



# Climate Change Value Impact in Thailand



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Website : [Disaster.go.th](http://Disaster.go.th)

# Outline

- ◎ 1. Background
  - > Natural disaster in Thailand
  - > Natural disaster affected  
(Loss & Damage)
- 2. 2011 Thailand's Flood
- 3. Conclusion

## Natural Disaster

- Cold Spell
- Drought
- Flood
- Landslide
- Tropical Cyclone
- Earthquake
- Storm surge

Source: National DPM Plan (2010-2014)

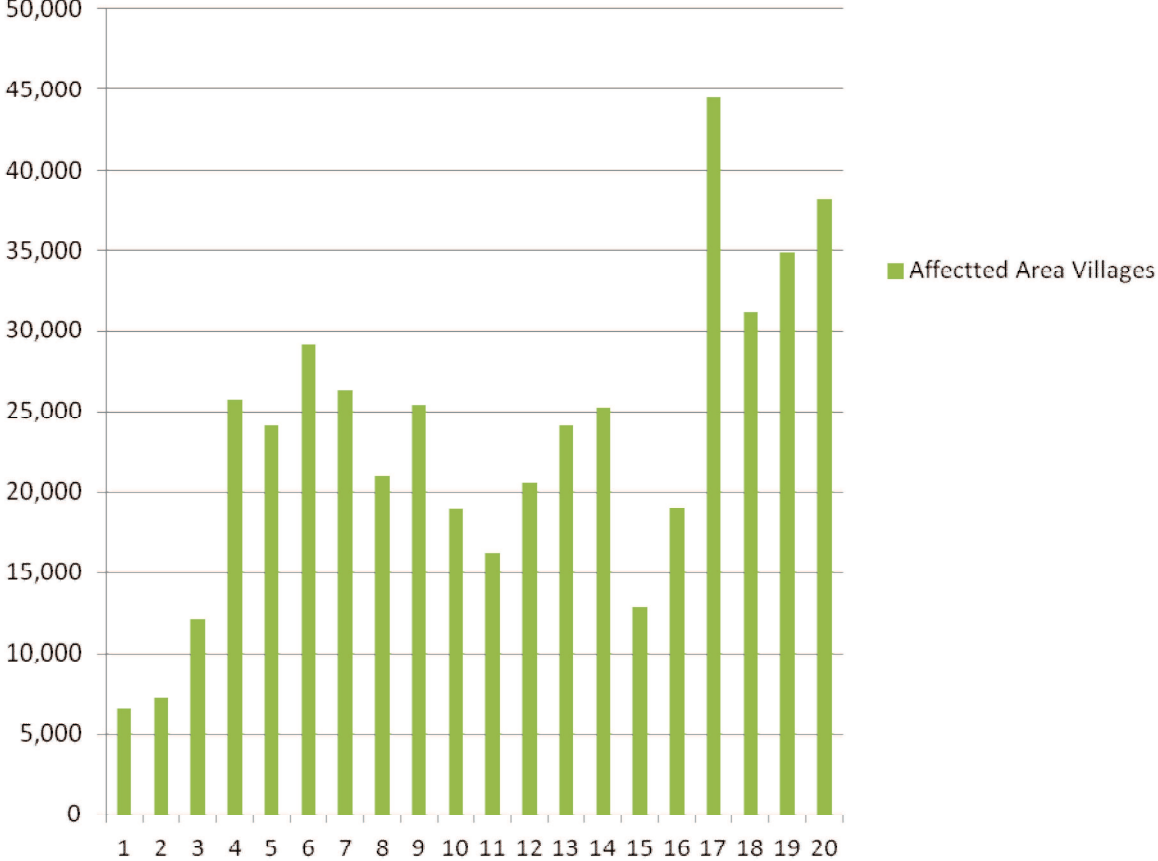
# Drought Loss & Damage

**DROUGHT**



| Year | Affected Area |          |              |          |
|------|---------------|----------|--------------|----------|
|      | Provinces     | District | Sub-District | Villages |
| 1989 | 29            | 257      | 1,517        | 6,628    |
| 1990 | 48            | 294      | 1,490        | 7,234    |
| 1991 | 59            | 517      | 2,120        | 12,192   |
| 1992 | 70            | 719      | 2,410        | 25,766   |
| 1993 | 68            | 698      | 1,970        | 24,176   |
| 1994 | 66            | 685      | 2,360        | 29,191   |
| 1995 | 72            | 717      | 5,020        | 26,354   |
| 1996 | 61            | 632      | 4,125        | 21,067   |
| 1997 | 64            | 702      | 4,924        | 25,426   |
| 1998 | 72            | 750      | 4,170        | 18,902   |
| 1999 | 58            | 610      | 3,197        | 16,170   |
| 2000 | 59            | 633      | 3,754        | 20,593   |
| 2001 | 51            | 619      | 4,968        | 24,176   |
| 2002 | 68            | 709      | 4,489        | 25,299   |
| 2003 | 63            | 412      | 2,288        | 12,904   |
| 2004 | 64            | 489      | 2,936        | 19,027   |
| 2005 | 71            | 756      | 5,244        | 44,519   |
| 2006 | 61            | 582      | 3,709        | 31,115   |
| 2007 | 66            | 669      | 4,344        | 34,874   |
| 2008 | 61            | 660      | 4,306        | 38,170   |

# Drought Affected Village

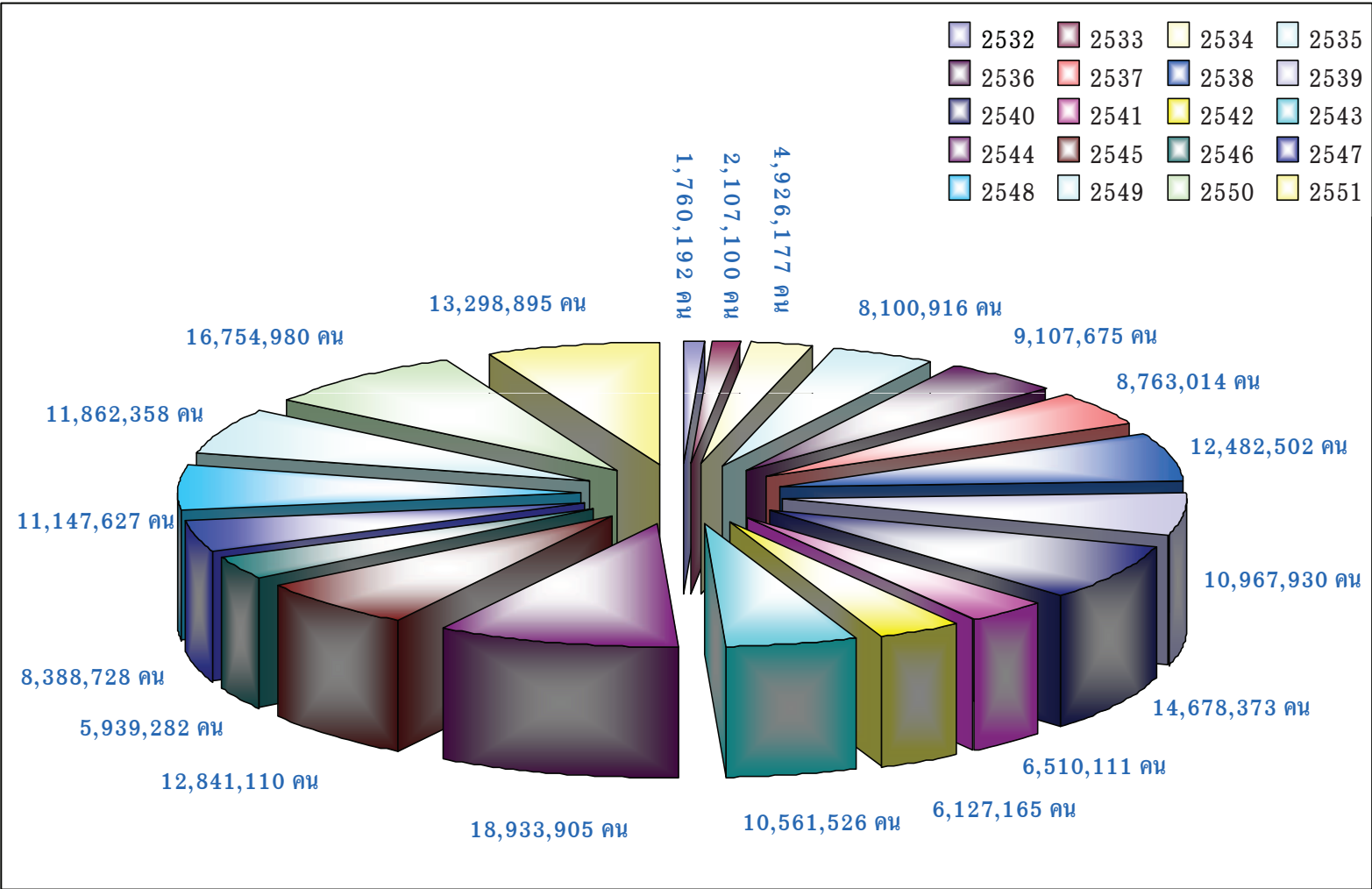


# DROUGHT



| Year         | Damages         |                    |                         |           |                      |
|--------------|-----------------|--------------------|-------------------------|-----------|----------------------|
|              | Affected People | Affected household | Agricultural Area (Rai) | Livestock | Total Damages (BAHT) |
| 1989         | 1,760,192       | 496,062            | 1,294,240               | 197       | 121,966,702          |
| 1990         | 2,107,100       | 536,550            | 1,970,703               | 872       | 92,170,601           |
| 1991         | 4,926,177       | 1,221,416          | 1,037,271               | 290       | 262,170,159          |
| 1992         | 8,100,916       | 2,430,663          | 5,334,471               | 417       | 176,180,163          |
| 1993         | 9,107,675       | 2,533,194          | 2,040,443               | 726       | 198,760,140          |
| 1994         | 8,763,014       | 2,736,643          | 17,923,817              | 510       | 98,762,160           |
| 1995         | 12,482,502      | 2,661,678          | 3,001,437               | 462       | 177,620,420          |
| 1996         | 10,967,930      | 2,277,787          | 101,900                 | 573       | 289,164,000          |
| 1997         | 14,678,373      | 3,094,280          | 1,431,296               | 197       | 249,160,170          |
| 1998         | 6,510,111       | 1,531,295          | 1,789,285               | 1,107     | 69,170,111           |
| 1999         | 6,127,165       | 1,546,107          | 3,144,932               | 980       | 1,520,500,651        |
| 2000         | 10,561,526      | 2,830,297          | 472,700                 | 2,071     | 641,712,873          |
| 2001         | 18,933,905      | 7,334,816          | 1,712,691               | 192       | 71,962,973           |
| 2002         | 12,841,110      | 2,939,139          | 2,071,560               | 0         | 508,781,944          |
| 2003         | 5,939,282       | 1,399,936          | 484,189                 | 0         | 174,329,410          |
| 2004         | 8,388,728       | 1,970,516          | 1,480,209               | 0         | 190,668,884          |
| 2005         | 11,147,627      | 2,768,919          | 13,736,660              | 0         | 7,565,861,139        |
| 2006         | 11,862,358      | 2,960,824          | 578,753                 | 0         | 495,275,738          |
| 2007         | 16,754,980      | 4,378,225          | 1,350,118               | 0         | 198,304,732          |
| 2008         | 13,298,895      | 3,531,570          | 524,999                 | 0         | 103,900,841          |
| <b>Total</b> | 195,259,566     | 51,179,917         | 61,481,674              | 8,594     | 13,206,423,811       |

# Drought Affected People (1989-2008)





## Drought Affected Village Comparison 2007 and 2008

|   | <b>Region</b>    | <b>Total Village</b> | <b>2007</b>                     |                                       | <b>2008</b>                     |                                       | <b>Comparison</b> |               |
|---|------------------|----------------------|---------------------------------|---------------------------------------|---------------------------------|---------------------------------------|-------------------|---------------|
|   |                  |                      | <b>Drought Affected Village</b> | <b>% of Total Village in Thailand</b> | <b>Drought Affected Village</b> | <b>% of Total Village in Thailand</b> | <b>amount</b>     | <b>%</b>      |
| 1 | <b>North</b>     | 16,440               | 7,322                           | 44.54                                 | 8,472                           | 51.53                                 | + 1,150           | + 15.71       |
| 2 | <b>Northeast</b> | 32,830               | 20,038                          | 61.04                                 | 23,958                          | 72.98                                 | + 3,920           | + 19.56       |
| 3 | <b>Central</b>   | 11,703               | 2,239                           | 19.13                                 | 3,001                           | 25.64                                 | + 762             | + 34.03       |
| 4 | <b>East</b>      | 4,836                | 2,553                           | 52.79                                 | 2,301                           | 47.58                                 | - 252             | + 51.78       |
| 5 | <b>South</b>     | 8,618                | 2,722                           | 31.59                                 | 438                             | 5.08                                  | - 2,284           | - 83.91       |
|   | <b>Total</b>     | <b>74,427</b>        | <b>34,874</b>                   | <b>46.86</b>                          | <b>38,170</b>                   | <b>51.29</b>                          | <b>+ 3,296</b>    | <b>+ 9.45</b> |

# **FLOOD**

## **Loss & Damage**

# FLOOD



| Year         | Severity | Affected Area |          |              |          |
|--------------|----------|---------------|----------|--------------|----------|
|              |          | Provinces     | District | Sub-District | Villages |
| 1989         | 9        | 52            | 395      | 1,450        | 9,871    |
| 1990         | 12       | 58            | 576      | 1,865        | 10,162   |
| 1991         | 14       | 66            | 528      | 2,061        | 10,654   |
| 1992         | 10       | 66            | 571      | 2,217        | 12,101   |
| 1993         | 9        | 42            | 465      | 1,664        | 8,960    |
| 1994         | 11       | 74            | 665      | 2,119        | 9,170    |
| 1995         | 8        | 73            | 698      | 2,160        | 11,175   |
| 1996         | 10       | 74            | 635      | 2,411        | 12,615   |
| 1997         | 7        | 64            | 518      | 1,860        | 10,610   |
| 1998         | 12       | 65            | 550      | 2,215        | 12,117   |
| 1999         | 9        | 69            | 502      | 1,450        | 6,219    |
| 2000         | 12       | 62            | 695      | 2,325        | 13,029   |
| 2001         | 14       | 60            | 689      | 2,760        | 10,996   |
| 2002         | 5        | 72            | 706      | 3,820        | 18,510   |
| 2003         | 17       | 66            | 373      | 1,331        | 5,281    |
| 2004         | 12       | 59            | 368      | 1,856        | 9,964    |
| 2005         | 12       | 63            | 565      | 2,342        | 10,326   |
| 2006         | 6        | 58            | 564      | 3,432        | 22,771   |
| 2007         | 13       | 54            | 394      | 2,130        | 12,848   |
| 2008         | 6        | 65            | 719      | 4,813        | 38,448   |
| <b>Total</b> | 208      |               |          |              |          |

# FLOOD



| Year         | Frequency  | Live Losses     |                    |                     |                  |
|--------------|------------|-----------------|--------------------|---------------------|------------------|
|              |            | Affected People | Affected household | Fatalities (person) | Injured (person) |
| 1989         | 9          | 2,461,500       | 461,001            | 602                 | 5,495            |
| 1990         | 12         | 2,131,765       | 489,236            | 50                  | 19               |
| 1991         | 14         | 1,976,150       | 412,398            | 43                  | 26               |
| 1992         | 10         | 3,650,710       | 699,123            | 16                  | 0                |
| 1993         | 9          | 1,670,500       | 411,201            | 47                  | 254              |
| 1994         | 11         | 2,450,002       | 572,017            | 46                  | 12               |
| 1995         | 8          | 5,953,344       | 1,569,537          | 442                 | 11               |
| 1996         | 10         | 8,377,481       | 1,859,275          | 158                 | 21               |
| 1997         | 7          | 4,069,006       | 787,839            | 98                  | 427              |
| 1998         | 12         | 1,649,752       | 343,717            | 8                   | 3                |
| 1999         | 9          | 4,560,517       | 1,016,500          | 53                  | 30               |
| 2000         | 12         | 6,739,652       | 2,002,979          | 120                 | 0                |
| 2001         | 14         | 3,454,265       | 919,699            | 244                 | 68               |
| 2002         | 5          | 5,127,652       | 1,373,942          | 216                 | 0                |
| 2003         | 17         | 1,882,017       | 485,436            | 44                  | 10               |
| 2004         | 12         | 2,324,441       | 619,797            | 28                  | 3                |
| 2005         | 12         | 2,874,673       | 763,847            | 75                  | 0                |
| 2006         | 6          | 6,050,674       | 1,673,822          | 446                 | 1,462            |
| 2007         | 13         | 2,326,179       | 571,566            | 36                  | 17               |
| 2008         | 6          | 7,921,127       | 2,031,943          | 113                 | 16               |
| <b>Total</b> | <b>208</b> |                 | <b>75,980,907</b>  | <b>2,885</b>        | <b>7,776</b>     |

| Year         | Frequency  | Property Losses      |                       |                |                  |                |            |                  |                         |
|--------------|------------|----------------------|-----------------------|----------------|------------------|----------------|------------|------------------|-------------------------|
|              |            | Total Damage (House) | Partly Damage (House) | Building       | Hotel/ Apartment | Factory/ Mills | Fish Pond  | Livestock        | Agricultural Area (Rai) |
| 1989         | 9          | 867                  | 16,018                | 462            | 42               | 32             | 112,650    | 65,890           | 10,145,658              |
| 1990         | 12         | 765                  | 11,233                | 210            | 38               | 11             | 26,580     | 41,250           | 2,256,000               |
| 1991         | 14         | 6,224                | 18,562                | 215            | 52               | 18             | 24,500     | 22,035           | 9,875,023               |
| 1992         | 10         | 2,011                | 14,033                | 228            | 28               | 20             | 35,620     | 16,850           | 14,298,000              |
| 1993         | 9          | 1,698                | 9,982                 | 189            | 16               | 19             | 42,560     | 72,564           | 16,024,259              |
| 1994         | 11         | 2,037                | 14,001                | 256            | 28               | 24             | 33,250     | 32,659           | 14,000,259              |
| 1995         | 8          | 987                  | 18,327                | 685            | 86               | 67             | 124,560    | 365,240          | 3,792,364               |
| 1996         | 10         | 264                  | 20,278                | 365            | 23               | 21             | 45,678     | 65,890           | 21,014,456              |
| 1997         | 7          | 991                  | 14,445                | 224            | 27               | 18             | 32,560     | 36,520           | 12,269,013              |
| 1998         | 12         | 1,022                | 11,201                | 220            | 22               | 20             | 20,154     | 22,036           | 466,074                 |
| 1999         | 9          | 967                  | 10,272                | 236            | 27               | 17             | 32,658     | 20,356           | 3,038,167               |
| 2000         | 12         | 12,650               | 33,724                | 478            | 38               | 36             | 91,520     | 76,258           | 10,340,584              |
| 2001         | 14         | 315                  | 13,239                | 226            | 17               | 10             | 36,589     | 102,365          | 29,133,765              |
| 2002         | 5          | 1,135                | 130,136               | 120            | 12               | 8              | 103,533    | 2,955,577        | 10,435,115              |
| 2003         | 17         | 18                   | 10,311                | 246            | 11               | 2              | 22,339     | 301,343          | 1,595,557               |
| 2004         | 12         | 297                  | 5,536                 | 114            | 11               | 17             | 12,884     | 71,889           | 3,298,733               |
| 2005         | 12         | 275                  | 5,697                 | 68             | 15               | 46             | 13,664     | 222,600          | 1,701,450               |
| 2006         | 6          | 1,583                | 69,887                | 793            | 63               | 113            | 122,123    | 245,375          | 6,560,541               |
| 2007         | 13         | 26                   | 3,860                 | 84             | 2                | 8              | 13,866     | 19,146           | 1,617,284               |
| 2008         | 6          | 170                  | 18,694                | 0              | 11               | 4              | 87,413     | 263,509          | 6,590,655               |
| <b>Total</b> | <b>208</b> | <b>7,776</b>         | <b>34,302</b>         | <b>449,436</b> | <b>5,419</b>     | <b>569</b>     | <b>511</b> | <b>5,019,352</b> | <b>178,452,957</b>      |

| Year         | Frequency  | Road           | Bridge        | Dyke/Dam      | Temple/School/<br>Gov. Building | Drainage<br>pipe/system | Damage Values          |
|--------------|------------|----------------|---------------|---------------|---------------------------------|-------------------------|------------------------|
| 1989         | 9          | 10,475         | 698           | 2,236         | 2,043                           | 1,123                   | 11,739,595,265         |
| 1990         | 12         | 9,258          | 546           | 1,126         | 1,023                           | 1,182                   | 6,652,227,121          |
| 1991         | 14         | 8,124          | 1,023         | 1,452         | 1,365                           | 1,240                   | 4,562,305,420          |
| 1992         | 10         | 12,017         | 989           | 1,025         | 1,285                           | 1,475                   | 5,240,583,940          |
| 1993         | 9          | 9,865          | 1,236         | 1,136         | 1,463                           | 1,365                   | 2,181,606,542          |
| 1994         | 11         | 10,236         | 875           | 1,452         | 1,758                           | 1,450                   | 5,058,883,356          |
| 1995         | 8          | 8,875          | 698           | 3,265         | 3,025                           | 3,745                   | 6,123,517,926          |
| 1996         | 10         | 6,598          | 1,254         | 2,245         | 2,013                           | 2,236                   | 7,160,677,015          |
| 1997         | 7          | 12,147         | 865           | 2,034         | 1,986                           | 2,013                   | 3,824,223,866          |
| 1998         | 12         | 10,257         | 1,024         | 1,856         | 1,754                           | 2,014                   | 1,706,035,444          |
| 1999         | 9          | 11,374         | 937           | 1,745         | 1,635                           | 1,742                   | 1,381,638,279          |
| 2000         | 12         | 17,952         | 1,441         | 2,785         | 2,245                           | 2,041                   | 10,032,935,112         |
| 2001         | 14         | 7,901          | 1,231         | 1,653         | 1,853                           | 1,985                   | 3,666,285,247          |
| 2002         | 5          | 13,294         | 730           | 1,613         | 2,465                           | 707                     | 13,385,316,549         |
| 2003         | 17         | 5,071          | 393           | 183           | 174                             | 282                     | 2,050,262,243          |
| 2004         | 12         | 4,173          | 379           | 638           | 827                             | 594                     | 850,659,584            |
| 2005         | 12         | 5,697          | 667           | 2,462         | 2,123                           | 1,482                   | 5,982,283,276          |
| 2006         | 6          | 12,969         | 1,129         | 2,492         | 2,485                           | 1,978                   | 9,627,418,620          |
| 2007         | 13         | 7,202          | 388           | 1,643         | 895                             | 3,020                   | 1,687,865,982          |
| 2008         | 6          | 18,389         | 908           | 1,407         | 1,062                           | 1,833                   | 7,601,796,302          |
| <b>Total</b> | <b>208</b> | <b>201,874</b> | <b>17,411</b> | <b>34,448</b> | <b>33,479</b>                   | <b>33,507</b>           | <b>110,516,117,089</b> |

# Flood Affected People (1989-2008)

