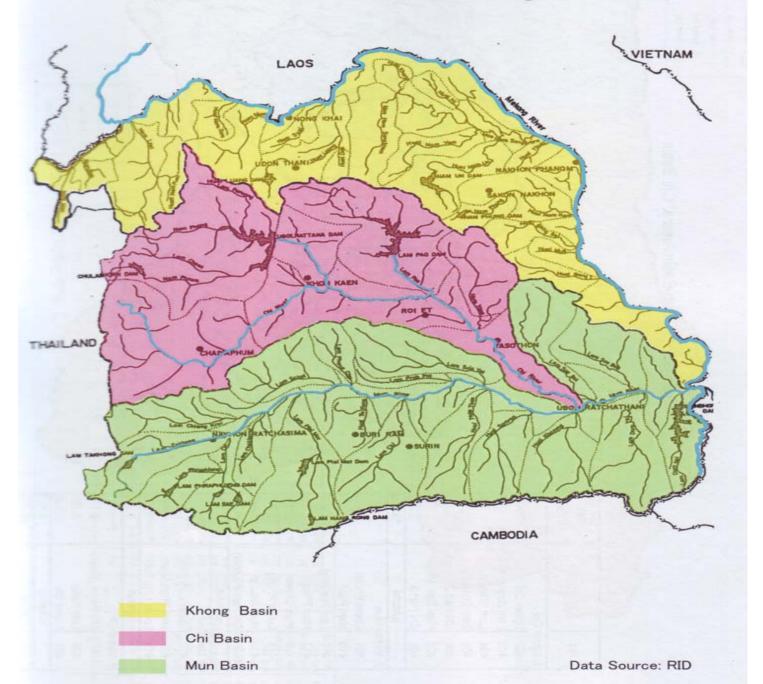
MRC SEA of Hydropower on the Mekong Mainstream Thailand baseline assessment

Figure 2.1 River Basin in Northeast Thai Region



Presentation overview

1. Socio-economic

- Population & GDP
- Poverty incidence income & expenditure

2. Power

- Mekong province energy consumption
- Future supply summary

3. Aquatic systems

Fisheries production (Inland & aquaculture)

4. Hydrology & sediment

- Discharge
- Sediment load
- Soil loss

5. Agriculture, land use & irrigation

- Land use patterns
- Protected areas & policies
- Cropping calendar & water demand
- Irrigation lessons learnt

Mekong Provinces Population

| | | lation | | | | |
|------------------|------------|------------|------------|------------|--|--|
| Province | | Popu | lation | | | |
| 110111100 | 2005 | 2006 | 2007 | 2008 | | |
| Chiang Rai | 1,225,058 | 1,225,713 | 1,225,013 | 1,227,317 | | |
| Phayao | 486,889 | 486,219 | 486,579 | 487,386 | | |
| Amnat Charoen | 368,791 | 368,934 | 368,915 | 369,476 | | |
| Buri Ram | 1,531,430 | 1,536,722 | 1,536,070 | 1,541,650 | | |
| Chaiyaphum | 1,116,934 | 1,119,146 | 1,119,597 | 1,122,647 | | |
| Kalasin | 973,556 | 975,562 | 977,508 | 978,583 | | |
| Khon Kaen | 1,747,542 | 1,750,500 | 1,752,414 | 1,756,101 | | |
| Loei | 612,422 | 613,303 | 615,538 | 618,423 | | |
| Maha Sarakham | 936,883 | 937,686 | 936,005 | 936,854 | | |
| Mukdahan | 334,113 | 335,447 | 336,107 | 337,497 | | |
| Nakhon | | | | | | |
| Ratchasima | 2,548,763 | 2,555,587 | 2,552,894 | 2,565,117 | | |
| Nakorn Phanom | 693,594 | 695,351 | 697,105 | 699,364 | | |
| Nong Bua Lamphu | 496,657 | 496,692 | 497,603 | 499,520 | | |
| Nong Khai | 896,099 | 896,580 | 902,618 | 906,877 | | |
| Roi Et | 1,310,672 | 1,310,047 | 1,308,589 | 1,307,212 | | |
| Sakon Nakhon | 1,104,106 | 1,109,046 | 1,113,064 | 1,116,034 | | |
| Si Sa Ket | 1,443,975 | 1,446,484 | 1,443,011 | 1,441,412 | | |
| Surin | 1,374,700 | 1,375,257 | 1,372,672 | 1,375,560 | | |
| Ubon Ratchathani | 1,774,808 | 1,783,035 | 1,785,709 | 1,795,453 | | |
| Udon Thani | 1,523,802 | 152,562 | 1,530,688 | 1,535,029 | | |
| Yasothon | 541,264 | 540,889 | 539,542 | 539,284 | | |
| National | 62,418,054 | 62,828,706 | 63,038,247 | 63,389,730 | | |

Source: Department of Public Administration

Past and present trends, and future projection of national economics

Gross domestic product at market price (Mil. Baht)

| | 2003 | 2004 | 2005 | 2006 | 2007 | % |
|--|-----------|-----------|-----------|-----------|-----------|------|
| | | | | | | |
| Agriculture | 615,854 | 668,808 | 728,093 | 835,776 | 913,926 | 10.8 |
| Agriculture, Hunting and Forestry | 506,623 | 561,857 | 623,738 | 730,438 | 807,898 | 9.5 |
| Fishing | 109,231 | 106,951 | 104,355 | 105,338 | 106,028 | 1.2 |
| Non-Agriculture | 5,301,515 | 5,820,668 | 6,364,800 | 7,005,521 | 7,579,385 | 89.2 |
| Mining and Quarrying | 154,606 | 175,350 | 222,617 | 256,837 | 276,670 | 3.3 |
| Manufacturing | 2,061,572 | 2,235,573 | 2,461,294 | 2,750,367 | 3,023,454 | 35.6 |
| Electricity, Gas and Water Supply | 191,006 | 210,903 | 220,410 | 238,889 | 248,119 | 2.9 |
| Construction | 174,699 | 194,466 | 214,004 | 231,899 | 246,622 | 2.9 |
| Wholesale and Retail Trade; Repair of Motor Vehicles, Motorcycles and | | | | | | 0.0 |
| Personal and Household Goods | 888,016 | 970,806 | 1,042,043 | 1,122,655 | 1,192,687 | 14.0 |
| Hotels and Restaurants | 299,567 | 334,222 | 346,865 | 386,062 | 416,592 | 4.9 |

Source: National Economic and Social Development Board

Past and present trends, and future projection of national economics

Gross domestic product at market price (Mil. Baht) - Continued

| | 2003 | 2004 | 2005 | 2006 | 2007 | % |
|---|-----------|-----------|-----------|-----------|-----------|-----|
| Transport, Storage and Communications | 457,169 | 492,530 | 519,623 | 569,875 | 622,080 | 7.3 |
| Financial Intermediation | 202,257 | 233,719 | 264,896 | 286,220 | 311,488 | 3.7 |
| Real Estate, Renting and Business Activities | 177,848 | 188,243 | 198,521 | 208,757 | 215,397 | 2.5 |
| Public Administration and Defense; Compulsory Social Security | 262,272 | 295,885 | 326,051 | 349,853 | 373,210 | 4.4 |
| Education | 221,191 | 248,876 | 280,978 | 316,690 | 360,152 | 4.2 |
| Health and Social Work | 106,836 | 116,695 | 135,224 | 150,010 | 163,849 | 1.9 |
| Other Community, Social and Personal Services Activities | 96,654 | 115,178 | 123,743 | 128,669 | 119,853 | 1.4 |
| Private Households with Employed Persons | 7,822 | 8,222 | 8,531 | 8,738 | 9,212 | 0.1 |
| Gross Domestic Product (GDP) | 5,917,369 | 6,489,476 | 7,092,893 | 7,841,297 | 8,493,311 | |
| GDP Per capita (Baht) | 92,485 | 100,564 | 108,956 | 119,579 | 128,606 | |
| Population (1,000 persons) | 63,982 | 64,531 | 65,099 | 65,574 | 66,041 | |

Source: National Economic and Social Development Board

Sectoral Gross Domestic Product by Annual Price (Million Baht)

| | | Sectoral | Gross Dom | nestic Pro | duct by | Annual P | rice (Millior | n Baht) |
|---|-----------|----------|-----------|------------|---------|----------|---------------|-----------------------------|
| Sectors | National | North | Northeast | Central | East | South | Bangkok | BKK Surrounded Provinces |
| Agriculture Products | 807,898 | 176,326 | 180,335 | 38,044 | 70,232 | 249,781 | 3,524 | 20,434 |
| Fisheries | 106,029 | 2,914 | 3,643 | 848 | 13,845 | 65,360 | 310 | 14,541 |
| Mineral Resources | 276,670 | 31,332 | 11,833 | 8,729 | 193,960 | 20,442 | - | 1,503 |
| Industries | 3,023,455 | 135,574 | 145,822 | 392,715 | 766,696 | 115,427 | 477,895 | 914,887 |
| Electricities and Water Supplies | 248,118 | 14,029 | 14,512 | 18,326 | 75,773 | 19,788 | 40,972 | 35,991 |
| Construction | 246,621 | 32,884 | 37,516 | 8,828 | 24,429 | 24,631 | 75,036 | 33,611 |
| Trading (Wholesale and Retails) | 1,192,687 | 110,966 | 181,856 | 44,344 | 102,081 | 93,308 | 535,796 | 71,737 |
| Hotel and Restuarants | 416,592 | 19,139 | 17,744 | 4,726 | 34,151 | 44,926 | 258,643 | 25,556 |
| Transportation and Communication | 622,079 | 30,233 | 36,627 | 19,466 | 62,415 | 42,013 | 277,845 | 135,591 |
| Financial Services | 311,489 | 27,381 | 36,134 | 8,461 | 16,242 | 22,480 | 164,238 | 26,906 |
| Real Estates | 215,397 | 25,049 | 29,908 | 14,529 | 15,335 | 23,532 | 78,065 | 20,110 |
| Government Budgeting | 373,211 | 51,035 | 62,304 | 20,889 | 28,708 | 40,819 | 135,478 | 14,107 |
| Others (Education, Health Services, etc.) | 643,857 | 101,602 | 144,699 | 31,308 | 40,360 | 83,734 | 164,000 | 44,316 |

Source: Alfa Research, 2009 referred to NESDB 2007

Past and present trends, and future projection of national economics

Future projection: Trends of economic growth (%)

| | 2008-2012 | 2013-2017 | 2018-2022 | 2023-2027 | Average |
|----------------------------|-----------|-----------|-----------|-----------|---------|
| Low growth projection | 4.96 | 4.75 | 4.35 | 3.87 | 4.48 |
| Moderate growth projection | 5.42 | 5.65 | 5.55 | 5.21 | 5.46 |
| High growth projection | 5.88 | 6.6 | 6.82 | 6.58 | 6.47 |

Source: National Economic and Social Development Board

Past and present trends, and future projection of national economics

Future projection: Structure of productivity sectors (% of total GDP)

| | 2012 | 2017 | 2022 | 2027 | | | | |
|----------------------------|----------------------------|-------|-------|-------|--|--|--|--|
| Low growth projection | | | | | | | | |
| Agriculture | 8.24 | 7.60 | 7.00 | 6.47 | | | | |
| Industry | 42.16 | 42.44 | 42.79 | 43.42 | | | | |
| Service and others | 49.6 | 49.96 | 50.22 | 50.12 | | | | |
| Moderate growth projection | Moderate growth projection | | | | | | | |
| Agriculture | 8.24 | 7.60 | 7.00 | 6.48 | | | | |
| Industry | 42.15 | 42.46 | 42.88 | 43.64 | | | | |
| Service and others | 49.62 | 49.94 | 50.12 | 49.88 | | | | |
| High growth projection | | | | | | | | |
| Agriculture | 8.23 | 7.60 | 7.01 | 6.51 | | | | |
| Industry | 42.13 | 42.47 | 42.96 | 43.84 | | | | |
| Service and others | 49.64 | 49.94 | 50.03 | 49.66 | | | | |

Source: National Economic and Social Development Board

Past and present trends, and future projection of national economics

Drivers for future growth:

- Trends of total factor productivity and investment growth
- Population and labor force growth
- Government consumption
- Price of export goods in global market
- No major shift in industrial production

Poverty incidence

| | 2002 | 2004 | 2006 | 2007 |
|----------------------------------|-------|-------|-------|-------|
| Poverty gap ratio | 2.75 | 2.01 | 1.81 | 1.45 |
| Severity of poverty | 0.81 | 0.56 | 0.53 | 0.41 |
| Poverty line (Baht/capita/month) | 1,190 | 1,242 | 1,386 | 1,443 |
| Ratio of poor population (%) | 14.93 | 11.16 | 9.55 | 8.48 |
| Number of poor population (mil.) | 9.1 | 7.0 | 6.1 | 5.4 |
| Total population (mil.) | 61.2 | 62.9 | 63.4 | 63.9 |

Note:

- Poverty gap ratio is the gap between expenditure of people under poverty line and the poverty line (%)
- Severity of poverty is the measurement of the extreme poor group
- Poverty line is calculated from the expenditure which an individual needs to acquire basic food and other goods

Source: National Statistical Office

Thailand Poverty Headcount Ratio

| Pogion | Pc | verty Ratio | | |
|-----------|------|-------------|------|--|
| Region | 2000 | 2004 | 2006 | |
| National | 21.0 | 11.2 | 9.6 | |
| Northeast | 35.3 | 18.6 | 16.8 | |
| North | 23.1 | 15.7 | 12.0 | |
| South | 16.6 | 6.0 | 5.5 | |
| Central | 9.0 | 4.5 | 3.3 | |
| BKK | 1.7 | 0.8 | 0.5 | |
| Urban | 8.6 | 4.6 | 3.6 | |
| Rural | 26.5 | 14.2 | 12.0 | |

Source: THAILAND ECONOMIC MONITOR, APRIL 2008, World Bank and NESDB

Household income and expenditure

| Year | Average Househ old Size | Average Monthly Income of Household (Baht) | Percent of Change per Year | Average Monthly Expenditure of Household (Baht) | Percent of Change per Year |
|------|-------------------------------|---|----------------------------------|--|----------------------------------|
| 1999 | 3.7 | 12,729 | 1.90 | 10,238 | -1.45 |
| 2000 | 3.6 | 12,150 | -4.55 | 9,848 | -3.81 |
| 2001 | 3.6 | 12,185 | 0.29 | 10,025 | 1.80 |

Source: National Statistical Office

Average Household Income 2006

| Type of Income | Ave | rage Hous | sehold Inco | me* 200 | 06 (baht/ | month) |
|-------------------------------------|----------|-----------|-------------|---------|-----------|-----------|
| Type of Income | National | North | Northeast | Central | South | Bangkok** |
| Salary and Fare | 7,108 | 3,920 | 3,573 | 7,777 | 6,128 | 18,219 |
| Net Profits from Business Operation | 3,628 | 2,688 | 2,270 | 3,718 | 3,719 | 7,362 |
| Net Profits from Agriculture | 2,193 | 2,173 | 1,511 | 3,340 | 4,677 | 132 |
| Income from social supports*** | 1,671 | 1,620 | 1,922 | 1,336 | 1,184 | 2,038 |
| Income from Properties | 348 | 186 | 107 | 265 | 274 | 1,188 |
| None Monetary Income**** | 2,591 | 2,220 | 2,241 | 2,593 | 2,479 | 3,848 |
| Irregular Monetory Income | 251 | 338 | 191 | 251 | 206 | 300 |
| Total Income | 17,787 | 13,146 | 11,815 | 19,279 | 18,668 | 33,088 |

Remarks:

- * = the average of income from 12 months in 2006
- ** = included Nonthaburi, Pathumthani and Samuthprakarn Province
- *** = pension, compensation, lay-off compensate, etc.
- **** = Assume income from the property as leasing or rental cost

Source: Alfa Research, 2009 referred to National Statistical Office 2006

Average Household Expense in 2006

| Sources of Evenes | | Average Ho | usehold Expens | se* 2006 (bah | t/month) | |
|---|----------|------------|----------------|---------------|----------|-----------|
| Sources of Expense | National | North | Northeast | Central | South | Bangkok** |
| Food and Beverage | 4,221 | 3,253 | 3,386 | 4,567 | 4,560 | 6,333 |
| Alcohol Drinks | 251 | 204 | 179 | 321 | 269 | 356 |
| Cigarette, Chewing and Inhelts | 129 | 79 | 90 | 151 | 192 | 191 |
| Residentail and Home Decoration*** | 408 | 345 | 285 | 424 | 542 | 601 |
| Cloths and Shoes | 3,106 | 2,293 | 2,127 | 3,297 | 3,140 | 5,835 |
| Medicinal and Health Care | 305 | 282 | 193 | 300 | 329 | 550 |
| Personal Expense | 405 | 288 | 280 | 438 | 371 | 189 |
| Transportation and Communication | 3,084 | 204 | 2,096 | 3,282 | 3,381 | 6,366 |
| Entertainment, Reading and Religion Relevance | 322 | 279 | 173 | 399 | 307 | 593 |
| Education | 283 | 220 | 137 | 246 | 245 | 733 |
| Special Events | 188 | 204 | 238 | 212 | 157 | 63 |
| Non-consumption expense**** | 1,610 | 1,274 | 1,131 | 1,736 | 1,678 | 2,783 |
| Total Income | 14,311 | 11,185 | 10,316 | 15,373 | 15,260 | 24,194 |
| Percentage of income | 80.5 | 85.1 | 87.3 | 79.7 | 81.7 | 73.1 |

Remarks:

- * = Expense not include payment for saving e.g. housing and jewelries
- ** = included Nonthaburi, Pathumthani and Samuthprakarn Province
- *** = include the payment as a house owner
- **** = include tax, gift, donation, insurances, interests for loans, others

Source: Alfa Research, 2009 referred to National Statistical Office 2006

Mekong Provinces Electricity Consumption

| | Electricity Spent (gWh) | | | | Electr | icity Spent | per Head | (kWh) |
|-------------------|-------------------------|---------|---------|---------|---------|-------------|----------|---------|
| Mekong Provinces | 2004 | 2005 | 2006 | 2007 | 2004 | 2005 | 2006 | 2007 |
| Chiang Rai | 570 | 591 | 624 | 668 | 496.4 | 482.4 | 509.1 | 545.3 |
| Phayao | 187 | 198 | 211 | 222 | 382.9 | 406.7 | 434.0 | 456.2 |
| Amnat Charoen | 97 | 103 | 110 | 116 | 263.9 | 279.3 | 298.2 | 314.4 |
| Buri Ram | 472 | 508 | 532 | 571 | 309.7 | 330.4 | 346.2 | 371.7 |
| Chaiyaphum | 417 | 408 | 474 | 506 | 373.3 | 365.3 | 423.5 | 451.9 |
| Kalasin | 388 | 392 | 424 | 448 | 399.5 | 402.7 | 434.8 | 458.3 |
| Khon Kaen | 1,130 | 1,224 | 1,310 | 1,403 | 648.8 | 700.4 | 748.4 | 800.6 |
| Loei | 224 | 229 | 246 | 276 | 366.9 | 373.9 | 401.1 | 448.4 |
| Maha Sarakham | 315 | 349 | 379 | 405 | 336.9 | 372.5 | 404.2 | 432.7 |
| Mukdahan | 104 | 119 | 128 | 138 | 312.7 | 356.2 | 381.6 | 410.6 |
| Nakhon Ratchasima | 2,831 | 3,063 | 3,330 | 3,510 | 1,114.9 | 1,202.7 | 1,303.0 | 1,374.9 |
| Nakorn Phanom | 191 | 202 | 219 | 233 | 276.4 | 291.2 | 314.9 | 334.2 |
| Nong Bua Lamphu | 127 | 138 | 148 | 163 | 256.8 | 277.9 | 296.0 | 327.6 |
| Nong Khai | 286 | 310 | 330 | 363 | 319.3 | 345.9 | 366.8 | 402.2 |
| Roi Et | 429 | 446 | 477 | 506 | 327.4 | 340.3 | 364.1 | 386.7 |
| Sakon Nakhon | 306 | 334 | 366 | 391 | 277.8 | 302.5 | 330.0 | 361.3 |
| Si Sa Ket | 349 | 368 | 392 | 422 | 242.3 | 254.9 | 270.0 | 292.4 |
| Surin | 394 | 433 | 471 | 494 | 287.3 | 315.0 | 342.5 | 359.9 |
| Ubon Ratchathani | 633 | 699 | 741 | 789 | 359.0 | 393.9 | 415.5 | 441.8 |
| Udon Thani | 701 | 738 | 780 | 816 | 461.6 | 484.3 | 510.6 | 533.1 |
| Yasothon | 167 | 179 | 188 | 200 | 308.5 | 330.7 | 347.6 | 370.7 |
| National | 115,044 | 121,229 | 127,811 | 133,178 | 1,856.3 | 1,942.2 | 2,034.3 | 2,112.7 |

Source: Department of Alternative Energy Development and Efficiency

Thailand Power Development Plan

Current PDP is PDP 2007 (2009-2015) Revision 2, endorsed by the Cabinet on March 24, 2009.

However, the new PDP 2010 (2010-2031) is under drafting process, expected to be launched for public hearing by the end of Jan 2010. This PDP 2010 will be focused on:

- Power security: diversify the power sources
- Green PDP Plan: synchronize with the National Renewable Energy Plan
- Increase efficiency to reduce GHG emission from new power plants.
- Emphasis on the Co-generation technology

Foreseen Projects during 2009-2015

| Type of Investment | MW |
|--|---------|
| EGAT Power Plant Projects | 3,767.7 |
| IPP Power Purchase Projects | 4,400.0 |
| SPP Power Purchase Projects | 1,985.5 |
| VSPP Power Purchase Projects | 264.0 |
| Power Purchased from Neighboring Countries | 2,186.6 |

Source: PDP 2007 Revision 2

Planned Power Purchased from Neighboring Countries

| Name | MW |
|---|-------|
| For 2009-2016 | |
| Nam Theun 2 (Lao PDR) | 920 |
| Nam Ngum 2 (Lao PDR) | 596.6 |
| Theun Hinboun-Expansion (Lao PDR) | 220 |
| New Project | 450 |
| For 2016-2021 | 2,850 |

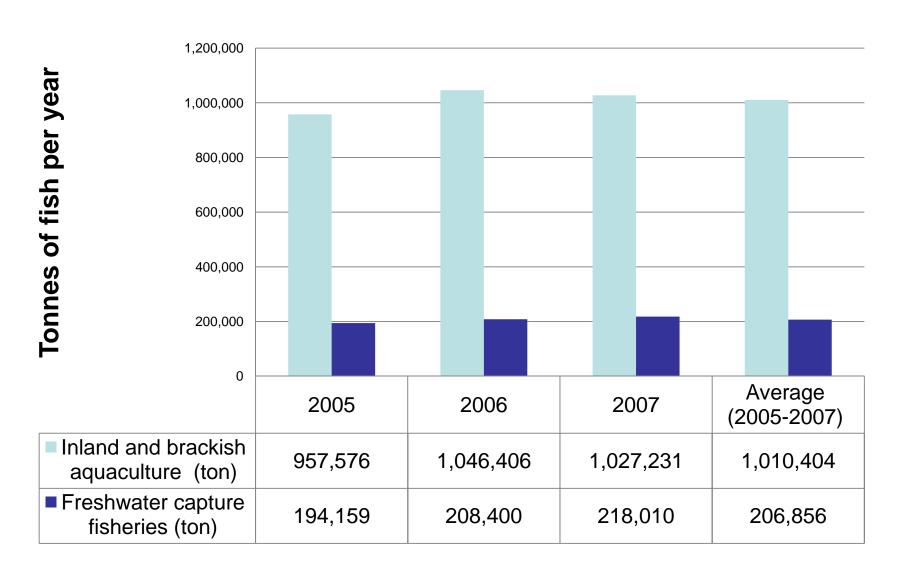
Aquatic system & Fisheries

National Freshwater Fisheries Production

| | 2 | 004 | 2005 | | | |
|------------------------|--------------------------------------|-------------------------|---------------------|--------------------------------|--|--|
| Freshwater Species | Volume (ton) | Value (Million Baht) | Volume (ton) | Value (Million Baht) | | |
| Snake Head Fish | 29,800 | 1,757.0 | 24,900 | 1543.3 | | |
| Walking Cat Fish | 166,100 | 5,102.7 | 149,000 | 4998.9 | | |
| Common Climbing Perch | 10,200 | 369.3 | 16,200 | 602.3 | | |
| Common Silver Barb | 106,800 | 3,294.7 | 108,900 | 3218.9 | | |
| Nile Tilapia | 203,100 | 6,298.5 | 244,300 | 7254.1 | | |
| Common Carp | 13,800 | 441.9 | 10,300 | 352.6 | | |
| Snake Skin Gourami | 37,800 | 1,511.6 | 37,000 | 1468.9 | | |
| Cat Fish | 33,700 | | 37,200 | 803.3 | | |
| Other Fish Species | 86,700 | 2,688.8 | 71,600 | 2900.7 | | |
| Giant Freshwater Prawn | eshwater Prawn 33,000 3,898.7 31,800 | | 31,800 | 4359.1 | | |
| Shrimps | s 200 | | 1,400 | 57.9 | | |
| Other non-fish species | 6,200 | 510.9 | 5,600 | 455.3 | | |
| Total | 727,400 | 26,749.1 | 738,200 | 28,015.3 | | |

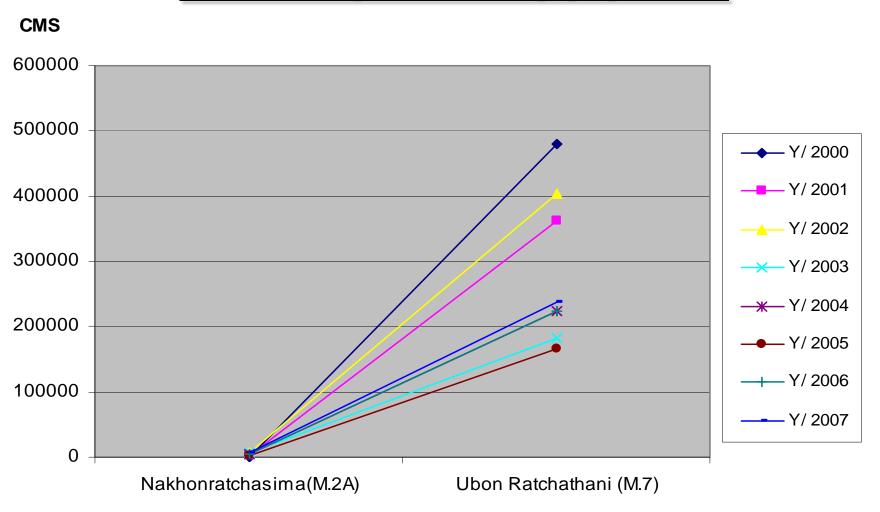
Source: Office of Agriculture Economics, 2007, Thailand Agricultural Statistic

Aquatic system & Fisheries

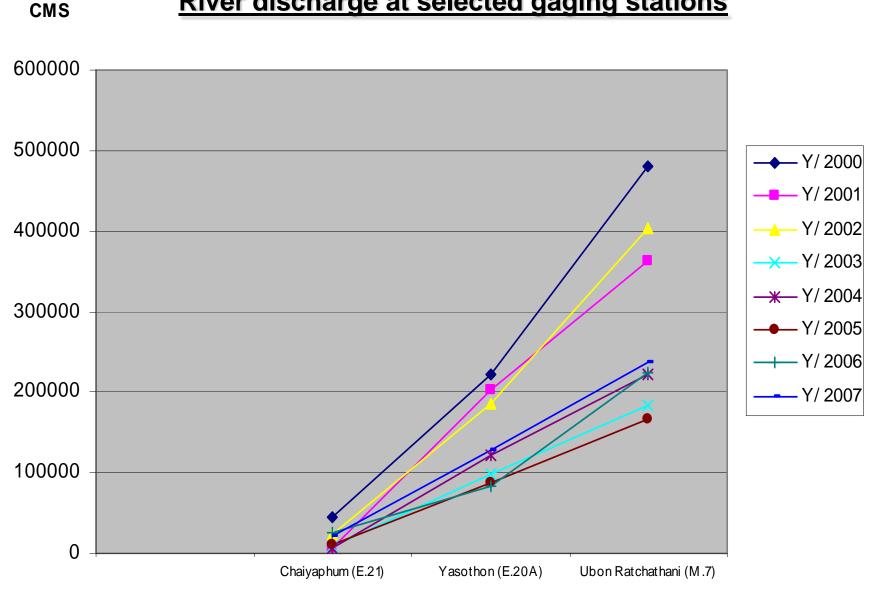


Source: (FAO; Figis (http://www.fao.org/fishery/statistics/global-aquaculture-production/query/en))

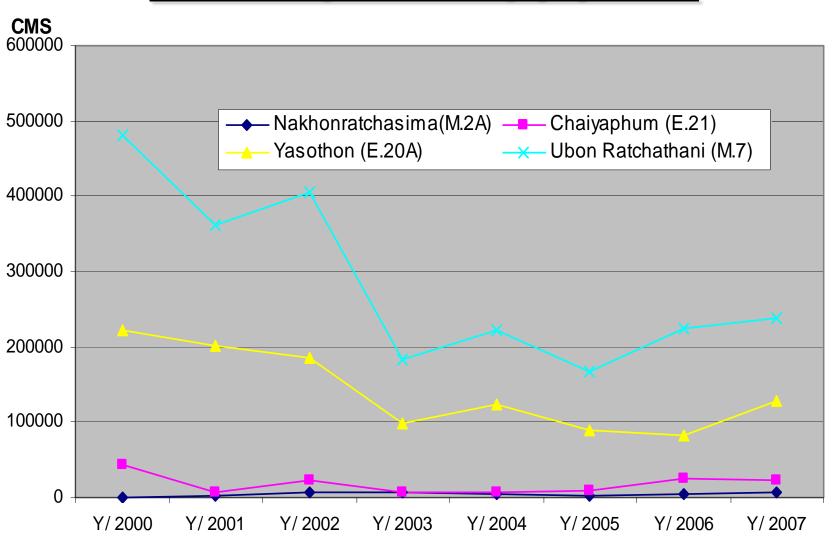
River discharge at selected gaging stations

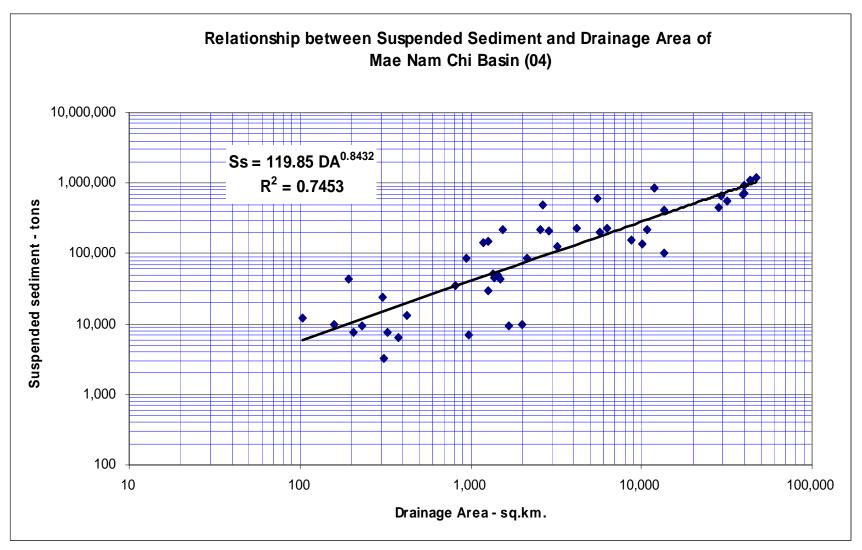




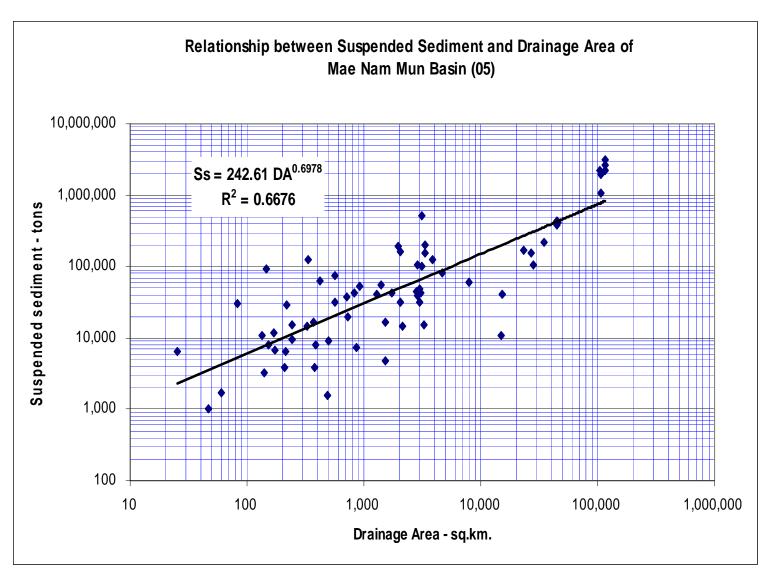


River discharge at selected gaging stations





Source: Royal Irrigation Department



Source: Royal Irrigation Department

Sediment load at various measuring stations in Northeast Thailand

| Station | Catchment area (Sq. Km.) | River Basin | Average annual Sediment load (ton) | sediment load / catchment area [ton/km2] |
|-----------------------|-----------------------------|-------------|------------------------------------|--|
| E32A Chaiyaphum | 2,906 | Upper Chi | 206,526 [1] | 71.07 |
| E 1 Mahasarakam | 29,438 | Middle Chi | 647,698 [2] | 22.00 |
| M. 89 Nakornrachasima | 713 | Upper Mun | 24,224 [3] | 33.97 |
| M.5 Srisaket | 45,295 | Middle Mun | 441,536 [4] | 9.75 |
| M.7 Ubonrajchatani | 107,345 | Lower Mun | 19,811 [5] | 0.18 |

- [1] Record length 1979 1995
- [2] Record length 1998 2004
- [3] Record length 1998 2004
- [4] Record length 1998 2004
- [5] Record length 1964 1995

Source: Royal Irrigation Department

Soil Loss in Northeast of Thailand

| Class | Characteristic | Area in rai | % |
|----------------------------|---|---|--|
| | Flood plain, sloping area hilly area with slope less than 35% | | |
| 1 2 3 4 5 | Mild soil loss Medium soil loss High soil loss Very high soil loss Extremely high soil loss Total | 80,733,482 14,162,658 2,184,553 116,087 327,155 | 76.50 13.42 2.07 0.11 0.31 |
| | Mountain area and valley with slope more than 35% | 97,523,935 | 92.41 |
| 1H 2H 3H 4H 5H | Mild soil loss Medium soil loss High soil loss Very high soil loss Extremely high soil loss | 6,933,581 232,175 759,845 84,427 | 6.57 0.22 0.72 0.08 |
| | Total | 8,010,028 | 7.59 |
| | Total | 105,533,963 | 100 |

Source: Land Development Department

| Mild soil loss | 0-2 | ton/rai/year |
|--------------------------|-------|--------------|
| Medium soil loss | 2-5 | ton/rai/year |
| High soil loss | 5-15 | ton/rai/year |
| Very high soil loss | 15-20 | ton/rai/year |
| Extremely high soil loss | > 20 | ton/rai/year |

Land use pattern of Northeast Thailand

(Year 2007)

| T | A | (10a1 2001) |
|-----------------------------------|---------------|-------------|
| Type of Land use | Area (rai) | % |
| Community area and infrastructure | 5,102,450 | 4.83 |
| Urban area | 548,425 | 0.52 |
| Rural area | 3,649,560 | 3.46 |
| Others | 904,465 | 0.85 |
| Agriculture Land | 69,866,312 | 66.20 |
| Paddy | 46,422,999 | 43.99 |
| Field crop | 17,522,473 | 16.60 |
| Tree crop | 3,196,501 | 3.03 |
| Fruit tree | 1,766,734 | 1.67 |
| Vegetable garden | 105,534 | 0.10 |
| Rotation crop | 482,931 | 0.78 |
| Pasture | 254,297 | 0.24 |
| Aquaculture | 91,657 | 0.09 |
| Mix farming | 21,179 | 0.02 |
| Forest | 22,529,402 | 21.35 |
| Water Body | 3,277,636 | 3.11 |
| Others | 4,768,163 | 4.51 |

1 hector = 625 rai

Source: Land Development Department

Major Land Use in Mekong Province in 2006

| Mekong Provinces | Forested Area (%) | Agricultural Area (%) |
|-------------------|-------------------|-----------------------|
| Wekong Frovinces | 2003 | 2003 |
| Chiang Rai | 43.7 | 27.5 |
| Phayao | 50.3 | 26.2 |
| Amnat Charoen | 18.2 | 67.9 |
| Buri Ram | 9.2 | 61.0 |
| Chaiyaphum | 29.3 | 42.7 |
| Kalasin | 12.0 | 60.2 |
| Khon Kaen | 11.3 | 61.0 |
| Loei | 37.5 | 32.1 |
| Maha Sarakham | 4.2 | 82.1 |
| Mukdahan | 33.6 | 33.9 |
| Nakorn Phanom | 24.0 | 43.0 |
| Nakhon Ratchasima | 15.4 | 60.3 |
| Nong Khai | 9.1 | 57.5 |
| Nong Bua Lamphu | 14.7 | 61.6 |
| Roi Et | 6.4 | 61.6 |
| Sakon Nakhon | 21.3 | 46.6 |
| Si Sa Ket | 11.7 | 62.3 |
| Surin | 10.4 | 69.9 |
| Udon Thani | 12.6 | 50.3 |
| Ubon Ratchathani | 17.2 | 48.4 |
| Yasothon | 11.0 | 61.7 |
| National | 32.7 | 40.6 |

Source: Office of Agriculture Economics, 2007, Thailand Agricultural Statistic

Forest Policies Changes

| National Goal | Protected Area | Economic Forest |
|--|-------------------|--------------------|
| National Forest Policy | 15 | 25 |
| (Cabinet Resolution 3 December 1985) | | |
| 7 th National Economic and Social Development Plan (1992-1996) | 25 | 15 |
| 10 th National Economic and Social Development Plan (2007-2011) | 18 | 15 |

Prime Minister's Statement at UNFCCC COP 15th, December 2009.

"Thailand has an ambitious target to increase the national forest cover from 30 % in 2006 up to 40% by 2020. At present, we have 228 protected areas and planned to establish more in the future. The constant effort on forest conservation and protection as well as reforestation programmes through action and implementation plan by promoting people participation is one of the key successes in our efforts to reach our target."

Change of Protected Areas from 2004-2008

| Protected Areas | 2004 | | 2005 | | 2006 | | 2007 | | 2008 | |
|--------------------|------|-----------------|------|-----------------|------|-----------------|------|-----------------|------|-----------------|
| Туре | No. | Area (Sq.Km) |
| National Park | 103 | 52,773.73 | 103 | 52,773.73 | 103 | 52,773.73 | 108 | 54,125.53 | 110 | 55,135.32 |
| Forest Park | 69 | 832.80 | 84 | 958.40 | 112 | 1,298.88 | 113 | 1,238.78 | 112 | 1,236.71 |
| Wildlife Sanctuary | 55 | 35,748.99 | 55 | 35,748.99 | 55 | 35,748.99 | 57 | 36,205.37 | 57 | 36,578.72 |
| Non-Hunting Area | 56 | 4,346.46 | 56 | 4,346.46 | 56 | 4,346.46 | 51 | 3,776.24 | 60 | 5,233.04 |
| Botanical Garden | 16 | 60.14 | 16 | 63.32 | 16 | 46.28 | 16 | 46.28 | 16 | 41.37 |
| Arboretum | 55 | 36.61 | 55 | 40.52 | 55 | 41.89 | 55 | 41.89 | 55 | 42.84 |

Source: National Parks, Wildlife and Plant Conservation Department, 2008, Statistical Data

Distribution of Protected Areas 2008

| Drotooted Area | | North | | Northeast | | Central | | East | | South | |
|-----------------------|-----|-----------------|-----|-----------------|-----|-----------------|-----|-----------------|-----|-----------------|--|
| Protected Area Type | No. | Area (Sq.km) | |
| National Park | 38 | 23,456.05 | 21 | 10,026.71 | 12 | 8,680.76 | 7 | 2,495.49 | 32 | 10,476.31 | |
| Forest Park | 62 | 638.36 | 28 | 455.08 | 11 | 35.64 | 3 | 67.16 | 8 | 40.47 | |
| Wildlife Sanctuary | 24 | 17,329.48 | 11 | 5,104.74 | 5 | 5,815.05 | 4 | 2,233.90 | 13 | 6,095.54 | |
| Non-Hunting Area | 13 | 881.09 | 10 | 612.59 | 15 | 844.61 | 3 | 40.43 | 19 | 2,854.31 | |
| Botanical Garden | 2 | 0.60 | 3 | 5.39 | 2 | 11.51 | 2 | 9.51 | 6 | 14.30 | |
| Arboretum | 23 | 19.52 | 14 | 14.78 | 9 | 3.84 | 5 | 3.46 | 4 | 1.24 | |

Source: National Parks, Wildlife and Plant Conservation Department, 2008, Statistical Data

National Forest Reserves

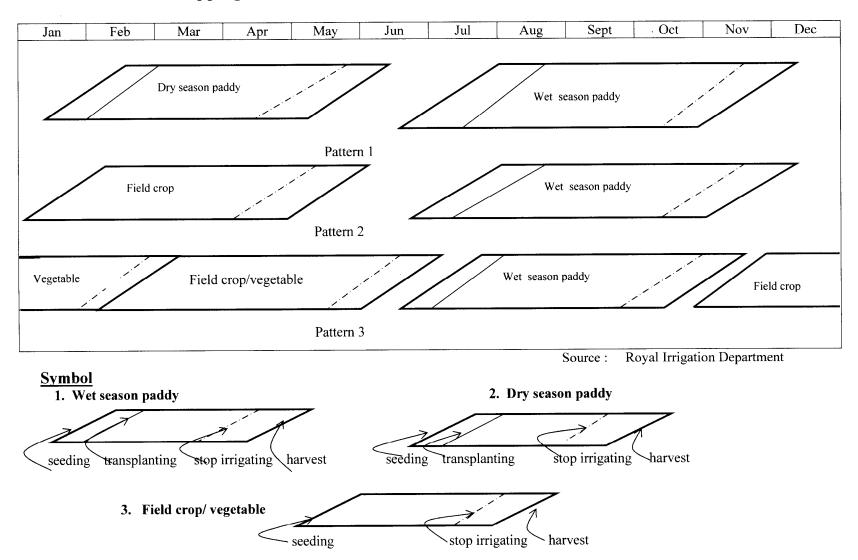
| National Forest | 2004 | | 2005 | | 2006 | | | 2007 | 2008 | |
|-----------------|-------|-----------------|-------|--------------|-----------|-----------------|-------|--------------|-------|-----------------|
| Reserves | No. | Area (Sq.Km) | No. | Area (Sq.Km) | No. | Area (Sq.Km) | No. | Area (Sq.Km) | No. | Area (Sq.Km) |
| North | 257 | 111,964.78 | 257 | 111,964.78 | 257 | 111,964.78 | 257 | 111,875.04 | 257 | 111,875.04 |
| North-east | 353 | 53,333.40 | 353 | 53,333.40 | 353 | 53,333.40 | 353 | 53,333.40 | 353 | 53,333.40 |
| Central & East | 143 | 34,889.06 | 143 | 34,889.06 | 143 | 34,889.06 | 143 | 34,889.06 | 143 | 34,889.06 |
| South | 468 | 28,183.15 | 468 | 28,183.15 | 468 | 28,183.15 | 468 | 28,183.15 | 468 | 28,183.15 |
| Total | 1,221 | 230,370.39 | 1,221 | 230,370.39 | 1,22 1 | 230,370.39 | 1,221 | 230,280.65 | 1,221 | 230,280.65 |

Remarks:

Total area compiled from the maps and their corresponding area published in the government gazette which occasionally overlapped each other and some areas have already been revoked from the reserved category for other used.

Source: National Parks, Wildlife and Plant Conservation Department, 2008, Statistical Data

Cropping calendar of irrigated areas in Northeast of Thailand



Current water demand for different sectors and water storage capacity

(million cubic meter)3

| Basin | | Water d | Storage | Surface | | |
|-------|----------|-------------|------------|-----------|-----------|-----------|
| | Domestic | Agriculture | Industrial | Total | capacity | Run-off |
| Kong | 194.31 | 2,439.00 | 37.00 | 2,670.30 | 1,996.50 | 28,302.20 |
| Chi | 216.17 | 4,134.00 | 93.85 | 4,4444.02 | 4,998.00 | 11,948.34 |
| Mun | 311.82 | 4,075.00 | 180.50 | 4,567.32 | 4,837.47 | 18,972.48 |
| Total | 722.30 | 10,648.00 | 311.34 | 11,681.64 | 11,831.97 | 59,223.02 |

Source: Department of Water Resources

Estimated water demand for different sectors and water storage capacity in 2014

(million cubic meter)3

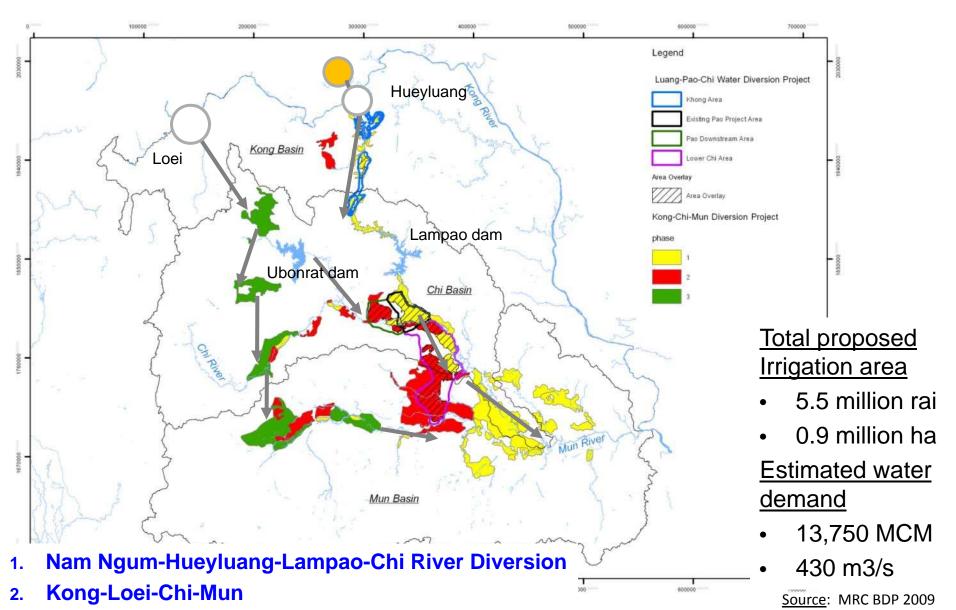
| Basin | | Water d | Storage | Surface Run-off | | |
|-------|----------|-------------|------------|--------------------|-----------|-----------|
| | Domestic | Agriculture | Industrial | Total | capacity | Kun-on |
| Kong | 209.46 | 2,830.37 | 38.85 | 3,078.67 | 1,996.50 | 28,302.20 |
| Chi | 286.64 | 5,634.62 | 98.54 | 6,019.80 | 4,998.00 | 11,948.34 |
| Mun | 336.51 | 4,108.17 | 219.00 | 4,663.68 | 4,837.47 | 18,972.46 |
| Total | 832.61 | 12,573.16 | 356.38 | 13,762.15 | 11,831.97 | 59,223.02 |

Source: Department of Water Resources

IWRM/ Water resources management

- No IWRM/ water resources management plan
- IWRM principle incorporated into water resources management system
- Achieve through putting elements of the three components of IWRM into practice

Mekong mainstream mega-irrigation projects



Thanksou