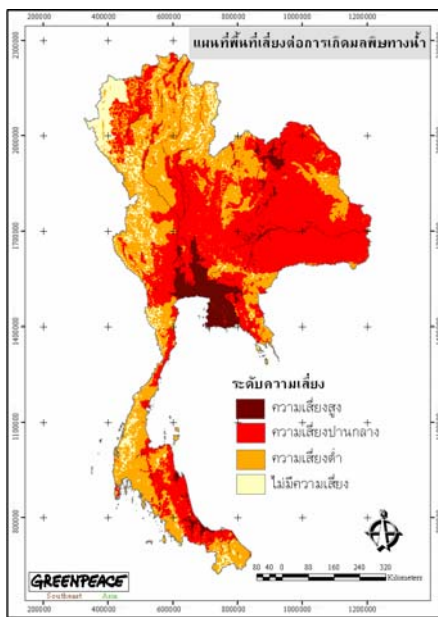


(GIS)

()

2552
(Water Patrol)



| | | |
|---|------|----|
| | | ii |
| | | iv |
| | | v |
| 1 | | 1 |
| | 1.1 | 1 |
| | 1.2 | 1 |
| | 1.3 | 1 |
| | 1.4 | 2 |
| | 1.5 | 2 |
| | 1.6 | 3 |
| | 1.7 | 6 |
| | 1.8 | 6 |
| 2 | | 8 |
| | 2.1 | 8 |
| | 2.2 | 8 |
| | 2.3 | 9 |
| | 2.4 | 9 |
| | 2.5 | 9 |
| | 2.6 | 10 |
| | 2.7 | 10 |
| | 2.8 | 10 |
| | 2.9 | 10 |
| | 2.10 | 11 |
| | 2.11 | 11 |
| | 2.12 | 11 |

()

| | | |
|---|-----|----|
| 3 | | 26 |
| | 3.1 | 26 |
| | 3.2 | 30 |
| 4 | | 44 |
| | 4.1 | 44 |
| | 4.2 | 48 |
| | 4.3 | 53 |
| | 4.4 | 64 |
| | 4.5 | 67 |
| | 4.6 | 67 |
| 5 | | 69 |
| | 5.1 | 68 |
| | 5.2 | 72 |
| | 5.3 | 72 |
| | | 74 |
| | | 77 |
| | | 80 |
| | | 83 |
| | | 86 |

| | | | |
|------|------|---------------------------|----|
| 1.1 | | | 5 |
| 1.2 | | | 7 |
| 2.1 | | | 12 |
| 3.1 | | 5 (2544-2548) | 27 |
| 3.2 | | | 30 |
| 4.1 | | | 45 |
| 4.2 | | | 46 |
| 4.3 | | | 48 |
| 4.4 | 4.4: | | 50 |
| 4.5 | | | 53 |
| | | 1 . . 2549 – 30 2550 | |
| 4.6 | | | 60 |
| 4.7 | | | 61 |
| 4.8 | | | 62 |
| 4.9 | | 500 | 64 |
| 4.10 | | 500 | 66 |
| 4.11 | | | 67 |
| 4.12 | | | 68 |

| | | |
|------|-----------------|----|
| 2.1 | | 14 |
| 2.2 | | 15 |
| 2.3 | | 16 |
| 2.4 | | 17 |
| 2.5 | | 18 |
| 2.6 | | 19 |
| 2.7 | | 20 |
| 2.8 | | 21 |
| 2.9 | | 22 |
| 2.10 | | 23 |
| 2.11 | | 24 |
| 2.12 | | 25 |
| 3.1 | . . . 2544-2548 | 28 |
| 3.2 | | 29 |
| 3.3 | | 32 |
| 3.4 | | 33 |
| 3.5 | | 34 |
| 3.6 | | 35 |
| 3.7 | | 36 |
| 3.8 | | 37 |
| 3.9 | | 38 |
| 3.10 | | 39 |
| 3.11 | | 40 |
| 3.12 | | 41 |
| 3.13 | | 42 |
| 3.14 | | 43 |

()

| | |
|-----|----|
| 4.1 | 49 |
| 4.2 | 52 |
| 4.3 | 54 |
| 4.4 | 55 |
| 4.5 | 56 |
| 4.6 | 57 |
| 4.7 | 58 |
| 4.8 | 59 |
| 4.9 | 65 |

1.1

(Water Patrol Unit)

Information Systems: GIS)

(Geographic

1.2

1.

2.

(GIS)

3.

4.

1.3

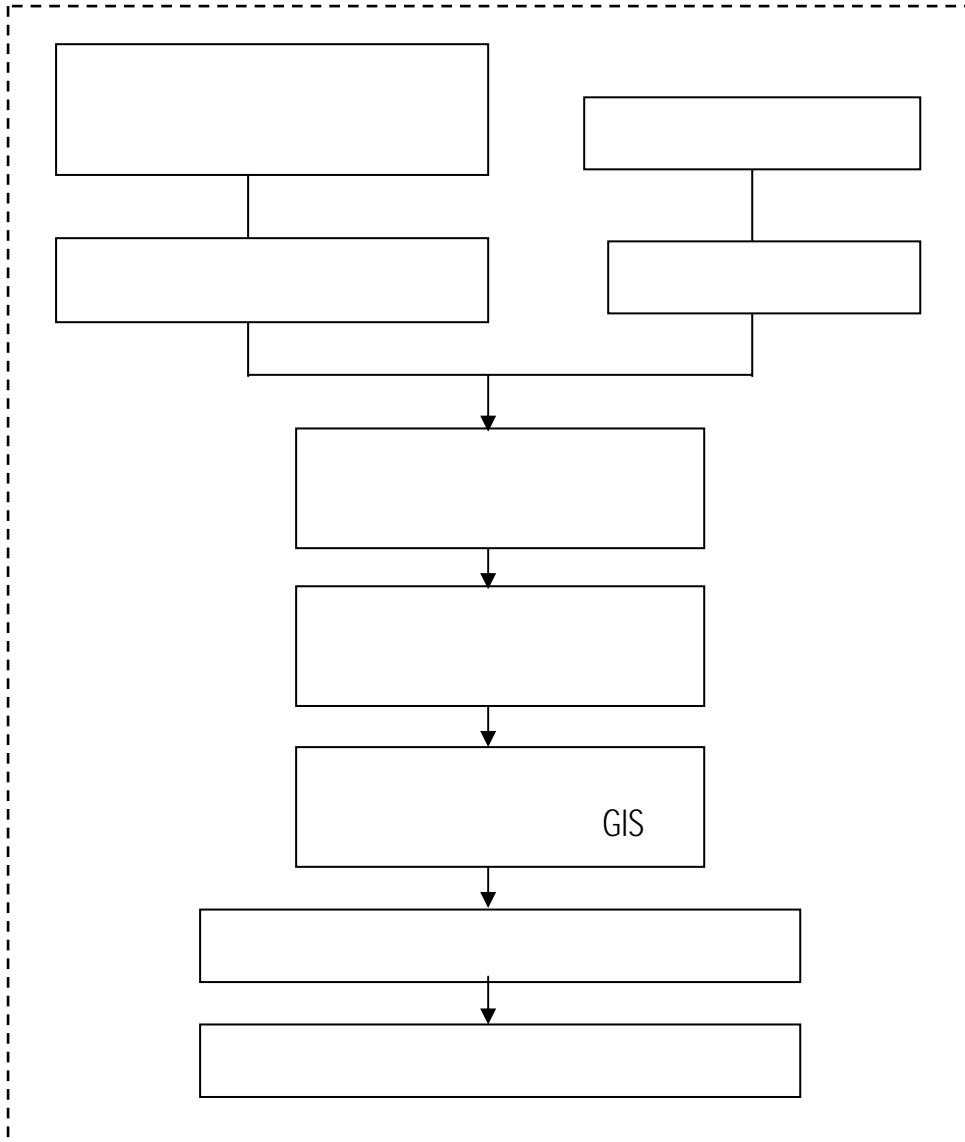
1.

2.

3.

1.4

1.5



3.

13

1.1

1.1:

| | |
|----|--|
| | |
| 1. | 1. 2. 3. 4. |
| 2. | 1. ≤ 200 2. 200-400 3. >400 |
| 3. | 1. 0-10% () 2. 11-30% () 3. $> 30%$ () |
| 4. | 1. 2. |
| 5. | 1. 2. 3. 4. 5. |
| 6. | 1. 2. 3. 4. 5. |

1.1:

()

| | |
|-----|----------------------------|
| | |
| 7. | 1. 2. 3. 4. 5. |
| 8. | 1. 2. 3. 4. 5. |
| 9. | 1. 2. 3. 4. 5. |
| 10. | 1. 2. 3. 4. 5. |
| 11. | 1. 2. 3. 4. |
| 12. | 1. 2. 3. 4. |
| 13. | 1. 2. 3. 4. 5. |

(Overlay)

4

1.7

(GIS)

1.8

6 (24)

1.2:

| | 2 | 4 | 6 | 8 | 10 | 12 | 14 | 16 | 18 | 20 | 22 | 24 |
|----|---|---|---|---|----|----|----|----|----|----|----|----|
| 1. | ↔ | | | | | | | | | | | |
| 2. | | ↔ | | | | | | | | | | |
| 3. | | | ↔ | | | | | | | | | |
| 4. | | | | | ↔ | | | | | | | |
| 5. | | | | | | | | ↔ | | | | |
| 6. | | | | | | | | | | ↔ | | |
| 7. | | | | | | | | | | ↔ | | |
| 8. | | | | | | | | | | | ↔ | |

(GIS)

2.1

- 1) (contour line) 2
(Triangulated Irregular Network: TIN)
- 2) 3
TIN (contour line)
- 3) 3 200
(Mean Sea Level: MSL) () 200-400 MSL ()
400 MSL () 2.1

2.2

2 TIN (slope) 3 1)
 10% () 2) 11-30% () 3) 30% ()
) 2.2

2.3 1

(2.3) 2

2.4 2 . . 2548

3 5

2.4

2.5

3 . . 2546

5

2.5

-
- 1
 - 2
 - 3

2.6

¹ . . . 2546

()

5

(2.6)

2.7

² . . . 2546

()

5

(2.7)

2.8

³ . . . 2545-2546

5

(2.8)

2.9

⁴ . . . 2550

5

(2.9)

 1

2

3

4

2.10

Index: CI

5

- 1)
- 2)
- 3)
- 4)
- 5)

100 . . (

Composite

)

4

2.10

2.11

1

3

4

(2.11)

4

. . 2548

2.12

2

5

. . 2550

(2.12)

 1

2 ข้อมูลจากสำมะโนประชากรและเคหะ สำนักงานสถิติแห่งชาติ

(2.1)

(GIS)

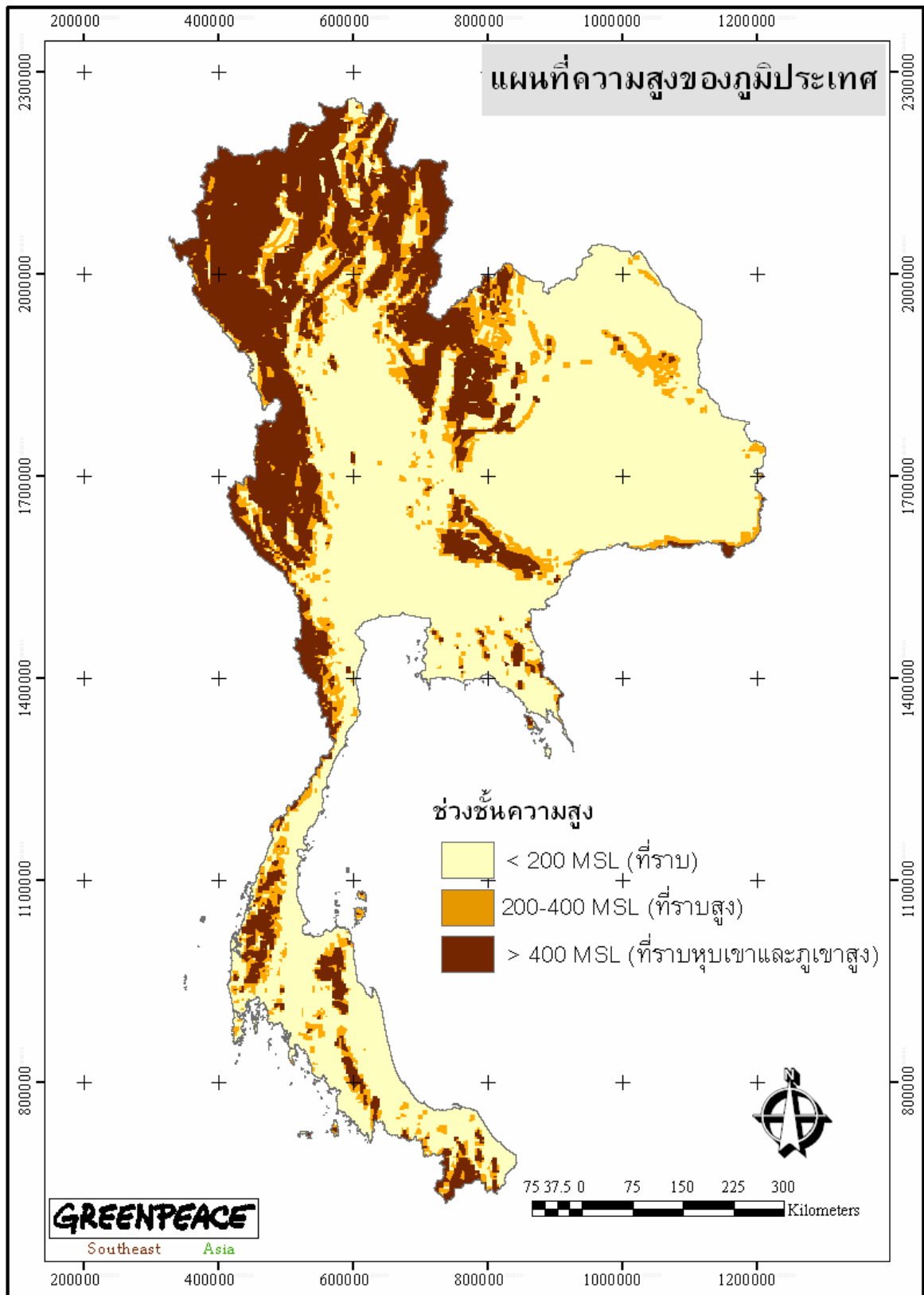
2.1:

| | | (.) | |
|----|--|--|---|
| 1. | 1. 200 MSL 2. 200-400 MSL 3. 400 MSL | 313,662.02 60,054.23 142,095.04 | 60.81 11.64 27.55 |
| 2. | 1. 0-10% 2. 11-30% 3. > 30% | 453,059.60 37,558.04 25,193.65 | 87.84 7.28 4.88 |
| 3. | 1. 2. | 55,784.96 460,026.33 | 10.81 89.19 |
| 4. | 1. 2. 3. 4. 5. | 163.12 2,124.18 299,736.08 39,869.63 173,918.28 | 0.03 0.41 58.11 7.73 33.72 |
| 5. | 1. 2. 3. 4. 5. | 270,634.26 220,627.49 20,192.20 2,847.74 1,509.60 | 52.47 42.77 3.92 0.55 0.29 |
| 6. | 1. 2. 3. 4. 5. | 66,798.75 279,000.22 129,362.22 37,704.29 2,945.81 | 12.95 54.09 25.08 7.31 0.57 |
| 7. | 1. 2. 3. 4. 5. | 95,706.98 249,734.29 154,955.62 10,977.36 4,437.04 | 18.55 48.42 30.04 2.13 0.86 |

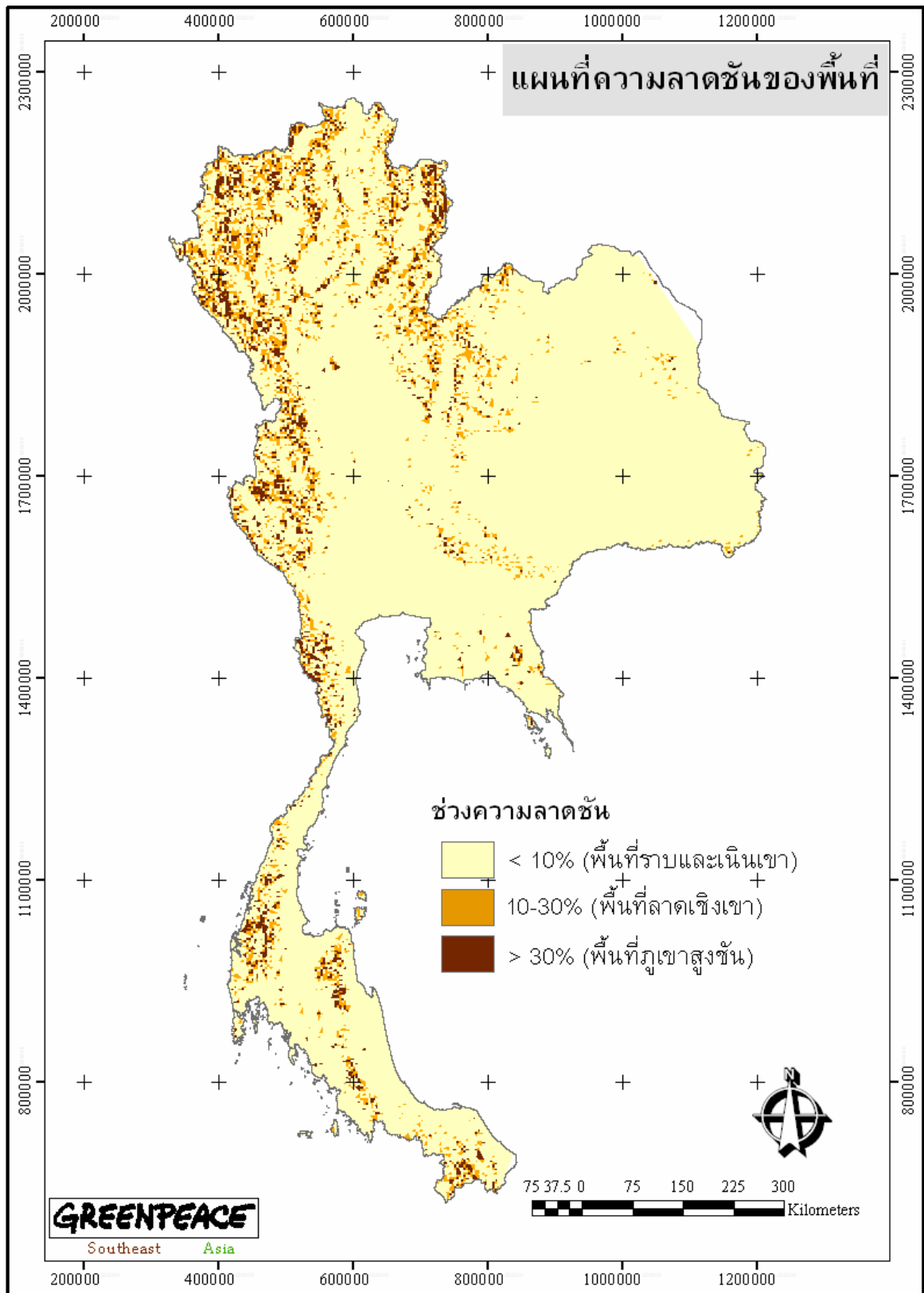
2.1:

(ต่อ)

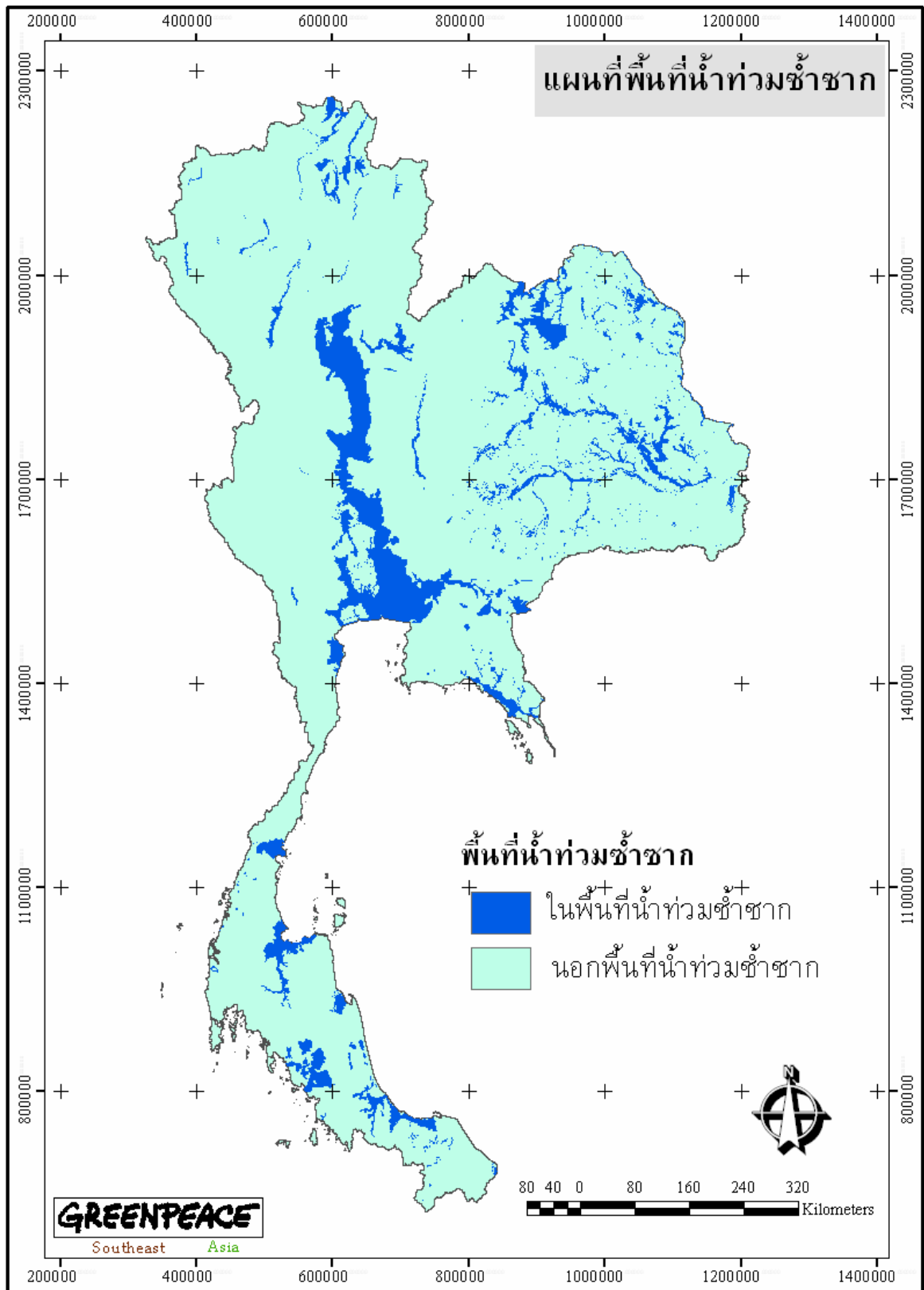
| | | (. .) | |
|-----|----|------------|-------|
| 8. | 1. | 15,418.06 | 2.99 |
| | 2. | 4,756.06 | 0.92 |
| | 3. | 255,481.30 | 49.53 |
| | 4. | 208,887.60 | 40.50 |
| | 5. | 31,268.27 | 6.06 |
| 9. | 1. | 3,394.15 | 0.66 |
| | 2. | 115,139.13 | 22.32 |
| | 3. | 99,180.22 | 19.23 |
| | 4. | 166,361.91 | 32.25 |
| | 5. | 131,735.88 | 25.54 |
| 10. | 1. | 17,929.28 | 3.48 |
| | 2. | 9,808.40 | 1.90 |
| | 3. | 13,363.52 | 2.59 |
| | 4. | 474,710.09 | 92.03 |
| 11. | 1. | 7,688.29 | 1.49 |
| | 2. | 71,171.64 | 13.80 |
| | 3. | 271,671.40 | 52.67 |
| | 4. | 165,279.96 | 32.04 |
| 12. | 1. | 132,971.44 | 25.78 |
| | 2. | 105,508.35 | 20.45 |
| | 3. | 83,815.07 | 16.25 |
| | 4. | 121,850.38 | 23.62 |
| | 5. | 71,666.05 | 13.89 |



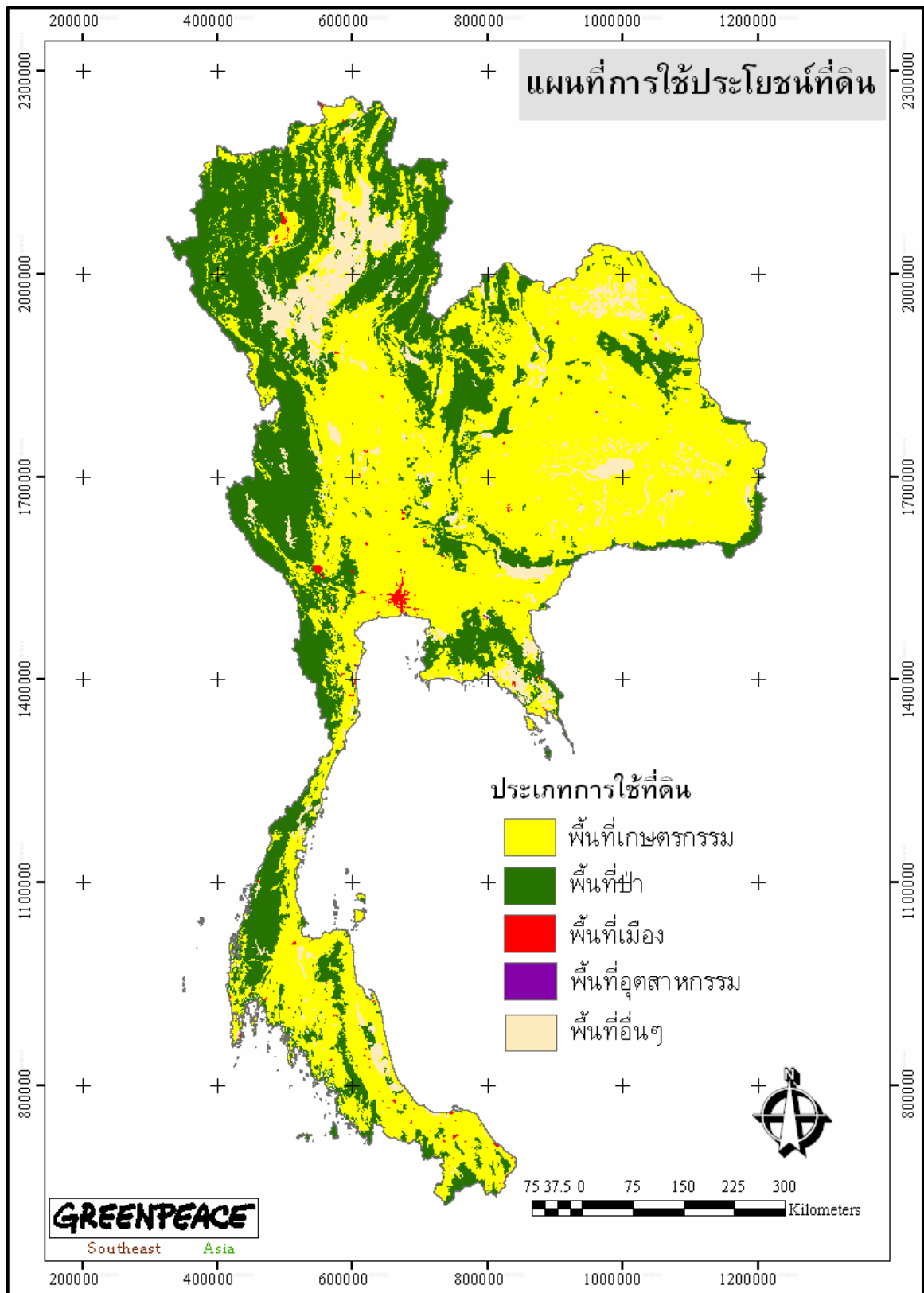
2.1:



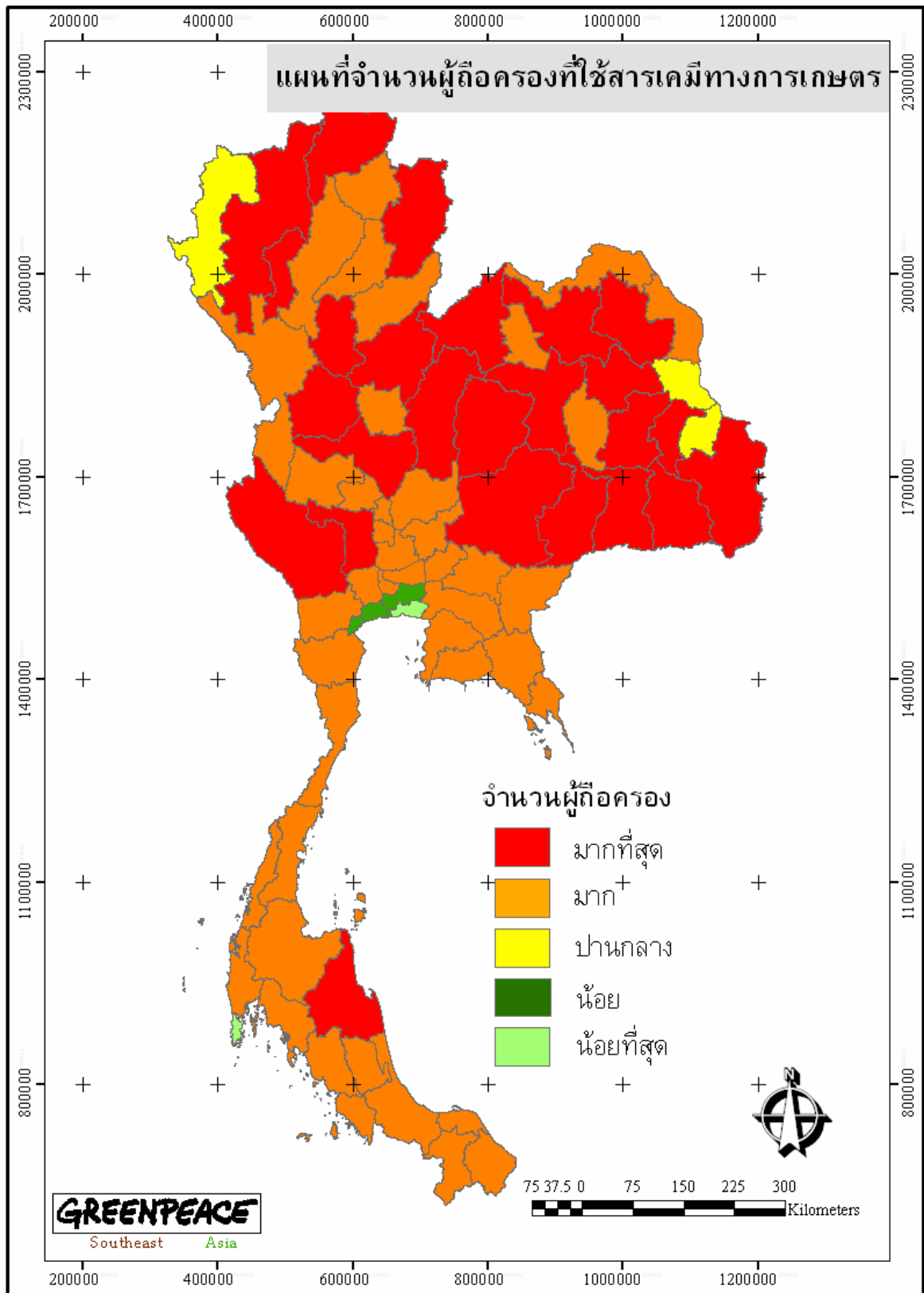
2.2:



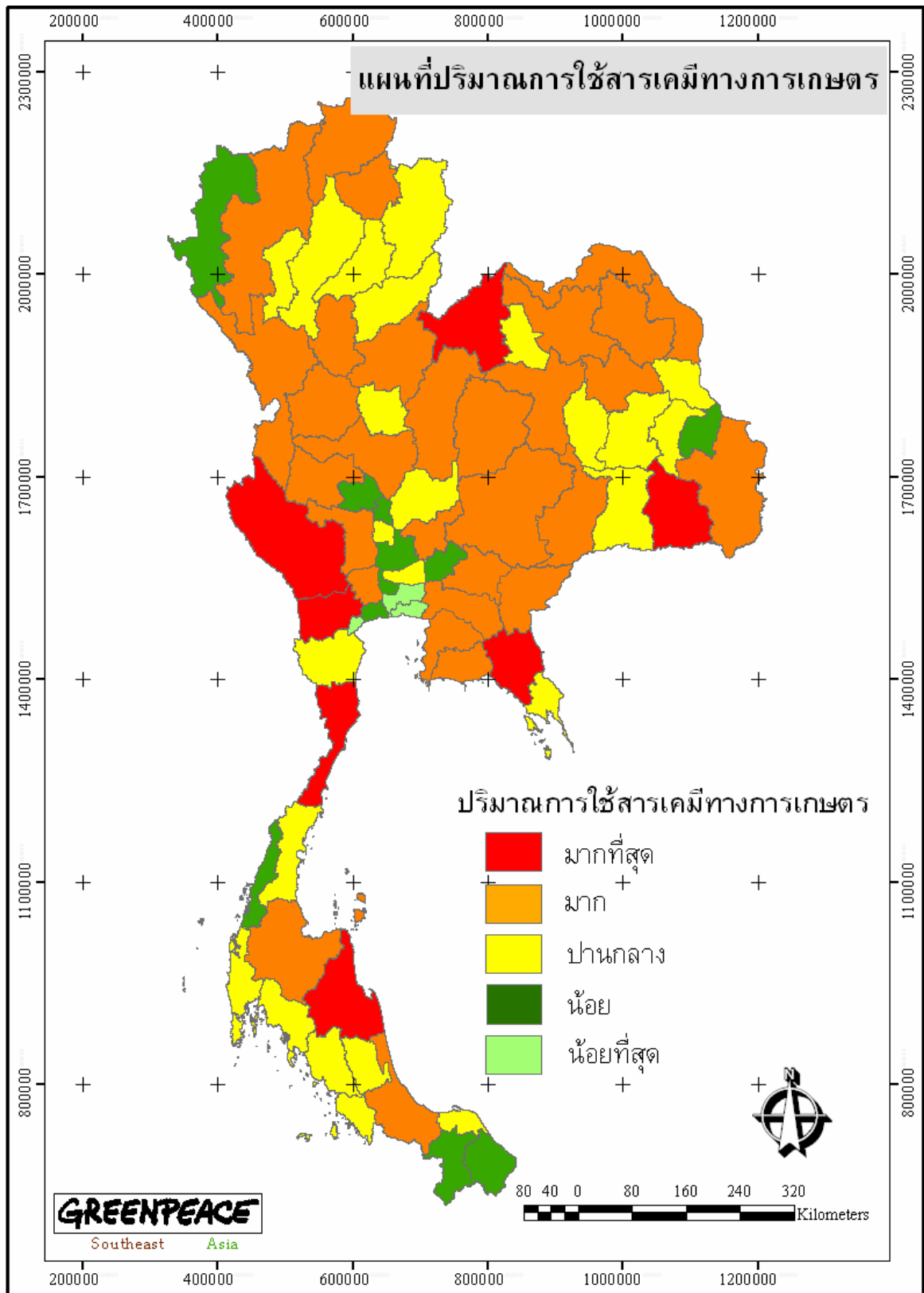
2.3:



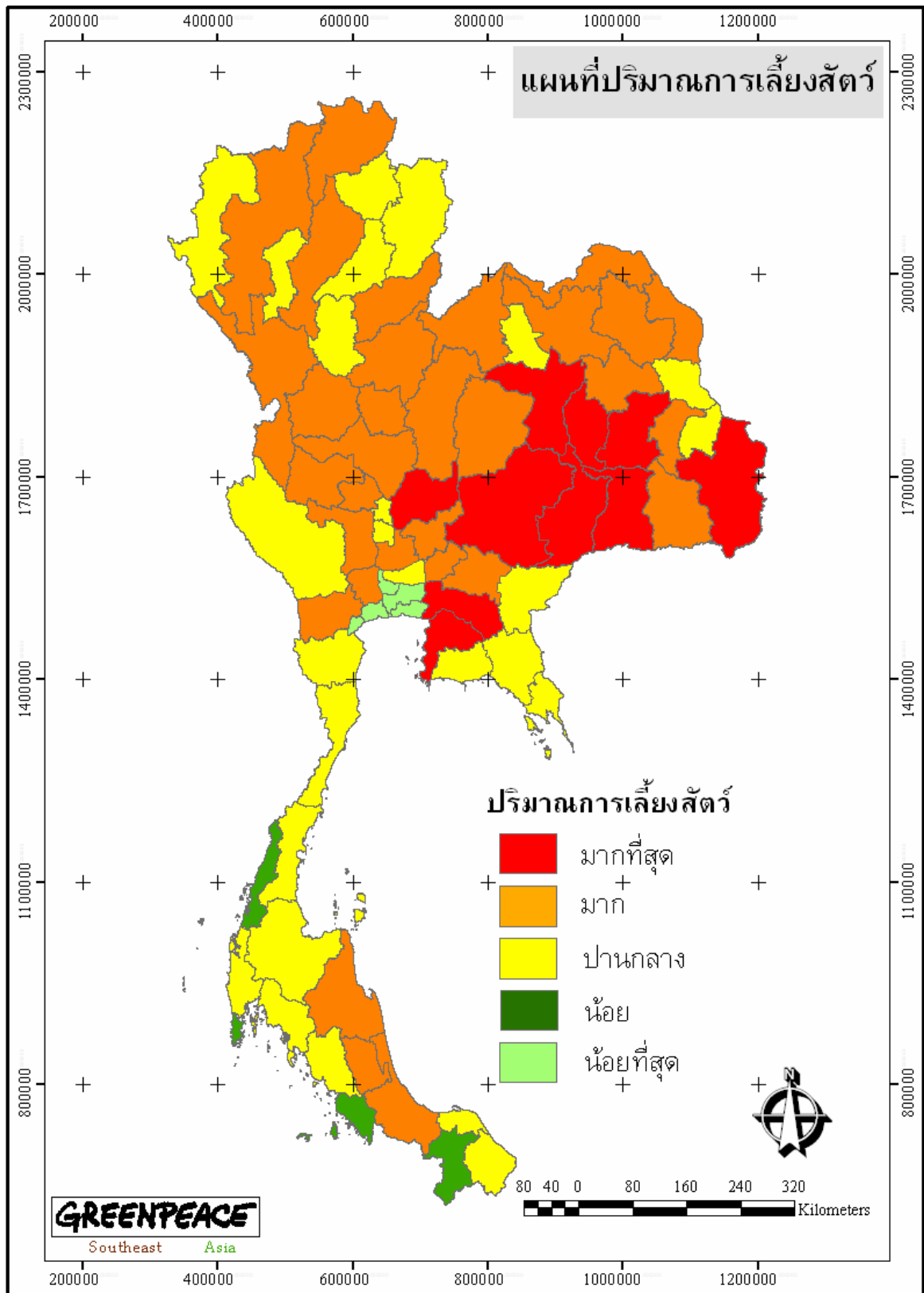
2.4:



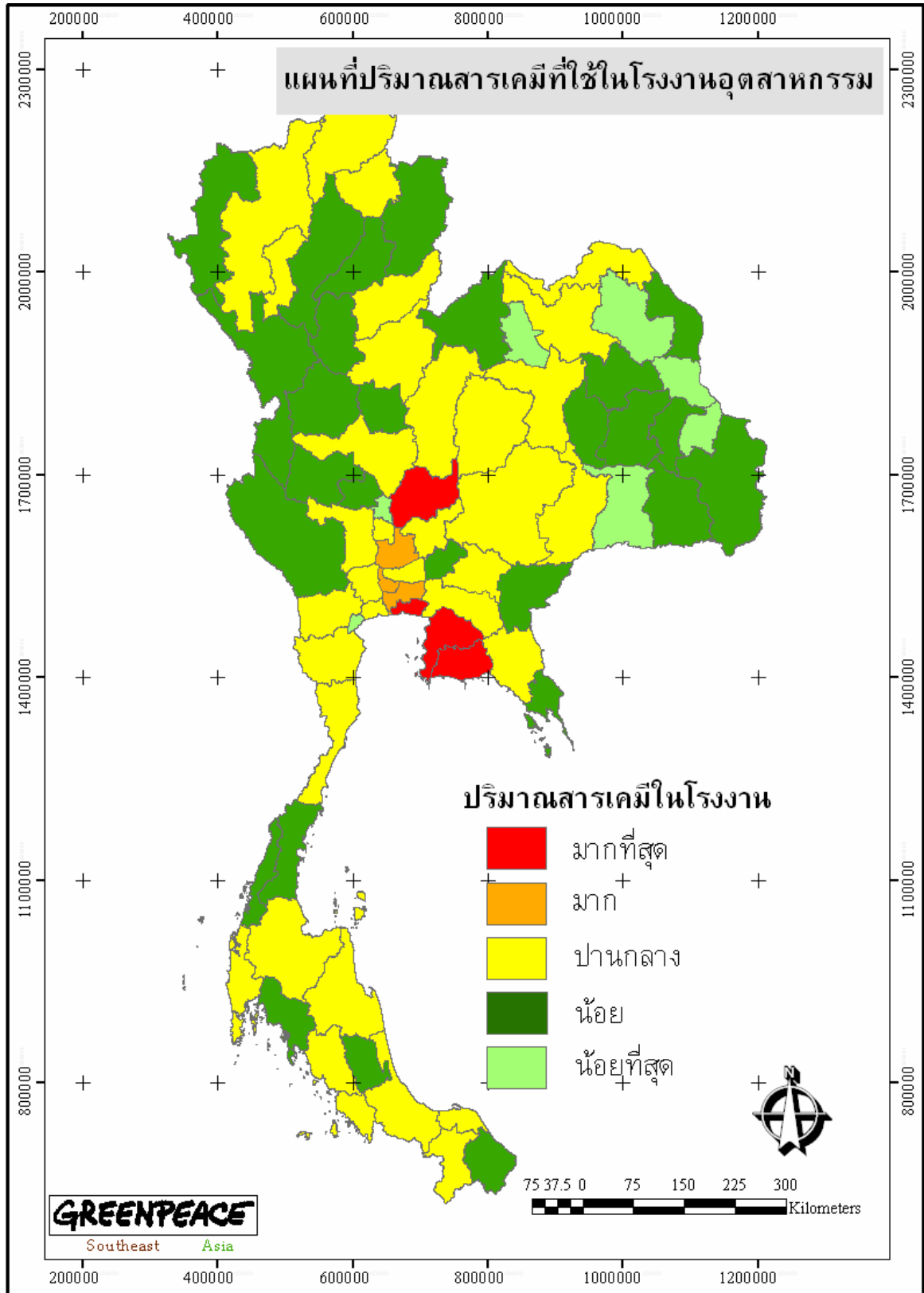
2.5:



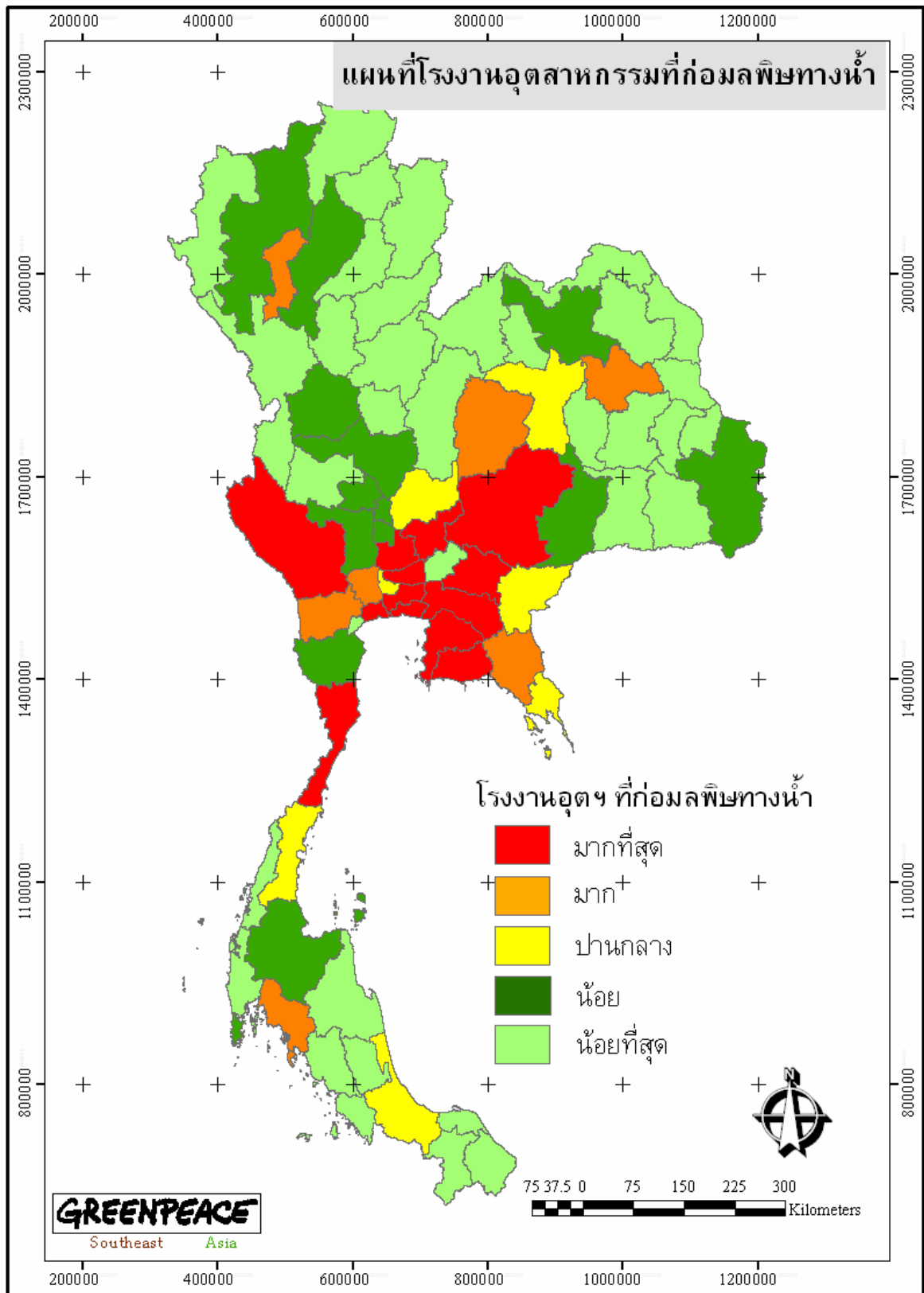
2.6:



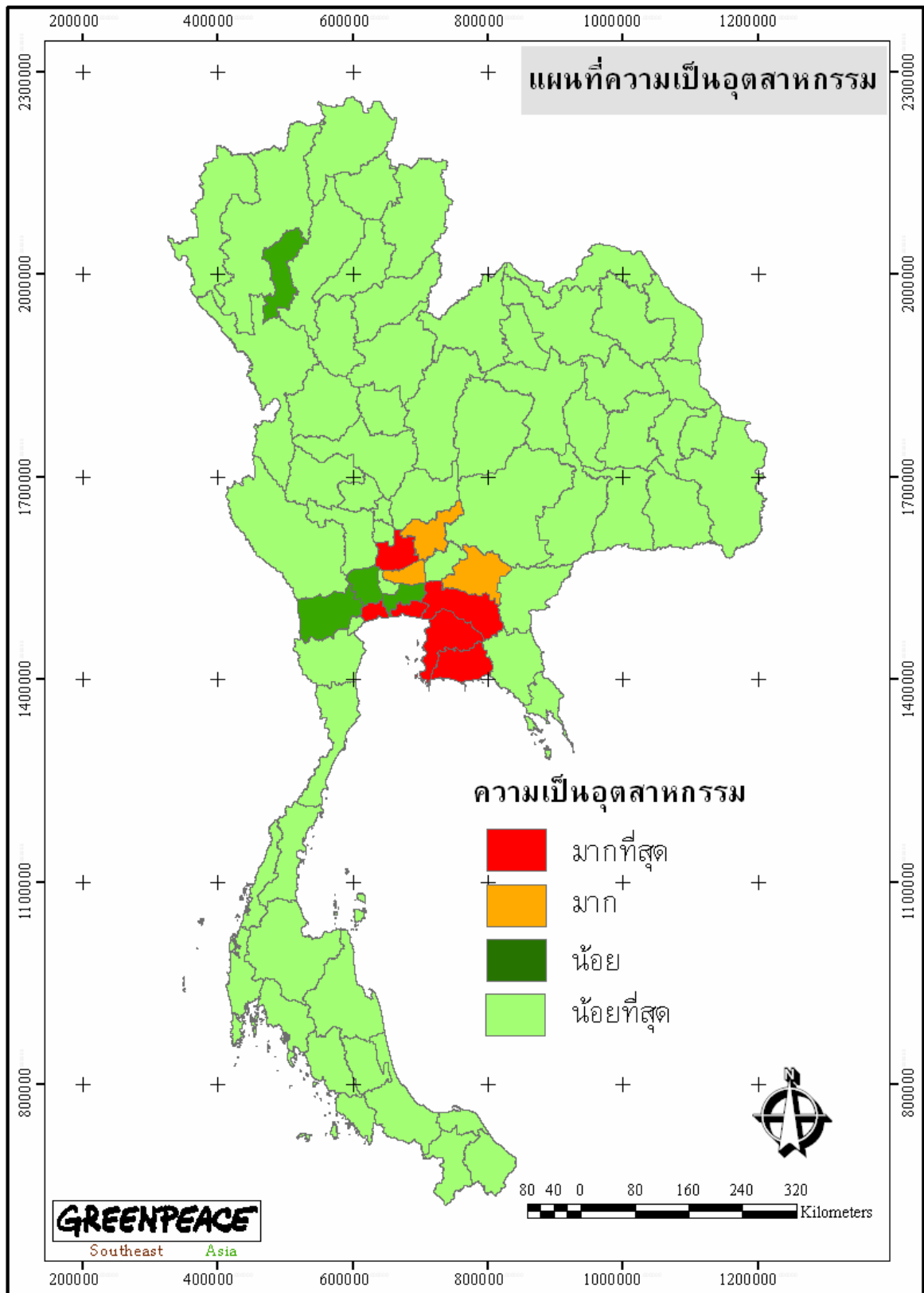
2.7:



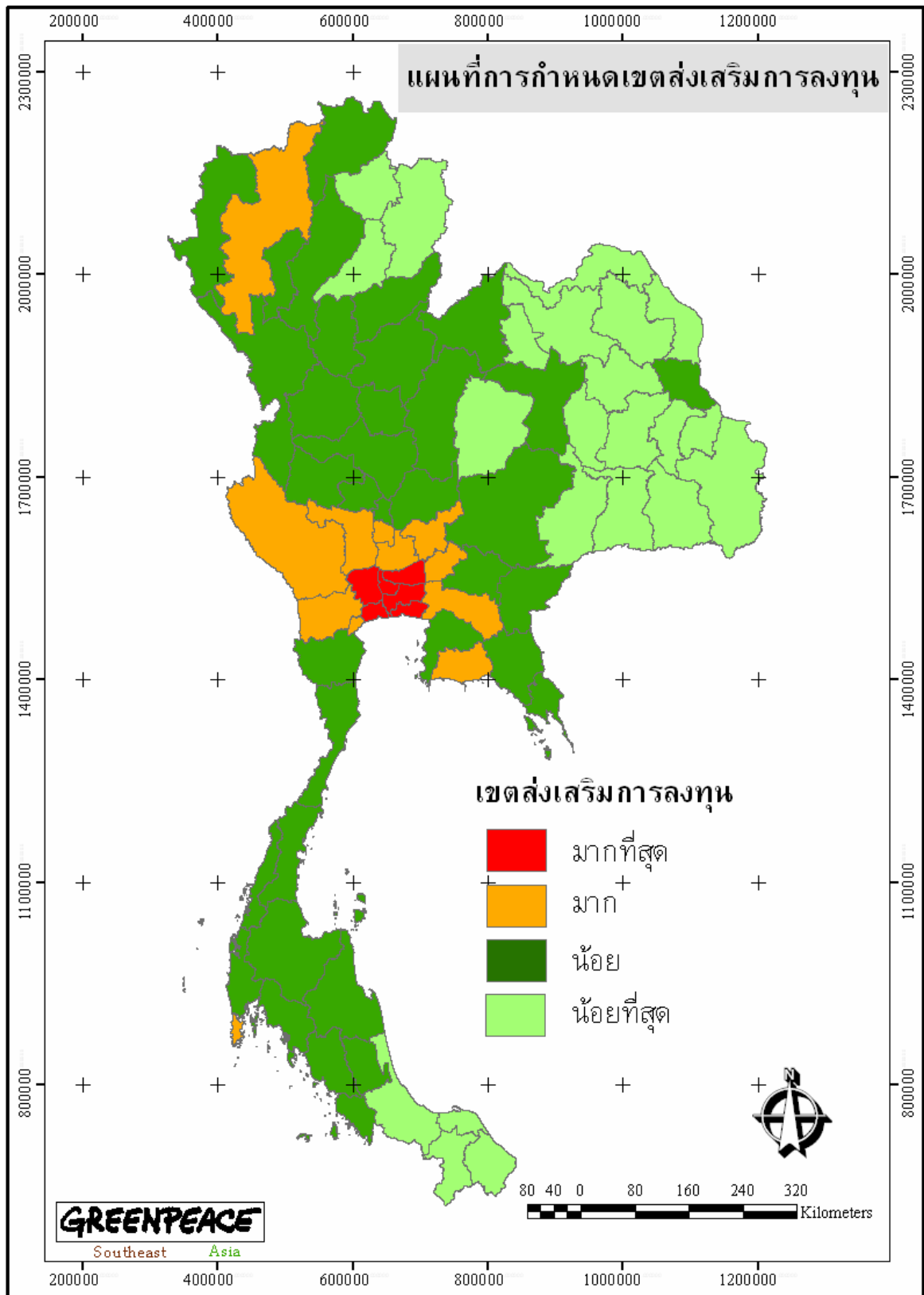
2.8:



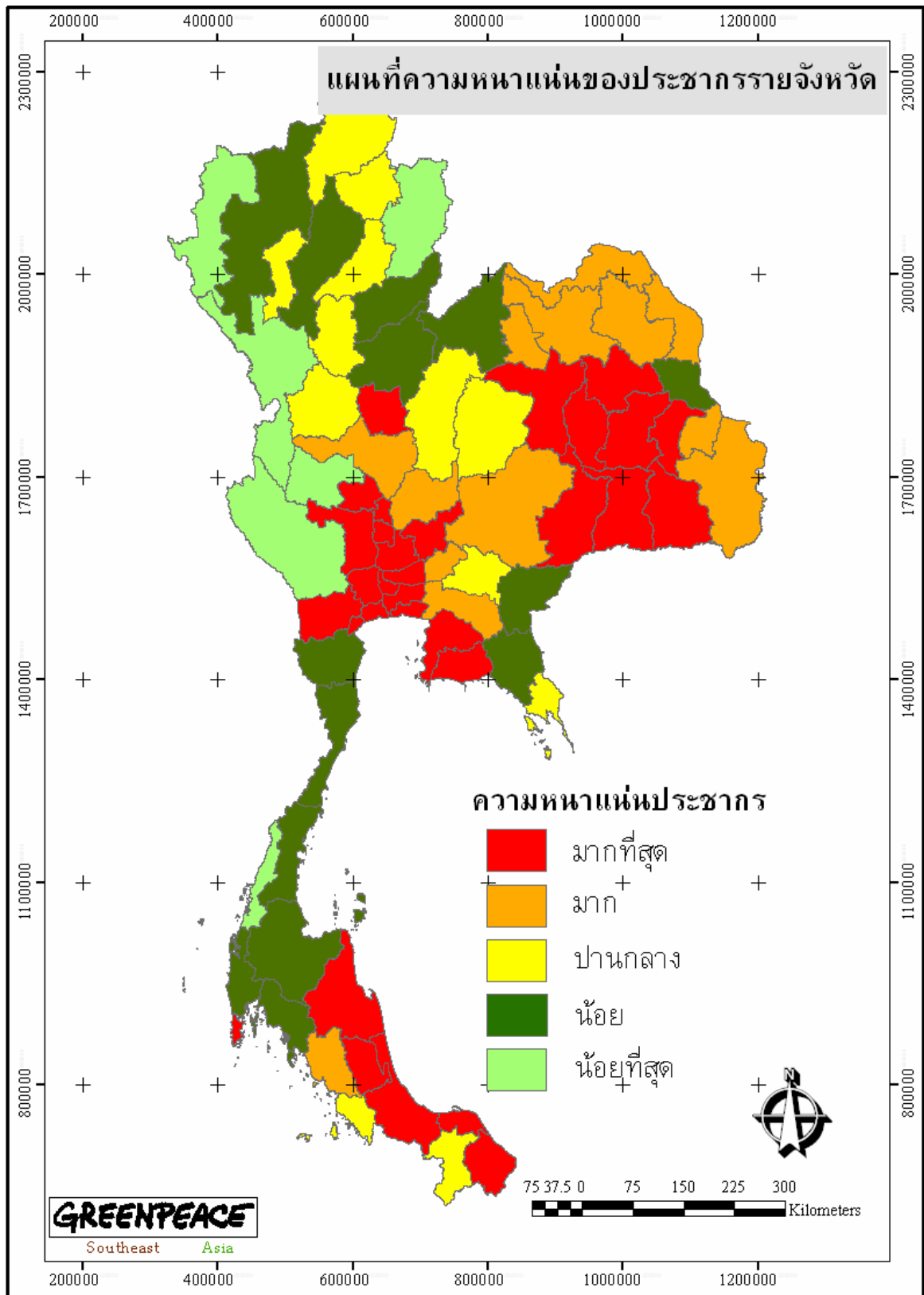
2.9:



2.10:



2.11:



2.12:

G

3

(GIS)

3.1

4

1)

2)

3)

4)

2544-2548

3.1

3.1

...

3.1:

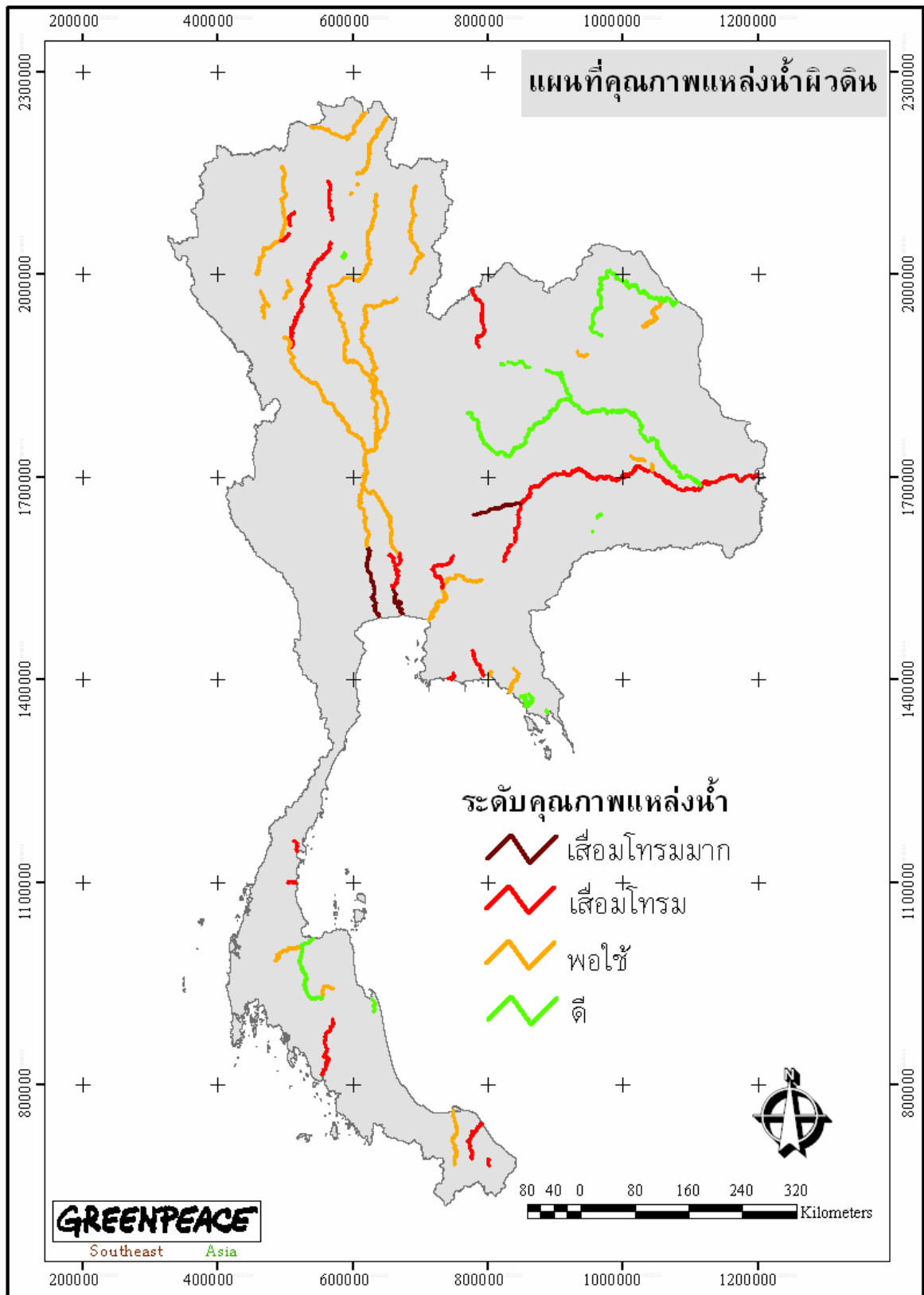
5 (2544-2548)

| | | | | | |
|--|--|---|---|--|---|
| | | | | | |
| | | - | | | |
| | | - | - | | |
| | | - | | | |
| | | - | | | |
| | | - | | | - |

(buffer zone)

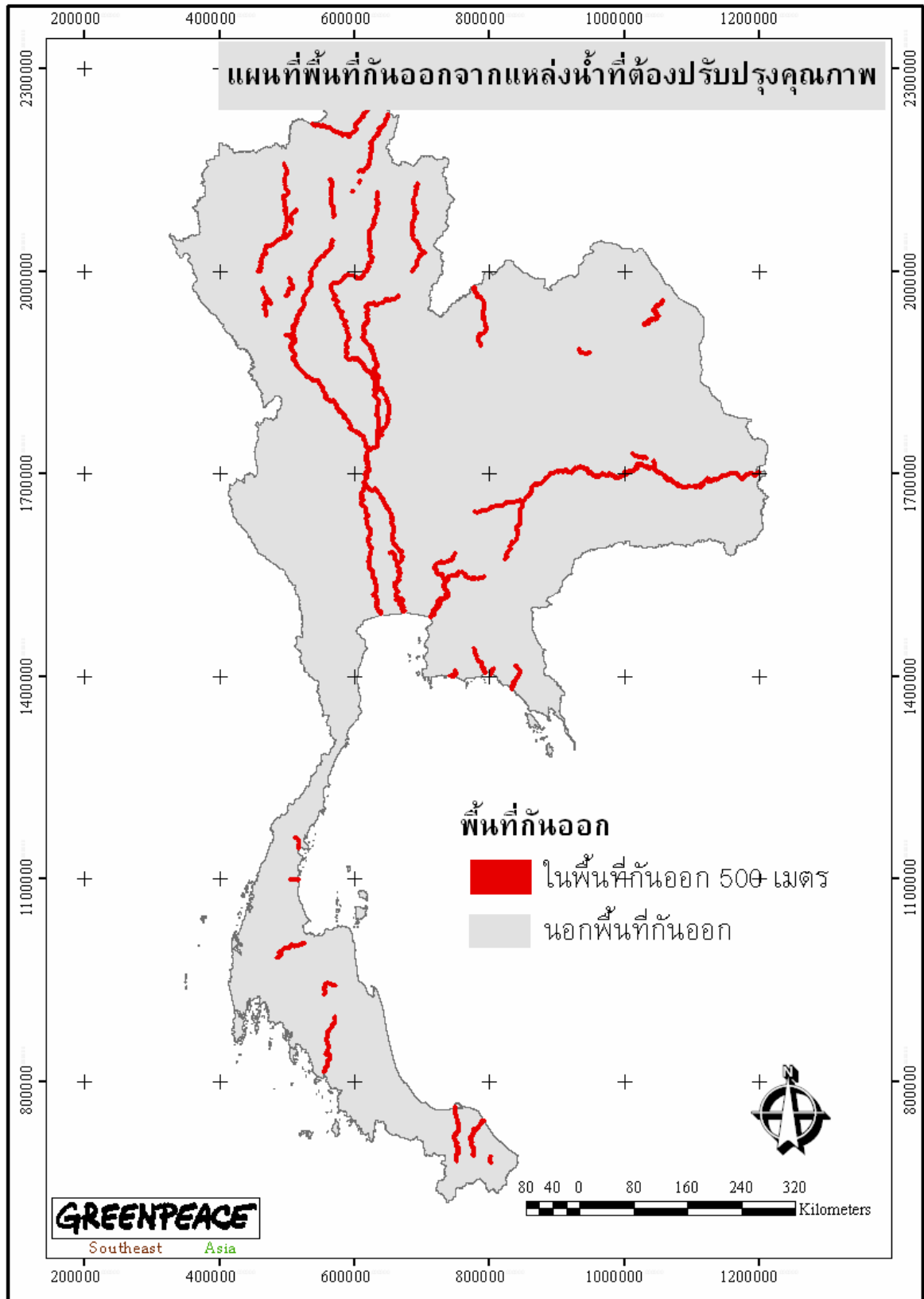
500 (3.2)

6,132.23 . . .



3.1:

. . 2544-2548



3.2:

3.2

(3.3-3.14)

3.2

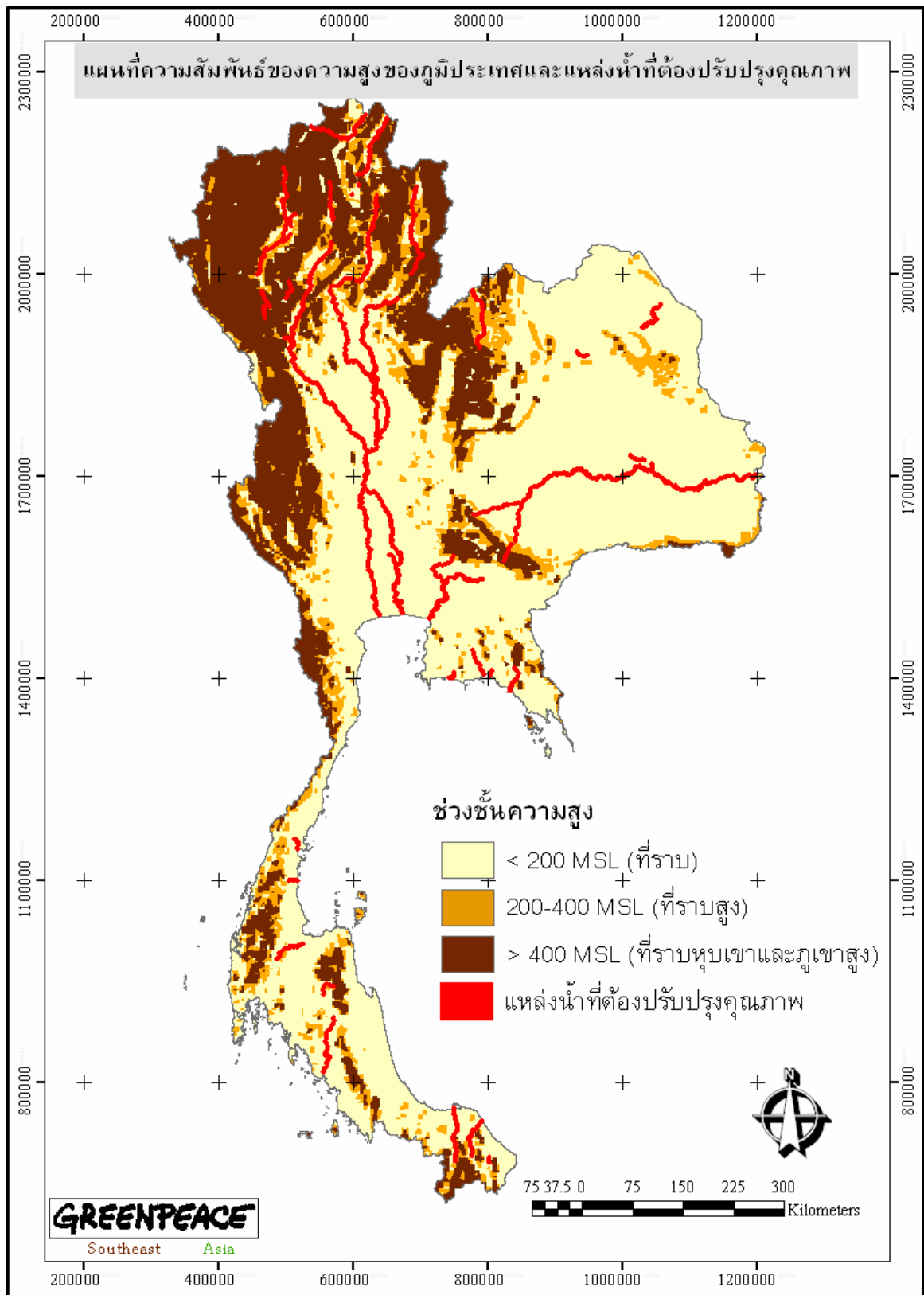
3.2:

| | | (.) | |
|----|--|---|---|
| 1. | 1. 200 MSL 2. 200-400 MSL 3. 400 MSL | 5,242.82 447.11 442.30 | 85.50 7.29 7.21 |
| 2. | 1. 0-10% 2. 11-30% 3. > 30% | 6,004.64 64.57 63.02 | 97.92 1.05 1.03 |
| 3. | 1. 2. | 3,257.31 2,874.92 | 53.12 46.88 |
| 4. | 1. 2. 3. 4. 5. | 2.94 191.65 4,508.59 678.06 750.99 | 0.05 3.13 73.52 11.06 12.25 |
| 5. | 1. 2. 3. 4. 5. | 3,143.45 2,860.31 - 78.18 50.29 | 51.26 46.64 - 1.27 0.82 |
| 6. | 1. 2. 3. 4. 5. | 455.01 3,164.17 1,806.95 617.70 88.40 | 7.42 51.60 29.47 10.07 1.44 |

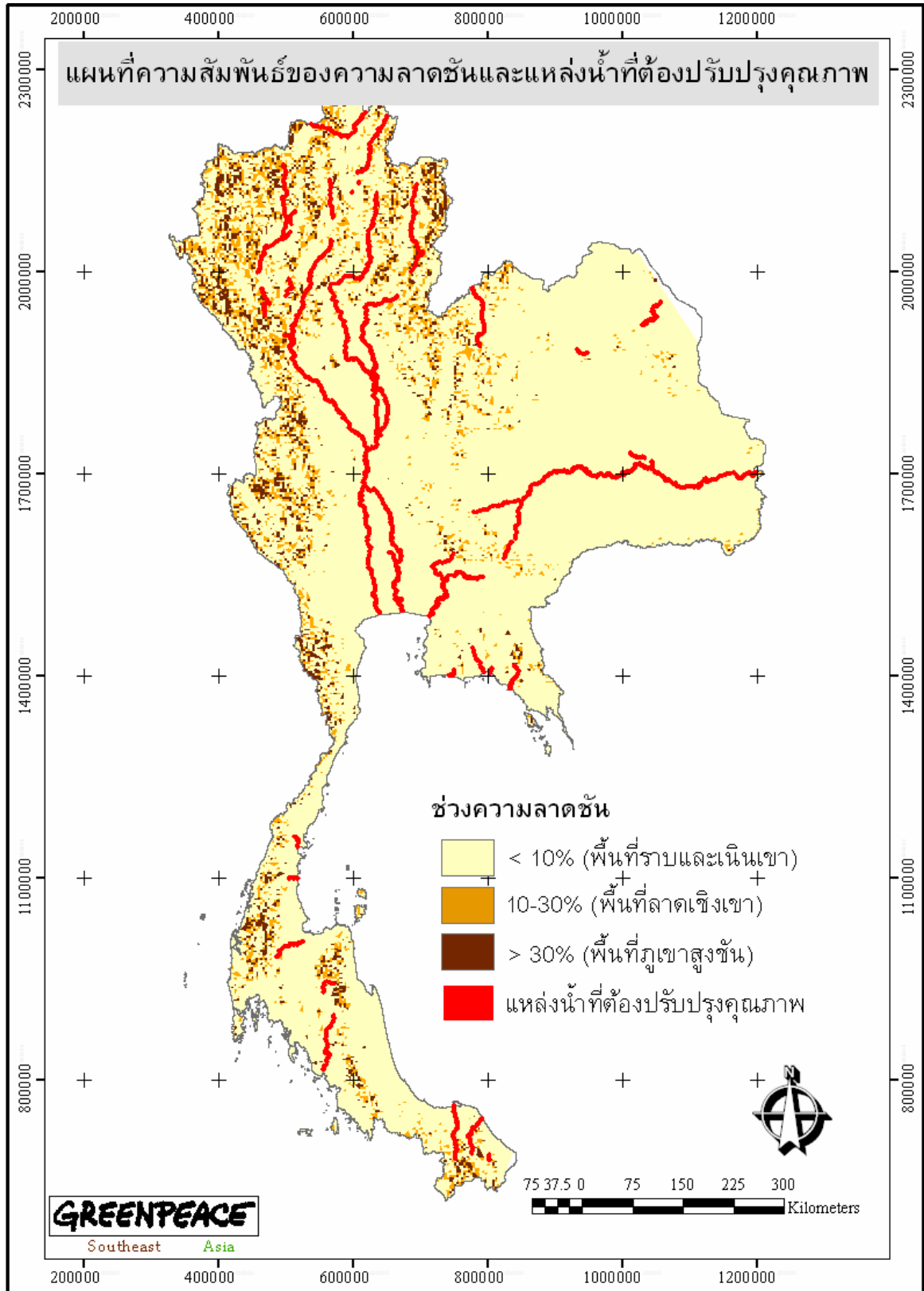
3.2:

()

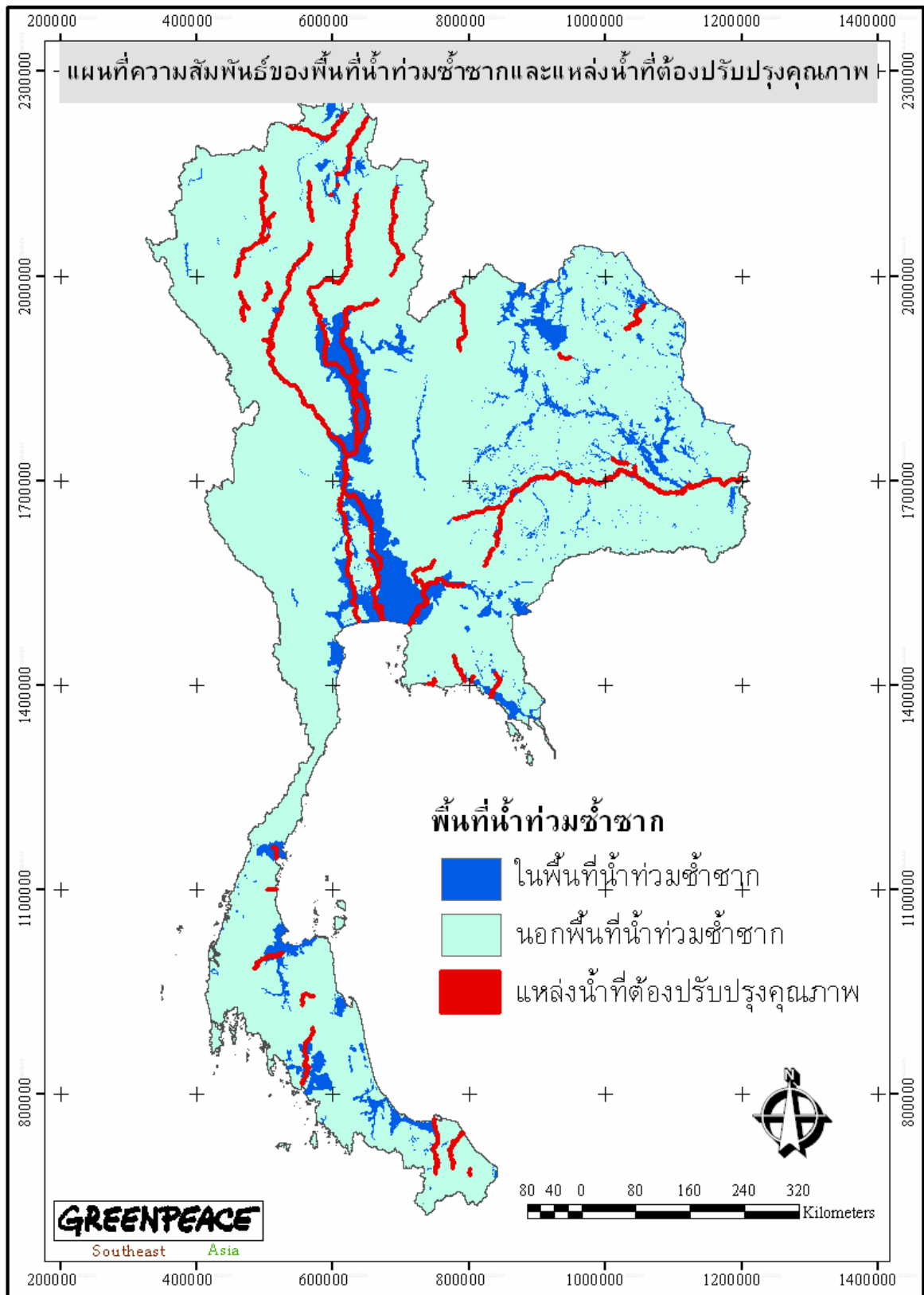
| | | (.) | |
|-----|----|----------|-------|
| 7. | 1. | 996.15 | 16.24 |
| | 2. | 3,287.58 | 53.61 |
| | 3. | 1,560.70 | 25.45 |
| | 4. | 130.16 | 2.12 |
| | 5. | 157.64 | 2.57 |
| 8. | 1. | 149.74 | 2.44 |
| | 2. | 163.72 | 2.67 |
| | 3. | 3,081.29 | 50.25 |
| | 4. | 2,475.75 | 40.37 |
| | 5. | 261.73 | 4.27 |
| 9. | 1. | 128.47 | 2.09 |
| | 2. | 1,610.95 | 26.27 |
| | 3. | 992.98 | 16.19 |
| | 4. | 2,183.45 | 35.61 |
| | 5. | 1,216.38 | 19.84 |
| 10. | 1. | 436.90 | 7.12 |
| | 2. | 162.92 | 2.66 |
| | 3. | 265.87 | 4.34 |
| | 4. | 5,266.54 | 85.88 |
| 11. | 1. | 275.08 | 4.49 |
| | 2. | 916.16 | 14.94 |
| | 3. | 3,387.73 | 55.24 |
| | 4. | 1,553.26 | 25.33 |
| 12. | 1. | 1697.23 | 27.68 |
| | 2. | 1275.24 | 20.80 |
| | 3. | 1379.25 | 22.49 |
| | 4. | 1336.53 | 21.80 |
| | 5. | 443.98 | 7.24 |



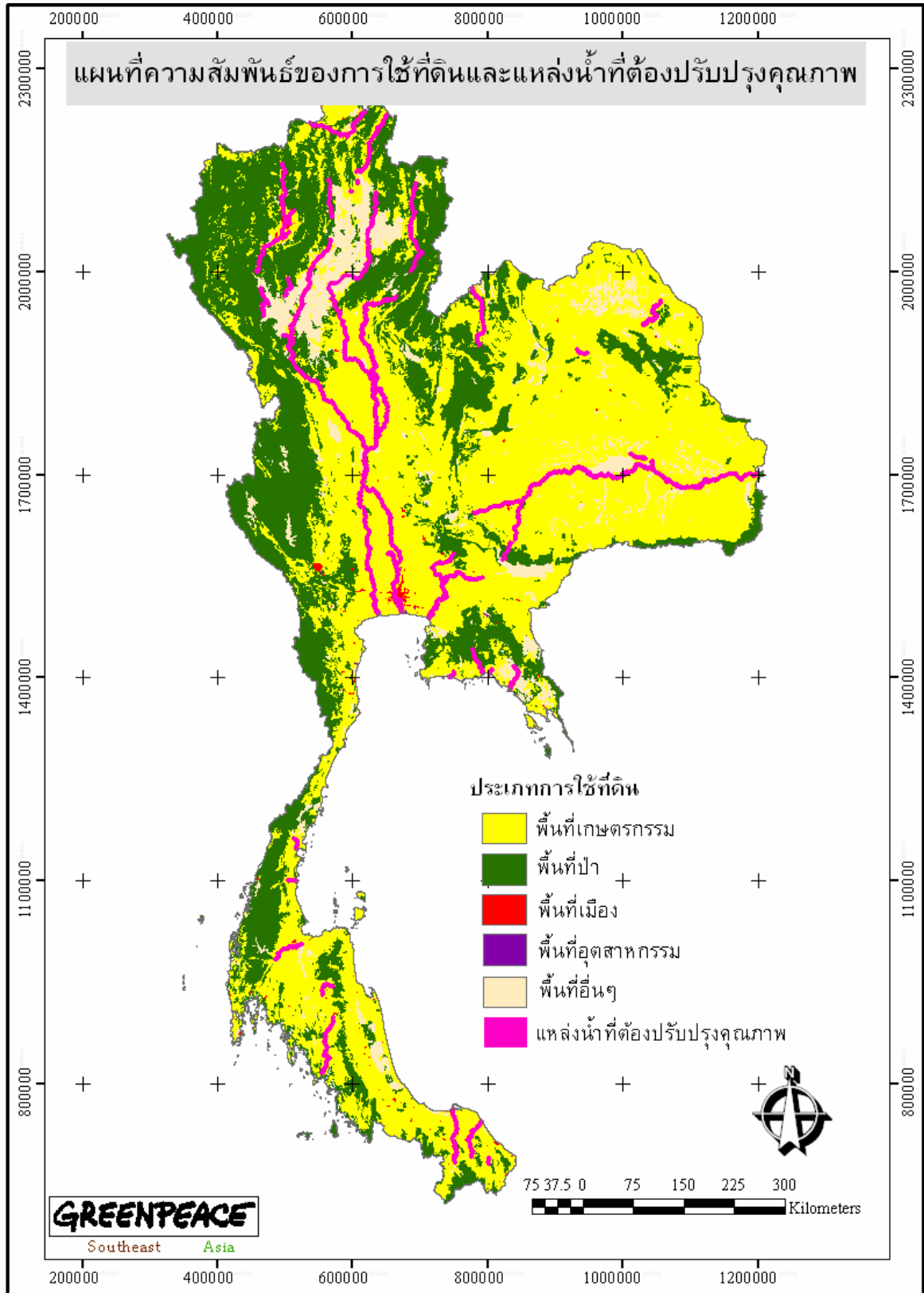
3.3:



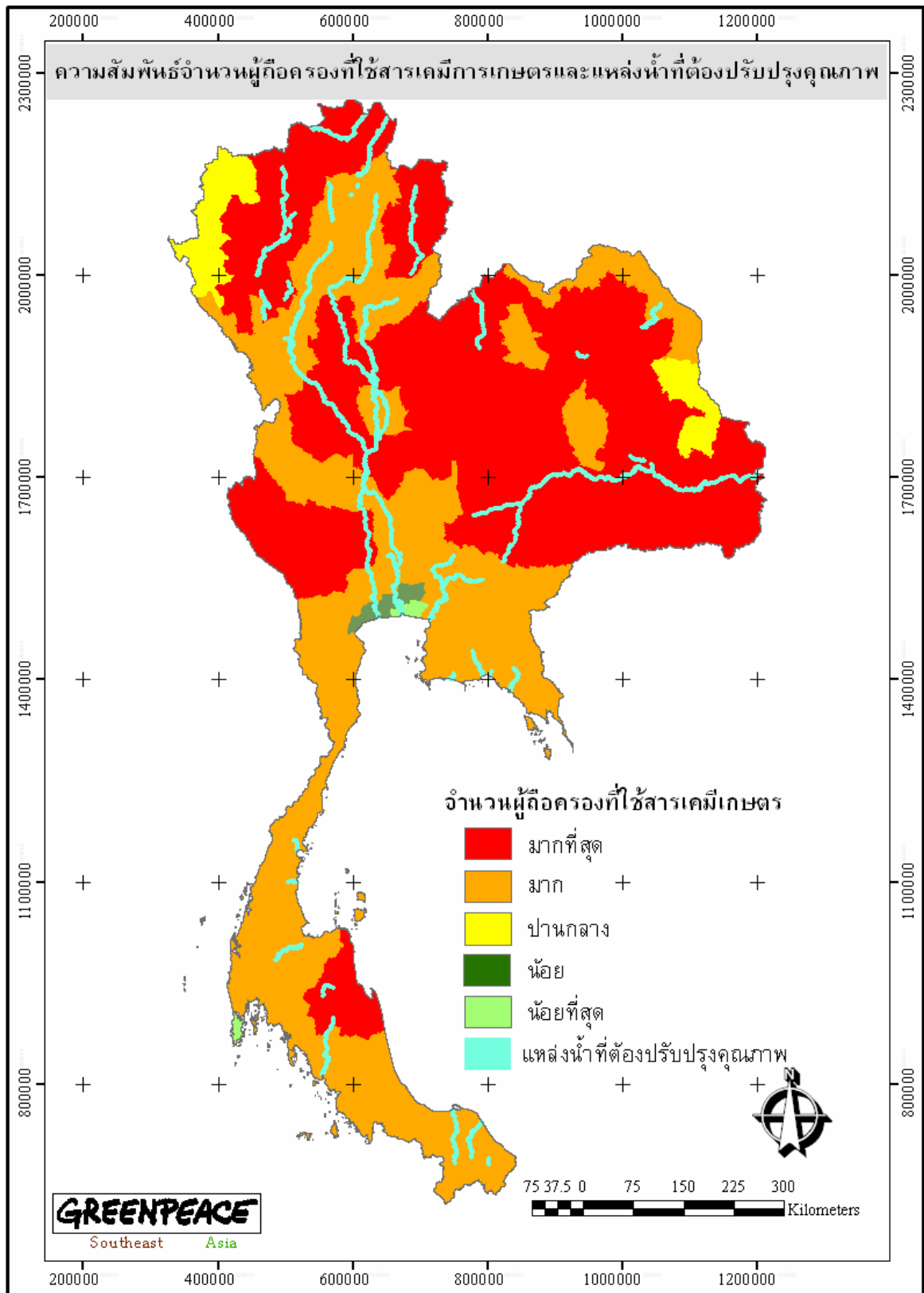
3.4:



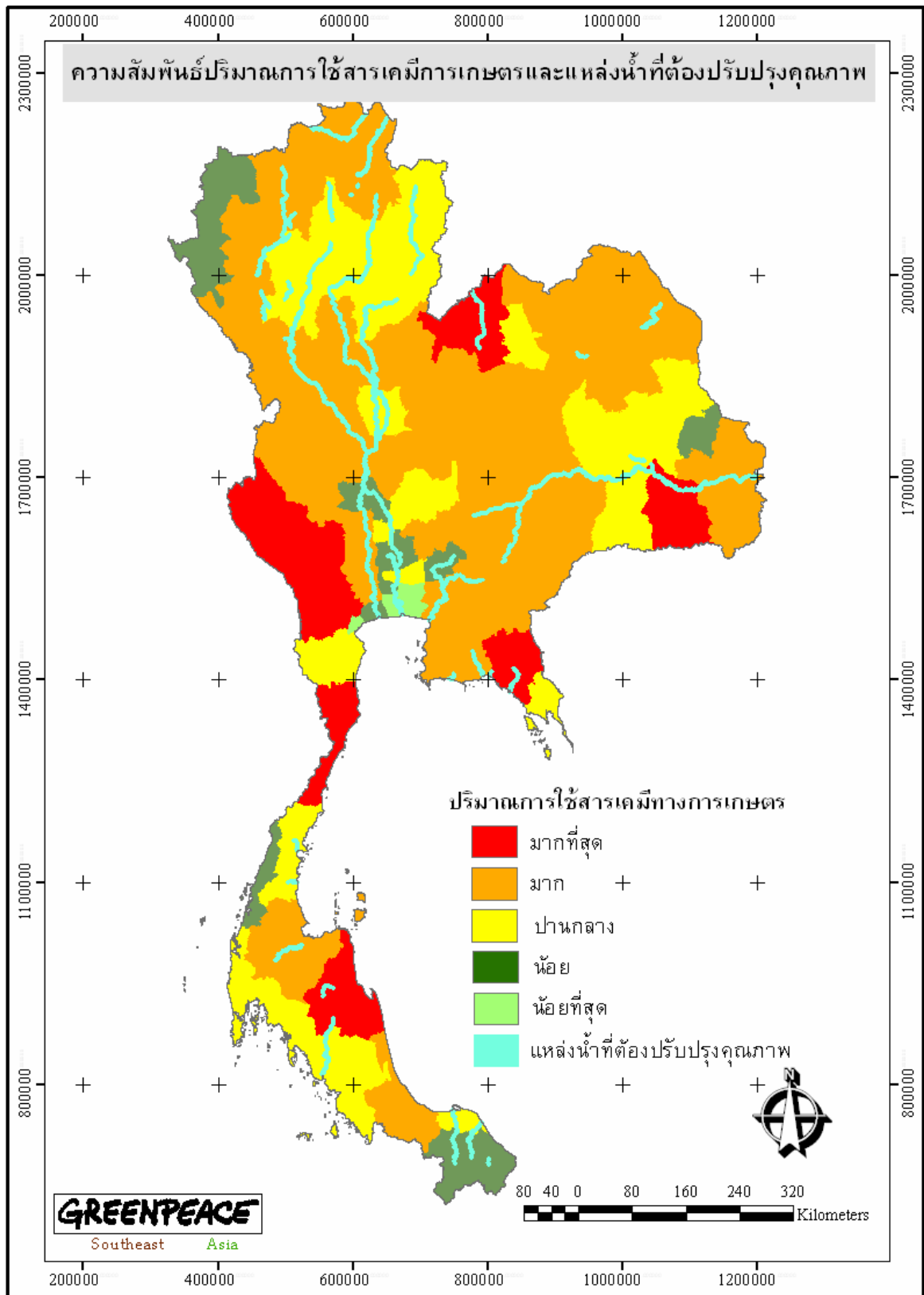
3.5:



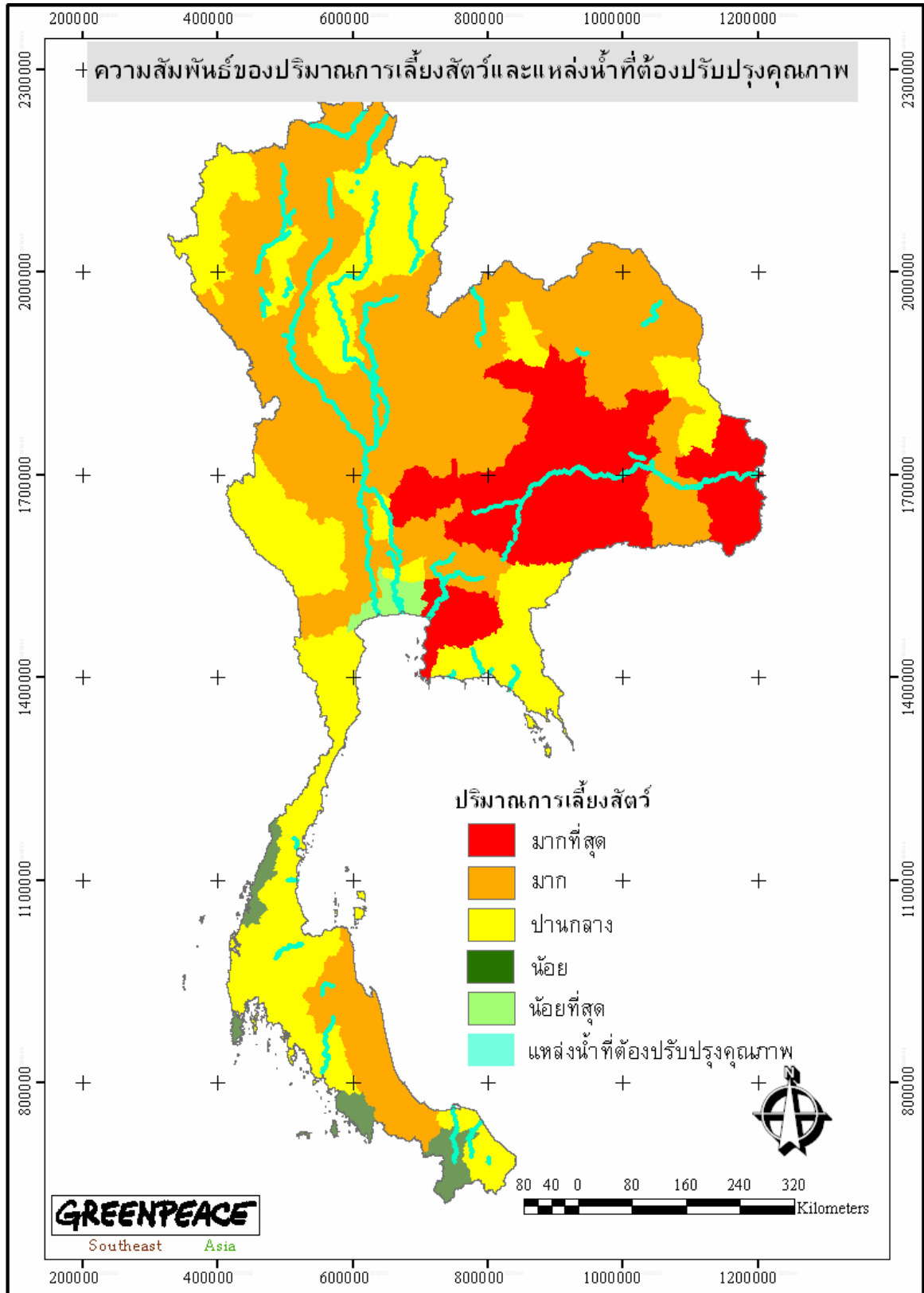
3.6:



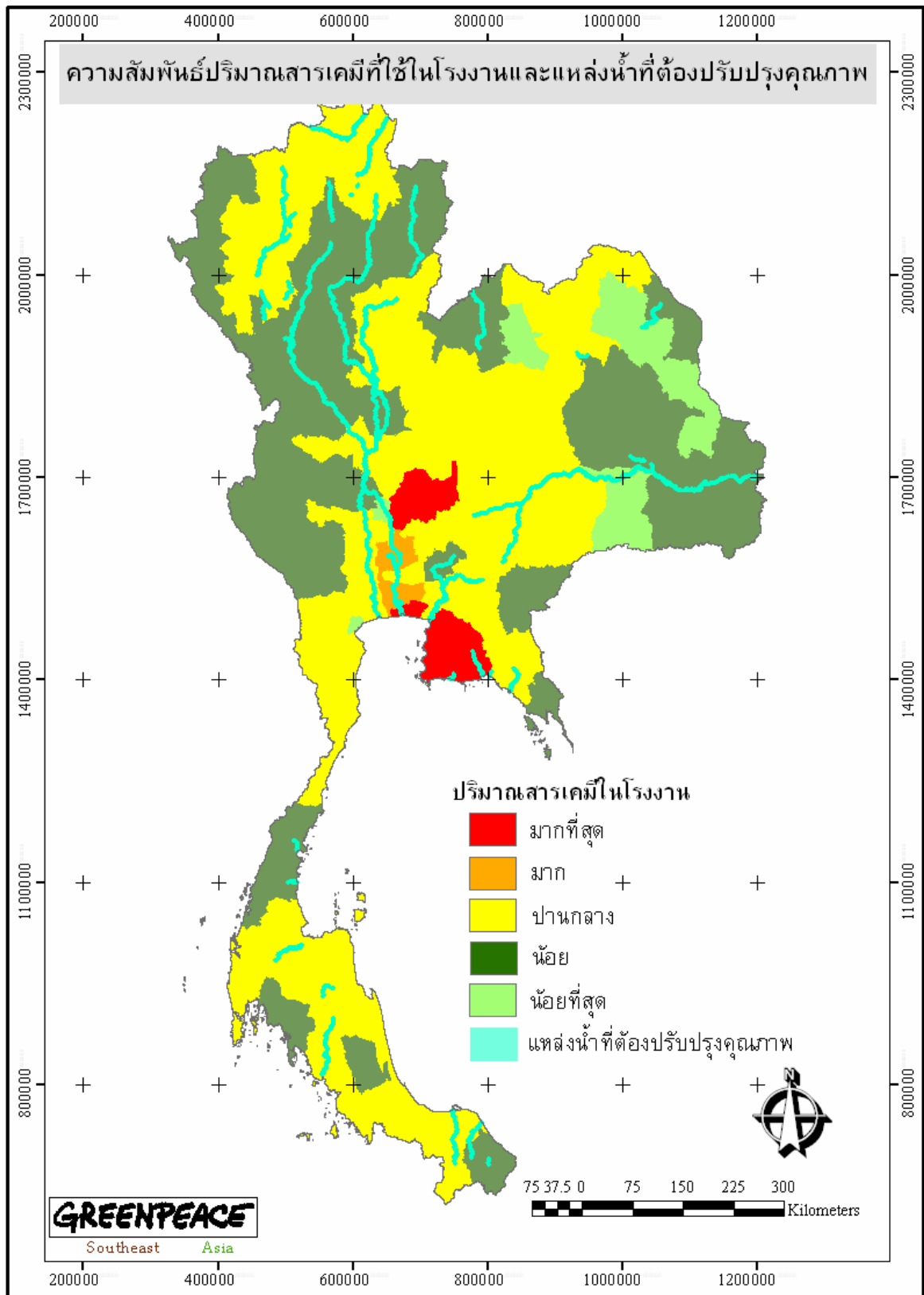
3.7:



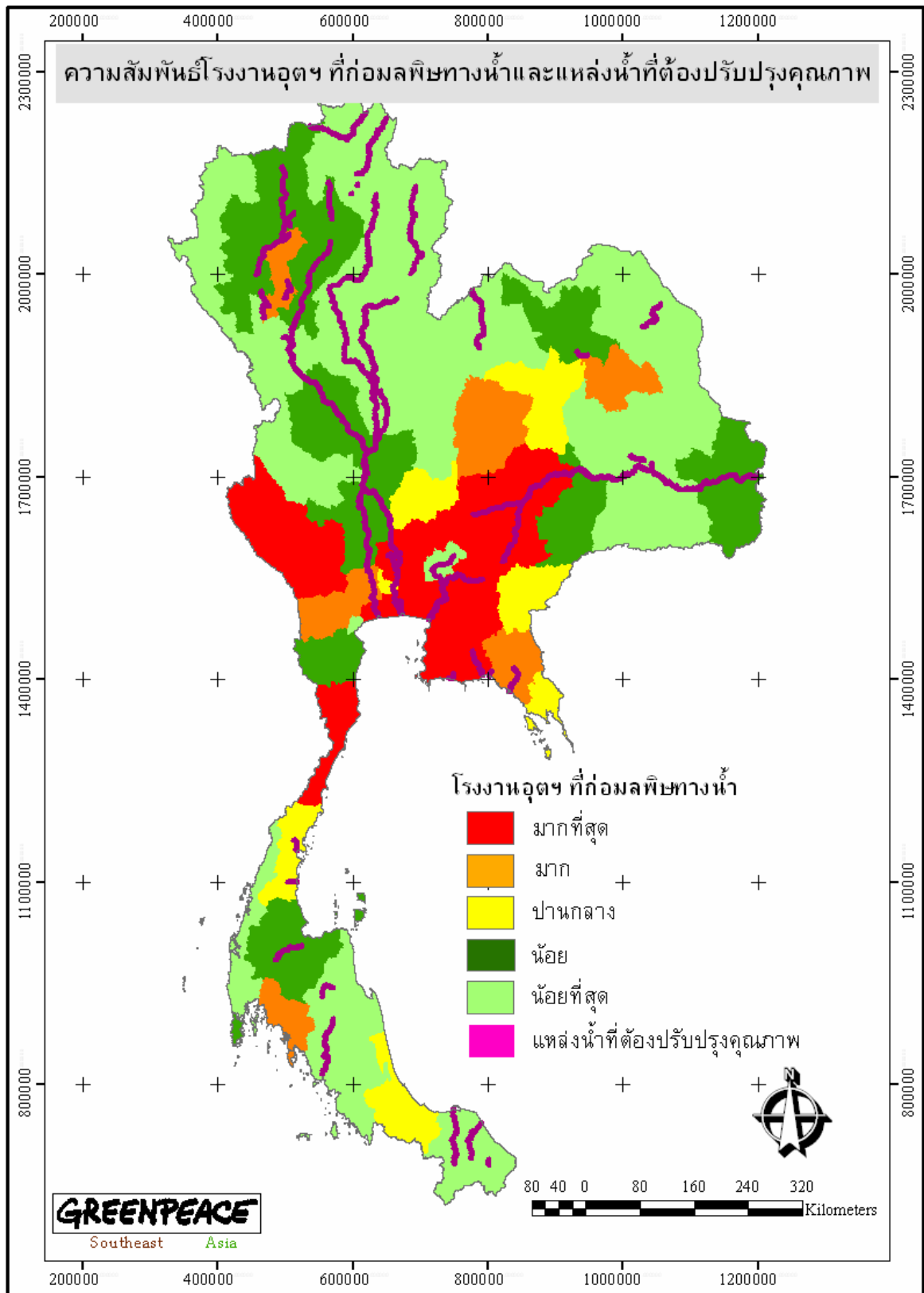
3.8:



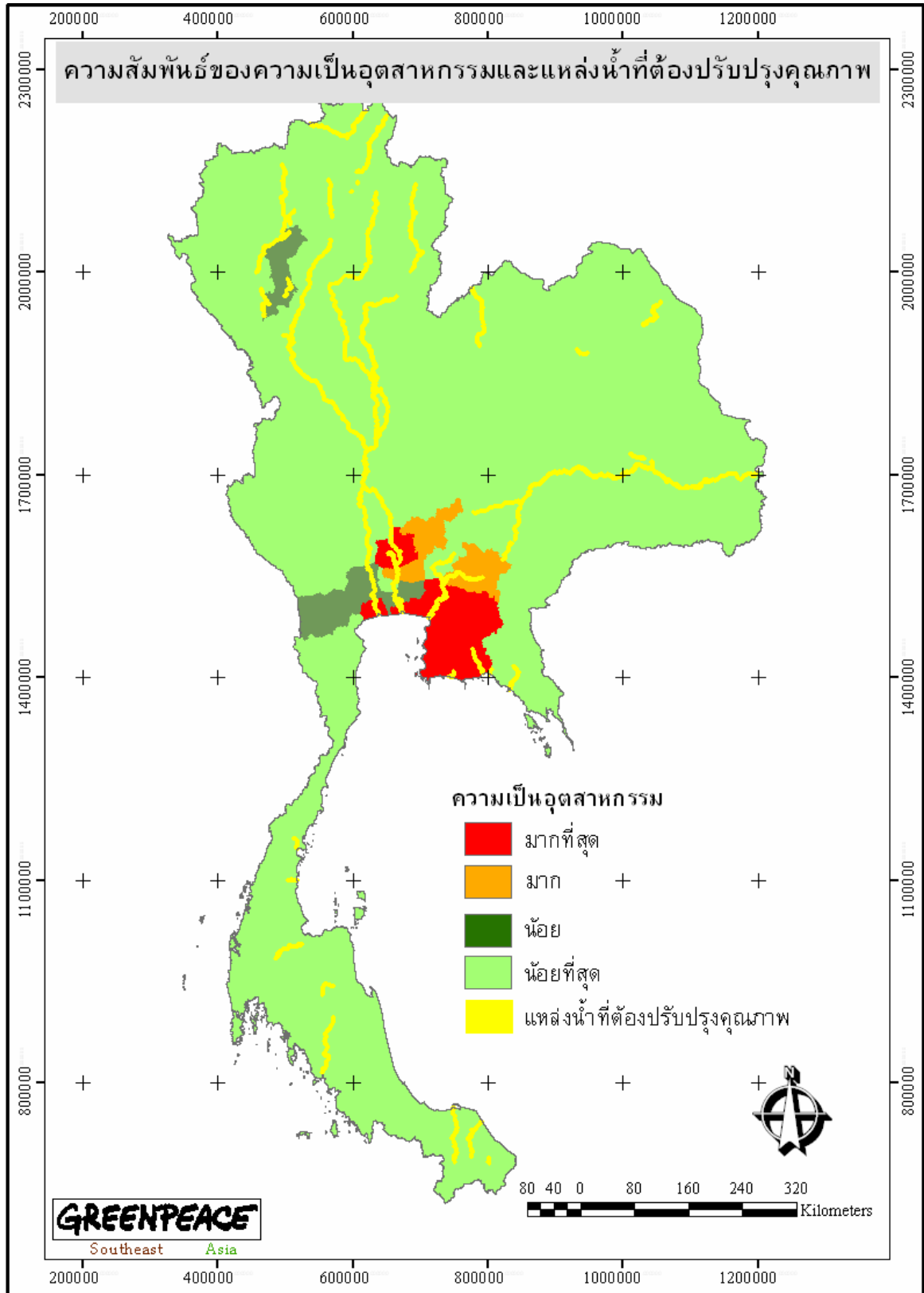
3.9:



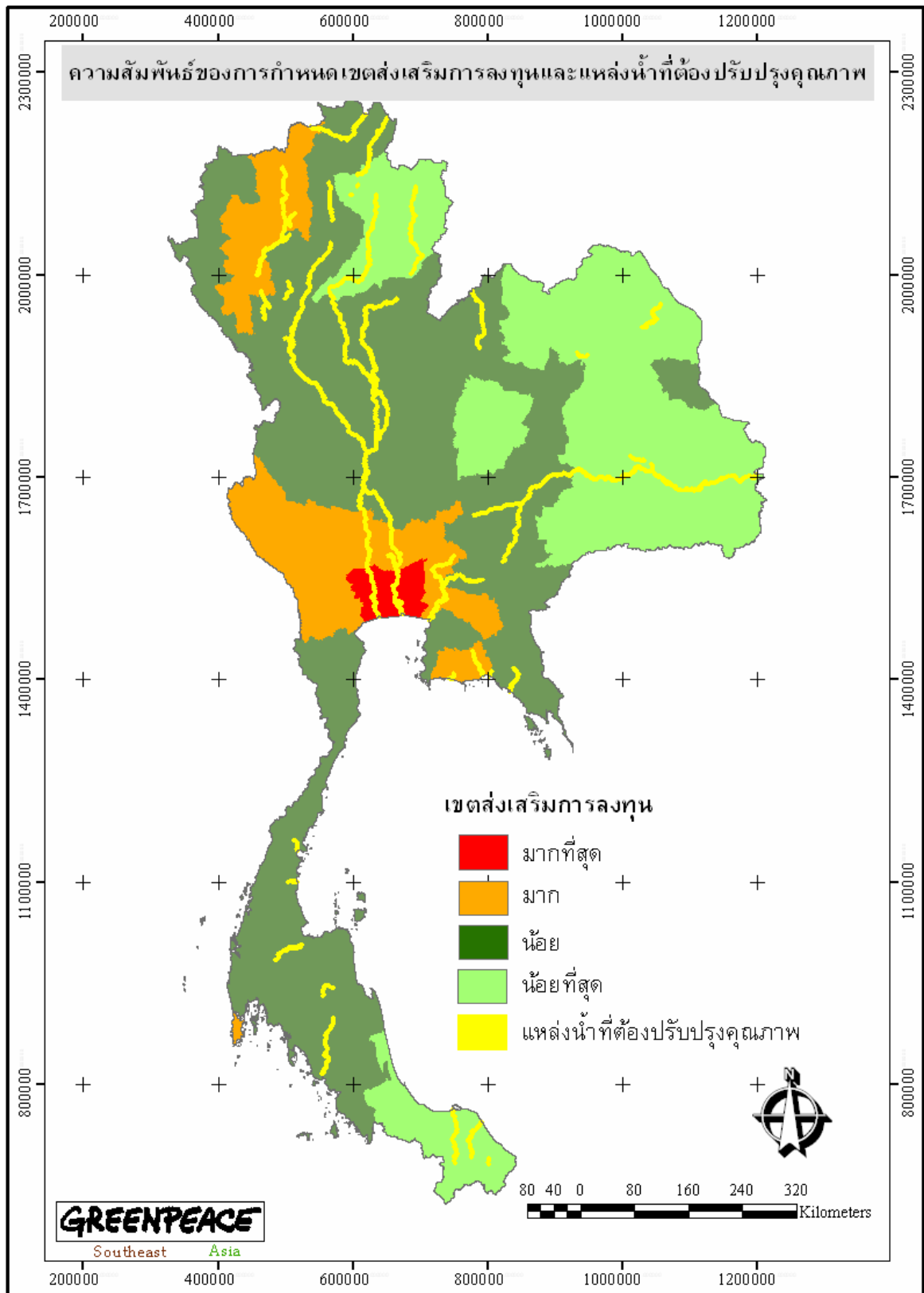
3.10:



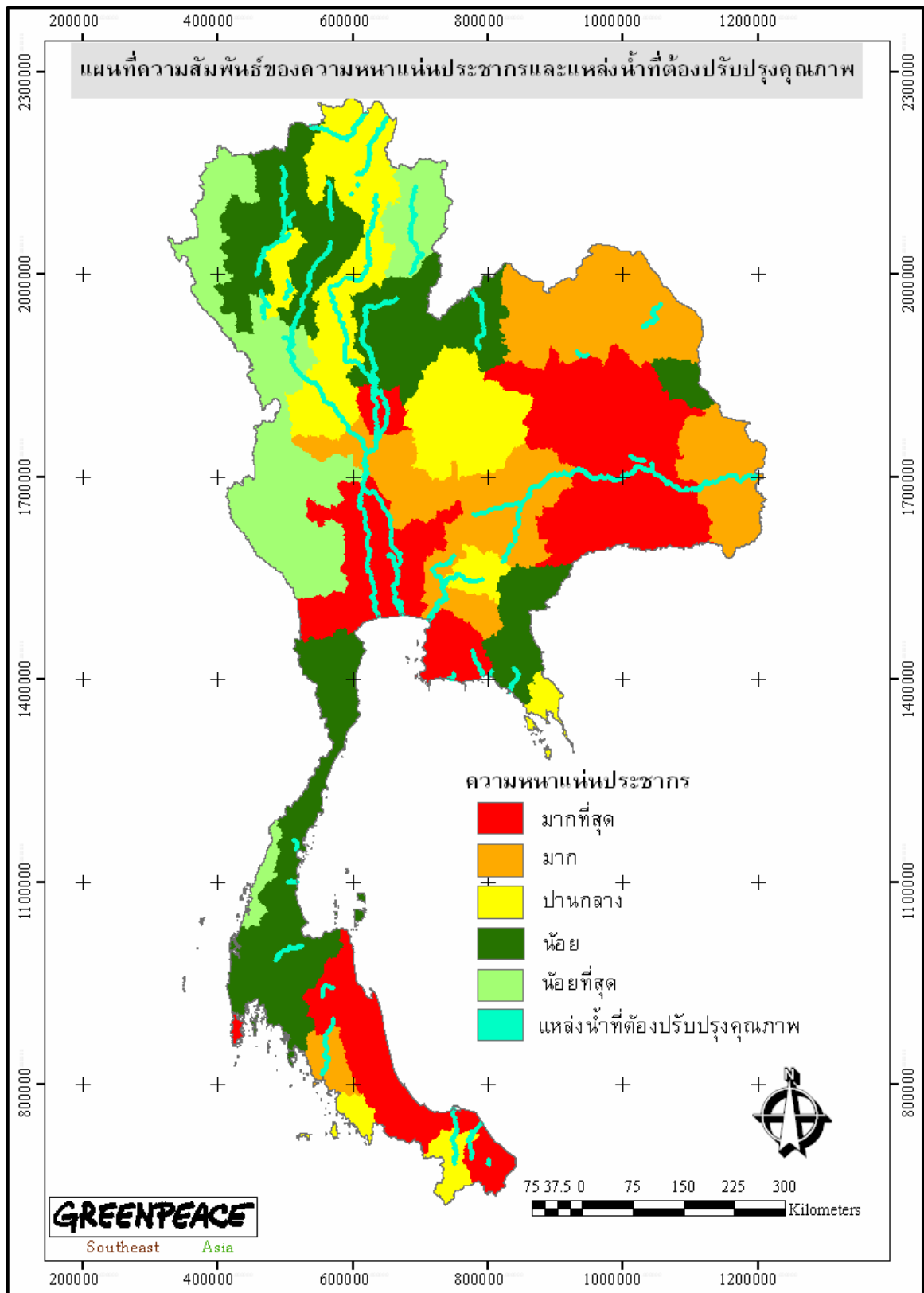
3.11:



3.12:



3.13:



3.14:

4.1

12
13

(Multi-Criteria Analysis: MCA)

- 1)
- 2)
- 3)
- 4)



Comparison

Pairwise

4.1:

| | C1 | C2 | C3 | C4 | C5 | C6 | C7 | C8 | C9 | C10 | C11 | C12 | C13 |
|-----|------|-----|------|-------|----|-------|----|-----|-------|------|-----|-----|-------|
| C1 | 1 | 4 | 2 | 3 | 5 | 3 | 5 | 4 | 3 | 2 | 4 | 4 | 3 |
| C2 | 0.25 | 1 | 0.33 | 0.5 | 2 | 0.5 | 2 | 1 | 0.5 | 0.33 | 1 | 1 | 0.5 |
| C3 | 0.5 | 3 | 1 | 2 | 4 | 2 | 3 | 3 | 2 | 1 | 3 | 3 | 2 |
| C4 | 0.33 | 2 | 0.5 | 1 | 3 | 1 | 3 | 2 | 1 | 0.5 | 2 | 2 | 1 |
| C5 | 0.2 | 0.5 | 0.25 | 0.33 | 1 | 0.33 | 1 | 0.5 | 0.33 | 0.25 | 0.5 | 0.5 | 0.33 |
| C6 | 0.33 | 2 | 0.5 | 1 | 3 | 1 | 3 | 2 | 1 | 0.5 | 2 | 2 | 1 |
| C7 | 0.2 | 0.5 | 0.33 | 0.33 | 1 | 0.33 | 1 | 0.5 | 0.33 | 0.25 | 0.5 | 0.5 | 0.33 |
| C8 | 0.25 | 1 | 0.33 | 0.5 | 2 | 0.5 | 2 | 1 | 0.5 | 0.33 | 1 | 1 | 0.5 |
| C9 | 0.33 | 2 | 0.5 | 1 | 3 | 1 | 3 | 2 | 1 | 0.5 | 2 | 2 | 1 |
| C10 | 0.5 | 3 | 1 | 2 | 4 | 2 | 4 | 3 | 2 | 1 | 3 | 3 | 2 |
| C11 | 0.25 | 1 | 0.33 | 0.5 | 2 | 0.5 | 2 | 1 | 0.5 | 0.33 | 1 | 1 | 0.5 |
| C12 | 0.25 | 1 | 0.33 | 0.5 | 2 | 0.5 | 2 | 1 | 0.5 | 0.33 | 1 | 1 | 0.5 |
| C13 | 0.33 | 2 | 0.5 | 1 | 3 | 1 | 3 | 2 | 1 | 0.5 | 2 | 2 | 1 |
| | 4.27 | 23 | 7.9 | 13.66 | 35 | 13.66 | 34 | 23 | 13.66 | 7.82 | 23 | 23 | 13.66 |

: C1 =
C2 =
C3 =
C4 =
C5 =
C6 =
C7 =
C8 =
C9 =
C10 =
C11 =
C12 =
C13 =

•

4.2:

| | | | |
|---------------|--|--------------------------------------|------|
| | | | |
| 1. (500) | 1. 2. | 0.67 0.33 | 0.20 |
| 2. | 1. 200 MSL 2. 200-400 MSL 3. 400 MSL | 0.54 0.30 0.16 | 0.04 |
| 3. | 1. 0-10% 2. 11-30% 3. > 30% | 0.54 0.30 0.16 | 0.13 |
| 4. | 1. 2. | 0.67 0.33 | 0.08 |
| 5. | 1. 2. 3. 4. 5. | 0.42 0.26 0.16 0.10 0.06 | 0.03 |
| 6. | 1. 2. 3. 4. 5. | 0.42 0.26 0.16 0.10 0.06 | 0.03 |
| 7. | 1. 2. 3. 4. 5. | 0.42 0.26 0.16 0.10 0.06 | 0.08 |
| 8. | 1. 2. 3. 4. 5. | 0.42 0.26 0.16 0.10 0.06 | 0.04 |
| 9. | 1. 2. 3. 4. 5. | 0.42 0.26 0.16 0.10 0.06 | 0.08 |

4.2:

()

| | | | |
|-----|----|------|------|
| | | | |
| 10. | 1. | 0.42 | 0.13 |
| | 2. | 0.26 | |
| | 3. | 0.16 | |
| | 4. | 0.10 | |
| | 5. | 0.06 | |
| 11. | 1. | 0.47 | 0.04 |
| | 2. | 0.28 | |
| | 3. | 0.16 | |
| | 4. | 0.10 | |
| 12. | 1. | 0.47 | 0.04 |
| | 2. | 0.28 | |
| | 3. | 0.16 | |
| | 4. | 0.10 | |
| 13. | 1. | 0.42 | 0.08 |
| | 2. | 0.26 | |
| | 3. | 0.16 | |
| | 4. | 0.10 | |
| | 5. | 0.06 | |
| | | | 1.00 |

MCA
(overlay)

$$\begin{aligned}
 &= (0.20 \cdot C1) + (0.04 \cdot C2) + (0.13 \cdot C3) + (0.08 \cdot C4) + \\
 &\quad (0.03 \cdot C5) + (0.03 \cdot C6) + (0.08 \cdot C7) + (0.04 \cdot C8) + \\
 &\quad (0.08 \cdot C9) + (0.13 \cdot C10) + (0.04 \cdot C11) + (0.04 \cdot C12) + \\
 &\quad (0.08 \cdot C13)
 \end{aligned}$$

MCA
(overlay)

13

- (min) = 0.174
- (max) = 0.474
- (mean) = 0.285
- (S.D.) = 0.054

- = min - (mean - S.D.)
- = (mean - S.D.) - mean
- = mean - (mean + S.D.)
- = (mean + S.D.) - max

4.2

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4.3

4.1

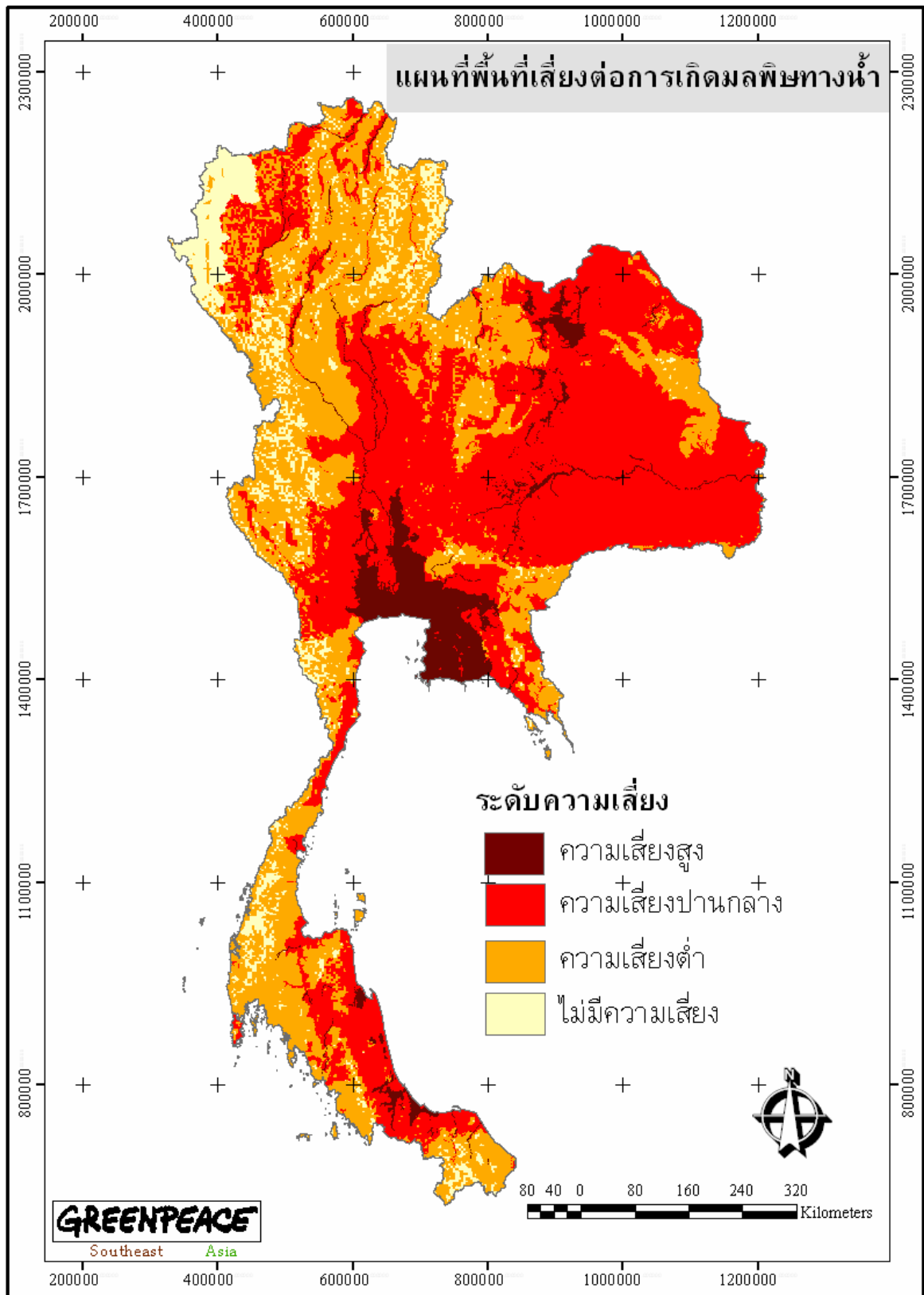
4.3:

| | | (. .) | |
|-------------|--|------------|--------|
| 0.174-0.231 | | 37,497.81 | 7.32 |
| 0.232-0.285 | | 188,972.00 | 36.89 |
| 0.286-0.339 | | 253,199.10 | 49.43 |
| 0.340-0.474 | | 32,538.88 | 6.35 |
| | | 512,207.80 | 100.00 |

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253,199.10 . . . 49.43
 188,972.00 . . . 36.89
 37,497.81 . . . 7.32
 32,538.88 . . .

6.35



4.1:

4.4:

| | (. .) | | (. .) | | (. .) | | (. .) | |
|--|------------------|-------------|-------------------|--------------|-------------------|--------------|------------------|-------------|
| | 10,960.29 | 15.89 | 34,272.54 | 49.69 | 20,536.68 | 29.78 | 3,198.87 | 4.64 |
| | 12,132.47 | 35.64 | 10,991.04 | 32.29 | 10,380.89 | 30.50 | 532.91 | 1.57 |
| | 1,735.18 | 1.01 | 53,620.83 | 31.29 | 87,637.43 | 51.14 | 28,379.12 | 16.56 |
| | 5,384.45 | 3.22 | 130,260.40 | 77.85 | 30,891.76 | 18.46 | 781.94 | 0.47 |
| | 2,326.49 | 3.30 | 24,054.33 | 34.11 | 39,525.26 | 56.06 | 4,604.97 | 6.53 |
| | 32,538.88 | 6.35 | 253,199.10 | 49.43 | 188,972.00 | 36.89 | 37,497.81 | 7.32 |

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9. 63.26
10. 41.10

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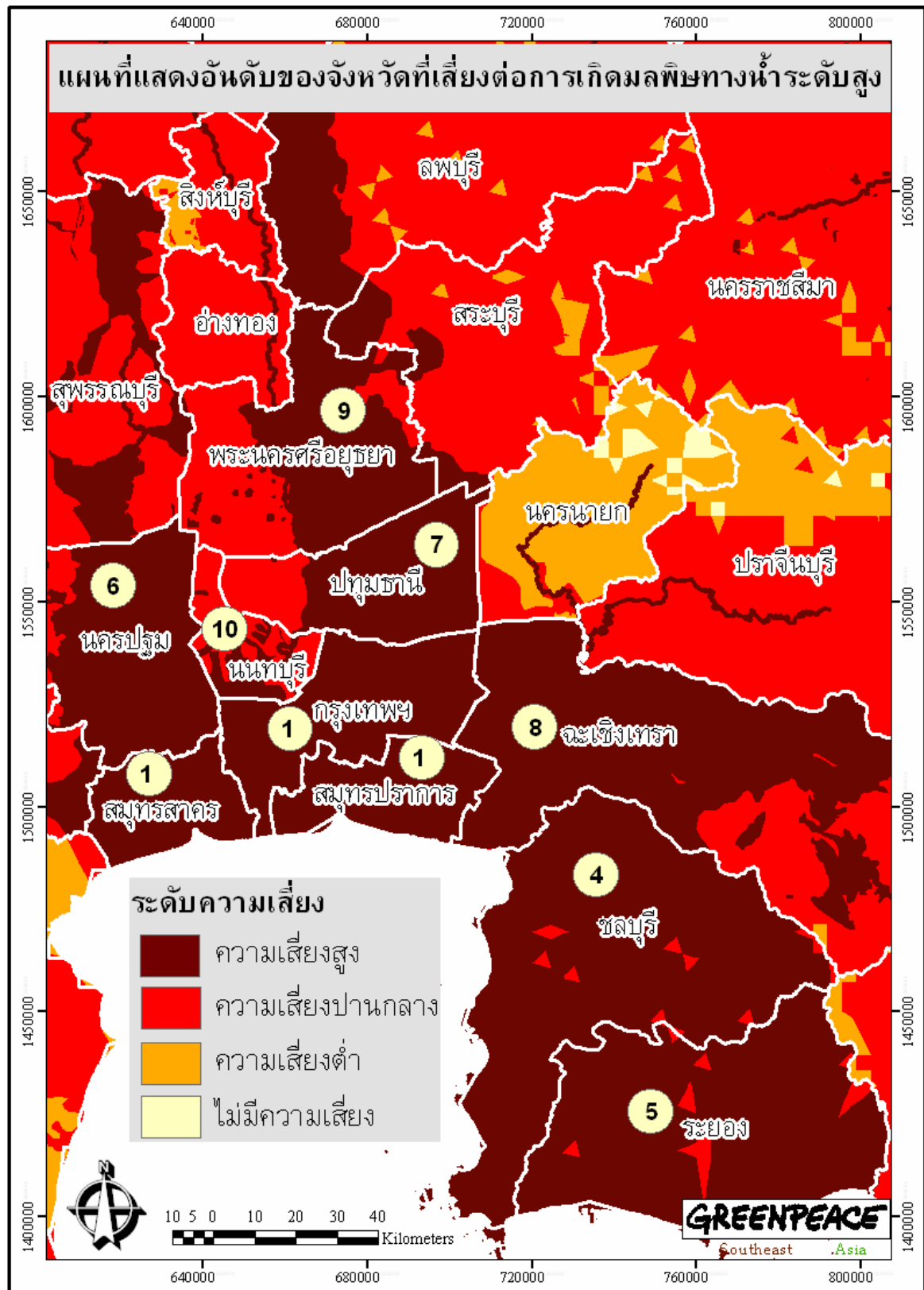
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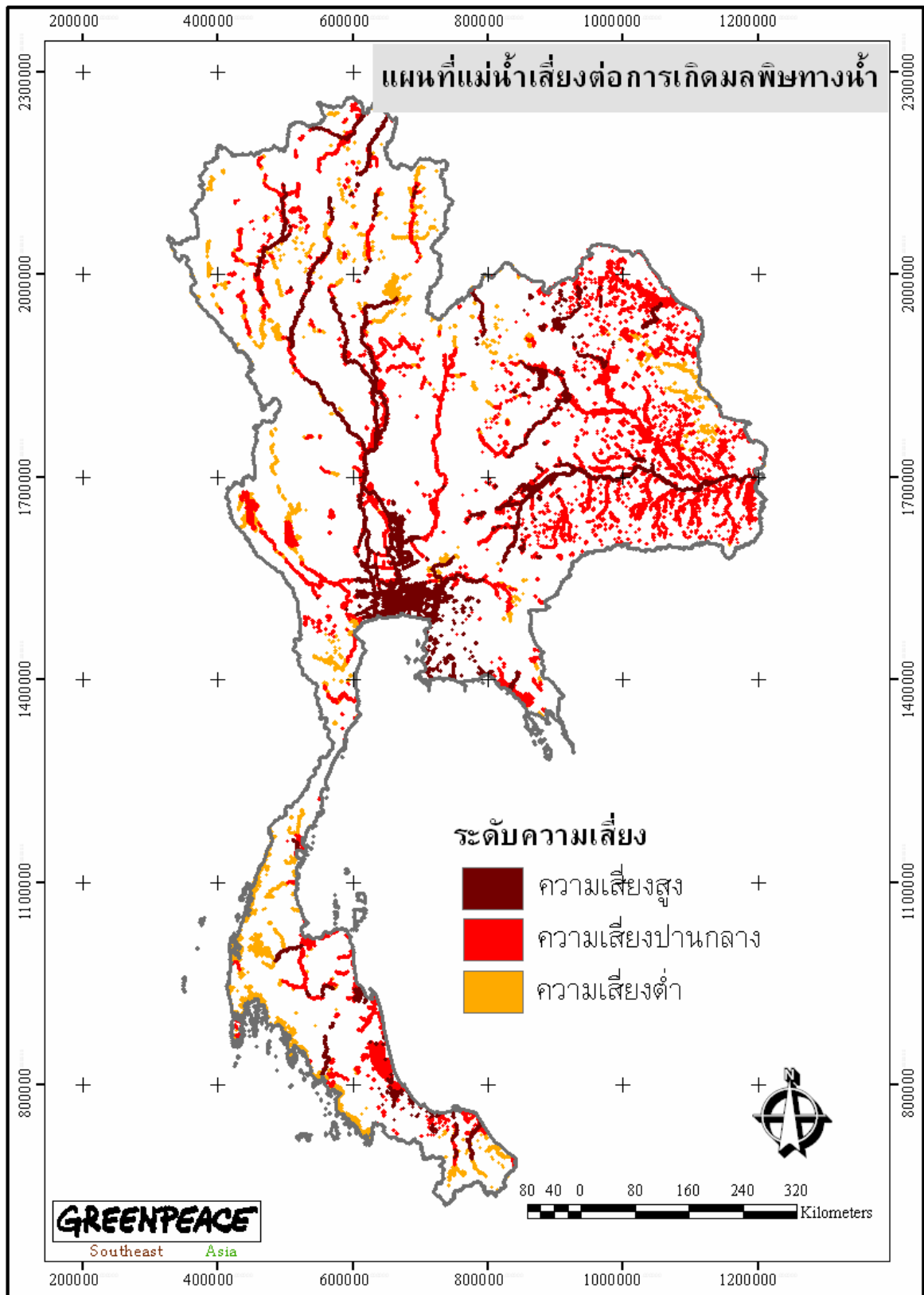
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(4.6 - 4.8)

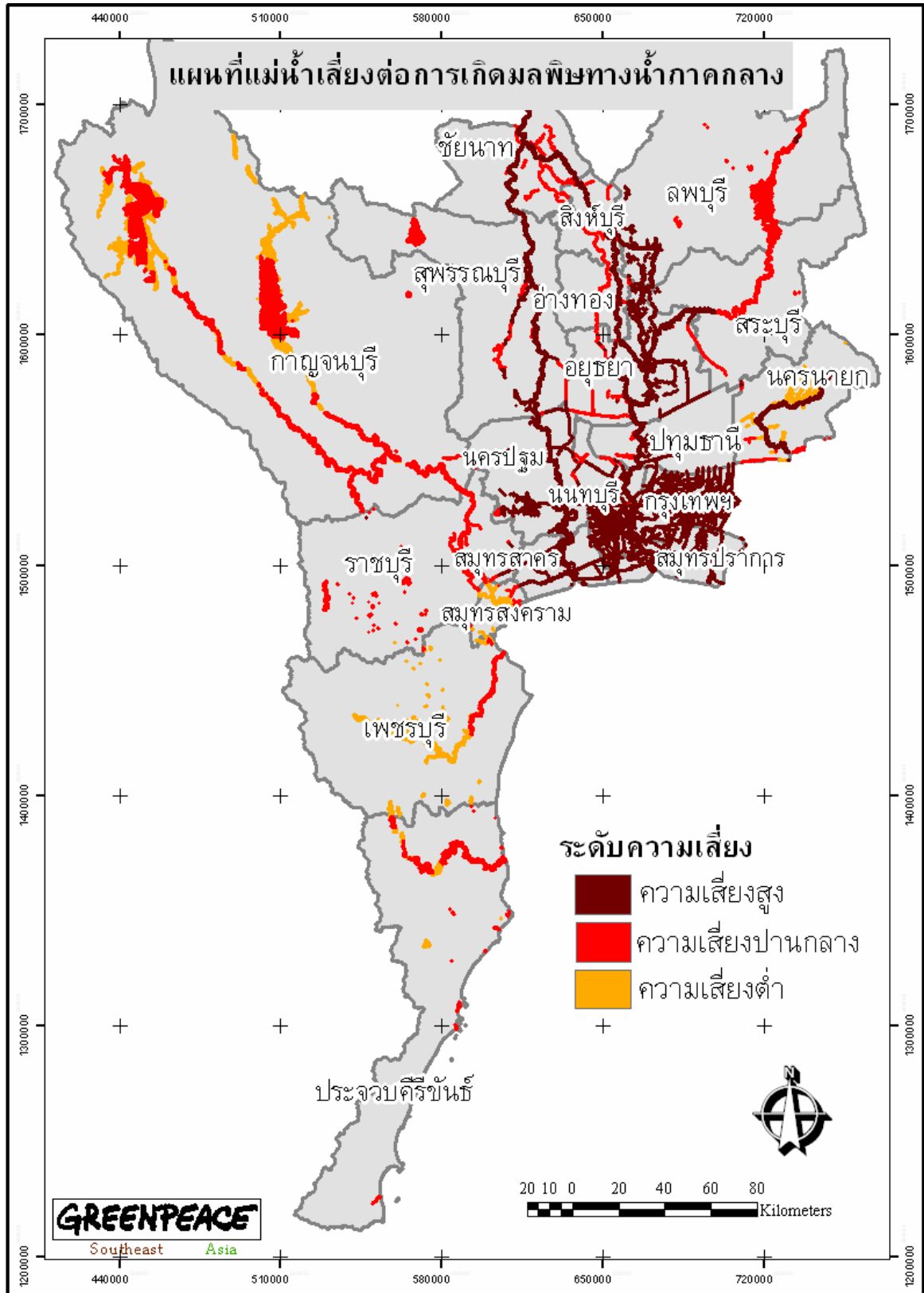
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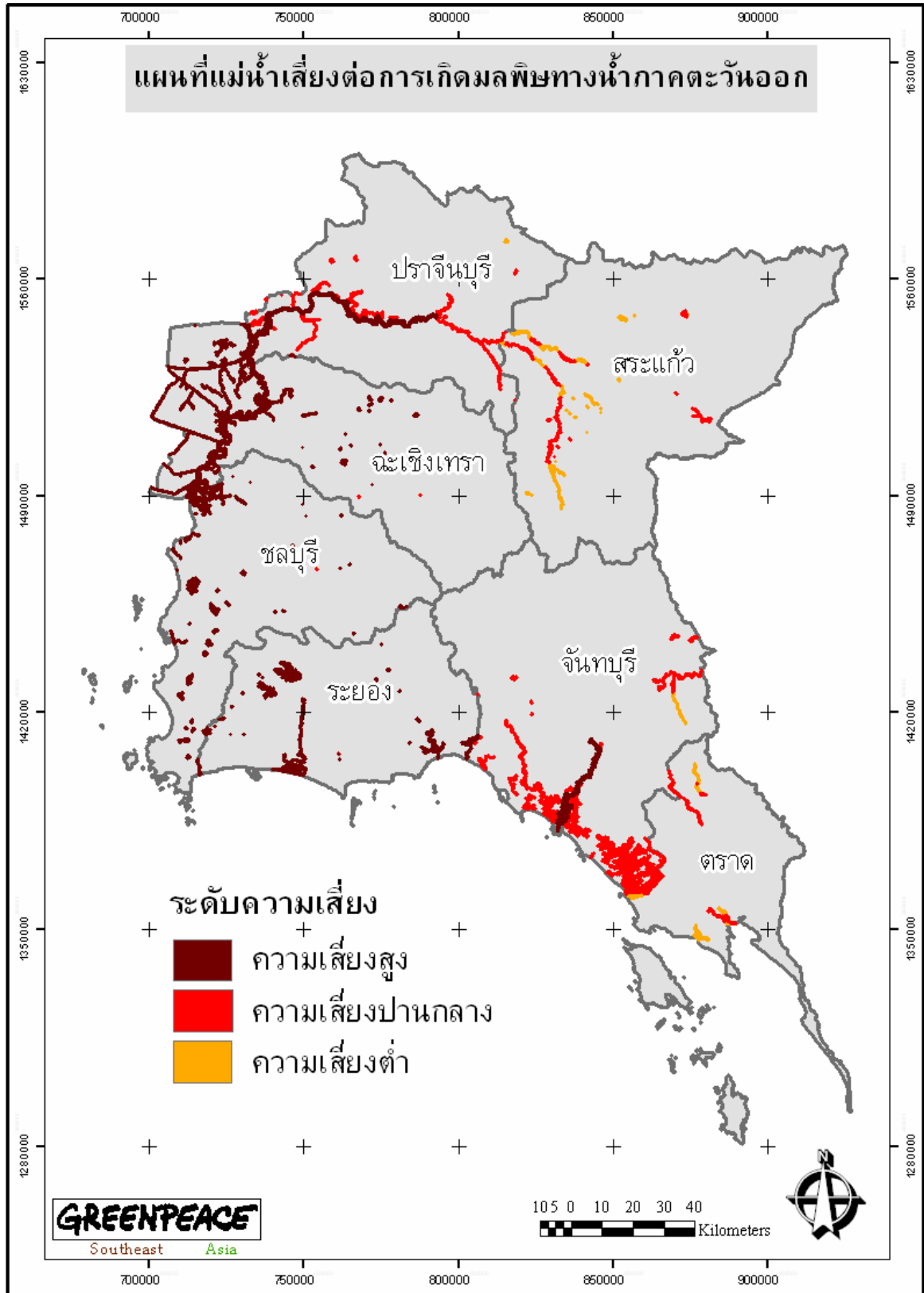
4.4 - 4.8



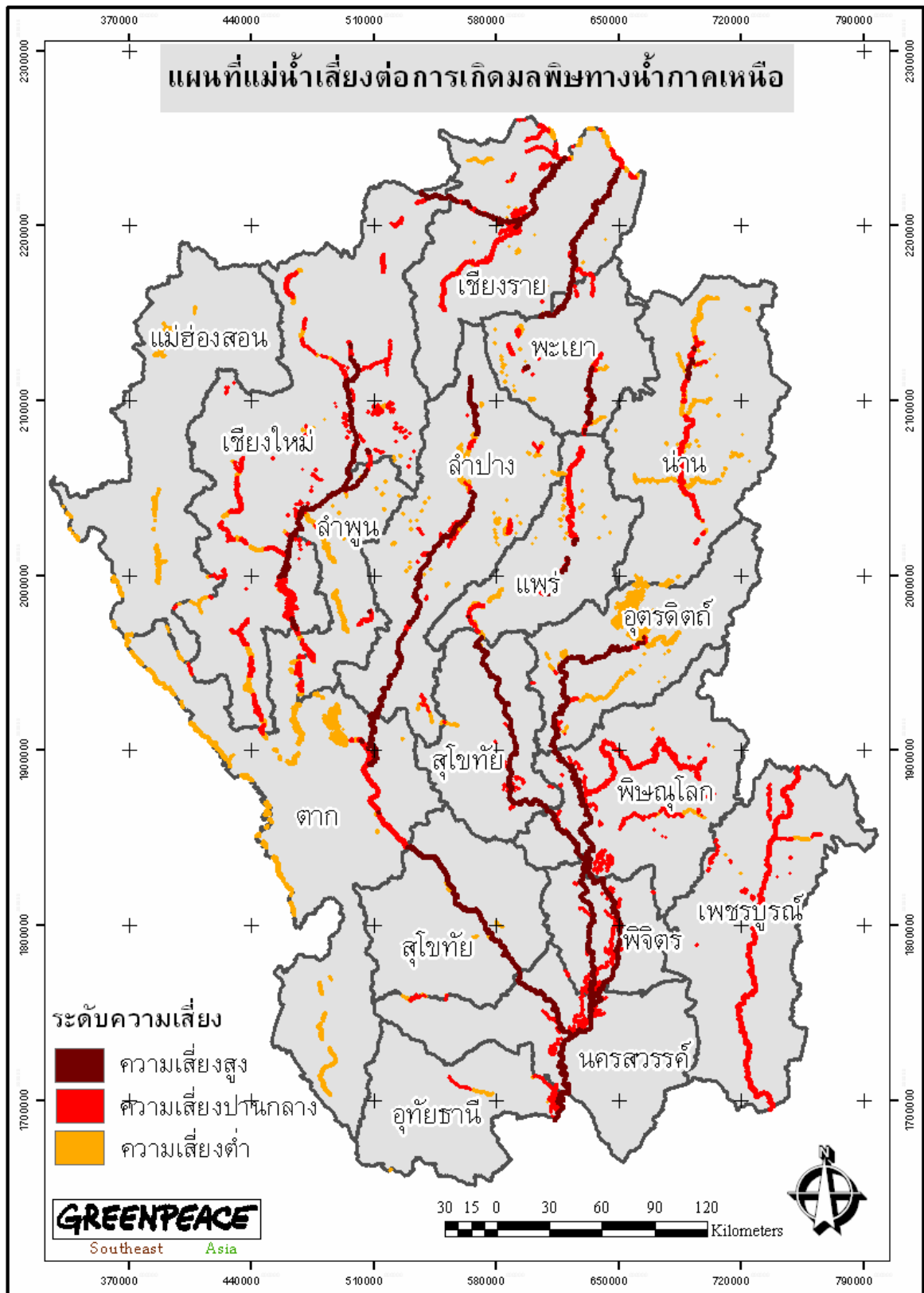
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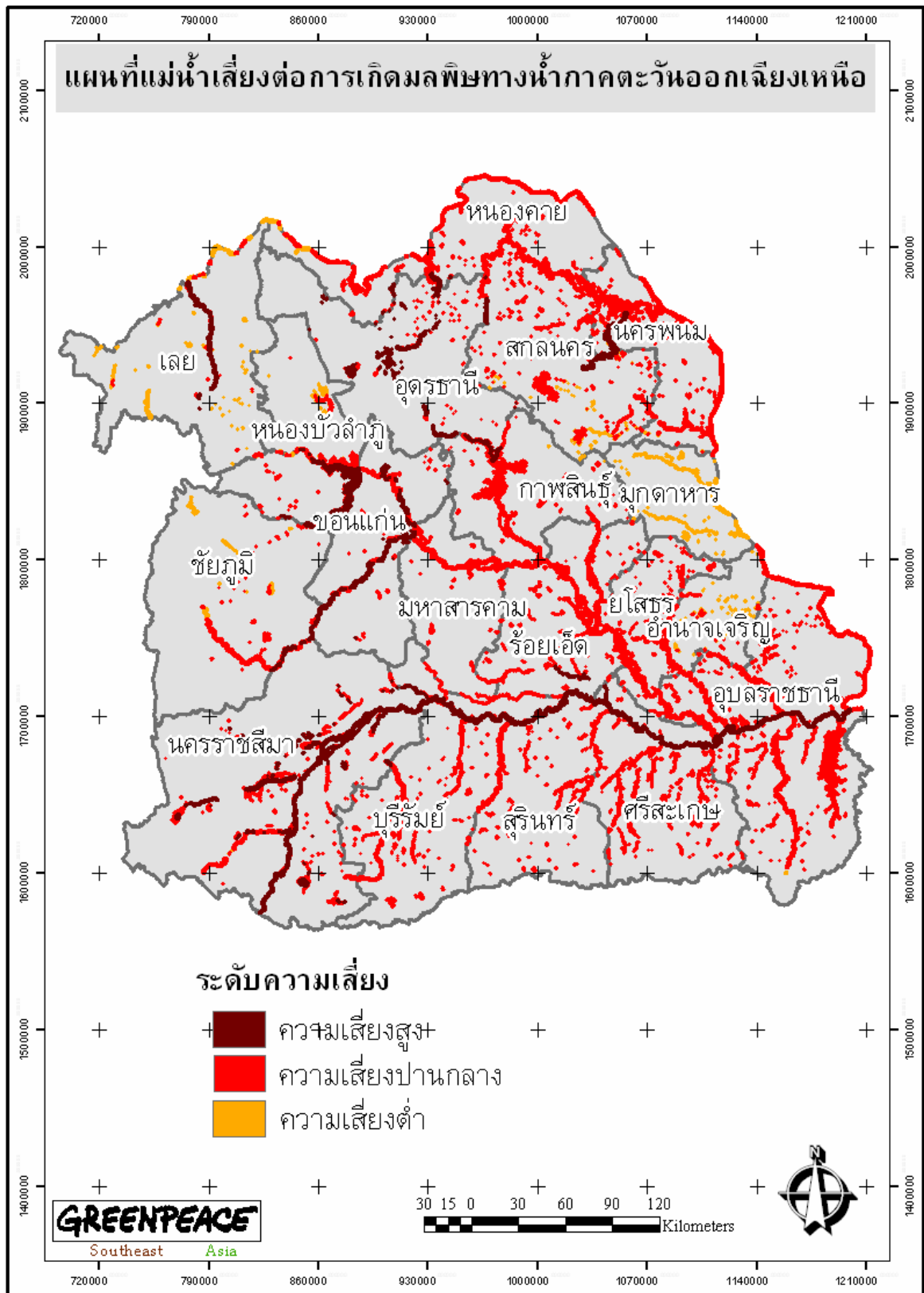
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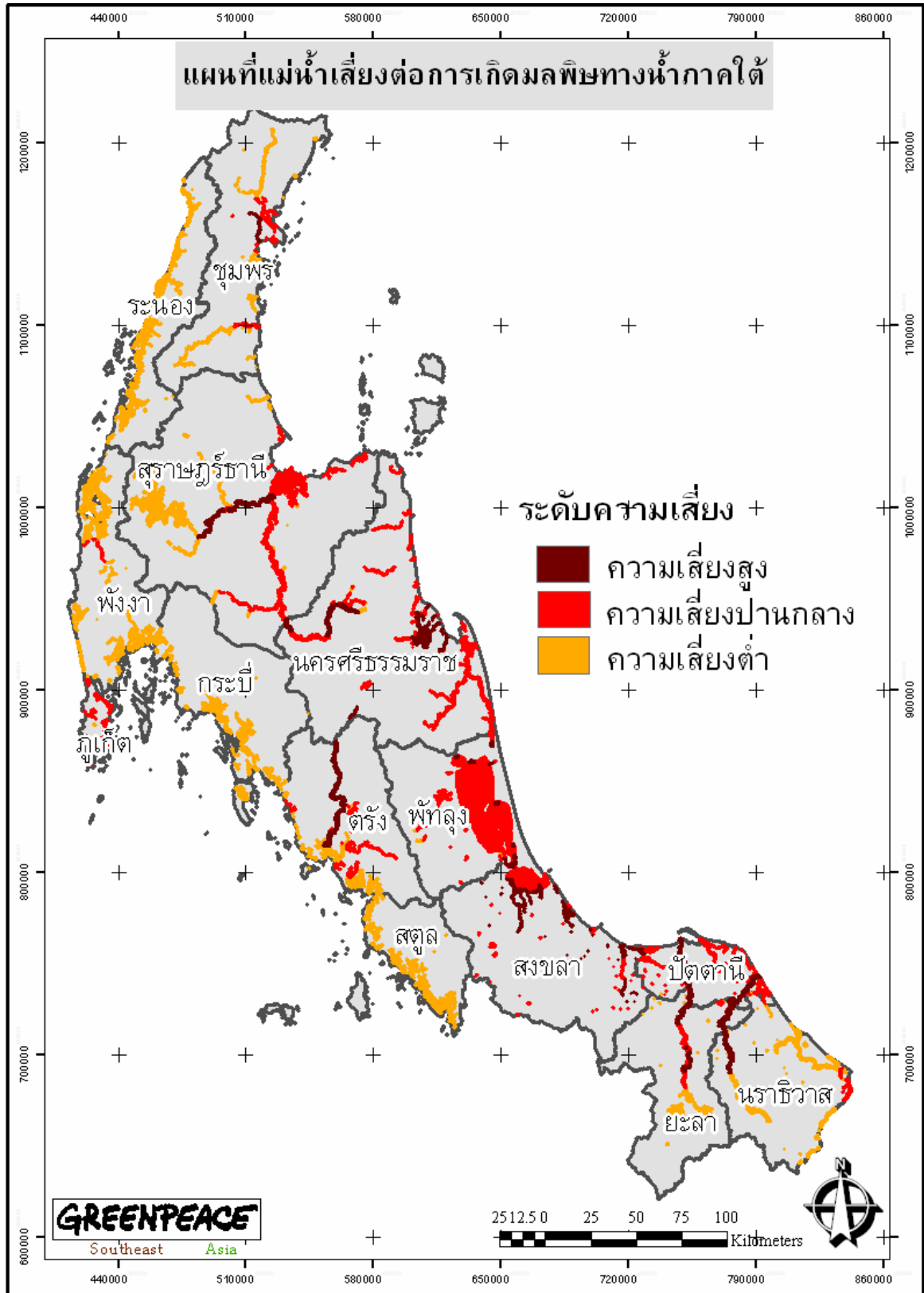
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| | 4,127 | 41.27 |
| | 4,381 | 43.80 |
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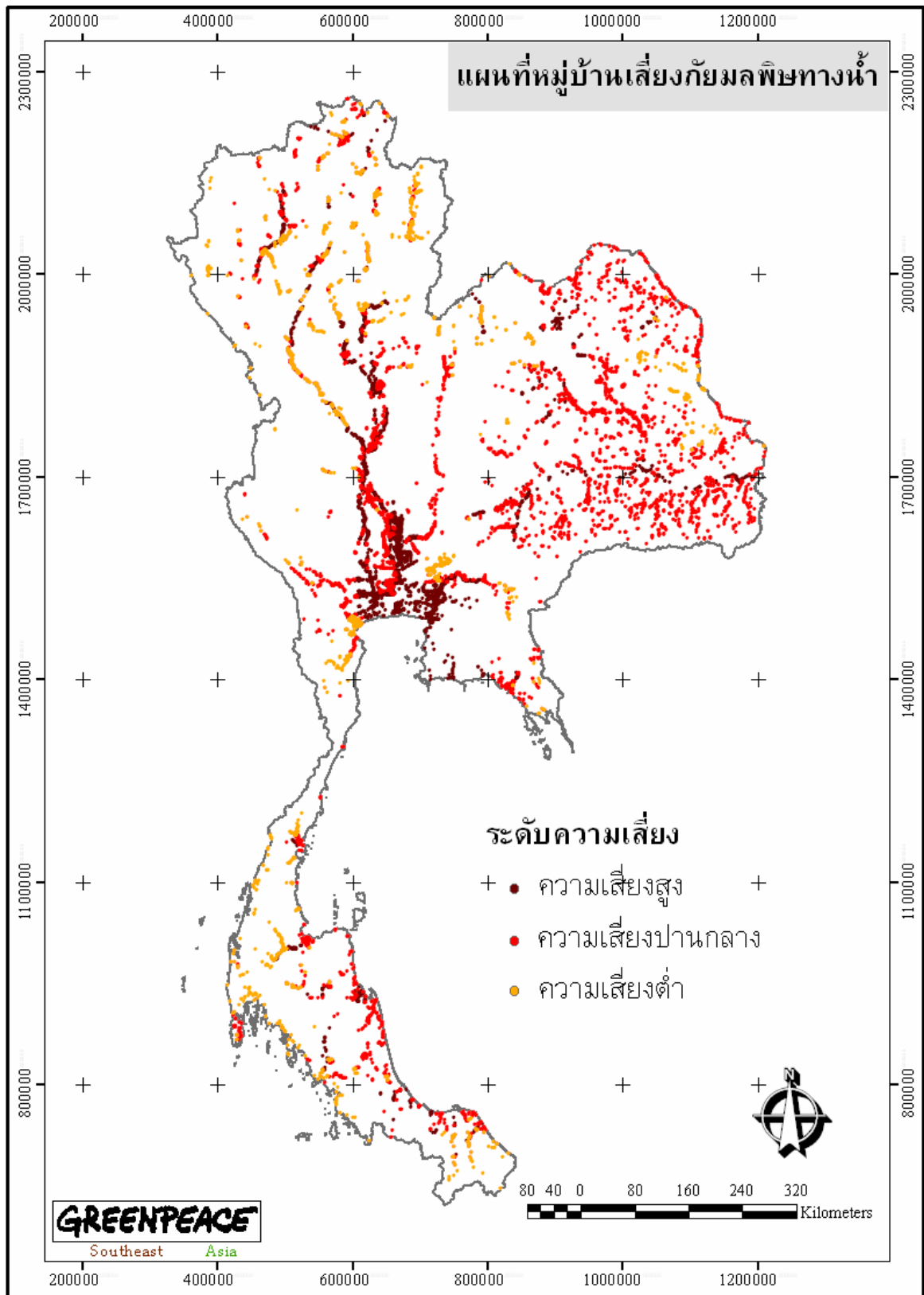
4,127 (41.27)

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1,404 (14.04)

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4.10:

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| | 12,606 | 2,178 | 17.28 | 808 | 6.41 | 251 | 1.99 |
|--|---------------|--------------|-------------|--------------|-------------|--------------|-------------|
| | 4,428 | 384 | 8.67 | 174 | 3.93 | 33 | 0.75 |
| | 16,434 | 868 | 5.28 | 842 | 5.12 | 610 | 3.71 |
| | 32,306 | 475 | 1.47 | 2,084 | 6.45 | 213 | 0.66 |
| | 9,170 | 222 | 2.42 | 473 | 5.16 | 297 | 3.24 |
| | 74,944 | 4,127 | 5.51 | 4,381 | 5.85 | 1,404 | 1.87 |

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| | 16,931,282 | 2,925,726 | 1,085,296 | 336,933 |
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| | 4,194,553 | 363,668 | 164,846 | 31,460 |
| | 11,871,934 | 626,839 | 607,844 | 440,449 |
| | 21,385,647 | 314,369 | 1,379,375 | 141,146 |
| | 8,654,831 | 209,447 | 446,590 | 280,417 |
| | 63,038,247 | 4,440,049 | 3,687,738 | 1,178,816 |

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|---|-----------|------------|
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| | 3,687,738 | 1,178,816 |
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| 253,199.10 | . | . | 49.43 | | | |
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| | | | 32,538.88 | . | . | 6.35 |

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| (| 2.42 | | | | | 475 |
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