

**LAPORAN PEMANTAUAN KEMARAU
UNTUK SEMENANJUNG MALAYSIA
(BERDASARKAN ANALISIS HIDROLOGI)**

30 April 2008

**Bahagian Hidrologi dan Sumber Air
Jabatan Pengairan dan Saliran Malaysia**

KANDUNGAN

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Ringkasan

Purata keseluruhan jumlah hujan 3 bulan dari Januari hingga Mac 2008 adalah sebanyak 583.34 mm, perbezaan sebanyak -11.2 % dengan jumlah hujan tiga bulan sebelumnya sebanyak 659.4 mm, dan 39.7 % dengan purata jangka panjang sebanyak 419.0 mm. Daripada 41 stesen yang dipantau, hanya 3 stesen merekodkan defisit hujan melebihi 35 % iaitu di JPS Temerloh (-56%) dan Sg. Lembing (-37%), Pahang serta di Paya Lang (-37%), Segamat, Johor.

Bagi jumlah hujan 6 bulan dari Oktober 2007 hingga Mac 2008, purata keseluruhan adalah sebanyak 1448.2 mm, perbezaan sebanyak 3.24 % dengan jumlah hujan 6 bulan sebelumnya sebanyak 1402.6 mm, dan 15.1 % dengan purata jangka panjang sebanyak 1258.4 mm. Stesen JPS Temerloh merekodkan defisit hujan sebanyak 51 % seperti bulan sebelumnya.

Daripada 10 batang sungai yang dipantau, hanya 1 batang sungai di Selangor iaitu Sg. Bernam didapati mengalami kadar alir rendah di bawah normal bagi tempoh bulan April 2008.

Kesemua paras air empangan-empangan yang dipantau melebihi aras normal pada bulan April 2008.

I. Analisis Hujan

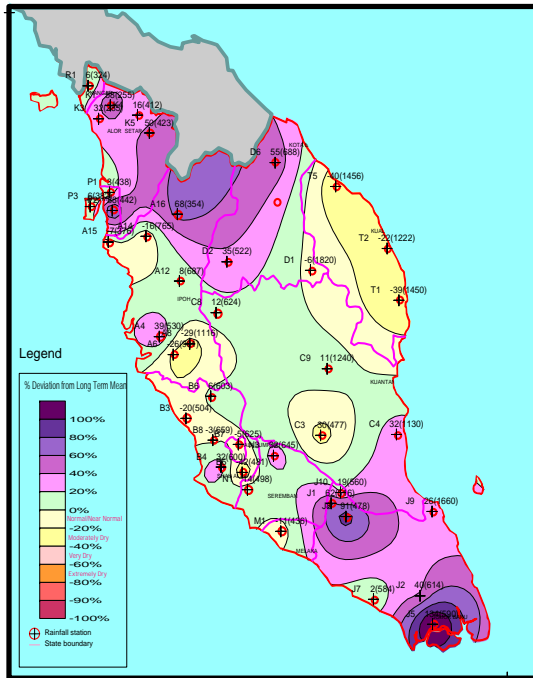
a) Analisis berdasarkan Jumlah Hujan 3 Bulan

Keputusan analisis hujan untuk tempoh Januari 2008 hingga Mac 2008 diterangkan di dalam Jadual 1 dan Rajah A1 hingga Rajah A2.

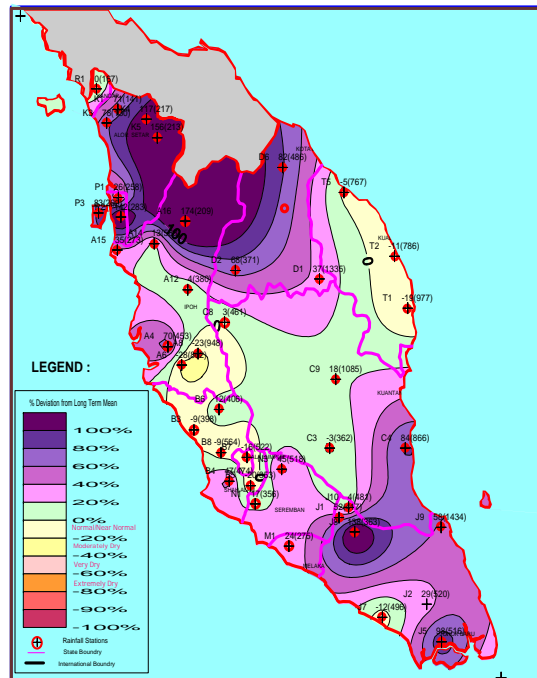
NO	NO STESEN	Jan-08	Feb-08	Mar-08	Total Rainfall	(3Mth Cum Rf)	Diff(mm)	% Dev
1	6501005 (R1)	7.0	13.5	268.0	288.50	179.2	109.3	61
2	6206035 (K1)	63.0	64.0	82.0	209.00	179.9	29.1	16
3	6103047 (K3)	24.5	66.0	266.0	356.50	140.9	215.6	153
4	061 (K4)	23.0	158.0	187.2	368.20	219.4	148.8	68
5	566 (K5)	39.4	208.0	211.0	458.40	208.7	249.7	120
6	5505033 (P1)	71.0	69.5	227.0	367.50	263.2	104.3	40
7	5304045 (P2)	239.0	137.0	293.0	669.00	289.4	379.6	131
8	5302003 (P3)	107.5	130.0	165.0	402.50	213.6	188.9	88
9	4109095 (A4)	365.5	153.0	478.0	996.50	462.9	533.6	115
10	4011139 (A6)	170.5	90.0	383.5	644.00	775.0	-131.0	-17
11	4011144 (A8)	360.0	81.5	439.0	880.50	874.0	6.5	1
12	4511111 (A12)	155.0	132.0	420.5	707.50	362.5	345.0	95
13	5006021 (A14)	267.0	170.5	486.5	924.00	581.0	343.0	59
14	5003028 (A15)	148.0	130.5	204.5	483.00	291.0	192.0	66
15	5210069 (A16)	180.0	118.5	282.5	581.00	202.7	378.3	187
16	3411017 (B3)	84.0	110.0	250.0	444.00	344.9	99.1	29
17	2917001 (B4)	299.5	240.0	333.5	873.00	487.1	385.9	79
18	2818110 (B5)	28.0	116.0	317.5	461.50	401.4	60.1	15
19	3516022 (B6)	142.0	113.5	299.5	555.00	394.5	160.5	41
20	3117070 (B7)	214.5	118.0	282.5	615.00	536.9	78.1	15
21	3115079 (B8)	268.0	114.0	343.0	725.00	575.0	150.0	26
22	2719001 (N1)	213.0	104.5	253.5	571.00	373.3	197.7	53
23	3023098 (N3)	161.5	89.5	234.0	485.00	464.8	20.2	4
24	2321006 (M1)	114.0	71.5	226.0	411.50	303.6	107.9	36
25	2526001 (J1)	47.0	17.0	177.0	241.00	366.0	-125.0	-34
26	2033001 (J2)	96.5	132.0	375.0	603.50	463.8	139.7	30
27	1437116 (J5)	238.0	63.5	482.5	784.00	525.0	259.0	49
28	1829001 (J7)	166.0	110.0	468.1	744.10	513.0	231.1	45
29	2528002 (J8)	186.0	57.0	163.0	406.00	422.5	-16.5	-4
30	2536168 (J9)	816.5	435.5	587.5	1839.50	851.2	988.3	116
31	2527004 (J10)	79.0	0.0	200.5	279.50	440.6	-161.1	-37
32	3424081 (C3)	77.0	38.0	41.0	156.00	357.3	-201.3	-56
33	3533102 (C4)	480.5	336.5	376.5	1193.50	485.8	707.7	146
34	4414036 (C8)	173.0	114.5	401.0	688.50	431.0	257.5	60
35	3930012 (C9)	146.0	198.0	136.0	480.00	763.0	-283.0	-37
36	4726001 (D1)	331.0	394.0	235.0	960.00	740.6	219.4	30
37	4819027 (D2)	120.0	128.0	180.0	428.00	278.5	149.5	54
38	5921009 (D6)	102.0	180.0	136.0	418.00	278.9	139.1	50
39	4234109 (T1)	296.0	91.0	161.5	548.50	479.7	68.8	14
40	4734079 (T2)	175.0	45.0	51.0	271.00	337.7	-66.7	-20
41	5331048 (T5)	182.0	154.0	142.5	478.50	319.2	159.3	50
	MEAN	181.86	129.10	274.32	585.3	419.0	166.3	39.7

From Long - Term record

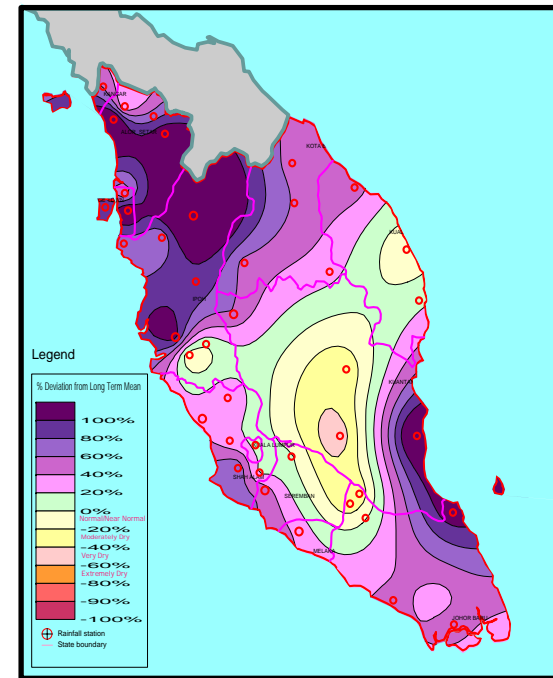
**STATUS OF WATER RESOURCES IN PENINSULAR MALAYSIA
BASED ON RAINFALL CUMULATIVE ANALYSIS
YEAR 2008 PERIOD 3 month : 11,12 & 1**



**STATUS OF WATER RESOURCES IN PENINSULAR MALAYSIA
BASED ON RAINFALL CUMULATIVE ANALYSIS
YEAR : 2008 PERIOD 3 Month : 12,2007 & 1,2**

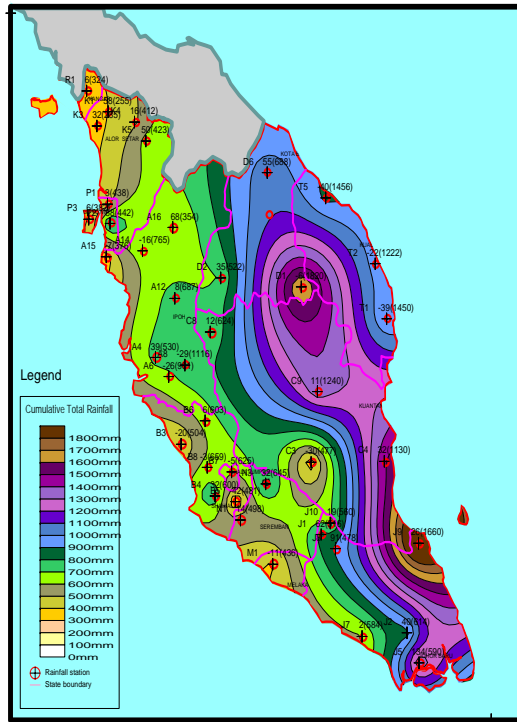


**STATUS OF WATER RESOURCES IN PENINSULAR MALAYSIA
BASED ON RAINFALL CUMULATIVE ANALYSIS
YEAR 2008 PERIOD 3 month : 1, 2, 3**

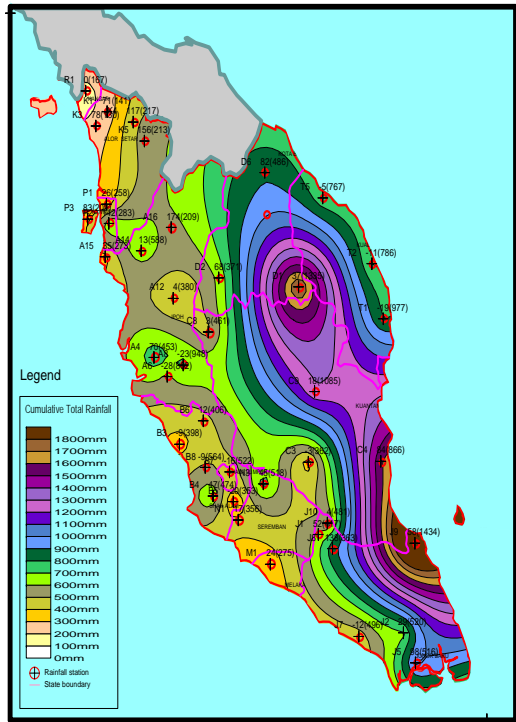


Rajah A1 : Peta Isohyet Menunjukkan Peratus Perbezaan Hujan (3 Bulan) Dengan Purata Jangka Panjang bagi bulan Januari, Februari dan Mac 2008

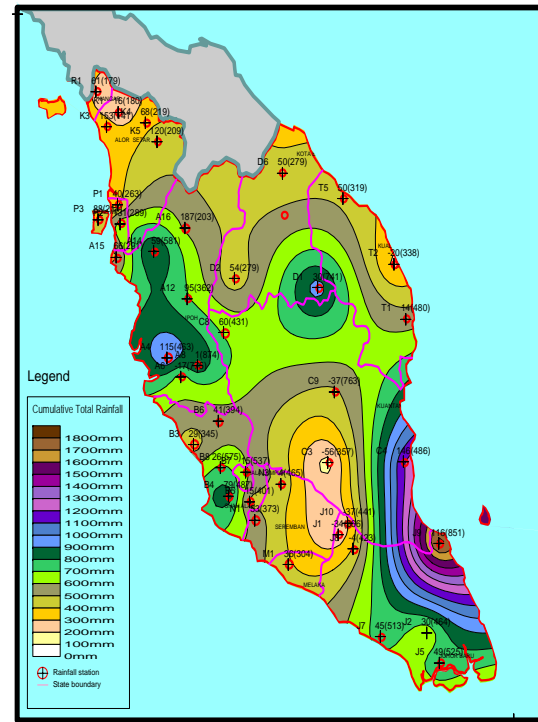
CUMULATIVE RAINFALL DISTRIBUTION IN PENINSULAR MALAYSIA
 YEAR 2008 PERIOD 3 month : 11,12 & 1



CUMULATIVE RAINFALL DISTRIBUTION IN PENINSULAR MALAYSIA
 YEAR 2008 PERIOD 3 month : 12, 2007 & 1, 2



CUMULATIVE RAINFALL DISTRIBUTION IN PENINSULAR MALAYSIA
 YEAR 2008 PERIOD 3 month : 1, 2, 3



Rajah A2 : Peta Isohyet Menunjukkan Jumlah Hujan Kumulatif (3 Bulan)
 bagi bulan Januari, Februari dan Mac 2008

b) Analisis berdasarkan Jumlah Hujan 6 Bulan

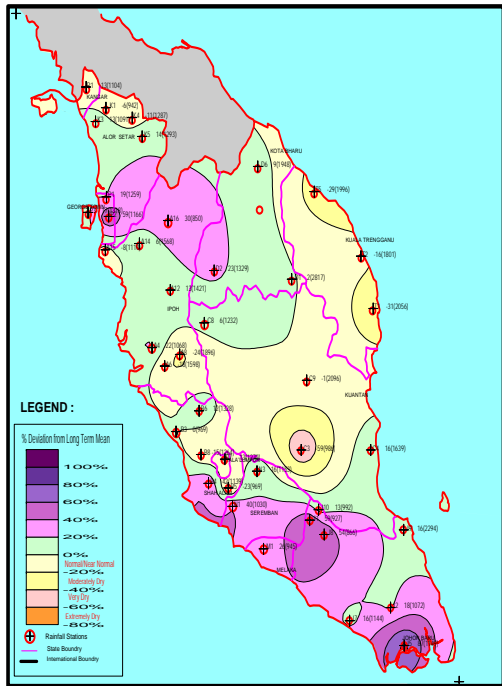
Keputusan analisis hujan untuk tempoh Okt. 2007 hingga Mac 2008 diterangkan di dalam Jadual 2 dan Rajah A3 dan A4 .

NO	NO STESEN	Oct-07	Nov-07	Dec-07	Jan-08	Feb-08	Mar-08	Total Rainfall	(6Mth Cum Rf)	Diff(mm)	% Dev
1	6501005 (R1)	226.5	192.0	146.0	7.0	13.5	268.0	853.00	752.1	100.9	13
2	6206035 (K1)	198.0	225.5	114.0	63.0	64.0	82.0	746.50	689.0	57.5	8
3	6103047 (K3)	275.5	211.0	140.0	24.5	66.0	266.0	983.00	682.3	300.7	44
4	061 (K4)	303.9	165.2	289.9	23.0	158.0	187.2	1127.20	963.6	163.6	17
5	566 (K5)	324.8	297.0	298.6	39.4	208.0	211.0	1378.80	938.6	440.2	47
6	5505033 (P1)	423.0	197.5	184.5	71.0	69.5	227.0	1172.50	975.8	196.7	20
7	5304045 (P2)	322.0	283.0	307.0	239.0	137.0	293.0	1581.00	989.6	591.4	60
8	5302003 (P3)	496.0	153.5	145.5	107.5	130.0	165.0	1197.50	926.8	270.7	29
9	4109095 (A4)	327.0	119.5	253.5	365.5	153.0	478.0	1696.50	1117.9	578.6	52
10	4011139 (A6)	276.0	178.5	317.0	170.5	90.0	383.5	1415.50	1756.1	-340.6	-19
11	4011144 (A8)	272.5	144.0	292.0	360.0	81.5	439.0	1589.00	2092.8	-503.8	-24
12	4511111 (A12)	369.5	481.0	107.5	155.0	132.0	420.5	1665.50	1190.2	475.3	40
13	5006021 (A14)	416.5	153.0	224.5	267.0	170.5	486.5	1718.00	1562.5	155.5	10
14	5003028 (A15)	287.0	112.0	90.5	148.0	130.5	204.5	972.50	922.0	50.5	5
15	5210069 (A16)	265.0	142.0	274.5	180.0	118.5	282.5	1262.50	746.7	515.8	69
16	3411017 (B3)	213.0	149.5	170.0	84.0	110.0	250.0	976.50	922.1	54.4	6
17	2917001 (B4)	412.0	337.0	158.0	299.5	240.0	333.5	1780.00	1205.6	574.4	48
18	2818110 (B5)	205.51	112.5	138.5	28.0	116.0	317.5	918.01	1010.3	-92.3	-9
19	3516022 (B6)	327.0	298.0	199.0	142.0	113.5	299.5	1379.00	1208.3	170.7	14
20	3117070 (B7)	269.0	274.5	108.0	214.5	118.0	282.5	1266.50	1305.2	-38.7	-3
21	3115079 (B8)	299.0	239.0	132.0	268.0	114.0	343.0	1395.00	1333.7	61.3	5
22	2719001 (N1)	478.0	255.0	101.0	213.0	104.5	253.5	1405.00	1011.7	393.3	39
23	3023098 (N3)	204.5	187.5	500.0	161.5	89.5	234.0	1377.00	1204.5	172.5	14
24	2321006 (M1)	320.0	120.5	155.0	114.0	71.5	226.0	1007.00	853.0	154.0	18
25	2526001 (J1)	316.5	218.0	569.0	47.0	17.0	177.0	1344.50	942.0	402.5	43
26	2033001 (J2)	178.5	318.5	445.0	96.5	132.0	375.0	1545.50	1109.2	436.3	39
27	1437116 (J5)	240.2	418.0	722.0	238.0	63.5	482.5	2164.20	1153.6	1010.6	88
28	1829001 (J7)	219.0	268.0	161.5	166.0	110.0	468.1	1392.60	1156.7	235.9	20
29	2528002 (J8)	135.0	107.5	621.5	186.0	57.0	163.0	1270.00	946.2	323.8	34
30	2536168 (J9)	187.0	251.5	1017.0	816.5	435.5	587.5	3295.00	2359.1	935.9	40
31	2527004 (J10)	198.0	165.0	422.0	79.0	0.0	200.5	1064.50	1036.0	28.5	2.7
32	3424081 (C3)	61.5	20.5	235.0	77.0	38.0	41.0	473.00	956.1	-483.1	-51
33	3533102 (C4)	285.5	238.0	772.5	480.5	336.5	376.5	2489.50	1598.3	891.2	56
34	4414036 (C8)	297.5	343.0	185.0	173.0	114.5	401.0	1514.00	1216.2	297.8	24
35	3930012 (C9)	338.5	288.5	940.5	146.0	198.0	136.0	2047.50	2055.0	-7.5	0
36	4726001 (D1)	355.0	288.0	1099.0	331.0	394.0	235.0	2702.00	2667.1	34.9	1
37	4819027 (D2)	445.0	209.0	375.5	120.0	128.0	180.0	1457.50	1004.7	452.8	45
38	5921009 (D6)	185.0	359.0	603.5	102.0	180.0	136.0	1565.50	1576.2	-10.7	-1
39	4234109 (T1)	256.0	191.0	404.0	296.0	91.0	161.5	1399.50	1933.9	-534.4	-28
40	4734079 (T2)	277.0	308.0	476.0	175.0	45.0	51.0	1332.00	1642.3	-310.3	-19
41	5331048 (T5)	288.0	301.0	389.0	182.0	154.0	142.5	1456.50	1881.4	-424.9	-23
	MEAN	287.18	227.33	348.40	181.86	129.10	274.32	1448.2	1258.4	189.8	15.1

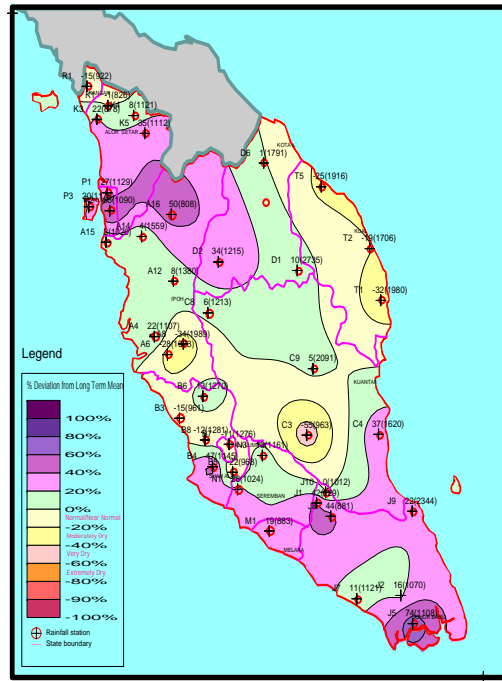
From Long - Term record

Jadual 2 : Analisis Hujan Bagi Tempoh Okt. 2007 hingga Mac. 2008

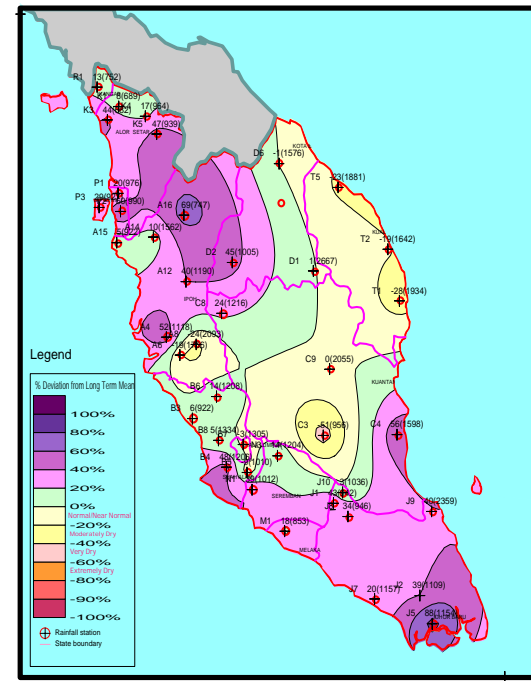
STATUS OF WATER RESOURCES IN PENINSULAR MALAYSIA
 BASED ON RAINFALL CUMULATIVE ANALYSIS
 YEAR : 2008 PERIOD (6 month) : 8,9,10,11,12,1



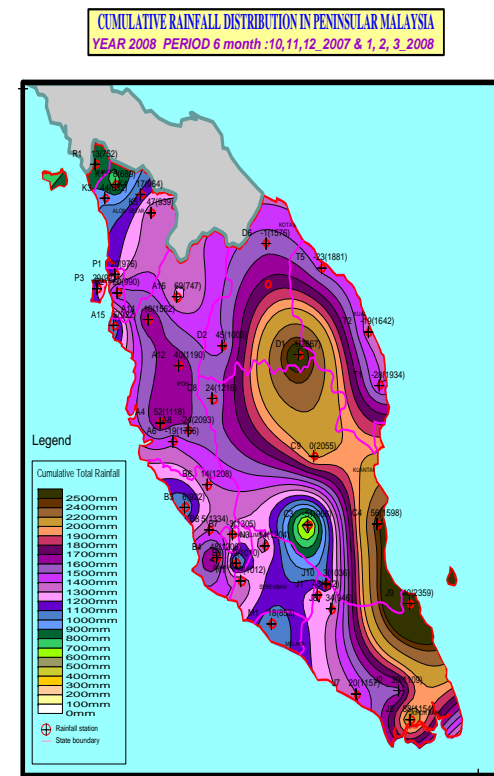
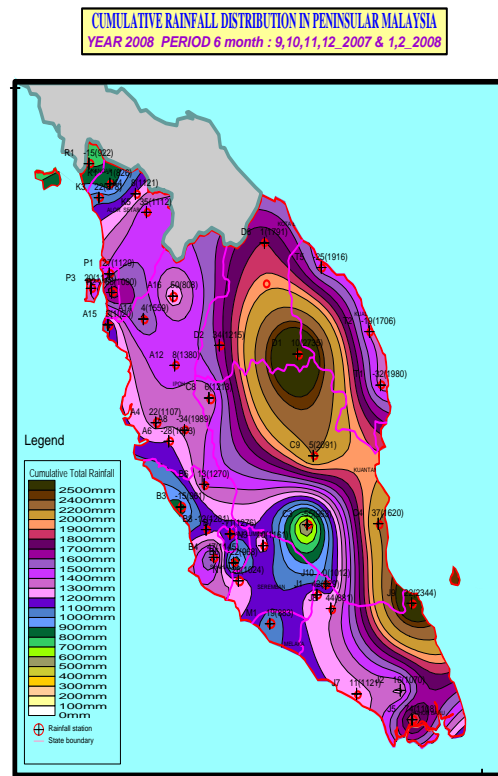
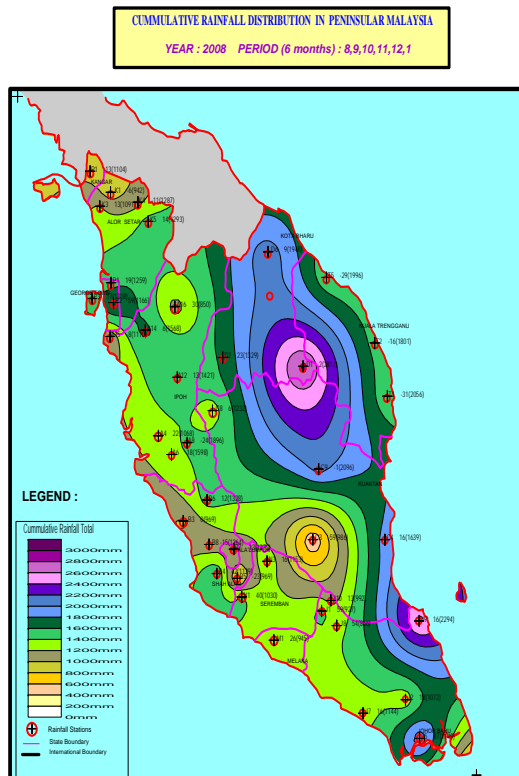
STATUS OF WATER RESOURCES In PENINSULAR MALAYSIA
 BASED ON RAINFALL CUMULATIVE ANALYSIS
 YEAR 2008 PERIOD 6 month : 9,10,11,12_2007 & 1,2_2008



STATUS OF WATER RESOURCES In PENINSULAR MALAYSIA
 BASED ON RAINFALL CUMULATIVE ANALYSIS
 YEAR 2008 PERIOD 6 month : 10,11,12_2007 & 1,2,3_2008



Rajah A3 : Peta Isohyet Menunjukkan Peratus Perbezaan Hujan (6 Bulan) Dengan Purata Jangka Panjang bagi bulan Januari , Februari dan Mac 2008



Rajah A4 : Peta Isohyet Menunjukkan Jumlah Hujan Kumulatif (6 Bulan)
 bagi bulan Januari, Februari dan Mac 2008

II. Analisis Kadaralir Sungai

Jadual 3 di bawah menunjukkan data luahan sungai-sungai yang dipantau pada akhir bulan April 2008.

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 @ Guillerdmard Bridge	Kelantan	30/4/2008 12:01	10.22	879	154	114	88	69
5606480	Sg.Muda @ Syed Omar Bridge	Kedah	17/4/2008 21:00	7.05	53	13	8	5	3
2816490	Sg.Langat @ Dengkil	Selangor	30/4/2008 13:18	3.34	28	5	3	2	1
3813480	Sg.Bernam @ SKC Bridge	Selangor	11/4/2008 12:00	16.96	5	15	12	10	9
4809490	Sg.Perak @ Kuala Kangsar	Perak	30/4/2007 13:00	32.61	241	66	36	22	14
5007490	Sg.Kurau @ Pondok Tanjong	Perak	30/4/2008 13:02	12.49	13.4	3.4	2.4	1.9	1.5
5206490	Sg.Kerian @ Selama	Perak	30/4/2008 13:02	9.63	21.3	10.9	7.7	6.2	4.9
3424490	Sg.Pahang @ Temerloh	Pahang	30/4/2008 12:05	27.94	1474	180	125	100	80
2527490	Sg.Muar @ Buluh Kasap	Johor	30/4/2008 08:10	No data	90	7.2	4.2	2.9	2.0
1737490	Sg.Johor @ Rantau Panjang	Johor	30/4/2008 07:45	No data	32	8.5	5.5	4.2	3.2

Jadual 3 : Rekod Luahan Sungai pada akhir bulan April 2008

III. Analisis Storan Empangan

Merujuk kepada Jadual 4, kesemua aras air bagi empangan-empangan yang dipantau adalah melebihi aras berjaga-jaga pada akhir bulan April 2008.

Station Id	Name	Date	Water Level (m)	Alert Level (m)	Remaining Dam Storage (MCM)	Remaining Dam Storage (%)
3216490	Batu Dam	30/4/2008 13:16	103.50	93.00	33.73	104.79
3217480	Klang Gates Dam	30/4/2008 13:16	96.23	90.00	31.13	109.08
6602481	Timah Tasoh Dam	30/4/2008 13:00	28.75	27.68	28.50	86.49
...	Bukit Merah Dam	30/4/2008 12:03	8.80	7.66	n/a	n/a
1832480	Macap Dam	30/4/2008 08:14	16.07	15.12	11.87	80.39
1931480	Sembrong Dam	29/4/2008 16:30	9.07	7.19	22.26	98.13
2030481	Bekok Dam	30/4/2008 08:11	13.92	12.50	45.49	92.71

Jadual 4 : Rekod Paras Empangan pada akhir April 2008