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**Tables**

**Table 1**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Stations | Code | Latitude | Longitude | Elevation(masl) | Source |
| Chiang Mai | 07013 | 18o50'23" N | 98o58'32" E | 304.5 | TMD |
| Doi Saket | 07052 | 18o52'08" N | 99o08'22" E | 320 | TMD |
| San Pa Tong | 07082 | 18o37'37" N | 98o53'56" E | 315 | TMD |
| Phrao | 07122 | 07o12'21" N | 100o35'56" E | 440 | TMD |
| Chiang Dao | 07132 | 19o21'53" N | 98o57'60" E | 390 | TMD |
| Samoeng | 07142 | 18o50'52" N | 98o44'09" E | 530 | TMD |
| Mae Chaem | 07152 | 18o29'54" N | 98o21'54" E | 480 | TMD |
| Omkoi | 07162 | 17o47'45" N | 98o21'36" E | 820 | TMD |
| Chom Thong | 07182 | 18o24'57" N | 98o40'47" E | 280 | TMD |
| Sop Prap | 16042 | 17o52'45" N | 99o20'26" E | 195 | TMD |
| Thoen | 16072 | 17o36'39" N | 99o13'08" E | 160 | TMD |
| Mae Phrik | 16082 | 17o26'49" N | 99o07'04" E | 170 | TMD |
| Muang | 17012 | 18o34'38" N | 99o00'34" E | 290 | TMD |
| Mae Tha | 17042 | 18o27'35" N | 99o08'14" E | 337 | TMD |
| Ban Hong | 17052 | 18o18'52" N | 98o49'21" E | 310 | TMD |
| Ban Tak | 63022 | 17o02'46" N | 99o04'34" E | 125 | TMD |
| Sam Ngao | 63062 | 17o14'32" N | 99o01'28" E | 150 | TMD |

TMD: Thai Meteorological Department

**Table 2**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Stations | Code | Latitude | Longitude | Source |
| Nawarat Bridge | P.1 | 18o47'09" N | 99o00'29" E | RID |
| Ban Mae Tae | P.67 | 19o01'11" N | 98o57'42" E | RID |

RID: Royal Irrigation Department

**Table 3**

|  |  |  |  |
| --- | --- | --- | --- |
| Flood depth (m) | Flood hazard category | Description | HI |
| D < 0.80 | Low | “Low danger zone: flood level equal to floor level of residential houses, school buildings, and community centers” | 1 |
| 0.80 – 1.00 | Medium | “Danger zone: chances of flooding into low-lying residential houses, school buildings, and community centers” | 2 |
| 1.00 – 3.50 | High | “High danger zone: flooding would occur at low-lying areas and probability of extensive damages to property and infrastructure” | 3 |
| D > 3.50 | Very High | “Extreme danger zone: the single-storey building would be under threat and maximum damages to property and infrastructure” | 4 |

**Table 4**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Parameter | Description | Unit | Parameter range | Modeled value |
| Umax | Maximum water content in surface storage | mm | 5-35 | 14.68 |
| Lmax | Maximum water content in root zone storage | mm | 50-400 | 89.99 |
| CQOF | Overland flow runoff coefficient | - | 0-1 | 0.59 |
| CKIF | Time constant for routing interflow | hrs | 200-2000 | 380.78 |
| CK1,2 | Time constant for routing overland flow | hrs | 3-73 | 36.49 |
| TOF | Root zone threshold value for overland flow | - | 0-0.9 | 0.23 |
| TIF | Root zone threshold value for interflow | - | 0-0.9 | 0.08 |
| TG | Root zone threshold value for groundwater (GW) recharge | - | 0-0.9 | 0.21 |
| CKBF | Time constant for routing base flow Lower base flow/recharge to lower reservoir | hrs | 500-5000 | 1493.89 |
| Cqlow | Root zone threshold value for GW recharge | - | 0-100 | 21.38 |
| Cklow | Time constant for routing baseflow | hrs | 1000-30000 | 12528.50 |

**Table 5**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Station name | Statistical parameter | | |
|  | R | NSE | RMSE (m3/s) |
| Calibration | P.1 | 0.66 | 0.43 | 36.22 |
| P.67 | 0.70 | 0.46 | 26.91 |
| Validation | P.1 | 0.86 | 0.61 | 52.31 |
| P.67 | 0.87 | 0.56 | 50.56 |

**Table 6**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Station name | Statistical parameter | | |
|  | R | RPE | VB |
| Calibration | P.1 | 0.760 | -0.104 | -0.001 |
| P.67 | 0.080 | 0.289 | 0.002 |
| Validation | P.1 | 0.870 | 0.020 | -0.001 |
| P.67 | 0.362 | 0.430 | -0.001 |

**Table 7**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Return Period (years) | Total area of flooding (km2) | Hazard category | | | |
| Low hazard area (km2) | Medium hazard area (km2) | High hazard area (km2) | Very high hazard area (km2) |
|  | |
| 2 | 601.8 | 126.5 | 35.9 | 338.3 | 101.1 |
| 5 | 743.0 | 129.5 | 49.6 | 394.2 | 169.7 |
| 10 | 811.4 | 137.2 | 38.4 | 426.6 | 209.2 |
| 25 | 878.3 | 134.2 | 37.3 | 397.3 | 309.5 |
| 50 | 935.6 | 137.0 | 37.2 | 399.0 | 362.4 |
| 100 | 996.9 | 137.6 | 36.6 | 382.9 | 439.8 |

**Table 8**

|  |  |  |  |
| --- | --- | --- | --- |
| Adaptation Level | Flood Mitigation Strategies | Institutional Organizations | Adaptive Capacity of each Administration Level |
| National Government Level | 1) Water resource management in the upstream area  2) Flood early warning dissemination | 1) Hydrology and water management center  (HWMC) under royal irrigation department  2) Department of disaster prevention and  mitigation (DDPM) under ministry of interior | 1) Institutions and governance risk assessment  2) Monitoring and warnings  knowledge  3) Education and information  4) Climate change adaptation technology |
| Local Government Level | 1) Flood mitigation measures  2) Local early warning dissemination  3) Assistance/relief to affected residents | 1) Local city municipality  2) Sub-district  administration organization (SAO)  3) Provincial public health office | 1) Economic resources  2) Institutions and networking  3) Knowledge and skills  4) Technology  5) Infrastructure |
| Community Level | 1) Building of dikes using sandbag  2) Dredging of drains | Not Applicable | 1) Local human resources  2) Community economic resources |