The state and the construction of the territory

Whether we are looking at the administrative coverage of the Kingdom or at infrastructure provision, a vital factor in the construction of this country has been the state's need to incorporate border areas and establish the authority of the central power. From the end of the 19th century, measures were taken to modernize the Kingdom, to unify and control a territory whose frontiers were defined only gradually and under duress.

The precise demarcation of the frontiers was determined, as it was in the other countries of the Indo-Chinese peninsula, under pressure from the colonial powers at the end of the 19th and beginning of the 20th centuries. However, it was as a formally independent state (along with China) that Siam saw its tributary territories literally amputated by the British and French empires (**plate 20 Changes in boundaries and frontiers (18th-20th century**)). Whatever the true reasons for maintaining political independence (skill of the Siamese diplomats, desire of the French and the British to keep a territorial buffer between their empires), the demarcation of frontiers was in direct opposition to the conception that the South-East Asian states had of their territorial sovereignty and their borders. Based in part on Brahmanism and mainly on Buddhism, the notion of the "agrarian states" (from Ayutthaya, which was constituted in the 14th century, to the Kingdom of Siam in the 19th century) grouped together principalities that were defined more in terms of their center than of their frontiers (**plate 21 Formation of the nation-state territory**). Efforts to resist the colonial threat around the periphery, and then the gradual incorporation of these peripheral regions at the end of the 19th century under exclusively Siamese sovereignty created an extremely centralized system which is not dissimilar to the French and British colonial administrations. Even though Thailand today has succeeded in establishing territorial control and having it respected at the frontiers, something some of its neighbors have not achieved, there are still some fringe areas that are not entirely integrated (see also plate 10 Main ethno-linguistic groups).

The imposition of a uniform system of administration centered around Bangkok and the authority of the powerful Ministry of Interior (created in 1892) are felt at every level and in every sphere of public office, and have produced a centralizing force that is without parallel in continental South-East Asia. The presence of the administration reaches right down to the lowest level of the village through the inter-penetration of two systems: the deconcentration of central administration and the various forms of local government (**plate 22 Territorial administration**). Although often called for, the principle of democratic decentralization has still largely not been applied, due to opposition from the Ministry of Interior, which fears that such a measure will be inefficient and moreover will threaten national security and unity. The 1995 reforms to increase local government representativity and autonomy, the spirit of which was confirmed in the 1997 Constitution, derived from the civil society (*prachakhon*) whose members have different expectations. Decentralization is demanded by various groups in the name of democracy, it is included in the electoral platform of some political parties, and is defended for purposes of clientelism by both political and capitalist members of these bodies. The question of deforestation is another field that is involved in the democratization process (**plate 23 Deforestation**). The forest areas of Thailand have been the subject of growing attention from the Royal Forest Depart-ment and some Non-Governmental Organizations. Measures taken in terms of forest conservation stir up protests and controversies over rights to the use of resources which are not eased by the confusion over the actual extent of the forest cover and the absence of any consensus about the definition of the forest areas.

Most of the country's major infrastructure converges on Bangkok, transforming the capital and its region into a veritable crossroads. Nevertheless, this physical expression of extreme political centralization and economic concentration (radial layout of the major axes and networks, concentration of infrastructure) cannot detract from what has been achieved in the peripheral regions. Some of these developments, begun in the 1950s (new roads opened up) and continued into the 1970s (schools, clinics, water supply, electrification) were dictated by strategic and security considerations. The rural development process was implemented by the military with American aid for checking the advance of communism in the North and North-East and countering secessionist demands in the South. These achievements improved living conditions and integrated into the country's commercial network provincial centers that had previously been marginalized due to a lack of rail services. They nevertheless helped to reinforce the primacy of Bangkok and strengthen regional inequalities, even though the reduction of these inequalities

was an objective that had regularly figured in the planning agenda of the National Economic and Social Development Board (NESDB). This body was created in 1959, and is still a forceful tool for national develop-ment and planning.The action of public authorities has always been hampered by the absence of any regional planning and especially by the fear of compromising national economic growth by slowing the expansion of the central pole: the goal of the authorities, since the 7th Plan in particular, is to facilitate the development of the zones affected by metropolization by providing infrastructure and establishing subregional centers.

While not penalizing the Bangkok region, the approach adopted to reduce regional inequalities was to try and stimulate provincial growth by strengthening the industrial and urban-based functions of the regional poles of growth through public investments. The strategy was introduced with the 4th Plan (1977-1981), but did not produce the hoped for results even though it enabled facilities to be provided for some urban centers and, coupled with an industrial deconcentration policy, did facilitate their industrialization. At the beginning of the 1980s, "urban industrial regions" were defined where it was the state's respon-sibility to create, through infrastructure provision, conditions favorable to private investment in industry and the service sector. The Upper South and Upper Central Regions were defined in this way but the Eastern Seaboard (Chachoengsao, Chon Buri, Rayong) was the first such area to be created and the most developed. It was conceived both as an area of economic deconcentration for Bangkok and as an industrial pole, linked with the exploitation of the petroleum reserves in the Gulf of Thailand, but development was delayed by the economic recession and Thailand's structural adjustment (1981-1986) which deferred the implementation of both public and private projects.

The invitation to private capital, both national and foreign, to participate in the expansion and modernization of the country's infrastructure, and the provision of services and facilities, became more and more urgent as the 1980s progressed. It was from the 6th Plan (1987-1991), and in particular to cope with budgetary inadequacies, that activities considered until then as part of the public domain (energy, telecommunications) were opened up to the private sector. It now participates in all fields that touch on infrastructure and facilities of a social nature, with nevertheless differing degrees of intervention depend-ing on the sectors and areas concerned. The privatization of public companies, limited almost entirely to the service sector since the state withdrew from its entrepreneurial function at the end of the 1950s, has become, since the middle of the 1980s, a declared aim though one which is implemented only on an irregular basis. The indebtedness of the public enterprises appears to be a handicap for Thailand, which hoped to strengthen its role as the hub of regional communications (**plate 24 Transportation networks**), but the country's inadequate energy resources and disputes over some domestic resources (environmental concerns, conflicts over water use, etc.) have driven it to resort more and more to the potential of neighboring countries (**plate 25 Energy infrastructure and networks**). The debate on the opening of the capital of the national airline has revealed a degree of caution regarding foreign stakeholder investment, while the budgetary repercus-sions of the 1997 crisis have led the Board of Investment to relax certain restrictions on foreign investments and to rethink its spatial distribution of investment promotion incentives (**plate 26 Investment promotion incentives**).

The good national provision of schools and health facilities, likewise the decentralization of university education cannot disguise the difficulties the authorities are experiencing in coping with the rapid increase in the rate of urban growth (**plate 27 Schools and health facilities**). This has given rise to an imbalance in intervention on the part of the private sector, confirmed in the telecommunications sector, which, since the beginning of the 1990s, has witnessed the establishment of a public/private partnership (**plate 28 Postal and telecommunications infrastructure**): the uneven provision of post offices and telephone networks reflects, moreover, an economic activity that varies in intensity. Although practically the entire country has had access to electricity for over two decades, water supply highlights the contrast between Bangkok and the rest of the country, and especially between the urban and rural areas (**plate 29 Water and electricity supply**). Some of the variables that are processed analytically in this chapter are incorporated into a principal component analysis in chapter 6 Tertiary sector: this complements the spatial analysis of the provision of facilities (see plate 57 Tertiary sector facilities and activities).

Lesson in a mountain school in Chiang Rai

Photo Alain Vergnes

A good network of schools and compulsory education account for a literacy rate of almost 95% of the population. Demonstrating a will to encourage linguistic homogeneity, teaching is in Thai and takes no account of regional and local identities. Efforts are made to incorporate the ethnic minorities established in the northern mountainous areas.

Administrative center of the district (*amphoe*) of Nam Phong (Khon Kaen province)

Photo Doryane Kermel-Torrès

In the administrative center of the *amphoe*, which groups together several sub-districts (*tambon*), are the most important government departments (interior, agriculture, industry, public health, education, industry, trade) under the control of the *nai*, representative of the Ministry of Interior. The government has launched reform for allowing the *tambon* more autonomy.

Gradual fixing of national boundaries

The boundaries of the different countries of South-East Asia were not mapped and marked out with any precision on the ground until very recently. Traditionally, the different territorial units (*muang*) were not necessarily adjoining; empty or very sparsely populated forest areas sometimes came in between. The border between two territories was not continuous and was indicated along a communication route by trees or stone columns erected for this purpose, like the Three Pagodas pass or the Singkhon pass between Siam and Burma. Local guards were a symbol of the limit of sovereignty. The boundary area was sometimes a sparsely occupied buffer zone, with no strictly defined boundaries, between two rival sovereigns and sometimes an area of free circulation and settlement for the local populations between two friendly kingdoms, where a too strictly defined border would have been considered unfriendly. These areas on the fringes of the zone of influence of the central powers were not seen as a vital issue, as long as the central zone was not infiltrated or threatened.

The fact that Siam was encircled by minor states or tributary principalities was a major phenomenon, which had to be taken into account when defining boundaries. Although weak, these dependencies maintained their autonomy by declaring submission to the more powerful states who could either inflict great damage or protect them. At the edges of the kingdom there were therefore areas where sovereignty overlapped or was ambiguous.

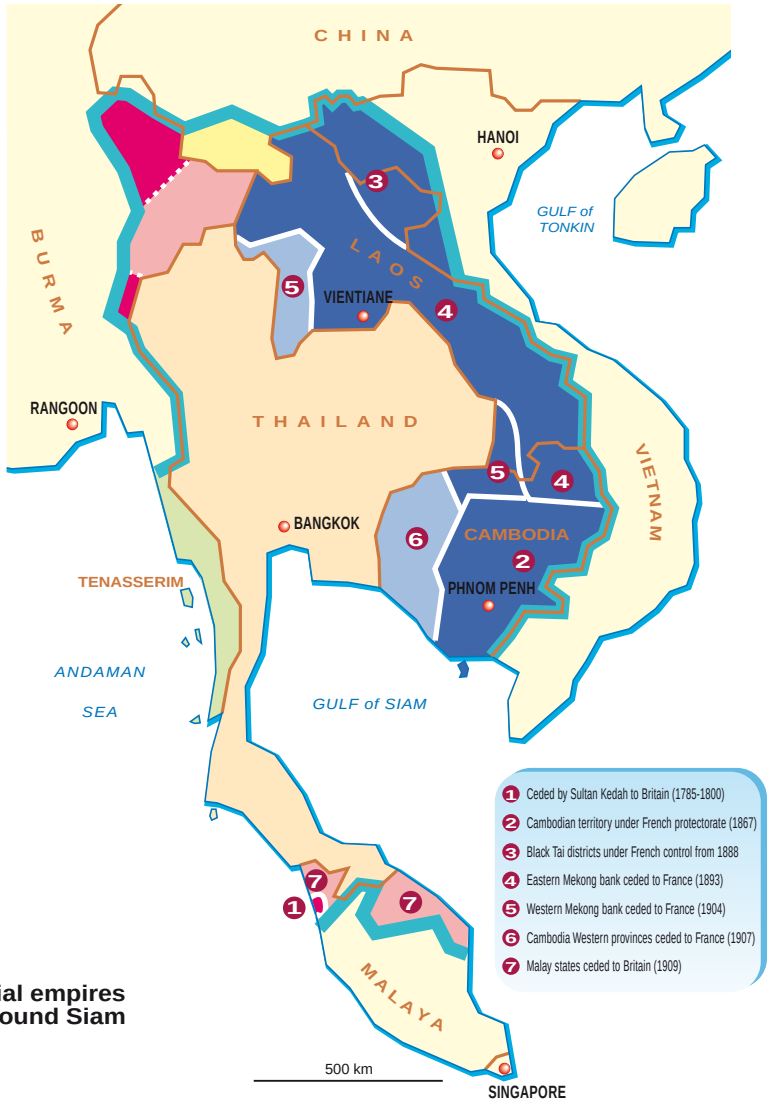
At the end of the 19th century, Siam came into competition with the British and French colonial powers over the incorporation of these minor states, in defining boundaries and clearly delimiting the bor-ders of exclusive sovereignty. This forced Siam under Chulalongkorn (1868-1910) to put in place a policy of administrative reforms in order to incorporate these dependent territories, with their various forms of sta-tus, into a uniform system of provinces under the juris-diction of a central state (*thesaphiban* system). This rationalization was not without difficulties with a bid for power from France in particular during the block-ade in 1893 of the mouth of the Chao Phraya at Pak-nam by French gunboats. At this time, Siam lost all jurisdiction over its tributary territories on the left bank of the Mekong. Its boundaries were defined between 1893 and 1909 in a series of treaties with France and Britain. These two countries wanted to establish their economic and, to a lesser extent, political influence on the regions bordering their own empire.

To determine the exact demarcation of the boundaries, a great deal of progress was needed in mapping techniques. This formed part of the modernization process on which Siam had embarked since the reign of Mongkut (1851-1868) and in particular under Chulalongkorn. In 1875, a group of cartographers was created within the Royal Guard and a School of Cartography opened in 1882. The Royal Survey Department was founded three years later. Defining the limits of the national territory of Siam, in the modern sense of the term, with continuous boundaries was now a necessity both for the court of Bangkok and for the neighboring imperialist powers. The first modern map of Siam was produced under the direction of a British officer, J. McCarthy, in 1887. In it, Siam appeared as a buffer zone between the colonial empires of France and Britain.

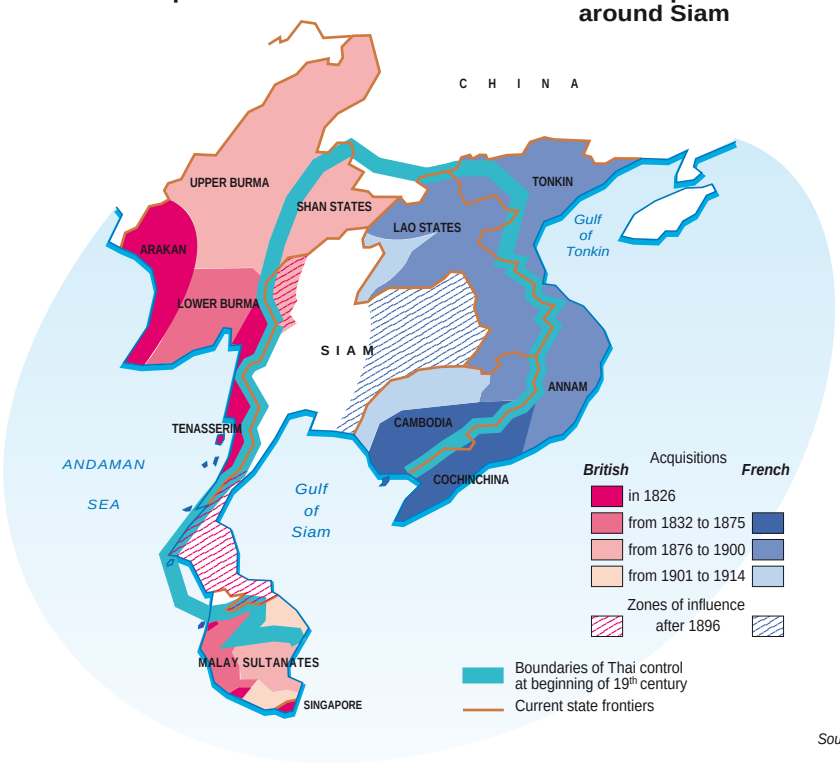
In 1943, under the regime of Field Marshall Pibun Songkhram, who forged an alliance with Japan just before the Second World War and had pan-Thai expansionist ambitions (hence the name Thailand, which replaced Siam in 1939), Thailand obtained the provinces of western Cambodia (Battambang, Siemreap), Sayaburi (Laos) on the right bank of the Mekong, and the sultanates of northern British Malaysia (Kedah, Kelantan, Trengganu, Perlis). The nationalist Luang Wichit Wathakan wanted to retake, in the name of a “Grand Thailand”, all of Siam’s 19th century tributary territories and even go further and group together all the Tai-speaking populations in the Indo-Chinese peninsula and southern China. After the Japanese defeat, however, Thailand had to abandon definitively in 1946 all such territorial claims. However, the country’s military superiority over most of its neighbors (Myanmar, Laos, Cambodia) and in particular its much higher level of development, enabled it to exert economic and political influence across an area corresponding approximately to that of its former tributary territories in past centuries.

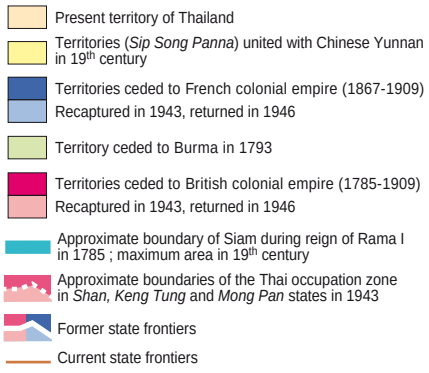
Tai ethno-linguistic groups in Indo-Chinese peninsula and South China

The changing shape of the national territory



Expansion of British and French colonial empires around Siam





Sources : Bruneau M., 1995
CeDRASEMI, CNRS-EHESS, CEGET-CNRS, 1985
De Koninck R., 1994
Fisher C.A., 1964

From Muang to nation-state

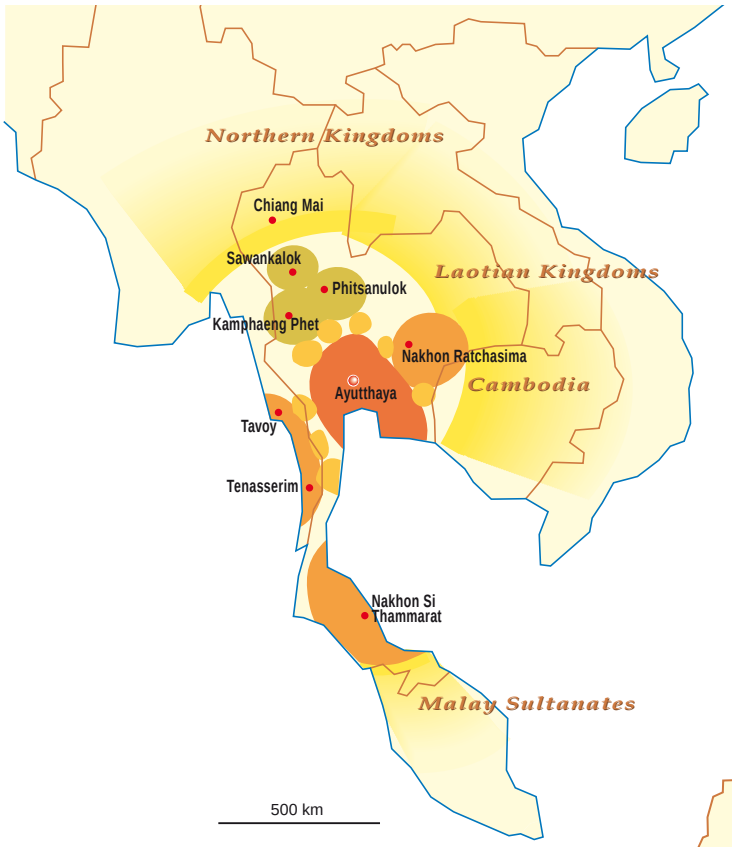
The area that we now know as Thailand has its origins in the Kingdom of Ayutthaya, which emerged in the 14th century at the Chao Phraya delta. The kingdom was taken for the first time by the Burmese in 1569, and was organized, before the accession of Naresuan in 1590, in the form of three concentric rings. This formed a conglomerate of cities, or *muang*, with each one having power and protection over a specific territory. The capital, Ayutthaya, larger than the rest, held sovereignty over the others, though its influence decreased in the more distant territories. The royal domain, *Van Rachathani*, situated at the center, around the capital, was divided into 33 small 4th class provinces administered by civil servants directly responsible to the king. A second ring, made up of the 1st, 2nd and 3rd class provinces was governed by a prince or a high-level dignitary, in the same way as the capital but on a smaller scale (court, army) and enjoyed considerable autonomy. The third outer ring included kingdoms or principalities, *muang*, (Lan Na, Keng Tung, Sipsong Chauthai,…), tributaries of Ayutthaya but enjoying true independence, especially as double or triple allegiances with neighboring states were frequently entered into.

This model was repeated in the Thon Buri Kingdom and Bangkok (Krung Thep Maha Nakhon), following the destruction of the Ayutthaya Kingdom by the Burmese in 1767. The map of the Kingdom of Siam in the middle of the 19th century also shows present-day national and provincial boundaries, although these do not match the earlier boundaries exactly as that time mapmaking was a much less precise skill. Four basic groups of provinces can be seen. At the center, the 4th class provinces, whose governors, designated every four years, were under the direct authority of the capital. The 1st, 2nd and 3rd class provinces formed part of the kingdom as from the 15th century. The external provinces (*hua muang*), situated mainly in the North-East (*Phak Isan*) and added to the Kingdom in the second half of the 18th century, enjoyed real autonomy as they were administered by dynasties of hereditary governors. The outer circle was included in the second half of the 19th century, incorporating tributary states, principalities or small kingdoms (*muang*): kingdoms of Luang Prabang and Cambodia, principalities of the north (Chiang Mai, Lampang) and Malay Sultanates (Trengganu, Kelantan).

The process of unification and homogenization of the national territory was embarked on through a series of political reforms by King Chulalongkorn, assisted by Prince Damrong from 1892, in particular by the application of the system of provincial administration *thesaphiban*, inspired by the structure of the British Empire. From 1899, the new territorial organization of *monthon*, incorporating all the provinces (*muang*) and tributary states (*muang*) was set up across the country. The aim was to ensure true centralization by nominating a Royal Commissioner at the head of each of these units, responsible for coordinating the administration of groups of provinces, collecting taxes more efficiently and establishing a direct link with the Ministry of Interior, as the provincial governors, very firmly fixed at local level and often on a hereditary basis, were difficult to control from the center. In 1915, this network of 18 *monthon* for the first time covered all of the Kingdom in a homogeneous fashion, abolishing the traditional model of control through concentric rings, where central power tended to diminish towards the edges. The number of *monthon* was gradually reduced to 10, and they were abolished in 1933 when the seventy provinces (*changwat*) were fully integrated into the local administration system, controlled by the Ministry of Interior.

The territory of the Thai nation-state has thus been created over the last five centuries, based on kingdoms whose heart was first in the upper delta (Ayutthaya) then the lower delta (Thon Buri and Bangkok) of the Chao Phraya. Each of these agrarian states, organized in concentric rings, had a capital which also played the role of cosmopolitan trading-post, providing a haven for various merchant communities (Chinese, Malays, Indians, Occidentals). This early participation in international trade, in the same way as the Malay Sultanates, laid the foundations for the capitalist and entrepreneurial structures that enabled Thailand to open up comparatively early to the modern world, and to acquire a unified territorial infrastructure comparable to that of the European nation-states.

Ayutthaya Kingdom (1460-1590)



Van Ratchathani
Royal domain divided into 4th class provinces (*muang noi*)

1st class provinces (*phra mahanakhon*)

2nd class provinces under king's sons (*muang luk luang*)

3rd class provinces under king's grandsons or nephews (*muang lan luang*)

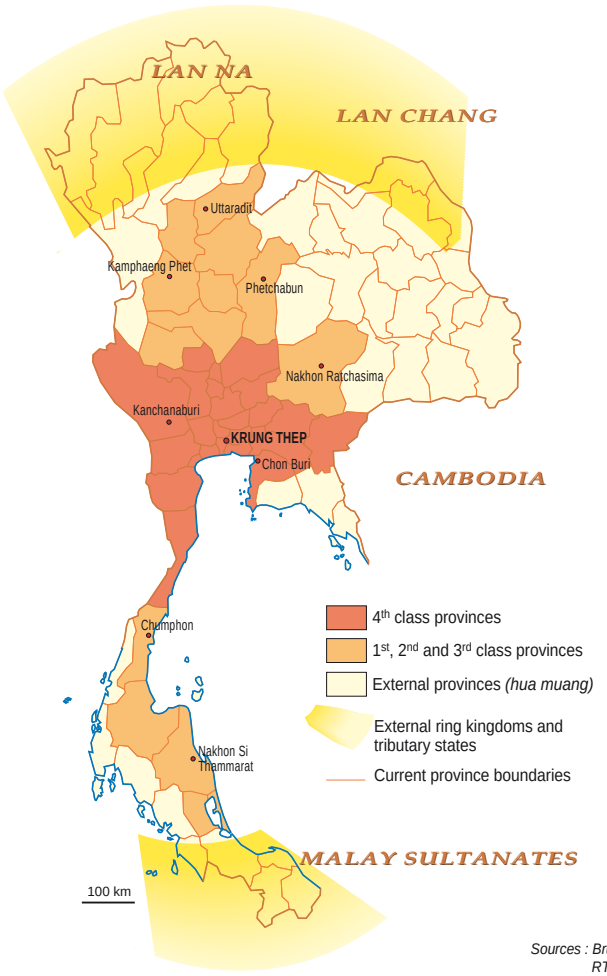
Capital

Other city

External ring kingdoms (*muang pradhesa raja*)

Current state frontiers

Siam Kingdom and neighboring states (mid-19th century)



4th class provinces

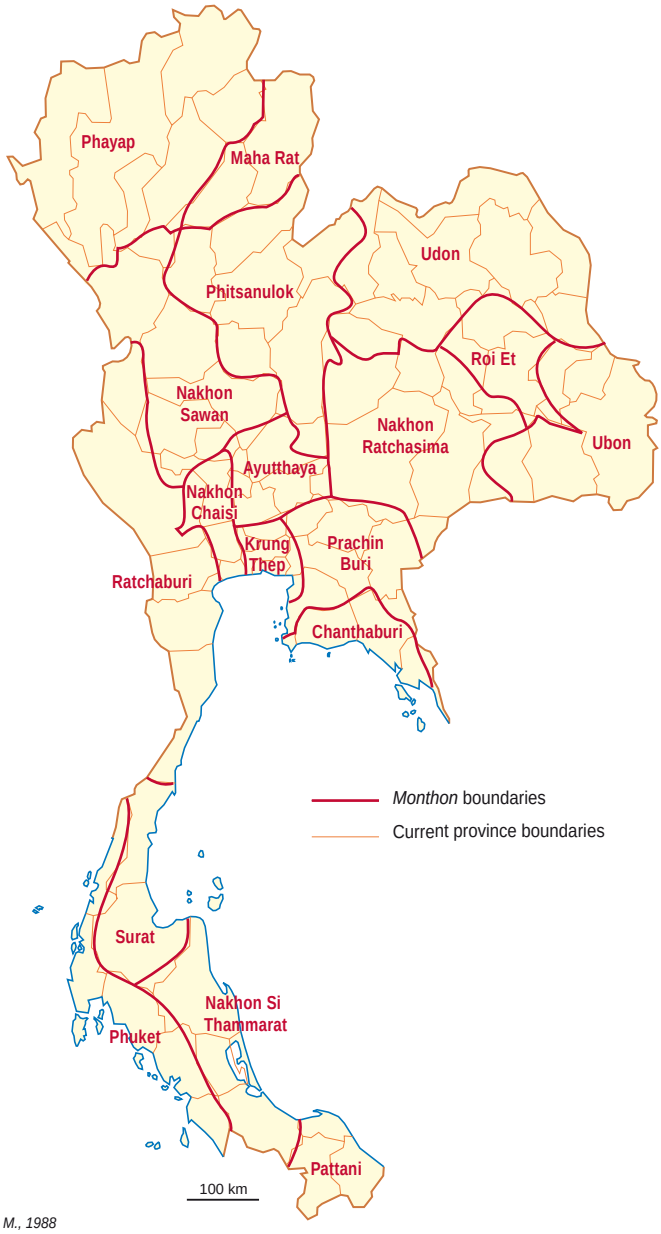
1st, 2nd and 3rd class provinces

External provinces (*hua muang*)

External ring kingdoms and tributary states

Current province boundaries

Monthon (1915)



Monthon boundaries

Current province boundaries

Sources : Bruneau M., 1988
RTSD, 1974
Tambiah S.J.,1976

Strong administrative presence accross the entire territory

The administration of Thailand is organized into 5 levels: center, provinces (*changwat*), districts (*amphoe* in rural areas and *khet* in Bangkok), sub-districts (*tambon*) and villages (*muban*). The number of units grouped together at the upper level varies according to the area covered and the population as well as the willingness of the state to set up the services required by the new units.

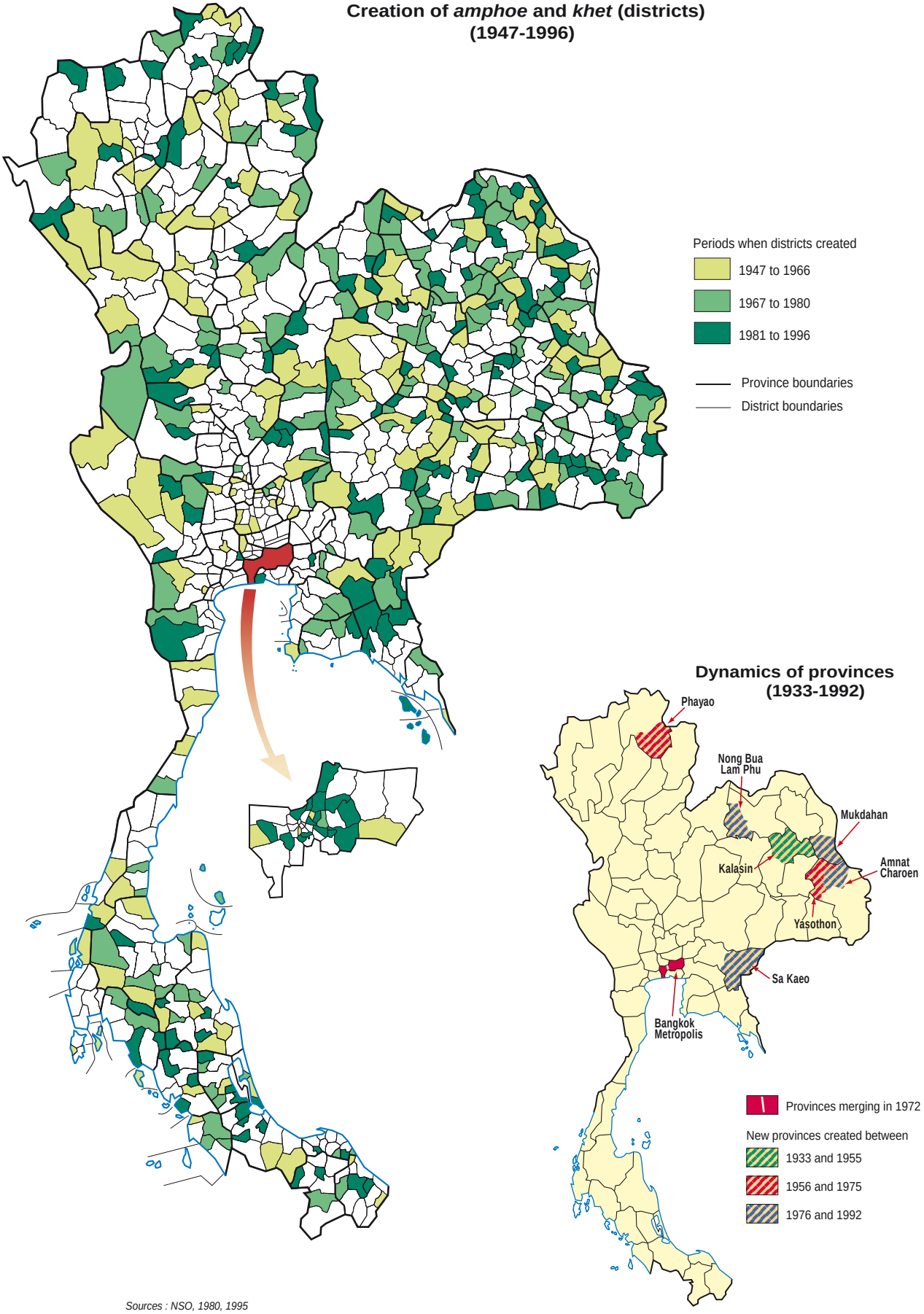
Whereas the merging of Bangkok and Thon Buri was justified by the need for a unified management of the problems associated with rapid urbani-zation, the creation between 1933 and 1992 of 7 provinces duplicated local representatives (governors, ministerial officials) and some of the facilities (sanitation, education) essential to provincial status, even though in some cases the administrative units are not necessarily equal. This is also the case for the districts, the smallest formal administrative unit, placed under the authority of the province, where the head is an official of the Ministry of Interior, as is the governor, and responsible for maintaining the peace and coordinating the work of ministerial officials.

Historically, the *amphoe*, whose subdivisions are determined by the Ministry of Interior, is a crucial element in controlling the territory and providing facilities. The close-knit network already in place in 1947 in the delta and along the Chao Phraya as far as Chai Nat is proof of how long the area had been settled, whereas the subdivision into districts in Bangkok from 1980 was in response to the rapid population growth in those recently inhabited areas. The advance of the agricultural frontier was justification for the rapid creation of districts during the first two periods around the Central Plain (Kanchanaburi, Kamphaeng Phet), in the peripheral areas (Chaiyaphum, Nong Khai, Sa Kaeo) and along the Burmese frontier where the size of the units is typical of zones with a low population density. At this time, there was also a clear reason for creating new districts in the North-East, especially as the country was more closely controlled in the face of the communist “threat”: this region holds the record for the creation of districts, a process that was vigorously pursued after 1981 to develop the area’s amenities. In the South, the creation of units increased as from 1981, an indication of how agriculture progressed in the interior and the west of the peninsula.

From the end of the 19th century, the administration of the provinces, and then of the districts, was based on a policy of deconcentrating central powers while leaving the sub-districts and villages under the control of elected representatives. The sub-district councils (*sapha tambon*) were initially reserved for elected members, but over the course of the 1980s, district officials joined these bodies, asserting the hold of the national bureaucracy over these local bodies. At the same time, the intervention of central administration in planning and development tended to obscure the role of these councils. Despite great reluctance on the part of the Ministry of Interior, the 1995 reform was clearly in favor of strengthening popular representation in the sub-district councils, by giving them a juristic status and creating Subdistrict Administrative Organizations (SAO) with increased power and budgets: by 1999, more than 90% of the sub-districts had achieved SAO status. Apart from their lack of experience, the difficulties encountered by these bodies reveal a deep-rooted authoritarian institutional culture, with in particular the retention of power by the district head and the governor. Other difficulties concern the duplication of malfunctions at national and provincial levels in the electoral process and representation.

The sanitary district (*sukhaphiban*), the first form of local self-government and a quasi-urban unit, disappeared in 1999 and was reclassified, in the context of the democratization of local bodies, as a municipality (*thetsaban*). For a long time this status was the most highly developed form of local government, but the number of municipalities stagnated between 1946 and 1999 because of the financial commitment required from central govern-ment (see also chapter 2 Population). The other forms of local government are: the Bangkok Metropolitan Administration (BMA), with an elected governor since 1985; the Provincial Administrative Organization, whose elected members benefit from greater autono-my and budgetary control as from 1997. These bodies suffer to differing degrees from inadequate and sometimes poorly defined responsibilities, and remain subject to the discretionary power of the Ministry of Interior even though their autonomy has been confirmed by the government that allocated them 20% of the central budget in 2001 (BMA excluded).

Creation of *amphoe* and *khet* (districts) (1947-1996)



Sources : NSO, 1980, 1995
RTSD, 1966
Skinner G. W., [circa 1950]

The sensitive question of forest areas

Care must be taken when using and interpreting statistics or maps of the forest areas, mainly because the definition of what is considered as "forest" is not clear. Forest zones defined in 1973 and 1995 from satellite images, as well as the resulting statistical estimates, should be considered as designating the maximum area possible for forest cover: that includes shrub communities and different types of degradation.

Historically, the retreat of the forests has followed the different stages of agricultural colonization. However, between the middle of the 19th century and the 1950s, commercial logging (mainly teak) was the major cause of deforestation even though clearing for agriculture has also had a significant impact. Rice-growing areas extended far into the lowlands of the Central Plain, then on the piedmonts and into the basins and valleys in the North and North-East. The absence of forest in 1973 at the heart of the Central Plain, which was significant from the middle of the 20th century, is an indication of how long-established a phenomenon deforestation is.

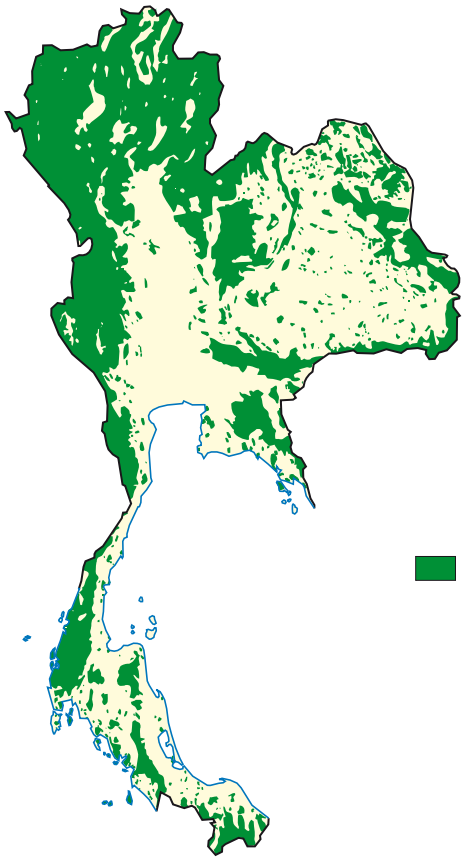
Prior to the Second World War, logging, which occurred in fact on a much greater scale than is generally believed, opened the way to agricultural colonization, which accelerated until the middle of the 1970s. At that time deforestation particularly affected the North-East and the South. As agricultural expansion often accompanied road development, it followed, among others, the strategic roads built during the United States' war with Vietnam. It was the advance of cash crops (cassava, maize, sugar cane), however, which produced the main changes in the conversion of land on the terraces and the plateaus (see plate 31 Land utilization). Agricultural expansion slowed from the middle of the 1980s, especially with the end of communist guerrilla warfare, thus paving the way, at the beginning of the 1990s, for a degree of stability in the forest cover on a national scale. Nevertheless, agricultural land continued to extend into some regions like the South where more than 260,000 hectares of forests were felled between 1989 and 1995. The rapidly diminishing forest areas incited the government to ban raw timber exports in 1973, after which Thailand became a net importer. This measure was enforced in 1989 with the repealing of forest concessions.

In recent decades, the North-East region has been most affected by deforestation: with 60% of forest lost on average between 1973 and 1995, this figure is much higher in provinces where the pioneer fronts were particularly active (Nong Khai). In the North, very extensive stretches have been cleared of their forest cover around the valleys and in the intramountaine plains (more than 1.5 million ha for Chiang Mai, Chiang Rai and Nan combined), but this represents only a little more than 30% of the area considered as forest. In the South, the extent of deforestation is slightly less although the forests exist only in a residual state in several provinces (Phuket, Songkhla, Narathiwat, Krabi).

In the face of the deterioration of forest resources and the emotional response from public opinion, some tree plantation initiatives have been introduced and the principle of "forest reserves" was adopted in 1991. The aim of these operations, which distinguish between "natural forests", which are for conservation, and "commercial forests", where felling is authorized, seems to be difficult to put into practice due mainly to the malfunctioning of the administrative structure. The area of forest reserves, overseen by the Royal Forest Department, which has been forced to undergo a reconversion since felling is no longer permitted, increased from 11% to 45% of the entire country (more than 23 million ha in 1998). The spatial distribution highlights the potential for forestry in the north, particularly along the border with Myanmar, the limited resources in the North-East and the imbalance between the peninsular coasts, the impact of agricultural colonization being felt later in the west. Defining the reserves, however, does give rise to some confusion because they include in part areas which have been occupied and cultivated by more than a million families since the middle of the 1980s. Among the provinces which have sizeable forest reserves, both in area and in importance for the province, Chiang Mai had officially in 1998 more than 97% of its total area made up of forest reserves, whereas, according to the same source, in 1995 75% of this area was occupied by forests and 10% by crops. By classifying as "forest reserves" areas which are in fact still under cultivation, the government creates confusion and is forced to evict people from so-called reserves, thus creating conflict.

Forest

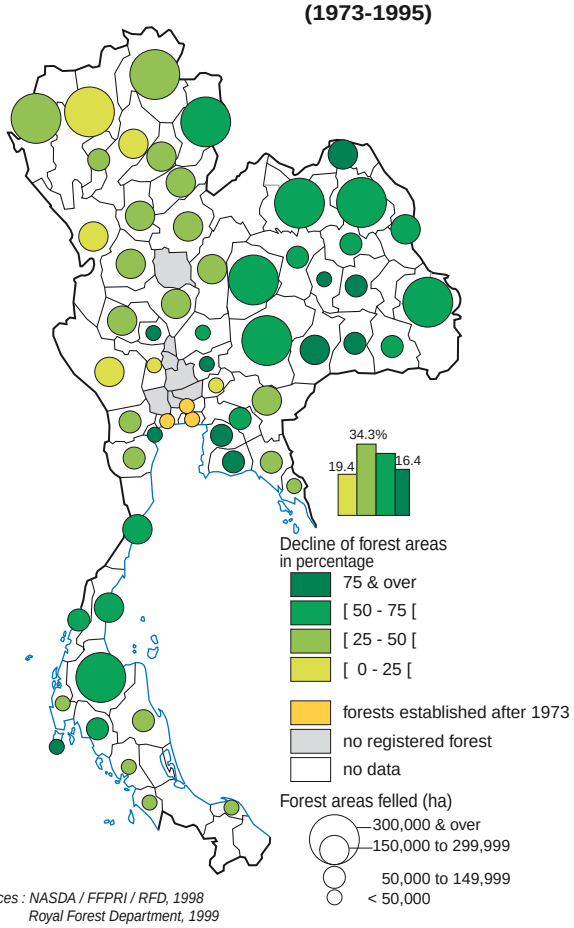
1973



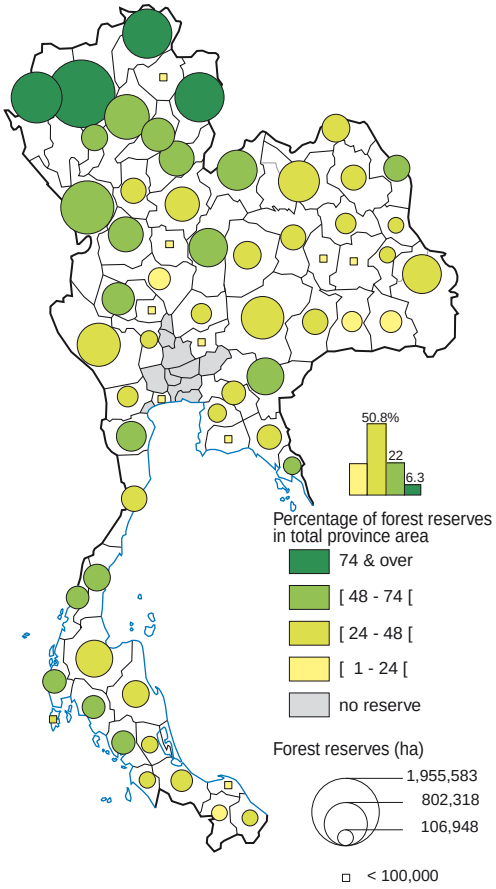
1995

Possible maximum forest extension areas

Evolution of forest areas (1973-1995)



Forest reserves (1998)



Sources : NASDA / FFPRI / RFD, 1998
Royal Forest Department, 1999
Thongchai Charuppat, 1998

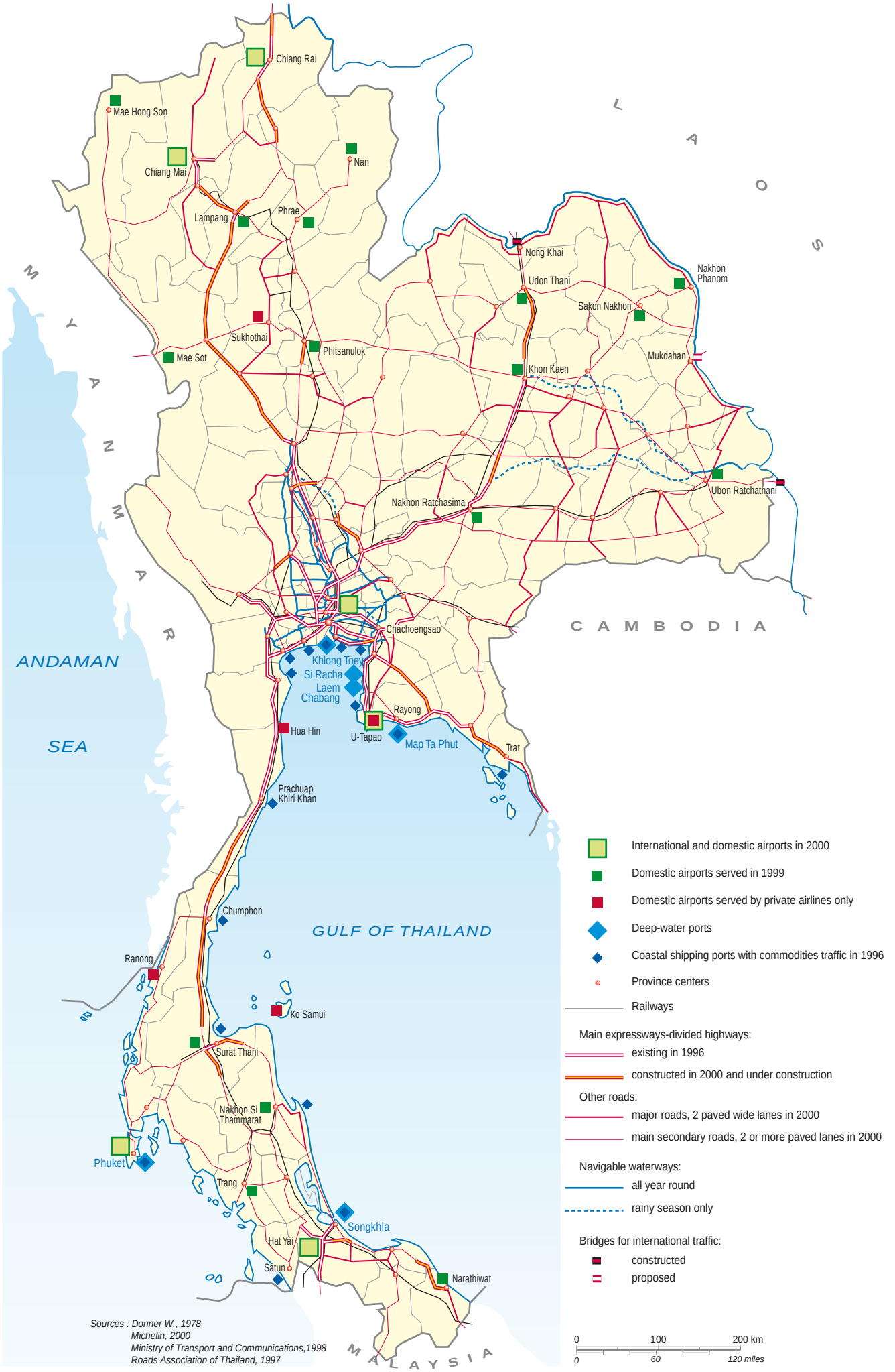
Major investment in transport infrastructure

There are excellent road links between provincial centers but the radial arrangement of the rail network and the major roads which fan out from the nucleus formed by Bangkok, Nonthaburi and Pathum Thani still clearly predominates; the air routes too reinforce this pattern (see plate 54 Passenger traffic). The establishment of the capital as a bridge-head for the country's national and international commercial networks dates from the end of the 18th century, using the complex network of canals (*khlong*) that criss-cross the Chao Phraya delta and the port of Bangkok. The radial pattern is largely the result of a political decision at the end of the 19th century to consolidate links between Bangkok and the peripheral regions. The completion in 1939 of railways linking the North, the North-East and the South to Bangkok, was chiefly in order to help these regions become fully integrated into the nation, to facilitate implement-ation of the centralized program of reforms and to deal with threats of expansion from the colonial powers. There were strategic reasons also for instiga-ting the major road building program, begun in 1950 with American aid and financial support from interna-tional agencies; this has brought benefits to the North and the South, and in particular the North-East.

Construction work during the last two decades has improved road links between villages and the major road axes and has pinpointed congested areas where traffic is heaviest. Road building has tended to monopolize government action in land transport and the rail network has undergone only minor expansion since the Second World War, such as the coastal link from Chachoengsao in the Eastern Seaboard deve-lopment. Bangkok is still a bottleneck and one which has extended to cover some adjoining areas in the metropolitan region as a result of the delay in providing infrastructure compatible with such a concentration of population and activities (see plate 60 Road system and motorization in Bangkok): the very rapid urban and industrial growth between 1986 and 1996 has merely accentuated the pressure on facilities which were already inadequate. This same congestion can also be seen, though on a smaller scale, in the build up of traffic in some of the regional centers such as Nakhon Ratchasima, Chiang Mai or Songkhla/Hat Yai.

With the building of three deep-water ports in 1991 and 1992 on the east coast of the Gulf of Thailand, new infrastructure became available that was compatible with modern maritime transport conditions; it was possible to handle the large increase in volumes and relieve some of the congestion due to inadequate facilities at the Bangkok port, overshadowed since 1998 by Laem Chabang (in 2000, container traffic in these two ports was 1.1 and 2.1 million TEUs respectively). The new ports have attracted private capital (Si Racha and Map Ta Phut) and have close ties with industries on the Eastern Seaboard. These recent developments have increa-sed the number of sites available, but they have nevertheless also resulted in the spatial concentration of points of access to international exchanges, a situation which is only emphasized by the pre-emi-nence of Bangkok airport, now at saturation level in terms of both cargo and passengers; a new site east of the capital has been earmarked. The two private ports in the South, opened in 1988, have a limited amount of facilities and their own hinterland to service.

Appeals to the private sector have not produced the hoped for results in the provision of public transport systems and infrastructure, apart from the Skytrain, the elevated train system in Bangkok, urban express-ways in the Bangkok Metropolitan Region (BMR), and some facilities at the port and airport. In the context of a policy of liberalization and privatization, the national airline company has been opened up to private capital, private companies have been authorized to operate domestic flights and bus links within the BMR and out to province centers. The problem of financing infrastructure is even more topical in the present climate as Thailand seeks to strengthen its economic pre-eminence and become the chief point of access into the Indo-Chinese peninsula, focusing on a strategy of transnational integration at continental South-East Asia level (see plate 6 Networks in Eastern Asia). Among the priority areas for cooperation are the harmonizing of national road and rail networks, a fairly uncertain project at present for rail, apart from the links that already exist with Malaysia, and shipping on the Mekong. The opening up of the Chiang Rai airport to international traffic, the construction of the Nong Khai bridge, and the commitment from Japan to finance the construction of a bridge at Mukdahan are included in the same development context.



Sources : Donner W., 1978
Michelin, 2000
Ministry of Transport and Communications,1998
Roads Association of Thailand, 1997

Domestic resources insufficient to cope with energy needs

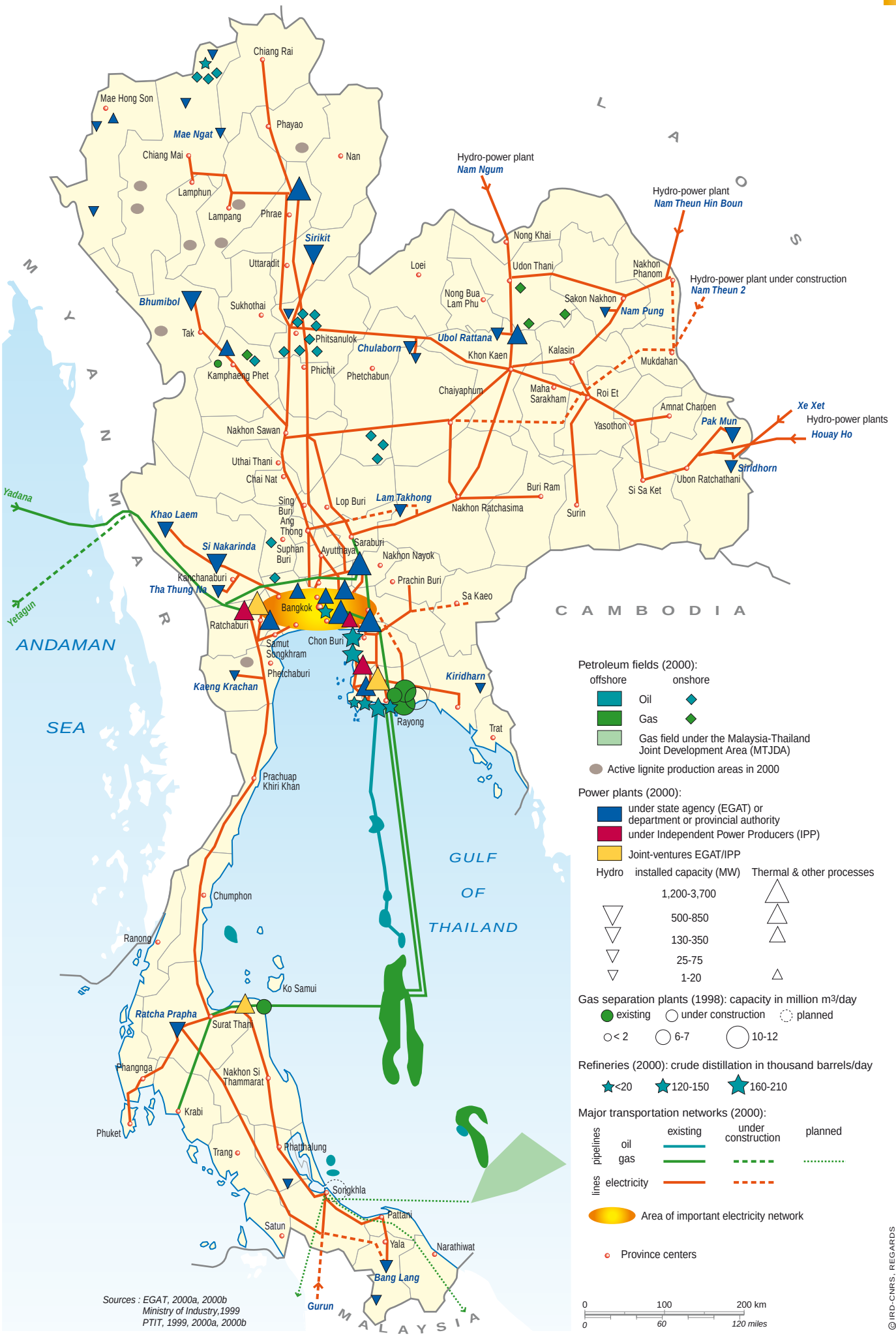
Thailand is a major energy consumer, whose dependence on imports, about 60% of energy consumed, has not been reduced despite the use of domestic energy resources. Efforts to diversify supplies and bring demand under control have been the main directions of the country's energy policy since the first oil crisis. Lignite production increased dramatically between 1970 and 1999 (from 0.3 to almost 20 million tons): it is used in 20% of electricity production, especially from the mines in the North. Since 1981, production from the fields in the Gulf of Thailand has made it possible to partly substitute oil for natural gas in the generation of electricity (about 40%) and to supply the petrochemical sector. However, crude oil resources proved disappointing (3% only of South-East Asia's total production and over 70% of this from the Phitsanulok fields), and gas supplies were not sufficient (almost 14% of regional production, 90% offshore) to satisfy the foreseeable requirements of the different sectors before the 1997 crisis.

There is still a heavy reliance on imported petroleum, with the Middle East supplying the largest quantities since regional reserves have been depleted, and over a period of years the state has introduced a policy to align the country's refining capacity with consumption that is driven by the transport sector. A regional gas market has developed with the purchase of gas from Myanmar and offshore exploration in conjunction with Malaysia. The considerable growth in the hydroelectricity sector (a little over 10% of the existing electrical capacity) would appear to be restricted by the limited capacity of the plants that can be installed: Thailand uses the potential of Laos from whom it has purchased electricity for over 30 years.

When the demand for energy was revised upwards, after an earlier drop in consumption due to the immediate effects of the 1997 crisis, this revived interest in Indonesian gas and the purchase of greater quantities of electricity from Laos (by 2006), from Myanmar (2010) and in the longer term from Yunnan power stations in which Thai capital holds a stake of between 25% and 80%. These plans for the future will increase connections to the electricity grid in certain regions to the grids of neighboring countries and reinforce the radial layout of the main electricity lines into the Bangkok region, which dominates consumption and facilities. The North-East and Laos will thus become more closely linked, and while Khon Kaen already emerges as a point of intersection between several major electricity lines, the position of Roi Et will be confirmed. The North will link up with the power stations of Yunnan (Jinghong) and Myanmar (Shan state) and the South will strengthen its links with Malaysia.

The question of electricity supply is a social and economic issue that has been a priority since the 1960s for a state that is so concerned about control of its territory: considerable progress has already been made, since 98% of villages are now connected to the grid (see also plate 29 Water and electricity supply). Although the exploitation of petroleum fields has not produced as large a petrochemical complex as was hoped, it has nevertheless enabled a major industrial base to develop on the Eastern Seaboard where crude oil refineries and gas separation plants are concentrated. It has also made it possible to modernize gas transportation modes (sea and land gas pipelines) and power production techniques (combined cycle power plants).

The liberalization of the electricity industry resulted in 1992 in its opening up to private capital. The Independent Power Producers' share in production then increased, representing about 25% in 2000. Foreign investment is particularly important in this sector and power plants to which the public-enterprise Electricity Generating Authority of Thailand (EGAT) has contributed, via its commercial subsidiaries partly open to private capital, have been set up in areas where the risks associated with supply and demand are limited. Electricity production and distribution in the areas that are economically less dynamic remain the responsibility of provincial agencies or specific ministries. Despite the effects of the crisis on the public budget and the wishes of the government, the privatization of EGAT has been postponed and its monopoly over electricity transport and distribution is intact. The situation in the petroleum sector is similar: exploitation has been open to foreign companies since 1971, the liberalization of the transformation process was initiated in 1992 and confirmed in 1997, and the privatization of the PTT (Petroleum Authority of Thailand) was begun in 2001, yet it still has a monopoly on gas purchase and distribution while participating, via its subsidiaries, in very large-scale operations in association with the private sector.



Sources : EGAT, 2000a, 2000b
Ministry of Industry,1999
PTIT, 1999, 2000a, 2000b

Conflicting incentives to spatial deconcentration of investments

Thailand's spatial investment policy consists of dividing the country into zones, with the level of privileges granted to companies via the Board of Investment (BOI created in 1959) being determined according to the zone in which they are located. These privileges may be indirect grants (tax concessions, reduction of import duties on raw materials, intermediate products and machinery) and facilities (use of foreign capital, employment of foreign nationals).

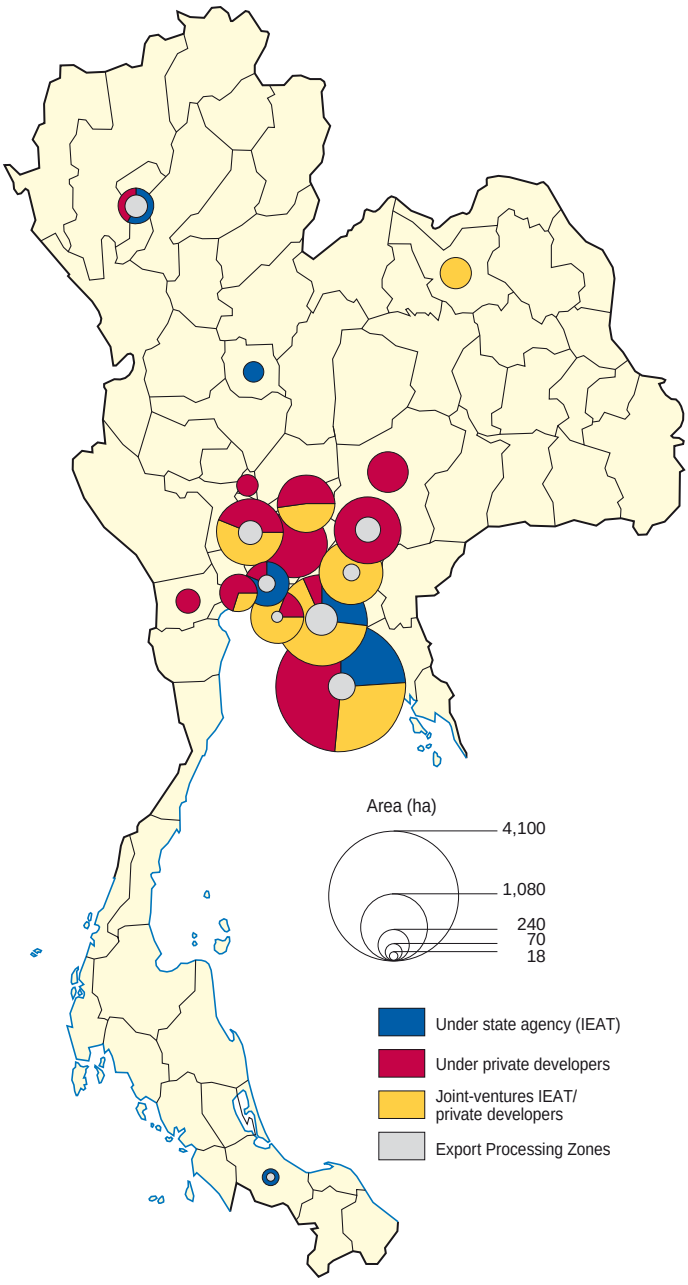
The spatial organization of investment promotion was outlined in 1972, after more than a decade of supporting private investment without giving consideration to the location factor: a few urban districts were designated to receive the largest amounts of public aid. In 1983, the approach became more all-encompassing, with three specific zones being defined, and the degree of privileges they received being directly related to their distance from the Bangkok-Samut Prakan pole: however, until 1986, the special promotion districts still received the highest level of incentives. Successive readjustments have taken into account the advance of the investment front away from the pole and have pushed some groups of provinces into the zones with less advantageous tax exemptions. The areas that have the highest level of incentives are all the provinces in the peripheral regions. As well as its declared objectives of promoting a social and spatial balance, since 1972, when the first measures favoring export-oriented industriali-zation began to emerge, the BOI has offered investors the opportunity to access pools of cheap labor in the peripheral regions and combat the gradual erosion of their competitiveness on the international markets. Salary-related policies reinforced the comparative benefits of using this work force by fixing a lower minimum salary in the peripheral regions, with the exception of 5 provinces where the legal wage is between 8% to 25% higher.

Spatial adjustments made in 2000 created a special zone 3, with the highest level of incentives, from some of the most underprivileged provinces in the peripheral regions. The three provinces on the Eastern Seaboard are now in the same zone, though Rayong had benefited from the same treatment as the peripheral regions for almost twenty years. Given the deterioration in the country's fiscal situation since 1997, it is expected that the subsidies awarded to new investors, especially foreigners, will be much more effective in meeting the country's economic and social needs. The fact that the World Trade Organization challenged the criteria being used was also a good argument for taking the inequalities in spatial development more into consideration.

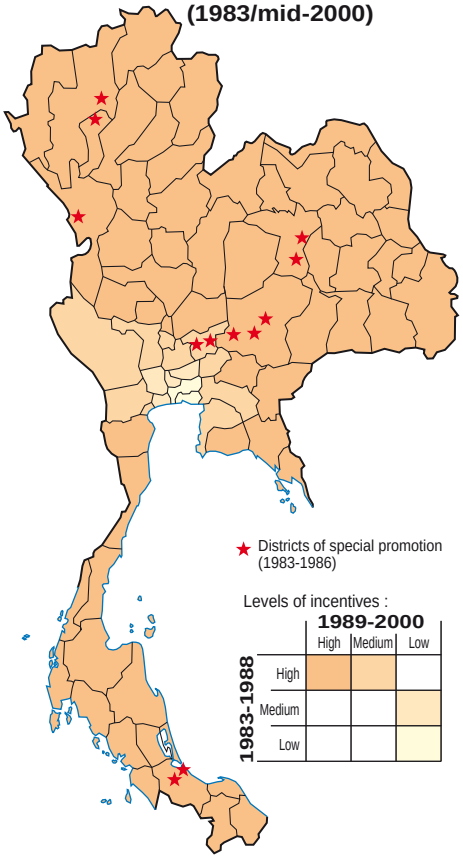
The fact that location and subsidies criteria are closely linked has given rise to a complex system of incentives and the BOI has been able to use its discretionary power to anticipate or accentuate trends that had not been clearly announced. The level of exemptions accorded to companies settling in the low or intermediate privilege zones is raised according to criteria which, although constantly changing, are seen as essential for economic growth (volume of exports, employment creation, sectors classified as priority). The resources available were totally inadequate to develop the industrial estates which had been intended to deconcentrate the location of companies and provide them with the facilities necessary for rapid growth. This situation has resulted in an appeal for assistance on the part of the public authorities to the private sector and the granting of exemptions to industrial estates of whatever status, which can be more substantial than those already in force in the provinces concerned.

In 1998, private developers managed over 45% of the total area of the industrial estates without government assistance and almost 40% in partnership with the public body, the Industrial Estate Authority of Thailand (IEAT). The result of this public/private partnership was a major spatial imbalance in the location of industrial estates, with short-term investment profitability taking priority over geographical deconcentration, a priority only for the public authorities. Industrial estates set up in some poles of the peripheral regions with a boost from the IEAT, Nakhon Ratchasima excepted, represent less than 10% of their total area. With a high level of IEAT participation, the Eastern Seaboard, conceived as an area of industrial deconcentration for the central provinces, accounts for a little over 50% of the total industrial estates area, with only slightly less than half of this being Export Processing Zones: they receive increased benefits (duty-free) according to the exporting performance of the enterprises. Private capital, on the other hand, has established the majority of the industrial estates in the central provinces.

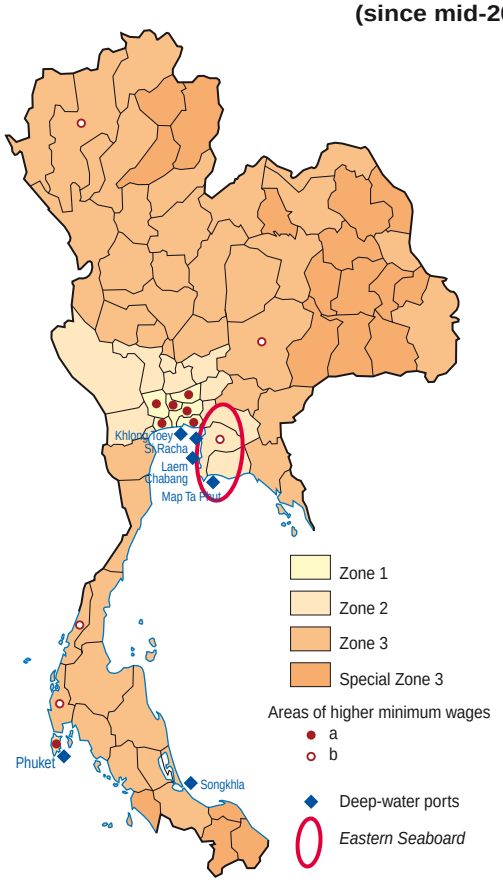
Industrial estates (1998)



Dynamics of the BOI Investment Promotion Zones (1983/mid-2000)



BOI Investment Promotion Zones (since mid-2000)



Sources : BOI, 1995, 1998, 2000
Kermel-Torrès D., Schar Ph., 1997
Yuthasak Kanasawat, 1995

A major effort to provide educational and medical facilities

Despite the excellent level of school provision throughout the country after a major effort made in the 1960s and 1970s, overcrowded classrooms in the cities and a lack of educational materials hinder the learning process, the authorities finding it difficult to cope in particular with urban growth. The Bangkok Metropolitan Region (BMR) and also Chon Buri and Songkhla seem to te particularly underprivileged, with class sizes of 30 to 36 pupils. Government expenditure on education (3.5% of Gross Domestic Product (GDP) and 19.5% of the state budget in 1996) has not increased as a proportion of GDP since 1970.

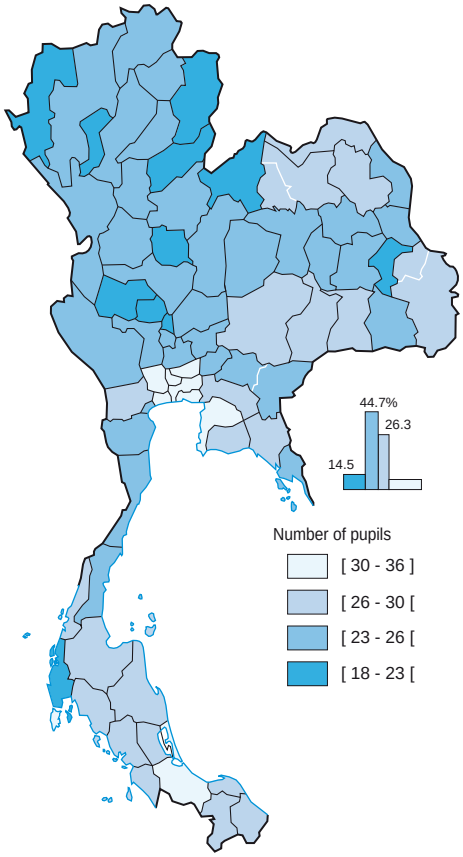
Elementary education is still absorbing almost half of total expenditure on education. The proportion spent on higher education was greatly increased at the beginning of the 1990s, from 10% in 1985 to almost 20% in 1996. The proportion allocated to secondary education, however, remains low, at 22% in 1996 (against 19% in 1985) for a school population that is twice that of higher education. More than half of the country's universities are concentrated in the Bangkok Metropolitan Region (BMR). While the policy of university decentralization remains fairly limited in numerical terms, there is nevertheless a considerable spread of universities throughout the country. The creation in the 1960s of regional universities in Chiang Mai, the second largest university center in the country, Khon Kaen and Songkhla was extended in the 1990s, with further new universities being created and a scattering of minor centers set up in many provinces. Several campuses were established on the outskirts of Bangkok to cope with the increase in student numbers in the capital's universities.

The state education system accounts for a growing number of students at secondary level (73% in 1976, 87% in 1996), but the private sector retains its presence at primary level (13% of pupils in 1996) and is increasing in the higher education sector (20% of students in 1996 against 7% in 1986). Given the increasing demand for places, the reduced capacity of the traditional universities and the mass Open-to-all University system (with no restriction on student numbers) where the academic level is low, the way is open for more and more growth in the private sector. The question of the extent to which the state should be responsible for education is at the heart of the debate engendered by the Eighth Plan for education (1997-2001), which recommends that state universities be self-governing.

The fact that the country is well served with regional and provincial hospitals, with good local medical provision in the districts, the sub-districts (all equipped with a health center since 1996) and in sensitive areas such as the mountain border regions, is a major achievement of public health policy over the last 30 years. Between 1975 and 1995 the pro-por-tion of visits to a regional or provincial hospital has decreased by half, in favour of the health centers. This definite progress in access to health care is however limited as there are not enough doctors (81% of urban dwellers have access to facilities with a doctor, as opposed to 47% of rural dwellers). There has recently been a sharp increase in family expenditure on health, associated with the changing needs that accompany a changing society. Since 1992, priority has been given to quality of service and health insurance and more recently to lifestyle and environmental problems.

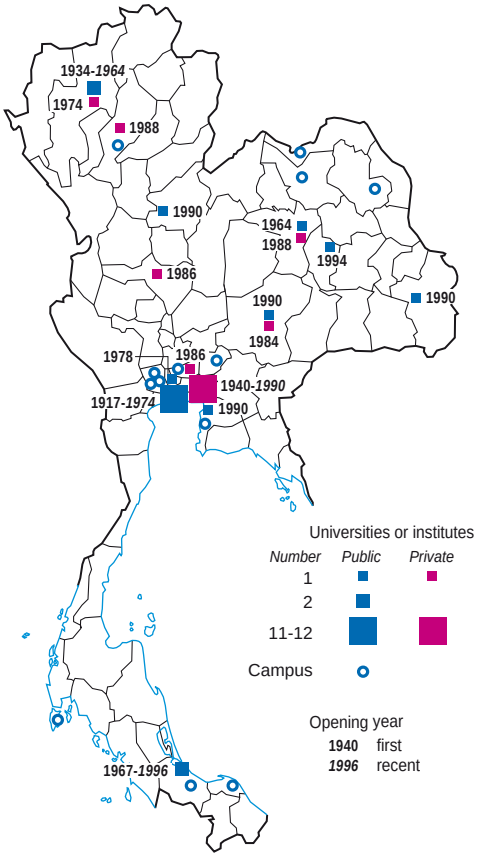
The development of health services is considerable in all regions: in 1995 at national level, there were nearly 300 inhabitants per health care professional and the number of inhabitants per doctor fell between 1985 and 1995 from 15,700 to 10,500 in the North-East, from 13,300 to 5,600 in the North, from 8,000 to 5,500 in the South and from 1,500 to 1,000 in Bangkok. However, outside the BMR, only areas with large numbers of tourists, a few regional cities and the border areas that are more susceptible to health risks have a high level of health care provision. The North-East in particular is poorly equip-ped, as it was under-equipped in the past and has not made up this deficit to the same extent as the North, whereas the South inherited a much better situation. After declining between 1970 and 1988, the private sector has benefited from the rapid improvement in quality of life in the 1990s, to reach 23% of the total number of hospital beds in 1995, against 13% in 1985. This sector occupies an ever-increasing place in the areas of high purchasing power, mainly the Bangkok urban area where it represented 40% of hospital beds in 1995 (with a particularly high rate of increase in the suburbs), and in some regional towns and tourist areas (Chon Buri, Phitsanulok, Chiang Mai, Phuket). Health provision is still however almost exclusively the domain of the public authorities in most provinces.

Pupils per class (1996)

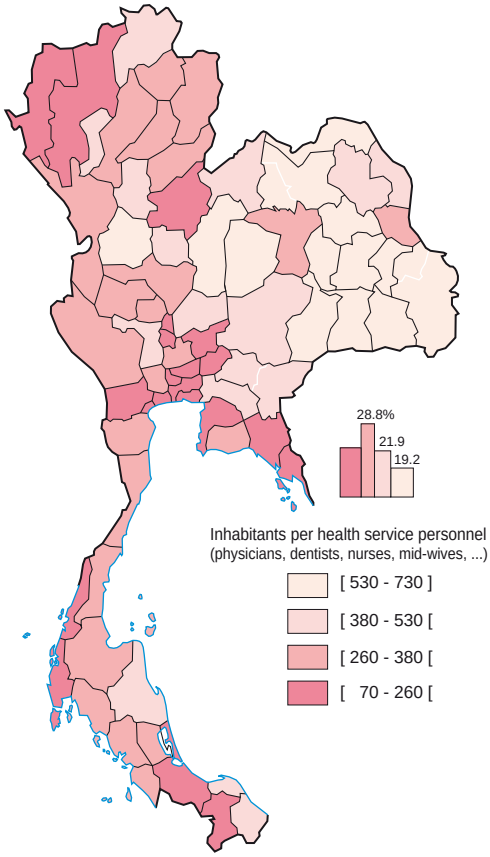


Higher education institutions (1996)

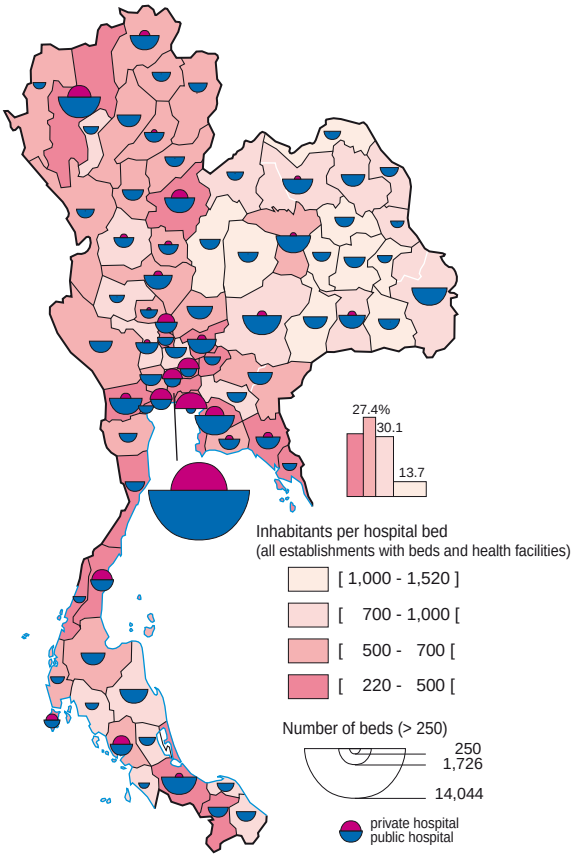
with more than 1,000 students enrolled



Health services (1995)



Health facilities (1995)



Sources : Ministry of University Affairs, 1998
NSO, 1990, 1997d, 1997e, 1997f, 2000

The increasing role of the private sector in communications

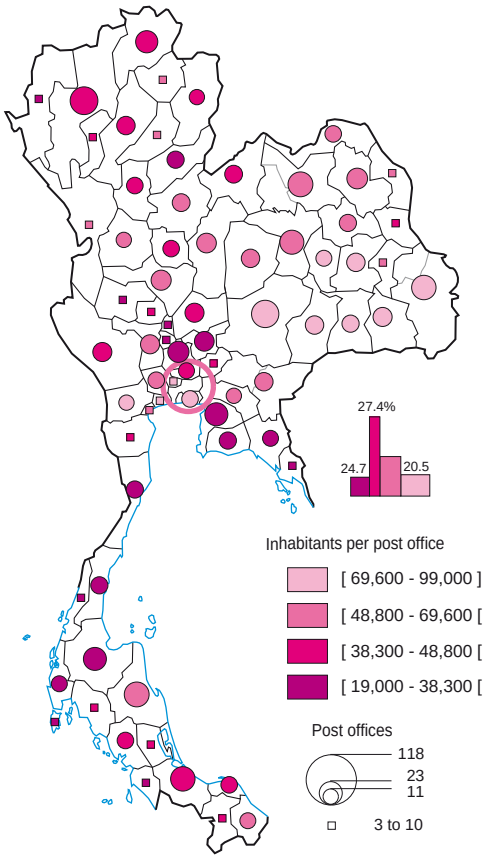
The country is not well served with post offices (1 post office per 50,000 inhabitants at national level) and provision varies widely from one province to another. The under-provision in relation to population density affects mainly the North-East and to a lesser extent the rapidly growing (in population terms) outskirts of Bangkok. This situation reveals, on the one hand, the wide variety of economic situations in the provinces and, on the other, the difficulty facing the authorities in coping with the rapid increase in needs arising from the rapid growth rate in the Bangkok metropolitan region and also in regional cities which have undergone rapid expansion (Nakhon Ratchasima). The lack of post office provision in the most rural provinces should be seen in the context of a low level of postal activity (between 2 and 8 postal items sent per inhabitant in 1996 for the north-eastern provinces, compared with 72 in Phuket and 112 in Bangkok). To compensate both quantitatively and qualitatively for the inadequacies of the public sector, private postal services provide a vital local service in Bangkok and the main cities.

The capacity of the telephone network reflects the different levels of economic activity and standards of living between regions (5 lines per 1,000 inhabitants in Si Sa Ket as opposed to 200 in Bangkok). Bangkok and region have a very high teledensity, with the Greater Bangkok Area alone (Bangkok, Samut Prakan, Pathum Thani, Nonthaburi) containing 61% of all the country's lines in 1996. The extension of industry along the Eastern Seaboard gave rise to an excess capacity in the network (in Rayong, only 83% of lines were in use in 1996, compared with more than 96% in Bangkok) due to the voluntaristic development that had taken place throughout this vast zone of industrial activity and which by the middle of the 1990s resulted in infrastructure that was far in excess of what was required by the businesses already in place (a situation that is being repeated in Pathum Thani province, also undergoing large scale development, on the outskirts of Bangkok). In the rest of the country, the remarkably good levels of provision in Phuket or Chiang Mai are related to the major tourist infrastructure. No province in the North-East, including those which are the most urbanized, has more than 17 lines per 1,000 inhabitants. Despite a 3- or 4-fold increase in the number of lines at the beginning of the 1990s in the least well-developed provinces (revealing a very poor initial level of equipment), most still have fewer than 10 lines per 1,000 inhabitants. In 1994 there were 422,283 mobile telephones, 924,415 in 1996 and 1,105,148 in 1997 (of which 62% were in the Greater Bangkok Area). This rapid development in the 1990s is a new factor that is tending to reduce the effect of regional differences as far as fixed lines are concerned.

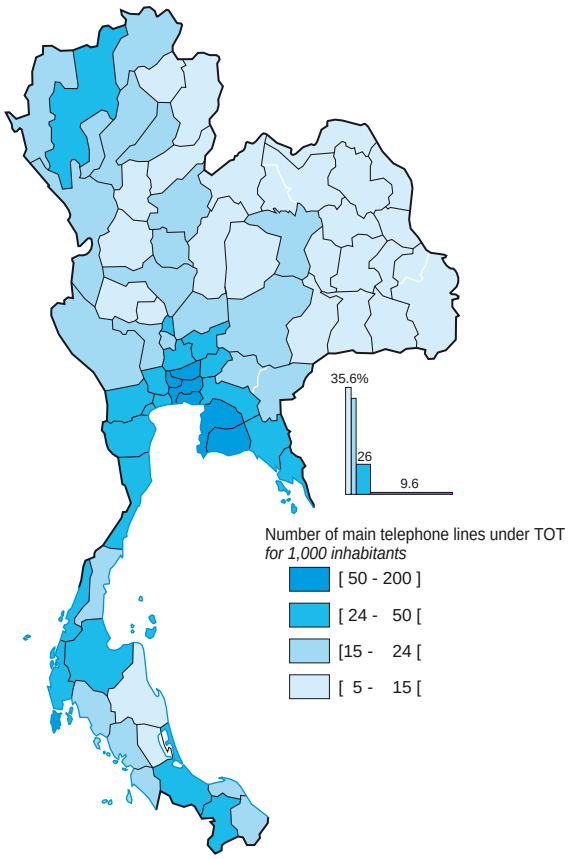
In order to meet a growing demand for main telephone lines, partnerships between the state in the form of public enterprises, the Telephone Organization of Thailand (TOT) and the Communications Authority of Thailand (CAT), and private operators were established between 1992 and 1993. Thus TOT has granted 25 years service concessions to Telecom Asia for the installation and operation of new lines in the Greater Bangkok Area and to Thai Telephone and Telecommunication for the provincial service. In 1996, these operators were responsible for installing more than 90% of new lines. Their participation in the telephone infrastructure system has grown from the management of 300,000 lines in 1994 to 2.3 million lines in 1997, out of a total of 4.8 million, or 48% of the country's telephone lines.

State enterprises have also granted concessions for the development of a large proportion of the new communication technology for mobile phones and telecommunications via satellite. These operations ensure a good level of coverage throughout the country as a whole, although this is nevertheless limited by the poor quality of inter-connections between the telephone systems and operators. They also pave the way for the privatization of TOT and CAT, scheduled in the 1997 Telecommunications Master Plan for 2006. The long-term view held in 1997 by the Thailand Development Research Institute estimated that, on the basis of economic growth being maintained, 10 million fixed lines would be required by 2001 (or, between 1997 and 2001, 250,000 new lines per year for the Greater Bangkok Area and 350,000 for the provinces) and 14 million by 2006, or about 21.5 lines per 100 inhabitants. Given that there were 4.8 million existing lines in 1997 (or about 8 lines per 100 inhabitants), these figures indicate the scale of the increase in equipment needed to match the country's economic development and meet social demand.

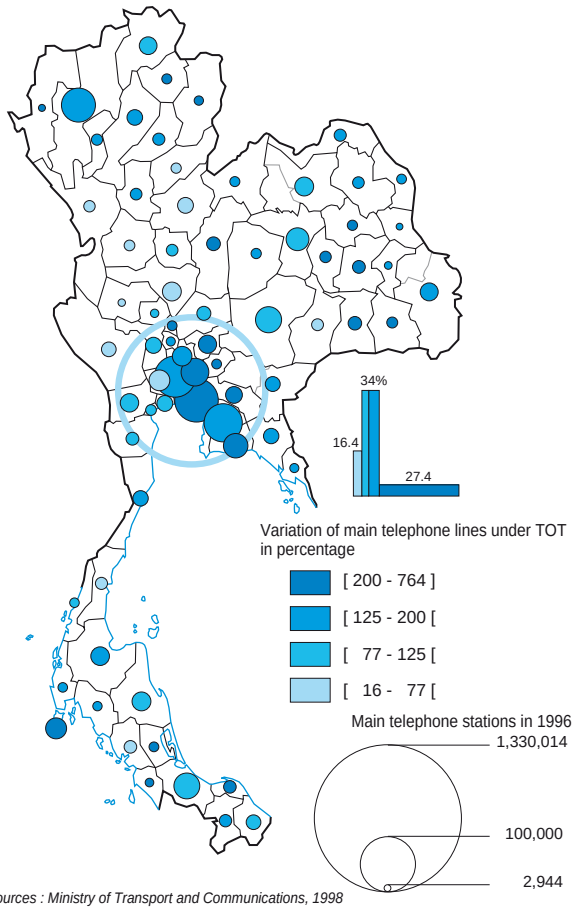
Post offices (1996)



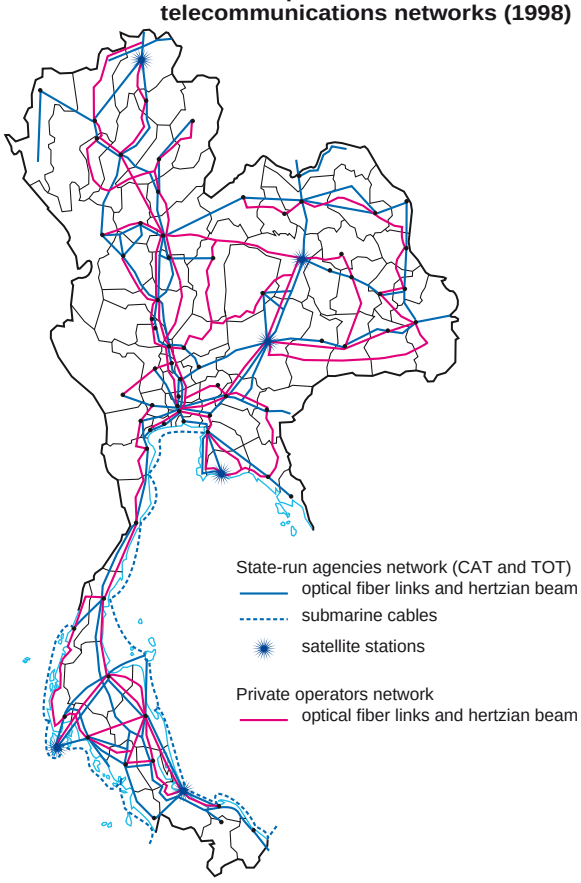
Teledensity (1996)



Telephone lines (1988-1996)



Public and private telecommunications networks (1998)



Sources : Ministry of Transport and Communications, 1998
NSO, 1990, 1997b, 1997c, 2000

Good electricity service, inadequate water supplies

There is a great contrast between Bangkok, and its surrounding provinces, where almost all households have piped water, and the rest of the country: in 1996, one household in two had water in the central region and fewer than one in four in the South.

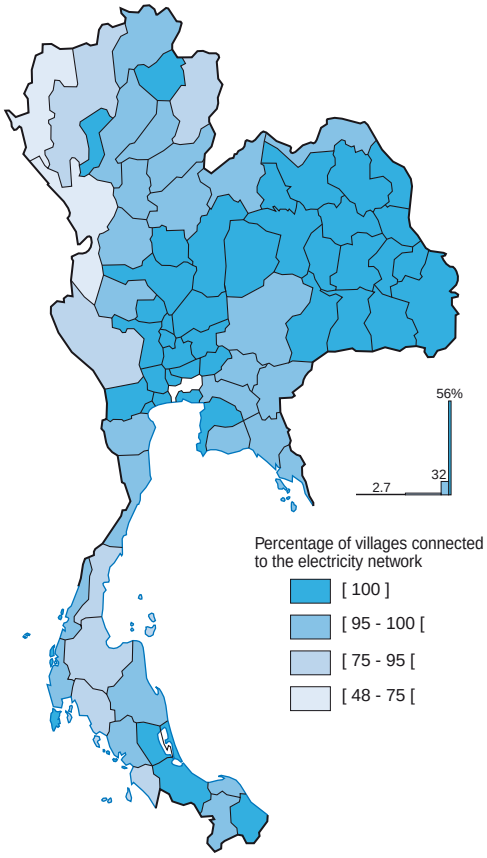
The contrast between town and country remains considerable with 81% of urban homes supplied with piped water in 1994, compared with only 27% in rural areas. In each region, the most urbanized provinces and also a few rural provinces which have undergone improvements through specific development programs stand out above the rest. Due to population growth, a lack of planning and main-tenance, and insufficient local ground water, water supplies in 1990 were still not satisfactory in 35,529 villages, half of which are in the north-east of the country. According to the Ministry of Public Health, 1.73 million rural homes were without drinking water in 1994. Programs since the 1960s to provide facilities, mainly wells, have proved inadequate, and so the focus since 1992 has been on installing water pipelines with the aim of supplying 70% of villages by 2001. This development has been felt in the North-East particularly, where the proportion of homes with piped water increased 2.3-fold between 1990 and 1996, and there was a corresponding decrease in the provision of public wells.

The North-East and the South have contrasting water supply profiles. The South has a reduced amount of public infrastructure, compensated for by private wells, which, in 1990, were the main source of water for between 47 and 80% of households, according to the provinces. Piped water supplies improved little between 1990 and 1996, an indication of the persistent weakness of public intervention. The North-East, on the other hand, has benefited since 1960 from large-scale improvement schemes: the use of public wells predominates in all provinces and the installation of piped water is improving considerably. Until the middle of the 1970s, the government, with invaluable help from the United States, concentrated its rural development actions on this region for strategic reasons in order to counter communist insurrections. Thus between 1966 and 1972, the Potable Water Project covered 600 zones, mainly in the North-East, with the specific aim of winning the loyalty of the local populations. Since then, attention has continued to be focused here as there is a chronic water shortage. In the North, private wells predomi-nate, but less markedly than in the South. Piped water is fairly well developed and there have been remarkable improvements since 1990 in some of the most rural of provinces (Mae Hong Son, Tak).

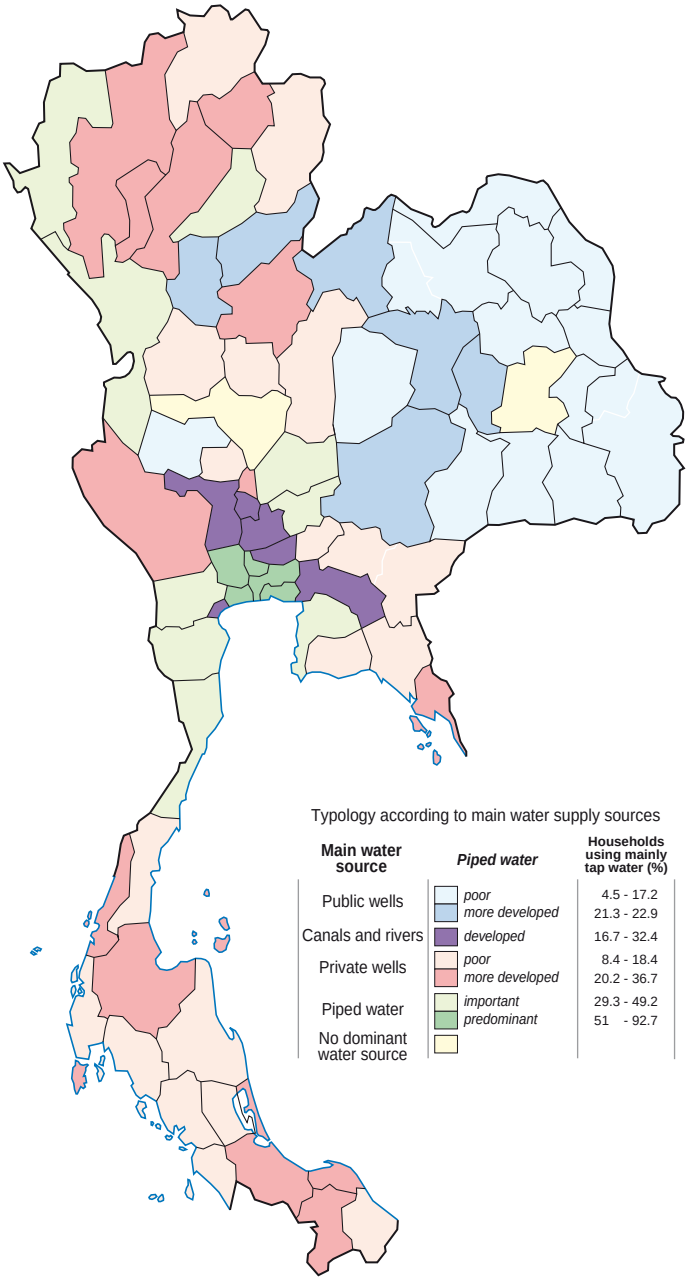
In 1994, the Ministry of Public Health considered the quality of drinking water in Bangkok and the main cities to be adequate, with the notable exception of the squatter settlements. Throughout the rest of the country it remains inadequate, however: only 46% of samples collected met health standards. In 1996, 925,000 homes, especially in the Central Plain and the periphery of Bangkok, were mainly using water from the canals and rivers. In order to cope better with the shortages, the management of amenities and water provision planning were handed in 1992 to the provinces. In response to increasing demand and to provide more widespread coverage, in 1996 the task of improving and extending the water services in some provinces was delegated to private companies for 25 years.

In 1995, 98% of villages were connected to the electricity supply and 88% of homes were connected, thus the aim to supply electricity to the rural areas was very largely fulfilled. And this was achieved by the end of the 1970s, especially under the Third and Fourth Plans (1972 to 1981) which made rural development a priority. As in the case of the water supplies, we find here, but with a better success rate, the effects of basic infrastructure improvement programs aimed at countering uprisings, especially in the North-East. Establishing an extended road network provided support for the provision of electricity to rural areas. In 1995, only 9 provinces had fewer than 95% of their villages supplied with electricity. The mountainous provinces in the north-west along the border with Myanmar are the least well supplied (especially Mae Hong Son, with 181 villages out of 379 without electricity). The other provinces not yet fully equipped have a considerable number of households without electricity, although the villages are on the grid. In the South, 9/10 of the villages of Chumphon and Krabi are supplied, but only 6 out of 10 households are connected.

Rural electrification (1995)



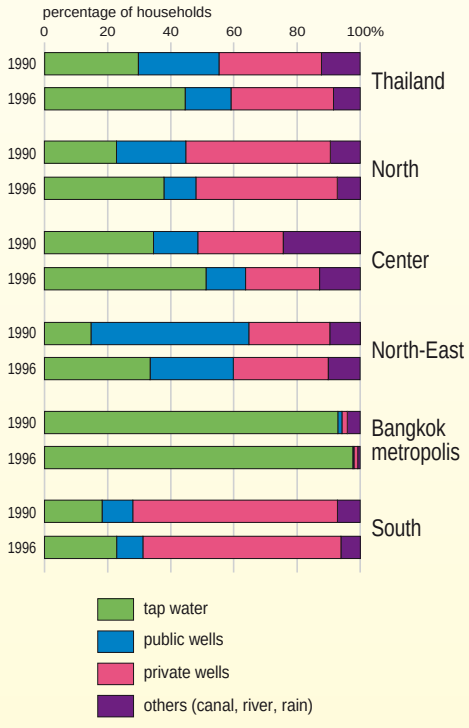
Water supply for domestic use (1990)



Typology according to main water supply sources

Main water source	Piped water	Households using mainly tap water (%)
Public wells	poor	4.5 - 17.2
	more developed	21.3 - 22.9
Canals and rivers	developed	16.7 - 32.4
Private wells	poor	8.4 - 18.4
	more developed	20.2 - 36.7
Piped water	important	29.3 - 49.2
	predominant	51 - 92.7
No dominant water source		

Domestic water supply sources (1990-1996)



Sources : NSO, 1990, 1995, 1997a

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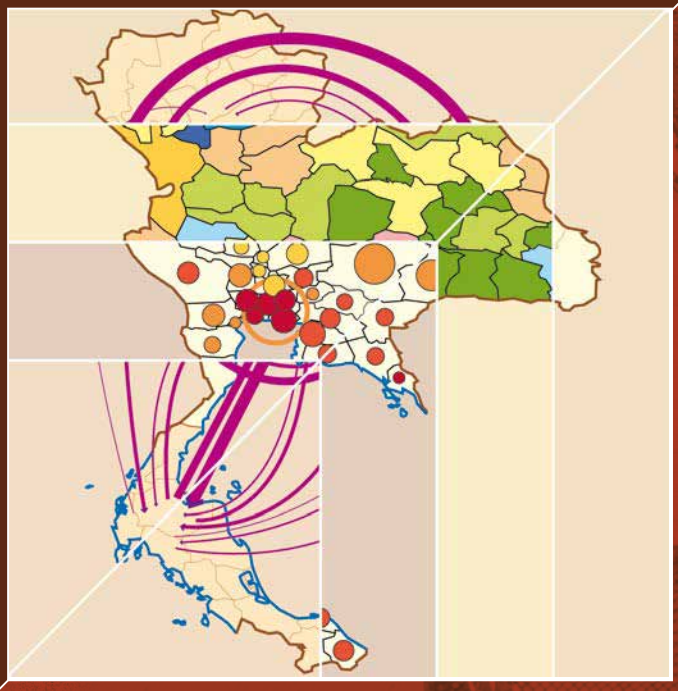

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