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REPORT AND RECOMMENDATION  
OF THE  
PRESIDENT OF THE  
INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT  
TO THE  
EXECUTIVE DIRECTORS  
ON A  
PROPOSED LOAN  
IN AN AMOUNT EQUIVALENT TO US\$60 MILLION  
TO THE  
KINGDOM OF THAILAND  
FOR A  
THIRD RUBBER REPLANTING PROJECT

April 21, 1986

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CURRENCY EQUIVALENTS

\$1.00	=	Baht (B) 26.00
B1.00	=	\$0.04
\$1 million	=	B 26 million
B1 million	=	\$38,500

THAI FISCAL YEAR

October 1 to September 30

WEIGHTS AND MEASURES

1 rai	=	0.16 hectare
1 hectare (ha)	=	6.25 rai

PRINCIPAL ABBREVIATIONS AND ACRONYMS USED

BAAC	-	Bank for Agriculture and Agricultural Cooperatives
BOB	-	Bureau of the Budget
CDC	-	Commonwealth Development Corporation, UK
DOA	-	Department of Agriculture, MOAC
DOAE	-	Department of Agricultural Extension, MOAC
FPO	-	Fiscal Policy Office, MOF
ICB	-	International competitive bidding
LCB	-	Local competitive bidding
MOAC	-	Ministry of Agriculture and Cooperatives
MOF	-	Ministry of Finance
NIDA	-	National Institute for Development and Administration
NRPC	-	National Rubber Policy Committee
NRSDP	-	Needy Rubber Smallholder Development Program
OAE	-	Office of Agricultural Economics, MOAC
ORRAF	-	Office of the Rubber Replanting Aid Fund
RFD	-	Royal Forestry Department, MOAC
RRC	-	Rubber Research Center
RRIT	-	Rubber Research Institute of Thailand, DOA

THAILAND

- THIRD RUBBER REPLANTING PROJECT

Loan and Project Summary

- Borrower: Kingdom of Thailand
- Beneficiaries: Office of the Rubber Replanting Aid Fund (ORRAF), Department of Agricultural Extension (DOAE), Rubber Research Institute of Thailand (RRIT) and 113,000 rubber replanting farm families.
- Loan Amount: US\$60 million equivalent.
- Terms: Repayable in 17 years including a grace period of four years at the standard variable interest rate.
- Project Description: The project would comprise: (a) a four year time slice of ORRAF's agricultural development program, including new rubber replanting of about 50,000 ha p.a. and continuation and completion of past replantings to maturity (about 290,000 ha); (b) ORRAF's related field administration, management and training costs; (c) upgrading of RRIT research centers; (d) DOAE group processing and marketing centers and replanter training; (e) technical assistance to improve (i) ORRAF's organization and management structure; and (ii) RRIT's adaptive research, base line surveys and linkages between research and extension. Under the proposed project, the ORRAF program would also be modified to: ensure more cost effective use of financial and staff resources; re-orient targets, resources and procedures to reach the more needy rubber smallholders under a special Needy Rubber Smallholder Development Program; and improve coordination of technical and training support among key rubber development agencies including a clearer demarcation of their responsibilities.
- Risks: Low. Implementation capacity of ORRAF is satisfactory. Provisions have also been made to ensure that sufficient funding would be available.

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Estimated Cost:

<u>ORRAF</u>	<u>Local</u>	<u>Foreign</u> (U.S. \$ million)	<u>Total</u>
Agricultural development	137.1	57.4	194.5
Administration and training	37.8	.9	38.7
Subtotal	<u>174.9</u>	<u>58.3</u>	<u>233.2</u>
<u>RRIT</u>			
Research and technical assistance	1.4	0.7	2.1
<u>DOAE</u>			
Extension, processing and marketing improvement	1.0	1.2	2.2
Base cost	<u>177.3</u>	<u>60.2</u>	<u>237.5</u>
Physical contingencies	0.2	n.s.	0.2
Price contingencies	14.1	11.7	25.8
<u>Total Project Cost a/</u>	<u>191.6</u>	<u>71.9</u>	<u>263.5</u>

Financing plan:

World Bank	2.1	57.9	60.0
Commonwealth Development Corp.	0.5	14.0	14.5
Government	189.0	-	189.0
<u>Total</u>	<u>191.6</u>	<u>71.9</u>	<u>263.5</u>

<u>Estimated Disbursements:</u>	Bank FY	<u>1987</u>	<u>1988</u>	<u>1989</u>	<u>1990</u>	<u>1991</u>	<u>1992</u>
		(US \$ million)					
	Annual	3.3	11.7	15.6	17.1	11.0	1.3
	Cumulative	3.3	15.0	30.6	47.7	58.7	60.0

Economic Rate of Return: 18%

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a/ Including taxes and duties of US\$7.5 million.

**REPORT AND RECOMMENDATION OF THE PRESIDENT  
OF THE INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT  
TO THE EXECUTIVE DIRECTORS ON A PROPOSED LOAN TO  
THE KINGDOM OF THAILAND  
FOR A THIRD RUBBER REPLANTING PROJECT**

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1. I submit the following report and recommendation on a proposed loan to the Kingdom of Thailand, for the equivalent of \$60.0 million to help finance a Third Rubber Replanting Project. The loan would have a term of 17 years, including four years grace, at the standard variable interest rate. The Commonwealth Development Corporation (CDC) of the United Kingdom would make available a loan of £ 10 million (\$14.5 million equivalent) to the Kingdom of Thailand.

**PART I - THE ECONOMY**

2. An economic report entitled "Managing Public Resources for Structural Adjustment" (Report No. 4366-TH) was issued on August 31, 1983. It reviewed progress in the implementation of structural adjustment policies and proposed directions for further action. An economic mission visited Thailand in July 1985, and an economic report has been discussed with the Government and is being finalized. It focuses on medium-term issues of resource mobilization, institutional development and employment, as Thailand approaches its Sixth Five-Year Development Plan (October 1986-September 1991).

**Recent Political Developments**

3. Since the early 1970s, the political process in Thailand has broadened and matured significantly. Initially, this was accompanied by frequent and sometimes abrupt changes in government leadership. Since the 1977 general elections, however, Thailand has enjoyed a period of greater political stability and continuity of policy. Cabinet shuffles have continued to take place, reflecting shifts in the makeup of the coalitions of political parties, military and business leaders, and technocrats, which have governed the country for the past five years. However, only one change in Prime Minister has occurred during this period. General Prem Tinsulanonda was appointed as Prime Minister in March 1980 and has been successful in mobilizing support for a major program of economic structural adjustment, embodied in the Fifth Five-Year Plan, 1982-86. Senior civil servants supporting this program were given key positions in the public sector. Although there are continuing internal debates on the details and speed of policy implementation, overall, a broad public consensus on national policy priorities has been maintained.

4. National elections were held again on April 18, 1983, in which candidates from ten parties were elected to Parliament. No party secured an outright majority, but Prime Minister Prem succeeded in forming a new four-party coalition which includes two of the three leading parties and has the backing of approximately two-thirds of the elected representatives. As part of a gradual constitutional reform aiming at increased representative government,

transitional arrangements had been in place to permit serving military, civilian and other non-elected officials to continue to play a stabilizing role in both the legislative and executive branches of government through their appointment to the Senate and to Cabinet posts. These transitional arrangements have lapsed, curtailing the Senate's powers and prohibiting military and civilian officials from participating in the Cabinet. These changes, when combined with the current coalition's diversity and the Prime Minister's lack of an independent political power base, have made it necessary to take time to achieve and maintain consensus on difficult economic issues. This approach may in part have helped the Government to withstand two attempted coups. The Government has recently endorsed a set of broad objectives for Thailand's Sixth Five-Year Plan (1987-91). The main themes for the plan concern continuation and completion of investment programs included in the Fifth Plan and measures to improve economic efficiency and institutional administration.

### Past Economic Trends

5. Thailand's economy grew rapidly over the past two decades and developed successfully by most standards of international comparison. The 7% per annum GDP growth combined with a population growth of about 2% per annum allowed per capita incomes to grow at almost 5% per annum during 1960-80, among the highest sustained rates for developing countries. The reduction of poverty was substantial for a country still among the lowest third of middle-income developing countries, as the overall incidence of poverty dropped from about 57% in the early 1960s to about 32% in the mid-1970s and 24% by 1981. Despite its continuing reliance on agriculture, Thailand experienced a far-reaching transformation of its economic and social structure during the past two decades, with a high growth in modern industrial and service sector activities, extension of transport and communications infrastructure throughout the country, rapid modernization, and a significant increase in the openness of the economy to trade and capital flows, tourism and international labor migration. The rapid growth in Thailand's exports played a particularly important role in stimulating aggregate demand and providing the necessary means to finance imports. Moreover, because of this rapid export growth, the Thai debt service burden remained moderate.

6. However, because of its increased openness, its heavy dependence on imported oil, and an expansionary fiscal stance in the late 1970s, the Thai economy was substantially affected by the two oil price shocks and by the ensuing international economic upheaval. A relatively high rate of overall growth was maintained initially, but this was accompanied by accelerating inflation, large fiscal and external deficits and growing dependence on foreign borrowing. Consumer prices increased by 10% in 1979, by 20% in 1980, and by 13% in 1981. The Central Government deficit has exceeded 4% of GDP since 1979. Notwithstanding continued rapid export growth, the current account deficit amounted to about 7% of GDP from 1979 to 1983; consequently, there has been a rapid accumulation of Thailand's traditionally low external debt.

7. Initially, the Government was slow in responding to the changing external conditions, but, beginning in 1980, policy adjustments were undertaken at a gradually accelerating pace through 1982. They included sharp increases in prices for most petroleum products, electricity and other public services, measures to increase government revenues, a substantial increase in real interest rates, and the changes in regulations to increase financial stability and monetary restraint. In October 1981, the Government inaugurated its Fifth Five-Year Plan (1982-86) which made structural adjustment one of its major priorities. In March 1982, the first SAL for Thailand was approved, followed by SAL II in March 1983. Under these loans the Government committed itself to taking steps toward adjustments in the structure of the economy through reductions in domestic price controls, export taxes and controls over agricultural exports, developing a program for improved land tenure, taking steps toward rationalization of the structure of incentives for industrial production, exports, and investment, promoting energy conservation and efficient development of domestic energy resources, and improving the Government's tax structure and administration, public investment planning, and other areas of public administration. Progress under both SALs was satisfactory, although implementation of SAL II was at a somewhat slower pace than originally expected, especially in the area of public resource management and institutional development.

8. Macroeconomic developments in Thailand during the last three years (1982-85) have been strongly influenced by a number of external factors. The most important of these were the worldwide recession in 1982, gradual recovery in 1983 and 1984, continuing high interest rates and increasing strength of the dollar to which the baht was linked until November 1984, and increasing protectionism in OECD countries. The average growth rate of GDP for 1982-84 was about 5% per annum, and for 1985, only 4%. This lower-than-historical growth performance has been due to the external factors cited above. Agricultural production which had increased slowly in 1982 and 1983 because of poor weather and low commodity prices, rebounded in 1984 and 1985 as weather improved permitting paddy rice, maize, and cassava production to reach record levels. As a result of weak domestic demand, lower international prices, and an appreciating exchange rate, domestic inflation dropped from 13% in 1981 to less than 7% in 1983 and 1% in 1984. Following devaluation, it has risen modestly to 3% in 1985.

9. Thailand's current account deficit has remained stubbornly high throughout the early 1980s reaching a high of 7.5% in 1983, and falling to 5.0% in 1984 and with a slowdown of the economy, to about 4% in 1985. These persistent and unsustainable deficits have had two primary causes. First, between 1981 and 1984, Thailand's exports lost competitiveness as the baht appreciated in relation to the currencies of most of its trading partners. By mid-1984, it was clear that the real appreciation of the baht which was pegged to the US dollar was undermining the stabilization and restructuring measures. In November 1984, therefore, the baht was devalued by 14.8% and de-linked from the dollar. This has already had a beneficial impact on manufactured exports, which are expected to rise by 13% in real terms in 1985, and in curbing consumer imports. The devaluation has had relatively little impact on inflation. Second, the external imbalance has been also due to an excessive public sector investment savings-gap, which averaged about 5% of GDP since

1980. Reducing this deficit through taxation and cost recovery measures and through careful expenditure management is a high priority for the Government. This priority is being supported by an IMF standby (signed in May 1985).

#### Development Constraints and Prospects

10. During the 1980s, many of the positive factors which contributed to Thailand's rapid economic growth and reduction in poverty over the preceding two decades will continue to do so, including the relatively equitable distribution of agricultural land, responsiveness of Thai farmers to improved technology, a good network of public infrastructure, and a dynamic private sector in industry, agriculture and services. Substantial reductions in the rate of population growth between the mid-1960s and late 1970s and discovery of domestic gas and oil supplies are further positive factors which will support the continued rapid development of Thailand.

11. Against these favorable factors, however, a number of important constraints must be recognized and addressed: (a) the rapid growth of Thailand's public sector over the last decade, particularly of major state enterprises, without commensurate growth in public resource mobilization, has posed a serious challenge to improvements in institutional and fiscal management; (b) for the longer term, the exhaustion of agricultural land reserves could severely limit employment growth and exports of the agricultural sector, unless input-intensive agricultural development proceeds; (c) further industrial development, exports and employment growth may similarly be limited unless the international competitiveness and diversification of Thai industry are strengthened through correct incentives and support for marketing, finance and technological developments; (d) despite the promising outlook for domestic energy resources, their development is costly and will take time, and thus continued efforts in energy conservation are required; (e) the decline in the population growth rate appears to have slowed in recent years; further reductions will require innovative policies; (f) continued long-term development and poverty alleviation will also depend on continued efforts in human resource development, including education, technical skill development, and improvements in health and nutrition; and (g) finally, the pace of development will increasingly be hampered by inefficient metropolitan growth in Bangkok unless steps are taken to rationalize the city's land use and transport, water drainage and sanitation systems; Thailand's secondary cities, too, require strengthening of their infrastructure and administrative capabilities to prepare them for the expected future growth in urban population.

12. These long-term economic development concerns have been compounded by medium-term adjustment problems as a result of the two oil price shocks and the subsequent world recession accompanied by poor export prospects, high real interest rates and increasing barriers in OECD countries to Thailand exports. While lower oil prices will help, economic projections indicate that even if appropriate policies were fully implemented, economic growth for the remainder of the decade will be lower than Thailand has enjoyed in the past (6.0% per annum for the remainder of the 1980s compared with 7.4% in the late 1970s). Although this growth is better than that of most other developing countries, this will make it more difficult to reduce the incidence of poverty and

heightens the need for policies which raise labor absorption and for continued efforts in the areas of human capital development and rural development.

13. To help address these constraints, the Government has sought the assistance of the IMF and the Bank. During the past four years, Thailand made purchases from the IMF under two compensatory financing facilities (SDR 186 million), a buffer stock financing facility (SDR 58 million), and three standby arrangements (totalling SDR 667 million). The Third Standby became effective in June 1985 and will run for two and-a-half years during which Thailand will be eligible to purchase SDR 400 million. Thailand sought assistance from the Bank in implementing its structural adjustment program through two structural adjustment loans and sector work, and loans to priority sectors. The Bank is also helping the Government with the development of selected parts of the Sixth Five-Year Plan.

#### Financing Requirements

14. While the Government is making considerable efforts to improve the efficiency and effectiveness of its spending, the implementation of policies needed for a satisfactory rate of economic and social progress will require continued growth in the absolute level of public-expenditures, though they will need to decline somewhat in relation to GDP because of fiscal constraints. The Government has reduced expenditures as a short-term step and has increased taxes as the basis for longer term increases in revenue generation. While the Government has taken steps to revise the tax structure and to improve tax administration and collections, further measures are needed. In addition, the financial situation of state enterprises, which has improved following tariff increases over the last four years, and cutbacks in overly ambitious investment programs, will need further improvement. The Government is currently reviewing appropriate policies to achieve a more efficient and financially viable state enterprise sector.

15. Despite these policy measures, the demand for external resources will remain substantial. Macroeconomic projections indicate that, even with structural adjustment policies in place, the current account deficit may amount to about 2% of GDP through the remainder of the 1980s. This will require large amounts of external borrowing, with new commitments totalling about \$16 billion over the Sixth Plan period 1987-91, of which more than half is expected to be in the form of public and publicly guaranteed debt. Total debt service payments (including interest on short-term debt) as a percentage of exports of goods and nonfactor services rose from 19% in 1981 to 27% in 1985 and is not expected to fall to below 20% until 1990 even with continued availability of significant levels of concessional assistance and continued improvements in Thailand's debt management strategy.

16. However, because the level of public debt continues to concern Government, it has established the National Debt Policy Committee to coordinate and approve all borrowing by the public sector. External borrowing ceilings of \$2.1 billion in FY84, \$1.6 billion in FY85, and \$1.0 billion in FY86 have been set. In addition, the Bank of Thailand is improving its procedures for recording private borrowing abroad to keep track of total foreign debt. In this constrained environment, official donors, particularly the

Overseas Economic Cooperation Fund of Japan, meet a significant part of Thailand's public external resource requirements, and the balance is being financed mainly through syndicated loan and bond issues that have been competitively priced. In recent years, external agencies, including the Bank, have supported project lending in some sectors that have high social benefit but low foreign exchange savings or earnings. To continue participating in these sectors in Thailand, it is necessary to finance some local currency expenditures in selected projects with low foreign exchange component.

## PART II - BANK GROUP OPERATIONS IN THAILAND

17. Thailand first borrowed from the Bank Group in 1950 for a railway project and as of March 31, 1986, had received 83 IBRD loans (including 2 third-window loans) and 6 IDA credits, totaling (net of cancellations) \$3,446 million in loans and \$119 million in credits. As of that date, \$807 million remained undisbursed on effective loans and credits. No IDA credits have been extended to Thailand since FY79. Annex II contains a summary statement of Bank loans, IDA credits and IFC investments. Bank loans and IDA credits to Thailand, disbursed and outstanding, amounted to \$2,294 million as of March 31, 1986 and accounted for 17.6% of Thailand's total debt (disbursed and outstanding). The Bank Group's share of Thailand's total debt service payments amounted to 11.7% in 1985. As of March 31, 1986, IFC had made 24 commitments totalling \$229 million in 15 projects in Thailand. IFC's investments have been primarily in industry and in the development of financial institutions. Prospects for increased IFC operations in Thailand have been enhanced by expanding private sector investment activity and by increased potential for developing indigenous resources.

18. The sectoral distribution of Bank loans and IDA credits, in percentage, has been as follows: 30% for energy; 25% for agriculture and rural development; 16% for transportation; 8% for telecommunications; 4% for urban development; 5% for education; 2% for industry; 1% for population/health/nutrition; and 9% for structural adjustment lending. Overall implementation of Bank projects in Thailand has improved steadily during the past five years. Thailand's disbursement ratio increased from 17.7% in 1977 to 27.1% in 1985.

19. The main objective of Bank Group activities in Thailand is to promote the country's economic growth and development through structural adjustment, productive investments in the key sectors of the economy, and poverty alleviation measures. The economic and sector work program is designed to achieve this objective by assisting the Government to improve its public resource management, enhance the efficiency and competitiveness of productive sectors, and rationalize the policies and investments for infrastructure development. The Government has valued the analytical input and technical assistance provided by the Bank in these areas, and this is reflected in the work done on structural adjustment, including the preparation for SAL III. However, the level of the Bank's future lending to Thailand is likely to continue to be affected by ceilings on public foreign borrowing, reductions in public investment programs, and the availability of foreign commercial and concessional sources of finance. The Government has also indicated its

preference to seek highly concessional aid or to use its own resources for education-, health- and population-related investments. As a result, the levels of Bank lending are likely to be at or even below the historical average of the last ten years. In cofinancing, the Bank's primary concern will be to identify appropriate sources of concessional funding for technical assistance associated with Bank operations. The above factors are being taken into account in determining the level and composition of the Bank's operations program in the following areas.

20. Energy. Energy has been a significant sector for Bank assistance to Thailand. The Bank has helped finance projects for power generation and distribution, for lignite mining, and for the development and processing of hydrocarbon resources. Bank assistance through these projects has served to strengthen the institutions involved in the sector. Policy analyses and dialogue through CESW and SALs have addressed issues in energy management, planning and the incentive structure. More recently, the Bank collaborated with NESDB through the Energy Assessment Program to help prepare energy policies for the Sixth Plan. The sector's needs and investment programs are likely to remain large, and a number of planning and pricing issues continue to deserve government attention. The Bank's future assistance through energy and power projects combined with a CESW program involving sector work and public investment programming would help the Government to address these issues and to meet the resource requirements for the relatively large investments planned in the sector.

21. Agriculture/Rural Development. The importance of the agriculture sector to the economy and the potential for intensive farming and crop diversification suggest that it should normally continue to be a major focus of Bank operations. Past Bank assistance through projects has emphasized development of the irrigation infrastructure, poverty alleviation, improvements in land tenure, programs for rubber replanting, and strengthening of the delivery systems for extension, research and credit. A number of policy reforms in the areas of institutional coordination, poverty alleviation, land reclassification, and reduced export taxation have been implemented with support from the Bank's CESW program and via SALs. Future operations are expected to continue these efforts. However, weaknesses in the provision of support services by Government departments and some outstanding issues in rural credit and mobilization of savings may limit future Bank assistance in these areas.

22. Urban and Water Supply. The Government intends to devote increasing attention to the continued expansion and pressures of urban areas in the country, especially Bangkok. Urban and water supply sectors provide considerable investment opportunities, but they also involve institutional and cost sharing issues. Ongoing sector work for Bangkok, as well as the preparatory work for urban projects financed or under consideration by the Bank, are providing a good basis for assistance in this sector. Future Bank assistance is likely to concentrate on providing essential urban infrastructure and shelter for low-income families in Bangkok and in regional cities.

23. Transport. Thailand's transport sector, dominated by road transportation, is generally well developed. The Bank has contributed to developing transport infrastructure through project lending for roads, railways, inland waterways and ports. Future Bank role would focus on investments in infrastructure maintenance, operational efficiency, and selected construction, as well as on issues in institutional development, investment planning, and state enterprise finances.

24. Telecommunications. The Bank has been closely associated with the development of the domestic telephone network, and the Bank's first B loan was made in connection with the third and fourth telecommunications projects. However, the Government's plan for rapid network expansion is straining the institutional/managerial capacity and finances of the implementing agency, the Telephone Organization of Thailand (TOT). It will be necessary for TOT to consolidate its operations before the Bank would be able to participate in the next phase of system expansion. Meanwhile, Bank involvement would continue through supervision of the ongoing project and as part of our economic dialogue.

### PART III - SECTORAL CONTEXT

#### Background

25. Thailand's agricultural sector accounts for 25% of GDP, 60% of exports and 70% of employment. During 1960-75, the sector performed exceptionally well and was able to achieve annual growth rates exceeding 5%; since 1975, however, this has slowed to about 3.5%. Earlier growth was achieved mostly through expansion of cultivated area, but in future crop production must be intensified through increased inputs and diversified into higher value products.

26. With about 4.5 million farm families occupying about 24 million ha, farm sizes are necessarily small, but the size distribution is not particularly skewed. Ninety percent of the cultivated area is rainfed. In irrigated areas, intensification of land use has taken place principally through the use of higher yielding varieties of crops, complemented with higher use of technical inputs such as fertilizer and pesticides. In the 1983/84 season, rice was planted on over 60% of the cultivated area; the major tree crops (rubber, coconut and oil palm) on 15%; maize and cassava each on about 8%, and sugarcane on 5%. In parts of the rainfed areas, the poor natural resource base and the lack of an appropriate technology seriously constrain increased agricultural production and continued improvement in incomes. Rubber, because it can grow on poorer soils better than many cash crops like maize and sugar cane, has been less constrained by soil suitability. In the more humid areas, especially in Southern Thailand, it has been the main source of agricultural diversification and poverty alleviation.

27. The benefits of past economic growth have been relatively well distributed throughout the country. Since most agricultural production is by smallholders, most of the income growth in the sector has accrued to them.

The overall incidence of poverty has been reduced from about 57% of the total population in the early 1960s to about 32% by the mid-1970s and 24% by 1981; and from about 61% to 35% to 27% through the same period in the rural areas. In the Lower South region, a major rubber growing area, poverty incidence declined from 55% in 1975/76 to 19% in 1981. Since 1981, with a general decline in Thailand's export commodity prices, the incidence of rural poverty may well have worsened.

#### Government Agricultural Policies and Bank Support

28. The main objectives of the Government's agricultural policy are: (a) to increase agricultural efficiency and production as rapidly as possible (particularly where market prospects are favorable); (b) to alleviate rural poverty and to redress interregional income disparities; and (c) to expand agricultural exports rapidly to improve the balance of payments. The Government's principal strategies are: creation of an environment in which the private sector has the incentives to increase production, marketing and exports; improved technical packages and support services for intensification and diversification; demarcation of poverty areas for government support programs; and establishment of land use policy for better utilization of land suitable for agriculture, including land titling for individual farmers.

29. The Bank has supported these objectives and strategies through a lending program to strengthen the technical and infrastructural base for improving agricultural production and expanding project planning and implementing capacity. Structural adjustment lending has supported improved agricultural pricing policies, especially for rice and rubber. Past Bank financed projects have supported: irrigation, tree crop development, credit, research and extension services of the Ministry of Agriculture and Cooperatives (MOAC), rural/area development (primarily Northeast and North) and land reform and land titling. To date, the Bank has made 24 agricultural loans amounting to \$924 million, about 25% of total lending to Thailand.

#### The Tree Crop Subsector and the Role of Rubber

30. Tree crops account for about 15% of the planted area in Thailand and a similar proportion of the total value of agricultural production. With the exception of oil palm, tree crop farmers in Thailand are predominantly smallholders. Generally, tree crops have long immature periods with high establishment costs, making it difficult for smallholders to establish the trees initially and then replant at the optimum time. Rubber and coconuts, which dominate the treecrop smallholder subsector, are normally grown on soils not suitable for annual crops and play an important role in poverty alleviation.

31. Rubber is the most important tree crop in Thailand. Although some 530,000 farm families are directly engaged in rubber growing, about 5 million people are estimated to be directly linked to rubber as planters, tappers, traders and processors. Ninety percent of rubber is grown in the Southern Region but it has been expanded to the East, and recently the Northeast, as an alternative to cassava. The statistics are not very accurate but the total rubber area is estimated to be about 1.6 million ha (1984), of which 20-30% is low productivity, old rubber. About 480,000 ha (of which about 200,000 ha are

in production) have been replanted to high yielding rubber under the Government-assisted replanting program of the Office of the Rubber Replanting Aid Fund (ORRAF). Rubber production and exports have been increasing at about 5% p.a. over the last decade. In 1983 net exports were about 550,000 tons (92% of production) valued at US\$520 million contributing about 12% to Thailand's foreign exchange earnings. Coconut and oil palm, grown commercially on about 390,000 ha and 54,000 ha respectively, are also mainly confined to the South. Government recently reaffirmed the importance of ORRAF's 50,000 ha/year replanting program, singling out its important contribution to the Sixth Five Year Development Plan (1987-91) notably in export revenue generation and development of the Southern Region.

### Institutional Arrangements

32. Research and Government planting material production for all tree crops is the responsibility of the Department of Agriculture (DOA). The DOA's rubber-related activities are handled by the Rubber Research Institute of Thailand (RRIT) while other tree crops fall under DOA's Horticulture Research Institute. Except for immature rubber replanted by ORRAF, extension services are provided by the Department of Agricultural Extension (DOAE). Credit is supplied either by the Bank for Agriculture and Agricultural Cooperatives (BAAC) or private banks. Inputs, except for immature replanted rubber, are provided through commercial channels. Marketing and processing of rubber are carried out efficiently by the private sector. Among the agencies involved in rubber development, ORRAF, RRIT and DOAE are the most important for rubber replanting. Rubber support services are presently coordinated through a Technical Assistance Coordinating Committee and a Planting Materials Committee comprising ORRAF, RRIT and DOAE. Rubber policy is primarily determined through a National Rubber Policy Committee (NRPC) chaired by the Minister of Agriculture and through the ORRAF Board.

### Replanting Program

33. ORRAF was established in 1960, under the ORRAF Act, to assist farmers in replanting senile low yielding or abandoned rubber with high yielding varieties. ORRAF administers the Replanting Fund which receives its income from a general cess levied on rubber exports, supplemented when necessary by government subventions (budgetary funds) and, since 1976, jointly by World Bank and Commonwealth Development Corporation (CDC) loans. Under the rubber replanting scheme, ORRAF provides technical and financial support to smallholders. Replanting assistance is provided in kind (high-yielding clonal plant material, fertilizers and agro-chemicals) and in cash (payment for smallholders' labor after completion of specified tasks) over a five and a half year period.

34. The ORRAF replanting program is a highly effective means of transferring new technology to smallholders because it enforces an important measure of discipline that is unlikely to take place through regular extension services. Improper husbandry (timing, amounts and types of fertilizer and chemicals, etc.) during the immature period can jeopardize future yields; and smallholders, with their lack of capital and high sense of risk aversion, tend to use lower than optimal inputs without the program. To date the ORRAF pro-

gram has enabled about 350,000 families to improve the quality of their rubber (on average, more than quadrupling their rubber yields). During the Second Rubber Replanting Project (Loan 2078-TH, 1982-86) about 192,000 ha (averaging 48,000 ha/year) is being replanted and would provide an additional 250,000 tons of rubber exports worth about US\$187.5 million (in 1986 prices) per year at full maturity (i.e. by the year 2000). This compares very favorably with the results of tree crop replanting agencies in other countries. Thailand still has a high proportion of senile rubber (about 25% of the rubber area) and has a comparative advantage for growing rubber as a smallholder crop (low wage rates, suitable growing conditions, effective private sector), especially in the Southern Region. The proposed Sixth Five Year Development Plan (1987-91) provides for ORRAF to continue rubber replanting at the rate of 50,000 ha per annum and the proposed Project would assist ORRAF to meet these targets.

#### Lessons from Past Bank Tree Crop Lending

35. The Bank has provided two loans to the tree crops subsector: the First Rubber Replanting Project (Loan 1243-TH) for US\$50 million, 1977-82; and the Second Rubber Replanting Project (Loan 2078-TH) for US\$142 million, 1982-86. Both loans were primarily to finance ORRAF's Rubber Replanting Program, expanding it from nearly 23,000 ha p.a. in 1976 to the present rate of nearly 50,000 ha per year. The project performance audit report for Loan 1243-TH reaffirmed the project's expected economic rate of return of 20% but drew attention to the need to: evaluate whether ORRAF involvement with rubber smallholders should be extended beyond the present (5-1/2 years) period; improve inter-agency coordination between ORRAF, RRIT and DOAE; reevaluate rubber replanting financing and cost recovery arrangements; and assess economic efficiency losses which might arise from the present cess/grant system. During project supervision of the Second Project and preparation of this project, the need to modify ORRAF's organization and management structure became apparent, especially the need to (a) improve the cost effectiveness of its operations, (b) improve rubber growing technology for different rubber growing zones, (c) increase the period of ORRAF assistance from 5½ to 7½ years to reduce the incidence of premature tapping and (d) revise the replanting program to reach a larger number of needy rubber farmers instead of just expanding replanted area. These findings reflect the fact that, while ORRAF is a well managed, efficient agency, the changing needs of the rubber subsector require policy and institutional changes to accommodate them. This project specifically addresses: (a) the difficulties faced by ORRAF in obtaining a stable and sufficient source of income for its replanting target of 50,000 ha; and (b) the need to more fully exploit further opportunities for (i) improving rubber holders' productivity and income, (ii) reducing the cost of its operations, and (iii) reaching a larger number of smaller/needy rubber growers.

36. ORRAF'S Finances. ORRAF's overall financial position, which is largely dependent on the rubber cess, poses a continuing problem. Cess revenues, which are based on an export price formula, and rubber export tax collections have always exceeded the cost of support to rubber replanters. However, rubber export taxes go directly to general government revenues, and ORRAF has to depend on the cess as the primary source of funds for its operations. Cess income exceeded total ORRAF costs until 1974, averaged about 72% of costs in 1975-79, and dropped to 50% in 1980-84. The reduction was

primarily due to unexpectedly low rubber prices and consequent shortfalls in cess revenues. In addition to the financial problems affecting the replanting program, funding shortfalls for ORRAF administration have been more acute. By law, 90% of cess revenue is allocated for the ORRAF Replanting Program, 5% for ORRAF Administration costs and 5% for rubber research (through RRIT). The 5% allocation for administration has covered on average only about one fifth of total ORRAF requirements. While administration costs can be reduced through more cost effective operations, a more realistic allocation of cess revenues for ORRAF administration needs to be introduced.

37. The uncertainty surrounding cess income during the Second Project forced ORRAF to cut back its replanting program in 1984 from the planned 50,000 ha to only 36,700 ha. As a result annual production of 30,000 tons of rubber valued at US\$22.5 million at full maturity will be foregone. If interim funding, particularly for administration, had not been obtained from CDC in late 1984, the 1985 program would have suffered also. Effective long term planning and implementation and financial stability and control can only be achieved by changing the cess formula and cess allocations for ORRAF. Some steps, which have already been taken, will be consolidated under the proposed project.

38. Productivity Improvement. Because of the long gestation period of rubber, and the fact that improper husbandry in the early years could undermine yields much later, the transfer of improved technology to smallholders requires particularly intensive husbandry and input support during the immature period (up to 7-1/2 years). At present, ORRAF's assistance to rubber smallholders is restricted to the first 5-1/2 years of replanting, after which DOAE is responsible for technical advice. With handover before full maturity, a high incidence of early tapping and improper tapping practices occurs with adverse results on yields. One way to reduce this would be for ORRAF (with its enforced discipline) to extend its jurisdiction over replanters from 5-1/2 to 7-1/2 years. This initiative, to be introduced under the proposed project, would also permit one more round of fertilizer to accelerate tree maturity. It would also enable DOAE to more productively assist smallholders "graduating" from the replanting program with proper panel opening and adoption of tapping systems most appropriate for maximizing production and incomes under farm conditions. In tandem with this initiative is the need for RRIT to develop technology packages and practices that are more adapted to the various rubber zones in Thailand. The project would also improve RRIT's Research Centers and provide technical assistance to assess the relevance of research.

39. Assisting the More Needy Growers. The focus on the more needy rubber growers is required because, while the replanting program has been very effective in reaching the average sized rubber holding, large numbers of small/needy farmers (especially those who cannot afford even to take advantage of the "grant") have been left out. In addition to assisting such farmers financially, many can benefit from government assistance in helping them extend and develop their small rubber plots with adjacent plots presently not eligible for "grant" financed replanting assistance. Similarly greater support through group processing and marketing would enable them to improve the quality and price of their unsmoked sheets. Since ORRAF's replanting target has stabilized, it can devote greater attention to the more needy rubber growers in collaboration with other government agencies, especially DOAE.

PART IV - THE PROJECT

Project Rationale and Objectives

40. The proposed project would be the third in support of the ORRAF program. Continued Bank lending is justified by the need to assist Government in effecting the difficult policy and institutional changes needed to cater for the evolving needs of the rubber subsector. Of particular importance is the need to (a) change the rubber cess formula and the cess allocation to stabilize ORRAF's financial position; (b) improve ORRAF's organization and management structure; (c) strengthen the replanting program for the more needy smallholders; and (d) strengthen technology transfer jointly with RRIT and DOAE.

41. The proposed project was prepared by ORRAF with assistance from the Bank and CDC in 1984/85. Appraisal took place in May/June 1985. Negotiations were held in March 1986. The Thai delegation was led by Mr. Pong Sono, Deputy Permanent Secretary, Ministry of Agriculture and Cooperatives.

42. The project would consist of: a four year time slice of ORRAF's agricultural development program and related field administration, management and training costs; upgrading of research centers for the Rubber Research Institute of Thailand (RRIT); Department of Agricultural Extension (DOAE) support of group processing and marketing centers and replanter training; and technical assistance to improve ORRAF's organization and management structure and RRIT's adaptive research, base line surveys and linkages between research and extension. Under the proposed project the ORRAF program would be modified to (a) ensure more cost effective use of financial and staff resources and (b) re-orient targets, resources and procedures to reach more needy rubber smallholders under a special Needy Rubber Smallholder Development Program. Furthermore, arrangements for better coordination of farmer support among key rubber development agencies and a clearer demarcation of their responsibilities would be instituted. A Staff Appraisal Report (No. 5894-TH, dated April 23, 1986) is being distributed separately. Supplementary Project information is provided in Annex III.

Project Description

43. ORRAF's program from FY 1987-1991 includes: (a) the continuation of its successful replanting program (para. 34) at a rate of 50,000 ha of new replanting p.a.; (b) the continuation and completion of 290,000 ha of replanting already started; (c) the strengthening of training (including upgrading of equipment and fellowship assistance for management training of middle-level manager); and (d) support for ORRAF's field administration and operations. Assurances were obtained from ORRAF that the training would be carried out and fellowships administered under a program acceptable to the Bank.

44. Agricultural support will be improved with extension of ORRAF support for the replanter from 5½ years to 7½ years, thus permitting an extra round of fertilizer application and better control of premature initial tapping. Responsibilities for extension and training for various stages of the

replanting of beneficiaries has also been agreed among ORRAF, RRIT and DOAE. Assurances were obtained from Government that (i) the agreed extension of ORRAF support and (ii) the agreed demarcation of extension/training responsibilities among ORRAF, RRIT and DOAE, would be confirmed through MOAC issuance of a ministerial order by December 31, 1986.

45. The project would also support DOAE's important complementary support to the replanting program through timely and focussed training (primarily initial tapping and proper tapping systems) of replanters graduating from the program.

46. Coordination of support services for rubber would be improved through the three technical subcommittees under the interministerial National Rubber Policy Committee (chaired by the Minister of Agriculture). These subcommittees would include private sector representatives and would be responsible for resolving issues, and improving and monitoring the services for: (a) planting materials; (b) extension, training and demonstration; and (c) rubber statistics. Assurances were obtained that these subcommittees would be established by December 31, 1986 and maintained thereafter.

47. To assist the more needy rubber farmers, a program (Needy Rubber Smallholder Development Program) would be established by December 31, 1986 and a task force would be set up by NRPC to select target districts on the basis of farm size and income. The task force would ensure that the following arrangements would be introduced:

- (a) ORRAF would modify its application questionnaires and revise field staff performance targets and incentives to permit better target farmer selection. It would also change replanting assistance criteria to permit limited consolidation of rubber plots. These changes will not compromise the technical standards of the project.
- (b) ORRAF would introduce potential creditworthy clients to BAAC to determine their eligibility for subsistence and supplementary replanting credit.
- (c) DOAE would establish and promote group processing/marketing centers (GPMCs) and set up demonstrations on high level tapping with yield stimulation in the selected districts.
- (d) MOAC would reorient its supplementary assistance fund (from the Farmers Aid Fund) to permit the poorer farmers served by the GPMCs to hold back their rubber sheets from daily sale and take advantage of higher prices from marketing centers in the selected districts.
- (e) The Royal Forestry Department (RFD) would issue lease agreements for replanters in gazetted forest areas if ORRAF undertakes the needed surveys on their behalf. Since ORRAF has limited capacity to undertake such surveys extensively, RFD would give top priority to issuing the "right to farm" (Sor Tor Kor) certificates in the identified target districts. ORRAF would, under a pilot program in forest reserves not due for Sor Tor Kor issuance, assist replanters for a nominal fee to obtain the lease agreements.

This task force would also monitor the progress of the Needy Rubber Smallholder Development Program. Assurances were obtained that the above task force would be established by December 31, 1986.

48. To strengthen RRIT's adaptive research objective to provide recommendations which are more relevant to each rubber growing region, the project would support the upgrading and expansion of Surat Thani Rubber Research Center and the Chachoengsao Rubber Research Center through expenditures on civil works (offices, laboratories and staff housing) and vehicle and equipment purchase.

49. To improve the emphasis of adaptive research and RRIT's recommendations for rubber farmers, technical assistance would be provided to: (a) review the conduct of adaptive research, its recommendations and usefulness for extension to RRIT's rubber zones; (b) recommend measures to strengthen the link between research and extension; and (c) assist RRIT in undertaking and evaluating base line (aerial photography/satellite imagery) area and yield surveys. Assurances were obtained that: (a) not later than May 31, 1987, RRIT would have employed these consultants under terms of reference acceptable to the Bank; and (b) that the consultants reports would be sent to the Bank for comment together with an action plan for implementation.

#### Project Cost and Financing

50. Total project cost is estimated at about US\$263 million of which about US\$72 million (27%) is foreign exchange. Price contingencies amount to 11% of total base costs, at the following percentage rates of price increase per annum: for local costs -- 3.5% (1986), 5% (1987), 6.8% (1988), 7% (1989) and 7.1% (1990); and for foreign costs -- 7.2% (1986), 6.8% (1987-88), 7% (1989), and 7.1% for (1990). Physical contingencies of 10% have been included for civil works only; no provision has been made for physical contingencies on other items because the project supports a time slice of an ongoing investment program where a large proportion of the operating expenses are known, and the major sources of uncertainty are not related to physical implementation.

51. The proposed Bank loan of US\$60 million and the CDC financing of £10 million (US\$14.5 million) would cover 29% of project costs net of taxes and duties. The CDC loan and the Bank loan will be passed on by Government to ORRAF as a grant. The remaining local costs of ORRAF would be covered by allocation from the Bureau of the Budget (BOB) (US\$8.8 million) and ORRAF's own resources (US\$175.3 million), primarily from the cess. The Bank loan would contain cross default provisions with the CDC loan, including the provision that the CDC loan become effective by March 31, 1987. The Government proposes to finance the RRTT and DOAE components (paras. 45, 47(c), 48, and 49) with US\$1.8 million from the ongoing National Agricultural Research Project (Loan 1922-TH), US\$550,000 from the ongoing National Agricultural Extension Project (Loan 1752-TH), and US\$2.5 million from local resources. The Government is seeking external grant financing for US\$180,000 in technical assistance for RRIT and ORRAF and US\$47,000 for RRIT vehicles at Chachoengsao, which would reduce the local government contribution or Bank financing accordingly.

Procurement

52. Procurement arrangements are summarized in the table below:

PROCUREMENT ARRANGEMENTS /a

Project Cost Item	Procurement Method			Total cost
	ICB	LCB	Other	
	----- (US\$ million) -----			
<u>ORRAF</u>				
Fertilizer and chemicals	74.0 (35.9)	9.8 (4.7)	3.0 (1.4)	86.8 (42.0)
Vehicles, equipment and materials		0.8 (0.4)	0.4 (0.2)	1.2 (0.6)
Administrative expenses	-	-	-	47.1 (17.0)
Consultancies and training	-	-	0.4 (0.4)	0.4 (0.4)
Other development expenditures /b	-	-	-	123.2 (-)
Subtotal	<u>74.0</u> <u>(35.9)</u>	<u>10.6</u> <u>(5.1)</u>	<u>3.8</u> <u>(2.0)</u>	<u>258.7</u> <u>(60.0)</u>
<u>RRIT /c</u>				2.4 (-)
<u>DOAE /d</u>				2.5 (-)
<u>Total</u>	<u>74.0</u> <u>(35.9)</u>	<u>10.6</u> <u>(5.1)</u>	<u>3.8</u> <u>(2.0)</u>	<u>263.6</u> <u>(60.0)</u>

/a Figures in parenthesis refer to amount of Bank financing.

/b Primarily cash "grant" payment, planting material and miscellaneous costs.

/c Procurement arrangements specified in Loan 1922-TH.

/d Procurement arrangements specified in Loan 1752-TH.

53. Of total compound fertilizer contracts costing US\$77.0 million, about 95% (US\$74.0 million) would be procured in bulk by ORRAF through international competitive bidding (ICB) in accordance with Bank Group guidelines. A preference equal to 15% of the c.i.f. cost or the customs duty, whichever is lower, would be extended to local manufacturers in the evaluation of bids. The following contracts would be awarded on the basis of local competitive bidding (LCB) in accordance with procurement procedures acceptable to the Bank: (a) rock phosphate fertilizers and agro-chemicals (up to US\$9.8 mil-

lion); (b) vehicles and equipment; and (c) civil works. Other contracts for vehicles, equipment and materials (including supplies, fuel and spare parts) costing less than US\$30,000 each, up to an aggregate amount of US\$400,000, would be purchased by prudent shopping on the basis of at least three price quotations. Urgently needed compound fertilizer (up to US\$3 million limit) could also be purchased by prudent shopping. Consultancies would be selected in accordance with Bank guidelines. Administrative expenditures (ORRAF field development staff salaries) are not subject to procurement. For all contracts estimated to exceed \$500,000, prior review by the Bank would be required.

#### Disbursement

54. The proposed Bank loan of \$60 million would be disbursed to ORRAF as follows: (a) equipment, vehicles, fertilizers and chemicals -- 100% of foreign expenditures, 100% of local expenditures (ex-factory), and 50% of local expenditures for items procured locally; (b) Consultants' services and training -- 100%; and (c) ORRAF's field staff salaries -- 65%. Bank disbursements for salaries of ORRAF field offices and disbursements for vehicles, equipment and materials with contracts of less than US\$20,000 each would be made against statements of expenditure. The statements of expenditure would be certified by ORRAF. Supporting documentation will be retained by ORRAF and made available for review by supervision missions. These statements would be audited by the Office of the Auditor General.

55. In order to provide for efficient disbursement of Bank loan proceeds, a Special Account for the ORRAF component would be opened in dollars in a bank on terms and conditions satisfactory to the Bank, with an initial deposit of US\$3.0 million. Applications for replenishment of this account would be submitted quarterly or whenever the Special Account is drawn down to 50% of its initial deposit whichever is earlier.

#### Organization, Management and Finances

56. Steps to improve the predictability and adequacy of ORRAF's funding have been initiated with approval of the draft amendment of the ORRAF Act by the ORRAF Board, NRPC and, in July 1985, by Cabinet. This amendment (a) changes the price dependent cess formula to a flat (baht/kg) rate, and (b) increases the proportion of cess revenue allocated for ORRAF administration costs from 5% to 10%. However, since the parliamentary approval process could take years, the proposed project has been based on the existing cess formula and allocation system. During the interim period, assurances were obtained from Government and ORRAF that annual reviews, commencing not later than October 1, 1987, would be held among the Bank, ORRAF and Government to ensure and agree on adequate funding. A task force of the ORRAF Board, comprising representatives from ORRAF, MOAC, Fiscal Policy Office, NESDB, DOAE and RRIT and farmers representatives, would analyze the problem and make recommendations for this tripartite review. Government intends, in any case, to press for the passage of the ORRAF Act amendments during the project period as a matter of priority and an assurance was obtained from Government that it would take the necessary steps, by September 30, 1990, to introduce a flat rate (baht/kg) cess and increase the proportion of cess revenues for ORRAF administration costs to at least 10%.

57. To minimize disruption in funding (see para 37) a conservative assessment of cess revenues has been made, based on projected rubber prices and historical forecasting experience, and Government has agreed that ORRAF would continue to be permitted to draw on the interest payments from surpluses in the replanting account towards administration costs. It is estimated that at completion of the proposed project (September 30, 1990) ORRAF would require about \$91 million (1986 constant dollars) to maintain and complete immature rubber replantings underway. Assurances were obtained that, after project completion, Government would provide ORRAF with the necessary funds to bring into production ongoing rubber replantings initiated under the project.

58. The success of the replanting program has been helped by the scheduling of "grant" replanting payments to effect timely input use and yet provide sufficient incentives for critical husbandry. Assurances were obtained that, during the project period, Government, ORRAF and the Bank will hold joint reviews annually, commencing by October 1, 1987, to determine the adequacy of the "grant" taking into account: (a) the cost of providing fertilizer and other material inputs in adequate quantities; and (b) the sufficiency of cash payments for farmers' labor. This review would be undertaken by the proposed task force of the ORRAF Board for reviewing the adequacy of ORRAF financing (para. 55).

59. To improve cost effectiveness, ORRAF has initiated the following main measures: (a) reduction in ORRAF planting material nurseries (especially those experiencing large losses and those located in areas where private nurseries are readily available); (b) elimination of subsidies to defray part of farmers' cost in transporting fertilizer from ORRAF stockists to the farm; and (c) improvement of staff productivity through (i) streamlining the applications and approval process and (ii) increased computerization of replanting records. Technical assistance to effect (a) and (c) is being financed under the Second Project (Loan 2078-TH). Assurances were obtained that ORRAF would complete, under the proposed project, the relevant cost reduction measures recently initiated through the Second Rubber Replanting Project, as agreed with the Bank.

60. To further improve the organizational and management structure of ORRAF, technical assistance (22 man-months of local consultancy) would be financed to reassess: (a) the organizational structure of ORRAF; (b) the links between technical and financial staff; (c) the extent of decentralization needed; and (d) information and organizational needs for improving its planning and monitoring capability including the role of the Planning and Monitoring Unit. About 9 man-months of additional consultancies would also be financed to improve ORRAF's socio-economic survey work. Assurances were obtained that: (a) not later than May 31, 1987, ORRAF would have employed these consultants under terms of reference acceptable to the Bank; and (b) that the consultants reports would be sent to the Bank for comment together with an action plan for implementation.

#### Monitoring and Evaluation

61. The Planning and Monitoring Unit in ORRAF is responsible for monitoring the implementation of the rubber replanting program particularly

with regard to the socio-economic impact of rubber replanting, smallholder incentives and program participation. Its role in the administrative structure of ORRAF will be reexamined with technical assistance provided under the project (para. 59).

#### Accounts and Audits

62. ORRAF's accounts are audited by the Office of the Auditor General at the end of each financial year on the basis of guidelines recommended by the Bank for the Second Tree Crops Project. ORRAF's internal auditing is carried out by a special unit which is responsible to its Deputy Director for Finance and Administration. The internal audit unit staff are competent and ORRAF's accounting and auditing procedures are satisfactory. Assurances were obtained that ORRAF would: (a) maintain, in accordance with sound accounting practices, records of its financial and operational activities; (b) have its accounts for each fiscal year audited by independent auditors acceptable to the Bank, in accordance with appropriate auditing procedures consistently applied; and (c) submit to the Bank within six months of the end of every fiscal year during project implementation a certified copy of the auditor's report including a separate opinion in respect of disbursements made on the basis of statements of expenditure. Similar assurances, in line with existing arrangements under present Bank projects with DOA (for RRIT) and DOAE, have also been obtained for the DOA and DOAE components.

#### Cost Recovery

63. The ORRAF "grant" presently represents about 51% of the market cost of replanting one hectare of rubber or about 46% of the farmer's incremental costs of replanting when income foregone is taken into account. Cost recovery of the ORRAF "grant" can be viewed in two ways: (a) as a "pension fund" where beneficiaries have paid into the replanting fund in the form of cess collected during their pre-replanting years and can now draw on these payments as pension (the "grant"); or (b) as a loan to be recaptured through the cess (as rubber taxation) on future production. Under both perspectives, the ORRAF program gives good cost recovery. For the former, a typical new planter in the mid 1960s would have approximately paid for the replanting "grant" he/she would receive starting in the late 1980s under the project (with a discount rate of only 3%). Similarly, for the latter, the total ORRAF "grant" cost would, on average, be more than recovered by the cess over the life of the replant (at 12% interest). In sum, project costs would be more than adequately recovered by taxation specific to the rubber industry.

#### Benefits and Risks

64. The proposed project has many attractive features: its economic rate of return is adequate (18%) after having taken into account (a) the cost of administering the ORRAF program, (b) the opportunity cost of replanting senile rubber land and (c) the cost of distortions to rubber prices implied by the cess. The investment cost per person directly benefited is low (US\$381) and the number of persons directly benefited is large (estimated at about 113,000 families, most of whom are in relative poverty). Over a period of 35 years, incremental production attributed to the project (4.1 million tons)

would be worth US\$3.8 billion (1986 constant prices), virtually all of which would be foreign exchange earnings. Of the increased employment opportunities (equivalent to almost 120,000 man years p.a. at full development), at least half would be for women. The typical ORRAF-assisted replanter (with about 4 ha of land, about half of which is under rubber) will experience income/capita net improvements at about 43% (from US\$208 to US\$298) over the life of the replant. Group processing and marketing assistance and high level tapping with yield stimulation supported through DOAE would directly benefit nearly 10,000 needy rubber smallholder families. The secondary effect of improving incomes of other replanting beneficiaries (e.g. through increased demand for hired labor) could be almost as large.

65. The level of risk associated with the project is quite low. Rubber prices for 1986 (estimated at US\$0.88/kg in constant 1984 terms for RSS 1, New York) ranks with 1975 as the lowest level since 1940 and long term prospects are for improvement from this cyclical low to about 1.28 constant 1984 dollars per kg. The primary implementing agency, ORRAF, is effectively implementing a large-scale rubber replanting program whose staff are well accepted by farmers. Related agencies are committed to coordinating their activities more closely but continued monitoring of the proposed coordination framework would be required. The main project risk is the repetition of cess revenue shortfalls and the adverse impact on implementation encountered by the Second Tree Crops Project because of lower than projected rubber prices (paras. 36-37). This prospect has been reduced by making a more conservative assumption of cess revenues during the project period.

#### Environmental Impact

66. The project would mainly replace existing old rubber with new rubber, and less than 10% of the area to be replanted would need terracing to prevent runoff and erosion. The scattered nature of the plantings would limit the impact of such runoff and of dissolved plant nutrients. Intercropping would be confined to the flat and slightly undulating land to minimize risk of soil erosion. Fertilizers would be applied to avoid depletion of soil nutrients. The relatively small amounts of agrochemicals used would have no adverse environmental effects.

### PART V - RECOMMENDATION

67. I am satisfied that the proposed loan complies with the Articles of Agreement of the Bank, and recommend that the Executive Directors approve the proposed loan.

A.W. Clausen  
President

Attachments  
April 21, 1986  
Washington, D.C.

## DEFINITIONS OF SOCIAL INDICATORS

Notes: Although the data are drawn from sources generally judged the most authoritative and reliable, it should also be noted that they may not be internationally comparable because of the lack of standardized definitions and concepts used by different countries in collecting the data. The data are, nonetheless, useful to describe orders of magnitude, indicate trends, and characterize certain major differences between countries.

The reference groups are (1) the same country group of the subject country and (2) a country group with somewhat higher average income than the country group of the subject country (except for "High Income Oil Exporters" group where "Middle Income North Africa and Middle East" is chosen because of stronger socio-cultural affinities). In the reference group data the averages are population-weighted arithmetic means for each indicator and shown only when majority of the countries in a group has data for that indicator. Since the coverage of countries among the indicators depends on the availability of data and is not uniform, caution must be exercised in relating averages of one indicator to another. These averages are only useful in comparing the value of one indicator at a time among the country and reference groups.

**AREA (thousand sq.km.)**

**Total**—Total surface area comprising land area and inland waters; 1960, 1970 and 1983 data.

**Agricultural**—Estimate of agricultural area used temporarily or permanently for crops, pastures, market and kitchen gardens or to lie fallow, 1960, 1970 and 1982 data.

**GNP PER CAPITA (US\$)**—GNP per capita estimates at current market prices, calculated by same conversion method as *World Bank Atlas* (1981-83 basis); 1983 data.

**ENERGY CONSUMPTION PER CAPITA**—Annual apparent consumption of commercial primary energy (coal and lignite, petroleum, natural gas and hydro-, nuclear and geothermal electricity) in kilograms of oil equivalent per capita; 1960, 1970, and 1982 data.

**POPULATION AND VITAL STATISTICS**

**Total Population, Mid-Year (thousands)**—As of July 1; 1960, 1970, and 1983 data.

**Urban Population (percent of total)**—Ratio of urban to total population; different definitions of urban areas may affect comparability of data among countries; 1960, 1970, and 1983 data.

**Population Projections**

**Population in year 2000**—The projection of population for 2000, made for each economy separately. Starting with information on total population by age and sex, fertility rates, mortality rates, and international migration in the base year 1980, these parameters were projected at five-year intervals on the basis of generalized assumptions until the population became stationary.

**Stationary population**—Is one in which age- and sex-specific mortality rates have not changed over a long period, while age-specific fertility rates have simultaneously remained at replacement level (net reproduction rate = 1). In such a population, the birth rate is constant and equal to the death rate, the age structure is also constant, and the growth rate is zero. The stationary population size was estimated on the basis of the projected characteristics of the population in the year 2000, and the rate of decline of fertility rate to replacement level.

**Population Momentum**—Is the tendency for population growth to continue beyond the time that replacement-level fertility has been achieved; that is, even after the net reproduction rate has reached unity. The momentum of a population in the year  $t$  is measured as a ratio of the ultimate stationary population to the population in the year  $t$ , given the assumption that fertility remains at replacement level from year  $t$  onward, 1985 data.

**Population Density**

**Per sq.km.**—Mid-year population per square kilometer (100 hectares) of total area; 1960, 1970, and 1983 data.

**Per sq.km. agricultural land**—Computed as above for agricultural land only, 1960, 1970, and 1982 data.

**Population Age Structure (percent)**—Children (0-14 years), working age (15-64 years), and retired (65 years and over) as percentage of mid-year population; 1960, 1970, and 1983 data.

**Population Growth Rate (percent)—total**—Annual growth rates of total mid-year population for 1950-60, 1960-70, and 1970-83.

**Population Growth Rate (percent)—urban**—Annual growth rates of urban population for 1950-60, 1960-70, and 1970-83 data.

**Crude Birth Rate (per thousand)**—Number of live births in the year per thousand of mid-year population; 1960, 1970, and 1983 data.

**Crude Death Rate (per thousand)**—Number of deaths in the year per thousand of mid-year population; 1960, 1970, and 1983 data.

**Gross Reproduction Rate**—Average number of daughters a woman will bear in her normal reproductive period if she experiences present age-specific fertility rates; usually five-year averages ending in 1960, 1970, and 1983.

**Family Planning—Acceptors, Annual (thousands)**—Annual number of acceptors of birth-control devices under auspices of national family planning program.

**Family Planning—Users (percent of married women)**—The percentage of married women of child-bearing age who are practicing or whose husbands are practicing any form of contraception. Women of child-bearing age are generally women aged 15-49, although for some countries contraceptive usage is measured for other age groups.

**FOOD AND NUTRITION**

**Index of Food Production Per Capita (1969-71 = 100)**—Index of per capita annual production of all food commodities. Production excludes animal feed and seed for agriculture. Food commodities include primary commodities (e.g. sugarcane instead of sugar) which are edible and contain nutrients (e.g. coffee and tea are excluded); they comprise cereals, root crops, pulses, oil seeds, vegetables, fruits, nuts, sugarcane and sugar beets, livestock, and livestock products. Aggregate production of each country is based on national average producer price weights; 1961-65, 1970, and 1982 data.

**Per Capita Supply of Calories (percent of requirements)**—Computed from caloric equivalent of net food supplies available in country per capita per day. Available supplies comprise domestic production, imports less exports, and changes in stock. Net supplies exclude animal feed, seeds for use in agriculture, quantities used in food processing, and losses in distribution. Requirements were estimated by FAO based on physiological needs for normal activity and health considering environmental temperature, body weights, age and sex distribution of population, and allowing 10 percent for waste at household level; 1961, 1970 and 1982 data.

**Per Capita Supply of Protein (grams per day)**—Protein content of per capita net supply of food per day. Net supply of food is defined as above. Requirements for all countries established by USDA provide for minimum allowances of 60 grams of total protein per day and 20 grams of animal and pulse proteins, of which 10 grams should be animal protein. These standards are lower than those of 75 grams of total protein and 23 grams of animal protein as an average for the world, proposed by FAO in the Third World Food Supply; 1961, 1970 and 1982 data.

**Per Capita Protein Supply From Animal and Pulse**—Protein supply of food derived from animals and pulses in grams per day; 1961-65, 1970 and 1977 data.

**Child (ages 1-4) Death Rate (per thousand)**—Number of deaths of children aged 1-4 years per thousand children in the same age group in a given year. For most developing countries data derived from life tables; 1960, 1970 and 1983 data.

**HEALTH**

**Life Expectancy at Birth (years)**—Number of years a newborn infant would live if prevailing patterns of mortality for all people

at the time of its birth were to stay the same throughout its life; 1960, 1970 and 1983 data.

**Infant Mortality Rate (per thousand)**—Number of infants who die before reaching one year of age per thousand live births in a given year; 1960, 1970 and 1983 data.

**Access to Safe Water (percent of population)**—*total, urban, and rural*—Number of people (total, urban, and rural) with reasonable access to safe water supply (includes treated surface waters or untreated but uncontaminated water such as that from protected boreholes, springs and sanitary wells) as percentages of their respective populations. In an urban area a public fountain or standpost located not more than 200 meters from a house may be considered as being within reasonable access of that house. In rural areas reasonable access would imply that the housewife or members of the household do not have to spend a disproportionate part of the day in fetching the family's water needs.

**Access to Excreta Disposal (percent of population)**—*total, urban, and rural*—Number of people (total, urban, and rural) served by excreta disposal as percentages of their respective populations. Excreta disposal may include the collection and disposal, with or without treatment, of human excreta and waste-water by water-borne systems or the use of pit privies and similar installations.

**Population per Physician**—Population divided by number of practicing physicians qualified from a medical school at university level.

**Population per Nursing Person**—Population divided by number of practicing male and female graduate nurses, assistant nurses, practical nurses and nursing auxiliaries.

**Population per Hospital Bed**—*total, urban, and rural*—Population (total, urban, and rural) divided by their respective number of hospital beds available in public and private, general and specialized hospitals and rehabilitation centers. Hospitals are establishments permanently staffed by at least one physician. Establishments providing principally custodial care are not included. Rural hospitals, however, include health and medical centers not permanently staffed by a physician (but by a medical assistant, nurse, midwife, etc.) which offer in-patient accommodation and provide a limited range of medical facilities.

**Admissions per Hospital Bed**—Total number of admissions to or discharges from hospitals divided by the number of beds.

## HOUSING

**Average Size of Household (persons per household)**—*total, urban, and rural*—A household consists of a group of individuals who share living quarters and their main meals. A boarder or lodger may or may not be included in the household for statistical purposes.

**Average Number of Persons per Room**—*total, urban, and rural*—Average number of persons per room in all urban, and rural occupied conventional dwellings, respectively. Dwellings exclude non-permanent structures and unoccupied parts.

**Percentage of Dwellings with Electricity**—*total, urban, and rural*—Conventional dwellings with electricity in living quarters as percentage of total, urban, and rural dwellings respectively.

## EDUCATION

### Adjusted Enrollment Ratios

**Primary school - total, male and female**—Gross total, male and female enrollment of all ages at the primary level as percentages of respective primary school-age populations. While many countries consider primary school age to be 6-11 years, others do not. The differences in country practices in the ages and duration of school are reflected in the ratios given. For some countries with universal education, gross enrollment may exceed 100 percent since some pupils are below or above the country's standard primary-school age.

**Secondary school - total, male and female**—Computed as above; secondary education requires at least four years of approved primary instruction; provides general, vocational, or teacher training instructions for pupils usually of 12 to 17 years of age; correspondence courses are generally excluded.

**Vocational Enrollment (percent of secondary)**—Vocational institutions include technical, industrial, or other programs which operate independently or as departments of secondary institutions.

**Pupil-teacher Ratio - primary, and secondary**—Total students enrolled in primary and secondary levels divided by numbers of teachers in the corresponding levels.

## CONSUMPTION

**Passenger Cars (per thousand population)**—Passenger cars comprise motor cars seating less than eight persons; excludes ambulances, hearses and military vehicles.

**Radio Receivers (per thousand population)**—All types of receivers for radio broadcasts to general public per thousand of population; excludes un-licensed receivers in countries and in years when registration of radio sets was in effect; data for recent years may not be comparable since most countries abolished licensing.

**TV Receivers (per thousand population)**—TV receivers for broadcast to general public per thousand population; excludes unlicensed TV receivers in countries and in years when registration of TV sets was in effect.

**Newspaper Circulation (per thousand population)**—Shows the average circulation of "daily general interest newspaper," defined as a periodical publication devoted primarily to recording general news. It is considered to be "daily" if it appears at least four times a week.

**Cinema Annual Attendance per Capita per Year**—Based on the number of tickets sold during the year, including admissions to drive-in cinemas and mobile units.

## LABOR FORCE

**Total Labor Force (thousands)**—Economically active persons, including armed forces and unemployed but excluding housewives, students, etc., covering population of all ages. Definitions in various countries are not comparable; 1960, 1970 and 1983 data.

**Female (percent)**—Female labor force as percentage of total labor force.

**Agriculture (percent)**—Labor force in farming, forestry, hunting and fishing as percentage of total labor force; 1960, 1970 and 1980 data.

**Industry (percent)**—Labor force in mining, construction, manufacturing and electricity, water and gas as percentage of total labor force; 1960, 1970 and 1980 data.

**Participation Rate (percent)**—*total, male, and female*—Participation or activity rates are computed as total, male, and female labor force as percentages of total, male and female population of all ages respectively; 1960, 1970, and 1983 data. These are based on ILO's participation rates reflecting age-sex structure of the population, and long time trend. A few estimates are from national sources.

**Economic Dependency Ratio**—Ratio of population under 15, and 65 and over, to the working age population (those aged 15-64).

## INCOME DISTRIBUTION

**Percentage of Total Disposable Income (both in cash and kind)**—Accruing to percentile groups of households ranked by total household income.

## POVERTY TARGET GROUPS

The following estimates are very approximate measures of poverty levels, and should be interpreted with considerable caution.

**Estimated Absolute Poverty Income Level (US\$ per capita)**—*urban and rural*—Absolute poverty income level is that income level below which a minimal nutritionally adequate diet plus essential non-food requirements is not affordable.

**Estimated Relative Poverty Income Level (US\$ per capita)**—*urban and rural*—Rural relative poverty income level is one-third of average per capita personal income of the country. Urban level is derived from the rural level with adjustment for higher cost of living in urban areas.

**Estimated Population Below Absolute Poverty Income Level (percent)**—*urban and rural*—Percent of population (urban and rural) who are "absolute poor."

T A B L E 3A

PAGE 1

THAILAND THAILAND	- SOCIAL INDICATORS DATA SHEET			
	1960/ <sup>b</sup>	1970/ <sup>b</sup>	MOST RECENT ESTIMATE/ <sup>b</sup>	REFERENCE GROUPS (WEIGHTED AVERAGES) / <sup>a</sup> (MOST RECENT ESTIMATE) / <sup>b</sup> MIDDLE INCOME ASIA & PACIFIC
				MIDDLE INCOME LAT. AMERICA & CAR
AREA (THOUSAND SQ. KM)				
TOTAL	514.0	514.0	514.0	.
AGRICULTURAL	128.1	141.2	192.8	.
GDP PER CAPITA (US\$)	..	..	420.0	1011.1
ENERGY CONSUMPTION PER CAPITA (KILOGRAMS OF OIL EQUIVALENT)	44.0	150.0	285.0	566.8
POPULATION AND VITAL STATISTICS				
POPULATION, MID-YEAR (THOUSANDS)	26867.0	36370.0	49169.0	.
URBAN POPULATION (% OF TOTAL)	12.5	13.2	17.9	35.9
POPULATION PROJECTIONS				
POPULATION IN YEAR 2000 (MILL.)			65.1	.
STATIONARY POPULATION (MILL.)			100.0	.
POPULATION MOMENTUM			1.8	.
POPULATION DENSITY				
PER SQ. KM.	52.3	70.8	956.6	386.9
PER SQ. KM. ACRI. LAND	209.8	257.7	250.2	1591.2
POPULATION AGE STRUCTURE (%)				
0-14 YRS	44.6	46.2	38.1	38.2
15-64 YRS	52.5	50.7	59.1	57.7
65 AND ABOVE	2.7	3.0	3.2	3.5
POPULATION GROWTH RATE (%)				
TOTAL	2.8	3.0	2.3	2.3
URBAN	4.6	3.6	4.0	4.1
CRUDE BIRTH RATE (PER THOUS)	43.9	38.5	27.0	30.1
CRUDE DEATH RATE (PER THOUS)	14.7	10.5	8.0	9.4
CROSS REPRODUCTION RATE	3.2	2.7	1.8	1.9
FAMILY PLANNING				
ACCEPTORS, ANNUAL (THOUS)	..	202.9 / <sup>c</sup>	1063.3	.
USERS (% OF MARRIED WOMEN)	..	15.0	59.0	56.5
FOOD AND NUTRITION				
INDEX OF FOOD PROD. PER CAPITA (1969-71-100)	92.0	100.0	138.0	124.4
PER CAPITA SUPPLY OF				
CALORIES (% OF REQUIREMENTS)	91.0	98.0	105.0	115.7
PROTEINS (GRAMS PER DAY)	40.0	47.0	47.0	60.3
OF WHICH ANIMAL AND PULSE	11.0	15.0	15.0 / <sup>d</sup>	14.1
CHILD (AGES 1-4) DEATH RATE	12.9	9.1	4.0	7.2
HEALTH				
LIFE EXPECT. AT BIRTH (YEARS)	52.3	58.2	63.1	60.6
INFANT MORT. RATE (PER THOUS)	103.0	74.5	50.0	64.9
ACCESS TO SAFE WATER (%POP)				
TOTAL	..	17.0	63.0 / <sup>e</sup>	46.0
URBAN	..	60.0	85.0 / <sup>e</sup>	57.6
RURAL	..	10.0	63.0 / <sup>e</sup>	37.1
ACCESS TO EXCRETA DISPOSAL (% OF POPULATION)				
TOTAL	..	17.0	46.0 / <sup>e</sup>	50.1
URBAN	..	65.0	64.0 / <sup>e</sup>	52.9
RURAL	..	9.0	41.0 / <sup>e</sup>	44.7
POPULATION PER PHYSICIAN	7900.0	8430.0	7100.0 / <sup>f</sup>	7751.7
POP. FER NURSING PERSON	4830.0 / <sup>g</sup>	7030.0	2400.0 / <sup>f</sup>	2464.8
POP. FER HOSPITAL BED				
TOTAL	1380.0	890.0	820.0 / <sup>h</sup>	1112.1
URBAN	260.0 / <sup>g</sup>	180.0	530.0 / <sup>h</sup>	651.4
RURAL	21420.0 / <sup>g</sup>	13860.0	1280.0 / <sup>h</sup>	2596.9
ADMISSIONS PER HOSPITAL BED	..	31.0	44.8 / <sup>h</sup>	41.1
HOUSING				
AVERAGE SIZE OF HOUSEHOLD				
TOTAL	5.5 / <sup>g</sup>	5.8	5.5 / <sup>h</sup>	..
URBAN	5.3 / <sup>g</sup>	5.8	5.5 / <sup>h</sup>	..
RURAL	5.6 / <sup>g</sup>	5.8	5.5 / <sup>h</sup>	..
AVERAGE NO. OF PERSONS/ROOM				
TOTAL	..	..	2.4 / <sup>h</sup>	..
URBAN	..	..	2.2 / <sup>h</sup>	..
RURAL	..	..	2.4 / <sup>h</sup>	..
PERCENTAGE OF DWELLINGS WITH ELECT.				
TOTAL	..	18.9	..	..
URBAN	..	86.1	..	..
RURAL	..	9.0	..	..

TABLE 3A

PAGE 2

THAILAND THAILAND	- SOCIAL INDICATORS DATA SHEET				
	1960 <sup>/a</sup>	1970 <sup>/b</sup>	MOST RECENT ESTIMATE <sup>/b</sup>	REFERENCE GROUPS (WEIGHTED AVERAGES) <sup>/a</sup>	
MIDDLE INCOME ASIA & PACIFIC				(MOST RECENT ESTIMATE) <sup>/b</sup> MIDDLE INCOME LAT. AMERICA & CAR	
<b>EDUCATION</b>					
ADJUSTED ENROLLMENT RATIOS					
PRIMARY: TOTAL	83.0	83.0	96.0	100.7	106.7
MALE	88.0	86.0	98.0	104.4	108.5
FEMALE	79.0	79.0	94.0	97.2	104.6
SECONDARY: TOTAL	13.0	17.0	29.0	47.8	44.2
MALE	16.0	20.0	30.0	50.6	42.7
FEMALE	10.0	15.0	27.0	44.8	44.9
VOCATIONAL (% OF SECONDARY)	19.1	22.3	20.9	18.4	13.3
PUPIL-TEACHER RATIO					
PRIMARY	36.0	35.0	25.0 <sup>/a</sup>	30.4	29.9
SECONDARY	20.0	16.0	23.0 <sup>/d</sup>	22.2	16.7
<b>CONSUMPTION</b>					
PASSENGER CARS/THOUSAND POP	1.8	5.1	6.3 <sup>/h</sup>	10.1	46.0
RADIO RECEIVERS/THOUSAND POP	6.1	76.3	149.2 <sup>/h</sup>	172.9	328.3
TV RECEIVERS/THOUSAND POP	2.2	6.6	17.2	58.5	112.4
NEWSPAPER ("DAILY GENERAL INTEREST") CIRCULATION PER THOUSAND POPULATION	10.6	23.3	53.5	65.3	81.1
CINEMA ANNUAL ATTENDANCE/CAPITA	..	0.4 <sup>/l</sup>	..	3.4	2.4
<b>LABOR FORCE</b>					
TOTAL LABOR FORCE (THOUS)	13772.0	16958.0	24618.0	..	..
FEMALE (PERCENT)	48.4	46.8	45.4	33.6	23.6
AGRICULTURE (PERCENT)	84.0	80.0	76.0 <sup>/a</sup>	52.2	31.4
INDUSTRY (PERCENT)	4.0	6.0	9.0 <sup>/a</sup>	17.9	24.3
<b>PARTICIPATION RATE (PERCENT)</b>					
TOTAL	51.3	46.6	49.8	38.9	33.5
MALE	52.7	49.3	53.7	50.8	51.3
FEMALE	49.8	43.9	45.3	26.8	15.9
<b>ECONOMIC DEPENDENCY RATIO</b>					
	0.9	1.1	0.8	1.1	1.3
<b>INCOME DISTRIBUTION</b>					
PERCENT OF PRIVATE INCOME RECEIVED BY					
HIGHEST 5% OF HOUSEHOLDS	21.8 <sup>/k</sup>	23.8 <sup>/l</sup>	23.0 <sup>/h</sup>	..	..
HIGHEST 20% OF HOUSEHOLDS	50.9 <sup>/k</sup>	49.7 <sup>/l</sup>	49.8 <sup>/h</sup>	48.0	..
LOWEST 20% OF HOUSEHOLDS	6.2 <sup>/k</sup>	6.1 <sup>/l</sup>	5.6 <sup>/h</sup>	6.4	..
LOWEST 40% OF HOUSEHOLDS	14.9 <sup>/k</sup>	15.9 <sup>/l</sup>	15.2 <sup>/h</sup>	15.5	..
<b>POVERTY TARGET GROUPS</b>					
ESTIMATED ABSOLUTE POVERTY INCOME LEVEL (US\$ PER CAPITA)					
URBAN	..	..	159.0 <sup>/k</sup>	..	288.3
RURAL	..	..	106.0 <sup>/k</sup>	151.9	185.3
ESTIMATED RELATIVE POVERTY INCOME LEVEL (US\$ PER CAPITA)					
URBAN	..	..	115.0 <sup>/k</sup>	177.9	519.8
RURAL	..	..	119.0 <sup>/k</sup>	164.7	359.7
ESTIMATED POP. BELOW ABSOLUTE POVERTY INCOME LEVEL (%)					
URBAN	..	..	15.0 <sup>/k</sup>	23.5	..
RURAL	..	..	34.0 <sup>/k</sup>	37.8	..

.. NOT AVAILABLE  
 . NOT APPLICABLE

## NOTES

- <sup>/a</sup> The group averages for each indicator are population-weighted arithmetic means. Coverage of countries among the indicators depends on availability of data and is not uniform.
- <sup>/b</sup> Unless otherwise noted, "Data for 1960" refer to any year between 1959 and 1961; "Data for 1970" between 1969 and 1971; and data for "Most Recent Estimate" between 1981 and 1983.
- <sup>/c</sup> Government programs only; <sup>/d</sup> 1977; <sup>/a</sup> 1980; <sup>/e</sup> 1979; <sup>/k</sup> 1962; <sup>/h</sup> 1976; <sup>/l</sup> 1972; <sup>/l</sup> 1968; <sup>/k</sup> 1978.

JUNE, 1985

Population : 50,700 (mid-1984, thousands)  
GNP per capita: US\$602 (1984)

THAILAND - ECONOMIC INDICATORS

Indicator	Amount (US\$ million at current prices) 1985	Average annual increase (%) (at constant prices)					Share of GDP at market prices (%) (at current prices)					
		1960-70	1970-75	1975-80	1980-85/a	1985-90/b	1960	1970	1975	1980	1985/a	
<b>NATIONAL ACCOUNTS</b>												
Gross domestic product	38,834	8.4	6.3	7.6	5.3	5.5	100.0	100.0	100.0	100.0	100.0	
Agriculture	7,373	5.3	5.3	3.2	3.6	2.6	39.8	28.3	31.5	26.2	19.5	
Industry	10,990	11.5	7.8	11.4	5.3	6.1	18.7	25.3	24.8	27.5	26.3	
Services	20,371	9.0	7.1	7.9	6.4	6.5	41.5	46.4	43.7	46.3	52.2	
Consumption	30,951	7.3	7.0	7.5	4.4	4.7	85.7	78.7	79.3	78.3	79.7	
Gross investment	8,932	15.8	3.8	8.2	0.3	6.3	15.7	26.2	25.4	27.9	23.0	
Exports of GMS	9,437	10.5	3.6	13.4	8.5	5.8	17.4	16.7	19.1	25.0	24.3	
Imports of GMS	10,485	13.9	3.7	10.5	1.3	4.4	18.9	21.5	23.7	31.1	27.0	
Gross national savings	7,495	13.7	4.1	5.5	8.1	9.2	14.1	21.5	20.7	20.7	19.3	
<b>EXTERNAL TRADE</b>												
							Composition of merchandise trade (%) (at current prices)					
							1960	1970	1975	1980	1985/a	1990/b
Merchandise exports	7,082	5.5	9.0	14.4	4.4	6.2	100.0	100.0	100.0	100.0	100.0	100.0
Primary	4,405	4.2	6.6	10.0	0.1	3.7	97.8	80.5	77.3	60.2	62.2	58.3
Manufactures	2,677	29.2	20.9	25.1	8.9	9.2	2.2	19.5	22.7	39.8	37.8	41.7
Merchandise imports	9,383	11.5	3.3	10.8	1.2	4.6	100.0	100.0	100.0	100.0	100.0	100.0
Food	329	4.3	-2.7	11.9	5.8	6.5	9.6	5.4	4.4	3.4	3.5	3.5
Petroleum	2,111	11.8	5.0	8.7	-4.7	1.6	10.9	8.8	22.1	31.4	22.5	11.8
Machinery & equipment	2,486	16.1	5.9	7.4	3.8	5.3	25.3	36.1	35.8	23.5	26.5	31.5
Others	4,457	10.1	1.0	9.3	4.7	4.9	54.2	49.7	37.7	41.7	47.5	53.2
<b>PRICES</b>												
		1975	1977	1979	1980	1981	1982	1983	1984	1985		
GDP deflator		62.8	70.8	85.9	100.0	108.0	111.6	115.2	116.6	118.5		
Exchange rate		20.4	20.4	20.3	20.3	21.8	23.0	23.0	23.6	27.0		
Export price index		67.3	68.3	84.9	100.0	99.5	91.1	93.7	95.1	87.9		
Import price index		58.2	65.9	81.3	100.0	115.1	116.3	112.6	115.9	116.4		
Terms of trade index		115.7	103.6	104.5	100.0	86.5	77.0	83.2	82.0	75.4		
<b>PUBLIC FINANCE /c</b>												
		1960	1970	1975	1980	1983	1985/a					
Current revenues		13.6	13.8	13.2	14.0	15.4	15.2					
Current expenditures		10.6	12.6	11.8	13.5	15.1	18.9					
Surplus (+) or deficit (-)		+3.0	+1.2	+1.4	+0.5	0.3	-3.7					
Capital expenditure		4.3	5.8	3.4	3.9	3.6	4.4					
Foreign financing		0.2	0.1	0.1	0.2	0.8	0.9					
<b>OTHER INDICATORS</b>												
		1960-70	1970-75	1975-80	1980-85/a	1985-90/b						
GNP growth rate (%)		8.4	6.2	6.9	5.8	5.1						
GNP per capita growth rate (%)		5.2	3.4	4.4	2.8	3.5						
ICOR		2.8	4.0	3.4	4.2	4.50						
Marginal savings rate		0.29	0.23	0.21	0.16	0.36						
Import elasticity		1.7	0.6	1.3	0.6	0.75						

/a Preliminary.

/b Projected.

/c Central government only.

April 17, 1986

Population : 50,700 (mid-1984, thousands)  
GDP per capita: US\$802 (1984)

**THAILAND - BALANCE OF PAYMENTS, EXTERNAL CAPITAL AND DEBT**  
(US\$ million at current prices)

Indicator	Actual										Est.		Projected	
	1970	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988
<b>BALANCE OF PAYMENTS</b>														
Exports of goods and nonfactor services	1,108	3,490	4,029	4,074	4,456	8,191	8,971	9,167	9,000	9,365	9,441	10,626	11,933	17,710
Of which: Merchandise f.o.b.	686	2,939	3,454	4,043	5,234	6,449	6,884	6,833	6,308	7,337	7,082	7,997	8,920	13,215
Imports of goods and nonfactor services	-1,430	-3,892	-5,068	-5,894	-8,123	-9,990	-10,713	-9,269	-11,117	-11,193	-10,470	-11,219	-12,352	-18,013
Of which: Merchandise f.o.b.	-1,148	-3,145	-4,267	-4,813	-6,787	-8,332	-8,930	-8,406	-10,187	-10,263	-9,383	-9,991	-10,977	-16,017
Net factor income from abroad	23	-62	-99	-264	-480	-810	-998	-1,087	-1,033	-459	-392	-792	-881	-1,117
Net transfers	49	23	40	40	60	188	132	183	277	174	140	181	181	181
Current account balance	-250	-440	-1,097	-1,151	-2,046	-2,223	-2,608	-1,006	-2,073	-2,113	-1,481	-1,204	-1,119	-1,230
Private direct investment	43	79	106	50	51	187	292	189	348	411	138	160	303	337
MLT loans (net)	32	248	346	670	1,418	1,665	1,631	1,327	1,258	1,317	910	1,173	976	1,112
Official	21	109	181	290	488	369	621	660	861	654	656	646	637	602
Private <sup>/a</sup>	10	139	165	380	930	1,096	1,010	667	417	663	254	527	339	510
Other capital <sup>/b</sup>	93	219	740	782	1,160	-3	1,284	380	448	173	317	12	32	179
Change in reserves (- indicates increase)	92	-96	-95	-348	-543	366	-401	-130	819	10	115	-141	-193	-378
International reserves	906	1,590	1,837	2,553	3,147	3,045	2,874	2,652	2,555	2,886	2,771	2,912	3,105	4,081
Reserves as months of export	8	5	4	5	5	4	3	3	3	3	3	3	3	2
<b>EXTERNAL CAPITAL AND DEBT</b>														
<b>Gross Disbursements</b>														
Concessional loans	11	52	78	153	242	230	223	216	250	253	383	455	517	602
IMR	11	45	50	86	178	176	189	153	206	210	331	427	500	399
IDA	-	7	6	5	4	3	21	19	17	11	10	6	4	1
Other	-	-	19	62	60	49	13	44	27	32	40	27	13	2
Nonconcessional loans	188	467	585	1,173	1,816	2,154	2,028	1,910	2,033	2,656	1,821	2,407	2,188	2,840
Official export credits	7	-	32	-	-	3	80	95	216	199	133	115	110	137
IMRD	19	43	64	103	119	143	289	370	423	300	264	265	254	312
Other multilateral	2	46	33	46	36	83	64	102	106	134	132	167	190	295
Private publicly guaranteed	17	101	106	411	842	898	805	655	322	606	255	192	179	541
Private nonguaranteed	143	277	349	573	799	1,027	790	688	966	1,417	1,037	1,668	1,453	1,564
Total gross disbursements	199	519	663	1,286	2,058	2,384	2,251	2,125	2,283	2,909	2,204	2,862	2,705	3,751
<b>Repayment Data (fined term)</b>														
Public debt outstanding and disbursed	328	823	1,114	1,820	2,832	4,128	5,169	6,138	7,001	7,559	8,158	8,707	9,296	11,487
Official	291	672	895	1,254	1,671	2,315	2,843	3,450	4,268	4,765	5,422	6,068	6,723	8,537
Private <sup>c</sup>	37	151	224	566	1,161	1,813	2,326	2,687	2,733	2,794	2,737	2,639	2,514	2,950
Private nonguaranteed debt outstanding and disbursed	382	785	880	931	1,243	1,703	2,099	2,296	2,655	3,368	3,679	4,304	4,748	5,841
Total debt outstanding and disbursed	710	1,608	1,994	2,751	4,075	5,831	7,268	8,434	9,657	10,927	11,837	13,011	13,987	17,328
Undisbursed debt	118	840	1,364	1,899	2,361	3,006	3,081	3,592	3,448	3,003	2,935	2,641	2,688	3,226
<b>Debt Service</b>														
Total service payments	162	378	442	812	962	1,224	1,325	1,495	1,768	2,235	2,225	2,666	2,748	3,289
Interest	16	107	126	196	322	503	686	697	743	843	931	977	1,018	1,150
Payments as % exports of goods and nonfactor services	14.6	10.8	11.0	14.1	14.9	15.4	15.4	15.9	19.2	21.5	21.4	23.1	21.7	17.4
<b>Average Interest Rate on New Loans (%)</b>														
Official	6.8	7.8	7.0	6.9	7.4	9.1	10.2	9.2	8.3	8.7	9.4	7.0	7.3	7.4
Private	4.8	7.9	8.1	5.6	5.4	6.8	7.4	8.7	8.1	7.9	-	-	-	-
Private	6.0	7.3	8.3	8.9	10.3	13.8	13.8	10.6	8.9	9.6	-	-	-	-
<b>Average Maturity on New Loans (years)</b>														
Official	18.9	17.3	14.5	17.1	17.0	16.6	16.7	19.1	20.3	17.2	17.0	14.1	12.5	13.7
Private	19.4	20.6	19.6	21.1	22.4	21.1	22.4	21.6	22.8	21.0	-	-	-	-
Private	11.2	7.3	7.9	9.4	10.0	8.6	9.3	11.8	10.7	10.1	-	-	-	-
<b>Bank Group Exposure (%)</b>														
IMRD DOD/total DOD	22.4	18.6	17.3	15.8	13.4	11.6	12.9	15.1	17.1	17.0	17.3	16.9	16.4	15.2
IMRD disbursements/total gross disbursements	9.5	8.3	10.0	8.6	7.0	6.1	13.0	17.4	18.5	10.3	12.0	9.3	9.4	9.6
IMRD debt service/total debt service	11.1	9.6	10.0	6.8	6.9	6.3	6.8	8.3	8.9	8.2	11.5	11.6	12.7	11.2
IDA DOD/total DOD	-	0.7	1.0	0.9	0.7	0.6	0.7	0.8	0.9	0.9	0.9	0.9	0.8	0.7
IDA disbursements/total gross disbursements	-	1.3	1.3	0.4	0.2	0.2	0.9	0.9	0.8	0.37	0.44	0.23	0.17	0.07
IDA debt service/total debt service	-	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.04	0.05	0.06	0.06	0.06

**As % of debt outstanding at end of 1985**

Maturity structure of debt outstanding	
Principal due within 5 years	46.0
Principal due within 10 years	87.9
Interest structure of debt outstanding	
Interest due within first year	7.9

<sup>/a</sup> Due to change in classification, projected data for "private MLT loans" include some of the category "other capital."  
<sup>/b</sup> "Other capital" includes net use of IMF funds and net flow of short-term capital.  
<sup>/c</sup> Historical data do not include nonguaranteed private debt.

THE STATUS OF BANK GROUP OPERATIONS IN THAILAND

A. STATEMENT OF BANK LOANS AND IDA CREDITS /a  
(As of March 31, 1985)

Loan or credit number	Year	Borrower	Purpose	Amount (\$ million) less cancellations		
				Bank	IDA	Undis- bursed
Fifty-six loans and five credits fully disbursed				1,933.12	93.50	
1630	1978	Kingdom of Thailand	Irrigation	17.50	-	2.70
1638	1979	Kingdom of Thailand	Urban transportation	7.98	-	0.54
929	1979	Kingdom of Thailand	Agriculture	-	25.00	8.56
1752	1979	Kingdom of Thailand	Agriculture extension	40.00	-	11.48
1787	1980	Kingdom of Thailand	Irrigation	80.00	-	44.40
1852	1980	Electricity Generating Authority of Thailand	Power	72.00	-	4.40
1863	1980	Provincial Waterworks Authority	Water Supply	40.00	-	22.92
1870	1980	Kingdom of Thailand	Housing	24.50	-	3.28
1871	1980	Provincial Electricity Authority	Rural electrification	75.00	-	13.47
1889	1980	Kingdom of Thailand	Inland waterways	53.00	-	30.65
1918	1980	Kingdom of Thailand	Ports	47.00	-	44.71
1922	1980	Kingdom of Thailand	Agriculture research	30.00	-	22.72
2000	1981	Electricity Generating Authority of Thailand	Power	100.00	-	37.08
2022	1981	Kingdom of Thailand	Irrigation	57.00	-	43.01
2035	1981	Kingdom of Thailand	Provincial roads	32.00	-	6.13
2078	1982	Kingdom of Thailand	Tree crops	142.00	-	24.31
2143	1982	Telephone Organization of Thailand	Telecommunications	125.10	-	33.18
2178	1982	Kingdom of Thailand	Education	52.70	-	31.24
2184	1982	Petroleum Authority of Thailand	Liquified petroleum gas	80.00	-	37.07
2198	1982	Kingdom of Thailand	Agriculture	17.00	-	15.10
2311	1983	Kingdom of Thailand	Provincial roads	100.00	-	75.73
2312	1983	Provincial Electricity Authority	Rural electrification	30.60	-	19.45
2402	1984	Kingdom of Thailand	Rural development	50.00	-	36.69
2407	1984	Electricity Generating Authority of Thailand	Mining	59.10	-	58.86

Loan or credit number	Year	Borrower	Purpose	Amount (\$ million) less cancellations		
				Bank	IDA	Undis- bursed
2440	1984	Kingdom of Thailand	Agriculture	35.00	-	33.36
2520	1985	Kingdom of Thailand	Urban development	27.50	-	27.50
2548	1985	Bangchak Petroleum Co.	Refinery	85.00	-	85.00
2639	1986	Petroleum Authority Thailand	Energy	33.00	-	33.00/ <u>c</u>
<u>Total</u>				<u>3,446.10</u>	<u>118.50</u>	<u>806.56</u>
of which has been repaid				458.79	3.98	
<u>Total Now Outstanding</u>				<u>2,987.31</u>	<u>114.52</u>	
Amount sold <u>/b</u>			91.23			
of which has been repaid			64.00	27.23		
<u>Total Now Held by Bank and IDA</u>				<u>2,960.08</u>	<u>114.52</u>	
<u>Total Undisbursed</u>				<u>798.00</u>	<u>8.56</u>	<u>806.56</u>

/a The status of the projects listed in Part A is described in a separate report on all Bank/IDA financed projects in execution, which is updated twice yearly and circulated to the Executive Directors on April 30 and October 31.

/b Of which \$43.3 million sold to the Bank of Thailand.

/c Not yet effective.

B. STATEMENT OF IFC INVESTMENT  
(As of March 31, 1986)

Year	Company	Type of business	Amounts (\$ million)		
			Loan	Equity	Total
1959	Concrete Products and Aggregate Co., Ltd.	Cement and construction materials	0.3	-	0.3
1964/1971	Industrial Finance Corporation of Thailand (IFCT)	Development finance company	-	0.4	0.4
1969/1976/ 1978/1980/ 1985	Siam Cement Group	Cement and construction materials	28.3	4.4	32.7
1977	Mutual Fund Company Ltd.	Money and capital market	-	0.3	0.3
1977	United Sugar Terminal Ltd.	Food and food processing	2.5	0.2	2.7
1978	Siam Commercial Bank	Small- and medium-scale industries	2.0	-	2.0
1979/1980/ 1983	Bangkok Glass Industry Co. Ltd.	Glass containers	9.9	0.4	10.3
1979/1981/ 1985	Siam City Cement Co. Ltd.	Cement and construction materials	113.4	4.7	118.1
1979	Thai Orient Leasing Co. Ltd.	Capital market	-	0.1	0.1
1983	Sea Minerals Limited	Mining	-	0.6	0.6
1983	National Petrochemical Corporation	Chemicals & petrochemicals	-	0.4	0.4
1983	Thailand Tantalum	Mining	53.5	3.4	56.9
1984	World Aquaculture	Food and food processing	2.7	0.6	3.3
1984	Southeast Asia Venture Investment (Seavi)	Money & capital market	-	1.0	1.0
1986	Masbhumi Limited	Mining	-	/a	/a
	<u>Total Gross Commitments</u>		<u>212.6</u>	<u>16.5</u>	<u>229.1</u>
	Less cancellations, terminations, repayments and sales		155.0	4.1	159.1
	Net held by the corporation		57.6	12.4	70.0
	<u>Total Undisbursed</u> (including participant's portion)		<u>82.6</u>	<u>2.8</u>	<u>85.4</u>

/a \$45,969.

THAILAND

THIRD RUBBER REPLANTING PROJECT

Supplementary Project Information Sheet

Section I: Timetable of Key Events

- (a) Time taken to prepare the project: 15 months
- (b) Agencies which prepared the project: ORRAF, DOAE and RRIT with assistance from FAO/CP and the Bank.
- (c) Date of first presentation to the Bank: January 1984
- (d) Date of Departure of Appraisal Mission: May 1985
- (e) Completion of Negotiations: March 1986
- (f) Planned date of effectiveness: October 1986

Section II: Special Bank Implementation Actions

None

Section III: Special Conditions

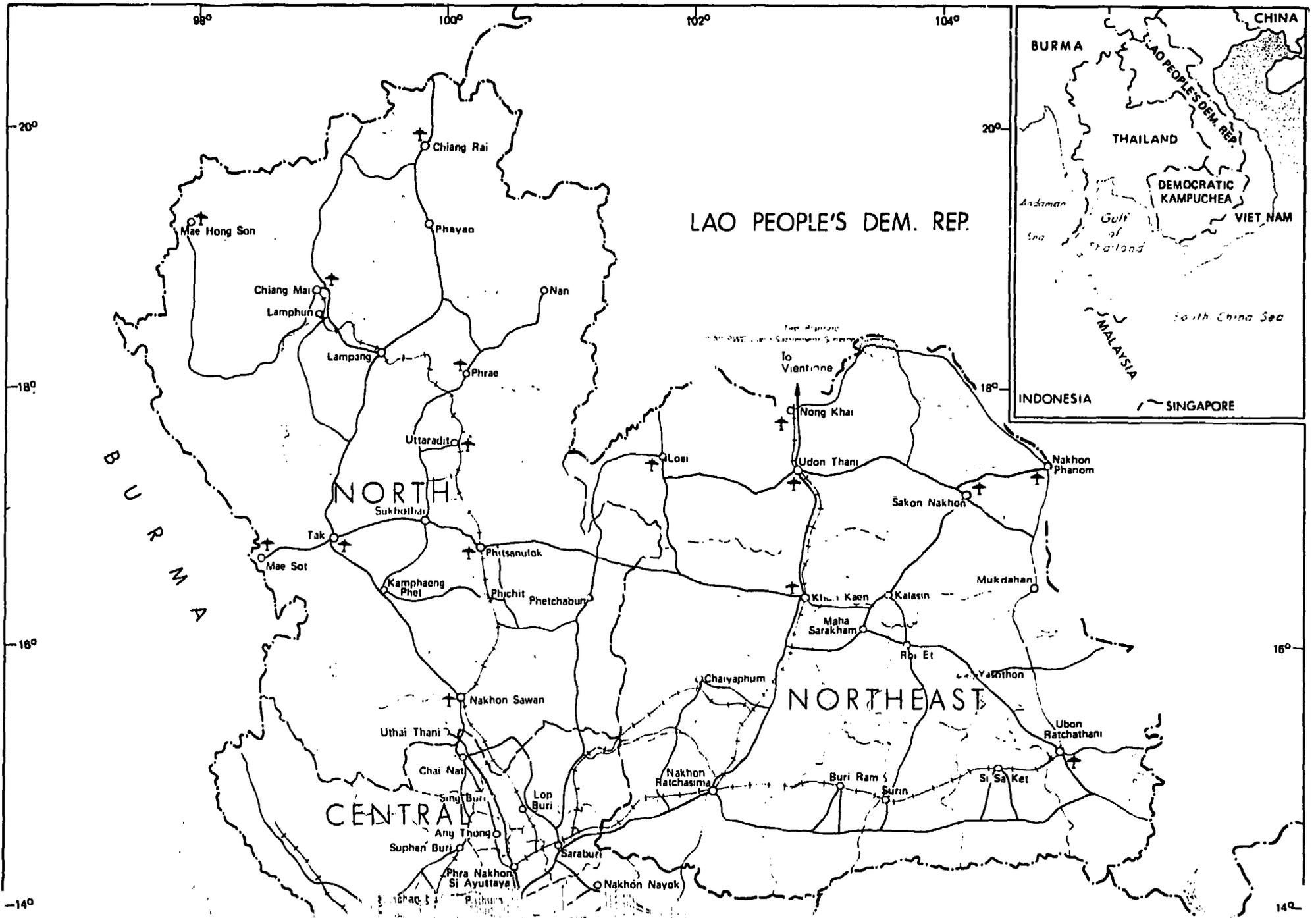
Government has agreed that:

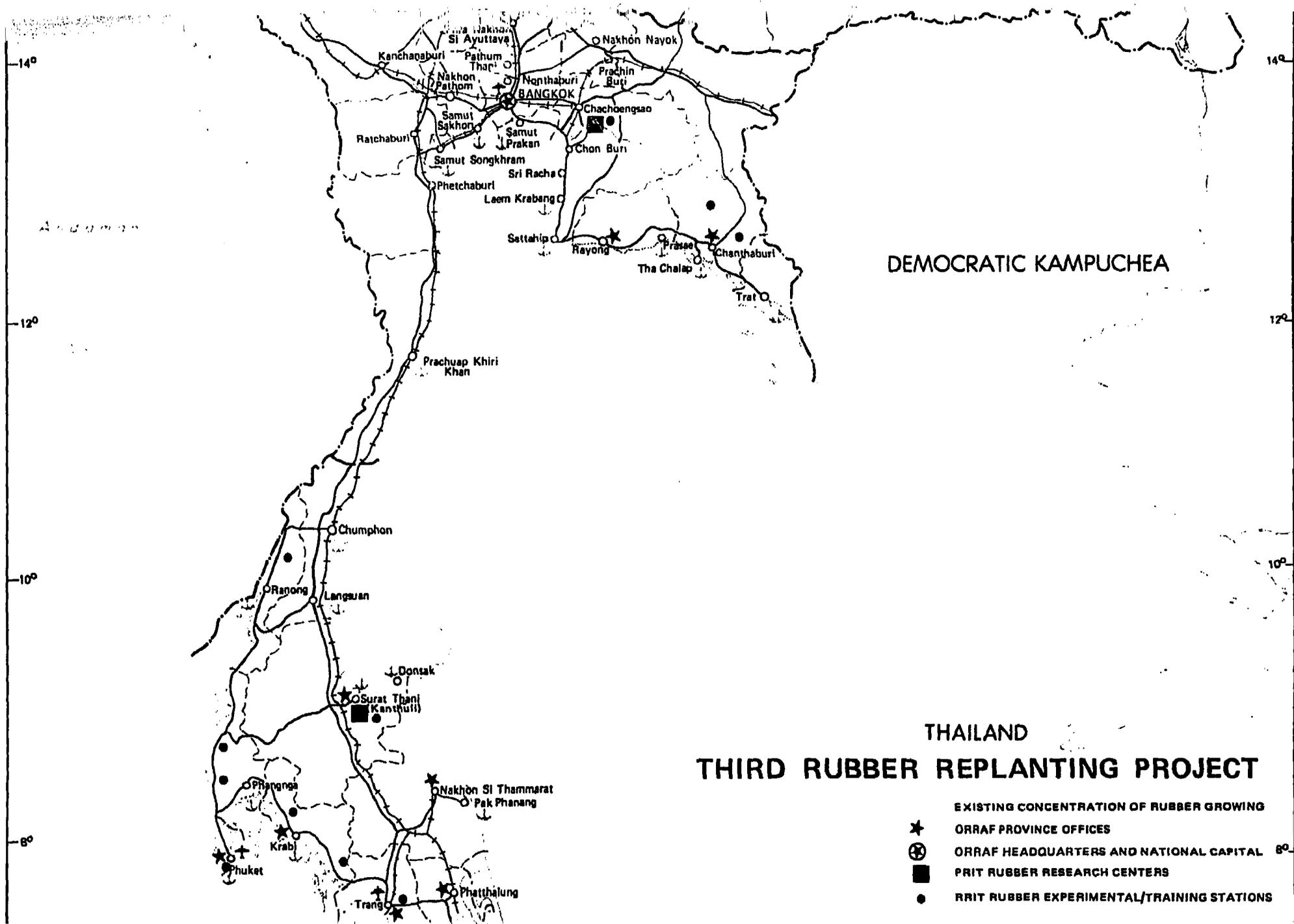
- (a) It would take the necessary steps to introduce a flat rate (Baht/kg) cess and increase the proportion of cess revenues for ORRAF administration costs to at least 10% by September 30, 1990 (para. 56).
- (b) After project completion, it would provide ORRAF with the necessary funds to bring into production ongoing rubber replantings initiated under the project (para. 57).
- (c) The Ministry of Agriculture and Cooperatives (MOAC), through the issuance of a ministerial order by December 31, 1986, would confirm the extension of ORRAF's jurisdiction over the replanting beneficiary from 5-1/2 years to 7-1/2 years and the allocation of responsibilities for extension, training and demonstration, among ORRAF, RRIT and DOAE (para. 44).
- (d) The National Rubber Policy Committee (NRPC) would by December 31, 1986:
  - (i) establish three Technical Subcommittees (para. 46);
  - (ii) establish a task force to set up the criteria for selecting target districts/subdistricts for the Needy Rubber Smallholders Development Program (NRS DP), monitor progress and implement the NRS DP arrangements (para. 47).

Government and ORRAF have agreed that annual reviews, commencing not later than October 1, 1987, would be held among the Bank, ORRAF, and Government to (i) ensure and agree on adequate funding for ORRAF (para. 56) and (ii) determine the adequacy of the replanting "grant" (para. 57).

ORRAF has agreed that:

- (a) It would carry out and administer the fellowship for management training under a program acceptable to the Bank (para. 43).
- (b) It would complete, under the proposed project, the relevant cost reduction measures recently initiated through the Second Project (para. 59)





DEMOCRATIC KAMPUCHEA

**THAILAND  
THIRD RUBBER REPLANTING PROJECT**

- ★ EXISTING CONCENTRATION OF RUBBER GROWING
- ★ ORRAF PROVINCE OFFICES
- ⊙ ORRAF HEADQUARTERS AND NATIONAL CAPITAL
- PRIT RUBBER RESEARCH CENTERS
- RRIT RUBBER EXPERIMENTAL/TRAINING STATIONS

