

Study on Livestock Development of Small Scale Farmers in Thailand

— Prospects on the policies of Dairy Development —

Masaki YAMAZAKI

タイ国における小農の畜産開発に関する研究

— 酪農振興政策の展望 —

山崎 正氣

Introduction

Thailand has a population of 60 million people. Agriculture is an important part of the Thai economy, about 60% of people are living in rural area and contributes 11.4% of the Gross Domestic Production (GDP). The country is divided into 4 regions which are made up 76 provinces (Fig. 1). Under existing tenual systems, majority of the economic participants in the agriculture sector are small scale farmers (29.9 Rai :1Rai=0.16 ha). They produce many forms of crop - livestock integration which vary according to different socioeconomic needs, and livestock plays the important role in the traditional village system.

The livestock production is more development with rapid growth in the last 20 years. The increasing of meat, milk and egg production stimulates agro-industry and business such as feed mills, processing plants, trading companies etc. The total number of beef cattle, dairy cattle, buffalo, swine and poultry in 1996 were 5.95, 0.28, 2.71, 8.71 and 144.58 million heads respectively. Especially the population of cows and beef cattle are anticipated to increase production due to the domestic milk and meat consumption demand. Sametime, importation of milk and dairy products have continually increased. It is expected that dairy farming will play an important role in the Thai economy.

The Thai government has a policy to accelerate dairy production, because of these reason:

① Provide small scale farmers a steady income through the year. ② Provide employment opportunity. ③ Utilize agricultural products

wastes. ④ Maintain and improve the soil fertility. ⑤ Reduce the importation of dairy products.

Commercial dairy farming in Thailand is mainly in hand of small farmers who own average 15 dairy cattle (17,621 farmers). The dairy farming is characterized by the climatic, disease, breeding, feeding and managerial factors etc.

The main purpose of the research is concerning the government policy and the relevant agencies program regarding the improvement of the dairy farm management and the production efficiency of the small scale farmers in Thailand.

1. Dairy development in Thailand

The national policy on livestock development has been set up 5 years plan. The policy includes research to produce technologies for livestock production and animal health, extension and services to the farmers. For the object, government organization under the Ministry of Agriculture and Co-operatives, Department of Livestock Development (DLD) conducts the following production technology and services:

① Development of breeding. ② Development of feed and feeding. ③ Livestock management improvement. ④ Disease prevention and control. ⑤ Animal health improvement. ⑥ Technology transferring.

DLD consists of the central organization which is divided into 16 division (Table 1) and regional organization which is divided into 9 livestock regions. Also the central agencies of which branches are existing in regional. DLD has field extension staffs which are linked to the district and provincial livestock office.

Table 1. DLD Organization

Central organization	
1. Office of the Secretary	9. Veterinary Public Health Division
2. Finance Division	10. National Institute of Animal Health
3. Planning Division	11. Artificial Insemination Division
4. Personnel Division	12. Animal Husbandry Division
5. Training Division	13. Animal Nutrition Division
6. Veterinary Biologics Division	14. Animal Feed Quality Control Division
7. Disease Control Division	15. Livestock Extension Division
8. Veterinary Services Division	16. Regional Livestock Offices
Regional organization	
1. Provincial Livestock Offices	2. District Livestock Offices

Source : DLD

The government policies for dairy industry development are: ①Encourage and support research and development of dairy breeding, pasture and farm management. ②Encourage the establishment of dairy co-operatives that act as agents in running feedmills, cooling centers and processing plants. ③Replace import of dairy product by local milk production. ④Support campaigns emphasizing the nutritional value of milk products.

Under the Ministry of Agriculture and Co-operatives the dairy development and service organizations are: ①Department of Livestock Development (DLD). ②Dairy Farming Promotion Organization (DPO). ③Co-operative Promotion Department (CPD). ④Bank of Agriculture and Agricultural Co-operatives (BAAC).

DLD provides the support services to promote dairy farming as extension, veterinary, training and A.I etc. DPO is a state enterprise which consists of 10 departments and offices plus 4 regions located at Muak Lek, Pranburi, Chiang Mai and Khon Kaen. CPD has responsibility for promotion of the co-operatives and supervision which is divided into 11 divisions. One of the Division of Agricultural Co-operatives has the Dairy Co-operative Promotion Section (DCP) which is relevant for dairy development projects.

Basic requirement to form a primary co-operative are following: ①Minimum 60 farming families. ②Minimum 300 cows. ③Distance from milk collection center, maximum 20 km. ④Approved market for the milk. ⑤Veterinary and

A.I service available.

The dairy co-operatives are provided their finance from BAAC and lend funds to their members.

2. Dairy farming promotion and production

The beginning of dairy farming in Thailand is in 1960s. The Thai-Danish Dairy Farm was established in Muak Lek at Saraburi province through the King's friendship with Denmark in 1962. And in 1965, the Thai-German Dairy Project was established in Chiang Mai. The Thai-Danish Dairy Project terminated in 1971, and became the Dairy Farming Promotion Organization (DPO) which supports the farmers through training, supplying cows and keeping the milk price. The Thai-German Project was handed over to DLD in 1977 as National Dairy Training and Applied Research Institute (NDTARI).

After that, the dairy farming were gradually growing. Many dairy co-operatives have been organized in the near area of major cities through the coordination by DPO, DLD and CPD. The government emphasized the policy of dairy farming as the Dairy Development Speed-up Project in the Social and Economic Development 6th Plan : 1987-1991. Within this project, government promoted the cross-bred calve production, importation pregnant cows, setting dairy farming zone and budgetting of loan system with the bank.

The government has a continuous plan of dairy farming extension, in the 7th Plan : 1992-1996. The Plan has emphasized productivity improve-

Table 2. Number of dairy cattle and raw milk yield

Year	No of dairy cattle (heads)			Total	Raw milk tons
	Calves	Bulls & Heifers	Cows		
1992	31,988	60,566	125,903	218,457	287,164
1993	37,875	67,367	130,591	235,833	320,894
1994	38,811	76,156	144,483	259,450	348,212
1995	43,141	73,343	172,814	289,298	408,551
1996	50,453	78,447	198,265	327,165	474,090
Growth rate (%)	10.977	6.209	12.618	10.651	13.249
1997*	57,499	86,612	224,633	368,744	539,618

Source : OAE Note*=estimated

ment of dairy head that is Increasing Milk Efficiency and Milk Yield Project. In year 1994, government policy set a Ko-Po-Ro Plan-Agricultural Structure and System Improvement Project for three years of 1994-1996. The project method is to promote the farmer to change an enterprise, the dairy farming is the one that promotes as a principle career. Sametime, the government has promoted milk consumption to people, especially school children.

In the time of 7th Plan (1992-1996), number of dairy cattle was increased with 10.65% growth rate, milk production was increased 13.25%. In 1996, number of dairy cattle was 327,165 with 198,265 cows, 128,900 calves and heifers and 474,090 tons of raw milk yield. Average milk production per cow was 8.2 kg/day (Table 2).

In 1994, the number of dairy cattle and the raw milk yield by area are as follow:

The Central Region has 67.47% of dairy cattle and 72.10% of raw milk production which is shared with some provinces such as Ratchaburi (56,134 heads), Saraburi (35,286 heads) Lop Buri (28,844 heads) etc. The North East Region has 24.17% of dairy cattle and 20.25% of raw milk production, the most biggest area is Nakhon Rachasima (45,547 heads). The North Region has 6.50% of dairy cattle and 6.20% of raw milk production, Chiang Mai province has 8,098 heads of dairy cattle.

The most important milk buyer is DPO. There are 54 milk collecting centers in Thailand.

During 1992 -1996, raw milk demand of Redy to

Drink Milk (RTD) processing was increased with 17.66% growth rate higher than raw milk production. Quantity of raw milk demand in year 1996 was about 584,721 tons, while raw milk yield was 474,090 tons. So that, skimmed milk powder was used to replace the absent portion. The yeald/demand was 81.08% with-3.75% growth rate (Table 3).

Growth rate of raw milk production cost during the 5 years was 3.17% per year. In 1996, production cost was 7.2 Baht/kg higher than 6.55 Baht/kg of year 1995. Raw milk price was increased with 3.78% growth rate per year. Averaged raw milk price in year 1996 was 9.05 Baht/kg increased from 7.96 Baht/kg in 1995. Increasing rate of milk return that the farmer got was about 6.37% per year (Table 4).

During the four years 1992-1995, milk and milk products importation was increased with 12.95% growth rate. Skimmed milk powder was imported with 11.29% growth rate. It shared 58.4% of all milk and milk products importation (Table 5).

According to the agricultural agreement under WTO, importation of raw milk, RTD milk powder was regulated. Fixed quota and duty of importation in year 1996 was that 88,000 tons of skimmed milk powder with 5% duty in the case of import under quota and 235.2% duty in the case out of quota.

As for the School Milk Program, the government has a policy that promotes to school children for drinking milk on the school days from 1992. It has supported fresh milk about 200ml for 200 days per

Table 3. Raw milk production and demand

Year	Raw milk demand (tons)	Raw milk yield (tons)	Yield/demand (%)
1992	302,479	287,164	94.94
1993	362,807	320,894	88.45
1994	423,263	348,212	81.69
1995	493,851	408,551	82.73
1996	584,721	474,090	81.08
Growth rate (%)	17.664	13.249	-3.753
1997*	693,039	539,618	77.86

Source: OAE Note* = estimated

year. The program aims to promote all primary school children (1st-6th years) within year 2000.

The first dairy cooperative started in Ayutthaya in 1970, and soon, Nong Pho Dairy Co-operative and Nakhon Pathom Dairy Cooperative were established. In 1996, there are 102 dairy cooperatives with over 20,000 members which collected 190,000 tons raw milk. 64 cooperatives have own milk collecting center. The DPO operates 3 milk processing plants in Muak Lek, Pranburi and Chiang Mai with a capacity of 144 tons, 45 tons and 15 tons per day respectively. Also, milk processing plant in Khon Kaen (60 tons) was established in 1997, and in Sukothai (70 tons) will be opened in 1998.

Regarding the international cooperation, the Thai and Japanese Dairy Farming Development Project has been started in 1993. The project activities consists of improving dairy farming technology, training and demonstration of the appropriate technology, at A.I Division Pathum Thani Office (DLD) and Chai Badan Dairy Demonstration Center (CPD) in Lop Buri. The

duration of the project will be in 1998 (5 years).

3. Ko-Po-Ro Plan and dairy extension

The Ko-Po-Ro Plan was borned as Agricultural Structure and System Improvement Project in government policy. The government saw that the growth rate of agriculture has been reduced continuously. Some crop production have problems such as rice, cassava, coffee, sugar and pepper etc. that face the cost of production and competitiveness for exportation. The policy has tried to reduce these cash crops production and adjusted to develop the long-term investment that can make the stability income. Then the agriculture ministry has committed to DLD to promote livestock promotion within the Ko-Po-Ro Plan Year 1994-1996. DLD has 2 target group that are the old dairy farmer and the new farmer in the Plan. The dairy extension method is considered by land holding 15-25 Rai pasture, family labor 2-3 person, optimal number of cow raising 5 cows. The government must subsidize both money and material to persuade the farmer who reduces paddy and cassava field. The detail of

Table 4. Cost, price and return of milk production

Year	Production cost Baht/kg. milk	Raw milk price Baht/kg	Return Baht/kg
1992	6.17	7.51	1.34
1993	6.53	7.98	1.45
1994	6.57	7.96	1.39
1995	6.55	7.96	1.41
1996	7.20	9.05	1.85
Growth rate (%)	3.167	3.775	6.365
1997*	7.50	9.11	1.61

Source: OAE Note* = estimated

Table 5. Quantity and value of milk product importation

Year	Total milk product import		Skimmed milk powder import	
	Quantity tons	Value million Baht	Quantity tons	Value million Baht
1992	114,013	5,570	62,147	2,768
1993	106,293	5,163	52,375	2,485
1994	143,391	6,202	71,749	2,914
1995	154,828	8,230	79,919	4,123
Growth rate (%)	12.946	14.506	11.285	14.507

Source: Department of Customs.

the dairy farming extension is as follow:

1) Project Goal

① Reduce the low productivity paddy field 40,000 Rai/year and cassava field 10,000 Rai/year. ② Promote dairy farming to the farmer by beginning with 5 cow/farm. The expectation is 1,600 farm/year in paddy production and 400 farm/year in cassava production area. ③ Increase milk production more than 50%/year.

2) Project Method

DCP, collaborates to BAAC, is responsible agency in farmer organizing. The farmers who join to the project must collaborate to a group/cooperative. DCP passes on knowledge of cooperative management to the farmers such as trading feed and milk collecting etc.

DLD trains the farmers about dairy farming and management. Training is consisted of lecture and practice of pasture growing, cattle management, feed and feeding, A.I, disease prevention, milking etc. Duration of the training course is 14 days. Also, DLD assigns a mobile team to visit and advice dairy farmers about concentrate feeding in order to supplement nutrients to cow.

The farmers must construct stall, including milking spot, by the plan of the project before beginning of farming. The farmers can rise dairy cow by stall-standing type (with cut and carry forage) or by grazing type. 5 cows in beginning will increase later, on the 5 th year of the project it will be 7 cows and 10 cows at the 8th year.

Total breedstock that required by the project is 10,000 cows/year. The quarification of cow is as follow: Dairy heifer that is over 62.5% of

Holstin Friesian breed, pregnant for 3-7 months, age 20-30 months, weight over 300kg, health, good appearance, having a record and no T.B, Brucellosis, and having an insurance. DLD establishes one A.I, vaccination and treating service team for 500 dairy cows.

DCP, BAAC and the private companies consider in loan raising of the dairy cooperative that asking for establish milk collecting center (1,400,000 Baht). The farmer can sell raw milk at price 7.50 Baht/kg to the cooperative. The cooperative records their income and reports to the BAAC. Some of the income is returned for a loan. According to the project, BAAC lends the farmer 212,500 Baht. The farmer must repay within 14 years. The grace periods of interest (5%/year) and principal payment of a loan are 2 and 8 year respectively.

3) Cost and benefit

About the variable cost of dairy farm, each farmer must pay cost of feed, medicine, srvice etc. in every year. The average cost is about 39,217-87,470 Baht/farm, varied by farm management. According to the project, dairy farming is expected that produce 1,800 kg raw milk/cow in the first lactation and the next lactation produce 2,400 kg raw milk. Prices of culled cow, male calf and female calf are about 7,200, 300 and 2,500 Baht respectively. In accordance with DPO's standard raw milk price 7.50 Baht/kg, the total income of dairy farming is about 68,100-191,900 Baht during the 2nd to 14th year of the project.

4) Result of the project: 1994-1996

Result of the project proceeding within 3 years,

DLD reports and evaluates as follow:

During the two years 1994 and 1995, DLD encouraged 3,399 farmers to raise 16,995 cows that was 85% of the goal. As for year 1996, the department has adjusted project proceeding especially credit supplementing and interest rate. So that, project proceeding of the year came to sudden stop. The results was 475 farmers to raise 2,375 cows that was lower than 50% of the goal. All dairy farmers made pasture for feeding. Averaged pasture was 12.17 Rai lower than regulation about 0.33 Rai. 61% of dairy farmers had silo for treated straw and silage making. 78% of all farmers want to do it. The brief reports are as follow:

① General information

Averaged age of farmer 42.5 years old
 Averaged member of farm family 4 persons
 Farmers who finished primary school 84.6 %
 Income of farmer before join the project 5,877 Baht/year
 Averaged area planted forage crop 11-30 Rai/farm
 Farmers training by agencies 71.7 % by DLD
 13.2 % by DPO

② No. of farmer join to the project

1994: No. of farmer=1,743 persons, raise 8,715 cows
 1995: No. of farmer=1,656 persons, raise 8,280 cows
 Sum=3,399 persons, raise 16,995 cows
 The goal is to promote 2,000 farmers in each year, it succeeded 85% of the goal.

③ Milk production of the first lactation

Averaged 100 day milk yield 1,011 ± 282 kg/cow
 Real milk yield in 1st lactation 2,429 ± 759 kg/cow
 First lactation length 288 ± 55 days

Adjusted milk yield (305 days) 3,131 ± 882 kg/cow

Calculating income of dairy farming, BAAC considers at 1,800 kg/cow for milk yield in first lactation, according to unexperience and no skill of new farmer. However, actual milk yield is 2,429 ± 759 kg/cow/year or 8.4 kg/cow/day averagely.

4. Dairy development in the 8th Plan(1997-2001)

Subject to 7th Plan, DLD proceeded the project of increasing the number of dairy cattle and milk quantity, as well as the project of agricultural production restructure. In the 8th Plan, government estimates that fresh milk consumption will be increased from 11/kg/head/year to 20 kg/head/year (16.94% growth rate per year). Fresh milk demand will be increased from 1,843 ton/day to 3,622 ton/day in year 1997, 2001 respectively (growth rate 18.40% per year). In year 1997, lacking of raw milk is 844 ton/day and it will be increased to 1,991 ton/day in 2001 (growth rate 23.48%) (Table 6). And the Plan estimates that raw milk production will be 50-60% of milk requirement for consumption and 30% of total milk requirement.

For this growing raw milk demand, DLD has adjusted and improved dairy extension plan following through the changing of economic and social situation. The development direction is planed as Table 7. The number of required dairy cows will be increased from 205,000 head to 292,000 heads in 2,001 (9.4% growth rate per year). For this promotion, 65,000 dairy cows will be provided by DLD and DPO. The raw milk production per year will be increased from 484,000

Table 6. Demand of fresh milk for consume and raw milk production in 8th Plan (1997-2001)

Year	Milk	Fresh milk		Raw milk tons			
	Consumption kg/head/year	Requirement for consume per year	per day	Production per year	per day	Lack per year	per day
1997	10.91	672,853	1,843	414,592	1,136	307,972	844
1998	12.75	796,161	2,181	442,784	1,213	422,200	1,157
1999	14.91	942,670	2,583	485,028	1,329	527,289	1,445
2000	17.44	1,116,404	3,059	573,945	1,572	624,939	1,712
2001	20.40	1,322,205	3,622	665,520	1,823	726,533	1,991
Growth rate (%)	16.94		18.40		12.817		23.475

Source: OAE

tons to 978,000 tons (19.2% growth rate per year). The milk productivity will be requested from 8.5kg/cow/day to 12.0kg/cow/day respectively.

For this goal, DLD has review the dairy situation and prospects as follow:

1) Dairy farming situation

① High cost of milk production, because of increasing of feed cost. ② Low milk efficiency of cow, because of low performance of breeds and management. ③ Raw milk is unadequate, so that import milk products will be increased. ④ Milk factories want to use skimmed milk powder instead of raw milk in order to cost saving.

2) Opportunity of dairy development

① Dairy farming can grow more, because of raw milk production is unadequate at present. ② Milk efficiency of cow can be improved by genetic and environment factor. ③ Arrangement of WTO gives advantage to Thai dairy production in competition to other countries. ④ Milk drinking promotion of the government makes milk requirement increasing.

For the above issues, DLD is continuing and implimenting the dairy production promotion under the Project of Increasing Milk Efficiency and Milk Quantity and the Project of Dairy Farming Extension (include the Ko-Po-Ro Plan II) such as activities:

① Set a loan with low interest and input support materials, especially to the new dairy farmer. ② DLD collaborates with DPO to establish dairy extension unit in order to service vaccination and

A.I in each location. One dairy extension unit with two officials is for 500 dairy cows. ③ Establish more milk collecting center. ④ Develop and distribute new breeds that are Thai Milking Zebu (TMZ) and Thai Friesian (TF) within year 2000. ⑤ Establish more demonstration milk factory in each zones. ⑥ Establish a mobile laboratory for milk test at milk collecting centers and milk processing factories. ⑦ Change and emphasize the livestock extension system and promote Training and Visiting Systems through development of local livestock leaders. ⑧ Establish trainer's training centers in each zones.

Conclusion

The dairy farming was initiated in Thailand long time ago. The government has supported it by setting policies and regulations such as to promote dairy production and extension, to replace milk products importation, to fix quota and duty of imported milk and milk products, to promote milk consumption like a Shool Milk Pprogram etc. The result of these efforts make relatively high increasing of milk production with growth rate more than 13%/year. So, dairy farming promotion has been changing from mainor career to principal career for farmer, and also it is becoming a farming instead of crop planting which are faced marketing problem.

Although it was high extension in 6th and 7th Plan, the milk production is not enough, because of milk consumption is highly increasing. In the 8th Plan, the government expects to breed more

Table 7. Objective of milk production in 8th Plan

Year	Raw milk production 1,000 ton per year	Number of dairy cow that required 1,000 heads	Milk productivity kg/cow/day	Dairy breeds providing heads Agencies	
				DLD	DPO
1997	484	205	8.5	6,000	5,000
1998	583	220	9.4	7,000	5,000
1999	690	239	10.3	8,000	5,000
2000	826	266	11.2	9,000	5,000
2001	978	292	12.0	10,000	5,000
Growth rate (%)	19.187	9.389	9.034	Sum 40,000 Total 65,000	Sum 25,000

Source : DLD

10,000 cows/year and to import more 2,000 cows/year. As expecting the improvement of breeding to increase production efficiency from now is 2.24 tons/cow/year (8kg/cow/day) to 3.66 tons (13kg/cow/day) in year 2001.

However, the present production efficiency is still rather low. The problems of milk production which can be seen in dairy farms such as unadequate roughage feeding especially in dry season, feed ratio of concentrates for milking cows and dry cows, low conception rate to A.I, unadequate hygiene condition especially in rainy season, high incident of mastitis etc. and these problems cause the time and capital loss of the farmer and the low quality milk which is rejected by the milk factories. In addition, dairy farmers are lacking of investment capital to improve the management and enlarge the farm. Some case, farmers have not enough pasture or no pasture and are far from milk collecting center.

Thus dairy farmers need the management improvement including more adequate breeds, feed and feeding skill, health care and extension services. For the dairy promotion, as the responsible unit of the government, DLD has the complex task involving many independent components such as genetic improvement, nutrition management, product processing and marketing, extension and training, credit and other support services. For the emphasize of this task, efficient integrated approach will be requested. The success of the promotion will be depend on the strong cooperation and linkage of the relevant agencies and farmers.

References

1. Department of Livestock Development (DLD), 1996. The Direction of Dairy Production Development for the Economic and Social Plan 8th: 1997-2001. (in Thai)
2. Sumithaya Pollarp, DLD. Regional Service & Extension Center, Extension Technology for DLD
3. Mondop Noppakun, DLD. 1996. Livestock Extension System in Thailand, Livestock Extension Division
4. DLD, Livestock Extension Division, Dairy Farming Extension Handbook, 1996. (in Thai)
5. Livestock Planning Division, DLD, 1996. Proceeding Strategy of Livestock Development in the Economic and Social Plan 8th: 1997-2001. (in Thai)
6. Office of Agricultural Economics (OAE), 1997. Livestock Production in year 1996 and its trend in 1997. (in Thai)
7. DLD, Livestock Extension Division. 1994, A Handbook of Dairy Farming Extension, Ko-Po-Ro Plan. (in Thai)
8. Charan Chantalakhana, Kasetsart University. 1995. Dairy Development in Thailand: A Case of Small Farm Production for Urban Consumption.
9. Sudsawat Thirasuttakorn, Cooperative Promotion Department (CPD), 1993. Thailand Dairy Cooperative. Proceeding Expert Consultation on Management of Dairy Cooperatives in Asia and the Pacific, FAO.
10. Vichien Polvatanasug, Nong Pho Dairy Cooperative 1993, Dairy Cooperatives Movement in Thailand. Proceeding Expert Consultation on Management of Dairy Cooperative in Asia and the Pacific, FAO.
11. DLD, 1997. Yearly Statistic Report, Planning Division, DLD, 1997. DLD Annual Report 1996.
12. Dairy Farming Promotion Organization of Thailand (DPO), 1997. DPO profile.

要 旨

タイ国の農業生産の多様化政策下における畜産、特に酪農部門は、近年の乳製品需要の増大への対応と共に、農場副産物の有効利用、地力の回復・維持、就業機会の創出、条件不利地域の振興、乳製品輸入の軽減等への役割は、農村社会の大多数を占める小農の経営改善への刺激となり、国民経済上、発展が期待されている。

本研究は、第8次国家経済社会開発計画（1997 - 2001年）における酪農振興事業に焦点を当て、その開発政策の沿革や乳生産の動向、そして普及組織、信用制度、酪農組合、国際協力等の展開について総合的に考察を行った。

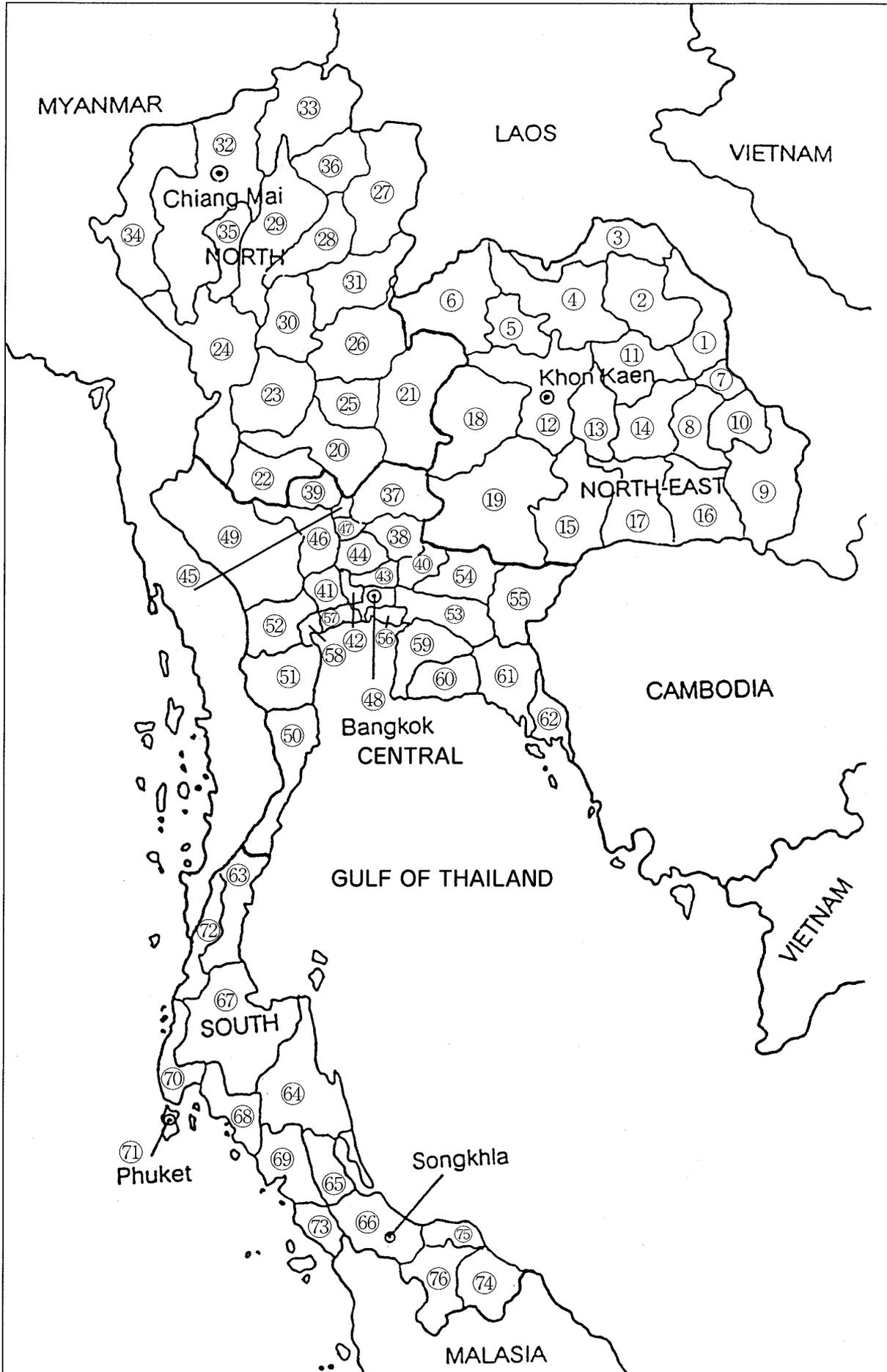


Fig. 1. Map of Thailand

List of provinces and regions (Fig. 1)**North-Eastern Region**

1. Nakhon Phanom
2. Sakon Nakhon
3. Nong Khai
4. Udon Thani
5. Nong Bua Lam Phu
6. Loei
7. Mukdahan
8. Yasothon
9. Ubon Ratchathani
10. Amnat Charoen
11. Kalasin
12. Khon Kaen
13. Maha Sarakham
14. Roi Et
15. Buri Ram
16. Si Sa Ket
17. Surin
18. Chaiyaphum
19. Nakhon Ratchasima

Northern Region

20. Nakhon Sawan
21. Phetchabun
22. Uthai Thani
23. Kamphaeng Phet
24. Tak
25. Phichit
26. Phitsanulok
27. Nan
28. Phrae
29. Lampang
30. Sukhothai
31. Uttaradit
32. Chiang Mai
33. Chiang Rai
34. Mae Hong Son
35. Lamphun
36. Phayao

Southern Region

63. Chumphon
64. Nakhon Si Thammarat
65. Phatthalung
66. Songkhla
67. Surat Thani
68. Krabi
69. Trang

70. Phangnga
71. Phuket
72. Ranong
73. Satun
74. Narathiwat
75. Pattani
76. Yala

Central Plain Region

37. Lop Buri
38. Saraburi
39. Chai Nat
40. Nakhon Nayok
41. Nakhon Pathom
42. Nonthaburi
43. Pathum Thani
44. Ayutthaya
45. Sing Buri
46. Suphan Buri
47. Ang Thong
48. Bangkok Metropolis
49. Kanchanaburi
50. Prachuap Khiri Khan
51. Phetchaburi
52. Ratchaburi
53. Chachoengsao
54. Prachin Buri
55. Sa Kaeo
56. Samut Prakan
57. Samut Sakhon
58. Samut Songkhram
59. Chon Buri
60. Rayong
61. Chanthaburi
62. Trat