

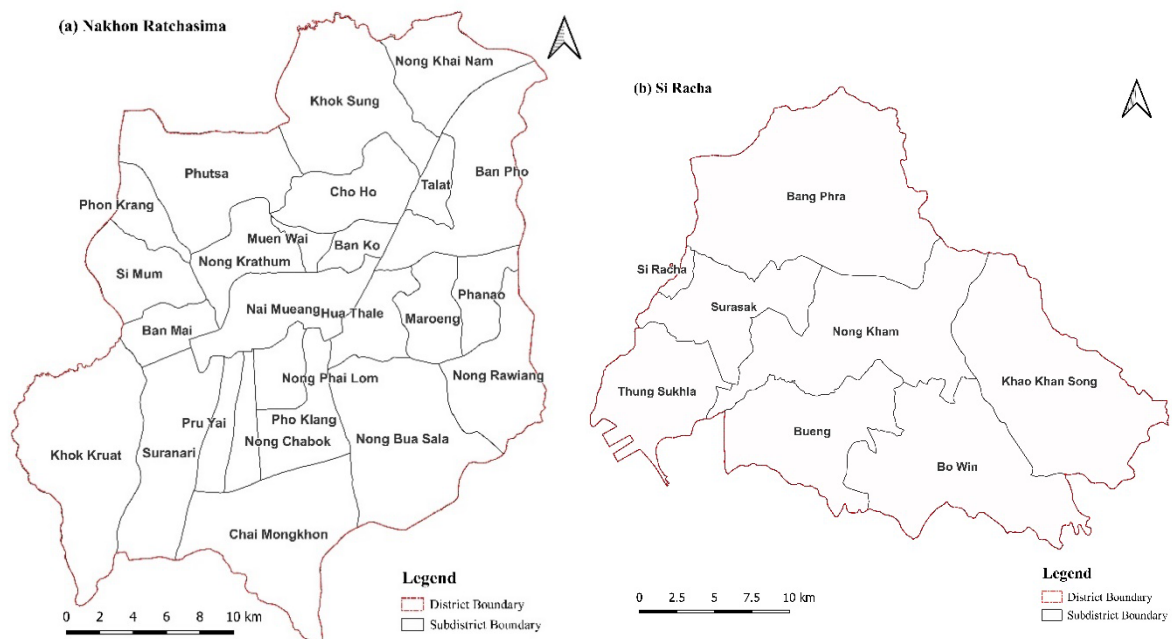
Supplementary Material (SM)

Spatiotemporal Patterns of Land Surface Temperature, Urban Heat Island, and Potential Heat Stress Risk Areas Assessment for Tropical Inland City and Coastal City in Thailand

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SM 1 Subdistrict of the study areas (a) Nakhon Ratchasima and (b) Si Racha.

SM 2 E, V, H (daytime) and H (nighttime) parameters of Nakhon Ratchasima

No.	Name	Population density (E parameter)	Vulnerability population (%) (V parameter)	Daytime UHI (H parameter for daytime)	Nighttime UHI (H parameter for nighttime)
1	Cho Ho	577	15.12	-0.22	1.29
2	Si Mum	253	19.03	-1.10	-0.01
3	Muen Wai	2287	16.87	-0.29	1.09
4	Khok Sung	197	17.83	0.74	0.88
5	Nai Mueang	3265	20.23	0.01	1.50
6	Ban Pho	195	17.64	-0.06	1.11
7	Chai Mongkhon	135	15.49	-0.07	-0.77
8	Hua Thale	1467	15.68	-0.82	0.72
9	Suranari	442	15.96	-0.24	-0.49
10	Nong Khai Nam	191	16.99	0.90	1.00
11	Phanao	338	19.44	-1.66	0.20
12	Nong Phai Lom	1136	12.35	-0.48	1.05
13	Ban Ko	1284	11.39	-0.09	1.37
14	Pru Yai	795	17.9	-0.13	-0.35

SM 2 E, V, H (daytime) and H (nighttime) parameters of Nakhon Ratchasima (*continued*)

No.	Name	Population density (E parameter)	Vulnerability population (%) (V parameter)	Daytime UHI (H parameter for daytime)	Nighttime UHI (H parameter for nighttime)
15	Khok Kruat	208	17.02	0.22	-1.07
16	Pho Klang	1145	15.32	-0.43	-0.20
17	Talat	1166	15.57	0.19	0.94
18	Phutsa	194	18.18	0.37	0.50
19	Maroeng	472	15.63	-1.48	0.52
20	Nong Rawiang	365	15.96	0.10	-0.59
21	Ban Mai	1326	18.15	-1.26	0.22
22	Phon Krang	369	17.74	0.03	0.05
23	Nong Bua Sala	377	13.21	0.17	-0.52
24	Nong Chabok	1295	17.47	-0.46	-0.17
25	Nong Krathum	413	14.62	-0.90	0.84

SM 3 Normalized values of E, V, H (daytime) and H (nighttime) of Nakhon Ratchasima

No.	Name	E parameter (0 – 1)	V parameter (0 – 1)	Daytime H parameter (0 – 1)	Nighttime H parameter (0 – 1)
1	Cho Ho	0.14	0.42	0.56	0.92
2	Si Mum	0.04	0.86	0.22	0.41
3	Muen Wai	0.69	0.62	0.54	0.84
4	Khok Sung	0.02	0.73	0.94	0.76
5	Nai Mueang	1.00	1.00	0.65	1.00
6	Ban Pho	0.02	0.71	0.63	0.85
7	Chai Mongkhon	0.00	0.46	0.62	0.12
8	Hua Thale	0.43	0.49	0.33	0.70
9	Suranari	0.10	0.52	0.55	0.23
10	Nong Khai Nam	0.02	0.63	1.00	0.81
11	Phanao	0.06	0.91	0.00	0.50
12	Nong Phai Lom	0.32	0.11	0.46	0.82
13	Ban Ko	0.37	0.00	0.61	0.95
14	Pru Yai	0.21	0.74	0.60	0.28
15	Khok Kruat	0.02	0.64	0.74	0.00
16	Pho Klang	0.32	0.44	0.48	0.34
17	Talat	0.33	0.47	0.72	0.78
18	Phutsa	0.02	0.77	0.79	0.61
19	Maroeng	0.11	0.48	0.07	0.62
20	Nong Rawiang	0.07	0.52	0.69	0.18
21	Ban Mai	0.38	0.76	0.16	0.50
22	Phon Krang	0.07	0.72	0.66	0.43
23	Nong Bua Sala	0.08	0.21	0.71	0.21
24	Nong Chabok	0.37	0.69	0.47	0.35
25	Nong Krathum	0.09	0.37	0.30	0.74

SM 4 Calculation of daytime PHSRA of Nakhon Ratchasima

No.	Name	0.25* E _{norm}	0.25* V _{norm}	0.50* H _{norm} (Daytime)	Daytime PHSRA (E+V+H)	Daytime PHSRA (0 -1)
1	Cho Ho	0.04	0.11	0.28	0.42	0.37
2	Si Mum	0.01	0.22	0.11	0.34	0.24
3	Muen Wai	0.17	0.16	0.27	0.60	0.64
4	Khok Sung	0.00	0.18	0.47	0.66	0.73
5	Nai Mueang	0.25	0.25	0.33	0.83	1.00
6	Ban Pho	0.00	0.18	0.31	0.49	0.48
7	Chai Mongkhon	0.00	0.12	0.31	0.43	0.38
8	Hua Thale	0.11	0.12	0.16	0.39	0.33
9	Suranari	0.02	0.13	0.28	0.43	0.39
10	Nong Khai Nam	0.00	0.16	0.50	0.66	0.74
11	Phanao	0.02	0.23	0.00	0.24	0.10
12	Nong Phai Lom	0.08	0.03	0.23	0.34	0.24
13	Ban Ko	0.09	0.00	0.31	0.40	0.34
14	Pru Yai	0.05	0.18	0.30	0.54	0.55
15	Khok Kruat	0.01	0.16	0.37	0.53	0.54
16	Pho Klang	0.08	0.11	0.24	0.43	0.39
17	Talat	0.08	0.12	0.36	0.56	0.59
18	Phutsa	0.00	0.19	0.40	0.59	0.64
19	Maroeng	0.03	0.12	0.04	0.18	0.00
20	Nong Rawiang	0.02	0.13	0.34	0.49	0.48
21	Ban Mai	0.10	0.19	0.08	0.36	0.28
22	Phon Krang	0.02	0.18	0.33	0.53	0.54
23	Nong Bua Sala	0.02	0.05	0.36	0.43	0.38
24	Nong Chabok	0.09	0.17	0.23	0.50	0.49
25	Nong Krathum	0.02	0.09	0.15	0.26	0.13

SM 5 Calculation of nighttime PHSRA of Nakhon Ratchasima

No.	Name	0.25* E _{norm}	0.25* V _{norm}	0.50* H _{norm} (Nighttime)	Nighttime PHSRA (E+V+H)	Nighttime PHSRA (0 – 1)
1	Cho Ho	0.04	0.11	0.46	0.60	0.53
2	Si Mum	0.01	0.22	0.21	0.43	0.33
3	Muen Wai	0.17	0.16	0.42	0.75	0.71
4	Khok Sung	0.00	0.18	0.38	0.57	0.49
5	Nai Mueang	0.25	0.25	0.50	1.00	1.00
6	Ban Pho	0.00	0.18	0.42	0.61	0.54
7	Chai Mongkhon	0.00	0.12	0.06	0.17	0.02
8	Hua Thale	0.11	0.12	0.35	0.58	0.50
9	Suranari	0.02	0.13	0.11	0.27	0.13
10	Nong Khai Nam	0.00	0.16	0.40	0.57	0.49
11	Phanao	0.02	0.23	0.25	0.49	0.40
12	Nong Phai Lom	0.08	0.03	0.41	0.52	0.43
13	Ban Ko	0.09	0.00	0.47	0.57	0.49
14	Pru Yai	0.05	0.18	0.14	0.38	0.26
15	Khok Kruat	0.01	0.16	0.00	0.16	0.00
16	Pho Klang	0.08	0.11	0.17	0.36	0.24
17	Talat	0.08	0.12	0.39	0.59	0.52
18	Phutsa	0.00	0.19	0.30	0.50	0.41

SM 5 Calculation of nighttime PHSRA of Nakhon Ratchasima (*continued*)

No.	Name	0.25* E _{norm}	0.25* V _{norm}	0.50* H _{norm} (Nighttime)	Nighttime PHSRA (E+V+H)	Nighttime PHSRA (0 – 1)
19	Maroeng	0.03	0.12	0.31	0.46	0.36
20	Nong Rawiang	0.02	0.13	0.09	0.24	0.10
21	Ban Mai	0.10	0.19	0.25	0.54	0.45
22	Phon Krang	0.02	0.18	0.22	0.42	0.31
23	Nong Bua Sala	0.02	0.05	0.11	0.18	0.02
24	Nong Chabok	0.09	0.17	0.18	0.44	0.34
25	Nong Krathum	0.02	0.09	0.37	0.49	0.39

SM 6 E, V, H (daytime) and H (nighttime) parameters of Si Racha

No.	Name	Population density (E parameter)	Vulnerability population (%) (V parameter)	Daytime UHI (H parameter for daytime)	Nighttime UHI (H parameter for nighttime)
1	Si Racha	11363	16.03	0.17	2.11
2	Surasak District	1446	15.45	0.77	1.08
3	Thung Sukla	835	13.68	1.58	2.06
4	Bueng	762	12.54	0.67	-0.10
5	Nong Kham	506	14.43	0.14	0.17
6	Khao Khangsong	97	16.23	-0.52	-0.59
7	Bang Phra	212	18.94	-0.51	0.33
8	Bowin	459	11.45	-0.07	-0.16

SM 7 Normalized values of E, V, H (daytime) and H (nighttime) of Si Racha

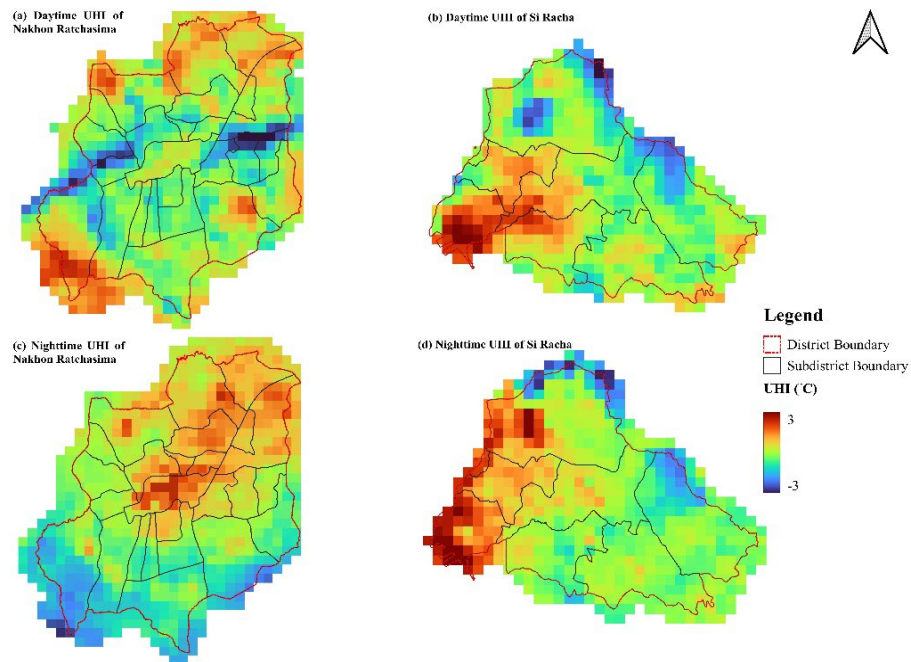
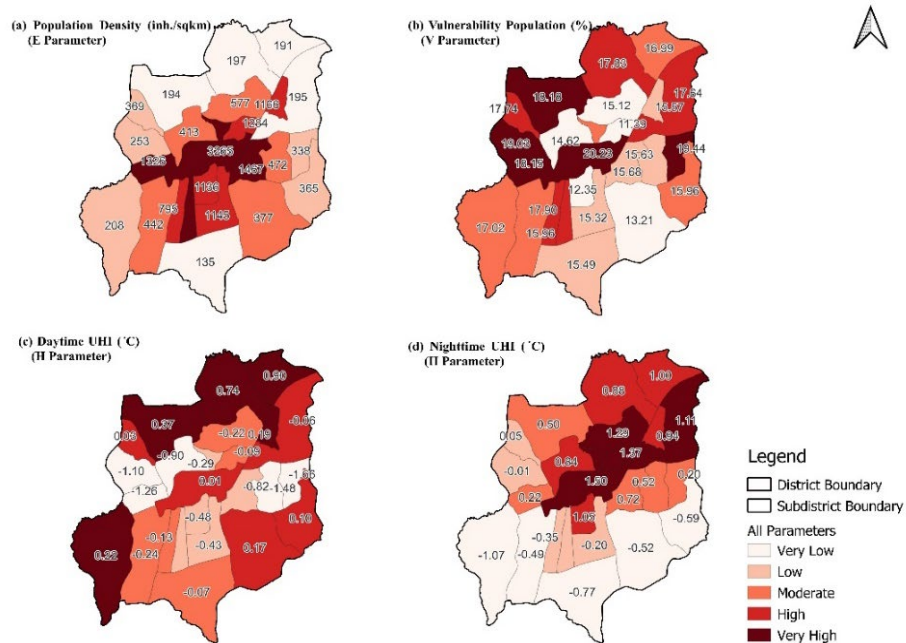
No.	Name	E parameter (0 – 1)	V parameter (0 -1)	Daytime H parameter (0 – 1)	Nighttime H parameter (0 -1)
1	Si Racha	1.00	0.61	0.33	1.00
2	Surasak District	0.12	0.53	0.62	0.62
3	Thung Sukla	0.07	0.30	1.00	0.98
4	Bueng	0.06	0.14	0.57	0.18
5	Nong Kham	0.04	0.40	0.32	0.28
6	Khao Khangsong	0.00	0.64	0.00	0.00
7	Bang Phra	0.01	1.00	0.00	0.34
8	Bowin	0.03	0.00	0.22	0.16

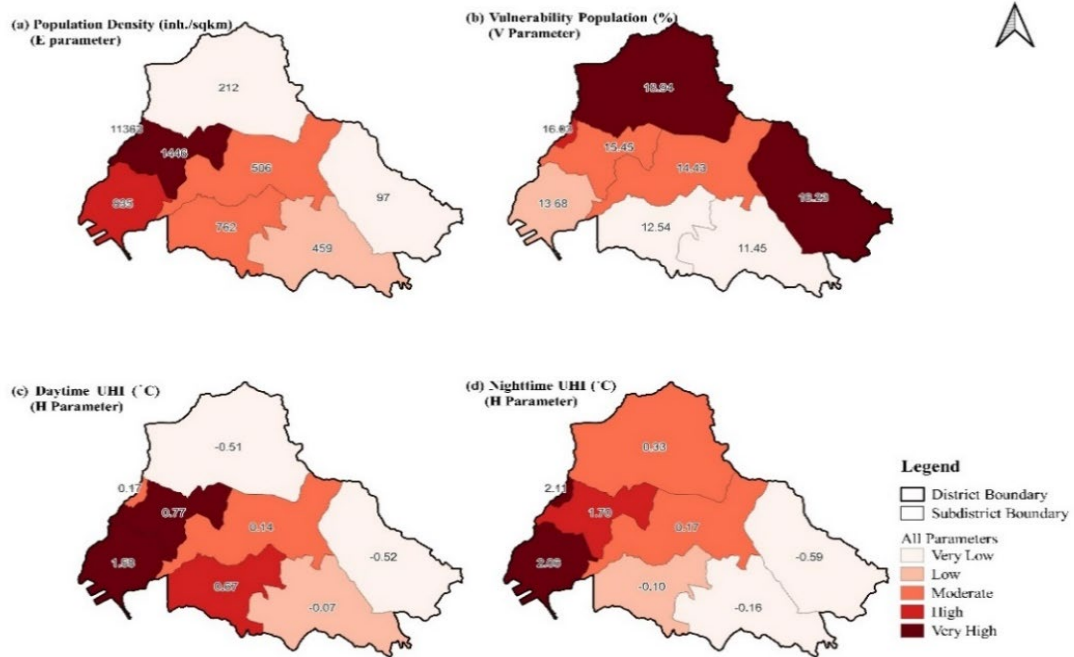
SM 8 Calculation of daytime PHSRA of Si Racha

No.	Name	0.25* E _{norm}	0.25* V _{norm}	0.50* H _{norm} (Daytime)	Daytime PHSRA (E+V+H)	Daytime PHSRA (0 – 1)
1	Si Racha	0.25	0.15	0.17	0.57	0.95
2	Surasak District	0.03	0.13	0.31	0.47	0.75
3	Thung Sukla	0.02	0.07	0.50	0.59	1.00
4	Bueng	0.01	0.04	0.28	0.33	0.46
5	Nong Kham	0.01	0.10	0.16	0.27	0.31
6	Khao Khangsong	0.00	0.16	0.00	0.16	0.09
7	Bang Phra	0.00	0.25	0.00	0.25	0.29
8	Bowin	0.01	0.00	0.11	0.12	0.00

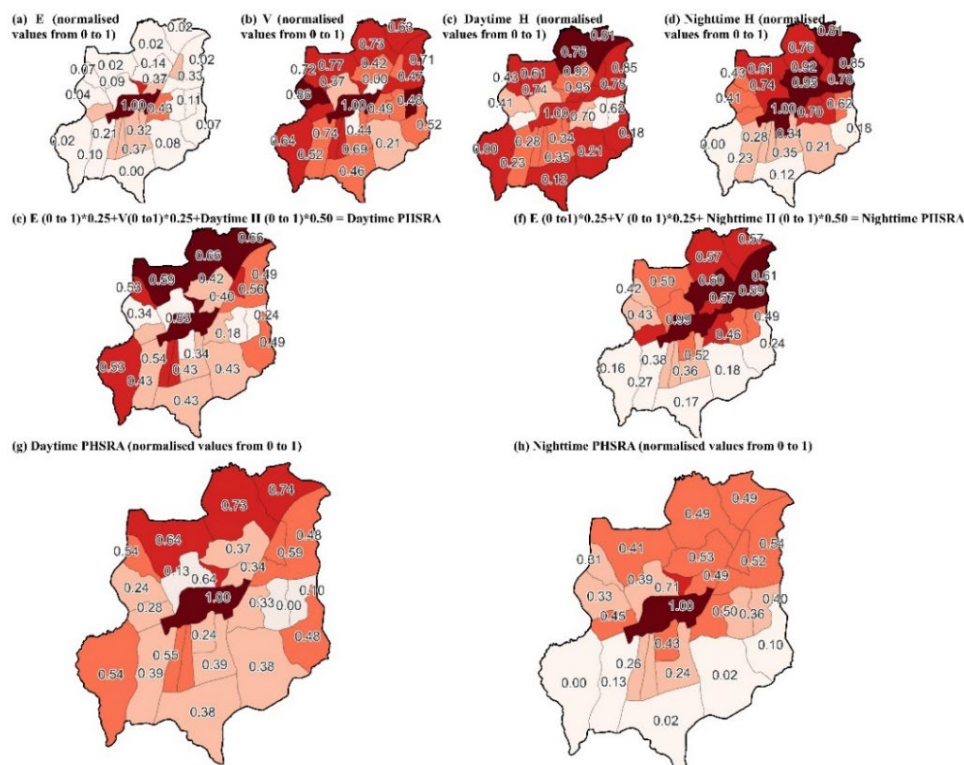
SM 9 Calculation of nighttime PHSRA of Si Racha

No.	Name	0.25* E norm	0.25* V norm	0.50* H norm (Nighttime)	Nighttime PHSRA (E+V+H)	Nighttime PHSRA (0 – 1)
1	Si Racha	0.25	0.15	0.50	0.90	1.00
2	Surasak District	0.03	0.13	0.31	0.47	0.47
3	Thung Sukla	0.02	0.07	0.49	0.58	0.61
4	Bueng	0.01	0.04	0.09	0.14	0.06
5	Nong Kham	0.01	0.10	0.14	0.25	0.20
6	Khao Khangsong	0.00	0.16	0.00	0.16	0.09
7	Bang Phra	0.00	0.25	0.17	0.42	0.41
8	Bowin	0.01	0.00	0.08	0.09	0.00

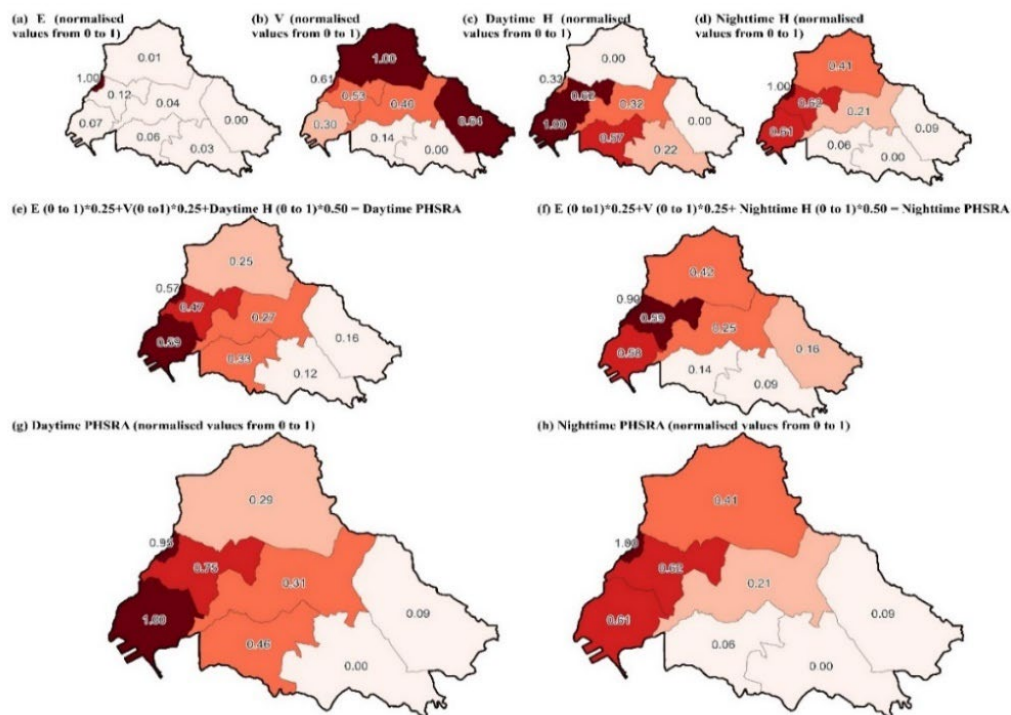
**SM 10** UHI calculation at subdistrict level.**SM 11** All parameters calculation at subdistrict level of Nakhon Ratchasima.



SM 12 All parameters calculation at subdistrict level of Si Racha.



SM 13 Final PHSRA (0 to 1) calculation at subdistrict level of Nakhon Ratchasima.



SM 14 Final PHSRA (0 to 1) calculation at subdistrict level of Si Racha.