

**DROUGHT REPORT OF
PENINSULAR MALAYSIA**

July-19, 2005

**Hydrology and Water Resources Division
Department of Irrigation and Drainage
Malaysia**

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Report of Drought Condition in Peninsular Malaysia July-19, 2005

Summary

Based on rainfall records from 41 stations, most stations received substantial amount of rainfall during the third and second week of Jun. As a result, the drought conditions have improved for most part of Peninsular Malaysia. Start from April 15, 2005 By the end first week of Jun, only one out of ten rivers monitored on-line are still experiencing low flow condition, which is Sg. Kerian at Selama (6.9 cumecs with 5 to 10 years Average Recurrence Interval (ARI)). From the six dams monitored on-line, on July 18, 2005, Timah Tasoh dam had remaining dam storage of 19.91 MCM or 60.42% of its FSL capacity. This is a significant improvement from the dry condition experience earlier where its remaining storages were at 30.8% on 12th Mac 2005, and 28.33% (lowest in record) on 22nd Mac 2005. Beside that, on July 18, 2005 the water level in Macap and Sembrong dam still below than alert level, which are 0.53 m and 0.69 m, respectively.

1. Rainfall Analysis

For overall the drought condition of Peninsular Malaysia seems to be more improvement by the end of Jun 2005. Based on Table 1, most of the rainfall data are decrease from May to June 2005. Beside that, there is one station with a 0.0 mm in Perak station no. 5003028 (A15) and 17.5 mm at station no. 3411017 (B3) in Selangor. The rainfall data has been converted into the isohytral map, as shown in Figure 1 and 2. Based on the rainfall analysis or Table 1, 2 out of 7 rainfall stations in Johor still showing the decreasing of receiving rainfall and the rainfall deficiency ranging from 16% to 55%. The rainfall deficiency in Perlis, Kedah, Penang, Perak, Selangor, Negeri Sembilan and Pahang which are ranging from 25%, 18% to 38%, 8%, 19% to 41%, 26% to 44%, 11% and 6% to 35%, respectively. It shows that, the rainfall deficiency happen mostly in West Coast states to middle of Pahang. The East Coast states, in July 2005 the Terengganu and Kelantan started rainfall deficiency with a 17% and 9% to 23%, respectively.

Table 1 : Rainfall Analysis for April – June 2005

(APRIL - JUN 2005)

NO	NO STESEN	April-05	May-05	Jun-05	Total Rainfall	(3Mth Cum Rf)	Diff(mm)	% Dev
1	6501005 (R1)	106.00	190.50	98.00	394.50	525.8	-131.3	-25
2	6206035 (K1)	59.30	143.00	84.00	286.30	464.2	-177.9	-38
3	6103047 (K3)	218.30	223.00	117.90	559.20	520.3	38.9	7
4	061 (K4)	192.20	199.00	99.10	490.30	671.1	-180.8	-27
5	566 (K5)	217.00	209.00	123.50	549.50	666.5	-117.0	-18
6	5505033 (P1)	147.50	257.50	99.00	504.00	550.7	-46.7	-8
7	5304045 (P2)	277.00	315.00	64.00	656.00	465.3	190.7	41
8	5302003 (P3)	196.00	381.00	38.50	615.50	536.5	79.0	15
9	4109095 (A4)	191.00	103.00	70.00	364.00	473.6	-109.6	-23
10	4011139 (A6)	302.50	103.00	140.00	545.50	671.8	-126.3	-19
11	4011144 (A8)	193.50	119.50	144.00	457.00	780.9	-323.9	-41
12	4511111 (A12)	169.50	251.00	59.00	479.50	630.2	-150.7	-24
13	5006021 (A14)	492.50	151.00	56.00	699.50	675.0	24.5	4
14	5003028 (A15)	99.50	175.50	0.00	275.00	469.6	-194.6	-41
15	5210069 (A16)	135.00	85.00	85.00	305.00	432.4	-127.4	-29
16	3411017 (B3)	90.00	88.00	17.50	195.50	335.5	-140.0	-42
17	2917001 (B4)	162.50	88.50	47.50	298.50	531.3	-232.8	-44
18	2818110 (B5)	205.00	209.00	90.00	504.00	488.1	15.9	3
19	3516022 (B6)	184.00	232.50	85.00	501.50	675.6	-174.1	-26
20	3117070 (B7)	202.10	242.00	41.00	485.10	706.3	-221.2	-31
21	3115079 (B8)	170.50	152.00	66.00	388.50	581.4	-192.9	-33
22	2719001 (N1)	286.00	200.50	130.50	617.00	456.8	160.2	35
23	3023098 (N3)	193.00	153.00	89.00	435.00	490.8	-55.8	-11
24	2321006 (M1)	225.00	157.00	46.50	428.50	435.9	-7.4	-2
25	2526001 (J1)	20.00	145.00	40.00	205.00	398.4	-193.4	-49
26	2033001 (J2)	189.50	109.00	131.91	430.41	510.1	-79.7	-16
27	1437116 (J5)	235.00	587.00	77.00	899.00	575.0	324.0	56
28	1829001 (J7)	144.00	30.00	138.50	312.50	526.8	-214.3	-41
29	2528002 (J8)	41.00	90.00	29.00	160.00	352.7	-192.7	-55
30	2536168 (J9)	155.50	168.00	209.00	532.50	511.1	21.4	4
31	2527004 (J10)	25.00	132.00	66.50	223.50	445.9	-222.4	-50
32	3424081 (C3)	137.50	89.00	60.00	286.50	386.6	-100.1	-26
33	3533102 (C4)	248.50	140.00	59.50	448.00	370.1	77.9	21
34	4414036 (C8)	152.00	123.00	88.00	363.00	554.6	-191.6	-35
35	3930012 (C9)	162.00	237.00	221.50	620.50	662.0	-41.5	-6
36	4726001 (D1)	128.00	277.00	200.00	605.00	783.4	-178.4	-23
37	4819027 (D2)	33.00	335.00	159.00	527.00	578.6	-51.6	-9
38	5921009 (D6)	21.50	130.50	291.50	443.50	436.7	6.8	2
39	4234109 (T1)	151.50	248.00	137.00	536.50	431.0	105.5	24
40	4734079 (T2)	157.00	71.00	55.50	283.50	340.3	-56.8	-17
41	5331048 (T5)	75.00	205.00	281.00	561.00	303.9	257.1	85
	MEAN	165.6	184.0	100.88	450.5	522.0	-71.5	-13.7

Jambatan SKC and Sg. Kelantan at Jambatan Guillerdmard are experiencing drought condition of 2 to 5 years ARI. Other areas of Peninsular Malaysia have normal or near normal flow conditions.

From Table 3 on July 18, 2005, the ranging of ARI of low flow recorded for Sg. Kelantan at Gulliermard Bridge (128 cumecs), Sg. Muda @ Syed Omar Bridge (11 Cumec) and Sg. Bernam at SKC Bridge (13 cumec) are 5 to 2 years, 5 to 2 years, 5 to 2 years, respectively.

Table 2 : Drought Monitoring by River Flow
(Data comparable with April 30, 2005, June 6, 2005 and July 18, 2005)

Station Id	Name	State	River Flow (m ³ /s)			
			April 30	May 30	June 6	July 18
5721480	Sg.Kelantan @ Guillerdmard Bridge	Kelantan	83	254	245	128
5606480	Sg.Muda @ Syed Omar Bridge	Kedah	19	21	21	11
2816490	Sg.Langat @ Dengkil	Selangor	10	7	7	25
3813480	Sg.Bernam @ SKC Bridge	Selangor	19	16	16	13
4809490	Sg.Perak @ Kuala Kangsar	Perak	191	184	184	183
5007490	Sg.Kurau @ Pondok Tanjong	Perak	3.4	4.1	4.1	3.8
5206490	Sg.Kerian @ Selama	Perak	5.3	6.3	6.3	6.9
3424490	Sg.Pahang @ Temerloh	Pahang	258	277	277	330
2527490	Sg.Muar @ Buluh Kasap	Johor	6	1	1	offline
1737490	Sg.Johor @ Rantau Panjang	Johor	5.3	3	3	18

Table 3 : Drought Monitoring by River Flow
(on-line Infokemarau)

Drought Monitoring By River Flows									
Station Id	Name	State	Last Update	Water Level (m)	River Flow (m ³ /s)	Drought Flow For Various Return Periods(m ³ /s)			
						2-year	5-year	10-year	20-year
5721480	Sg.Kelantan @ Guillardmard Bridge	Kelantan	19/07/2005-06:01	8.55	128	154	114	88	69
5606480	Sg.Muda @ Syed Omar Bridge	Kedah	17/07/2005-10:02	6.41	11	13	8	5	3
2816490	Sg.Langat @ Dengkil	Selangor	19/07/2005-07:17	3.31	25	5	3	2	1
3813480	Sg.Bernam @ SKC Bridge	Selangor	19/07/2005-07:20	15.90	13	15	12	10	9
4809490	Sg.Perak @ Kuala Kangsar	Perak	19/07/2005-07:01	32.05	183	66	36	22	14
5007490	Sg.Kurau @ Pondok Tanjung	Perak	19/07/2005-07:01	10.83	3.8	3.4	2.4	1.9	1.5
5206490	Sg.Kerian @ Selama	Perak	19/07/2005-07:01	8.76	6.9	10.9	7.7	6.2	4.9
3424490	Sg.Pahang @ Temerloh	Pahang	19/07/2005-07:05	24.20	330	180	125	100	80
2527490	Sg.Muar @ Buluh Kasap	Johor	Off-line	1.58	-12	7.2	4.2	2.9	2.0
1737490	Sg.Johor @ Rantau Panjang	Johor	18/07/2005-09:04	3.53	18	8.5	5.5	4.2	3.2

3. Dam Storage Analysis

From the six dams monitored by Water Resources Unit, Hydrology and Water Resources Division are shown in Table 4. Based on Table 4, on June 6, 2005 and July 18, 2005 show that 2 out of 6 dams are below than alert level, which are Macap and Sembrong Dam. The dam level in Macap and Sembrong dam are 14.59 m and 6.50 m, respectively and the different of current level with alert level are 0.53 m and 0.69 m, respectively. The remaining storages in percentage for Macap and Sembrong Dam are 43.42% and 30.42%, respectively. Nevertheless, the Timah Tasoh dam level show the increasing of the dam level from June 6, 2005 to July 18, 2005 which are from 27.84 m to 28.0 m, respectively. Table 5 shows the dam monitoring in infokemarau.

Table 4 : Monitoring of Dam Storage Condition
(Data comparable with June 6, 2005 and July 18, 2005)

Station Id	Name	State	Alert Level (m)	Water Level (m)		Remaining Dam Storage (MCM)		Remaining Dam Storage (%)	
				June 6	July 18	June 6	July 18	June 6	July 18
3216490	Batu Dam	KL	93.00	101.3	101.66	28.29	29.74	87.87	90.39
3217480	Klang Gates Dam	KL	90.00	90.88	90.62	19.76	18.16	69.23	63.64
6602481	Timah Tasoh Dam	Perlis	27.68	27.84	28.00	15.57	19.91	47.25	60.42
...	Bukit Merah Dam	Perak	7.66	8.19	8.35	n/a	n/a	n/a	n/a
1832480	Macap Dam	Johor	15.12	14.87	14.59	5.50	4.54	52.53	43.42
1931480	Sembrong Dam	Johor	7.19	7.23	6.50	9.99	5.35	56.74	30.42
2030481	Bekok Dam	Johor	12.50	13.26	13.26	30.97	30.97	97.34	97.34

Table 5 : Drought Monitoring by Dam Level
(on-line Infokemarau)

Station Id	Name	State	Last Update	Water Level (m)	Alert Level (m)	Remaining Dam Storage (MCM)	Remaining Dam Storage (%)
3216490	Batu Dam	KL	18/07/2005-22:31	101.66	93.00	29.74	92.39
3217480	Klang Gates Dam	KL	18/07/2005-22:31	90.62	90.00	18.16	63.64
6602481	Timah Tasoh Dam	Perlis	15/07/2005-16:00	28.00	27.68	19.91	60.42
...	Bukit Merah Dam	Perak	21/06/2005-10:01	8.35	7.66	n/a	n/a
1832480	Macap Dam	Johor	18/07/2005-09:05	14.59	15.12	4.54	43.42
1931480	Sembrong Dam	Johor	18/07/2005-09:03	6.50	7.19	5.35	30.42
2030481	Bekok Dam	Johor	22/06/2005-11:00	13.26	12.50	30.97	97.34