. Phnom Penh, Fax/Phone: (855) 23.725 989 / (855) 23.426 345 E-mail : mowram@cambodia.gov.kh



				Ohear	und diech	armoe				Enrora	ctad dier	TOPPAC	
Station name	ē	10-Oct	11-0ct	12-Oct	13-Oct	14-0ct	15-Oct	16-Oct	17-0ct	18-Oct	19-Oct	20-Oct	21-Oct
Jinghong	NIL												
Chiang Saen	CSA	3416	3224	3144	3016	3032	3016	3080	3109	2997	2895	2795	2708
Luang Prabang	LUA	4890	4760	4540	4340	4210	4068	4068	4062	4125	4154	4108	4062
Chiang Khan	CKH	5511	5641	5576	5394	5160	4952	4820	4801	4852	4904	4965	4960
Vientiane	VIE	4630	4740	4850	4770	4600	4450	4290	4191	4153	4191	4280	4365
Nongkhai	NON	4792	4857	4987	4965	4814	4608	4414	4262	4195	4253	4342	4447
Paksane	PAK	5666	5567	5589	5633	5622	5512	5336	5156	5021	4999	5050	5193
Nakhon Phanom	NAK	6674	6807	6750	6693	6712	6693	6579	6423	6214	6074	5990	5971
Thakhek	THA	6596	6748	6710	6615	6634	6615	6520	6419	6303	6225	6254	6290
Mukdahan	MUK	6680	6820	6920	6920	6840	6800	6740	6662	6548	6458	6422	6392
Savannakhet	SAV	6656	6515	6394	6555	6736	6776	6716	6613	6509	6475	6475	6533
Khong Chiam	KHO	9371	9394	9348	9233	9095	8958	8774	8424	8062	7801	7601	7419
Pakse	PKS	9246	9084	9111	9031	8815	8555	8529	8426	8293	8161	8036	7906
StungTreng	STR	20696	19335	15372	14320	14444	13391	12691	12191	11991	11551	11191	10867
Kratie	KRA												
Kompong Cham	KOM												
Phnom Penh (Bassac)	PPB												
Phnom Penh Port	ppp												
Koh Khel (Bassac)	КОН												
Neak Luong	NEA												
Prek Kdam (Tonle Sap)	PRE												
Tan Chau	ТСН												
Chau Doc (Bassac)	CDO												

<u>REMARKS:</u> Unit: m3/s

Mekong Bulletin MRC Secretariat P.O. Box 623 #576, National Road #2, Chak Angre Krom, Meanchey, Phnom Penh, Cambodia Tel: (855-23) 425353, Fax: (855-23) 425363, Email: floodforecast@mrcmekong.org

Forecast period from: 17 October to 21 October 2012

Date: 16 October 2012

LOCATION	24-hr Observed Rainfall (mm)	Zero gauge above M.S.L (m)	Flood level (m	Observer against z (I	d W. level ero gauge m)	Fo	precaste	d Water	Levels (m)	Tř flo at	od w mor th	is c varn nitor ne M	urre ing i ed s ekor	ntly in pl ites ng	no ace on
	15-Oct			15-Oct	16-Oct	17-Oct	18-Oct	19-Oct	20-Oct	21-Oct	16	17	18	19	20	21
Jinghong*	-			536.70	-											
Chiang Saen	nr	357.110	11.80	4.01	4.05	4.07	4.00	3.90	3.80	3.71				+		
Luang Prabang	nr	267.195	18.00	7.96	7.96	7.95	8.03	8.05	8.01	7.95						
Chiang Khan	nr	194.118	17.40	8.04	7.92	7.90	7.95	8.00	8.05	8.05	+					
Vientiane	nr	158.040	12.50	4.85	4.69	4.59	4.55	4.59	4.68	4.77	+					
Nongkhai	nr	153.648	12.20	5.57	5.39	5.25	5.19	5.24	5.32	5.42	+	+				
Paksane	nr	142.125	14.50	6.92	6.76	6.60	6.47	6.45	6.50	6.63	+	+	+			
Nakhon Phanom	nr	130.961	12.70	4.66	4.60	4.52	4.41	4.34	4.30	4.29			+			F
Thakhek	nr	129.629	14.00	5.85	5.80	5.75	5.69	5.65	5.66	5.68						
Mukdahan	nr	124.219	12.60	4.40	4.37	4.33	4.27	4.23	4.21	4.20						
Savannakhet	nr	125.410	13:00	3.31	3.28	3.23	3.18	3.16	3.16	3.19						
Khong Chiam	nr	89.030	16.20	5.25	5.17	5.02	4.86	4.74	4.65	4.57		+	+	+		
Pakse	nr	86.490	12.00	3.90	3.89	3.85	3.80	3.75	3.70	3.65			+	+		¥
Stung Treng	nr	36.790	12.00	5.00	4.86	4.76	4.72	4.63	4.56	4.50	+	+		+	+	¥
Kratie	nr	-1.080	23.00	13.28	12.95	12.68	12.50	12.38	12.29	12.16	+	+	+	+	+	+
Kompong Cham	nr	-0.930	16.20	9.51	9.32	9.14	8.99	8.86	8.77	8.70	+	+	+	+	+	+
Phnom Penh (Bassac)	13.5	-1.020	12.00	7.80	7.69	7.61	7.51	7.45	7.40	7.35	+	+	+	+	+	¥
Phnom Penh Port	-	0.000	11.00	7.00	6.88	6.78	6.70	6.62	6.56	6.50	+	+	+	+	+	¥
Koh Khel	0.0	-1.000	7.90	6.59	6.50	6.42	6.37	6.32	6.28	6.25	+	+	+	+	+	¥
Neak Luong	0.6	-0.330	8.00	5.73	5.64	5.56	5.49	5.43	5.38	5.33	+	+	+	+	+	¥
Prek Kdam	nr	0.080	10.00	7.38	7.29	7.22	7.15	7.09	7.03	6.98	+	+	+	+	+	¥
Tan Chau	18.6	0.000	4.50	3.12	3.08	3.03	2.98	2.94	2.91	2.88	¥	+	+	+	+	+
Chau Doc	-	0.000	4.00	2.85	2.83	2.79	2.75	2.71	2.69	2.67		+	+	*		
PEMARKS.															_	_
ILLMAINS.				rising wat	er level	1	Note: stat	ole water I	evel is defi	ined as a dakhet less	daily of than	shang	je of	less t	han 1	0 ch
-: not available.				stable wa	ter level		Treng and	d no more	than 3 cm	from Krat	ie do	wnstr	eam.	ande	und	2 soll i
*: reference stations without	ut forecast	£		falling water level						exceeded; the flood level is						
nr: no rain.				normal						ates.	a de la c			Lin C.		
				alarm situ	ation	1	Alarm situ	lation is de	enned as a	situation	wnen	1000	1 leve	I IS TO	recas	sí

flood stage

within the next three days.

River Flood Forecaster

QIVER CO

Nguyen Tien Kien

For Operations Manager Nguyen Tien Kien



Challenges and Way Forward

- NCDM's capacity is limited in dissemination of disaster information across all levels, due to:
 - Insufficient funding;
 - Dated communication systems;
 - Lack of equipment and high technology applications;
 - The Early Warning System project has been supported by UNDP and implemented by MoWRAM;
 - Strengthening capacity of DMIS technologies and management;
 - The CamDi online Disaster Loss and Damage Database will be launched on 15 July 2014.



THANK YOU



