



Natural Disasters in Thailand



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Outline

- Natural Disaster in Thailand
- Institutional Framework
- Policy & Measure
- Legal Framework
- Tentative Case: On-going flood

Natural Disasters in Thailand

- o Flood
- o Drought
- o Storm
- o Tsunami

Department of Disaster Prevention and Mitigation
Ministry of Interior

- o Landslide

Department of Mineral Resources
Ministry of Natural Resources and Environment

- o Epidemic
 - Animal
 - Human

Department of Livestock Development
Ministry of Agriculture and Cooperatives

Department of Disease Prevention Control
Ministry of Public Health

Flood

Year	Times	Affected		Damage Cost	
		Villages	People (million)	million baht	million US\$
1989	9	9,871	2.462	11,740	391
1990	12	10,162	2.132	6,652	222
1991	14	10,654	1.976	4,562	152
1992	10	12,101	3.651	5,241	175
1993	9	8,960	1.670	2,182	73
1994	11	9,170	2.450	5,059	169
1995	8	11,175	5.953	6,124	204
1996	10	12,615	8.377	7,161	239
1997	7	10,610	4.069	3,824	127
1998	12	12,117	1.650	1,706	57
1999	9	6,219	4.560	1,382	46
2000	12	13,029	6.740	10,033	334
2001	14	10,996	3.454	3,666	122
2002	5	18,510	5.128	13,385	446
2003	17	5,281	1.882	2,050	68
2004	12	9,964	2.324	851	28
2005	12	10,326	2.875	5,982	199
2006	6	22,771	6.051	9,627	321
2007	13	12,848	2.326	1,688	56
2008	6	38,448	7.921	7,602	253

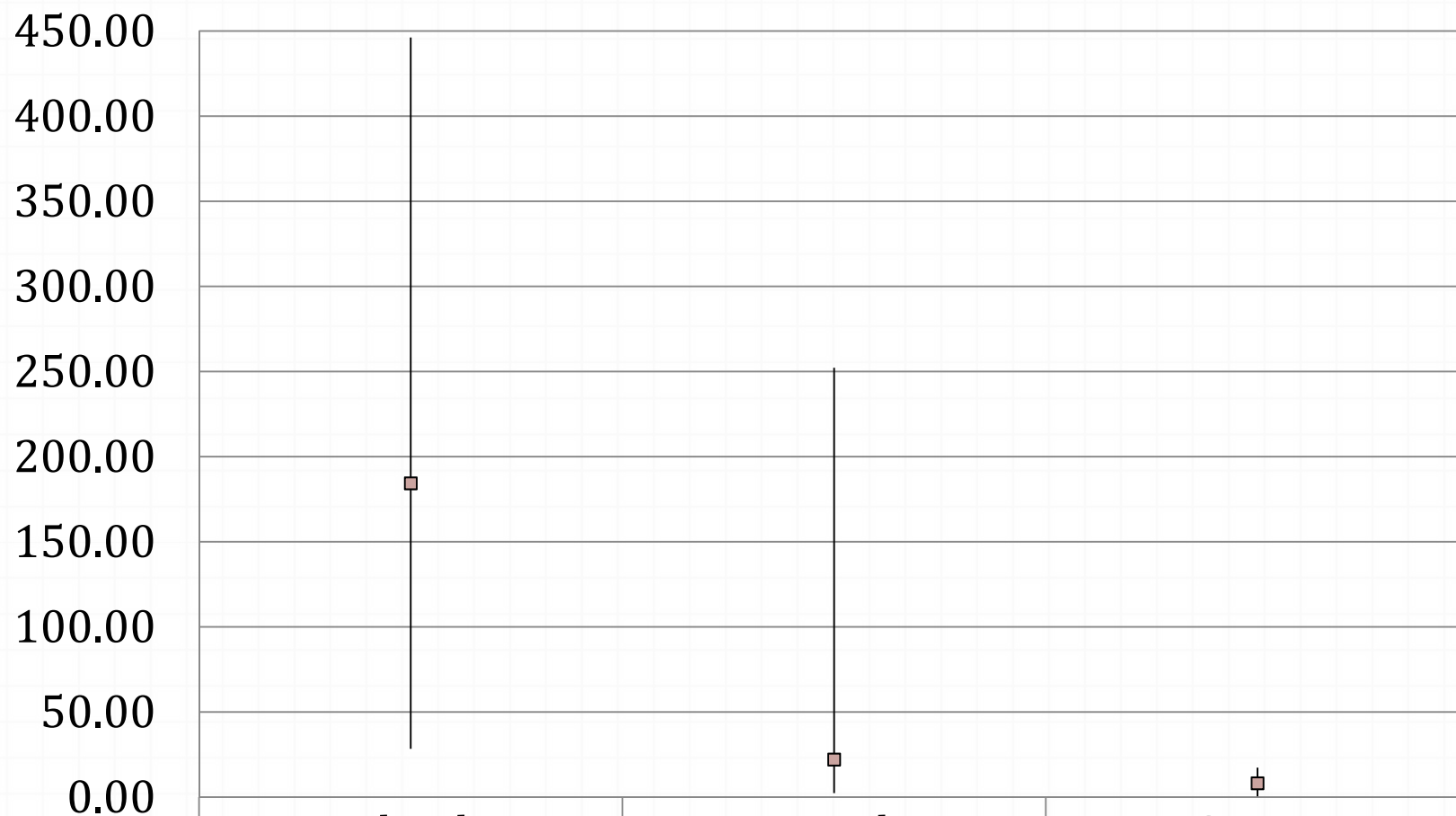
Drought

Year	Agri. area affected x1000 hectare	Damage Cost	
		million baht	million US\$
1989	207	121.97	4.07
1990	315	92.17	3.07
1991	166	262.17	8.74
1992	853	176.18	5.87
1993	326	198.76	6.63
1994	2,868	98.76	3.29
1995	480	177.62	5.92
1996	16	289.16	9.64
1997	229	249.16	8.31
1998	286	69.17	2.31
1999	503	1,520.50	50.68
2000	76	641.71	21.39
2001	274	71.96	2.40
2002	332	508.78	16.96
2003	77	174.33	5.81
2004	237	190.67	6.36
2005	2,198	7,565.86	252.20
2006	93	495.28	16.51
2007	216	198.31	6.61
2008	84	103.90	3.46

Storm

Year	Times	No. Houses Affected		Agri. area affected hectare	Damage Cost	
		Whole	Part		million baht	million US\$
1989	507	1,013	12,269	873	14.06	0.47
1990	907	6,147	24,156	1,623	172.02	5.73
1991	705	987	17,039	1,303	75.85	2.53
1992	3,125	1,297	17,123	1,440	193.06	6.44
1993	836	3,001	24,017	1,621	204.43	6.81
1994	1,073	1,456	34,012	1,040	120.28	4.01
1995	616	893	19,127	1,125	100.41	3.35
1996	3,026	2,037	30,741	660	335.91	11.20
1997	2,993	1,490	19,998	521	518.64	17.29
1998	2,816	2,707	55,358	1,246	371.44	12.38
1999	986	223	9,938	3,093	192.22	6.41
2000	960	251	22,553	164	271.48	9.05
2001	1,061	12,172	10,745	1,373	501.02	16.70
2002	594	1,132	20,599	1,489	213.34	7.11
2003	3,213	309	97,637	8,133	457.43	15.25
2004	3,834	53,133	736	5,145	398.42	13.28
2005	1,313	36	19,258	5,288	148.87	4.96
2006	1,883	283	30,044	10,926	92.24	3.07
2007	2,233	158	47,639	2,906	234.55	7.82
2008	1,995	124	58,319	15,779	227.55	7.58

Damage Scale (US\$)



	Flood	Drought	Storm
High	446.18	252.20	17.29
Low	28.36	2.31	0.47
Average	184.19	22.01	8.07

Tsunami :: 26 December 2004

Province	Casualty				Injured				Loss		
	Thai	Foreigner	Unclassified	Subtotal	Thai	Foreigner	Unclassified	Subtotal	Thai	Foreigner	Subtotal
1 Pang-Nga	1,302	1,926	997	4,225	4,344	1,253	0	5,597	1,363	323	1,686
2 Krabi	358	203	161	722	3,780	791	0	4,571	329	258	587
3 Phuket	163	111	5	279	591	520	0	1,111	256	385	641
4 Ranong	158	2	4	164	279	28	0	307	6	0	6
5 Trung	3	2	0	5	0	0	168	168	1	0	1
6 Satul	6	0	0	6	0	0	21	21	0	0	0
Total	1,990	2,244	1,167	5,401	8,994	2,592	189	11,775	1,955	966	2,921

Landslide

Year	Times	Affected			Damage Cost	
		Casualty & Injured	House	Agri. area (hectare)	million baht	million US\$
1988	2	242	1,862	984	1000	33.33
1999	1	evacuated	n/a	n/a	n/a	n/a
2000	1	12	363	n/a	n/a	n/a
2001	2	296	647	n/a	745	24.80
2002	1	evacuated	n/a	n/a	n/a	n/a
2004	5	898	2,368	n/a	n/a	n/a
2005	1	n/a	73	n/a	n/a	n/a
2006	1	116	673	16,061	309	10.29

Epidemic - Animal

Year	Cattle	Pig	Chicken	Duck	Total
2002	336	844	n/a	n/a	1,180
2003	111	1,194	130,185	9,303	140,793
2004	1,488	157	11,593	8,903	22,141
2005	97	1,036	3,574	22,752	27,459
2006	80	287	682	1,255	2,304
2007	46	259	207	2,996	3,508
2008	71	250	20,538	3,698	24,557
Total	2,229	4,027	166,779	48,907	221,942

Epidemic - Human

o Influenza

- o 1918-19: infected 27%ppl, deaths 0.95%ppl
- o 1978: infected 7.5%ppl in Bangkok
- o 1985: infected 92,180 people (0.178%ppl) with 40 deaths

o SARS

- o 1 November 2003 – 31 July 2004: 9 cases (all imported) with 2 deaths

o Avian Influenza H5N1

- o 2004-08: infected 25 people with 17 deaths

o H1N1 Swine Flu & Influeza

- o 28 April – 5 August 2009: infected 10,043 people with 81 deaths.

Government Expense 2004-08

Fiscal Year	Amount		% increase
	mil. THB	mil. US\$	
2004	1,627	54.23	-
2005	5,058	168.60	210.8
2006	6,472	215.73	27.9
2007	7,933	264.43	22.5
2008	9,267	308.90	16.8
Total	30,357	1,011.90	-

Government Expense 2004-08 by types of disasters

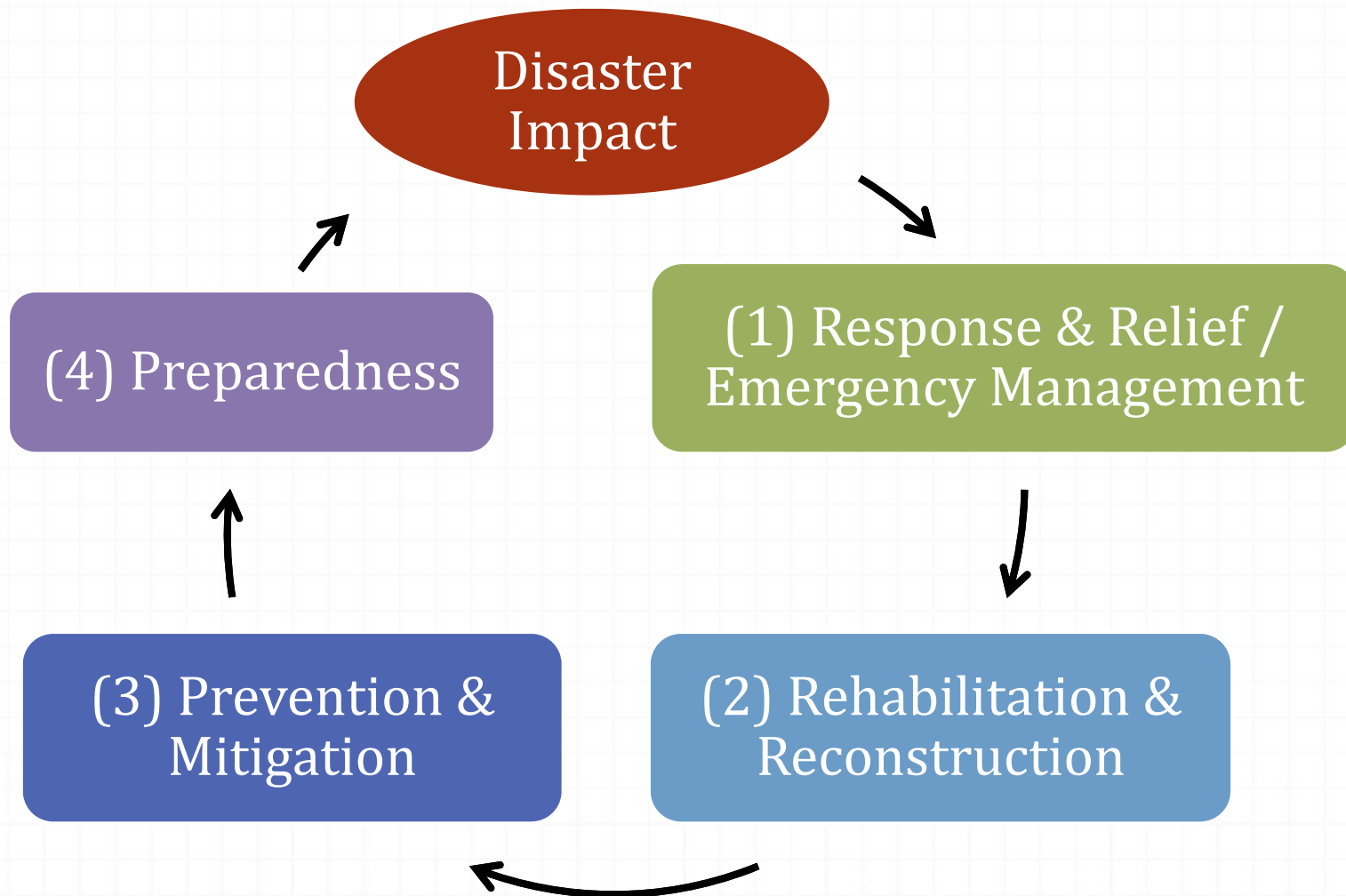
	US\$	%
Flood	606.33	59.92
Drought	276.96	27.37
Tsunami	32.79	3.24
Storm	32.28	3.19
Avian Influenza	19.63	1.94
Others	71.95	7.11
Total	1,011.90	100.00

Institutional Framework

Government Body: Department of Disaster Prevention and Mitigation, Ministry of Interior

- Established: October 2002 (Reorganization of the Ministries Act BE 2545), formed with 5 former bodies
 - Dept. Accelerated Rural Development, MOI
 - Civil Emergency Relief Division, Dept. Provincial Administration, MOI
 - Office of Accident Prevention Commission, Office of Permanent Secretary
 - Disaster Victims Welfare Division, Dept. Public Welfare, MOI
 - Unit of Core Engineering Services, Dept. Community Development, MOI

Policy & Measure : Policy Framework



Policy & Measure : Plans

- o 5-yrs National Master Plan on Disaster Prevention and Mitigation
- o Strategic National Action Plan
- o National Master Plans
 - o on each disaster
 - o on safety in tourism sector
- o National Action Plans:
 - o Prevention & Anti-Corruption of Dept. Disaster Prevention and Mitigation
 - o Integrated Management of Corresponding Govn't Agencies
- o DDPM Plans:
 - o Provincial Capacity Building and Management
- o etc.

Policy & Measure : Government Agencies

1. Dept. Disaster Prevention & Mitigation (MOI) – main coordinating body
2. The Prime Minister’s Office – securing budget & press release
3. Public Relations Department (PMO) – Information
4. Royal Thai Police (PM) – Response & Relief
5. Ministry of Defense – Set standards, measures, action plans
6. Ministry of Foreign Affairs – communication & foreign aids
7. Ministry of Social Development and Human Security – social networking & welfare

Policy & Measure : Government Agencies

8. Ministry of Agriculture & Cooperatives – agriculture, livestock, aquaculture, water resource
9. Ministry of Transportation – air, water & land transportation
10. Ministry of Natural Resources & Environment -- natural resources & environmental issues
11. Ministry of Information Communication Technology – National Disaster Warning Center
12. Ministry of Energy – securing fuels
13. Ministry of Commerce – securing goods, price control & distribution of goods
14. Ministry of Interior – coordinating with provincial and local bodies

Policy & Measure : Government Agencies

15. Central Institute of Forensic Science (M.Justice) – forensic investigation
16. Ministry of Labor – labor support, affected labor aid
17. Ministry of Culture – affected cultural sites
18. Ministry of Science and Technology – R&D, technology
19. Ministry of Education – educate public on disaster issues
20. Ministry of Public Health – Medical support e.g. Emergency Medical Institute, Ambulance Service
21. Ministry of Industry – hazzard

Policy & Measure : Government Agencies

22. Metropolitan/Provincial Waterworks Authority
23. Metropolitan/Provincial Electricity Authority
24. Thai Red Cross Society
25. The Rajaprajanugroh Foundation Under The Royal Patronage
26. Civil Defense Volunteers (under DDPM) – “local efforts”
27. Private sectors, Foundation, Private organizations – supports

Legal Framework

Disaster Prevention and Mitigation Act B.E.2550

Repeal:

- Civil Disaster Prevention Act B.E.2522
- Conflagration Prevention & Control Act B.E.2542

Content:

1. Set scope
2. Set policy process
3. Designate DDPM as a core government agency
4. Prescribe 2 levels of Plans: National, Provincial & Bangkok
5. Designate authority at every level, with “unity” principle

Legal Framework

Disaster Prevention and Mitigation Act B.E.2550

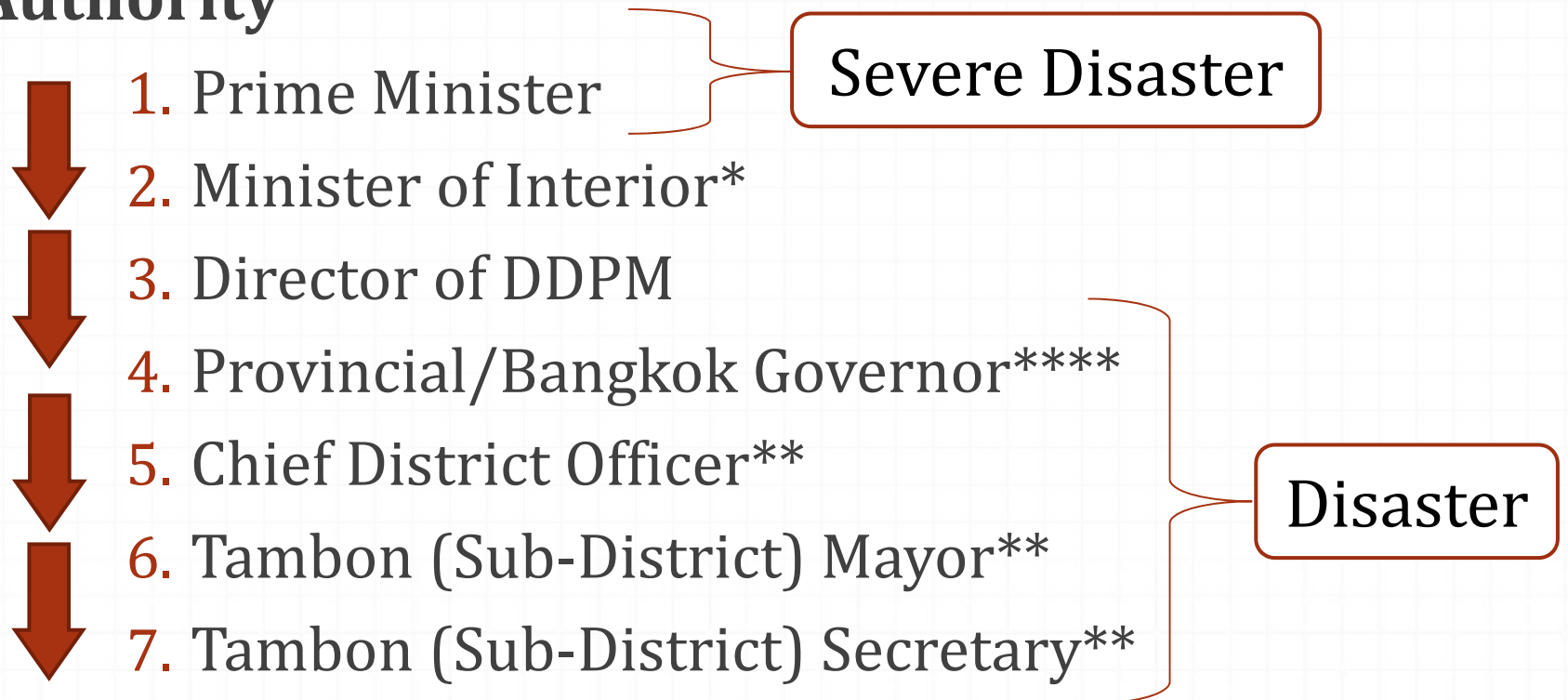
Scope of Disasters:

1. Public: 14 types, with 9 'Natural Disasters'
 - i. Flood and Landslide
 - ii. Tropical Cyclonic Storm
 - iii. Drought
 - iv. Winter Hazard
 - v. Earthquake
 - vi. Tsunami
 - vii. Epidemic – Human
 - viii. Spread Disease
 - ix. Epidemic – Animal
2. Security: 4 types

Legal Framework

Disaster Prevention and Mitigation Act B.E.2550

Authority



Tentative Case: 2011 Flood