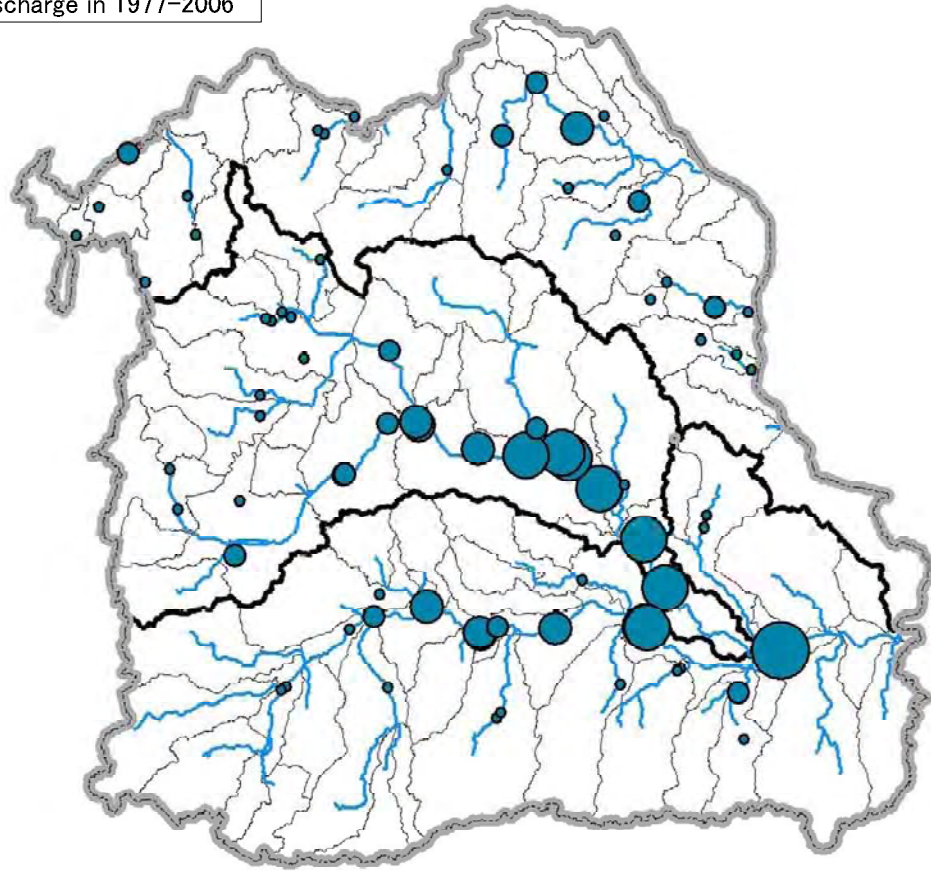
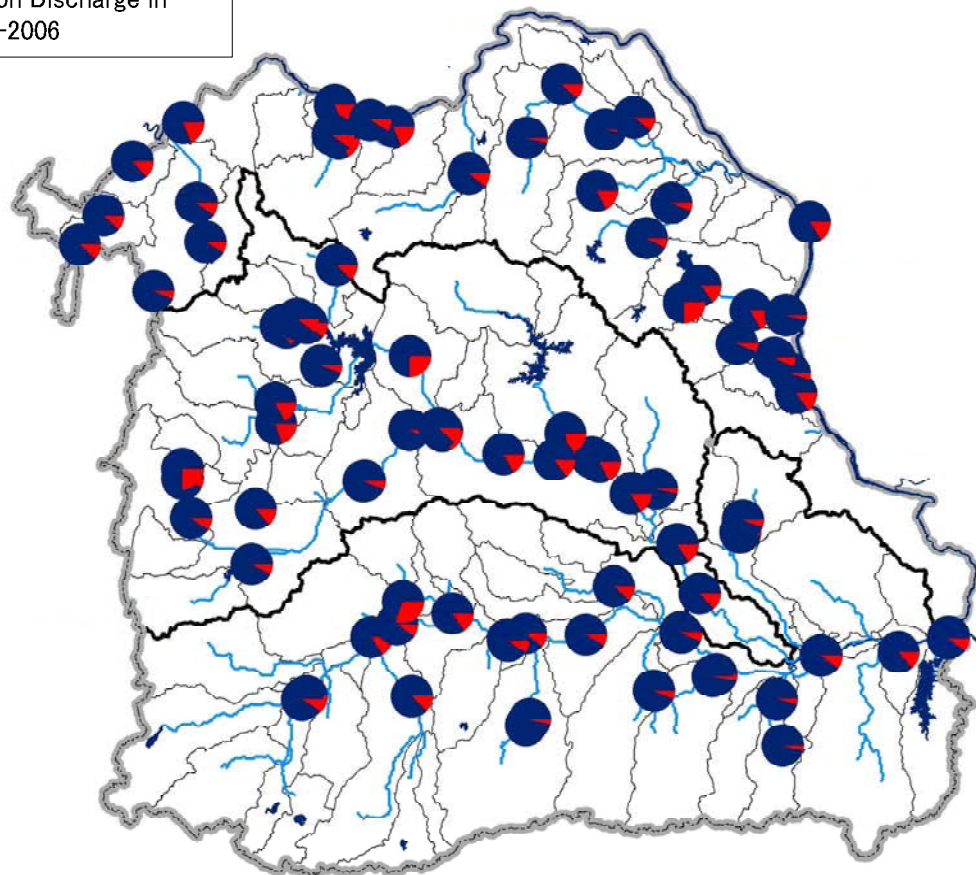


Average Annual Discharge in 1977-2006



Proportion of Wet/Dry Season Discharge in 1977-2006



Average Discharge in 1977-2006 (MCM/year)

STATION	BASIN	ANNUAL	DRY	WET	STATION	BASIN	ANNUAL	DRY	WET
Dan Sai	Khong	73	9	65	Ban som	Mun	282	71	211
Tee Tang Khuan	Khong	124	15	110	Ban khamklang	Mun	133	21	112
Ban pak huay	Khong	537	72	465	Ban tha wha	Mun	437	43	394
Wang sa pung	Khong	221	19	202	Ban bung bao	Mun	831	126	705
Ban loei wang sai	Khong	95	6	89	Ban satuk	Mun	813	85	728
Ban gruad	Khong	338	58	280	Ban chumponburi	Mun	685	73	612
Ban pho tak	Khong	51	5	46	Ban tha toom	Mun	1,222	99	1,123
Ban tah kok daeng	Khong	1,778	50	1,728	Rasi salai (Ban klang)	Mun	2,176	134	2,042
Ban tah si chom chuen	Khong	485	58	427	Ubon Ratchathani	Mun	7,563	748	6,815
Ban Nong yang	Khong	384	39	344	Tai kaeng sa pue	Mun	9,778	1,303	8,474
Ban korn sai	Khong	238	42	196	Ban pak mun	Mun	8,855	835	8,020
Ban pork yai	Khong	310	25	285	Ban dorn man	Mun	295	92	203
Ban sa phan thang hai	Khong	110	16	94	Ban la loon	Mun	309	34	275
Na kae	Khong	446	76	369	Ban ku pra go na	Mun	185	21	164
Ban sa phan nong aek	Khong	244	12	232	Ban Huay tab tan	Mun	290	19	271
Ban na kam noi	Khong	216	15	201	Ban tha rua	Mun	257	12	245
Ban na lak	Khong	173	11	162	Ban rai Charoen	Mun	191	8	183
Kh.19	Khong	354	13	341	Ban saphan huaykayung	Mun	422	18	404
Kh.21B	Khong	83	21	62	M.2	Mun	209	18	190
Kh.54	Khong	589	36	553	M.5	Mun	2,325	150	2,175
Kh.58A	Khong	378	37	341	M.6A	Mun	872	80	792
Kh.73	Khong	231	24	207	M.7	Mun	7,446	723	6,723
Kh.74	Khong	485	17	468	M.9	Mun	255	8	248
STATION	BASIN	ANNUAL	DRY	WET	M.26	Mun	240	8	232
Ban Chot	Chi	641	41	599	M.32	Mun	325	9	316
Ban Kok	Chi	1,409	254	1,155	M.32A	Mun	226	13	213
Ban Kui Koh	Chi	2,152	415	1,737	M.8	Mun	167	21	146
Ban Bung Klah	Chi	2,481	430	2,052					
Ban sa Baeng	Chi	2,763	445	2,318					
Yasothon	Chi	3,204	518	2,686					
Ban Non Tum	Chi	203	14	190					
Ban Na Charoen	Chi	1,489	376	1,113					
Ban Tad Ton	Chi	44	6	39					
Ban Kae	Chi	152	15	137					
Ban Non Sam Ran	Chi	141	25	116					
Ban Hua Khua	Chi	25	2	23					
Ban Jom Thong	Chi	280	31	249					
Ban Nong Ja Plong	Chi	13	1	13					
Ban Khok laem	Chi	84	9	75					
Ban wang Muen	Chi	135	17	118					
Ban Phrom Tai	Chi	68	14	55					
Ban Tha Dua	Chi	162	28	133					
Kamala Sai	Chi	650	145	505					
Ban Na Thom	Chi	376	12	364					
E.16A	Chi	738	52	686					
E.18	Chi	2,570	423	2,147					
E.20A	Chi	3,396	442	2,954					
E.22A	Chi	572	146	427					
E.23	Chi	442	34	408					
E.32A	Chi	304	30	274					
E.8A	Chi	1,594	269	1,325					
E.9	Chi	647	41	607					
E.66A	Chi	2,122	307	1,815					
E.91	Chi	1,097	138	958					

3-5

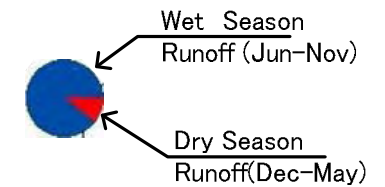
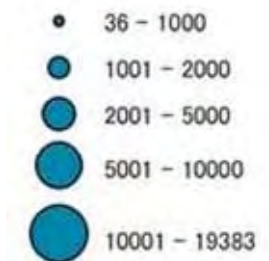
Mean Wet/Dry Season Runoff of Major Station

Note:

Data Source: Processed by JICA study Team using RID and DWR observation data

Date: September 2010

LEGEND



3-6

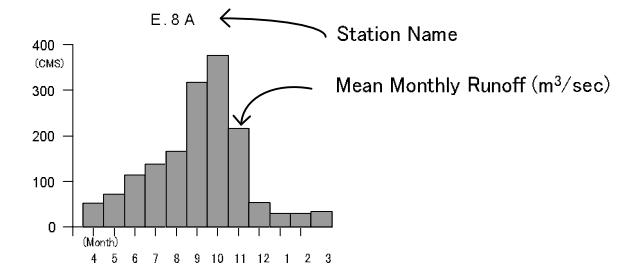
Mean Monthly Runoff of Major Station

Note:

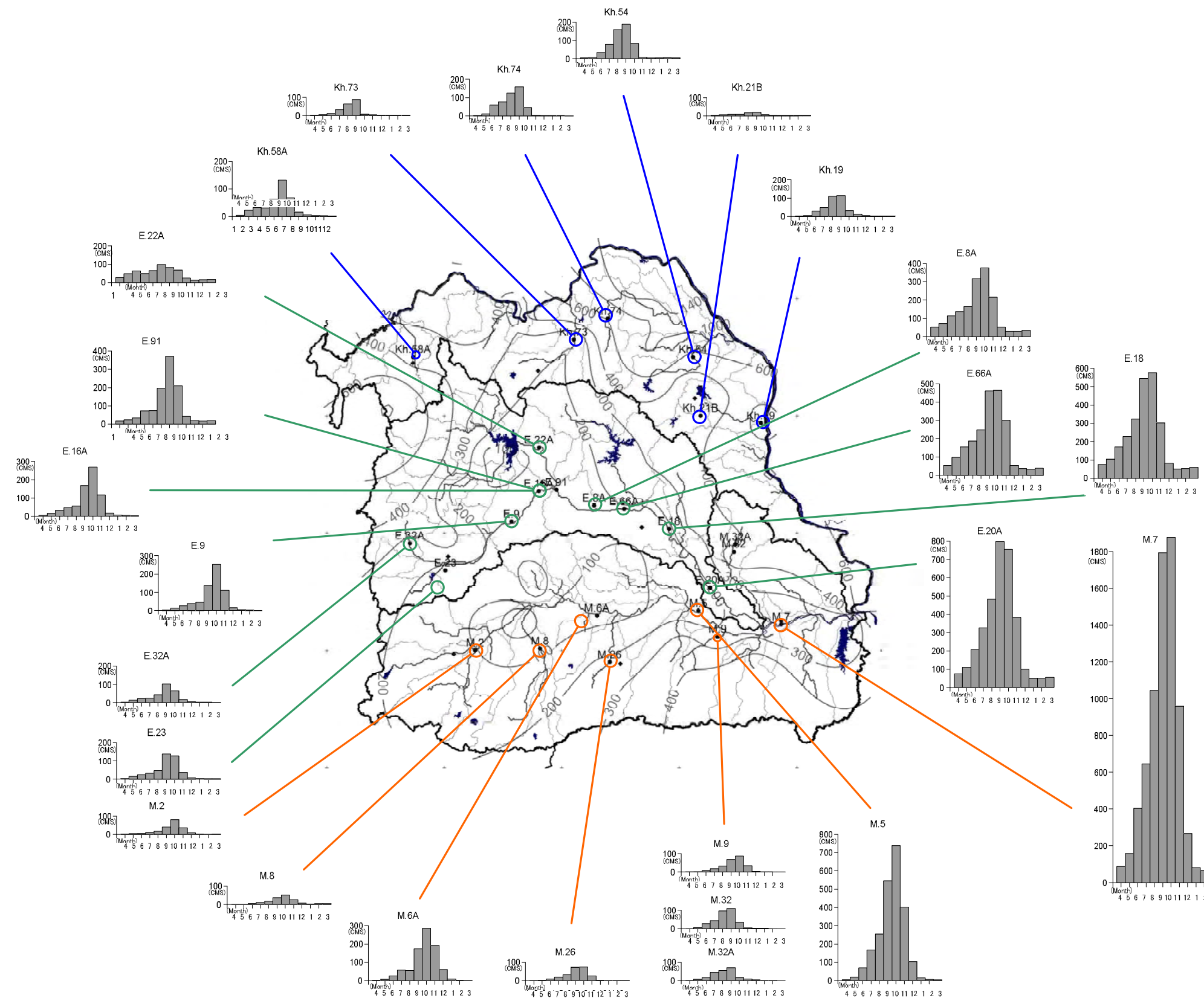
Data Source: Processed by JICA study Team using RID and DWR observation data

Date: September 2010

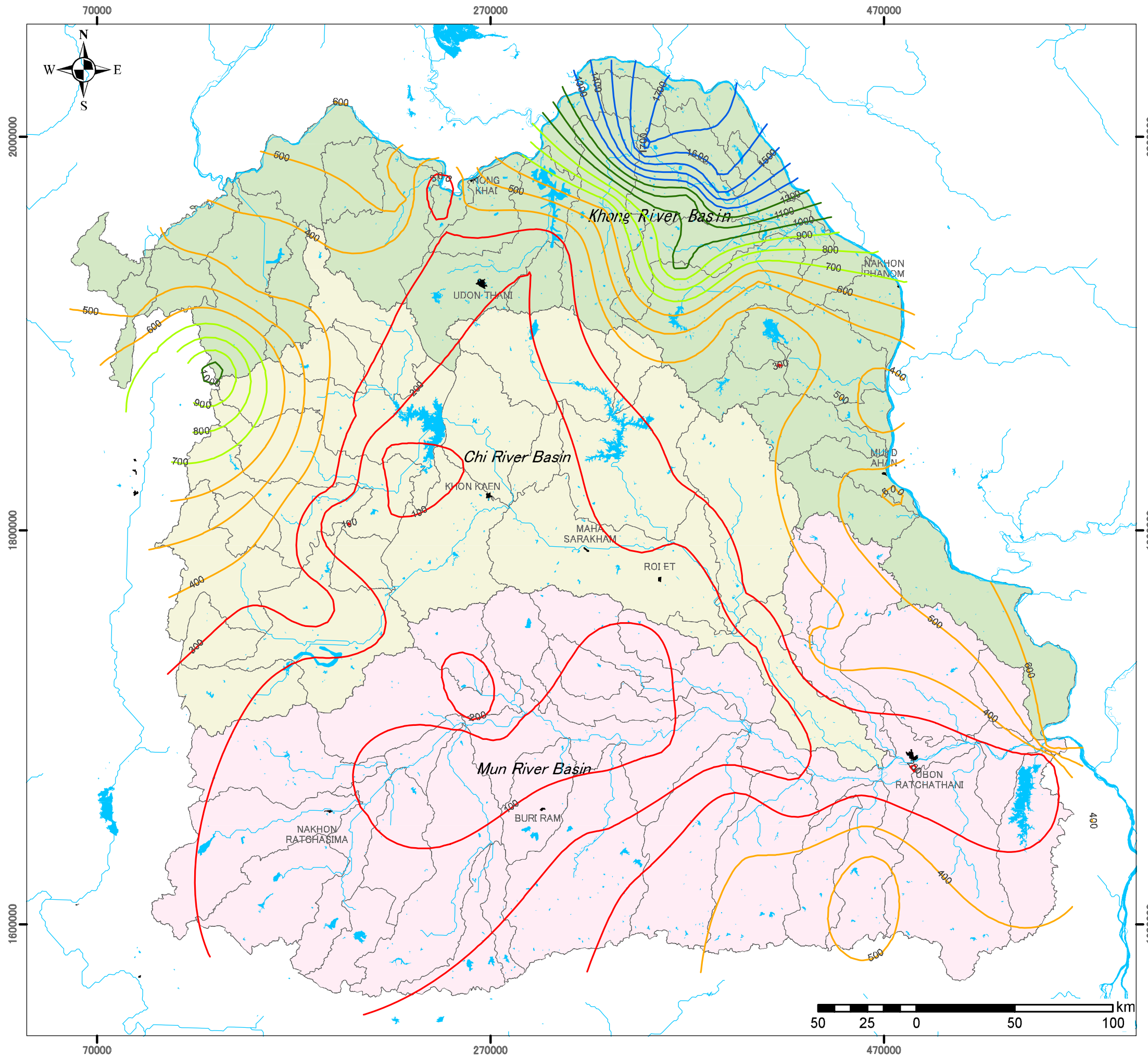
LEGEND



- Station of Khong Basin
- Station of Chi Basin
- Station of Mun Basin



Mean Monthly Runoff (1977-2006, unit : cms)



3-7
Isoline Map of Surface Runoff in
Average Annual Runoff 1977-2006

Note:
 Data Source: RID

Date: September 2010

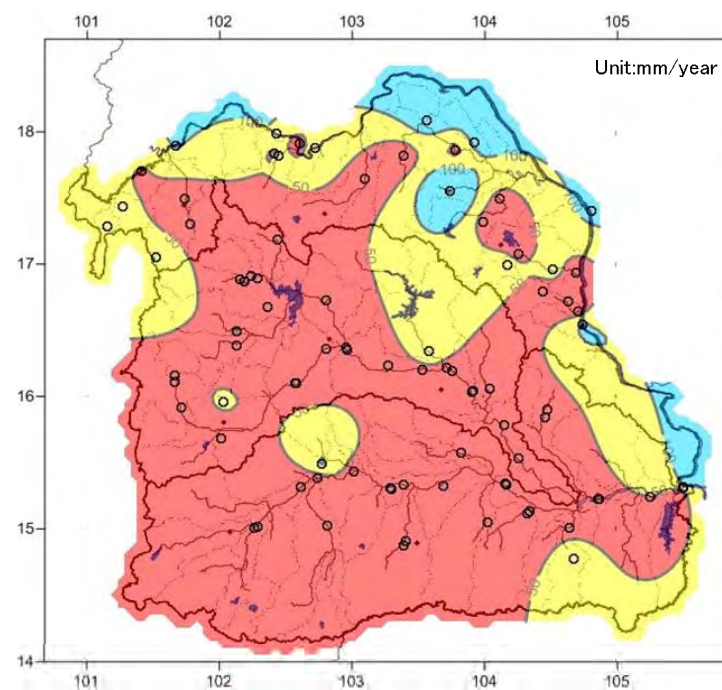
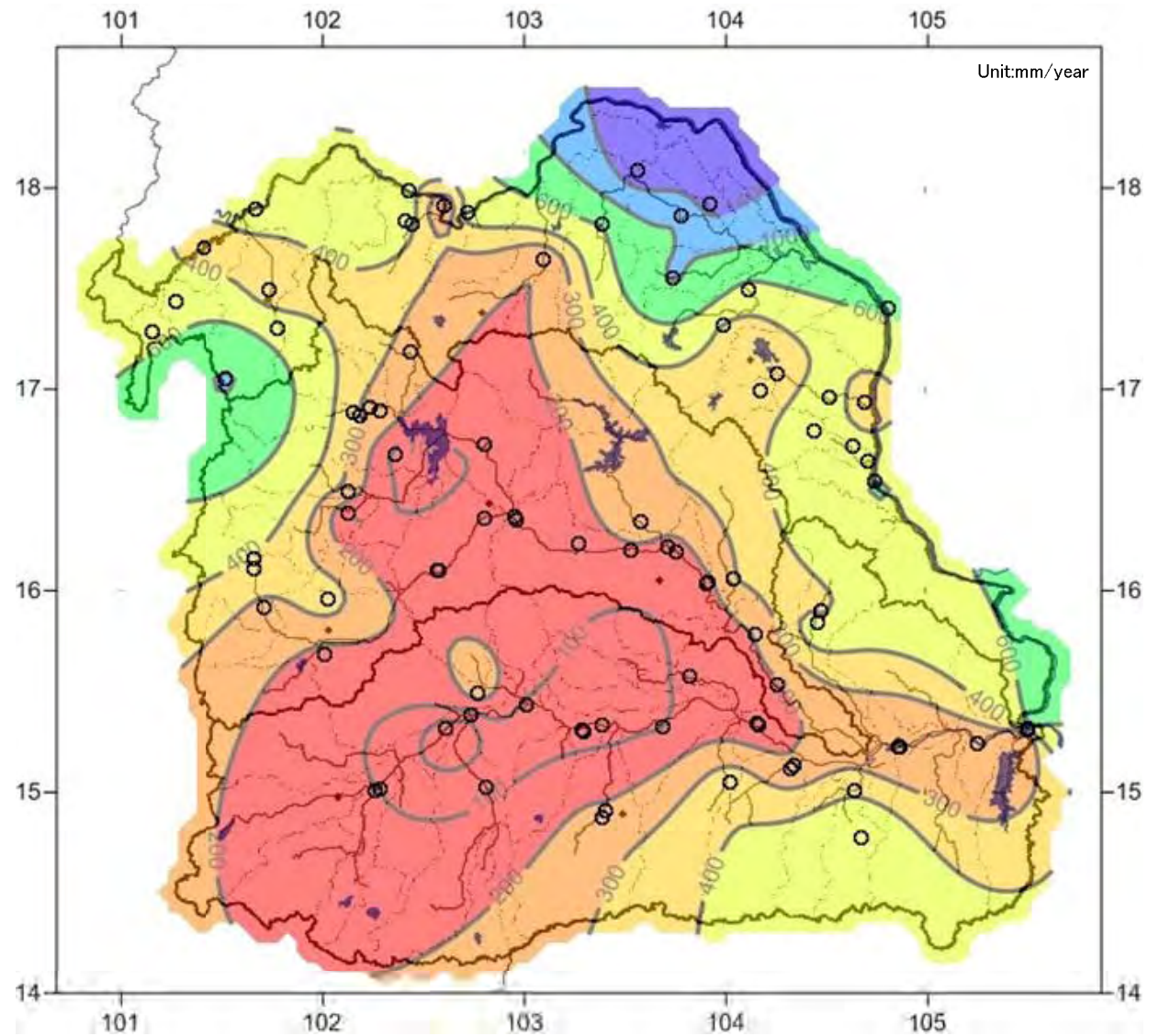
LEGEND

Surface Runoff

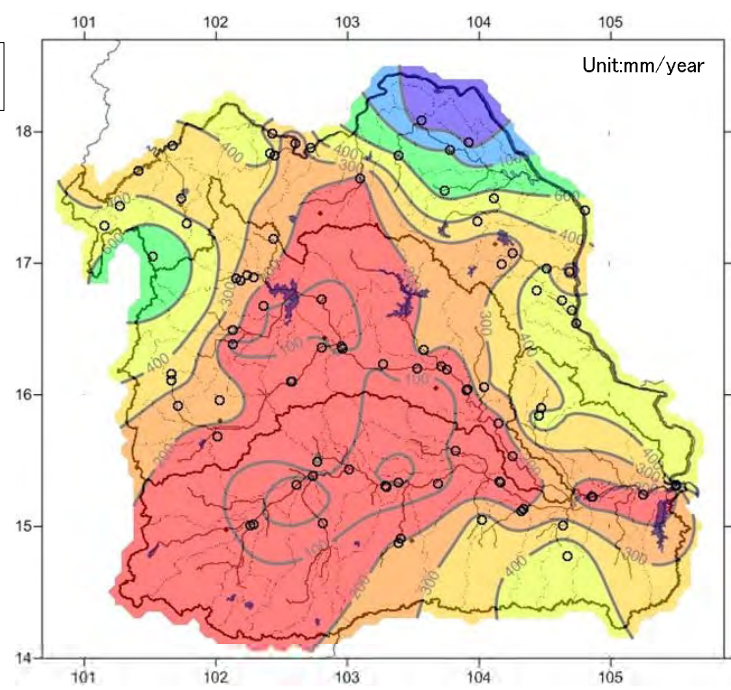
- 100 - 300
- 400 - 600
- 700 - 900
- 1000 - 1200
- 1300 - 1700

Basins

- Khong River Basin
- Chi River Basin
- Mun River Basin
- Sub-basins
- Rivers



Wet Season
May.-Oct.



Dry Season
Nov.-Apr.

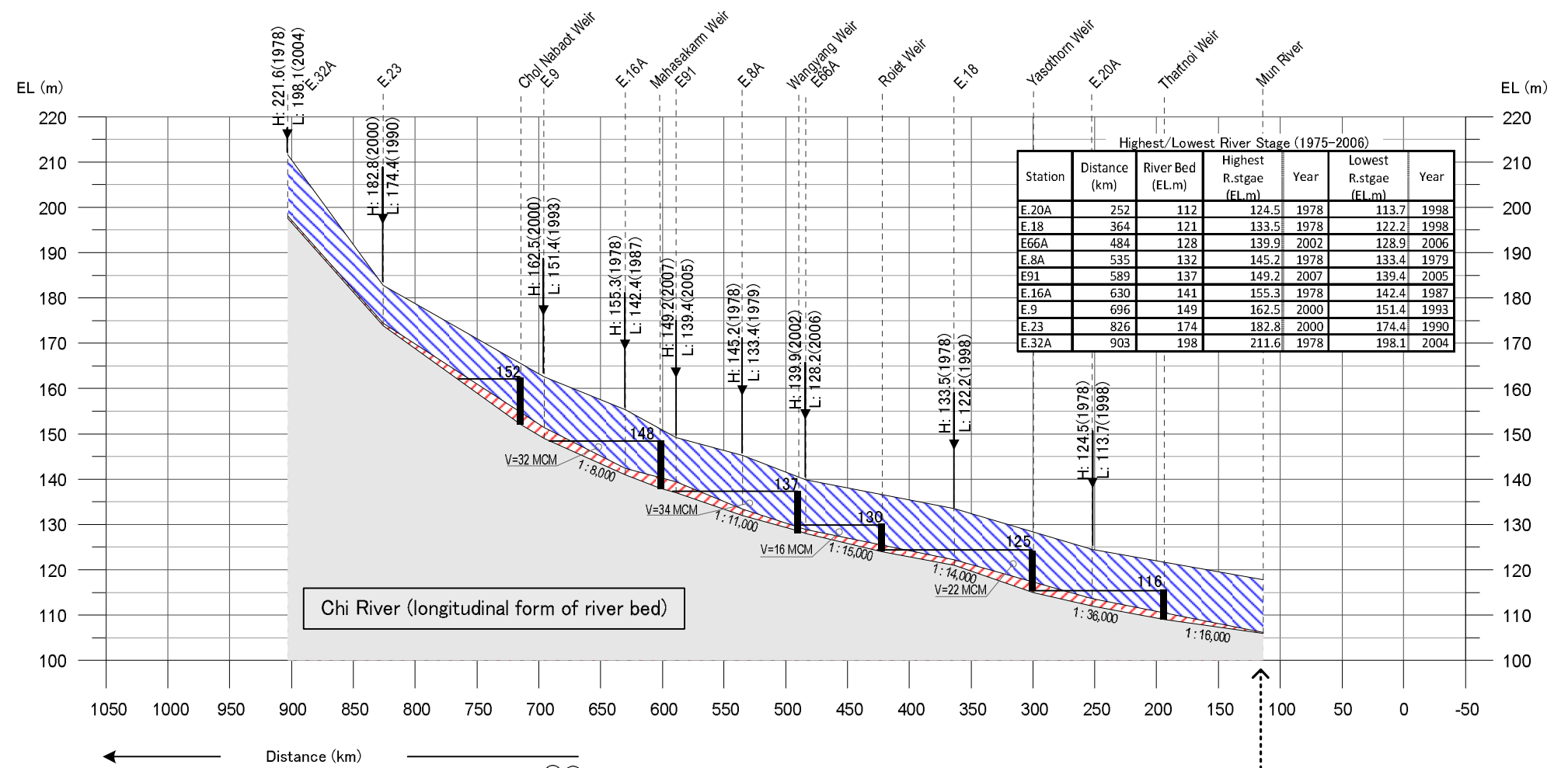
3-8 Isoline Map of Runoff Yield

Note:
Data Source: Processed by JICA study Team using
RID and DWR observation data

Date: September 2010

LEGEND

- LEGEND
- < 200 mm
 - 200-300 mm
 - 300-400 mm
 - 400-600 mm
 - 600-1000 mm
 - 1000-1400 mm
 - > 1400 mm



3-9 River Profile of Khong, Chi and Mun with Max/Min River Stage in Recent 30 years (1975-2006)

Note:
Data Source: Processed by JICA study Team using RID and DWR observation data

Date: September 2010

LEGEND

- Highest River Stage in 30 years (1977-2006)
- Lowest River Stage in 30 years (1977-2006)
- River Bed Elevation
- FWL of Weir (a.s.l)
- Weir
- Barrage
- Bed Slope
- Storage Capacity (MCM)

H:100(1978) ← Highest River Stage (m,year)
L:50(1993) ← Lowest River Stage (m,year)

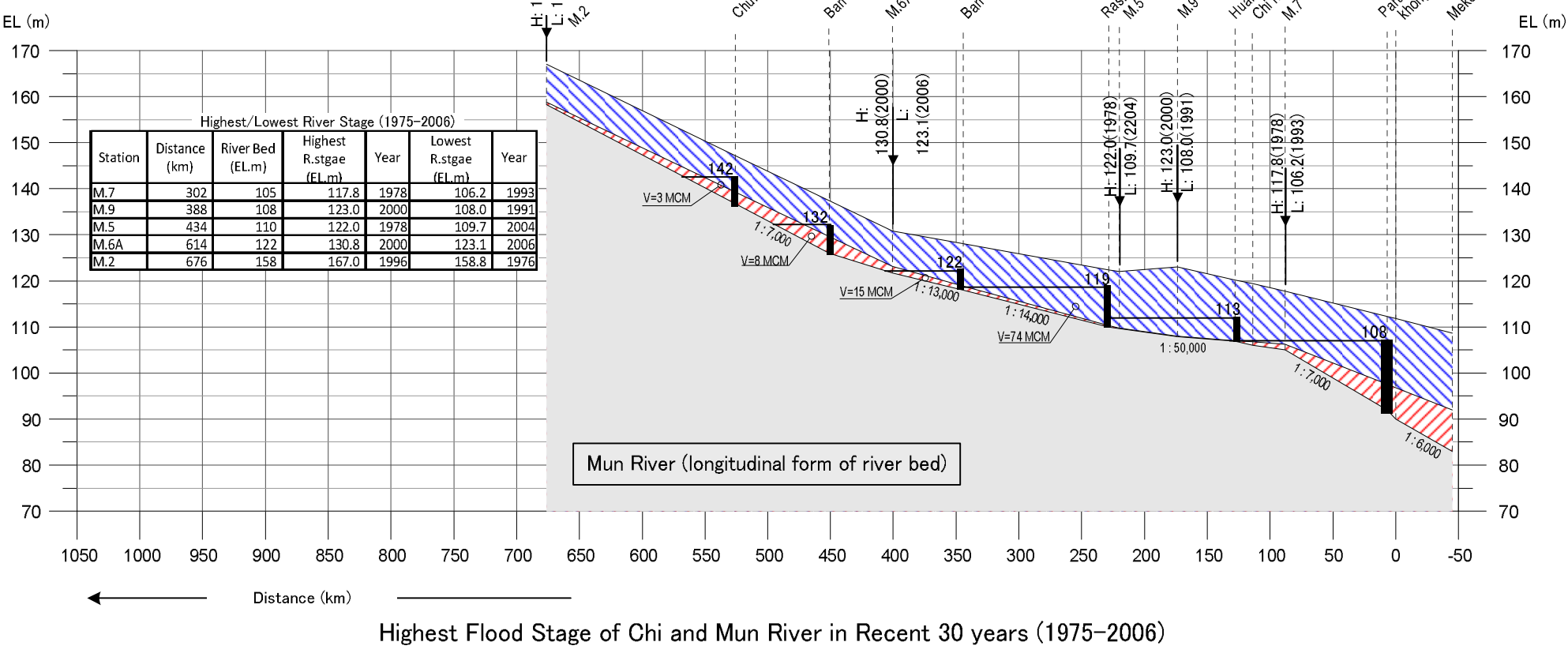
Annual Highest/Lowest River Stage (Chi River)

Station Code	Max/Min	Year									
		1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
E.20A	Max	119.4	121.3	122.7	123.6	123.0	122.5	122.8	121.9	122.6	122.6
E.20A	Min	113.7	113.8	115.0	115.0	115.4	114.7	114.8	114.8	114.5	114.7
E.20A	DIF	5.7	7.5	7.7	8.6	7.6	7.8	8.0	7.1	8.1	7.9
E.18	Max	127.6	129.6	132.0	132.7	132.7	131.8	132.4	130.1	131.6	132.4
E.18	Min	122.2	122.6	123.5	124.1	123.9	123.1	122.9	122.9	123.3	123.2
E.18	DIF	5.4	7.0	8.5	8.6	8.8	8.7	9.5	7.2	8.3	9.2
E66A	Max			139.6	138.5	139.9	138.6	138.0	135.2	138.5	138.9
E66A	Min			129.4	129.8	128.4	129.2	128.2	129.0	128.9	129.4
E66A	DIF			10.2	8.7	10.5	9.4	8.8	6.2	9.6	9.5
E.8A	Max	138.6	140.5	144.2	142.8	144.6	143.0				
E.8A	Min	133.5	134.4	135.8	136.3	134.6	135.0				
E.8A	DIF	5.1	6.1	8.4	6.5	10.0	8.0				
E91	Max								144.1	148.8	149.2
E91	Min								139.4	139.5	139.9
E91	DIF								4.7	9.3	9.3
E.16A	Max	147.4		153.1	150.3	152.4					
E.16A	Min	146.2		146.0	144.9	146.2					
E.16A	DIF	1.2		7.1	5.4	6.2					
E.9	Max	158.4	160.6	162.5	160.9	162.0	160.7	160.8	159.3	162.3	162.2
E.9	Min	151.5	151.9	151.8	151.9	151.9	151.6	152.0	152.1	152.3	152.3
E.9	DIF	6.9	8.7	10.7	9.0	10.1	8.8	9.2	7.3	10.2	9.9
E.23	Max	181.7	182.1	182.8	180.9	182.7	182.3	181.8	182.0	182.8	182.8
E.23	Min	176.5	177.0	176.7	176.3	177.0	176.7	176.7	176.6	176.6	176.5
E.23	DIF	5.2	5.1	6.1	4.6	5.7	5.6	5.1	5.4	6.2	6.3
E.32A	Max	205.4	205.5	210.8	204.8	210.5	209.2	208.3	205.5	209.3	208.2
E.32A	Min	198.3	198.4	198.6	198.6	198.6	198.5	198.1	198.3	198.5	198.5
E.32A	DIF	7.1	7.1	12.2	6.2	11.9	10.7	10.2	7.2	10.8	10.2

Annual Highest/Lowest River Stage (Mun River)

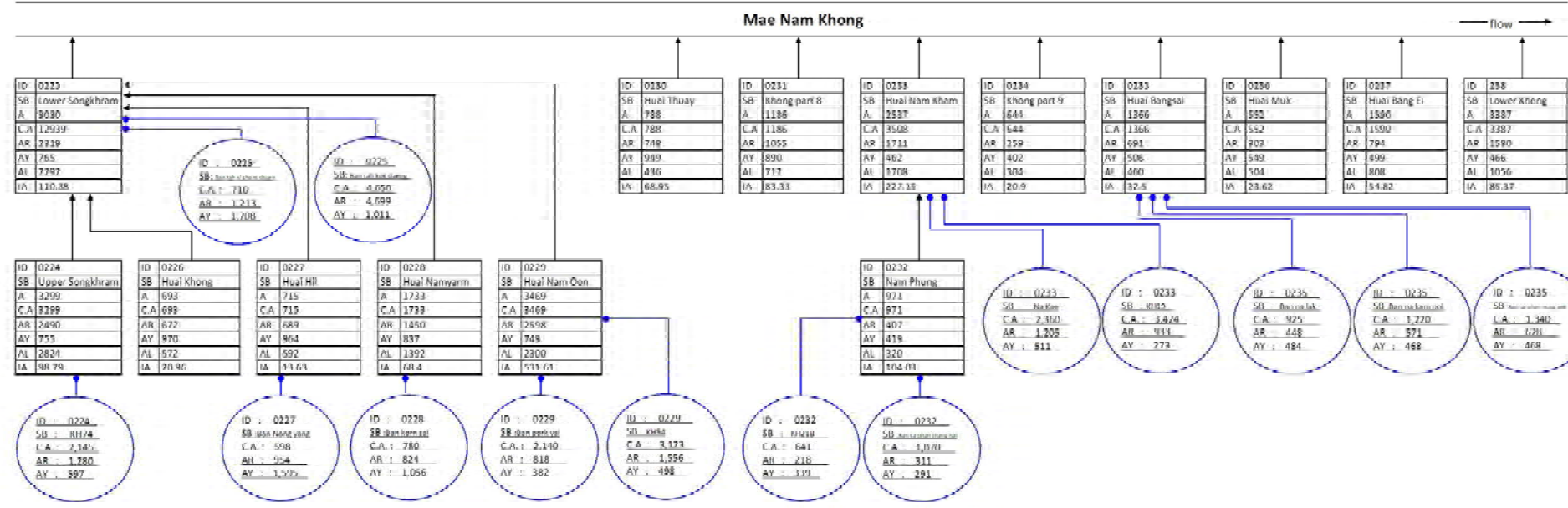
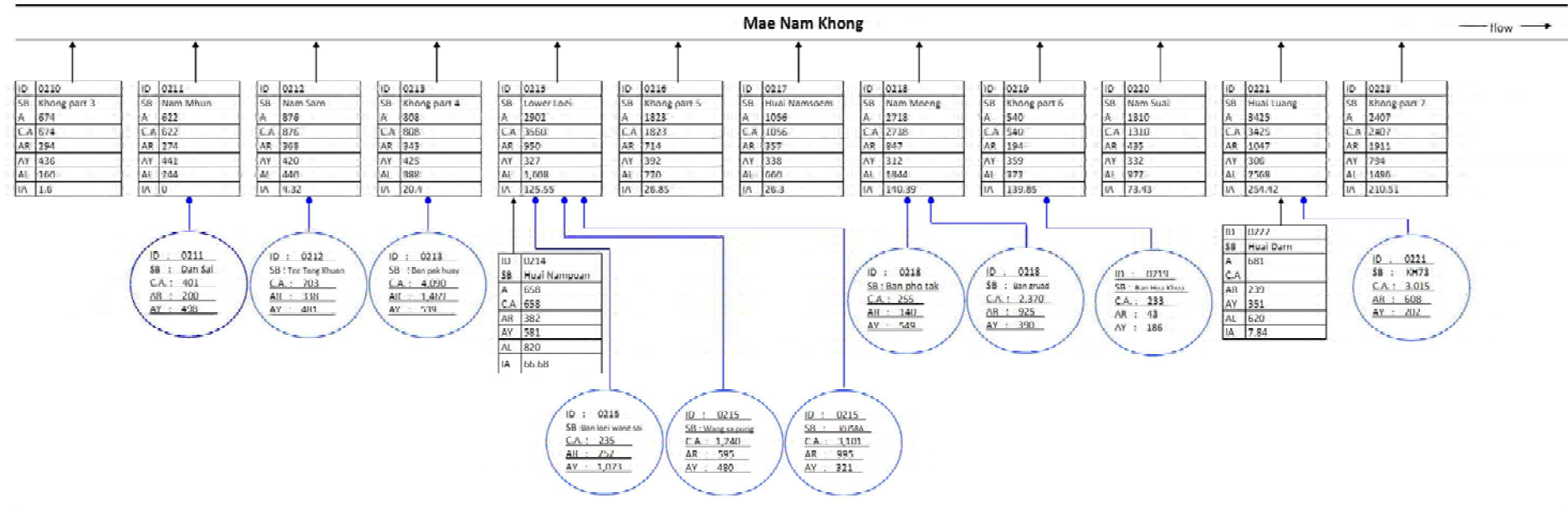
Station Code	Max/Min	Year									
		1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
M.7	Max	109.4	110.5	114.6	114.9	115.8	112.8	113.2	111.4	113.1	112.8
M.7	Min	106.2	106.3	106.7	106.7	106.7	106.5	106.4	106.4	106.4	106.5
M.7	DIF	3.2	4.2	7.9	8.2	9.1	6.3	6.8	5.0	6.7	6.3
M.9	Max	112.2	114.3	123.0	119.1	121.7	116.6	118.0	115.8	120.5	119.2
M.9	Min	109.1	109.2	109.1	109.1	109.1	109.1	108.9	108.9	108.9	109.1
M.9	DIF	3.1	5.1	13.9	10.0	12.6	7.5	9.1	6.9	11.6	10.1
M.5	Max	113.6	115.7	121.1	118.4	121.7	117.8	118.3	116.1	119.8	118.8
M.5	Min	109.9	109.9	110.0	110.0	109.9	109.8	109.7	109.7	109.8	109.8
M.5	DIF	3.7	5.8	11.1	8.4	11.8	8.0	8.6	6.4	10.0	9.0
M.6A	Max	129.2	130.8								
M.6A	Min	124.2	124.1								
M.6A	DIF	5.0	6.7								

Survey on Basic Data – Information Collection and Confirmation on Water Resources Management in Northeast Region of Thailand



Highest Flood Stage of Chi and Mun River in Recent 30 years (1975-2006)

Khong Basin





Flow Diagram - Khong Basin -

3-10(1)
Flow Diagram of Tributaries in Khong Basin

Note:
Data Source: Processed by JICA study Team using RID and DWR observation data

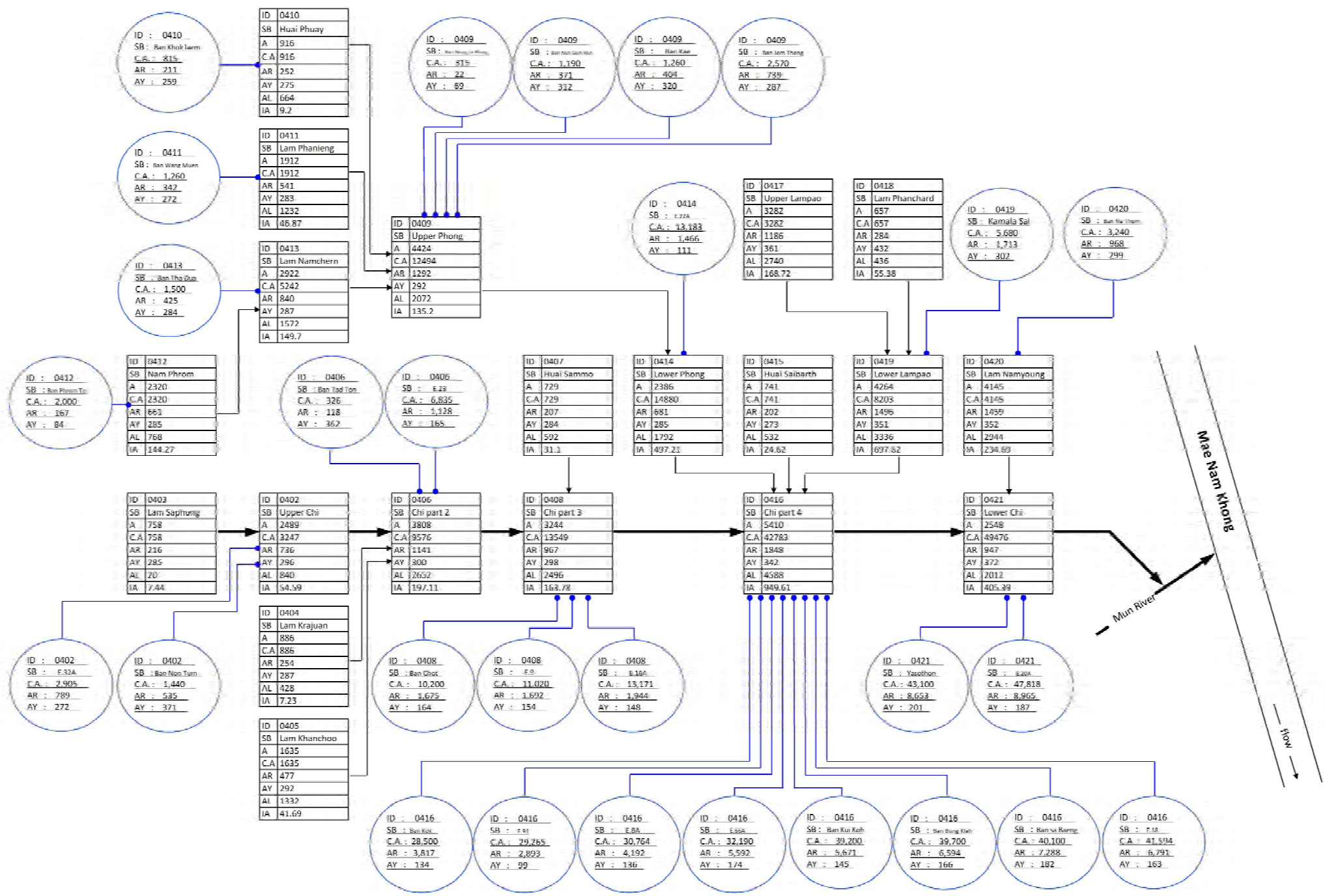
Date: September 2010

LEGEND

- Legend**
- ID : Sub-Basin Code
 - A : Area (km²)
 - C.A. : Catchment Area (km²)
 - AR : Annual Runoff (mcm.)
 - AY : Annual Yield (mm.)
 - AL : Agricultural Land (km²)
 - IA : Irrigation Area (km²)
-  : Sub-Basin
 : Gauging Station



Chi Basin



Flow Diagram - Chi Basin -

3-10(2)
Flow Diagram of Tributaries in
Chi Basin

Note:
Data Source: Processed by JICA study Team using
RID and DWR observation data

Date: September 2010

LEGEND

- Legend
- ID : Sub-Basin Code
 - A : Area (km²)
 - C.A. : Catchment Area (km²)
 - AR : Annual Runoff (mcm.)
 - AY : Annual Yield (mm.)
 - AL : Agricultural Land (km²)
 - IA : Irrigation Area (km²)
- : Sub-Basin
 : Gauging Station

