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INDONESIA

PUBLIC INVESTMENT IN REPELITA IV

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CURRENCY AND OTHER EQUIVALENTS

Currency

Fiscal year averages:	<u>Rp per US\$1</u>
1979/80	623
1980/81	627
1981/82	637
1982/83	674
1983/84	983
1984/85	1,050
September 30, 1985:	1,121

Weights and Measures

Unless specified otherwise, all weights and measures are metric. Abbreviations used include:

DWT	deadweight ton
ha	hectare
kg	kilogram
kWh	kilowatt hour
MW	megawatt
TCF	trillion cubic feet

Fiscal Years

The Government of Indonesia's fiscal year runs from April 1 through March 31. Some public enterprises use different fiscal years (as specified in the text).

PREFACE

1. This public investment review has been prepared by World Bank staff over the past year, drawing on a range of ongoing economic and project work. The overall macro-economic framework is based on analysis completed for the 1985 Economic Report, partially updated to reflect recent changes in the economic outlook (especially for oil). Important sectoral inputs were provided by two recent World Bank reports on the tree crops and power investment programs. Other sectoral reviews are based on information collected during project work (for transport, housing and transmigration) or especially prepared for this report (for water resources, education and health). In those sectors where World Bank staff have limited Indonesian experience (e.g., manufacturing, mining and petroleum), the discussion of issues is inevitably more general and incomplete.

2. This report was discussed with government officials in November 1985 and a back-to-office report (dated December 9, 1985) is on file. Subsequently, some editorial and factual corrections have been made. However, this version of the report does not purport to reflect fully the Government's views on investment priorities or the latest information on investment trends.

3. Although the analysis presented in this report is very preliminary, it is hoped that it will provide a useful framework for continuing discussions with the Government on investment priorities and planning mechanisms. This review should also help to identify appropriate areas for future World Bank support, through both lending and economic work. World Bank staff are grateful for the assistance provided by government officials, especially in BAPPENAS, in the preparation of this report and look forward to future collaboration on related follow-up activities.

INDONESIA

PUBLIC INVESTMENT IN REPELITA IV

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Preparation of this report was coordinated by Mark Baird. Sectoral inputs were provided by Geoff Fox (major tree crops), Daniel Gunaratnam (water resources), Chris Wardell (mining), Andres Liebenthal (petroleum and power), M.S. Parthasarathi (transport), A. Shanmugarajah (telecommunications), Jaime Biderman (housing), Gloria Davis (transmigration), Cecilia Valdivieso (education) and Nick Prescott (health).

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SUMMARY AND CONCLUSIONS

i. This public investment review has been prepared by World Bank staff over the past year, drawing on a range of ongoing economic and project work. The starting point was the Government's five-year development plan for 1984/85 to 1988/89 (REPELITA IV). For selected sectors, the plan's targets have been reviewed in light of expected resource and project implementation constraints, as well as World Bank staff views on appropriate investment priorities. On the basis of this analysis, an indicative public investment program has been prepared to show broad sectoral allocations and financing requirements (see Table 1.3). This program is very preliminary, due to weaknesses in the data base and gaps in coverage, and is therefore presented for discussion purposes only. However, this initial cut at the problem does help to illustrate the major issues which will affect investment decisions and project implementation over the next few years. As such, it will hopefully provide a useful framework for further follow-up work within BAPPENAS, as well as for identifying appropriate areas for future World Bank support.

ii. Indonesia will continue to face a tight and uncertain balance of payments outlook over the next few years, and this is likely to be the binding constraint on investment levels. The macro-economic framework used for the indicative program results in an investment level for REPELITA IV about one third lower than projected in the plan. Although there are no simple criteria for allocating this investment between the public and private sectors, the Government is keen to expand the role of the private sector in financing and implementing investment, and this is a stated objective of the REPELITA IV plan. Therefore, given the overall constraint on investible resources, public investment will have to remain tightly controlled. The projections used for this exercise assume real public investment falls by 2% in 1985/86, remains at this level in 1986/87, and then grows by only 2% per annum during the final two years of REPELITA IV. However, even this trend may prove difficult to finance, given uncertainties in the external environment (e.g. even lower oil prices) and in the prospects for mobilizing domestic resources (e.g., from the recent tax reform). As a result, the impact of a more constrained resource situation on public investment levels and allocations is also briefly discussed (see para. 1.14).

iii. The sectoral composition of the indicative program has basically emerged from a "bottom up" approach. However, an attempt has also been made to ensure broad consistency between the sectoral programs and the macro-economic projections of resource availability and development trends. Overall, the indicative program reinforces and extends the priorities identified in the plan. In particular, as compared to actual trends during REPELITA III, the indicative program proposes a reallocation of development expenditure away from the industrial sectors (manufacturing and mining) and towards economic infrastructure (water resources, power and telecommunications) and social services (education and health). Such a reallocation is justified by: (a) the relatively limited development of economic and social infrastructure in Indonesia, compared to other countries in the region; and (b) the Government's objective to give an expanded role to private investment in the directly productive sectors. However, for all sectors, the absolute allocations in the

indicative program are lower than projected in the plan and physical targets are reduced accordingly, even for the priority sectors. For example: the planting programs for rubber, oil palm and coconut are reduced by 26% from 1.4 million to 1.0 million ha; the area to be covered by new irrigation programs is reduced by 34% from 2,140 to 1,420 ha; the expansion of PLN's generation capacity is reduced by 20% from 5,255 to 4,222 MW; the expansion of Perumtel's exchange capacity is reduced by 57% from 750,000 to 325,000 lines; the number of sponsored transmigrants is reduced by 20% from 500,000 to 400,000 families; and the additional public enrollments, at all levels of the education system, are reduced by 16% from 3.4 to 2.9 million students. For a number of sectors - including tree crops, transmigration, telecommunications and education - these cuts are due primarily to project implementation constraints (see para. v below). However, the changed economic outlook, in so far as it affects effective demand and resource availability, is a more important factor for water resources and power. Similar arguments apply in the manufacturing and mining sectors, where all major project proposals need to be carefully evaluated in terms of their economic returns and the justification for public sector involvement.

iv. There is also a significant reordering of priorities within some sectors:

- (a) In the water resources sector, the indicative program gives lower priority to the construction of new large-scale irrigation systems on Java. Instead, more emphasis is given to completion of ongoing projects (including two multipurpose dams) and intensive system upgrading (to improve operations and facilitate maintenance). New irrigation development is concentrated on the Outer Islands, including swamp reclamation for transmigration sites.
- (b) In the transport sector, the indicative program gives priority to the road subsector, with particular emphasis on the maintenance and betterment programs. Accordingly, substantial cuts have been made in the planned investments for railway infrastructure, port facilities and shipping fleet development. These are all areas where significant increases in capacity can be achieved with improved operational efficiency.
- (c) In the education sector, the indicative program proposes a significant reallocation of investment from primary to secondary and higher education programs. Due to the success of the INPRES program, universal primary education has basically been achieved. At the same time, Indonesia has relatively low enrollment ratios at the secondary and higher education levels, and this is reflected in the severe shortage of skilled manpower.

v. Given the rapid expansion of public investment over the past five years, it is hardly surprising that progress in many sectors has become increasingly hampered by project implementation constraints. Absorption is obviously higher in sectors, such as manufacturing and mining, where there are large well-defined projects, which can often be constructed on a turnkey basis. However, investments in rural infrastructure and social services

require substantially more locally-trained manpower and effective channels for decentralized administration. Therefore, the priority given to these sectors in REPELITA IV, in both the plan and the indicative program, will bring project implementation constraints into even sharper focus. Three types of constraints are identified in this report:

- (a) Many implementation constraints are related to fundamental institutional factors: the general shortage of trained manpower, civil service policies (including the compensation system) and decision making/management practices. While actions can and should be taken in these areas, it would be unrealistic to expect major breakthroughs in the near future. Rather, it would be more appropriate to take related constraints into account in the selection and design of projects.
- (b) On the other hand, there are a range of regulatory and procedural bottlenecks (e.g., in the areas of procurement, land acquisition and budget procedures), where timely action could have a significant impact on implementation performance over the next two to three years. Most of these bottlenecks cut across sectors, and related reforms will require broad-based government commitment and support.
- (c) Finally, there are some sector-specific constraints that will continue to impinge on project implementation performance if action is not taken. These include problems of agency coordination (e.g., for tree crops and transmigration), local contractors (e.g., for power and telecommunications) and sector policies (e.g., for housing).

vi. The financing plan underlying the indicative program is similar to that realized during REPELITA III. In particular, close to 90% of public investment (excluding projects funded by Pertamina) is to be financed from budgetary resources, including onlending of external loans, with the balance coming from the internal funds and domestic borrowing of public enterprises. However, the dependence on budgetary resources varies significantly from sector to sector, ranging from close to 100% in water resources, transmigration, education and health, to less than 30% in petroleum and telecommunications. There is also considerable scope for improving the cash generation and borrowing capacity of public enterprises in certain sectors. In part, this is a matter of raising revenues through consumption/traffic growth and more realistic charges and lending rates. However, equally important are improvements in operating efficiency (e.g., PLN's fuel consumption and system losses) and financial management (e.g., Perumtel's billing collection and BTN's arrears reduction). For the PTPs, some injection of government equity or debt conversion will also be required. Cost recovery is important, not only for the financial viability of public enterprises, but also to finance much needed recurrent expenditures. For this purpose, the scope for greater use of IPEDA taxes (e.g., for irrigation) and fees (e.g., for education and health) needs to be explored. Where appropriate, special measures, such as means-tested scholarships, could be introduced to protect lower-income groups.

vii. In the area of investment planning, it is only appropriate that the primary responsibility for preparing sectoral investment programs remains with

the line agencies, who are best equipped to do the job. However, it is also appropriate for BAPPENAS to provide guidelines for project selection and play an active role in ensuring macro-economic and inter-sectoral consistency. For this purpose, it would be useful to keep an inventory of project profiles, that are updated on a regular (say, quarterly) basis. As a first cut, the type of listing provided in Annex Table 3 would probably be adequate. However, at least for major ongoing and new projects, a somewhat fuller profile should eventually be prepared. One possible format for this work is provided in Table 1.7, including projections of both investment and recurrent costs, as well as sources of financing. The availability of up-to-date project profiles and sectoral investment programs would be a very valuable input for adjusting public investment in line with changes in the economic outlook. It would also be helpful if BAPPENAS could identify a core program of high-priority projects, to be protected against resource shortfalls and implementation delays.

viii. The key to good investment planning is good project selection and design. For this purpose, economic cost-benefit analysis can be a very useful tool, in so far as it collapses a complex set of issues into one common yardstick, such as net present value (NPV) or the economic rate of return (ERR). However, it is equally important for decision makers to be aware of the assumptions used in the analysis, major uncertainties and risks involved, and the range of options considered. This analysis should not simply be geared towards deciding whether a project is "good" or "bad," but also highlight issues relating to project timing, size and design. Finally, project analysis cannot just be done once at the feasibility stage and left on the shelf. Rather, regular updating should be undertaken, especially for major projects, to reflect changes in aggregate resource availability and market conditions (while taking into account sunk costs).

ix. In Indonesia, many of the more difficult investment decisions are made in the context of the budget cycle. However, because of limitations in both investment planning and budgetary procedures, these decisions are not always made in a systematic manner. In particular, most project proposals receive only a cursory review at budget time and many relevant factors (including non-budgetary and multi-year financing requirements) are often overlooked. Therefore, moving the focus of investment planning from the five-year plan to an ongoing review process would in itself be useful. Two complementary changes are proposed for the budget process: (a) to simplify monitoring of project implementation, the budget should be based on similar project classifications as used in the investment program, with a consolidation of funding accounts; and (b) given the recent trend towards decentralization, greater attention needs to be given to the planning and monitoring of lump-sum allocations (e.g., the INPRES programs) for local governments. Finally, the budget is also an important source of financing for recurrent expenditures. Therefore, for budgetary purposes, BAPPENAS should: (a) agree with the line agencies on guidelines for determining appropriate unit costs for recurrent items; and (b) look closely at the recurrent cost of new projects. At the margin, adequate funding of recurrent expenditures may mean sacrificing some new investments. But the benefits, in terms of improved utilization of existing assets and the provision of better quality services, is likely to be well worth the costs.

x. This report represents a very preliminary and partial attempt to address public investment issues in Indonesia. A major constraint has been the incomplete data base for public finance trends and project proposals. Many of these gaps have been filled in the preparation of the indicative program by using rough estimates or adjusted official numbers. However, this is an area where further updating and follow-up is required. The following specific points are worth noting:

- (a) At the present time, there is no comprehensive or consistent set of public finance statistics available for Indonesia. The framework used in this report provides a useful starting point. However, substantially more data is needed, especially in public enterprise and local government accounts, to reconstruct a reliable series on public investment.
- (b) Although 1984/85 and part of 1985/86 are now past, no actual data for these years were available for use in this report. In the indicative program, adjustments have been made to reflect the estimated pace of project implementation wherever possible. However, for some sectors, the investment trends are based on budget allocations or anticipated resource requirements. All of these numbers need to be updated, and the investment program rephased accordingly.
- (c) As far as possible, the sectoral programs used in Table 1.3 have been built up from World Bank staff views on investment priorities. However, due to either data or expertise constraints, this has not always been possible. Some important examples include manufacturing projects not under the Ministry of Industry, petroleum investments funded by Pertamina, and components of the transport program. While some broad judgements have been made on investment levels and priorities in these areas, more project-specific analysis is still required.

PART I

AN OVERVIEW

I. AN OVERVIEW

A. Introduction

1.01 During the 1970s, Indonesia used its increased oil revenues to embark upon an expanded program of public investment. Many of these investments are now paying off: the Government's irrigation program has helped Indonesia become self-sufficient in rice, while the school construction program has brought universal primary education within sight. However, other investments have proved costly to the economy. Faced with a worsening balance of payments outlook, the Government decided in 1983 to rephrase a number of large capital-intensive projects, primarily in the energy and mining sectors. This decision has resulted in significant foreign exchange savings and contributed to a marked reduction in the country's current account deficit. However, the medium-term prospects remain uncertain, with continued restraint necessary in future levels of public investment. Therefore, effective use of the limited resources available remains a priority concern.

1.02 It is in this context that World Bank staff have prepared this public investment review. The starting point for this exercise was the Government's five-year development plan for 1984/85 to 1988/89 (REPELITA IV).^{1/} For selected sectors, the plan's targets have been reviewed in light of expected resource and project implementation constraints, as well as World Bank staff views on appropriate investment priorities. On the basis of this analysis, an indicative public investment program has been prepared to show broad sectoral allocations and financing requirements. This program is very preliminary, due to weaknesses in the data base and gaps in coverage, and is therefore presented for discussion purposes only. However, this initial cut at the problem does help to illustrate the major issues which will affect investment decisions and project implementation over the next few years. As such, it is hoped that this review will provide a useful framework for further follow-up work within BAPPENAS, as well as for identifying appropriate areas for future World Bank support (through both lending and economic work).

1.03 This report is in two parts. Part I provides an overview of public investment issues during REPELITA IV: the economic outlook and resource availability (Section B); public investment priorities and constraints (Section C); and related suggestions for planning and budgeting procedures (Section D). Part II looks more closely at investment issues in eleven sectors: major tree crops, water resources, manufacturing, mining and petroleum, power, transport, telecommunications, housing, transmigration, education and health.

1/ GOI, Rencana Pembangunan Lima Tahun Keempat, 1984/85-1988/89
(March 19, 1984).

B. The Economic Outlook and Resource Availability

The Resource Constraint

1.04 Developments in the Indonesian economy during the 1970s were dominated by the impact of higher oil revenues, which helped finance a significant increase in budget expenditure and imports, without undue recourse to external borrowing. As a result, over the decade to 1981, the fixed investment rate rose by six points to 21% and real GDP growth averaged more than 8% per annum. Not surprisingly, domestic inflation was also high (20% per annum) over this period. However, the more basic concern remained the country's vulnerability to fluctuations in world oil markets. This vulnerability has been exposed over the past three years, when Indonesia's export earnings from oil and LNG fell by close to 24%. In response, the Government acted on two broad fronts: (a) to adjust incentives, through devaluation of the rupiah, reduced subsidies and freer interest rates; and (b) to restrain aggregate demand, primarily through rephrasing a number of large, capital-intensive projects. These measures proved successful in managing the balance of payments, with the current account deficit falling from 8.5% to 2.4% of GNP over the past three years. Domestic inflation was also reduced to 9% in 1984. However, there have been costs in terms of slower economic growth (averaging 3.6% per annum over the past three years) and lower fixed investment (down to 18% of GDP in 1984). Furthermore, the economy is still heavily dependent on oil and LNG, which accounted for about two thirds of government revenues and export earnings in 1984/85.

1.05 Indonesia will continue to face a tight and uncertain balance of payments outlook over the next few years, and this is likely to be the binding constraint on investment levels. A number of scenarios for future developments were presented in the 1985 Economic Report, prepared earlier this year.^{2/} However, since that time, there has been a significant deterioration in the economic outlook for Indonesia, due primarily to the short-term market weakness and uncertain prospects for oil. As a result, we have prepared a partially updated set of projections, referred to as the "indicative scenario," for use in this public investment review. As with all economic projections, this scenario is not intended to be a precise forecast of future events. Rather, it is simply presented to illustrate the broad magnitude of the resource constraint during REPELITA IV. The major assumptions and results of the indicative scenario are summarized in Table 1.1. Note the following:

- (a) World oil prices are assumed to fall by about 22% in real terms during REPELITA IV. This is a major factor behind the projected deterioration in the terms of trade over this five-year period.

^{2/} World Bank, Indonesia: Policies for Growth and Employment (Report No. 5597-IND, April 23, 1985).

Table 1.1: SUMMARY OF ECONOMIC INDICATORS

Indicator	Growth rates /a		Shares of GDP /b	
	REP. III	REP. IV	REP. III	REP. IV
	----- (% p.a.) -----		----- (%) -----	
<u>GDP</u>	4.8	3.8	100.0	100.0
Oil and LNG	-1.1	3.3	23.3	22.6
Non-oil economy	6.8	4.0	76.7	77.4
- Agriculture	4.2	3.7	25.7	25.4
- Industry	9.4	4.1	17.0	17.6
- Services	7.8	4.1	34.0	34.4
<u>Expenditure</u>	9.8	2.0	98.3	97.9
Consumption	11.8	2.4	75.2	79.3
Investment	3.9	0.6	23.1	18.6
- Fixed investment	4.9	0.5	21.5	17.5
- Stock changes			1.6	1.1
<u>Trade</u>				
Exports (goods & NFS)	-1.2	3.2	27.8	23.3
- Oil & LNG	-1.9	1.9	20.6	15.1
- Non-oil exports	1.7	7.0	7.2	8.2
Imports (good & NFS)	5.5	-1.3	26.1	21.2
<u>Prices</u>				
Terms of trade	9.7	-0.8		
Domestic prices	23.6	8.0		
<u>Memo items</u>				
	1978/79	1983/84	1988/89	
Current account (% of GNP)	2.5	6.0	3.1	
Reserves (mths of imports)/c	2.3	5.6	6.3	
Debt service ratio (%)/d	21.2	17.8	26.1	

/a At 1981 prices.

/b At current prices.

/c Total net foreign assets in months of imports (goods only).

/d Total external debt service to gross exports (goods and services).

Source: World Bank staff estimates.

Domestic inflation is projected to be around 8% per annum, consistent with the official plan assumption.^{3/}

- (b) Real GDP growth is projected to average 3.8% per annum, significantly slower than during REPELITA III. As in the past, the major contributions to growth will come from services, agriculture and oil. However, the industrial sector is expected to become an increasingly important source of employment and exports.
- (c) After falling during 1984/85, fixed investment is projected to recover only slowly over the remainder of REPELITA IV, showing little growth for the five-year period. As a result, the average fixed investment rate is projected to be significantly lower than during REPELITA III. The five-year ICOR is also relatively low at 4.0, reflecting assumed improvements in capacity utilization and investment efficiency.
- (d) A viable balance of payments outlook is dependent upon sustained growth in non-oil exports and the impact of demand restraint on import requirements. Overall, the current account deficit is projected to be constrained to about 3% of GNP during REPELITA IV and steadily reduced in later years. Even so, the debt service ratio would initially rise, reaching a peak of around 26% in the late 1980s.

1.06 The official plan projections for REPELITA IV, which were prepared before the recent weakening of the world oil market, are considerably more optimistic than the indicative scenario used in this report. In particular, the plan is based on a real GDP growth rate of 5% per annum and an average fixed investment rate of more than 26%.^{4/} The end result is an investment level for REPELITA IV that is more than 50% higher than projected in the indicative scenario. The potential impact of related resource requirements on the balance of payments is almost certainly understated in the plan, and given the present outlook for oil prices, could quickly lead to an unmanageable

^{3/} This ensures comparability of plan and indicative program numbers at current prices. However, actual inflation is presently running at less than 6% per annum and, with continued monetary and fiscal restraint, could stay around this level over the medium term. In this event, all nominal projections of budgetary revenues and expenditures, as well as of investment levels, would have to be reduced. However, the underlying real trends would remain the same.

^{4/} The plan projects the fixed investment rate to rise from an estimated 22.6% in 1983/84 to 29.0% in 1988/89 (at current prices). The estimated rate used in this report for 1983/84 is 20.6% (at 1981 prices). Although current price estimates are likely to be higher, the plan's base-year assumption would still seem to be overstated.

external debt burden. To avoid this situation, the Government has kept tight control over budgetary expenditures and external borrowing over the past two years.

Impact on Public Investment

1.07 Unfortunately, there is no comprehensive or consistent set of statistics available for discussing public finance issues in Indonesia. As a result, it is difficult to estimate public investment levels and related sources of financing, let alone link these to macro-economic developments. This is an area where considerably more empirical and analytical work is required. For this report, some preliminary numbers have been put together for the Central Government and public enterprises.^{5/} The results are presented in Annex Table 2 and summarized in Table 1.2 below. The basic definitions and (historical) data sources are as follows:

- (a) Government savings are defined as domestic revenues minus recurrent expenditure. In deriving recurrent expenditure, the official budget data have been adjusted to exclude amortization payments and to include the recurrent component of development expenditure.^{6/}
- (b) Basic data on domestic borrowing by the Government and public enterprises are from the monetary survey compiled by Bank Indonesia. Data on public external borrowing are from the World Bank's Debtor Reporting System.^{7/}
- (c) Public enterprise investments financed by internal funds (excluding Pertamina) and transfers from the Government are based on (very rough) estimates by World Bank staff. Public investment, and the breakdown between direct government and public enterprise investment, are then derived from these financing estimates.

^{5/} Local government investments are covered insofar as they are financed through the central government budget. However, investments funded from local sources are excluded.

^{6/} To avoid confusion, the official budget data are referred to as "routine expenditure" and the adjusted numbers as "recurrent expenditure."

^{7/} In Annex Table 2, all public borrowing is assumed to be channelled through the central government budget. However, in practice, some public enterprises (e.g., Pertamina and Garuda) are permitted to borrow directly from external sources. At the same time, not all borrowing by the Central Government is actually reflected in the official budget data.

Table 1.2: TRENDS IN PUBLIC FINANCE AND INVESTMENT a/

Indicator	Actuals					Estimates		Projections			Totals	
	1979/80	1980/81	1981/82	1982/83	1983/84	1984/85	1985/86	1986/87	1987/88	1988/89	REP. III	REP. IV
PUBLIC FINANCE SUMMARY (in Rp billion)												
Public savings	2,651	4,175	4,670	4,693	4,241	8,427	5,576	6,293	6,856	6,963	22,430	34,115
Government	2,376	3,875	4,350	4,320	5,840	7,977	5,075	5,736	6,236	6,274	20,777	31,248
Public enterprise	275	300	312	365	401	450	501	557	620	689	1,653	2,867
Public borrowing (net)	3	(437)	1,181	3,118	1,171	470	3,833	3,076	4,365	5,377	5,037	17,901
Domestic	(349)	(1,450)	150	1,035	(2,438)	(1,840)	1,178	1,194	1,385	2,212	(3,040)	4,130
External	346	1,013	1,031	2,083	3,609	2,310	2,655	2,482	2,980	3,164	8,077	13,771
Public investment	2,654	3,738	5,851	7,811	7,412	8,897	9,410	10,169	11,201	12,340	27,466	52,017
Direct government	881	1,645	3,121	3,668	2,651	3,187	3,766	5,085	5,601	6,170	11,966	24,600
Public enterprise	1,773	2,093	2,730	4,143	4,761	4,910	5,644	5,085	5,601	6,170	15,500	27,409
INVESTMENT SUMMARY (% of GDP)												
Gross domestic investment	22.4	22.4	23.4	25.9	21.1	20.7	19.0	18.0	17.9	18.0	23.1	18.6
Public fixed investment	8.3	8.2	10.8	12.9	10.1	10.4	10.1	9.8	9.5	9.6	10.3	9.8
-Direct government	2.8	3.6	5.8	6.0	3.6	4.7	4.0	4.9	4.8	4.7	4.5	4.6
-Public enterprise	5.5	4.6	5.1	6.8	6.5	5.7	6.0	4.9	4.8	4.7	5.8	5.1
Private fixed investment	12.6	12.6	10.6	10.4	10.6	7.3	7.4	7.7	7.9	8.2	11.1	7.7
Change in stocks	1.3	1.5	2.0	2.7	0.5	3.0	1.5	0.5	0.5	0.5	1.6	1.1
Gross national savings	26.8	25.3	20.2	18.0	15.5	18.4	15.8	14.9	15.1	15.0	20.1	15.7
Public savings	8.3	9.2	8.6	7.7	8.5	9.8	6.0	6.0	5.8	5.3	8.4	6.4
-Government	7.4	8.5	8.1	7.1	7.9	9.3	5.4	5.5	5.3	4.8	7.8	5.9
-Public enterprise	0.9	0.7	0.6	0.6	0.5	0.5	0.5	0.5	0.5	0.5	0.6	0.5
Private savings	18.5	16.1	11.5	10.3	7.1	8.5	9.8	8.9	9.3	9.7	11.6	9.3

a/ At current prices.

Sources: Annex Table 2.

1.08 This public finance framework, together with the official national account statistics, provides a plausible picture of recent investment trends.^{8/} As shown in Table 1.2, public investment is estimated to have averaged 10% of GDP and 44% of gross domestic investment during REPELITA III. Initially, public investment grew strongly in response to the favorable external resource situation. However, as oil prices began to weaken, the Government decided to rephase a number of major capital-intensive projects in 1983. Project implementation constraints also began to emerge, as the burden of a substantially larger investment program, especially in areas such as rural infrastructure and social services, became apparent. As a result, public investment is estimated to have fallen, in real terms, by about 18% in 1983/84. Even so, real public investment was still 29% higher than in 1978/79 (and rose by another 10% in 1984/85). On the financing side, most of the public investment during Repelita III was funded by government savings (76%) and net external borrowing (29%). Net domestic borrowing by the public sector was negative during REPELITA III, due to the large buildup of government deposits at Bank Indonesia in 1983/84 (which continued in 1984/85). The contribution of public enterprise savings (excluding Pertamina) is assumed to have been relatively small in recent years, due to the poor financial performance of many public enterprises and their dependence on the budget and subsidized credits from Bank Indonesia for investment financing.

1.09 The public finance projections in Table 1.2 are related to the base-case scenario discussed above. Although this scenario includes projections of investment, there are no simple criteria for defining appropriate shares for the public and private sectors. The Government, for its part, is keen to expand the role of the private sector in financing and implementing investment, and this is a stated objective of the REPELITA IV plan. However, in practice, private investment has been depressed during the first two years of the plan, due to the impact of excess capacity and high interest rates. Assuming some improvement in these conditions (which may be optimistic), real private investment is projected to rise on average by 7.5% per annum over the final three years of REPELITA IV. Given this trend, and the overall constraint on investible resources, public investment will have to remain tightly controlled. The projections used for this exercise assume real public investment falls by 2% in 1985/86, remains at this level in 1986/87, and then grows by only 2% per annum during the final two years of REPELITA IV. Even this trend may prove difficult to finance given the impact of lower oil prices on public savings. As shown in Annex Table 2, the fiscal projections leave a financing gap in the final four years of REPELITA IV, which is assumed to be

^{8/} The national account statistics include aggregate estimates of gross (fixed) domestic investment, based on trends in domestic construction and capital good imports. However, no breakdown by public and private sectors is provided.

covered by government borrowing (use of deposits) from Bank Indonesia.^{9/} Accordingly, by 1988/89, the large accumulation of deposits in 1984/85 is eliminated (leaving net borrowing at close to zero over the five-year period).^{10/} However, the fiscal outlook could be significantly worse, with changes in the external environment (e.g., lower oil prices) or prospects for mobilizing public resources (e.g., the impact of the recent tax reform). Therefore, the affordability of the projected public investment levels should not be taken for granted.

1.10 The investment allocations presented in Indonesia's official five-year plans are for development expenditure by the Central Government only. This concept differs from the broader definition of public investment, as used in the indicative program, in three important respects: (a) investments funded directly by public enterprises (and local authorities) either from internal funds or borrowing are excluded; (b) some recurrent expenditures, such as the fertilizer subsidy, are included; and (c) development expenditure is on an authorization (rather than cash) basis. As shown in Annex Table 2, the public finance projections imply development expenditure of Rp 52.3 trillion over the five years of REPELITA IV, about one third lower than the Rp 78.6 trillion projected in the plan document. In practice, actual budgetary allocations in 1984/85 and 1985/86 have been consistent with the available resources, and this trend is expected to continue. The real concern, therefore, is not so much that development expenditure is running excessively high, but rather that an updated planning framework is required for investment decisions. Related issues are taken up in the following section on public investment priorities and constraints.

^{9/} After rising by about 20% during 1984/85, oil and LNG revenues are expected to fall in 1985/86 and only recover to the 1984/85 level (in nominal terms) by 1988/89. The projected elasticities for non-oil taxes are: income tax, 1.2 with respect to (wrt) non-oil GDP; value added tax, 1.2 wrt manufacturing GDP; import duty, 0.6 wrt non-oil imports; export tax, 0.6 wrt non-oil exports; excise duty, 1.0 wrt private consumption; and other taxes, 1.0 wrt GDP. On the expenditure side, the budgetary subsidy for petroleum is assumed to be eliminated by 1988/89. Routine expenditures on personnel and materials (including transfers to regions) are projected to rise on average by 5% per annum in real terms during REPELITA IV, reflecting the priority attached to the funding of operations and maintenance expenses.

^{10/} There is still a concern, however, that the required levels of domestic borrowing towards the end of REPELITA IV could crowd out the private sector or fuel inflationary pressures. In this event, unless additional tax revenues could be mobilized, budgetary expenditures (including for investment) would have to be reduced further.

C. Public Investment Priorities and Constraints

An Indicative Investment Program

1.11 An indicative public investment program for REPELITA IV, consistent with the indicative scenario discussed above, is summarized in Table 1.3.^{11/} This program draws on the sectoral programs presented in Annex Table 3 and discussed in Part II of this report. After making an aggregate adjustment to exclude recurrent expenditures and projects funded by Pertamina, these sectoral programs can be integrated with the projections of total public investment and major financing sources (the domestic component of the budget, external and domestic borrowing, and the internal funds of public enterprises)^{12/} from Table 1.2. The "other" sectors (primarily for regional development, defense and public administration) are then calculated as a residual.

1.12 The sectoral composition of the indicative program has basically emerged from a "bottom up" approach. For each sector, consideration has been given to a range of relevant issues: the Government's objectives and targets, implementation constraints, the role of the private sector and the priority of individual project proposals. An attempt has also been made to ensure broad consistency between the sectoral programs and the macro-economic projections of resource availability and development trends. However, this is in no sense an "optimal" program. There are also a number of areas where further updating and follow-up is required:

- (a) Although 1984/85 and part of 1985/86 are now past, no actual data for these years were available for use in this report. Wherever possible, adjustments have been made to reflect the estimated pace of project implementation (e.g., for major tree crops, water resources and transmigration). However, for some sectors, the investment trends are based on budget allocations (e.g., education and health) or anticipated resource requirements (e.g., power). In so far as there are shortfalls from these levels, the proposed

^{11/} These numbers are at current prices, assuming an inflation rate of 8% per annum. In so far as actual inflation is lower (as seems likely in 1985/86), the same levels of real investment could be financed with smaller allocations.

^{12/} Note that external and domestic borrowing are presented on a gross basis in Table 1.3. Therefore, for consistency, amortization payments (estimated for domestic borrowing) are deducted from government and public enterprise savings.

Table 1.3: INDICATIVE PUBLIC INVESTMENT PROGRAM FOR REPELITA IV
(in Rp billion at current prices)

Sector	Investment costs						Financed by			
	1984/85	1985/86	1986/87	1987/88	1988/89	Total	GOI budget	External loans	Domestic loans a/	PE funds
Major tree crops	497	613	718	780	869	3,508	352	1,040	1,463	653
Water resources	603	657	893	793	814	3,760	2,599	1,161	0	0
Manufacturing	1,039	1,088	980	890	800	4,797	502	3,358	567	370
Mining	288	131	203	170	200	992	268	705	19	0
Petroleum	1,463	1,561	1,603	1,530	1,706	7,862	265	678	52	6,868
Power	1,596	1,896	1,684	1,886	2,160	9,222	1,760	5,839	0	1,823
Transport	1,370	1,384	1,251	1,439	1,647	7,091	3,351	3,551	170	21
Telecommunications	103	258	464	519	584	1,928	0	503	718	708
Housing	207	291	279	318	355	1,451	291	300	837	23
Transmigration	466	542	593	640	690	2,931	2,461	450	0	0
Education	1,502	1,511	1,795	1,888	1,981	8,676	7,336	1,341	0	0
Health	253	255	352	390	387	1,638	1,230	408	0	0
Other	1,570	1,733	1,964	2,790	3,281	11,338	4,087	7,825	804	(1,379)b/
Sub-total	10,957	11,920	12,810	14,032	15,474	65,192	24,521	26,957	4,629	9,085
Less:										
Recurrent component	1,008	1,188	1,225	1,376	1,510	6,307	6,307			
Pertamina funds	1,052	1,322	1,416	1,455	1,624	6,868				6,868
Total	8,897	9,410	10,169	11,201	12,340	52,017	18,214	26,957	4,629	2,217

a/ By public enterprises only.

b/ Negative number indicates that internal funds of public enterprises, as estimated by sector (excluding Pertamina), are larger than assumed in macro-economic projections.

Sources: Annex Tables 2 and 3.

Table 1.4: DEVELOPMENT EXPENDITURE AND PUBLIC INVESTMENT a/

Sector	in Rp billion				in % of total			
	Development expenditure		Indicative program b/		Development expenditure		Indicative program b/	
	REP. III Actual	REP. IV Plan	REP. IV Budget	REP. IV Total	REP. III Actual	REP. IV Plan	REP. IV Budget	REP. IV Total
Major tree crops c/d/	683	1,673	1,392	3,508	2.1	2.2	2.7	5.4
Water resources c/	2,291	6,393	3,760	3,760	7.0	8.5	7.3	5.8
Manufacturing	4,079	5,972	3,860	4,797	12.5	7.9	7.5	7.4
Mining	2,466	2,497	973	992	7.6	3.3	1.9	1.5
Petroleum c/	501	1,781	943	7,862	1.5	2.4	1.8	12.1
Power c/	2,208	7,848	7,399	9,222	6.8	10.4	14.4	14.1
Transport	4,193	9,107	6,901	7,091	12.9	12.0	13.4	10.9
Telecommunications c/	153	519	503	1,928	0.5	0.7	1.0	3.0
Housing c/d/	250	700	591	1,451	0.8	0.9	1.1	2.2
Transmigration	1,604	3,824	2,931	2,931	4.9	5.1	5.7	4.5
Education	3,398	11,540	8,676	8,676	10.4	15.3	16.9	13.3
Health	736	2,052	1,638	1,638	2.3	2.7	3.2	2.5
Other	10,043	21,704	11,913	11,338	30.8	28.7	23.1	17.4
Sub-total	32,605	73,610	51,478	65,192	100.0	100.0	100.0	100.0
Plus:								
Fertilizer subsidy d/	1,524	3,000	3,010		4.7	4.0	5.8	
Total	34,129	78,610	54,488		104.7	104.0	105.8	

a/ For REPELITA IV, planned development expenditure and the budget component of the indicative program are roughly comparable.

b/ Total program includes recurrent component and investments funded by Pertamina. Budget numbers cover SOI budget and external loans only.

c/ Estimated for REPELITA III actual.

d/ Estimated for REPELITA IV plan.

Source: Annex Tables 1 and 3.

investments could be rephased into later years, without increasing resource requirements for REPELITA IV as a whole.^{13/}

- (b) The residual resources available for "other" sectors are constrained in the indicative program, compared to actual budgetary allocations in recent years (see Table 1.4). Careful scrutiny of the priority of these programs is therefore required. In some cases (e.g., regional development), additional funding may be justified, in which case the allocations to other sectors would have to be cut back even further.
- (c) It is hard to overlook the negative number in the final column of Table 1.3 for "other" sectors. This indicates that the internal funds of public enterprises, as estimated by sector, are larger than assumed in the macro-economic projections. The major reasons for this discrepancy are the estimated contributions of PLN, Perumtel and the tree crop estates. In addition, including projects funded by Pertamina would increase the estimate of public enterprise funds by fourfold and increase the estimate of total public investment by over 13%.
- (d) As far as possible, the sectoral programs used in Table 1.3 have been built up from World Bank staff views on investment priorities. However, due to either data or expertise constraints, this has not always been possible. Some important examples include manufacturing projects not under the Ministry of Industry, Pertamina's investments in petroleum exploration and development, and components of the transport program. While some broad judgements have been made on investment levels and priorities in these areas, more project-specific analysis is still required.

1.13 The sectoral composition of the indicative program and its budgetary component are summarized in Table 1.4; comparable data on actual development expenditure during REPELITA III and as planned for REPELITA IV are also shown. Given the broader definition of public investment used in the indicative program (see para. 1.10), it is only possible to compare the budgetary component with past and planned trends in development expenditure.^{14/} However, on this basis, this table shows clearly that the indicative program

^{13/} On the other hand, the shortfalls may indicate implementation problems that could constrain investment levels in later years as well. It is also important to ensure that the opportunity for rephasing has not been pre-empted by resource reallocations to other sectors.

^{14/} Note that the budgetary component of the indicative program is defined to include all external loans, even though some of these are not channelled through the budget (and others are not captured in the development expenditure estimates). The indicative program is also on a cash basis, while development expenditure is based on authorizations (although the difference is assumed to be small over the five-year period of REPELITA IV).

basically reinforces and extends the priorities identified in the plan. In particular, as compared to actual trends during REPELITA III, the indicative program proposes a reallocation of development expenditure away from the industrial sectors (manufacturing and mining) and towards economic infrastructure (water resources, power and telecommunications) and social services (education and health). Such a reallocation is justified by: (a) the relatively limited development of economic and social infrastructure in Indonesia, compared to other countries in the region (see Table 1.5); and (b) the Government's objective to give an expanded role to private investment in other sectors.^{15/} Unfortunately, without historical estimates, it is impossible to calculate comparable trends on sectoral composition for total public investment. However, it is evident from Table 1.4, that the focus on development expenditure can exaggerate the importance of those sectors, such as education and health, that are heavily dependent on budgetary funding. With growing use of domestic borrowing and public enterprise funds in other sectors, it is possible that the effective reallocation of resources is less dramatic than indicated by the trend in development expenditure.

1.14 The indicative program represents a serious effort to cut back excessively large programs and eliminate low priority projects. For all sectors, allocations in absolute terms are lower than projected in the plan and physical targets are reduced accordingly (see Table 1.6). However, as indicated in Section B above, there is a legitimate concern, heightened by recent trends in oil prices, that the resource outlook could deteriorate from the indicative scenario.^{16/} In this event, further cuts in public investment, no matter how painful, would have to be made. Some relevant priorities are indicated below:

- (a) There are a number of sectors where implementation constraints could well lead to investment shortfalls from the levels projected in the indicative program, irrespective of resource availability. In the tree crops and education sectors, for example, continuation of recent trends could lead to savings of Rp 900 billion and Rp 1,800

^{15/} In practice, the private sector also plays an important role in the power, education and health sectors. The future development of private activity in these areas will have a significant impact on public investment requirements.

^{16/} For example, if nominal oil prices were to fall to US\$20 per barrel (and stay at that level), Indonesia could lose an additional US\$ 7.4 billion in foreign exchange (18% of projected non-oil imports) and Rp 11.9 trillion in government revenues (15% of projected expenditures) over the next three years.

Table 1.5: SELECTED DEVELOPMENT INDICATORS a/

Indicator	Units	Indo- nesia	Thailand	Phili- ppines	Malaysia	Korea
GDP per capita	US \$	580	790	820	1,860	1,910
Power						
Consumption per capita	kWh	99	333	390	676	1,204
Electrification ratio	%	12	41	43	61	95
Telecommunications						
Telephone density	Per 100	0.4	1.1	1.2	6.3	11.7
Education						
Gross enrollment ratios						
-Primary	%	97	96	84	96	99
-Secondary	%	27	29	53	65	84
-Higher	%	4	4	21	4	22
Health						
Infant mortality rate	Per '000	102	51	51	29	32
Population per physician	'000	11.5	7.1	8.0	7.9	1.4

a/ Most data are for 1981 or 1982. Otherwise latest available data are used.

Source: World Bank staff estimates.

Table 1.6: PHYSICAL ACHIEVEMENTS AND TARGETS

Sector	Units	REP. III			Z change IP from	
		Actual	Plan	IP a/	REP. III Actual	REP. IV Plan
Major tree crops						
Planting programs	'000 ha	542	1,362	1,011	86.7	(25.8)
-Rubber	'000 ha	243	562	378	55.3	(32.7)
-Oil palm	'000 ha	120	454	313	161.1	(31.1)
-Coconut	'000 ha	178	346	320	79.5	(7.5)
Water resources						
Irrigation program	'000 ha	2,051	2,140	1,420	(30.8)	(33.6)
-New systems	'000 ha	334	600	346	3.6	(42.3)
-Rehabilitation	'000 ha	730	360	614	(15.9)	70.6
-Tertiaries	'000 ha	522	720	142	(72.8)	(80.3)
-Swamps	'000 ha	465	460	318	(31.6)	(30.9)
Power						
New PLN capacity	MW	1,524	3,255	4,222	177.0	(19.7)
Telecommunications						
New exchange lines	'000 no	228	750	325	42.4	(56.7)
Housing						
New Perumnas/BTN units	'000 no	183	300	300	64.4	0.0
Transmigration						
Families settled	'000 no	500	750	600	20.0	(20.0)
-Sponsored	'000 no	370	500	400	8.1	(20.0)
-Spontaneous	'000 no	130	250	200	53.8	(20.0)
Education						
New public enrollments	'000 no	8,173	3,430	2,872	(64.9)	(16.3)
-Primary	'000 no	6,464	445	445	(93.1)	0.0
-Junior secondary	'000 no	1,195	1,648	1,434	20.0	(13.0)
-Senior secondary	'000 no	514	809	611	18.9	(24.5)
-Higher	'000 no		529	381		(27.9)

a/ Indicative program.

Source: GOI, REPELITA IV plan and World Bank staff estimates.

billion respectively over the next three years.^{17/} Such shortfalls, however, would have serious developmental consequences, without significant reductions in import requirements. In the case of tree crops, the impact on non-oil exports would result in a net loss of foreign exchange. Therefore, the correct response to lower oil prices would be to redouble efforts to improve implementation performance in these areas.

- (b) There is, however, scope for selectively reducing public investment, even in the priority social sectors. In the education sector, the INPRES program for primary school construction has now largely met its objectives. Under the indicative program, INPRES funding for primary education is assumed to be phased out (or switched to other programs) by the end of REPELITA IV. However, by advancing this date to 1986/87, additional savings of Rp 580 billion could be realized. In the health sector, public investment in new hospital capacity warrants close scrutiny. The indicative program includes Rp 130 billion for 18 new hospitals during REPELITA IV.
- (c) In the 1983 rephasing exercise, more than Rp 4,000 billion of the estimated foreign exchange savings were from four projects: the Musi refinery, Aceh olefins, Plaju aromatics and Bintan alumina. The indicative program assumes that these rephased projects remain on the shelf during REPELITA IV, an imperative that would be reinforced with even lower oil prices. However, there are possibly other proposed investments in the manufacturing, mining and petroleum sectors that need to be reevaluated. In particular, the indicative program includes lump-sum allocations for manufacturing projects outside the Ministry of Industry (Rp 1,020 billion) and for petroleum investments funded by Pertamina (Rp 6,870 billion) over the next three years. These allocations need to be justified on the basis of individual project appraisals.
- (d) Similar arguments apply to the lump-sum allocations for public investment in rail, maritime and air transport. The indicative program assumes that these investments are cut back by about 40% in 1986/87, saving an estimated Rp 970 billion over the last three years of REPELITA IV.^{18/} These lower investments levels are justified by the scope, with efficiency improvements, to handle projected traffic growth using the existing infrastructure. However, the case for the remaining investments, totalling some

^{17/} For major tree crops, the savings are based on a REPELITA IV planting program of 750,000 hectares (25% less than the indicative program). For education, the savings assume that post-primary investment remains at the 1985/86 budget level in real terms (actual investment in 1985/86 will probably be lower).

^{18/} These savings are relative to maintaining real investments at 1985/86 budget levels.

Rp 1,450 billion, could be undermined with lower oil prices and economic growth prospects. Again, therefore, individual project proposals should be carefully appraised.

Sectoral Priorities ^{19/}

1.15 The three major tree crops covered in this report are rubber, oil palm and coconut. The Government's plan target for REPELITA IV is to plant about 1.4 million ha of these crops on public estates and smallholder schemes, about 150% higher than the level achieved during REPELITA III (see Table 1.6). Tree crop programs offer substantial benefits in terms of export earnings, employment generation and regional development, and therefore deserve priority in the allocation of investible resources. However, there are serious doubts whether the estates (PTPs) and project management units (PMUs) could implement the planned programs without adverse impacts on the quality of planting and coordination of activities. Recognizing these constraints, the Government is working on an action program to address implementation problems in a number of key areas (including manpower training and agency coordination). Even so, it is unlikely that more than 1.0 million ha could be planted during REPELITA IV, one third below the plan target. Given the limited management and financial capacity of the PTPs, their development should be concentrated on: (a) new block-planting of oil palm in areas where new settlement is warranted; (b) the completion of existing NES/PIR projects; and (c) some limited new NES/PIR rubber development in transmigration areas. The main burden for smallholder rubber development would then fall on PMU-based schemes.

1.16 The indicative program for water resources is designed to provide irrigation for 1.4 million ha. Recognizing resource constraints, and changing sector priorities, this program is about one third smaller than implemented during REPELITA III and planned for REPELITA IV. On Java, there is very little scope for new irrigation development and basic rehabilitation of existing schemes is almost completed. Therefore, to sustain rice self-sufficiency, the indicative program gives priority to: (a) completion of ongoing projects, including two multipurpose dams (Wadas Lintang and Kedung Ombo); and (b) intensive system upgrading, to improve operations and facilitate maintenance. Further investments in major multipurpose dams on Java (e.g., Jatigede and Wonarejo) need to be carefully evaluated in terms of their potential contribution to flood control, water supply and hydropower, as well as to irrigation development. However, given the overall resource constraint, the indicative program includes only minimal allocations (primarily for land acquisition) for these projects during REPELITA IV. On the Outer Islands, the scope for new irrigation development, including swamp reclamation for transmigration sites, is more extensive. Total investment costs are estimated to be 41% less than allocated in the plan, due to the smaller size and changing composition of the irrigation program (away from new large-scale systems), as well as lower

^{19/} This section provides a brief summary of the sectoral investment projects identified in Part II of this report. Project implementation and financing issues are discussed separately below.

prices for civil works contracts. Over 90% of the indicative investment program is related to ongoing projects. Although Java still accounts for about 60% of total investment costs, 66% of new projects are located on the Outer Islands.

1.17 The plan projects a growth rate for the manufacturing sector of 9.5% per annum, including 17% per annum in the machinery, metals and basic chemicals subsectors during REPELITA IV. The overall growth rate is significantly higher than projected in the indicative scenario discussed above. Furthermore, the plan's related targets for capacity expansion may be exaggerated, given the excess capacity that presently exists in many subsectors (e.g., cement and car tires). The total cost of ongoing and proposed projects under the Ministry of Industry is projected to rise from Rp 46 billion in 1984/85 to an annual average of Rp 618 billion over the subsequent two years. The major investments in new capacity are for the Aceh paper project (Rp 410 billion), the Kaltim urea plant (Rp 300 billion) and the Gresik ammonia plant (Rp 190 billion). Most of the other projects are for rehabilitation or improvement of existing capacity for production of fertilizers, cement, engineering goods, ships, salt and textiles. Similar information is unavailable for projects under other Ministries, including investments in high-technology, defence and railway industries. But, judging from budget allocations, these projects may have cost more than Rp 700 billion per annum during 1984/85 and 1985/86. In later years, priority is given to completing ongoing projects. Some new investment, especially for subsector restructuring, may also be justified. However, under present conditions, all major public investments (ongoing and new) should be carefully reevaluated. In the absence of detailed project information, but reflecting the overall resource constraint and the potential role of the private sector, the indicative program assumes that total public investment in the manufacturing sector declines in nominal terms over the remainder of REPELITA IV.

1.18 The indicative investment programs for mining and petroleum, as presented in Table 1.3, exclude expected private equity contributions to joint ventures and product-sharing arrangements during REPELITA IV. Of the balance, Rp 6,370 billion is for Pertamina's own investments in oil and gas development (about which little is known). One priority in this area is for additional investment in interfuel substitution (especially by gas) to stretch out export earnings from oil. Lead times on such investments are long, and therefore preparation is needed now for the effects to be beneficial in the 1990s. Other major projects, that are ongoing or deserve priority during REPELITA IV, include Bukit Asam coal (Rp 490 billion), Ombilin II coal (Rp 200 billion), Musi refinery modernization (Rp 130 billion), the refinery optimization program (Rp 160 billion), the LPG export terminal (Rp 50 billion) and phase I of the aromatics plant (Rp 420 billion). The three major mining and petroleum projects rephased in 1983 - Bintan alumina, Plaju aromatics (phase II) and the olefins complex - are excluded from the indicative program. These projects, with potential investment costs of Rp 3,200 billion during REPELITA IV, are not considered to be justified under present balance of payments and world market conditions. Any decision to reactivate these projects would have to be based on the willingness of a foreign partner to make a significant equity contribution towards their cost, together with favorable long-term marketing arrangements.

1.19 The Government's primary target for the power sector during REPELITA IV is to expand PLN's installed capacity by 5,225 MW, a 38% increase over the 1983/84 level. To evaluate this target, World Bank staff have prepared a range of illustrative scenarios using alternative assumptions on economic and policy variables affecting power development (see Part II). The scenario chosen for the indicative program is based on economic trends similar to the indicative scenario discussed above, but with some cutbacks in the Government's targets for electrification and captive plant takeover. Under these assumptions, the projected increase in PLN's installed capacity during REPELITA IV is 4,222 MW, 20% below the plan target. About one half of the indicative investment program is for generation, primarily in hydro and coal-fired plants. Over 80% of the generation investments during REPELITA IV are for committed projects (i.e., construction started in 1984/85 or earlier). Major expenditures during REPELITA IV for hydro plants are for Mrica (Rp 470 billion), Saguling (Rp 330 billion) and Girata (Rp 640 billion); the major expenditure on coal-fired plants is for Suralaya (Rp 610 billion). About two thirds of the investments are on Java, where the major generation projects are located. Investments on the Outer Islands give greater emphasis to transmission and distribution, and to diesel plants within the generation program. Further work is required to ensure that the indicative program is a least-cost solution. Particular attention should be given to the sequencing of generation projects on the Outer Islands (where the analysis is complicated by the absence of a unified grid) and to the overall balance between generation and transmission and distribution investments. On the one hand, an expanded electrification program may be justified to make better use of lumpy generation investments coming on stream. However, in light of the expected resource constraint, it would also be appropriate to review standards and unit costs for the electrification program, to see if the targets can be met with less money.

1.20 An efficient transport system is vital in Indonesia, due to the size, population and geography of the country. The indicative program gives priority to the roads subsector, with particular emphasis on the maintenance and betterment programs. Corresponding steps have been made in the planned investments for railway infrastructure and rolling stock, port facilities and shipping fleet development. These are all areas where significant increases in capacity can be achieved with improved operational efficiency. Investment priorities identified for the three major subsectors during REPELITA IV are as follows:

- (a) In the roads subsector, the plan target to rehabilitate/upgrade 18,000 km of roads is feasible in terms of implementation capacity. The major concern is to ensure that adequate budgetary resources are provided to maintain the coverage and standards of the program. On the construction side, it is doubtful whether the plan target for new rural roads (12,000 km) can be achieved. Indeed, a more selective rural roads program, supported by regular maintenance, would probably be more appropriate. The target for new toll roads (198 km) also needs to be reevaluated, taking into account the effective contribution they can make to relieving traffic congestion. In urban areas, priority should be given to improving traffic management rather than expanding public transport services. In parti-

cular, further public investments in city buses should be kept to a minimum.

- (b) In the railway subsector, the plan gives priority to increasing transport capacity and service quality. Both of these objectives can perhaps best be served, in the immediate future, by improving PJKA's management and the operational efficiency of the existing railway system. Therefore, present plans to purchase new rolling stock (25 locomotives, 210 passenger cars and 200 freight wagons) would seem to be excessive. Other major investments in new track and infrastructure should also be deferred, pending a major overhaul of PJKA's operations and preparation of a medium-term railway plan. In this way, expenditures during the remainder of REPELITA IV can be focussed on completing ongoing projects (e.g., the rail link for Bukit Asam) and rehabilitation.
- (c) For the maritime subsector, the plan proposes an ambitious program of port and shipping development. However, as in the case of railways, the immediate priority is efficiency improvement rather than capacity expansion. For major ports, priority investments over the next five years for facility rehabilitation and container handling are to be financed under projects supported by the World Bank and ADB. Additional port investments during REPELITA IV should be minimal. As regards shipping, the major issue relates to the proposed expansion of the national (RLS) fleet by 420,000 DWT. Utilization rates for these ships could be increased at least three times. As a result, even allowing for the Government's new scrapping policy and rapid cargo growth, it is unlikely that more than 150,000 DWT of new capacity will be required during REPELITA IV.

1.21 The plan's primary target for the telecommunications sector is to add 750,000 direct exchange lines during REPELITA IV. This would increase capacity by more than 140% and raise the telephone density from 0.4 to 0.9 per 100 people. As shown in Table 1.5, this is still a relatively low level of development compared to other countries in the region. However, the pace of progress is likely to be constrained by Perumtel's implementation capacity. Even allowing for improvements in this area, including the impact of turnkey contracting, the expansion of subscriber connections is unlikely to exceed 325,000 lines, less than half of the official plan target. There is significant bunching of the related investment program over the next three years, with real expenditures more than doubling in 1985/86 and rising by another 72% through 1987/88. The largest component of the indicative program is for the cable network (32%), followed by exchanges (26%) and transmission (23%). In general, the proposed phasing would seem to give good overall balance, between switching/network expansion, local/long-distance facilities and urban/rural services. There are also no obviously low priority components within the investment program. In particular, two questionable projects originally proposed (e.g., a public car radio telephone system and the submarine cable link between Surabaya and Banjarmasin) have been omitted. However, if further implementation constraints occur, Perumtel will have to take steps to ensure that overall balance is maintained.

1.22 The Government's public housing target for REPELITA IV is to build 300,000 housing units, of which 140,000 would be built by Perummas and the rest by private developers with mortgage financing primarily from BTN. This program is about two thirds larger than realized during REPELITA III, for both Perummas and private developers, but would still account for only 20% of the new urban housing requirements during REPELITA IV. For the indicative program it is assumed that half of the units are low-cost units. Unlike in past years, private developers are expected to supplement Perummas' efforts to construct core units during REPELITA IV. No provision has been made for higher income houses (RKTU) and flats, which should be constructed and financed by the private sector. In the case of flats, effective demand is also a limiting factor. The indicative housing program is considered to be justified by the potential benefits, in terms of stimulating construction activity and providing a basic service to low-income households. However, to avoid shortfalls due to institutional constraints, action will be required to: (a) eliminate Perummas' backlog of partially completed and unsold units/lots; (b) strengthen BTN's capacity to handle the projected levels of mortgage financing; and (c) resolve a number of regulatory and legal issues (e.g., civil service preferences, land titling and registration).

1.23 The plan proposes moving 750,000 families under the transmigration program, of which some 500,000 families would be sponsored transmigrants. These targets are at the high end of a feasible range, and significant shortfalls have already occurred during 1984/85. The major reasons for these shortfalls are the increasing managerial demands, particularly in light of decentralization of procurement and the limited implementation capacity of the various agencies involved (especially the Ministry of Transmigration). As a result, the indicative investment program is based on a less ambitious target: 600,000 families, including 400,000 families under the sponsored program. Even this target may prove difficult to achieve. If realized, however, the impact would be significant, reducing the population growth rate of Java from 1.7% to 1.2% per annum and creating an additional 160,000 new jobs each year. Most of the viable sites for food crop agriculture in the traditional transmigration regions of Sumatra and Sulawesi have now been filled. As a result, over 50% of the transmigration during REPELITA IV is assumed to be to Kalimantan and Irian Jaya. As more remote sites are selected, higher productivity farming systems and second-stage agricultural development will become increasingly important to ensure settlers adequate output and incomes. Note that the indicative investment program does not include any provision for rehabilitation of existing transmigration sites or assistance (e.g., mapping) for spontaneous transmigrants. These may well be cost-effective expenditures, that could be financed by reducing the number of new sponsored transmigrants.

1.24 The Government's enrollment projections for the education sector are summarized in Table 1.6. With the virtual attainment of universal primary education, little further growth is projected in primary school enrollments. As a result, even allowing for improved staffing ratios and teacher attrition, new primary teacher demand is likely to fall to an annual range of 20-25,000. Some of the teacher training high schools (SPGs and SPOs) should therefore be converted to use as secondary schools, especially in provinces where the primary teacher surplus is most pronounced. Similarly, the country's new primary school construction requirements are minimal, with

investment during REPELITA IV being limited mainly to school rehabilitation and teacher housing (for schools in remote areas). Accordingly, the official targets for new primary school teachers and classrooms would seem to be grossly exaggerated. On the other hand, post-primary enrollments are projected to grow rapidly, as the Government gives priority to improving the supply of skilled manpower. Although achievement of these targets would be highly desirable, the related expansion of public investment is likely to be constrained by the project implementation capacity of the Government. Therefore, unless some reduction in post-primary enrollment targets is accepted, the quality of education will suffer. Accordingly, for the indicative program, the end-plan targets for public enrollments have been cut by 5% at the junior secondary level, 10% at the senior secondary level and 15% for higher education.

1.25 In order to cost out an indicative investment program for the health sector, the following assumptions have been made on physical progress during REPELITA IV:

- (a) The community health program warrants top priority in the provision of health facilities. Consistent with the plan targets, the indicative program includes provision for the addition of 500 health centers, 6,000 subcenters and 1,500 mobile centers. In addition, provision has been made to rehabilitate or expand another 10,000 centers. The drug subsidy, available to patients at health centers, is assumed to be capped at its present level in real terms.
- (b) The plan is less explicit on the targets for medical care, in part because of the important role the private sector can play in this area. The indicative program provides for 18 new hospitals, while another 341 hospitals are slated to be rehabilitated or improved.
- (c) The disease control and nutrition programs are important elements of the Government's strategy to improve health status, especially for infants. The plan targets in these areas are appropriate. However, some rephrasing will be required to reflect underfunding of these programs in 1984/85 and 1985/86.

The major components of the indicative health program are for medical care (34%), community health (32%), disease control (23%) and nutrition (6%). This composition is broadly similar to that proposed in the plan. However, compared to budgeted expenditures during REPELITA III, it represents a major reallocation from community health to disease control and nutrition. This trend reflects the priority attached to these last two programs. Although community health remains a priority as well, the phase of rapid expansion of facilities is now over and the drug subsidy needs to be capped. It may also be possible to make further cuts in the medical care program, especially in areas where there is scope for private sector development.

Project Implementation

1.26 Development expenditure by the Central Government rose by 9% per annum in real terms during REPELITA III. With such a rapid expansion, it is hardly surprising that progress in many sectors became increasingly hampered by project implementation constraints. As a result, by the end of the plan period, outstanding authorizations to spend (SIAPs)^{20/} stood at Rp 3,040 billion, equivalent to 30% of development expenditure in 1983/84. Furthermore, the sectoral allocation of SIAPs was highly skewed, exceeding 100% of annual expenditure for education and transmigration but less than 2% for manufacturing, mining and defense. This pattern would probably have been even more marked, if authorizations had not already been reallocated to sectors that could readily absorb them.^{21/} Absorption is obviously higher in sectors, such as manufacturing and mining, where there are large well-defined projects, which can often be constructed on a turnkey basis. However, investments in rural infrastructure and social services require substantially more locally-trained manpower and effective channels for decentralized administration. Therefore, the priority given to these sectors for REPELITA IV, in both the plan and the indicative program, will bring project implementation constraints into even sharper focus.

1.27 Implementation constraints, while they may manifest themselves as project-specific problems, are often related to more fundamental institutional factors. For Indonesia, these factors are described in some detail in the recent World Bank report on Management Development.^{22/} They include: (a) the general shortage of trained manpower (technical, professional and managerial), and related weaknesses in university education and training programs; (b) civil service policies, including the fragmented compensation system, that do not promote high levels of competence or full-time job commitment (especially at middle-management levels); (c) the high premium on avoiding conflict and seeking consensus, that can lead to drawn out, and sometimes inconclusive, decision making; and (d) the emphasis on management by control, that overburdens higher-level officials while more junior staff have limited opportunities to develop skills and responsibility. These are all complex and sensitive issues, that go well beyond the scope of this report. Nevertheless, it is evident that they impinge on the capacity of the Government and public agencies to plan, implement and use projects efficiently. For REPELITA IV,

^{20/} SIAPs are authorized development expenditures not spent in the budget year. The maximum period of carryover was reduced from three to two years for the 1985/86 budget.

^{21/} Pressure to do this comes from the balanced-budget concept used in Indonesia, which requires budgeted and authorized expenditure to be close in aggregate. During 1983/84, for example, authorizations for the mining sector were increased late in the fiscal year to a level seven times higher than budgeted.

^{22/} The World Bank, Indonesia: Management Development (Report No. 4965-IND, May 20, 1985).

actions could be initiated to relieve skilled manpower constraints (e.g., through technical assistance, training programs and investments in higher education) and to study appropriate civil service reforms (including institutional changes and compensation issues). However, it would be unrealistic to expect major breakthroughs in the near future. Rather, it would be more appropriate to take related constraints into account in the selection and design of projects. In general, simple projects, involving well-defined funding channels and administrative responsibilities, would seem to have the best chance of success under present conditions.

1.28 On the other hand, there are a range of regulatory and procedural bottlenecks, where timely action could have a significant impact on implementation performance over the next two to three years. Most of these bottlenecks cut across sectors, and related reforms will require broad-based government commitment and support. The Government's willingness to tackle these issues has been amply demonstrated by the recent changes in customs procedures and investment regulations. Other areas, where implementation constraints persist, include:

- (a) Procurement. Delays in procurement are most serious for larger (over Rp 500 million) equipment and civil works contracts, where the procurement process can take up to two years to complete. Major problems appear to be: (i) lack of standardized prequalification and contract documents; (ii) failure to initiate the procurement process early enough; (iii) complicated bidding and bid evaluation procedures; and (iv) confusion on the procedures to be followed. The Government's preference for local materials and consultant services, while legitimate, has sometimes led to further delays in contract awards.^{23/}
- (b) Land acquisition. Virtually all projects require the acquisition of land by the Government and its transfer to project agencies. However, this process is difficult and time-consuming in Indonesia, especially on Java and around major cities. A major constraint is the Government's reluctance to use its right to eminent domain. Other problems include: (i) cumbersome administrative procedures; (ii) deficiencies in land titling and registration; and (iii) difficulties with regard to price negotiations.
- (c) Budget procedures. The understanding in public agencies of the Government's budgetary procedures is very uneven. One result is that many agencies are reluctant to enter into multi-year contracts or initiate the procurement process prior to DIP finalization, even though this is permitted by Ministry of Finance procedures. The procedure for DIP revision is also complex, making it difficult to reallocate funds within and between projects. Further delays can occur in the release of funds, because of either cumbersome reim-

^{23/} The limited capacity of local contractors can also lead to higher costs and longer implementation periods.

bursement procedures or the failure of agencies to submit proper documentation.^{24/}

The Government has already taken a number of steps to clarify procurement and budgetary procedures.^{25/} And, a committee chaired by the Minister for the Utilization of the State Apparatus is examining the complex problems of land acquisition. Equally important, BAPPENAS is establishing an implementation secretariat, to identify and resolve systemic implementation problems. However, even greater attention to these issues will be required, if the physical targets underlying the indicative program are to be realized.

1.29 Finally, there are some sector-specific constraints that will continue to impinge on project implementation performance if action is not taken. Related problems identified in Part II include:

- (a) Agency coordination. This is emphasized as a constraint in the tree crops and transmigration sectors. For tree crops, the Government is working on an action program to address implementation problems, including agency coordination. At present, responsibilities within the Department of Agriculture are unclear for: (i) PTP and private estate development; (ii) integration of smallholder and NES schemes; (iii) coordination with the Ministry of Transmigration on land acquisition; and (iv) processing and marketing of smallholder crops. The functions of Team Khusus, established in 1979 to improve project implementation, also need to be reviewed. For transmigration, the new Ministry of Transmigration has taken some actions to streamline the various steps associated with the settlement of transmigrant families. However, coordination with other agencies responsible for follow-up development activities (e.g., input supply, extension, credit and land titling) is still weak.
- (b) Local contractors. The performance of local contractors is identified as a constraint in both the power and telecommunications sectors. Two basic reasons are apparent: (i) the general weakness of the domestic construction industry in Indonesia; and (ii) the limited project management capacity of PLN and Perumtel. At present, for example, Perumtel is experiencing serious problems with the numerous small contractors involved in cable network construction. To help resolve these problems, Perumtel is considering hiring project management consultants to supervise ongoing work. Preparations have also been made to introduce turnkey contracting for future cable network construction.

^{24/} In 1982/83 and 1983/84, the Ministry of Finance may have also deliberately delayed fund releases, because of uncertainties in resource availability. However, there has been less evidence of this restraint over the past two years.

^{25/} For example, a manual on budgetary procedures has been prepared, and project managers are being given a course on the subject.

- (c) Sector policies. The impact of sector policies on institutional performance and project implementation is well illustrated in the housing sector. In order to achieve the REPELITA IV targets, action will be required to: (i) modify regulations which prevent more private construction of low cost housing; and (ii) enact mortgage legislation to secure BTN loans.

In all of these areas, the evident problems largely reflect broader institutional and manpower weaknesses in the economy. However, the examples provided suggest that short-term actions can be taken in the sectoral context, to minimize the impact of these weaknesses and improve project implementation performance.

Financing Issues

1.30 The financing plan underlying the indicative program is similar to that realized during REPELITA III. In particular, close to 90% of public investment (excluding projects funded by Pertamina) is to be financed from budgetary resources, including onlending of external loans, with the balance coming from the internal funds and domestic borrowing of public enterprises. In recent years, the Government has placed strict limits on the utilization of export credits for public investment,^{26/} in order to contain the country's external debt obligations and to help keep the lid on "bad" projects. At the same time, public enterprises have been encouraged to make greater use of internal funds and domestic borrowing (at market rates)^{27/} to finance their investments. In principle, this switch in financing away from budgetary sources would be desirable: it provides an incentive for public enterprises to become commercially viable and to be more selective in their choice of projects. However, the financial position of many public enterprises, especially those in the industrial and transport sectors, is not strong.^{28/} Furthermore, an immediate improvement in profitability or creditworthiness is unlikely, given managerial weaknesses and present economic conditions (with high interest rates and weak domestic demand). Therefore, for REPELITA IV, it is

^{26/} The ceiling was set at US\$1.5 billion for 1984/85 and US\$1.3 billion for 1985/86. Eligible projects for export credits are specified and prior approval for opening negotiations is required from the Coordinating Minister for Economic, Financial and Industrial Affairs.

^{27/} Domestic borrowing, as defined in this report, includes subsidized liquidity credits from Bank Indonesia. Since the financial reforms of June 1983, the Government has limited the number of programs eligible for liquidity credits and increased onlending rates to 12% in most cases.

^{28/} A case in point is the PJKA (the Indonesian State Railway). All of PJKA's investment requirements are met by the Government which also provides a subsidy to cover operating losses (presently running at Rp 60 billion per annum) and makes a separate contribution towards maintenance.

only realistic to expect that the large bulk of public investment will continue to be financed from budgetary resources.

1.31 This said, the dependence on budgetary resources still varies significantly from sector to sector. As shown in Table 1.3, development expenditure funds the bulk of public investment in water resources, transport, transmigration, education and health, but less than 30% in petroleum and telecommunications. There is also considerable scope for improving the cash generation of public enterprises in certain sectors, such as power and telecommunications. Under the indicative program, for example, the self-financing ratios for PLN and Perumtel are both projected to rise substantially during REPELITA IV: from 3% to 33% and from 31% to 51% respectively. In addition, Perumtel is expected to make a significant contribution to general revenues, through development fund payments and income tax.^{29/} Perumtel has also started to borrow domestically over the past year and could finance up to one third of its investment program from this source during REPELITA IV. Other public enterprises that are expected to make significant use of domestic borrowing during REPELITA IV include the PTPs (tree crop estates), BTN (the housing mortgage bank) and Jasa Marga (the toll road agency). As indicated in the sectoral discussions of Part II, the projected increases in cash generation and borrowing capacity are both dependent upon efforts to improve the financial viability of these public enterprises. In part, this is a matter of raising revenues through consumption/traffic growth and more realistic charges and lending rates. However, equally important are improvements in operating efficiency (e.g., PLN's fuel consumption and system losses) and financial management (e.g., Perumtel's billing collection and BTN's arrears reduction). For the PTPs, some injection of government equity or debt conversion will also be required.^{30/}

1.32 Cost recovery is important, not only for the financial viability of public enterprises, but also to finance much-needed recurrent expenditures. During REPELITA III, routine expenditure by the Central Government rose by only 3.7% per annum in real terms; excluding debt service payments and subsidies, the residual allocated for personnel and materials rose by only 1.6% per annum. Furthermore, the sectoral composition of routine expenditure has generally been fixed, with little flexibility to move resources to priority areas. As a result, allocations for operations and maintenance (O&M) have become increasingly inadequate, reducing the returns on investment and the quality of services provided. In a number of sectors, such as irrigation and education, efforts have been made to overcome the resource constraint by providing for recurrent items in the development budget. The Government has

^{29/} Public enterprises are subject to a 35% income tax and contribute 55% of retained earnings to the Government's Development Fund. PLN has been exempted from income tax since 1980/81.

^{30/} There is also scope for financing tree crop investments through moderate export taxes, which could potentially cover the projected requirement of budgetary resources. If channelled through the Export Crops Fund (DTE), these revenues would be directly available for the tree crops program.

also budgeted for real growth in routine expenditure of more than 15% during 1985/86, including substantial increases in civil service/teacher salaries. This is an encouraging trend. Nevertheless, there is also a case for financing more of these recurrent expenditures through cost recovery on public services. While there are legitimate social reasons for wanting to limit the burden of cost recovery on the poorer segments of society, the sectoral discussions in Part II (e.g., for tree crops, irrigation, housing and health) indicate that even poor beneficiaries can often afford to pay significantly more for public services than presently required (and often do for private alternatives).

1.33 The scope for increasing tariff charges (by PLN and Perumtel) and lending rates (by BTN) has been touched on above. However, two other potential areas of cost recovery are also worth highlighting:

- (a) In the irrigation sector, direct cost recovery through land tax (IPEDA) and water charges is very low (generally around 10%-15% of farmers' net profits and 5% of the incremental earnings from irrigation investments). Unfortunately, higher water charges may not always be appropriate, given that many beneficiaries are close to the absolute poverty level. An alternative approach, therefore, would be to modify the present IPEDA system, to provide for better land valuations (capturing the returns to irrigation investment) and to earmark a portion of the revenues for irrigation O&M. General increases in IPEDA are also appropriate for improving municipal finances and funding the development of urban services.
- (b) In the social sectors, the share of public costs recovered through fees is relatively low: about 10% for health services (including recurrent costs), 6% for junior secondary education, 10% for senior secondary education and 13% for university students. Furthermore, the real level of fees has been steadily eroded by inflation in recent years. Therefore, fee adjustments should be considered, possibly with special measures (e.g., means-tested scholarships) to protect lower-income groups. There may also be a case for the Government providing grants-in-aid or credit subsidies to private health and education facilities, especially where these can attract them into rural and low-income areas. The end result could well be to reduce the net burden on the Government's budget, for both capital and subsequent recurrent costs.

D. Planning and Budgeting Procedures

Investment Planning

1.34 The most important public planning documents in Indonesia are the five-year REPELITA plans prepared by BAPPENAS. These plans provide an extremely useful summary of the Government's view of economic prospects and the implications for sectoral programs. However, as a basis for identifying investment priorities, the plans have a number of limitations:

- (a) while the plans do discuss broad issues of sectoral strategy, they do not provide a comprehensive listing of project proposals and costs;^{31/}
- (b) the broad sectoral allocations provided in the plans relate to development expenditure by the Central Government, and exclude investments financed from non-budgetary sources;
- (c) the plan allocations are not disaggregated on an annual basis, which makes it difficult to relate them to budgetary expenditures or to identify issues of project timing and phasing; and
- (d) the plan is not updated on a regular basis, to reflect changes in resource availability and implementation performance.

At the same time, many line agencies (e.g., PLN and Perumtel) do maintain sectoral investment programs, for both their own planning purposes and budget submissions to BAPPENAS. These programs include substantially more project detail than is available in the plan. However, they are often not subject to adequate scrutiny for consistency with the Government's investment priorities or expected financial and implementation constraints.^{32/} Although these discrepancies are often recognized implicitly, pressures to push ahead can still mount, especially if favorable external financing is readily available or if budget allocations (even if cut in aggregate) fail to be selective among project proposals. Unrealistic planning numbers, no matter how "unofficial", can also promote excessive investment in supporting infrastructure and upstream/downstream industries.

1.35 It is only appropriate that the primary responsibility for preparing sectoral investment programs remains with the line agencies, who are best equipped to do the job. However, it is also appropriate for BAPPENAS to provide guidelines for project selection and play an active role in ensuring macro-economic and inter-sectoral consistency. For this purpose, it would be useful to keep an inventory of project profiles, that are updated on a regular (say, quarterly) basis. As a first cut, the type of listing provided in Annex Table 3 would probably be adequate. However, at least for major ongoing and new projects, a somewhat fuller profile should eventually be prepared (perhaps as a mandatory requirement in all future appraisal reports). One possible format for this work is shown in Table 1.7. This format provides information

^{31/} BAPPENAS does prepare an annual "List of Project and Technical Assistance Proposals." However, this is really a list of project proposals for external funding, many of which will not be implemented (due to their low priority or resource constraints). Ongoing projects and projects funded entirely from local sources are excluded.

^{32/} A case in point is Perumtel's proposed investment program for REPELITA IV. This program calls for the addition of 950,000 telephone lines, 20% above the official plan target and almost 200% more than assumed in the indicative program.

Table 1.7: PROPOSED FINANCIAL PROFILES

LAST UPDATE:
BY:

PROJECT PROFILE ID:

1. Project name
2. Sector
3. Purpose
4. Capacity
5. Exchange rates
6. Prices

7. Construction period
8. Completion date
9. Related projects
10. Priority

Indicators	Currency Units	Commitment					Expenditure					Pre-jud Total		
		Year	No.	Original Amount	Carried Over	Res. Amount	Actual		Budget		Proposed			
							1987	1988	1989	1990	1991		1987	1988
I. INVESTMENT BUDGET														
A. INVESTMENT COSTS														
1. Local cost														
2. Foreign cost														
B. FINANCING SOURCES														
1. IDP														
- Govt A														
		1988												
		1989												
		1990												
		1991												
2. IDPES														
- Account A														
		1988												
		1989												
		1990												
		1991												
3. IDP														
- Enterprise A														
		1988												
		1989												
		1990												
		1991												
4. External loans														
- Creditor A														
- Creditor B														
- Export credits														
		1988												
		1989												
		1990												
		1991												
5. Domestic loans														
- Creditor A														
- Creditor B														
		1988												
		1989												
6. Other funds														
- Enterprise A														
		1988												
II. CURRENT BUDGET														
A. FINANCIAL COSTS														
1. Operations														
2. Maintenance														
B. CURRENT FINANCING														
1. New charges														
2. IDP budget														
- Income														
- Investment														
3. Other funds														
- Local govt														
- Enterprise														

Source: World Bank staff.

on: (a) the project's ownership and purpose; (b) the construction period and commissioning date; (c) estimated investment costs and financing sources; (d) some indication of the project's priority (such as the economic rate of return); and (e) other related investments, which are dependent upon, or determine, the timing of the proposed project. Note that all costs are included: whether or not they are funded from the budget, and whether or not they fall within the plan period.^{33/} For budgetary purposes, it would also be useful to provide some estimates of the recurrent expenditure requirements of the project and possible sources of financing (including user charges).^{34/}

1.36 Unfortunately, there is no easy or mechanical way to adjust the public investment program in line with revised projections of resource availability. Even if one could construct a linear ranking of all projects, many would be interrelated and their priority could change with economic conditions. It is also not feasible to go back to the drawing board and redesign the public investment program every time oil prices fall or interest rates rise. In the final analysis, much will depend on the good judgment of the key decision makers involved (as was evident in the 1983 rephasing exercise). However, the availability of up-to-date project profiles and sectoral investment programs would be a very valuable input into this decision process. It would also be helpful if BAPPENAS could identify a core program of high-priority projects, to be protected against resource shortfalls and implementation delays. Such a program should not be limited to ongoing projects or large indivisible projects in a few sectors. Rather, it should represent the minimum package of investments that the Government would want to undertake, in the event that resource availability were to be substantially reduced (say, by 10-20%).

Project Appraisal

1.37 The key to good investment planning is good project selection and design. Project appraisals are used in Indonesia, by both implementing and financing agencies (such as the World Bank). However, they are not always well integrated into the planning process and are at times not subject to adequate central direction and review by BAPPENAS. This function is critical, to ensure that the appraisals are based on consistent and realistic assumptions (e.g., for macro-economic developments and shadow prices) and to provide results that can be readily absorbed by non-specialist decision makers. For this purpose, economic cost-benefit analysis can be a very useful tool,

^{33/} Note that Table 1.7 provides a breakdown between local and foreign costs. As used in Indonesia, these terms often refer to the sources of financing. However, foreign costs should include all import requirements, whether or not they are locally financed or procured. Ideally, the import content of locally-produced goods should also be included.

^{34/} Although the profile could be further extended to include other useful indicators, such as manpower requirements, there would soon become a trade-off between completeness and manageability.

insofar as it collapses a complex set of issues into one common yardstick, such as net present value (NPV) or the economic rate of return (ERR).^{35/} However, it is equally important for decision makers to be aware of the assumptions used in the analysis, major uncertainties and risks involved, and the range of options considered. The analysis should not be simply geared towards deciding whether a project is "good" or "bad," but also highlight issues relating to project timing, size and design. In many cases, a project will preempt other investments (e.g., the use of limited gas reserves for fertilizer or power plants) or require complementary investments to be effective (e.g., the need for road access to a transmigration site). Finally, project analysis cannot just be done once at the feasibility stage and then left on the shelf. Rather, regular updating should be undertaken, especially for major projects, to reflect changes in aggregate resource availability and market conditions (while taking into account sunk costs).

1.38 For project appraisals, it is important to use prices that reflect economic benefits and opportunity costs (often referred to as shadow prices). Domestic prices are often inappropriate for this purpose, due to government interventions and other market distortions. A better approach is to use border prices, excluding the impact of trade restrictions and taxes.^{36/} For traded goods, border prices are usually readily available. However, for non-traded goods, domestic prices have to be adjusted using appropriate conversion factors. For World Bank project appraisals, a set of conversion factors has been calculated, based on the 1975 input-output table and the 1976-78 industrial surveys, but with prices updated to 1984.^{37/} The results are summarized in Table 1.8. Note that the standard conversion factor is less than 1.0, indicating that the official exchange rate understates the economic value of foreign exchange. There is also a significant variation of conversion factors among sectors and products, reflecting the differential impact of trade restrictions. For labor, the conversion factors suggest that wage rates overstate opportunity costs, especially on Java. Use of these conversion factors, therefore, would improve the estimated rate of return on projects that generate significant foreign exchange savings and employment.

^{35/} For a recent review of cost-benefit techniques, see Anandarup Ray, Cost-Benefit Analysis: Issues and Methodologies (World Bank, May 1984) and W.C. Baum and S.M. Tolbert, Investing in Development: Lessons of World Bank Experience (World Bank, July 1985). In some cases, simpler indicators, such as foreign exchange savings or jobs created, can provide a useful first approximation of a project's value. However, such indicators can also be misleading, especially if they ignore indirect impacts and other important costs and benefits.

^{36/} Border prices are intended to provide an indication of the foreign exchange cost (saving) of a project's input (output). However, border prices can also be distorted and will change over time, possibly due to the impact of the project itself.

^{37/} For a discussion of the methodology, see H. Ghanem and M. Walton, Indonesia: The Use of Shadow Prices (World Bank mimeo, August 1984).

Table 1.8: CONVERSION FACTORS FOR PROJECT APPRAISALS

Standard conversion factor	0.9
Sectoral conversion factors	
Industrial machinery	0.85
Other traded manufactures	0.8
Construction	0.8
Non-traded services	0.75
Transport	1.0
Rural unskilled labor	
Java	0.65
Outer Islands	0.8

Source: World Bank staff estimates.

The Budget Process

1.39 Project appraisals are an important input into investment planning, which in turn feeds into the budget process. Indeed, in Indonesia, many of the more difficult investment decisions are made in the context of the budget cycle. As already noted, development budget allocations for the first two years of REPELITA IV have been kept in line with resource availability and therefore have not fully funded the plan programs. However, the way in which these cuts are made is not always systematic or consistent with identified investment priorities. In part, this reflects the lack of up-to-date sectoral investment programs. However, it is also due to limitations in the budget process itself:

- (a) The budget only funds an annual time slice of the investment program, and provides no indication of the future resource impact of present investment decisions. Furthermore, under the SIAP arrangement, unspent authorizations can be carried over for a period of up to two years.^{38/} As a result, future resource requirements are difficult to predict and can often be dominated by large ongoing projects (which are not necessarily subject to further budget review).
- (b) The budget is highly fragmented, with project funding coming from a variety of sources: (i) the normal DIP allocations to government departments; (ii) external loans channelled through the BLN account; (iii) INPRES funding for local authorities; (iv) DIPP allocations

^{38/} Annual budget allocations are not intended to be multi-year commitments. However, for externally funded projects, multi-year contracts do not require annual Ministry of Finance approval.

for the tree crops sector; and (v) PMP equity for public enterprises. In any one year, there may be as many as 800 DIPs, with one project funded from several DIPs (as well as other budget allocations). There are also other financing accounts, such as the RDI, which are not incorporated into the official budget.^{39/}

- (c) The treatment of financial transactions with public enterprises is both fragmented and incomplete. For example, government equity contributions are usually made from the PMP account. However, some public enterprises receive equity through DIP allocations (e.g., PLN) or conversion of debt (e.g., Perumtel). Debt conversions, as well as funds channelled through the RDI account, are not recorded in the budget. On the other hand, substantial funds also flow into the budget from public enterprises. During 1984/85, for example, Perumtel paid more than Rp 60 billion in income tax and development fund payments.
- (d) About 25% of the locally-funded development budget is channelled to local authorities through general and sectoral INPRES programs,^{40/} allocations of IPEDA revenues and special programs for Irian Jaya and East Timor. In 1983/84, these flows totalled Rp 1,448 billion, including Rp 540 billion of general INPRES transfers and Rp 549 billion for the primary school construction program. This approach is consistent with the Government's commitment to decentralize administration and can help to overcome implementation bottlenecks. However, effective control, in terms of the planning and utilization of these funds, is minimal.

1.40 These budgetary problems are common in virtually all countries (including the United States). However, they are probably compounded in Indonesia by the recognized weaknesses in accounting and auditing procedures. Furthermore, given the dominant role of the budget in financing public investment, the impact is that much more severe. A concerted effort therefore to rationalize the budget process, and link it more closely to investment planning, could reap significant benefits. Three general points are worth highlighting. First, the budget process is not always the best vehicle for making investment decisions: the time pressures permit only a cursory review

^{39/} The RDI account is basically a revolving fund, comprising foreign loan repayments made by project units but not yet due to be repaid to the external lender. These funds are used to make loans (not grants or equity contributions) to a wide range of government agencies at interest rates ranging from 3% to 14%. No information is available on the amount of lending from the RDI account.

^{40/} The general INPRES programs are allocated to the provinces, districts and villages for general use, while the sectoral programs are targeted for special programs (e.g., primary schools, health centers and rural roads). INPRES funds are "dropped" quarterly by the Ministry of Finance to the local branch of a state commercial bank (usually BRI). The state bank is then responsible for making payments to contractors or project managers.

of most project proposals and many relevant factors (including non-budgetary and multi-year finance requirements) are often overlooked. As a result, moving the focus of investment planning as proposed above, from the five-year plan to an ongoing review process, would in itself be useful. Second, the fragmented nature of the budget makes it extremely difficult to relate investment program and budgetary numbers. Adoption of similar project classifications, and consolidation of funding accounts, could therefore simplify the process of monitoring project implementation. Third, given the recent trend towards decentralization, greater attention needs to be given to the justification for lump-sum allocations, especially through INPRES programs, for local governments. This in turn should be linked to efforts to strengthen local planning units (BAPPEDAs) and to improve monitoring of fund utilization.^{41/}

1.41 Finally, the budget is also an important source of financing for recurrent expenditures. Although efforts to improve cost recovery will provide supplementary funds, some of these (e.g., IPEDA) will still have to be channelled through the budget. As with projects, financing of recurrent expenditures is highly fragmented, including sectoral allocations in both the routine and development budgets, as well as lump-sum transfers (the SDO program) to local governments. Again, consolidation is an important prerequisite to more effective planning of these expenditures. In addition, for budgetary purposes, guidelines should be agreed between BAPPENAS and the line agencies on appropriate unit costs for recurrent items such as salaries, materials and overheads in relation to the existing capital stock (e.g., per hectare of irrigated land or per primary school). For example, the Directorate of Irrigation has proposed such guidelines for O&M expenditures on main irrigation systems totalling Rp 13,000 (at 1981/82 prices) per hectare per year (plus Rp 1,050 per hectare per year for provincial and regency overheads). However, these norms have not as yet been approved by BAPPENAS and actual budget allocations have been substantially lower. BAPPENAS should also look closely at the recurrent cost of new projects (the project profile format proposed in Table 1.7 would be useful in this regard). This can often be substantial, especially in the social sectors. For example, World Bank staff estimates suggest that for every Rp 100 invested in education during the 1980s, an additional Rp 31 will be added to annual requirements of recurrent expenditure.^{42/} This amount is almost double the actual budgetary impact of education projects implemented during the late 1970s. At the margin, adequate funding of recurrent expenditures may mean sacrificing some new investments. But the benefits, in terms of improved utilization of existing assets and the provision of better quality services, is likely to be well worth the cost.

^{41/} This issue is discussed in some detail in the World Bank, Indonesia: Selected Aspects of Spatial Development (Report No. 4776-IND, November 1, 1984). This report proposes a revised formula for INPRES allocations related to the resource requirements and availability for regional investment programs. INPRES funding would then enter directly into the regional budgets, to be allocated and monitored by the BAPPEDAs.

^{42/} See Oey Meesook, Financing and Equity in the Social Sectors in Indonesia (World Bank SWP No. 703, 1984).

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PART II
SECTORAL PROGRAMS

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II. SECTORAL PROGRAMS

A. Introduction

2.01 This part of the report looks at some of the sectoral programs for REPELITA IV in more detail. Sectors covered include major tree crops, water resources, manufacturing, mining and petroleum, power, transport, telecommunications, housing, transmigration, education and health. The starting point for these sectoral reviews is the official targets proposed in the plan. However, these have been adjusted, as appropriate, to take account of: (a) the expected impact of resource and project implementation constraints; and (b) World Bank staff views on appropriate sectoral priorities. Based on this analysis, indicative investment programs have been developed for these sectors (see Annex Table 3). These programs are generally more comprehensive - in terms of project detail and financing sources - than available in the plan. However, they are not intended to provide a blueprint for sectoral development or a complete listing of project priorities; substantially more work would be required for this purpose. Rather, the indicative programs are presented to illustrate the constraints and trade-offs that the Government will have to face in its investment decisions over the next few years.

B. Major Tree Crops ^{1/}

Background

2.02 This section focuses on the three major tree crops: rubber, oil palm and coconut. Together, these crops provide livelihood for some 20 million people, or about 13% of the population, and account for one third of the total cropped area in the country. The area planted in these crops has steadily expanded over the past four years (see Table 2.1). Production has also risen for oil palm, the newest and fastest-growing of the major tree crops. However, for rubber and coconut, production trends have generally been erratic with very little overall growth. Export performance has also been adversely affected by declining world prices for rubber and the Government's decision to divert palm oil supplies to the domestic market. As a result, despite an encouraging recovery in 1983/84, export earnings from these three crops are still 30% below 1979/80 levels. Even so, they still account for about one third of Indonesia's non-oil exports. By international standards, Indonesia is the second largest producer of rubber and coconuts, and accounts for 18% of world palm oil production.

^{1/} This section covers investments related to rubber, oil palm and coconut in the estate crops program (01.1.04) as defined in the plan. For a broader and more detailed review of sector issues, see the World Bank, The Major Tree Crops: A Sector Review (Report No. 5318-IND, April 15, 1985), referred to as the Tree Crops Report in this section.

Table 2.1: RECENT TRENDS FOR MAJOR TREE CROPS

Crop	1979-83 growth rate			1983 levels		
	Planted area	Prod. volume (% p.a.)	Export value /a	Planted area ('000 ha)	Prod. volume ('000 tons)	Export value /a (US\$ m)
<u>Rubber</u>	1.2	1.3	-6.8	2,504	1,017	829
Smallholder	1.2	0.6		2,019	689	
PTP	6.2	3.8		238	197	
Private estate	-2.2	2.0		247	131	
<u>Oil Palm</u>	9.0	10.6	-13.6	369	1,137	150
Smallholder	17.5	5.1		6	1	
PTP	10.3	11.1		261	799	
Private estate	5.8	9.2		102	337	
<u>Coconut</u>	2.8	-3.5	-13.7	2,978	1,628	32
Smallholder	3.8	-1.4		2,901	1,605	
PTP	14.1	-25.2		18	3	
Private estate	-22.0	-41.3		59	20	
<u>Total</u>	2.5	1.3	-8.3	5,851	3,782	1,015
Smallholder	2.7	-0.8		4,926	2,295	
PTP	8.4	9.2		517	999	
Private estate	-5.5	-1.9		408	488	

/a Export data are for comparable fiscal years.

/b Production and export data include palm oil and palm kernel.

Source: DG Estates and Bank Indonesia.

2.03 Smallholders account for 84% of the planted area and 61% of the production of these major tree crops. Traditionally, smallholder tree crops have been grown under low input/low management regimes, in part because they are often secondary income sources. The Government has used two basic strategies for promoting smallholder development, one relying on project management units (PMUs)^{2/} and the other using the nucleus estate approach (NES and PIR).^{3/}

^{1/2} The major PMU program is termed PRPTE. This is now the largest of Indonesian programs for smallholder rubber and coconut development. Other PMU programs include SRDP (rubber) and SCDP (coconut).

^{3/} The development costs for NES/PIR schemes are generally about double those of PMU programs due to the inclusion of infrastructure and field labor costs.

Most public estates are organized as PTPs: limited liability companies with the Government as the sole shareholder. At present, there are 17 PTPs involved in the production of rubber, oil palm and coconut. Yields in PTPs are substantially higher than for smallholders, and usually better than for private estates as well. However, weaknesses in capital structures, management and staff training, as well as the burden of implementing government tree crop programs, still constrain performance in many cases. Private estates are important in all three crops and account for about 13% of total production. More than 20% of estate rubber production is by foreign private companies.

Objectives and Targets

2.04 The Government's broad objectives for the tree crops sector during REPELITA IV include: (a) raising farmers' incomes; (b) promoting an equitable distribution of income; (c) increasing domestic production and the quality of smallholder output; (d) increasing sales of export commodities; and (e) conserving natural resources. The plan also has two specific objectives, namely to raise the income of smallholders to Rp 1.5 million (at 1984 prices) per year and to obtain US\$5.5 billion of annual export earnings from estate crops by the end of the plan period.^{4/} The first of these specific objectives should be achievable. Most of the schemes developing two hectares of estate crops, if initiated in 1984, would provide this level of smallholder net incomes (before cost recovery) from estate crop production by the mid-1990s. Assuming income is also derived from food crops, the target income level is likely to be met several years earlier. Oil palm development promises the most rapid buildup of smallholder incomes. On the other hand, the export objective is simply not realistic. None of the REPELITA IV plantings will come to production over the next five years, and even if all production from plantings were expected, it would not achieve the target level of export earnings (given projected world market prices).

2.05 The Government's official plan target for REPELITA IV is to plant about 1.5 million ha of rubber, oil palm and coconut, of which about 1.4 million ha will be on public estates and in smallholder schemes (see Table 2.2). These plantings are about 150% higher than achieved during REPELITA III. An analysis of market prospects, made in the Tree Crops Report, concludes there are unlikely to be demand constraints on the production of these three crops over the medium term. Furthermore, economic analyses of farm models indicate that the estimated rates of return (in the range of 10-15%) could justify a rapid expansion of the planting programs. The potential benefits in terms of employment generation and regional development are also substantial. However, there are serious doubts whether the estates and project management units could implement such large programs without adverse impact on the quality of planting and coordination of activities. Proposals to diversify PTPs could also hurt existing crop production. Recognizing these constraints, the Government is working on an action plan to address implementation problems in a number of key areas, including manpower training, the

^{4/} In Indonesia, the term "estate crops" is used to cover both tree and industrial crops.

organization/coordination of government agencies and the planning capacity of public estates. With improvements in these areas, the planting programs could be expanded to about 1.0 million ha, one quarter below the plan target, but still a significant improvement over past performance.

Table 2.2: SELECTED PLANTING PROGRAMS /a
(in '000 ha)

Program	REPELITA III		REPELITA IV	
	Planned	Actual	Plan targets	Indicative program /b
<u>Rubber</u>	<u>437.3</u>	<u>243.4</u>	<u>562.0</u>	<u>378.0</u>
NES/PIR				
Estate	54.1	148.9/c	138.0	85.0
Smallholder	128.0	77.6	123.0	116.0
SRDP/PRPTE	255.2	113.9	301.0	177.0
<u>Oil Palm</u>	<u>75.0</u>	<u>119.9</u>	<u>454.0</u>	<u>313.0</u>
NES/PIR				
Estate	20.3	85.3/d	112.0	150.0
Smallholder	55.6	34.6	342.0 /e	163.0
<u>Coconut</u>	<u>268.0</u>	<u>178.3</u>	<u>346.0</u>	<u>320.0</u>
NES				
Estate	5.5	9.1	3.0	6.0
Smallholder	5.4	6.3	18.0	22.0
SCDP/PRPTE	257.1	162.9	325.0	292.0
<u>Total</u>	<u>781.2</u>	<u>541.6</u>	<u>1,362.0</u>	<u>1,011.0</u>
Estate	79.9	243.3	253.0	241.0
Smallholder	701.3	395.3	1,109.0	770.0

/a Excluding private estate development.

/b The analyzed program from the Tree Crops Report.

/c Includes 119,900 ha of PTP own plantings.

/d Includes 73,200 ha of PTP own planting.

/e Includes 104,000 ha of smallholder development by private estates.

Source: World Bank, Tree Crops Report.

2.06 Economic rates of return do not vary significantly for rubber, oil palm and coconut. Therefore, the overall selection of crops should be based on local conditions, such as soil suitability and the proximity of nucleus estates or other relevant facilities. The findings of the Tree Crops Report tend to support the Government's objectives to concentrate PTP development on new block-planting of oil palm in areas where new settlement is warranted, on the completion of existing NES/PIR projects, and on some limited new NES/PIR

rubber development in transmigration areas. The main burden for smallholder rubber development would then be concentrated upon PMU-based schemes. While the PTPs have demonstrated their ability to grow tree crops efficiently, they have performed less well in training smallholders, especially in food production. The extent to which nucleus schemes should be pursued is also limited by the management and financial capacity of the estate companies. Given the burden of existing commitments, most PTPs require a period of consolidation to ensure that the quality of development is maintained.

Costs and Financing

2.07 The indicative planting program of 1.0 million ha, together with related processing and mill requirements, is estimated to cost Rp 3.5 trillion at current prices (see Table 2.3). This is about 40% less than the cost of achieving the official plan targets. However, in constant prices, the investment program is still substantially larger than realized in recent years.^{5/} This raises a number of important issues on the required level and sources of financing.

2.08 Looking at the existing financial structure of the PTPs, they are likely to generate only about Rp 635 billion of internal funds for investment during REPELITA IV, or about 43% of their total financing requirement. Furthermore, their long-term borrowing capacity may be only Rp 525 billion, of which Rp 158 billion would be absorbed by undisbursed World Bank loans. In practice, many PTPs have little or no immediate borrowing capacity. Therefore, it is essential for the Government to inject new equity or convert existing debt to equity. The latter option is preferable because it works on both sides of the debt/equity ratio. For example, with conversion of Rp 150 billion and a 60:40 gearing ratio, additional borrowing of Rp 375 billion (as required to close the borrowing gap under the alternative proposal) could be mobilized. PTPs should also look to new financing options, such as leasing arrangements and suppliers' credits. Given the financial record of most PTPs and existing tax disincentives, bond issues are unlikely to be a significant source of funds during REPELITA IV.

2.09 The GOI budget (excluding external loans) is expected to provide Rp 352 billion during REPELITA IV, financing 18% of the smallholder program. A potential source of these funds would be export taxes.^{6/} The present export

5/ Unfortunately, no reliable data on the investment costs and financing of tree crop programs are available for past years. Therefore, only qualitative comparisons are possible.

6/ Additional revenues are also generated, indirectly, through the IPEDA land tax; these are used at the local level to fund supporting infrastructure for tree crops. An extension of land taxes on mature block-planted holdings in older schemes should be considered. However, a national land tax, specifically earmarked for tree crop development, is not considered to be administratively or politically feasible.

tax on crude palm oil (5% plus a 37% surtax since July 1984) is intended to divert sales to the local market. As world palm oil prices are projected to fall over the next couple of years, a basic 5% tax would probably be sufficient to maintain a slight premium for local sales by 1987. With more favorable world prices expected for rubber, the Government should consider reintroducing the 5% export tax. Together, these export taxes could generate about Rp 336 billion during REPELITA IV, close to the projected requirement of budgetary resources. If channelled through the Export Crops Fund (DTE), these revenues would be directly available for the tree crop program.

Table 2.3: INDICATIVE INVESTMENT PROGRAM FOR MAJOR TREE CROPS
(in Rp billion at current prices)

Program	1984/85	1985/86	1986/87	1987/88	1988/89	Total
<u>Rubber</u>	<u>203.6</u>	<u>231.6</u>	<u>273.7</u>	<u>290.1</u>	<u>297.8</u>	<u>1,296.8</u>
Estates	70.4	83.6	98.1	109.8	119.3	481.3
Smallholders	133.2	148.0	175.6	180.3	178.5	815.6
<u>Oil Palm</u>	<u>198.7</u>	<u>276.1</u>	<u>355.9</u>	<u>354.4</u>	<u>420.5</u>	<u>1,605.6</u>
Estates	130.9	183.8	235.1	206.7	237.9	994.3
Smallholders	67.8	92.3	120.8	147.8	182.6	611.3
<u>Coconut</u>	<u>94.8</u>	<u>105.4</u>	<u>118.5</u>	<u>135.5</u>	<u>150.9</u>	<u>605.2</u>
Estates	9.0	6.3	5.8	5.2	4.0	30.2
Smallholders	85.9	99.1	112.7	130.3	146.9	575.0
<u>Total</u>	<u>497.1</u>	<u>613.2</u>	<u>748.1</u>	<u>780.0</u>	<u>869.2</u>	<u>3,507.6</u>
Financed by:						
<u>Estates</u>						<u>1,505.8</u>
IBRD /a						158.0
Other loans /b						694.8
PTP equity						653.0
<u>Smallholders</u>						<u>2,001.9</u>
GOI /c						352.0
IBRD /a						382.0
Other loans /b						1,267.9

/a Existing commitments only.

/b Residual financing from Bank Indonesia, commercial banks and external sources.

/c Excludes the subsidy cost of credit programs.

Source: Annex Table 3.

2.10 The most problematic component of the financing plan for major tree crops is smallholder credit.^{7/} Under the indicative program, total requirements of smallholder credit are projected to be more than Rp 1.6 trillion. The Tree Crops Report concludes that this level of credit is feasible, given BRI's financial projections, plausible assumptions on the future availability of liquidity credits from Bank Indonesia, and a concentrated effort to mobilize resources from other domestic banks (e.g., BEI and BBD) and external loans. The central issue, however, is the cost of subsidies needed to enable state banks to engage in smallholder credit programs. Estimates presented in the Tree Crops Report suggest that the total cost of credit subsidies provided directly from the budget or indirectly through Bank Indonesia (at the present lending rate of 12%) would amount to at least Rp 350 billion for the indicative program over the full life of the loans. Even this estimate is based on the optimistic assumption that collections would reach 80% for rubber and coconut and 90% for oil palm. There is evidence that interest subsidies can lead to a misuse of funds and that many smallholders could afford a significantly higher rate of repayment than is presently required. The Government should therefore review its cost recovery policies, to ensure that the heavy subsidies involved are justified.

2.11 On balance, it would seem that the indicative program for development of the major tree crops could be financed. However, there are obviously many uncertainties in these projections. Therefore, it is essential to develop contingency plans for making further cuts in the investment program, if and when financing constraints develop. One option worth considering would be to reduce the coverage of labor costs, settler housing and infrastructure under NES/PIR projects.

C. Water Resources ^{8/}

Background

2.12 There are about 5.1 million hectares of irrigated land in Indonesia, most of which is used for rice production (see Table 2.4).^{9/} Public works schemes, managed by the Directorate General of Water Resource Development

^{7/} One state bank, BRI, has done most of the lending to tree crop smallholders, generally as a channelling agent for government funds. However, the more active involvement of banks as executing agents has a number of potential advantages, including more careful selection of borrowers and improved collection incentives. The Government has recently agreed to subsidize executing banks in order to encourage their participation in the SRDP II program.

^{8/} This section covers the irrigation (01.2) and water management (18.1.01) programs as defined in the plan.

^{9/} The only other crop which is seriously irrigated is sugar cane (20,000 hectares), but this is very minor compared to rice.

(DGWRD), account for about 80% of the irrigated area, with the balance provided by traditional village systems. As would be expected, most of the irrigation, especially from large-scale schemes, is on Java. Rice is also grown under rainfed conditions and on reclaimed swamps. Tidal swamplands which have been drained and cleared of forest for transmigrants are concentrated in South Sumatra and Kalimantan. As shown in Table 2.4, average rice yields on irrigated land are more than double those on unirrigated land, and the harvesting intensity (i.e., the ratio of harvest to service area) is also higher. Java accounts for about 51% of the paddy rice area and 61% of rice production in Indonesia.

Table 2.4: IRRIGATED AREA AND RICE PRODUCTION IN 1981

	Service area				Harvest area ('000 ha)	Average yield (ton/ha)	Rice prod. (m tons)
	Java	Sumatra	Other	Total			
	----- ('000 ha) -----						
<u>Irrigated</u>	<u>3,174</u>	<u>1,071</u>	<u>885</u>	<u>5,130</u>	<u>7,260</u>	<u>4.0</u>	<u>29.2</u>
Public works	2,644	781	650	4,075	5,790	4.1	23.5
- Large	1,638	222	106	1,966	2,810		
- Medium	466	344	341	1,151	1,650		
- Small	540	215	203	958	1,330		
Village	530	290	235	1,055	1,470	3.9	5.7
<u>Unirrigated</u>	<u>444</u>	<u>667</u>	<u>909</u>	<u>2,020</u>	<u>2,040</u>	<u>1.8</u>	<u>3.6</u>
Rainfed	437	444	683	1,564	1,600	1.8	2.8
Swamps	7	223	226	456	440	1.9	0.8
<u>Total</u>	<u>3,618</u>	<u>1,738</u>	<u>1,794</u>	<u>7,150</u>	<u>9,300</u>	<u>3.5</u>	<u>32.8</u>

Source: DGWRD and World Bank staff estimates.

2.13 As a proportion of the total development budget, irrigation expenditures fell from 5.8% during REPELITA II to 4.7% during REPELITA III. In real terms, irrigation expenditures declined on average by 12% per annum during REPELITA III.^{10/} Even so, over 2.0 million hectares were either developed or rehabilitated, more than double the achievement during the previous five years (see Table 2.5). About one half of this area was on Java, although this was primarily for rehabilitation of existing schemes; new development has moved increasingly to the Outer Islands, especially Sumatra and Kalimantan. The

^{10/} In 1979/80, the Government introduced a new plan sector, resources and environment, which accounted for 2.5% of development expenditure during REPELITA III. A large component of this expenditure was related to water management. Including this component would basically offset the real decline in irrigation expenditures.

Government's investment program for irrigation has been a major factor behind the rapid expansion of rice production, by 5.8% per annum, over the past decade.^{11/} As a result, Indonesia has been basically self-sufficient in rice since 1981. The 1984 rice crop is estimated at 25.5 million tons and BULOG stocks have reached 3 million tons. This emerging rice surplus will have a major impact on the size and orientation of the REPELITA IV irrigation program.

Objectives and Targets

2.14 The Government's main objectives for water resource development during REPELITA IV are: (a) investment in irrigation to sustain self-sufficiency in rice; (b) swamp reclamation for transmigration; and (c) river control works for multipurpose use. To meet these objectives, World Bank staff have prepared an indicative irrigation program covering 1.4 million hectares. Recognizing resource constraints, and changing sector priorities, this program is about one third smaller than implemented during REPELITA III and planned for REPELITA IV (see Table 2.5). It is expected that this program will be adequate to support a trend increase in rice production of 2.5% per annum. As a result, for most "average rainfall" years, rice self-sufficiency will be sustained. More rapid growth of rice production is not considered justified, given the limited export opportunities (world trade is thin and Indonesia's quality low) and high storage costs. However, the scope for using irrigated land for other crops - such as fruits and vegetables - needs to be explored on a priority basis. With crop diversification, the quantity and timing of water requirements could alter significantly. Specific provisions for studies on these issues are included in the indicative investment program.

2.15 On Java, there is very little scope (about 160,000 hectares) for new irrigation development, and basic rehabilitation of existing schemes is almost completed. Therefore, the indicative program gives priority to: (a) completion of ongoing projects, including two multipurpose dams (Wadas Lintang and Kedung Ombo); and (b) intensive system upgrading, to improve operations and facilitate maintenance. Further investments in major multipurpose dams on Java (e.g., Jatigede and Wonarejo) need to be carefully evaluated in terms of their potential contribution to flood control, water supply and hydropower, as well as to irrigation development. However, given the overall resource constraint, the indicative program includes only minimal allocations (primarily for land acquisition) for these projects during REPELITA IV. On the Outer Islands, the scope for new irrigation development is more extensive. The indicative program includes provision for new reclamation works on 120,000 hectares of tidal swamplands, to accommodate 15,000 transmigrant families per

^{11/} It is estimated that about 16% of the increase in rice production during the 1970s was associated solely with expansion and improvements in irrigation, about 9% with improved rice varieties and fertilizer use, and 75% with the joint interaction of these variables. See World Bank, Indonesia: Policy Options and Strategies for Major Food Crops, (Report No. 3686b-IND, April 4, 1983).

year. The balance of the swamps program is for upgrading/rehabilitating tidal and inland swamplands that have already been settled.

Table 2.5: PHYSICAL PROGRAMS FOR IRRIGATION
(in '000 hectares)

	REP. III	REP. IV	Indicative program for REP. IV		
	Actual	Plan	Total	Ongoing	New
Small systems	146 }		51	51	-
Medium systems	52 }	600	51	48	3
Large systems	136 }		223	179	44
Groundwater	-	-	21	21	-
Rehabilitation	730	360	614	553	61
Tertiary	522	720	142	142	-
Swamps	465	460	318	8	310
<u>Total</u>	<u>2,051</u>	<u>2,140</u> /a	<u>1,420</u>	<u>1,002</u>	<u>418</u>

/a Excludes 500,000 ha of river control.

Source: GOI, REPELITA IV plan and World Bank staff estimates.

Costs and Financing

2.16 The indicative irrigation program and related investments in water management are estimated to cost about Rp 3.8 trillion at current costs (see Table 2.6). About one third of this amount, equivalent to the foreign exchange cost of foreign-assisted projects, is expected to be financed from external loans. This is somewhat higher than the share (about one quarter) financed from external loans during REPELITA III, due to the assumption that completion of ongoing foreign-assisted projects will be given priority over the next few years. As in the past, the balance of funding will come from the Government's domestic budget. Note that the indicative program is 41% smaller than the plan allocations for irrigation and water management. This is due to the smaller size and changing composition of the irrigation program (away from new large-scale systems), as well as substantially lower unit costs, based on recent experience with international bids for civil works contracts. During 1984/85 and 1985/86, the indicative program costs are on average 15% lower than budget allocations, due to the impact of implementation constraints. Related SIAPs and undrawn external loans can therefore contribute towards financing water resources investments in later years.

irrigation O&M (8%) and medium-scale irrigation (7%). However, new investments show a significant reorientation of priorities, with no significant allocation for large-scale irrigation but substantially higher shares for the flood control (28%) and swamp (30%) programs.

- (c) These changing priorities also reflect a shift in the regional distribution of investments. Java still accounts for about 60% of total investment costs. However, among new projects, 66% are located on the Outer Islands, including 30% on Sumatra and 20% on Sulawesi.

2.18 A related issue, which impacts directly on the efficiency with which existing and new investments are utilized, is the provision of recurrent expenditures for operations and maintenance. The Directorate of Irrigation has estimated that O&M expenditures on main irrigation systems should total Rp 13,000 (at 1981/82 prices) per hectare per year. However, routine budget allocations have been less than half of this amount. For this reason, O&M provisions for irrigation have been included directly in the development budget in recent years, and this practice is projected to continue during REPELITA IV. However, there is also a strong case for mobilizing additional resources for this purpose through cost recovery. At the moment, direct cost recovery through land taxes (IPEDA) and water charges is very low (generally around 10-15% of farmers' net profits and 5% of the incremental earnings from irrigation investments). Unfortunately, higher water charges may not always be appropriate, given that many beneficiaries are around the absolute poverty level. An alternative approach, therefore, would be to modify the present IPEDA system, to provide for better land valuations (capturing the returns to irrigation investments) and to earmark a portion of the revenues for irrigation O&M. The Government is planning to study alternative institutional arrangements for such a scheme in the West Tarum irrigation area.

D. Manufacturing ^{12/}

Background

2.19 Value added in the manufacturing sector grew by an impressive 14.4% per annum over the decade to 1981. Initially, this growth was concentrated in the production of relatively labor-intensive consumer goods. However, as the "easy" options for import substitution were steadily exhausted, the focus shifted to more technologically complex upstream products. With the bulk of output destined for the highly-protected domestic market, costs for many products were high by international standards. Accordingly, manufactured

^{12/} This section covers the industry (02) and business development (17) sectors as defined in the plan. The primary focus is on projects under the Ministry of Industry, although general issues relating to manufacturing projects under other Ministries (e.g., Research and Technology, and Communications) are also discussed. Projects under the Ministry of Mines and Energy are covered in the following two sections of this report.

Table 2.6: INDICATIVE INVESTMENT PROGRAM FOR WATER RESOURCES
(in Rp billion at current prices)

Program	1984/85	1985/86	1986/87	1987/88	1988/89	Total
<u>Irrigation</u>	<u>475.5</u>	<u>517.6</u>	<u>707.0</u>	<u>604.0</u>	<u>631.1</u>	<u>2,935.3</u>
Small	24.0	29.1	31.1	31.7	42.4	158.3
Medium	34.9	48.9	70.2	51.2	57.8	262.9
Large	248.1	247.0	381.5	287.2	291.2	1,455.0
Groundwater	19.0	26.7	27.2	27.9	28.6	129.4
Tertiary	4.4	5.2	5.7	5.8	6.5	27.6
Rehabilitation	102.5	113.4	128.3	131.9	130.3	606.4
O&M	42.6	47.5	63.0	68.3	74.3	295.6
<u>Rivers</u>	<u>94.8</u>	<u>100.5</u>	<u>146.0</u>	<u>146.1</u>	<u>139.5</u>	<u>627.0</u>
River improvement	81.1	74.5	85.1	83.1	81.7	405.5
Flood control	4.6	7.4	45.7	46.8	40.3	144.9
Other	9.1	18.7	15.2	16.2	17.5	76.7
<u>Swamps</u>	<u>21.0</u>	<u>26.1</u>	<u>26.9</u>	<u>28.2</u>	<u>27.8</u>	<u>130.0</u>
Tidal new	8.2	10.4	13.0	13.2	13.1	57.9
Tidal rehab.	3.8	5.7	4.0	4.5	5.3	23.3
Inland	9.1	9.9	10.0	10.4	9.4	48.8
<u>Planning</u>	<u>11.5</u>	<u>12.5</u>	<u>13.4</u>	<u>14.4</u>	<u>15.3</u>	<u>67.1</u>
<u>Total</u>	<u>602.9</u>	<u>656.7</u>	<u>893.4</u>	<u>792.7</u>	<u>813.8</u>	<u>3,759.5</u>
Of which:						
Ongoing	583.6	623.0	824.4	697.5	705.9	3,434.4
New	19.3	33.7	69.0	95.2	107.9	325.1
Financed by:						
GOI budget	347.7	389.9	595.0	602.1	664.3	2,599.0
External loans	255.2	266.8	298.4	190.7	149.5	1,160.5

Source: Annex Table 3.

2.17 There are a number of features worth noting in the composition of the indicative investment program:

- (a) Over 90% of the costs are related to ongoing projects, of which 77% are foreign assisted. About 55% of new projects are projected to be foreign assisted, requiring disbursements of Rp 180 billion during REPELITA IV.
- (b) The major components of the program are for large-scale irrigation (39%), irrigation rehabilitation (16%), river improvement (11%),

exports remained narrow-based and did not grow significantly during the 1970s. More recently the performance of the manufacturing sector has been adversely affected by the slowdown in domestic demand. Value added hardly grew during 1982 and 1983, and excess capacity is now pervasive in a number of industries (e.g., cement, steel, tires, televisions, automobiles, motorcycles, textiles and plywood). As a result, many producers have begun to look abroad for markets, leading to more rapid growth in manufactured exports. However, the size of the manufacturing sector is still relatively small, accounting for only 13% of GDP and 28% of non-oil exports in 1983.

2.20 The pattern of industrialization in Indonesia has been strongly influenced by a range of government policies. Investment in priority areas has been promoted directly through public enterprises and indirectly through a variety of incentives administered by the Investment Coordinating Board (BKPM).^{13/} Domestic industry has also been protected from foreign competition by import tariffs and quantitative restrictions. In recent months, this policy environment has undergone considerable change, including simplification of investment procedures and reductions in the range and level of import tariffs. However, a number of other recent government actions have served to promote some potentially costly and uneconomic investments. Two areas are of particular concern: (a) the increased number of product categories subject to importer licensing with related quotas and/or bans (e.g., steel); and (b) regulations requiring increased local content in final products through "deletion programs" (e.g., diesel engines). The expressed purpose of these policies is to improve capacity utilization and promote domestic interlinkages. However, the effective impact could well be to encourage premature import substitution, with cost penalties for downstream industries. As a result, potential exporters could become uncompetitive in international markets or find it more profitable to sell domestically.

Objectives and Targets

2.21 Industrial development is a key element in the Government's strategy to diversify the economy. Specific objectives for REPELITA IV are to: (a) deepen and broaden the industrial base, by developing industries such as machinery, transport equipment and electronics; (b) promote small-scale enterprises and strengthen their links to the rest of the industrial sector; (c) develop Indonesian skills in engineering, technology and industrial management; and (d) increase exports of manufactured products through diversification programs and improved competitiveness in international markets. In these ways, it is hoped to support a manufacturing growth rate of 9.5% per

^{13/} No reliable information is available on manufacturing investment or the share financed by the public sector. However, some relevant data for REPELITA III are as follows: (a) approved domestic investment in manufacturing totalled Rp 8.0 trillion (although only a fraction of this amount was probably implemented); (b) implemented foreign investment in manufacturing totalled Rp 1.3 trillion; and (c) relevant budgetary allocations totalled Rp 4.1 trillion, or 12.5% of total development expenditure during REPELITA III.

annum, including 17% per annum in the machinery, metals and basic chemicals subsectors. Table 2.7 summarizes capacity targets for selected manufacturing products. The overall growth rate is significantly higher than the indicative projection (6.1% per annum) presented in Part I of this report. Furthermore, the related capacity targets may be exaggerated, given the excess capacity that presently exists in many subsectors. Therefore, the viability of specific investment proposals should be carefully evaluated on the basis of a thorough economic appraisal. Some of the relevant issues are illustrated in the following reviews for four key subsectors: paper, fertilizer, steel and engineering goods.

Table 2.7: INDUSTRIAL CAPACITY TARGETS /a

	Units	1983/84	1988/89	Growth (% p.a.)
<u>Machinery & metals</u>				
Industrial machinery	units	1,550	3,600	18.4
Airplanes /b	units	72	101	7.0
Railway wagons /c	units	300	650	16.7
Ships	'000 DWT	195	493	20.4
<u>Steel</u>				
- Steel slab	'000 tons	1,100	1,600	7.8
- Hot rolled coil	'000 tons	1,100	1,700	9.1
- Cold rolled coil	'000 tons	0	1,150	
Aluminum ingots	'000 tons	225	300	5.9
<u>Basic chemicals</u>				
<u>Fertilizer</u>				
- Urea	'000 tons	2,190	5,610	20.7
- TSP	'000 tons	960	1,500	9.3
Cement	'000 tons	10,290	21,000	15.3
<u>Paper</u>				
- Newspaper	'000 tons	0	90	
- Craft paper	'000 tons	0	90	
<u>Other industries</u>				
Car tires	'000 units	4,335	10,290	18.9
Cooking oil	'000 tons	1,226	1,967	9.9
Textiles	m meters	2,130	2,860	6.1
Garments	'000 dozens	20,300	26,000	5.1
Weaving yarns	'000 bales	1,540	1,740	2.5
Salt	'000 tons	1,100	2,100	13.8

/a Official plan targets.

/b Including helicopters.

/c Freight and passenger wagons.

Source: GOI, REPELITA IV plan.

2.22 There are presently about 30 paper mills in Indonesia, including five in the public sector. Total capacity has expanded rapidly over the past decade, reaching 140,000 tons of pulp and 391,000 tons of paper in 1983. Even so, imports still account for 40% of domestic paper consumption and 66% of pulp requirements. The subsector is in urgent need of restructuring, to reduce the number of producers, increase mill size and integration, and improve plant technology. This restructuring should probably be associated with a gradual reduction in nominal import tariffs on paper (pulp is already duty free) and assistance (financial and technical) to viable mills. Related investment costs could total Rp 50-100 billion during REPELITA IV. The Government is also planning two new public sector mills over the next few years. The first, at Aceh, is already under construction and is designed to produce 175,000 tons per annum of sack kraft paper. Estimated investment costs are just over Rp 400 billion. The second mill at Cilicap is still under review. However, the present proposal is to construct a long-fiber bleached kraft pulp mill with an annual capacity of 130,000 tons and at an estimated cost of Rp 275 billion. The product differentiation between these two mills would seem to be appropriate given domestic and export market prospects. However, further study is needed to determine whether costs of the Cilicap plant can be made competitive, given projected pulp prices and potential management constraints.

2.23 All fertilizer production is in the public sector. At the start of REPELITA IV there were seven plants in operation, with a total capacity of 2.2 million tons of urea and 1.0 million tons of triple superphosphate (TSP).^{14/} By the end of 1985, another four plants are expected to be on stream^{15/} increasing urea capacity to 4.5 million tons. As a result, Indonesia could become a net exporter of fertilizer in the near future (gross exports have already risen sharply, reaching US\$47 million in 1983). Future demand for fertilizer is difficult to project. Domestic consumption rose rapidly by about 15% per annum during the 1970s. However, this growth rate is now expected to slow, as the Government gradually phases out price subsidies (which were still about 65% in 1984) and the impact of the recent rice surplus filters through to input demand. The prospects for export sales of urea may be more promising, given Indonesia's abundant supplies of natural gas (see Section E below) and the expected improvement in world prices over the medium term. However, large investments for this purpose would have to be contingent upon clearly defined marketing arrangements. Based on information provided by the Ministry of Industry, two new fertilizer investments — the Kaltim III urea project (570,000 tons) and an expanded ammonia plant at PT Petrokimia Gresik — have already been approved in the 1985/86 budget (see Table 2.8). Another two plants (for urea and TSP) are planned to achieve the capacity

^{14/} Indonesia also produces small quantities of ammonium sulphate, DAP and compound fertilizers.

^{15/} One of the new fertilizer plants is owned by ASEAN. Indonesia is obliged to take 60% of the plant's output (520,000 tons per annum) and may purchase the balance if the other partners do not buy it.

targets for REPELITA IV. The timing of these proposals should be carefully scrutinised in relation to market prospects. The more immediate priority would seem to be improvements in the operations of existing plants (i.e., energy conservation, rehabilitation and debottlenecking) and the fertilizer distribution system.

2.24 Finished steel production in Indonesia totalled 1.1 million tons in 1983, compared to installed capacity of 2.8 million tons and consumption of 2.6 million tons. Despite a rapid growth in domestic production during REPELITA III, imports still account for 60% of finished steel consumption and 36% of crude steel requirements. The major steel producer is PT Krakatau Steel, a public sector company, which runs an integrated plant designed to produce bars and rods, and more recently hot rolled coils. Construction of a cold rolling mill (850,000 tons) is underway.^{16/} However, in general, investments in new steel capacity should be deferred pending completion of ongoing studies on the efficiency of existing plants. At the moment, production costs are high due to inefficient operating practices (including over-manning of facilities) and excess capacity in many products and processes. Consequently, PT Krakatau Steel operates at a loss, despite relatively high domestic prices supported by tariffs and restrictive importing arrangements. These high prices in turn feed into downstream activities,^{17/} contributing to the "high cost" economy and reducing the competitiveness of Indonesia's products. With improvements in operating efficiency, the plan targets for production of hot and cold rolled coil could almost be achieved. However, increased production of steel slab will require new investments, which will not come on stream during REPELITA IV.

2.25 The engineering subsector in Indonesia is still relatively small and undeveloped.^{18/} Contributions to manufacturing value added in 1982 were about 4% for electronics and 2% each for structural metal products, motor vehicles and motorcycles. The structure of the engineering subsector is top heavy; resources are heavily concentrated in assembly operations (e.g., motor vehicles and television sets), where many sub-scale plants generate low value

^{16/} In addition, it is reported that BKPM has approved investment applications for a billet and steel reinforcing rod plant in Jakarta and a profile steel plant at Cilegon. The present status of these projects is unknown.

^{17/} Conservative estimates suggest that high domestic steel prices raise production costs by 10% for structural metal products, 9% for metal furniture and fixtures, and 7% for cutlery, handtools and hardware.

^{18/} No breakdown is available of public and private production for the engineering subsector. However, except for strategic concerns, the criteria for selecting new investments are basically independent of ownership considerations.

added with limited technology transfer.^{19/} Intermediate level products (e.g., small boilers and machinery tools), that should be more compatible with the country's production capacities and comparative advantage, are largely imported. For REPELITA IV, the Government is planning on a rapid growth rate (17% per annum) for the engineering subsector, with particular emphasis on heavy industrial machinery and transport equipment. In order to encourage upstream linkages and reduce import content, deletion programs have been introduced for a number of activities (e.g., motor vehicles, heavy equipment, diesel generators and machine tools). However, there is some concern that these programs could perpetuate the high-cost structure of engineering goods production, by reducing competition and economies of scale. By contrast, a gradual liberalization of import restrictions could help to attract resources into areas where Indonesian production is likely to be competitive, for import substitution or export development. One such area is intermediate level machinery and parts: machine tools, machine-grade castings, small industrial forgings, industrial pumps and boilers, and food processing machinery. However, much of the new investment in these areas could probably come from the private sector. The public sector, in turn, could focus on restructuring existing capacity, especially in the motor vehicle industry and the heavy equipment complex at Surabaya, during REPELITA IV. To be effective, these restructuring programs will have to be associated with changes in production programs and operational reforms to give managers greater autonomy. Recent proposals to establish large forge and foundry plants should be postponed indefinitely, given the fractured demand from the automotive industry and the complex technical/organizational requirements of centralized component production.

Costs and Financing

2.26 The outlines of an indicative investment program for the manufacturing sector during REPELITA IV are shown in Table 2.8. The estimated cost is Rp 4.8 trillion at current prices. The only project-specific information available is for ongoing and proposed investments (through the 1985/86 budget) under the Ministry of Industry.^{20/} However, the program has been filled out using the following assumptions:

- (a) Total development budget allocations for manufacturing (industry and business development) averaged Rp 0.9 trillion during 1984/85 and 1985/86, of which 85% was from external loans. Public investment in manufacturing during these two years is then estimated, assuming that foreign exchange costs (i.e., external loans) account for 70% of the total.

^{19/} In the electronics industry, for example, value added is only 5%-15% of total sales and technology transfer is limited by foreign product licensing arrangements (as well as the domestic market orientation of the industry).

^{20/} The information provided relates to foreign exchange costs, which are assumed to account for 70% of total project costs.

- (b) In later years, priority is given to completing ongoing projects. Some new investment, especially for subsector restructuring, may also be justified. However, under present conditions, all major public investments (ongoing and new) should be carefully re-evaluated. In the absence of detailed project information, but reflecting the overall resource constraint and the potential role of the private sector, total public investment in the manufacturing sector is assumed to decline in nominal terms over the remainder of REPELITA IV.

Table 2.8: INDICATIVE INVESTMENT PROGRAM FOR MANUFACTURING
(in Rp billion at current prices)

	1984/85	1985/86	1986/87	1987/88	1988/89	Total
<u>Ministry of Industry</u> /a	<u>46.4</u>	<u>650.6</u>	<u>600.0</u>	<u>550.0</u>	<u>500.0</u>	<u>2,347.0</u>
Kaltim I /b	12.3					12.3
PT Barata /b	7.7	24.1	25.7	6.4		64.0
PT Boma Bisma /b	6.2	19.4	17.7	10.7		54.0
PT Kertas Kraft Aceh	19.5	313.0	75.2			407.6
Kaltim III		44.0	209.6	50.4		303.9
PT Pusri Ship		13.8	9.2			23.0
PT Semen Gresik /b		13.7	23.8	14.4		51.8
PT Petrokimia Gresik		75.9	82.2	30.1		188.3
Pusri I-B /b		41.4	82.8	110.4	41.4	276.1
PT Ind. Kapal	0.8	26.2	19.6	12.6	4.5	63.8
PT Ind. Mesin Perkakas		3.5	3.5	3.1	5.5	15.7
Perum Garam /b		2.1	6.9	8.3		17.3
PT Ind. Sandang I		13.6	22.8	7.3	7.3	51.0
Pt Ind. Sandang II		59.8	6.3			66.1
New projects			14.7	296.2	441.2	752.1
<u>Other Ministries</u> /c	<u>993.0</u>	<u>437.3</u>	<u>380.0</u>	<u>340.0</u>	<u>300.0</u>	<u>2,450.2</u>
<u>Total</u>	<u>1,039.4</u>	<u>1,087.8</u>	<u>980.0</u>	<u>890.0</u>	<u>800.0</u>	<u>4,797.2</u>
Financed by:						
GOI budget	149.4	122.8	100.0	80.0	50.0	502.2
External loans	727.6	761.5	686.0	623.0	560.0	3,358.1
Domestic loans	110.5	149.2	115.6	98.0	94.0	567.2
PE funds	52.0	54.4	78.4	89.0	96.0	369.8

/a Individual projects are those requiring resources through 1985/86.

/b Rehabilitation or improvement projects.

/c Includes business development program.

Source: Annex Table 3.

2.27 The total cost of ongoing and proposed projects under the Ministry of Industry is projected to rise from Rp 46 billion in 1984/85 to an average of Rp 618 billion per annum over the subsequent two years.^{21/} The major investments in new capacity are for the Aceh paper project (Rp 408 billion), the Kaltim III urea plant (Rp 304 billion) and the Gresik ammonia plant (Rp 188 billion). Most of the other projects are for rehabilitation or improvement of existing capacity for production of fertilizers (Kaltim I and Pusri I-B), cement (PT Semen Gresik), engineering goods (PT Barata Indonesia, Boma Bisma Indra and Industri Mesin Perkakas Indonesia), ships (PT Industri Kapal Indonesia), salt (PT Perum Garam) and textiles (PT Sandang I and II).^{22/} This still leaves a relatively large amount of committed funds, especially in 1984/85, for unspecified projects under other Ministries -- including high-technology, defence and railway industries -- and the business development program.^{23/} Some potential areas of new investment, for both import substitution (e.g., machine tools) and export development (e.g., fertilizers), have been discussed above. However, even in these areas, the economic returns to specific project proposals need to be carefully evaluated. Furthermore, it is important to consider the justification for public sector involvement. In some cases, public investment will be required for strategic, scale or externality reasons. However, in many subsectors, the primary role of the Government will be to improve the environment for private investment, through policy reforms (e.g., trade policy and investment regulations) or by providing basic infrastructure (e.g., transport facilities and power supplies) and services (e.g., technical training and marketing information).

2.28 The financing plan shown in Table 2.8 assumes a steady shift away from government equity as a source of funds for public investment in the manufacturing sector. Instead, the share of public investment financed from the internal funds of public enterprises is assumed to increase from an estimated 5% in 1984/85 and 1985/86 to 12% by 1988/89. The balance of investment is assumed to be financed from domestic borrowing. In practice, this financial restructuring may be difficult to achieve, due to the impact of high interest rates, weak management and excess capacity on the financial position of many

21/ This list excludes the cold rolling mill, being constructed as a joint venture. Apart from land and some infrastructure provided by P.T. Krakatau Steel, all of this investment is being funded by the private partners.

22/ Pusri I-B is basically a new project, which utilizes very little of the existing fertilizer plant; hence, the high cost. Some of the other projects are still subject to the results of sector studies (e.g., Sandang I and II) or the availability of suitable financing (e.g., the Gresik ammonia plant).

23/ According to the plan, the business development program is intended to "enhance the role of the national entrepreneur, especially the economically weak group." However, details on specific investment proposals are unavailable.

public enterprises. Similar constraints could also prevent the private sector from taking up the slack in manufacturing investment. However, this need not necessarily imply that the burden should shift back to the development budget. Rather a better strategy might be to cut back on public investment in the short term, focus instead on restructuring existing capacity and improving the policy environment, and in this way lay the basis for stronger growth in later years. A careful review of these strategic issues, and their impact on investment planning, is urgently required.

E. Mining and Petroleum ^{24/}

Background

2.29 Oil dominates the Indonesian economy, accounting for about 80% of commercial energy consumption, and 60% of export earnings and domestic budget receipts. Over the past five years, oil production has declined in response to changing world market conditions and lower OPEC quotas (see Table 2.9). Domestic consumption has also been constrained by higher prices, which are now close to world levels (with some cross-subsidization of kerosene). Estimates of oil reserves are inevitably subject to large uncertainties. However, most experts put end-1982 proven reserves at about 9 billion barrels, with the possibility of adding another 2 billion barrels from new discoveries by the year 2000. These reserves could support moderate growth in annual production to about 500 million barrels by 1990. However, without unexpected new finds, production will then start to tail off. This long-term production constraint, together with continuing uncertainty in world market conditions, underscores the importance of diversifying Indonesia's primary energy sources.

2.30 The major indigenous alternatives to oil are natural gas and coal. As shown in Table 2.9, production of both has expanded over the past five years (albeit from a very low base in the case of coal). Natural gas production totalled about 1.2 TCF in 1983, of which 22% was used in the field and 12% was flared. Of the balance, 64% was exported to Japan as LNG from liquefaction centers based at Arun and Badak. LNG exports have risen by 14% per annum in real terms since 1981 and now account for 15% of total export earnings. Indonesia has vast reserves of natural gas, almost equivalent in energy terms to the country's proven oil reserves. Because the bulk of these reserves are located away from the major population and industrial areas, LNG exports are likely to remain the primary use of natural gas over the medium term. However, the Government is also considering options for expanded domestic use, especially as an industrial feedstock, in power generation and for city gas systems. Although there have been plans to revive the coal industry since the mid-1970s, production is still well below the peak levels (2 million tons) achieved in the 1940s. Almost all of the present production

^{24/} This section covers the mining and oil and gas sectors as defined in the plan. The power sector is discussed separately in Section F below. For an overview of the energy sector, see UNDP/World Bank, Indonesia: Issues and Options in the Energy Sector (Report No. 3543-IND, November 1981).

is concentrated in two mines in Southern Sumatra, one at Bukit Asam (open cast) and the other at Ombilin (open cast and underground). However, there are also large coal deposits in Kalimantan, where a number of major basins have been identified. Therefore, while proven reserves are put at only about 1 billion tons, potential estimates range as high as 23 billion tons. For the foreseeable future, the primary use for coal will be in power generation (see Section F).

Table 2.9: MINERAL PRODUCTION

Mineral	Units	1978	1983	1988 <u>/a</u>	Growth rate (% p.a.)	
					1978-83	1983-88
Petroleum	million bbls	597	491	585	-3.8	3.6
Natural gas	billion cf	820	1,186	1,980	7.7	10.8
Coal	'000 tons	264	486	9,930	13.0	80.8
Tin <u>/b</u>	'000 tons	27	27	38	-	7.1
Copper ore <u>/b</u>	'000 tons	181	205	170	2.5	-3.7
Nickel ore	'000 tons	1,207	1,298	2,550	1.5	14.5
Bauxite	'000 tons	1,008	778		-5.0	
Iron sand <u>/b</u>	'000 tons	233	125		-11.7	

/a Official plan targets.

/b Concentrate.

Source: Ministry of Mines and Energy and GOI, REPELITA IV plan.

2.31 Other major minerals produced in Indonesia include tin, copper ore, nickel ore, bauxite and iron sand. As shown in Table 2.9, production of these minerals has been fairly stagnant or declining in recent years. World Bank staff have very limited knowledge of these subsectors in Indonesia and of the factors influencing performance. However, a major consideration is clearly unfavorable world prices, with tin and bauxite prices both down in constant dollar terms since 1978 and only very marginal gains for copper and nickel. According to the latest World Bank commodity price forecasts, all of these mineral prices are expected to continue falling in constant dollar terms over the remainder of this decade. The major reasons for this pessimistic projection are the continued substitution of synthetic and other natural materials for metals, increased efficiency in the use of these materials, and a "maturing" of the industrial countries which has led to lower metal and mineral use per dollar of real GDP.

Objectives and Targets

2.32 The Government's broad objectives for the mining and petroleum sector during REPELITA IV are to: (a) use appropriate technologies to boost mining production and exports; (b) increase mineral processing and feedstock supplies for domestic industries; (c) diversify energy sources and improve the efficiency of energy use; and (d) step up supporting research and development activities. Related production targets are summarized in Table 2.9. A list of investment proposals for REPELITA IV, based primarily on information provided by the Ministry of Mines and Energy, is given in Table 2.10. This includes all major ongoing projects and some rephased or new projects still subject to government approval. Any final judgment on these proposals should be based on a thorough economic appraisal (something that we have not attempted for this report). However, some preliminary reactions are given in the following paragraphs.

2.33 In the coal subsector, first priority should be given to completing the Bukit Asam project. This project will have an annual capacity of 3.1 million tons, more than six times the present production of coal in Indonesia. However, implementation has been seriously delayed and the first coal is not now expected to be produced until October 1986 (about one year behind schedule). The ongoing expansion and rehabilitation at Ombilin I should also be completed on a priority basis. Ombilin II, a mine-rail-port complex oriented to coal exports, is presently under study and, if it proves viable, construction could probably start in 1986/87. Capacity will be determined during feasibility, but is presently planned at 600,000 tons per annum (and could be as much as 1 million tons). Related investments in a coal washing plant and coal terminal will also be required during REPELITA IV. Under a series of production-sharing contracts signed in 1981/82, international mining companies are to finance exploration and possibly development of potential mining areas in Kalimantan. As none of these companies has yet finished feasibility work, it is difficult to predict what level of investment will actually take place during REPELITA IV. However, unless the pace of coal development is substantially accelerated, it will be difficult to meet fully the projected requirements of the power sector from domestic supplies.

2.34 Of the other mining projects, only two are ongoing: construction of the Singkep I tin dredger and the joint venture in tin plate production. Both of these projects are expected to be completed in 1985. All of the other project proposals will have to be carefully evaluated, especially in light of the unfavorable world market conditions noted above. By far the largest of these projects is the alumina plant on Bintan Island. This plant is intended to produce 600,000 tons of alumina per annum, using local low-grade bauxite. The alumina, in turn, would be used in the recently-completed Asahan aluminum smelter. The alumina plant was one of the projects rephased in 1983, after about Rp 90 billion had already been invested. However, it is estimated that another Rp 800 billion would be needed to bring it to completion. This is a very high cost, mostly in foreign exchange, which could not be justified given present prices for alumina imports. Any decision to reactivate this project would have to be based on the willingness of a foreign partner to make a significant equity contribution towards the cost, together with favorable long-term marketing arrangements.

Table 2.10: MINING AND PETROLEUM PROJECT PROPOSALS FOR REPELITA IV /a

Project	Ownership	Purpose	Cost /b (Rp bil)
Mining			2,080
Coal			
Bukit Asam /c	PT Taba	Coal mining (3.1 mln tpa)	490
Ombilin I /c	Perum Batubara	Coal mining (750,000 tpa)	40
Ombilin II	Perum Batubara	Coal mining (600,000 tpa)	200
Coal terminal	Perum Batubara	Coal transport (loading 750 tpd)	20
Coal washing plant	Perum Batubara	Coal washing (150 tph)	10
Parambahan /c	Private /d	Coal mining (500,000 tpa)	40
E & S Kalimantan /c	Private /d	Coal mining	300
Other minerals			
Singkep I /c	PT Timah	Tin dredger (1,200 tpa)	20
PT Latinusa /c	Joint venture	Tin plate production (130,000 tpa)	50
Bintan alumina	BT Aneka Tambang	Alumina production (600,000 tpa)	800
Cilegon nonferrous	PT Aneka Tambang	Nonferrous smelting & refining (zinc 50,00 tpa, copper 50,000 tpa, sulphuric acid 230,000 tpa)	110
Pomalaa ferro-nickel	PT Aneka Tambang	Ferro-nickel prod. (add 85,000 tpa)	110
Gunung Limbung	PT Aneka Tambang	Copper, lead & zinc mining (1,000 tpd of ore)	20
Stainless steel	Joint venture	Stainless steel prod. (60,000 tpa)	110
Petroleum			10,250
Production and supply			
Musi refinery I/c	Pertamina	Refinery modernization	130
Refinery optimization	Pertamina	Improved operations at Dumai, Cilacap and Balikpapan	160
LPG export terminal/c	Pertamina	LPG processing (450,000 tpa)	50
Ships/c	Pertamina	Petroleum transport (145,500 DWT)	700
Domestic supply	Pertamina	Petroleum distribution	1,060
Exploration & prod.	Pertamina/e	Oil & gas exploration & production	5,230
City gas systems	PGN	Rehab. & devel. of gas systems in 8 cities	80
Petrochemicals			
Methanol plant/c	Pertamina	Methanol production (1,000 tpd)	20
Aromatics plant I /c	Pertamina	PTA production (150,000 tpa)	420
Aromatics plant II	Pertamina	Paraxylene production	800
Olefins plant	Pertamina	Ethylene (350,000 tpa) & derivatives production	1,600

/a Excluding studies and R&D proposals.

/b Rough estimates of potential costs at current prices during REPELITA IV.

/c Ongoing project. All other proposals are subject to government approval.

/d Product sharing with Perum Batubara.

/e Excludes investment by private contractors under product-sharing arrangements with Pertamina.

Source: Ministry of Mines and Energy and World Bank staff estimates.

2.35 By far the largest of the proposed petroleum investments is for exploration and production. A sustained effort in this area is essential, if the projected trends in production and exports are to be achieved. An unspecified amount of this investment will be provided by foreign oil companies under production-sharing arrangements. For this component, the net impact on the balance of payments and domestic resource requirements will be minimal.^{25/} The major issue, therefore, is whether the incentives, under present market conditions and government policies, will be sufficient to attract foreign oil company interest. In addition, Pertamina is expected to invest about Rp 1.0 trillion per annum in exploration and production activities during REPELITA IV. Other major claims on Pertamina's resources are expected to be for domestic supply and ships. The proposed investments in these areas are relatively large and should therefore be carefully evaluated in relation to the country's needs.^{26/} One priority in this area is for additional investment in interfuel substitution (especially by gas) to stretch out export earnings from oil. Lead times on such investments are long, and therefore preparation is needed now for the effects to be beneficial in the 1990s. Where sound investments have been identified - such as completion of the LPG export terminal or the proposed refinery optimization - these should be undertaken on a priority basis. PGN's program to rehabilitate and develop city gas systems also deserves continued support. However, the major question marks in the oil and gas sector relate to the proposed new investments in petrochemicals: to provide backward linkages to paraxylene production in the aromatics plant and to produce ethylene and derivatives in a new olefins complex. As with the Bintan alumina project, these proposals were shelved in 1983, because of their substantial foreign exchange requirements. Since then, the balance of payments outlook has become tighter and more uncertain. The economics of these projects is further undermined by the recent buildup in petrochemical capacity worldwide. Therefore, it seems unlikely that activation of these proposals could be justified during REPELITA IV.

^{25/} Direct foreign investment and related import requirements for the oil and gas sector are not recorded in Indonesia's official balance of payments or national accounts statistics. There is also some doubt as to whether investments funded by Pertamina are fully captured. For the public investment estimates used in Part I, all investments funded by private equity (whether in joint ventures or product-sharing arrangements) and by Pertamina are excluded.

^{26/} This is difficult to do without additional information. For example, no details are available on specific investments proposed for domestic supply, including a breakdown between oil and gas projects, and their relationship to production plans. Pertamina's requirement for new ships should be related to the present structure and age of its fleet, the projected volume and pattern of trade, and alternative transport arrangements (e.g., by ship purchases, leasing or contract services).

Costs and Financing

2.36 Table 2.11 shows indicative investment programs for mining and petroleum during REPELITA IV, based on the considerations outlined above. For the mining sector, the estimated cost is Rp 1.4 trillion, or about 65% of the potential costs of the proposals listed in Table 2.10. Excluding private equity contributions, the public investment costs are reduced further to Rp 1.0 trillion. Note the following features:

- (a) Initially, most resources are focussed on completing the Bukit Asam project. There is some doubt, however, whether the estimated expenditures during 1984/85 actually took place; any slippage would offset the relatively low level of mining investment projected for 1985/86.
- (b) Subject to the results of the ongoing feasibility study, work on Ombilin II could start in 1986/87. There would also be scope for introducing some other new mining projects in the latter years of REPELITA IV. However, the amounts involved would not be adequate to finance a major project, such as Bintan alumina, without substantial additional foreign equity participation.
- (c) Foreign equity is expected to become an increasingly important source of funds in the mining sector, financing about one third of investment over the final three years of REPELITA IV. Most of this investment is for coal development in Kalimantan. The levels and timing of this investment will depend on prevailing local and international market conditions for coal.

2.37 For the petroleum sector, the indicative investment program for REPELITA IV is estimated to cost Rp 7.9 trillion, or about 77% of the potential costs of the proposals listed in Table 2.10. Excluding funding by Pertamina, the public investment costs are reduced substantially to Rp 1.0 trillion. Note the following features:

- (a) Two thirds of the program is for exploration and production, most of which is financed by Pertamina's own resources. Pertamina also finances investments in domestic supply and ships, as well as part of the proposed refinery optimization program.
- (b) Government budget funds and external loans will be required to finish the Musi refinery, the methanol plant and the refinery optimization program. The proposed rehabilitation and development of the gas systems in eight cites will also be financed from these sources.
- (c) For the reasons outlined above, the proposed new investments in the aromatics expansion and olefins complex have not been included. Reactivation of these proposals could only be considered with a significant improvement in Indonesia's balance of payments outlook and after a thorough review of their economic viability.

Table 2.11: INDICATIVE INVESTMENT PROGRAMS FOR MINING AND PETROLEUM
(in Rp billion at current prices)

	1984/85	1985/86	1986/87	1987/88	1988/89	Total
Mining						
Bukit Asam	227.0	111.4	150.9	-	-	489.3
Ombilin I	39.7	2.9	-	-	-	42.6
Ombilin II	-	-	50.0	70.0	80.0	200.0
Parambahan	-	5.7	22.2	4.1	11.4	43.4
E&S Kalimantan	-	20.0	80.0	100.0	100.0	300.0
Singkep I	11.2	5.3	-	-	-	16.5
PT Latinusa	27.9	19.5	2.2	-	-	49.6
Other projects	-	-	-	100.0	120.0	220.0
Total	305.8	164.8	305.3	274.1	311.4	1,361.4
Financed by:						
GOI budget	33.8	56.0	85.9	42.5	50.0	268.2
External loans	251.2	60.9	115.0	127.5	150.0	704.6
Domestic loans	2.9	13.6	2.2	-	-	18.7
Private equity	17.9	34.3	102.2	104.1	111.4	369.9
Petroleum						
Musi refinery I	23.6	95.5	6.1	-	-	125.2
Ref. optimization	-	56.5	103.8	-	-	160.3
LPG export terminal	37.9	16.7	-	-	-	54.6
Asphalt plant	1.5	14.9	3.5	-	-	19.9
Methanol plant	16.4	-	-	-	-	16.4
Aromatics plant I	299.9	85.9	32.1	-	-	417.9
Ships	62.4	126.4	158.8	171.4	185.8	704.8
Domestic supply	82.2	161.0	236.2	237.4	341.4	1,058.2
Exploration & prod.	928.1	998.0	1,047.9	1,100.7	1,154.7	5,229.4
City gas systems	10.8	6.0	14.1	20.1	24.4	75.4
Total	1,462.8	1,560.9	1,602.5	1,529.6	1,706.3	7,862.1
Financed by:						
GOI budget	123.2	90.8	38.0	6.3	6.4	264.7
External loans	200.4	107.7	145.3	68.8	75.7	678.0
Other GOI	7.6	40.9	3.3	-	-	51.8
Pertamina funds	1,051.6	1,321.5	1,415.9	1,454.5	1,624.2	6,867.6

Source: Annex Table 3.

F. Power ^{27/}

Background

2.38 The power sector in Indonesia includes: (a) PLN, the State Electric Power Corporation; (b) captive plants installed primarily for industrial use; and (c) a number of small private companies and cooperatives which serve remote areas. PLN's installed capacity has expanded almost fivefold over the past decade (see Table 2.12). Almost three quarters of PLN's capacity is located on Java. Despite ongoing efforts to develop the country's hydro and geothermal potential, more than 80% of PLN's capacity is still based on petroleum (in steam turbines, gas turbines and diesel generators). The availability and reliability of PLN's supply was a major problem in the early 1970s and this motivated many industrial consumers to install captive plant. More recently, there has been a relative decline in the growth of captive plant, indicating that PLN has increasingly met the demands of new consumers. Even so, captive plant still accounts for about one half of installed capacity and one third of electricity consumption in Indonesia.

2.39 Electricity consumption has grown rapidly by 12.7% per annum over the past decade, with PLN sales rising at an impressive 16.5% per annum. By comparison, real GDP grew by 6.6% per annum over this period, implying an average elasticity of 1.9. The major reasons for this rapid growth were the expansion of PLN's generation capacity and extension of the distribution network. Even so, per capita electricity consumption (99 kWh per annum) and the electrification ratio (12%) are still exceptionally low compared to other countries in the region.^{28/} As a result, electricity still accounts for less than 10% of commercial energy consumption in Indonesia. Furthermore, there has been a marked slowdown in the growth of PLN's sales, especially on Java, since 1982/83.^{29/} This slowdown occurred in all consuming sectors and was due almost entirely to a fall in average consumption per customer. The major factors at work here are probably the slower growth in the non-oil economy and the recent sharp increases in electricity tariffs.

^{27/} This section covers the power sector (03.2.01) as defined in the plan. The investment program is for PLN, which dominates the sector's resource requirements. For a more detailed discussion of power investment issues see the World Bank, Indonesia: Power Sector Investment Review (Report No. 5486-IND, September 1985), referred to as the Power Investment Review in this section.

^{28/} Comparable estimates for other countries on per capita electricity consumption and the electrification ratio in 1981 are: the Philippines 390 kWh, 43%; Thailand 355 kWh, 41%; Korea 1,204 kWh, 95%; and Malaysia 703 kWh, 61%.

^{29/} PLN's sales rose by 9% in 1983/84, with the number of customers up by 16% but average sales per customer down by 6%.

Table 2.12: ELECTRICITY CONSUMPTION AND INSTALLED CAPACITY

	1973/74	1978/79	1983/84	Growth rates (% p.a.)	
				REP. II	REP. III
CONSUMPTION (GWh)					
<u>PLN sales</u>	<u>2,175</u>	<u>4,287</u>	<u>10,006</u>	<u>14.5</u>	<u>18.5</u>
Household	1,066	1,962	4,271	13.0	16.8
Industrial	331	1,443	3,445	59.8	19.0
Other	778	881	2,290	2.5	21.1
<u>Captive Plant a/</u>	<u>2,505</u>	<u>4,278</u>	<u>5,531</u>	<u>11.3</u>	<u>5.3</u>
<u>Total</u>	<u>4,680</u>	<u>8,565</u>	<u>15,537</u>	<u>12.8</u>	<u>12.6</u>
PLN CAPACITY (MW)					
Hydro	279	359	664	15.2	13.1
Steam oil	225	556	1,556	19.8	22.9
Steam coal	-	-	-	-	-
Geothermal	-	-	30	-	n.a.
Gas turbine	42	882	899	83.8	0.4
Diesel	231	499	671	16.7	6.1
<u>Total</u>	<u>812</u>	<u>2,296</u>	<u>3,820</u>	<u>23.1</u>	<u>10.7</u>

a/ All industrial. Captive plants of less than 5 kW and major hydro and steam plants serving enclave industries are excluded.

Source: World Bank, Power Investment Review.

Objectives and Targets

2.40 The Government's main objectives for power development during REPELITA IV are to: (a) improve the standard of living in cities and rural areas; (b) stimulate economic and industrial growth; and (c) improve the operation and management of electricity facilities. Related physical targets for PLN include the addition of 5,255 MW of installed capacity and the extension of the rural electrification program to cover 7,000 villages with 1.6 million

consumers.^{30/} An additional 50,000 consumers are to be supplied through rural cooperatives. The Government is also committed to a policy of replacing captive plant by PLN's supply as rapidly as possible and of licensing new captive plants only where PLN cannot supply. To evaluate these targets, World Bank staff have prepared a range of illustrative scenarios, using alternative assumptions on economic and policy variables affecting power development. Given the long gestation of power generation investments, this analysis has been extended through REPELITA V. The results are summarized in Table 2.13 and discussed below.

2.41 PLN sales are projected to grow by a range of 13.4% to 19.3% per annum during REPELITA IV. The major assumptions underlying these projections are as follows:

- (a) The plan targets for GDP and industrial growth are used in Scenarios A to BP. However, given the present uncertainties on resource availability, especially from oil, a slower growth path is a real possibility. The impact on power requirements of the macro-economic projections presented in Part I is illustrated in Scenario BE. There is also uncertainty regarding the future elasticity of industrial demand for electricity. Two alternative assumptions (1.6 and 1.3) are used in these scenarios, but an even lower elasticity (possibly less than one) cannot be ruled out.
- (b) The Government's policy on captive power takeover is reflected in Scenarios A and B. However, continued operation of some of the larger existing captive plants could well be an economic alternative to PLN supply, especially during peak periods. New investment in captive plant may also be justified for some large and remote industries, especially those which need process heat. Therefore, a more gradual takeover policy is assumed in Scenarios BP and BE.
- (c) The Government's objective is to increase the electrification ratio from its present level of 12% to over 40% by 1993/94. This assumption is used in Scenarios A and B. However, such rapid progress may not be compatible with the availability of resources or PLN's implementation capacity. There is also some doubt as to whether rural customers will be able to afford the implied levels of electricity use, without substantial subsidies from the Government. A more gradual pace of electrification is therefore assumed in Scenarios BP and BE.

^{30/} The plan also projects PLN sales to total 96,078 GWh during REPELITA IV, with 5.9 million new customers. However, these numbers seem to be exaggerated. A more plausible assumption, consistent with the Government's objectives on electrification and captive plant takeover, would be for PLN sales to total about 86,000 GWh, with 4.7 million new customers. This assumption is used in Scenario A below.

Table 2.13: ALTERNATIVE POWER SCENARIOS FOR REPELITA IV AND V

Indicator	Scenarios			
	A	B	BP	BE/c
Assumptions				
GDP growth (% p.a.)	5.0	5.0	5.0	4.1
Industrial growth (% p.a.)	7.0	7.0	7.0	6.6
Elasticity of industrial demand for electricity	1.6	1.3	1.3	1.3
Captive plant takeover (%)/a				
- Java	90	90	60	60
- Outer Islands	40	40	-	-
Electrification ratio (%)/a	41	41	36	36
Results				
Elect. consumption growth (% p.a.)				
- REPELITA IV	13.3	11.6	11.1	9.3
- REPELITA V	13.3	11.6	10.9	9.3
PLN sales growth (% p.a.)				
- REPELITA IV	19.3	16.8	15.3	13.4
- REPELITA V	16.7	14.8	14.0	13.2
PLN capacity added (MW)				
- REPELITA IV	4,462	4,214	4,222	4,222
- REPELITA V	7,282	4,487	3,736	3,061
PLN investment cost (US\$ billion)/b				
- REPELITA IV	9.7	8.2	7.8	7.5
- REPELITA V	11.6	10.5	9.4	9.1

/a At the end of REPELITA V (1993/94).

/b At April 1984 prices.

/c Estimates of PLN capacity added and investment costs are approximate only, and may not reflect the least-cost program.

Source: World Bank, Power Investment Review and staff estimates.

2.42 Least-cost investment programs for PLN were presented in the Power Investment Review for Scenarios A, B, and BP, using reasonable assumptions on key performance parameters.^{31/} Scenario A is based on the Government's

^{31/} These investment programs have been prepared using PLN's in-house planning models. The major assumptions are as follows: the load factor remains at 68%; transmission and distribution losses are reduced from 16% in 1984/85 to 13% by 1986/87; and the system outage standard is kept at one day per year.

targets for economic growth, electrification and captive plant takeover. Yet the required increase in PLN's installed capacity is only 4,462 MW, 15% less than projected in the plan. Most of this increase is accounted for by hydro (34%) and coal-fired (32%) plants. Under the alternative scenarios, with slower consumption growth, the major adjustments relate to the levels and timing of investment in uncommitted coal-fired plants, especially on Java (e.g., Suralaya and Paiton). However, in all scenarios, the share of oil-fired capacity is substantially reduced from its present level of 82% to around 30%-35% by the end of REPELITA V, and could go even lower if it proves economic to substitute natural gas in existing oil-fired plants. This trend is considered appropriate, given the high economic value of petroleum products relative to other fuels.

2.43 Scenario BE is a new scenario developed to illustrate the impact on PLN sales of the more pessimistic macro-economic projections (especially for REPELITA IV) presented in Part I of this report. Because of the overall resource constraint, the targets for captive plant takeover and electrification have also been set at the low end of the range discussed in the Power Investment Review (i.e., as used for Scenario BP). Although a least-cost investment program has not yet been prepared for this scenario, some preliminary conclusions emerge. Firstly, as compared to Scenario BP, new generation projects on Java could probably be delayed by about one year. During REPELITA IV, this would affect construction of the next two coal-fired plants (Paiton 1 and 2 and Suralaya 5 and 6), the Jatigede multipurpose project and several geothermal plants (Dieng, Salak and Drajat). Secondly, similar delays may be possible on the Outer Islands. But, here the timing issue is complicated by the absence of a unified grid system and further analysis will be needed to determine the impact on investment priorities. Finally, the combination of slower growth and a tighter resource constraint may require a reevaluation of the balance between generation and transmission and distribution investments. On the one hand, an expanded electrification program may be justified to make better use of lumpy generation investments coming on stream. However, in light of the expected resource constraint, it would also be appropriate to review standards and unit costs for the electrification program, to see if the targets can be met with less money.

Costs and Financing

2.44 There are still many uncertainties in the demand outlook and selection of generation options. Power planners will therefore have to review the investment program on a regular basis, and make necessary adjustments as circumstances change. However, at the present time, Scenario BE would seem to provide the most reasonable basis for planning, taking into account the projections in Part I on economic growth and the overall resource constraint. The projected increase in PLN's installed capacity during REPELITA IV is 20% below planned levels. The related investment program, as summarized in

Table 2.14 is estimated to cost Rp 9.2 trillion at current prices.^{32/} Note the following features:

- (d) About one half of the program is for generation, primarily in hydro and coal-fired plants. Over 80% of the generation investments during REPELITA IV are for committed projects (i.e., construction started in 1984/85 or earlier). Major expenditures during REPELITA IV on hydro plants are for Mrica (Rp 465 billion), Saguling (Rp 328 billion) and Cirata (Rp 635 billion). The major expenditure on coal-fired plants is for Suralaya (Rp 613 billion).
- (e) About two thirds of the investments are on Java, where the major generation projects are located. Investments on the Outer Islands give greater emphasis to transmission and distribution (61% of total investments) and to diesel plants within the generation program (49% of generation investment).

2.45 This indicative investment program is relatively large compared to actual power investments during REPELITA III and the projected level of public investment for REPELITA IV (as discussed in Part I of this report). The power sector's share in public investment is therefore projected to rise from 8.7% to 14.1% between these two periods.^{33/} It is expected that PLN will be able to implement this expanded program, provided ongoing efforts to strengthen planning and project management are intensified. Other potential implementation constraints, some of which are already evident, include time-consuming procurement procedures, unsatisfactory performance by local contractors and problems with land acquisition. However, the overriding constraint is likely to be the availability of resources. Projections prepared by World Bank staff suggest that the share of investment costs financed by PLN's own funds could be increased from 14% in REPELITA III to 20% in REPELITA IV (and as high as 33% by 1988/89). This result is dependent upon two key assumptions: (a) real tariff increases of 15% during REPELITA IV (with no real increase in primary fuel prices);^{34/} and (b) efficiency improvements in fuel consumption, system losses, labor productivity and working capital management. Even so, an addi-

^{32/} It should be stressed that this investment program is not optimized in relation to resource availability or the least-cost solution. As compared to Scenario BP, the only adjustment is to delay new generation projects on Java by one year; further work is required to evaluate the timing of projects on the Outer Islands and the size of the transmission and distribution program.

^{33/} The share of power investment in GDP is projected at 1.7% for REPELITA IV. This is similar to ratios achieved in other countries (e.g., the Philippines, Brazil and India) during a phase of power infrastructure development.

^{34/} The required increase would double to 30%, if the impact of corporate tax and the recently introduced VAT on petroleum products is taken into account.

tional Rp 7.4 trillion would still be required from development expenditure (government equity and external loans).^{35/} This amount is 6% lower than the allocation in the plan, but would still absorb 14% of the more constrained levels of development expenditure projected in Part I. Even so, the costs of further cutbacks, in terms of lower economic growth or less efficient energy development, would be difficult to justify.

Table 2.14: INDICATIVE INVESTMENT PROGRAM FOR POWER (PLN)
(in Rp billion at current prices)

Program	1984/85	1985/86	1986/87	1987/88	1988/89	Total
<u>Generation</u>	<u>793.6</u>	<u>983.3</u>	<u>759.4</u>	<u>811.5</u>	<u>952.8</u>	<u>4,300.6</u>
Hydro	433.1	508.3	359.0	495.1	566.3	2,361.7
Steam oil	61.7	75.9	72.6	54.1	-	264.3
Steam coal	208.8	216.7	140.8	143.6	306.6	1,016.6
Geothermal	33.0	15.0	5.5	7.0	28.9	89.3
Gas turbine	2.6	-	-	-	-	2.6
Diesel	54.3	167.5	181.5	111.6	51.1	566.1
<u>Other investments</u>	<u>802.2</u>	<u>913.0</u>	<u>924.2</u>	<u>1,074.4</u>	<u>1,207.5</u>	<u>4,921.3</u>
Transmission	387.9	366.2	269.1	290.2	316.3	1,579.6
Distribution	434.4	511.3	624.0	748.3	848.7	3,166.6
Other	29.9	35.5	31.1	36.0	42.6	175.1
<u>Total</u>	<u>1,595.8</u>	<u>1,896.3</u>	<u>1,683.6</u>	<u>1,885.9</u>	<u>2,160.3</u>	<u>9,221.9</u>
Financed by:						
GOI budget	300.0	324.0	349.9	377.9	408.2	1,760.1
External loans	1,245.3	1,336.9	922.9	1,101.5	1,032.5	5,639.0
PLN funds	50.4	235.4	410.8	406.5	719.7	1,822.8

Source: Annex Table 3.

^{35/} Note that the development expenditure requirements in 1984/85 and 1985/86 are substantially higher (86%) than provided in the budgets. This overrun may be due in part to carried-over expenditures (SIAPs) from earlier years. However, in so far as actual expenditure is lower, some rephasing of the investment program will be required.

G. Transport ^{36/}

Background

2.46 An efficient transport system is vital to Indonesia due to the size, population and geography of the country. The existing system includes all major modes:

- (a) The sea transport network extends to approximately 300 ports and numerous other landing points. Indonesia's shipping fleet includes 8,150 domestic vessels (4.6 million DWT) and 62 ocean going vessels (0.8 million DWT).
- (b) The principal road network totals over 147,000 km, of which 30% is in Sumatra and 25% in Java. The road vehicle fleet includes 866,000 cars, 718,000 trucks and 160,000 buses.
- (c) The Indonesian State Railway (PJKA) has a total route length of 6,400 km, of which almost 70% is in Java and the remainder in three separate systems in Sumatra. PJKA's rolling stock includes 518 locomotives, 915 passenger cars and 9,500 freight cars.
- (d) There are 53 classified airports in Indonesia and several hundred smaller, non-classified airfields. The commercial aircraft fleet exceeds 700.
- (e) There are several thousand km of navigable waterways in Indonesia, on which an estimated 10,000 river craft are operating.

2.47 According to the national accounts statistics, the transport and communications sector grew in real terms by 11.3% per annum over the past decade, implying an elasticity to GDP growth of 1.7. As shown in Table 2.15, modal growth rates have ranged from very rapid for air transport to virtually stagnant for rail transport. Available data for freight traffic suggest that about 70% is now transported by road, 27% by sea, 3% by rail and less than 1% by air.^{37/} However, there are considerable variations in modal shares by region. For example, movement of goods in Java is 96% by trucks, while 57% of intra-island cargo traffic in Sumatra is by coastal shipping and almost all inter-island cargo traffic is by sea. The coverage of the transport system is generally adequate for a country at Indonesia's stage of development. However, in many cases, the infrastructure is in urgent need of rehabilitation and upgrading. Other inefficiencies result from weaknesses in the institutional framework for transport planning, management and regulation. The

^{36/} This section covers the road and bridges (04.1), land transport (04.2), maritime transport (04.3) and air transport (04.4) subsectors as defined in the plan.

^{37/} Comparable shares for passenger traffic are 82% by road, 11% by rail, 5% by air and 2% by sea.

Table 2.15: RECENT TRANSPORT AND TRAFFIC TRENDS

Indicator	Units	1973	1978	1983	Growth Rates (% p.a.)	
					REP. II	REP. III
Road transport						
Cars	('000 no.)	307.7	535.4	865.9	11.7	10.1
Trucks	('000 no.)	144.1	336.8	717.9	18.5	16.3
Buses	('000 no.)	30.4	53.4	160.3	11.9	24.6
Railway traffic						
Passengers	('000 no.)	29.4	31.4	46.0	1.3	7.9
Freight	('000 no.)	4,561.0/b	4,500.0	5,037.0	-0.3	2.3
Port traffic						
Domestic	(mil. tons)		20.0	29.9		8.4
International	(mil. tons)		114.6	131.0		2.7
Air traffic /a						
Domestic						
- Passengers	('000 no.)	1,649.0	4,150.6	4,900.2	20.3	3.4
- Freight	('000 tons)	13.8	42.5	53.9	25.2	4.9
International						
- Passengers	('000 no.)	97.1	850.2	1,055.8	54.3	4.4
- Freight	('000 tons)	3.1	6.2	22.4	14.9	29.3

/a Departures for passengers and loadings for freight.

/b For 1972.

Source: BPS.

Government has started to tackle these problems through the recent sweeping reforms of customs, ports and shipping operations.^{38/} Similar actions in other subsectors, in both operational and policy areas, are urgently required to relieve transport bottlenecks and reduce costs.

38/ For a summary of these reforms see the World Bank, Indonesia: Policies for Growth and Employment (Report No. 5597-IND, April 23, 1985), pp 31-32.

Objectives and Targets

2.48 The Government's basic objectives for the transport sector during REPELITA IV are to facilitate more efficient flows of goods and services and to increase the mobility of people to all parts of the country. The plan also recognizes the importance of transport services for stimulating regional development and national integration. Related physical targets for the road network, rail system, shipping fleet and aircraft fleet are summarized in Table 2.16. Unfortunately, more detailed project proposals, consistent with these targets, are not available. Nor has it been possible, for this report, to undertake a comprehensive review of transport strategy, including issues related to intermodal coordination and linkages to other economic activities. Therefore, the following discussion is limited to general comments on priorities and constraints in each of the major subsectors.

2.49 In the roads subsector, the plan correctly gives priority to maintaining, rehabilitating and upgrading the existing network. The basic objective is to increase the proportion of national and provincial roads that are in "stable condition" from 25% to 70% over the five years of REPELITA IV. This will require rehabilitation/upgrading of more than 18,000 km of roads. This target is considered to be feasible, given the recent rate of progress under the highway betterment program (about 2,000 km per annum) and the scope for further expansion: management by the Directorate General of Highways and provincial departments of public works is good, and local contracting capacity exists to carry out the work. The major concern is to ensure that adequate budgetary resources are provided to maintain the coverage and standards of the program. On the construction side, the plan gives priority to linking important production and marketing centers, especially in newly-settled transmigration areas. This is an appropriate focus. However, it is doubtful whether the target for new rural roads (12,000 km) can be achieved. In recent years, rural road construction has reached about 1,500 km per annum, but many of these roads are of poor quality and do not last through the rainy season. A more selective construction program, supported by regular maintenance, would therefore be more appropriate. The target for new toll roads (198 km) also needs to be reevaluated, taking into account their effective contribution to relieving traffic congestion.^{39/} In urban areas, priority should be given to improving traffic management rather than expanding public transport services. In particular, further public investments in city buses should be kept to a minimum.^{40/}

2.50 In the railway subsector, the plan gives priority to increasing transport capacity and service quality. Both of these objectives can perhaps best be served, in the immediate future, by improving PJKA's management and

^{39/} At present, Bina Marga has 102 km of toll roads in operation and another 238 km is under construction.

^{40/} For a more detailed discussion of urban transport issues, see the World Bank, Indonesia: Urban Services Sector Report (Report No. 4800-IND, June 25, 1984).

the operational efficiency of the existing railway system. For example, the availability of passenger coaches and freight wagons is presently only about 70%. With simple changes in maintenance policies, this ratio could be raised to 90%, increasing PJKA's carrying capacity by 30% and avoiding new investments of at least Rp 100 billion. Similarly, the availability of locomotives could be raised from 80% to at least 85%. There is also ample scope for improving the utilization of rolling stock. For example, reductions in wagon turnaround times could double PJKA's freight capacity and save another Rp 200 billion in new investments. Present plans to purchase new rolling stock, as summarized in Table 2.16, would therefore seem to be excessive. Other major investments in new track and infrastructure should also be deferred, pending a major overhaul of PJKA's operations and preparation of a medium-term railway plan. In this way, expenditures during the remainder of REPELITA IV can be focussed on completing ongoing projects (e.g., the rail link for Bukit Asam) and rehabilitating existing rolling stock and infrastructure. Some priority investments identified by a recent World Bank mission include equipment for track realignment (Rp 2 billion), machinery for rail flaw detection and grinding (Rp 8 billion) and cranes and welding equipment for bridge repair (Rp 2.3 billion). Purchase of up to 100 special-purpose container wagons (Rp 2.5 billion) and related lift trucks (Rp 2 billion) might also be justified, to facilitate intermodal operations.

2.51 For the maritime subsector, the plan proposes an ambitious program of port and shipping development. However, as in the case of railways, the immediate priority is efficiency improvement rather than capacity expansion. At Tanjung Priok, for example, the berth utilization rate was only 53% in 1983. Studies indicate that, except for a new container terminal, no port expansion is required at Tanjung Priok until the mid-1990s. However, substantial changes will have to be instituted to handle projected traffic levels efficiently. For major ports, priority investments over the next five years for facility rehabilitation and container handling are to be financed under projects supported by the World Bank (Tanjung Priok, Teluk Bayur, Panjang, Palembang and Pontianak) and ADB (Surabaya and Kalimantan ports). Additional port investments during REPELITA IV should be minimal. As regards shipping, the targets for the local, traditional and pioneer fleets are reasonable. Some special-purpose bulk carriers (e.g., for fertilizer and palm oil) may also be required, although there is a general over-supply of these ships at the present time. The major reservation, however, relates to the proposed expansion of the national (RLS) fleet. For these ships, utilization rates could be increased at least three times (from 10 to 30 tons per DWT per year), with improvements in cargo handling and port operations. As a result, even allowing for the Government's new scrapping policy and rapid cargo growth, it is unlikely that more than 150,000 DWT of new capacity will be required during REPELITA IV.^{41/} In addition, PT Pelni is in the process of purchasing six new

^{41/} The new scrapping policy, introduced in May 1984, requires that all ships older than 25 years be scrapped. This will reduce the national fleet by about 200,000 DWT during REPELITA IV to 285,000 DWT. With improvements in utilization rates, this fleet could handle about 5.7 million tons, a 50% increase over 1983 cargo levels.

ships (13,000 DWT each) for passenger services; no other new passenger ships should be required during REPELITA IV. Similarly, for the international fleet, no further expansion can be justified without a significant improvement in competitiveness.

Table 2.16: TRANSPORT TARGETS FOR REPELITA IV

Indicator	Units	Status 1983/84	REPELITA IV targets /a	
			Improvement	Expansion
<u>Roads</u>		<u>147,498</u>	<u>18,205</u>	<u>13,478</u>
National	(km)	11,809	3,750	484
Provincial	(km)	33,998	14,455	994
District	(km)	101,691	-	12,000
<u>Railways</u>		<u>10,933</u>	<u>18,822</u>	<u>435</u>
Locomotives	(no.)	518	1,223	25
Passenger cars	(no.)	915	2,000	210
Freight wagons	(no.)	9,500	15,599	200
<u>Shipping fleet /b</u>		<u>6,250</u>	<u>279</u>	<u>1,907</u>
National	('000 DWT)	482	166	420
Local	('000 DWT)	360	53	98
Traditional	('000 DWT)	270	60	85
Pioneer	('000 DWT)	21		5
Special	('000 DWT)	3,515		319
International	('000 DWT)	1,602		980
<u>Aircraft fleet</u>		<u>700/c</u>		<u>55</u>
Cassa	(no.)			31
Fokker	(no.)			24

/a "Improvement" includes the betterment program for roads and rehabilitation/replacement of existing assets for other subsectors. "Expansion" includes construction for roads and new purchases for other subsectors.

/b Excluding tankers.

/c Estimated fleet of all commercial aircraft (public and private).

Source: GOI, REPELITA IV plan.

2.52 In the air transport subsector, the plan gives priority to improving service quality and extending domestic services to remote areas not served by other means of transport. Major investments to date have focussed on completing the new Cengkareng airport in Jakarta, which began operations in May 1985. Aircraft purchases are to be limited to the pioneer fleet, including 31 locally-made Cassa planes and 24 imported Fokkers. Garuda is not expected to purchase any new aircraft, for replacement or expansion, during REPELITA IV.

Finally, inland waterway development is intended to complement the road and rail network, especially in remote areas. To this end, the plan proposes adding more than 50 quays and 18 ferry boats during REPELITA IV; another 13 ferries are to be rehabilitated.

Costs and Financing

2.53 Table 2.17 show an indicative investment program for the transport sector, based on the considerations outlined above. The total cost during REPELITA IV is estimated to be Rp 7.1 trillion at current prices. Note that the classification of programs is the same as used in the plan and actual

Table 2.17: INDICATIVE INVESTMENT PROGRAM FOR TRANSPORT
(in Rp billion at current prices)

Program	1984/85	1985/86	1986/87	1987/88	1988/89	Total
<u>Roads and bridges</u>	<u>664.9</u>	<u>677.6</u>	<u>789.3</u>	<u>938.7</u>	<u>1,104.3</u>	<u>4,174.8</u>
Maintenance /a	144.1	152.8	178.2	207.9	242.5	925.4
Betterment	337.4	340.0	440.9	544.2	661.2	2,323.6
Construction /b	183.4	184.8	170.2	186.6	200.6	925.8
<u>Land transport</u>	<u>236.6</u>	<u>238.1</u>	<u>140.7</u>	<u>152.6</u>	<u>165.5</u>	<u>1,138.0</u>
Traffic facilities	9.3	10.0	11.2	12.6	14.2	57.3
Railways	224.6	225.0	126.0	136.1	146.9	858.6
Inland waterways	2.7	3.1	3.5	3.9	4.4	17.6
<u>Maritime transport</u>	<u>279.4</u>	<u>277.7</u>	<u>220.1</u>	<u>239.1</u>	<u>259.7</u>	<u>1,276.0</u>
Port facilities /c	112.0	13.7	90.2	97.2	104.9	514.3
Fleet development	136.2	136.2	94.5	102.0	110.2	579.1
Other programs /d	31.2	31.5	35.4	39.9	44.6	182.6
<u>Air transport</u>	<u>189.2</u>	<u>190.4</u>	<u>100.8</u>	<u>108.8</u>	<u>117.5</u>	<u>706.8</u>
Airport facilities	86.8	86.8	50.4	54.4	58.8	337.2
Fleet development	102.4	103.6	50.4	54.4	58.8	369.6
<u>Total</u>	<u>1,370.2</u>	<u>1,383.9</u>	<u>1,250.9</u>	<u>1,439.1</u>	<u>1,647.1</u>	<u>7,091.1</u>
Financed by:						
GOI budget	598.8	610.0	613.1	709.7	818.9	3,350.5
External loans	694.0	714.9	613.1	709.7	818.9	3,550.6
Domestic loans	65.9	56.0	22.7	17.7	7.3	169.6
Internal funds	11.5	3.0	2.0	2.0	2.0	20.5

/a Includes support works.

/b Includes toll roads funded by Jasa Marga.

/c Includes port investments funded by Perumpul II.

/d Dredging, sea safety and maritime services.

Source: Annex Table 3.

budget allocations (with the addition of investments funded by Jasa Marga and Perumpel II) are shown for 1984/85 and 1985/86.^{42/} For later years, the following assumptions are used (all costs at 1983/84 prices):

- (a) For roads and bridges, the betterment program has been increased to provide for full funding of the plan target (18,000 km); unit costs are estimated at Rp 100 million per km. The maintenance and construction programs are assumed to increase by 8% and 6% per annum respectively. An additional Rp 150 billion is included for toll road investments funded directly by Jasa Marga during REPELITA IV.
- (b) For land transport, the annual level of investment in railway infrastructure and rolling stock is assumed to fall to Rp 100 billion. Investments in traffic facilities and inland waterways are both projected to increase by 4% per annum.
- (c) For maritime transport, annual investments in port facilities are assumed to fall to around Rp 70 billion. The allocation for fleet development is sufficient to purchase about 470,000 DWT of new capacity (at an average cost of Rp 1 million per DWT) for public sector shipping companies.^{43/} Other programs are projected to increase by 4% per annum.
- (d) For air transport, investments in airport facilities are projected to fall to Rp 40 billion per annum. The allocation for fleet development is sufficient to purchase 30 small aircraft for domestic services (the rest are assumed to be privately owned).

2.54 Of the total public investment program for transport, over 97% or Rp 6.9 trillion is to be financed from the Government's budget or external loans. This amount is 22% lower than the Rp 9.1 trillion allocated in the REPELITA IV plan. However, more importantly, there is a significant reallocation of resources among subsectors. In particular, the share allocated for roads and bridges has been increased from 46% to 59%, with particular emphasis on the maintenance and betterment programs.^{44/} Corresponding reductions have been made in investments for railway infrastructure and rolling stock, port facilities and shipping fleet development. These are all areas where significant increases in capacity can be achieved with improved operational efficiency. Of course, as noted above, some investments will still be required, to rehabilitate existing assets and remove capacity bottlenecks. However, without steady progress on efficiency issues, transport costs will remain high, adversely affecting traffic growth and raising questions about the justification for further expansion.

^{42/} The program allocation of external loans has been estimated for 1985/86.

^{43/} Some special-purpose vessels (e.g., for Pertamina and Pusri) are included in other sectoral investment programs.

^{44/} About 50% of the maintenance funds are to be channelled to local government agencies through the INPRES program for rural roads.

2.55 During REPELITA IV, the only public enterprise in the transport sector with realistic prospects for raising non-budgetary resources on any scale is Jasa Marga. A recent World Bank review of Jasa Marga's financial situation indicated that, while internal cash generation would be minimal, up to Rp 170 billion of toll road investments could be financed from bond issues over the next five years.^{45/} Jasa Marga also expects that about 60% of toll road investments during REPELITA IV will be funded through the Government's budget, either as equity contributions or on-lending of external loans. However, this funding should be subject to a careful economic evaluation of the proposed toll roads. Most of the other transport enterprises are likely to remain a significant burden on the Government's budget, for both investment and recurrent purposes. One of the most serious cases is the Indonesian State Railway (PJKA). All of PJKA's investment requirements are met by the Government. In addition, the Government provides a subsidy to cover operating losses (presently running at Rp 60 billion per annum)^{46/} and makes a separate contribution towards maintenance. Since tariffs for both passengers and freight are competitive with road transport, there is little scope for raising tariffs at this time. Rather, priority should be given to improving the efficiency of railway operations, through better utilization of available rolling stock, more effective coordination of operations and traffic management, and economies in the use of labor, materials, fuel and equipment. There is also a need to identify profitable new services, where the railway can effectively compete with other transport options. Through these measures, the operating subsidy could be steadily reduced during REPELITA IV, and PJKA could increasingly finance its own investments in later years.

H. Telecommunications ^{47/}

Background

2.56 Indonesia embarked upon a program to develop a modern telecommunications network in the early 1970s. As shown in Table 2.18, this led to a rapid expansion of telephone exchange capacity (especially automatic changes), an even more rapid expansion in telephone traffic and a switch from telegraph to

^{45/} Jasa Marga's own revenues from toll collections are largely absorbed by operating expenses, including interest on bond issues. Through 1984, Jasa Marga had raised Rp 163 billion from bond issues and plans to raise another Rp 385 billion over the next five years. However, of this planned amount, about 50% will be used to repay outstanding obligations.

^{46/} These losses are expected to equal 36% of operating costs in 1985 and would increase substantially with adequate provision for depreciation, pension liabilities, dividends (for government investment) and stock losses.

^{47/} This section covers the telecommunications sector (04.5.02) as defined in the plan. The investment program is for Perumtel, the public corporation responsible for the domestic network, which dominates the sector's resource requirements.

telex facilities. Indonesia also became one of the first developing countries to introduce satellite transmission for the domestic network. However, the pace of development has slowed over the past five years and access to telecommunications services remains very limited. Indonesia's telephone density of 0.4 per 100 people is easily the lowest among ASEAN countries^{48/} and little progress has been made in improving Indonesia's relative ranking over the past decade. There are also significant regional variations in telephone densities within Indonesia, ranging from 4.4 in Jakarta to less than 0.2 in the smaller Outer Islands. In addition, Jakarta has access to the most automated and advanced technology.

Table 2.18: TRENDS IN TELECOMMUNICATIONS SERVICES
(growth rates in % p.a.)

Indicator	1969-73	1973-78	1978-83
Telephone exchange capacity	1.9	16.3	7.0
Automatic	9.4	24.8	9.5
Manual	-4.5	1.2	-3.8
Direct exchange lines	7.1	8.4	12.8
Telephone traffic			
Domestic (pulses)	28.6	27.9	18.9
International (minutes)	44.8	40.3	23.2
Telegraph traffic			
Domestic (words)	17.2	7.4	9.9
International (words)	4.2	-8.3	-19.4
Telex traffic			
Domestic (pulses)	27.9	29.4	56.4
International (calls)	81.1	36.0	23.3

Source: GOI, Nota Keuangan.

2.57 The effective demand for telephone services is high and increasing. Unmet demand is most pronounced in the eight largest cities, but is rising elsewhere as well. By the end of 1983, the number of registered applicants for telephones was about 255,000, or close to half the number of subscribers

^{48/} Comparable telephone densities for other ASEAN countries are: Singapore, 31.6; Malaysia, 6.3; the Philippines, 1.2; and Thailand 1.1.

in the country.^{49/} Waiting lists are now over five years long in some exchange districts with little hope of subscriber connection in the near future. Partly as a result of this acute shortage of telephone lines, the network is very congested and a large proportion of call attempts cannot be completed or are subject to long delays. Unmet demand also encourages corruption. For example, although the official connection charge in Jakarta was recently raised from Rp 2,000 to Rp 5,000, many applicants are willing to pay Rp 4-6 million for an immediate connection.

Objectives and Targets

2.58 The Government's basic objectives for the telecommunications sector during REPELITA IV are to:

- (a) establish, as rapidly as possible, a sound and efficient telecommunications network;
- (b) make Perumtel largely self-financing and, eventually, a substantial net contributor to the Government's budget;
- (c) develop a cadre of staff in Perumtel who are capable of long-range strategic planning and effective program implementation; and
- (d) develop sound domestic construction, consulting and, where economically justifiable, manufacturing industries, to support the telecommunications sector.

The primary physical target for REPELITA IV is to add 750,000 direct exchange lines (DELS).^{50/} This would increase capacity by more than 140% and raise the telephone density from 0.4 to 0.9 per 100 people. Achievement of this target would clearly be desirable, especially in a country such as Indonesia where transport and information costs are high and social integration so important.^{51/} Furthermore, the potential demand for increased telecommunications services is amply demonstrated by the relatively low levels of development compared to other ASEAN countries and the long waiting list for connections. The real issues therefore are whether the related investments can be implemented and financed (relative to other priority claims on resources).

^{49/} The number of registered applicants understates effective demand because: (a) many prospective subscribers are discouraged by the long delays in obtaining telephone connections; and (b) demand is not registered in areas which currently have no service.

^{50/} A DEL is a connection from an exchange to a subscriber. In addition, each subscriber may have his own network of lines and telephones.

^{51/} For a more general discussion of the benefits from telecommunications investment, see Saunders, et. al., Telecommunications and Economic Development (World Bank, 1983).

2.59 Perumtel has prepared a medium-term investment program to expand capacity by 950,000 lines, somewhat higher than the official plan target for REPELITA IV. However, this program has been divided into three batches, which can be rephased in line with implementation and financial constraints. Batch I, which is currently under implementation, consists of the installation of 200,000 analog DELs (carried over from REPELITA III) and an additional 120,000 digital DELs. The financing for Batch I has already been secured and exchange installation is proceeding according to schedule. However, Perumtel is experiencing serious problems in cable network construction, which is being carried out by numerous small contractors. Perumtel is considering hiring program management consultants, to ensure that this work is completed by the end of 1989 (18 months behind schedule). Preparations have also been made to introduce turnkey contracting for cable network construction in Batches II (240,000 DELs) and III (200,000 DELs). With complementary improvements in Perumtel's internal capacity for investment planning and coordination, it should be possible to have most of the Batch II budget committed by the end of 1989 and to start advanced planning for Batch III. Even so, the subscriber connections added during REPELITA IV are unlikely to exceed 325,000 lines, less than half of the official plan targets.

2.60 A related issue is the Government's decision to introduce digital technology during REPELITA IV. This is a logical decision, which will improve the range of services (e.g., redialling) while also allowing Perumtel to computerize traffic measurement and billing. It is obviously important that the transitional costs and disruptions of introducing digital technology are kept to a minimum. However, it is also important for Perumtel to ensure that it gets the right equipment at the right price. In this regard, the Government has decided to develop a local production capacity in PT Inti, with technical support from Siemens A.G. of West Germany. Under a recently-concluded agreement, Siemens will initially supply 100,000 lines of digital exchanges per annum during 1984-86 and provide technical assistance to establish a domestic manufacturing facility with annual capacity of 150,000 units. Local production would start with simple assembly of Siemens' components and then as PT Inti gains experience, local content and multi-sourcing of components would increase. To avoid excessive protection of this equipment and to diversify technical risks, the Government should consider importing a second digital exchange system for part of the country, together with a specific pre-determined domestic preference margin. Otherwise, low product quality and production efficiency will spill over into the costs of telecommunications services.^{52/}

^{52/} Similar issues apply to the local manufacture of cables, where low rates of capacity utilization have raised costs substantially above international levels.

Costs and Financing

2.61 The indicative investment program for the telecommunications sector is summarized in Table 2.19.^{53/} Estimated investment levels for 1984/85 are from Perumtel's latest budget submission. For later years, the program is based on detailed investment proposals prepared by Perumtel, but rephased in line with the implementation constraints noted above. In particular, Batch I (the ongoing program) and Batch II (apart from telex facilities and phase four of the digital program) are assumed to be fully funded by 1989. No provision has been made for Batch III. In practice, it is more likely that implementation of Batch II will slip somewhat, while some advanced planning for Batch III may be required. However, overall investment levels would not be greatly affected by these changes.

Table 2.19: INDICATIVE INVESTMENT PROGRAM FOR TELECOMMUNICATIONS (PERUMTEL)
(in Rp billion at current prices)

Program	1984/85	1985/86	1986/87	1987/88	1988/89	Total
<u>Ongoing program</u>	<u>103.0</u>	<u>249.2</u>	<u>328.2</u>	<u>291.6</u>	<u>225.9</u>	<u>1,198.0</u>
Exchanges	39.4	60.6	90.9	41.9	0.7	233.5
Telex	2.7	8.1	31.2	4.8	4.4	51.3
Cable network	35.6	57.5	74.9	78.1	84.4	330.4
Ground transmission	8.9	19.0	30.1	26.1	13.2	103.3
Satellite transmission	8.5	70.4	36.8	31.1	4.8	151.5
Other	7.9	33.6	58.5	109.5	118.3	327.9
<u>New programs</u>	<u>-</u>	<u>8.9</u>	<u>135.9</u>	<u>227.3</u>	<u>357.6</u>	<u>729.8</u>
Exchanges	-	-	53.3	72.0	135.3	260.6
Cable network	-	0.5	18.2	91.2	174.4	284.3
Ground transmission	-	8.5	64.3	64.1	48.0	184.9
<u>Total</u>	<u>103.0</u>	<u>258.1</u>	<u>464.3</u>	<u>518.9</u>	<u>583.5</u>	<u>1,927.8</u>
Financed by:						
External loans	70.7	83.4	181.0	104.6	62.9	502.5
Domestic loans	-	44.5	56.8	111.3	158.6	445.8
Common bonds	-	-	76.5	103.0	62.0	241.5
User's credit	-	30.2	-	-	-	30.2
Internal funds	32.3	100.0	150.0	200.0	300.0	707.8

Source: Annex Table 3.

^{53/} Consistent with Perumtel's budgetary procedures, the data are for calendar years 1984 to 1988. There are, therefore, some expenditures on Batches II and III in 1989, which fall into the REPELITA IV period but are not reflected in Table 2.19.

2.62 The estimated cost of the investment program is Rp 1.9 trillion at current prices. There is a significant bunching of this investment over the next three years, with real expenditures more than doubling in 1985/86 and rising by another 72% through 1987/88. However, even at this level, telecommunications investment would only be equivalent to about 0.5% of GDP; this rate is still lower than achieved in Indonesia during the mid-1970s (0.7%) and sustained in other countries which have successfully developed their telecommunications sector (normally around 1.0%). The largest component of the investment program is for the cable network (32%), followed by exchanges (26%) and transmission (23%). In general, the proposed phasing would seem to give good overall balance, between switching/network expansion, local/long-distance facilities and urban/rural services. There are also no obviously low-priority components within the investment program. In particular, two questionable projects originally proposed (i.e., a public car radio telephone system and the submarine cable link between Surabaya and Banjarmasin) have been omitted. However, if further implementation delays do occur, Perumtel will have to take steps to ensure that overall balance is maintained; an unbalanced system can quickly lead to wasted investments and poor quality services.

2.63 A preliminary financing plan for the indicative investment program is shown in Table 2.19. Under this proposal, about 26% of the funding is to be channelled through the Government's budget, as onlending of external loans.^{54/} This amount (Rp 502 billion) is consistent with the plan allocation for REPELITA IV. More than Rp 700 billion, or 37% of the program, is projected to be financed from Perumtel's internal funds. (In addition, Perumtel is expected to provide close to Rp 900 billion to the Government's budget, through income tax and development fund payments.) Preliminary financial analysis by World Bank staff indicate that these contributions are feasible, provided that: (a) subscriber connections and traffic grow with exchange expansion; (b) installation charges and tariffs at least keep pace with inflation; and (c) Perumtel is successful in improving billing collections, especially from public sector subscribers. This leaves another Rp 700 billion to be financed from domestic borrowing, common bonds and user's credit.^{55/} Perumtel has already initiated action to raise the required funding for the next one to two years.

^{54/} Government equity for Perumtel is usually provided through conversion of loans (rather than PMP), and as such does not always get captured in budgetary transactions.

^{55/} An earlier proposal to use subscriber bonds has been rejected by the Ministry of Finance.

I. Housing ^{56/}

Background

2.64 The urban population in Indonesia has grown at about 4% per annum over the past decade, reaching 45 million (or 22% of the country's total population) in 1983. As a result there are now about 300,000 new urban households to be housed every year. Most of these households find their own shelter, sometimes using informal credit mechanisms and small private contractors. However, starting in 1974, the Government also initiated a small public housing program through the National Urban Development Corporation (Perummas). Perummas has steadily increased its output from 50,000 units in REPELITA II to more than 80,000 units in REPELITA III (see Table 2.20). The least expensive units, costing about Rp 1.5 million at 1983 prices, are affordable by low income families earning as little as Rp 50,000 per month (the 20th percentile in Jakarta). However, there is some evidence that most units have actually been allocated to civil servants and other families earning closer to Rp 100,000 per month (the estimated median income in Jakarta), because of "crowding out" due to inadequate overall supply and biases in beneficiary selection criteria.

2.65 The present housing finance system is dominated by the Bank Tabungan Negara (BTN). At present, BTN provides mortgage loans for up to 95% of the house price at interest rates ranging from 5% to 9% over a 15 or 20 year term. As of September 1983, BTN had financed 82,380 Perummas units (Rp 120 billion) and more than 90,000 privately constructed units (Rp 403 billion). More than 70% of mortgages for privately constructed units were above Rp 5 million, meaning that they could only be afforded by families earning at least Rp 180,000 (80th percentile in Jakarta). As the financing of privately constructed units has expanded more rapidly than the Perummas program, BTN's funds have been increasingly diverted to a narrower segment of the housing market. Some commercial banks and a semi-private mortgage company, PT Papan Sejahtera,^{57/} cater to even higher income clients. In addition, some large companies reportedly provide housing assistance to their employees.

Objectives and Targets

2.66 The Government recognizes "the provision of cheap and equitably distributed housing in a healthy environment" as a basic need of the population. The related public housing program for REPELITA IV is to build 300,000 housing units of which 140,000 would be built by Perummas and the rest by

^{56/} This section covers the BTN-financed component of the people's housing program (11.1.01) as defined in the plan. For an overview of related urban issues, see World Bank, Indonesia: Urban Services Sector Report (Report No. 4800-IND, June 25, 1984).

^{57/} By September 1983, PT Papan Sejahtera had made 1,000 loans at an average value of Rp 12 million.

private developers with mortgage financing primarily from BTN.^{58/} This program is about two thirds higher than realized during REPELITA III, for both Perumnas and private developers, but would still account for only 20% of the new urban housing requirements during REPELITA IV. Although the plan does not provide any details on the types of houses to be built, the stated priority is for low income households. For the indicative program discussed below it is assumed that about half of the units are low cost core units,^{59/} affordable by the 16th to 50th percentile of households in Jakarta. Unlike in past years, private developers are expected to supplement Perumnas' efforts to construct core houses during REPELITA IV. No provision has been made for higher income houses (RKTM) and flats, which should be constructed and financed by the private sector. In the case of flats, effective demand is also a limiting factor.

Table 2.20: HOUSING PROGRAM TRENDS /a

	REP. II	REP. III	REP. IV/b	REP. II	REP. III	REP. IV/b
	(in '000 units)			(% of total)		
<u>Perumnas</u>	<u>50.7</u>	<u>81.8</u>	<u>140.0</u>	<u>95.6</u>	<u>44.8</u>	<u>46.7</u>
Core houses	20.1	50.8	82.0	37.9	27.8	27.3
Standard houses	30.6	28.5	58.0	57.7	15.6	19.3
Other units /c	n.a.	2.5	-	n.a.	1.4	-
<u>Private developers /d</u>	<u>2.3</u>	<u>100.7</u>	<u>160.0</u>	<u>0.4</u>	<u>55.2</u>	<u>53.3</u>
Core houses	-	-	71.0	-	-	23.7
Standard houses	2.3	100.7	89.0	0.4	55.2	29.7
<u>Total</u>	<u>53.0</u>	<u>182.5</u>	<u>300.0</u>	<u>100.0</u>	<u>100.0</u>	<u>100.0</u>

/a Historical Perumnas data are for units constructed; all other data are for units sold.

/b For the indicative program.

/c Flats and higher income houses.

/d Financed by BTN.

Source: Perumnas, BTN and World Bank staff estimates.

^{58/} The plan also includes proposals to improve the quality of rural housing in 10,000 villages and kampungs in 400 cities. However, these targets lie outside the public housing program as defined in this section.

^{59/} Core houses are defined as houses of 12 to 30 sq m (on lots of 48 sq m to 120 sq m).

2.67 The size of the proposed public housing program for REPELITA IV is considered to be justified by the potential benefits, in terms of stimulating construction activity and providing a basic service to low income groups. However, to avoid shortfalls due to institutional constraints, action will be needed in a number of areas:

- (f) Perumnas' backlog of partially completed projects and unsold units/lots needs to be eliminated,^{60/} and an immediate sale policy introduced. At present, there are lengthy delays in loan processing and the realization of sales revenue.
- (g) BTN needs to be strengthened to handle the projected levels of mortgage financing. Priority areas include reduction of arrears on loan payments, control over personnel costs and other expenses, improvements in project appraisal and loan processing procedures, strengthening of financial management and accounting, and recruitment of qualified personnel.
- (h) There are a number of regulatory and legal issues that need to be resolved. These include modification of regulations which prevent more private construction of low cost housing, changes in present procedures which give preference to civil servants in the allocation of housing, enactment of mortgage legislation to secure BTN loans, and streamlining of land titling and registration.

Costs and Financing

2.68 The indicative investment program for the housing sector during REPELITA IV is summarized in Table 2.21. The estimated cost is about Rp 1.5 trillion at current prices. Note that all houses financed by BTN, whether constructed by Perumnas or private developers, are included. However, all downpayments, which cover from 10% to 30% of the house price, are treated as pure private investment and excluded. The residual mortgage cost per house ranges from Rp 1.4 million for the smallest core house to Rp 6.8 million for the largest standard house (at 1983/84 prices). Therefore, the emphasis on constructing core houses, especially during the final three years of REPELITA IV, helps to keep the investment costs down. For example, if all new units were standard houses, the total cost of the investment program would be increased by about one third.

^{60/} At the end of REPELITA III, Perumnas had 20,271 units under pre-sale agreement, 13,272 units under construction, 29,371 units committed but not yet started, and 13,900 unsold serviced plots.

Table 2.21: INDICATIVE INVESTMENT PROGRAM FOR HOUSING (BTN)
(in Rp billion at current prices)

Program	1984/85	1985/86	1986/87	1987/88	1988/89	Total
<u>Perummas</u>	34.2	98.3	144.0	170.7	184.3	631.5
Core houses	12.6	51.6	55.8	61.8	66.8	248.5
Standard houses	21.6	46.7	88.2	108.9	17.6	382.9
<u>Private developers</u>	173.0	192.9	35.1	147.0	171.0	819.1
Core houses	-	-	70.0	90.8	110.3	271.1
Standard houses	173.0	192.9	65.1	56.2	60.7	547.9
<u>Total</u>	<u>207.2</u>	<u>291.2</u>	<u>279.1</u>	<u>317.7</u>	<u>355.3</u>	<u>1,450.6</u>
Financed by:						
GOI budget	19.0	63.0	66.2	69.5	72.9	290.5
External loans	-	-	100.0	100.0	100.0	300.0
Bank Indonesia	170.0	200.0	-	-	-	370.0
Domestic borrowing	15.0	25.0	107.9	142.7	176.3	427.1
BTN funds	3.2	3.2	5.0	5.5	6.1	62.9

Source: Annex Table 3.

2.69 The Government is keen to diversify the sources of financing for the housing investment program. At present, BTN is almost entirely dependent upon equity contributions from the Government (PMP)^{61/} and subsidized liquidity credits from Bank Indonesia. Small amounts of money are also generated through Tabanas, the small savings scheme. However, BTN is now looking to other financing sources, including external loans, domestic borrowing (through certificates and letters of credit) and a downpayment scheme for potential homeowners. Given the financing program used in Table 2.21, the average cost of funds would be about 9%. BTN's administrative costs would probably add another 4%, even after the institutional improvements proposed above. Therefore, to make BTN financially viable,^{62/} the Government has recently decided to increase mortgage lending rates from the old range of 5%-9% to about 9%-15%. The lowest rate will still be below the 12% charged by the Government on other "priority" programs. However, it will be positive in real terms (at present inflation rates) and targetted to the lowest cost units and

^{61/} PMP used to be also provided directly to Perummas, but this practice stopped in 1982/83. Now all funding for the Perummas program is channelled through BTN.

^{62/} BTN's financial viability will be a prerequisite for mobilizing the levels of domestic borrowing assumed in Table 2.21.

lower income households. Where additional subsidies are considered justified, these should be provided directly in the form of flat subsidies rather than through the interest rate mechanism.

J. Transmigration ^{63/}

Background

2.70 More than 60% of Indonesia's population resides on Java, which has areas with some of the highest rural population densities in the world. At the same time, vast tracts of forest and coastal land lie uncultivated on the Outer Islands. The Indonesian transmigration program, which is intended to move the underutilized labor of Java to the underutilized land of the Outer Islands, has become the largest voluntary resettlement scheme in the world. There are basically four categories of transmigrants:

- (a) Sponsored transmigrants who were previously landless agricultural laborers or smallholders living at near-subsistence level. These transmigrants receive extensive support from the Government during the initial five years of settlement for transport, land, housing, social services, subsistence and agricultural supplies.
- (b) Local transmigrants who live in and around the areas to be settled and who receive the same benefits as the sponsored transmigrants. During REPELITA III, local transmigrants amounted to about 10% of the total population of the settlements.
- (c) Registered spontaneous transmigrants who move at their own expense and settle at a site of their choice. These transmigrants register in order to receive government benefits and in some areas they may obtain the same amount of land as the sponsored transmigrants. Generally, however, direct government support is low.
- (d) Unregistered spontaneous transmigrants who settle on their own at a site of their choice and who receive little or no government support. ^{64/}

2.71 Progress under the transmigration program is summarized in Table 2.22. Through the mid-1970s, both the size and quality of the transmigration program were limited by shortages of funds. In addition, pre-settlement preparation was poor and agricultural services were frequently unavailable. Consequently transmigrant communities dependent on rainfed agriculture often remained at subsistence levels. Prompted by higher oil revenues and

^{63/} This section covers the transmigration sector (0.62) as defined in the plan.

^{64/} From 1985/86, all spontaneous transmigrants are supposed to register (and get an exit pass), whether or not they receive government assistance.

concern about shortfalls in rice production, the Government decided to expand the size of the program dramatically during REPELITA III, to a target level of 500,000 families. To achieve this target, the Government reorganized the transmigration program, giving implementation responsibility to the specialized Ministries (a new Ministry of Transmigration was later established in 1983). Despite a slow start under these new arrangements, the Government was able to settle about 370,000 families under the sponsored program and identify another 130,000 families who moved spontaneously (the actual number was probably higher). At these levels, the transmigration program is providing employment to about 170,000 people per annum, equivalent to 20% of the incremental labor force on Java and Bali.

Table 2.22: TRENDS IN TRANSMIGRATION
(in '000 families)

	REP. I	REP. II Actual	REP. III	REP. IV	
				Plan targets	Indicative program
Sponsored	46	83	370	500	400
Spontaneous /a	17	35	130	250	200
<u>Total</u>	<u>63</u>	<u>118</u>	<u>500</u>	<u>750</u>	<u>600</u>

/a Government estimates, not based on actual documentation.

Source: GOI, REPELITA IV plan and World Bank staff estimates.

Objectives and Targets

2.72 The basic objectives of the transmigration program during REPELITA IV are to: (a) provide land for the landless of Java, Bali and Lombok; (b) improve the distribution of population; and (c) provide manpower for the labor-scarce areas of the Outer Islands, so that they can develop as new centers of production. The program is also seen as a vehicle to promote national stability and integration. The related physical target is to move 750,000 families, of which some 500,000 families would be sponsored transmigrants. If these targets are achieved, the population growth rate of Java would be reduced from 1.7% to 1.1% per annum and an additional 200,000 new jobs would be created each year, equal to about 22% of the incremental labor force in Java.^{65/} There would also be considerable benefits in terms of increased agricultural production (especially of tree crops) and social welfare, for both the transmigrants and the remaining workforce on Java. The

^{65/} These numbers include the cumulative impact of transmigration since 1980 (not just the incremental impact of the REPELITA IV program).

returns to the individual transmigrants are also reflected in the long waiting list for the sponsored program (totalling 450,000 applicants in March 1985), the large number of spontaneous transmigrants who settle in the vicinity of new transmigration villages, and the relatively low share (less than 5%) of transmigrant families that have returned home to date.

2.73 Despite these potential benefits, the official REPELITA IV targets are at the high end of a feasible range and there have already been significant shortfalls from these targets. By June 30, 1985, the total number of transmigrants moved was about 70,000 families, compared to a target of about twice that number. The major reason for this shortfall is the increasing managerial complexity of the program combined with the limited implementation capacity of the various agencies involved. The new Ministry of Transmigration has consolidated a number of steps (planning, construction, mobilization and transport) associated with the settlement of transmigrant families. However, this has not offset increasing managerial demands caused by decentralization of contracting, movement into provinces where local contractors are weak and supervision difficult, and the increased number of sites. In a number of key areas, such as monitoring and staff training, the Ministry needs further strengthening, and the coordination of follow-up development activities (input supply, extension, credit and land titling) by other ministries is also weak. As a result, many of the potential benefits from the transmigration program are not being realized. For these reasons, the indicative investment program in this report is based on a less ambitious target for REPELITA IV: 600,000 families, including 400,000 families under the sponsored program. Even this target may prove difficult to achieve. If realized, however, the impact would be significant, reducing the population growth rate of Java from 1.7% to 1.2% per annum and creating an additional 160,000 new jobs each year.

2.74 The composition of the indicative sponsored program, by region and settlement model, is summarized in Table 2.23. Most of the viable sites for food crop agriculture in the traditional transmigration regions of Sumatra and Sulawesi have now been filled (the province of Lampung was closed to new transmigrants in 1980). As a result, over 50% of transmigration during REPELITA IV is assumed to be to Kalimantan and Irian Jaya. In general, these locations are more remote, costs of movement and infrastructure are higher, and the logistics of implementation are more difficult. Therefore if the program is to remain viable, and if destabilizing migration away from existing sites is to be avoided,^{66/} careful attention will have to be paid to the selection of sites and settlement models. The Ministry of Transmigration has identified seven farm models, but only three of these - upland, tree crops and swamps - are likely to be implemented on a large scale during REPELITA IV. As more remote sites are selected, higher productivity farming systems and second-stage agricultural development will become increasingly important to ensure settlers adequate output and incomes.

^{66/} These flows could be back to Java or urban areas on the Outer Islands.

**Table 2.23: INDICATIVE SPONSORED PROGRAM FOR REPELITA IV
(in '000 families)**

	Upland	Tree crops	Swamps	Total
Sumatra	75	34	44	153
Kalimantan	109	28	29	166
Sulawesi & Moluccas	21	8	-	29
Irian Jaya	45	5	2	52
<u>Total</u>	<u>250</u>	<u>75</u>	<u>75</u>	<u>400</u>

Source: World Bank staff estimates.

Costs and Financing

2.75 The indicative investment program for transmigration during REPELITA IV is shown in Table 2.24. The estimated cost is Rp 2.9 trillion at current prices. This cost has been derived from the physical targets summarized in Table 2.23, using unit costs which vary by region and settlement model. For the tree crop model, only the settlement and infrastructure costs are included; all costs associated with production are assumed to be financed out of the tree crops program (see Section B). For other models, unit costs range from US\$5,000 per family (at 1984/85 prices) for upland sites in Sumatra to US\$10,000 for swamp sites in Irian Jaya. Compared to Sumatra, average unit costs are 13% higher on Kalimantan, 20% higher on Sulawesi and 52% higher in Irian Jaya. Under the indicative program, Kalimantan and Irian Jaya account for 60% of the total investment costs during REPELITA IV (and 68% by 1988/89). With implementation of an expanded transmigration program, as proposed in the official plan targets, most of the additional transmigrants would have to be settled in these two regions, leading to an increase in average unit costs. Note also that the indicative investment program does not include any provision for rehabilitation of existing transmigration sites or assistance (e.g., mapping) for spontaneous transmigrants. These may well be cost-effective expenditures, which could be financed by (less-than-proportionate) reductions in the number of new sponsored transmigrants.^{67/} Further study of these options is warranted.

^{67/} Apparently the Government has been financing some rehabilitation out of SIAP funds in recent years; however, the amounts involved are not known.

Table 2.24: INDICATIVE INVESTMENT PROGRAM FOR TRANSMIGRATION
(in Rp billion at current prices)

Program	1984/85	1985/86	1986/87	1987/88	1988/89	Total
<u>Sumatra</u>	<u>184.8</u>	<u>193.1</u>	<u>215.2</u>	<u>193.1</u>	<u>208.6</u>	<u>994.8</u>
Upland	115.5	107.7	98.0	59.5	64.3	445.0
Tree crops	28.4	23.5	40.8	47.6	51.4	191.6
Swamps	41.0	61.9	76.4	86.0	92.9	358.1
<u>Kalimantan</u>	<u>170.6</u>	<u>218.4</u>	<u>242.5</u>	<u>293.5</u>	<u>316.4</u>	<u>1,241.4</u>
Upland	126.0	157.9	154.3	180.9	188.6	807.7
Tree crops	17.3	23.7	40.4	52.4	62.9	196.7
Swamps	27.3	36.9	47.8	60.2	65.0	237.1
<u>Sulawesi & Moluccas</u>	<u>67.7</u>	<u>58.4</u>	<u>38.6</u>	<u>24.5</u>	<u>26.4</u>	<u>215.6</u>
Upland	61.4	51.6	23.9	8.6	9.3	154.8
Tree crops	6.3	6.8	14.7	15.9	17.1	60.8
Swamps	-	-	-	-	-	-
<u>Irian Jaya</u>	<u>50.4</u>	<u>81.4</u>	<u>107.2</u>	<u>139.2</u>	<u>150.0</u>	<u>528.1</u>
Upland	50.4	77.1	98.0	111.1	114.3	450.9
Tree crops	-	4.3	9.2	14.9	21.4	49.7
Swamps	-	-	-	13.2	14.3	27.5
Less:						
<u>Local savings /a</u>	<u>8.1</u>	<u>9.2</u>	<u>10.0</u>	<u>10.6</u>	<u>11.4</u>	<u>49.3</u>
<u>Total</u>	<u>465.5</u>	<u>542.1</u>	<u>593.4</u>	<u>639.7</u>	<u>690.0</u>	<u>2,930.6</u>
Financed by:						
GOI budget	415.5	442.1	493.4	539.7	590.0	2,480.6
External loans	50.0	100.0	100.0	100.0	100.0	450.0

/a It is assumed that 10% of the transmigration beneficiaries are from the local area, with savings of US\$1,000 per family (at 1984/85 prices).

Source: World Bank staff estimates.

2.76 The transmigration program is funded entirely through the development budget of the Central Government. Based on known and expected commitments of official assistance, primarily from the World Bank, external loans are projected to provide only Rp 450 billion during REPELITA IV. This leaves a balance of Rp 2.5 trillion to be funded from the Government's domestic budget. These amounts add up to 5.7% of projected development expenditure, higher than the 4.9% allocated to transmigration during REPELITA III. However, note that the indicative program costs in 1984/85 and 1985/86 are on average 13% lower than budget allocations, due to the impact of implementation constraints. Related SIAPs and undrawn external loans can therefore contribute towards financing transmigration investments in later years.

K. Education ^{68/}

Background

2.77 The Government has made notable progress to date in providing basic education to the school age population. At the primary level, enrollments have almost doubled since 1974/75; as a result, universal access to grade one has been virtually achieved and the net enrollment ratio is over 97% (see Table 2.25). At the same time, dropout and repetition rates have fallen, despite the much larger number of children involved. Although enrollment growth has been even more rapid at post-primary levels, enrollment ratios remain relatively low. Within the region, substantially higher enrollment ratios have been achieved in the Philippines, Korea and Malaysia for secondary education, and in the Philippines and Korea for higher education. Even in China, where per capita incomes are significantly lower, the enrollment ratio for secondary education is 40% higher than in Indonesia.^{69/}

2.78 Development expenditure by the Central Government for the education sector has increased almost sixfold in real terms over the past decade, and now accounts for about 12% of the total development budget. This rapid expansion has put increasing pressure on the Government's capacity to implement projects efficiently. Funding of recurrent expenditure in the education sector, especially for school supplies and teachers' salaries is also inadequate. The increasing importance of this issue is illustrated by the ratio of routine to development expenditure, which declined from over 1.5 in the mid-1970s to around 0.4 in 1983/84 and 1984/85. To some extent, this trend has been offset by the recent practice of financing some recurrent expenditures through the development budget.^{70/} Local government recurrent expenditures are also subsidized through the Subsidi Daerah Otonom (SDO), for which a functional breakdown is unavailable. Even so, and despite the significant increase in teachers' pay announced for 1985/86,^{71/} many teachers

^{68/} This section covers the education, youth and culture sector (09) as defined in the plan. Other Ministry of Education (MEC) programs (e.g., social welfare and women, research and development, and government apparatus) are excluded.

^{69/} Comparable estimates for other countries on primary, secondary and higher education enrollment ratios are: China 80%, 38%, 4%; Thailand 96%, 29%, 4%; the Philippines 84%, 55%, 21%; Malaysia 96%, 65%, 4%; and Korea 99%, 84%, 22%.

^{70/} In 1979/80, for example, it is estimated that recurrent expenditures represented 10% of total development expenditure on education.

^{71/} Average annual teacher pay in 1984/85 was estimated at about US\$1,000 at the primary level, ranging up to US\$1,450 at universities. The civil service salary increases announced for 1985/86 averaged 20%, plus an additional allowance of Rp 5-15,000 per month for teachers.

Table 2.25: ENROLLMENT TRENDS AND TARGETS

School level/type	Growth rates (% p.a.)		Gross enrollment ratios /a		
	1974/75-1983/84	1983/84-1988/89 /b	1974/75	1983/84	1988/89 /b
<u>Primary</u>	<u>9.0</u>	<u>0.4</u>	<u>65.6</u>	<u>121.3</u>	<u>113.1</u>
State	8.4	0.4	55.3	97.6	91.1
Private /c	11.7	0.2	10.3	23.7	22.0
<u>Junior secondary</u>	<u>12.1</u>	<u>10.4</u>	<u>20.1</u>	<u>44.0</u>	<u>65.0</u>
State	12.0	10.2	11.2	24.5	35.9
Private	12.1	10.8	8.9	19.5	29.1
<u>Senior secondary</u>	<u>14.8</u>	<u>12.0</u>	<u>9.6</u>	<u>25.3</u>	<u>39.5</u>
State	12.4	11.1	5.4	11.9	17.8
Private	17.4	12.8	4.2	13.4	21.7
<u>Higher education /d</u>		<u>15.1</u>		<u>5.1</u>	<u>8.2</u>
State /e		16.7		2.9	4.2
Private		12.9		2.2	4.0

/a The ratio of total enrollment to the relevant age group of the population. For primary schools, the net enrollment ratio (using enrollments of the relevant age group as the numerator) was 55.3 in 1974/75, 97.2 in 1983/84 and is projected to reach 100.0 by 1986/87.

/b Based on REPELITA IV plan targets.

/c Includes Ibtidaiyan Madrasahs (MIs).

/d Includes Diploma, S1, S2 and S3 levels.

/e Includes higher education for government employees (PTK) and Open University enrollments (from 1984/85).

Source: Ministry of Education and Culture.

continue to hold extra jobs, thereby reducing the quality of their instruction. By the end of REPELITA III, the education sector absorbed about 9% of total spending by the Central Government. This share is relatively low when compared to other countries in the region, most of which allocate 20% or more of their budget to education.^{72/}

2.79 The private sector plays an important role at all post-primary levels of schooling in Indonesia, where it increasingly serves the strong social demand for education which is not being met by the public sector. In

^{72/} One major exception is China, which allocated only 8% of its budget to education in 1981.

1983/84, 44% of junior secondary school students, 53% of senior secondary school students and 44% of post-secondary school students were enrolled in private schools (see Table 2.25). There is considerable variance in the quality of private schools at all levels. Private schools and universities often receive limited direct government aid, commonly in the form of government-paid teachers, and use the physical facilities of government schools for afternoon and sometimes evening shifts.

Objectives and Targets

2.80 The Government's main objectives for the education sector during REPELITA IV are to: (a) establish a national education system based on Pancasila; (b) improve the quality of primary education, especially for special groups such as the handicapped, the economically disadvantaged, those who live in isolated areas and gifted children; (c) expand and improve post-primary education in order to meet the development requirements for skilled manpower; and (d) strengthen the quality, role and responsibility of private schools. Given the progress already made in expanding state-sponsored primary schools, the emphasis on higher levels of education and private sector development is appropriate. Efforts to improve the quality and equity of education, especially for low-income groups and rural areas, are also justified. One concern has been the potential impact of an expanding stream of secondary school graduates on urban labor markets. Cross-sectoral surveys of the labor force indicate that unemployment rates are high for school leavers between the ages of 20 and 24 (20% for junior secondary and 26% for senior secondary), but that they fall as age increases (6% and 7% respectively for ages 25 to 29). In general, expansion of secondary education would seem to be justified by the relatively low enrollment ratios compared to other countries in the region, the evident shortage of skilled manpower and the estimated social rates of return to secondary education. Analysis prepared for the World Bank suggests that rates of return to non-vocational senior secondary education range from 19% to 32%, depending on the number of years (zero to three) it takes to find a job.^{73/}

2.81 The Government's enrollment projections for REPELITA IV, and related targets for new teacher and classrooms, are summarized in Table 2.26. As would be expected, little further growth is projected in primary school enrollments, with the net enrollment ratio rising to 100% by 1986/87.^{74/} Alternative projections prepared by Bank staff suggest that the primary system has been adjusting to a steady state pattern since 1980, with a slight decline in grade 1 enrollments and little growth for the primary cycle as a whole.

^{73/} For a more detailed discussion of the returns to secondary education, see the World Bank, General Secondary Education in Indonesia: Issues and Programs for Action (Report No. 4945-IND, July 26, 1984).

^{74/} In practice, it is impossible to achieve a net enrollment ratio of 100% due to health and disability factors. Therefore, universal primary education is usually assumed to have been reached when the ratio exceeds 95%.

Future expansion will be determined largely by population growth, which has itself slowed down to about 2.1% per annum. This scenario suggests that the demand for new primary teacher positions will show only moderate growth from 1985/86 through the end of this decade. Even allowing for improved staffing ratios and teacher attrition, new primary teacher demand is likely to fall to an annual range of 20-25,000. However, teacher training high schools (SPGs and SGOs) are still producing about 80,000 graduates per year. Some of these institutions should therefore be converted to use as secondary schools, especially in provinces where the primary teacher surplus is most pronounced. Similarly, the country's new primary school construction requirements are minimal, with investment during REPELITA IV being limited mainly to school rehabilitation and teacher housing (for schools in remote areas). As a result, the official targets for new primary school teachers and classrooms would seem to be grossly exaggerated.^{75/}

Table 2.26: OFFICIAL TARGETS FOR REPELITA IV
(in '000)

Indicator	Primary /a	Secondary	
		Junior	Senior /b
<u>New enrollments</u>	511	3,024	1,904
State	445	1,648	812
Private	66	1,376	1,092
<u>New teachers</u>	259	142	118
State	233	76	27
Private	26	66	91
<u>New classrooms</u>	100	47	17
State		42	14
Private		5	3

/a Excluding kindergarten and special schools.

/b Excluding vocational and technical schools.

Source: GOI, REPELITA IV plan and Ministry of Education and Culture.

2.82 Post-primary enrollments are projected by the Government to grow rapidly during REPELITA IV, by 64% for junior secondary schools, 76% for senior secondary schools and 102% for higher education. Correspondingly, the gross enrollment ratios would improve to 65%, 40% and 8% respectively. The relative role of the private sector is projected to increase further at the

^{75/} Yet, the 1985/86 budget proposes adding 12,500 primary classrooms and 50,300 primary teachers under the INPRES program for the year.

junior and senior secondary levels. For higher education, rapid growth is expected in both the state and private sectors; the recently established Open University is projected to have 150,000 students by 1988/89. Achievement of these targets would be highly desirable, given the shortage of skilled manpower in the economy. However, the related expansion of public investment is likely to be constrained by the project implementation capacity of the Government.^{76/} A recent review of education projects by BAPPENAS staff concluded that the most serious bottlenecks are due to problems of land acquisition, project management and procurement procedures. These implementation constraints are in turn reflected in poor disbursement performance. For example, of the DIPs approved for the Ministry of Education and Culture over the past three years, more than 50% are still unutilized; the unspent balance of SIAPs totalled Rp 850 billion in early 1985, more than 50% higher than the budget allocation for 1984/85. While many of the implementation constraints can and should be tackled, progress will inevitably be slow. Therefore, unless some reduction in post-primary enrollment targets is accepted, the quality of education will suffer.

Costs and Financing

2.83 The indicative investment program for education during REPELITA IV is summarized in Table 2.27. This program is based on the official enrollment projections at the primary level. However, because of the implementation constraints noted above, the end-plan targets for public enrollments have been cut by 5% at the junior secondary level, 10% at the senior secondary level and 15% for higher education. Other assumptions are as follows:

- (a) The budget estimates of development expenditure have been used for 1984/85 and 1985/86. As noted below, there is likely to be a considerable carryover of unspent funds from these allocations into later years.
- (b) The INPRES program for primary school construction is assumed to be phased out by the end of REPELITA IV. This program has been highly successful in bringing universal primary education within reach. However, the priority now is to reallocate INPRES resources increasingly towards post-primary development.
- (c) The allocations for secondary and higher education after 1985/86 are based on the estimated capital costs associated with incremental enrollments. Additional funding is also provided for rehabilitation and recurrent items included in the development budget.

^{76/} In an attempt to speed up construction of general secondary schools (SMP/SMA), the Government recently announced that responsibility for implementing these programs would be transferred to the Ministry of Public Works.

- (d) Other components of development expenditure are projected to grow after 1985/86 by 6% per annum (training) and 4% per annum (other programs and culture) in real terms.
- (e) The financing of development expenditure in 1984/85 and 1985/86 is based on budget estimates. In later years, it is assumed that external loans continue to provide Rp 200 billion per annum (at 1983/84 prices), implying a rapidly growing residual for domestic budget financing.

Table 2.27: INDICATIVE INVESTMENT PROGRAM FOR EDUCATION
(in Rp billion at current prices)

	1984/85	1985/86	1986/87	1987/88	1988/89	Total
<u>Education and youth</u>	<u>1,354.9</u>	<u>1,361.1</u>	<u>1,624.4</u>	<u>1,693.9</u>	<u>1,760.1</u>	<u>7,794.3</u>
Primary	636.7	654.8	444.5	275.3	83.8	2,095.2
Junior secondary	187.5	170.0	410.5	490.2	565.4	1,823.6
Senior secondary	188.7	251.6	318.9	382.0	449.7	1,590.8
Higher	259.6	218.4	375.8	462.5	571.7	1,839.4
Other programs	82.4	66.4	74.6	83.8	94.1	401.2
<u>Training and culture</u>	<u>147.0</u>	<u>149.7</u>	<u>170.4</u>	<u>193.9</u>	<u>220.7</u>	<u>881.7</u>
Training	99.5	102.1	116.9	133.8	153.2	605.4
Culture	47.6	47.6	53.5	60.1	67.5	276.3
<u>Total</u>	<u>1,501.9</u>	<u>1,510.8</u>	<u>1,794.8</u>	<u>1,887.7</u>	<u>1,980.7</u>	<u>8,676.0</u>
Financed by:						
GOI budget	1,217.2	1,273.0	1,542.8	1,615.7	1,686.9	7,335.6
External loans	284.7	237.8	251.9	272.1	293.9	1,340.5

Source: Annex Table 3.

2.84 The total cost of the indicative investment program is estimated to be Rp 8.7 trillion at current prices. This represents 17% of the projected development expenditure during REPELITA IV (see Part I), significantly higher than the average of 10% recorded over the past five years. However, given the overall constraint on resources, this program is still 25% smaller than the plan allocation of Rp 11.5 trillion. There is also a significant reallocation of resources towards secondary and higher education. As a result, the share allocated to primary education is held to 24%, compared to 48% during REPELITA III and the plan target of 33% for REPELITA IV. This reallocation is consistent with the revised enrollment projections discussed above. However, to be realized, it will require a major attack by the Government on project implementation constraints for post-primary education projects.

2.85 This review has focussed almost exclusively on the public investment program for education financed out of the Central Government's development budget. However, a significant proportion of education costs, both recurrent and capital, are borne by the private community. A number of related financing issues, which are generally relevant to all levels of post-primary education, were discussed in the World Bank's General Secondary Education Sector Report. The major conclusions were as follows:

- (a) Student families already pay about five times more than the Government for the direct and indirect costs of junior secondary education and about ten times more for senior secondary education.^{77/} Furthermore, the proportion of recurrent expenditure per public school student recovered by fees is relatively high compared to other countries in the region: 6% for junior secondary, 10% for senior secondary and 13% for university students. However, the real level of fees has been declining in recent years. Therefore, fee adjustments should be considered to supplement the education sector's claim on the Government's budget. As an incentive, some of the additional resources raised through fees could be retained within the school budgets. Special means-tested scholarships would also have to be provided to protect lower-income groups.
- (b) The Government's objectives for REPELITA IV recognize the growing role of private schools and universities in post-primary education. However, historically, the private sector's contribution has been uneven, both in terms of education standards and locational dispersion. Most private schools are concentrated in urban areas, in Bali and in a few rural provinces where there is a long tradition of church-related education. In urban areas, the growth of private schools has been given support through the use of public school facilities. The Government also provides operating grants to private secondary schools under the PP28 regulations. However, these institutions are in urgent need of capital investments, to both improve and enlarge their facilities and to upgrade their academic and administrative staff. As with public schools, opportunities for greater cost recovery need to be explored. But, there may also be a case for the Government providing capital grants-in-aid or credit subsidies,^{78/} especially where these can attract private schools into rural and low-income areas. The end result could well be to reduce the net burden on the Government's budget, for both capital and subsequent recurrent costs.

^{77/} These calculations cover both public and private schools. Direct costs are those that appear in the school's budget; indirect costs include transport, pocket money and uniforms, etc.

^{78/} The advantages of credit subsidies are that they could help leverage additional resource mobilization from the banking system, impose greater financial discipline on the beneficiary, and stimulate the development of cost-recovery mechanisms. This approach would probably be most suitable for higher education institutions.

L. Health ^{79/}

Background

2.86 Estimates for 1982/83 suggest that public and private expenditure on health in Indonesia totalled Rp 1.5 trillion, equivalent to Rp 9,584 per capita and 2.7% of GDP. About two thirds of this expenditure was by the private sector. Within the public sector, the primary responsibility for health services lies with the Ministry of Health (MOH) and its provincial and district government counterparts, although several other central ministries also own and operate health facilities. By the end of REPELITA III, there were 1,266 hospitals in Indonesia, of which 619 were in the public sector. Rural health services are delivered principally by a network of health centers, subcenters and mobile centers (see Table 2.28). There is now at least one health center in each subdistrict, designed to serve a standard catchment population of 30,000. Health centers provide a range of services including basic medical care, maternal and child health services, family planning services and communicable disease control, but generally no in-patient care. More limited village-level health services are provided through the subcenters and mobile centers. To complement the network of physical facilities, there are continuing efforts to develop a community-based outreach system using local village health volunteers to provide simple primary health care services.

2.87 Development expenditure on the health sector averaged 0.28% of GDP during REPELITA III. The composition of the program was heavily dominated by the expansion of physical facilities, particularly for the rural health center network (see Table 2.28). However access to health services remains relatively limited in Indonesia. For example, compared to China, a country with only half the per capita income, Indonesia has more than three times as many persons per hospital bed and more than five times as many persons per health worker. There are similarly large differences in health status between Indonesia and other countries. For example, in 1982, Indonesia's infant mortality rate was close to 100 per thousand compared to 29 in Malaysia, 51 in the Philippines and Thailand and 76 for all middle-income countries. Considerable regional differentials in infant mortality rates also persist within Indonesia, ranging from 80 per thousand in Jakarta to 187 in West Nusa Tenggara.

^{79/} This section covers the health sector (10.1) as defined in the plan. Other Ministry of Health programs (e.g., rural water supply, environmental health, manpower development and government apparatus) are excluded.

Table 2.28: TRENDS IN HEALTH STATUS AND SERVICES

Indicator	Units	1978/79	1983/84	1988/89 <u>/a</u>
<u>Health status</u>				
Crude death rate	per '000	13.5	11.7	10.1
Infant mortality rate	per '000	103.0	90.3	70.0
Life expectancy	years	52.0	56.0	59.0
<u>Health facilities</u>				
Hospital beds	no. '000	94.6	103.5	119.4
- State	no. '000	69.8	72.5	
- Private	no. '000	24.8	31.0	
Health centers	no.	4,353	5,353	5,853
Health subcenters	no.	6,592	13,636	19,636
Mobile centers	no.	604	2,479	4,000
<u>Health manpower</u>				
Medics	no. '000		12.8	24.1
Paramedics	no. '000		86.1	165.2
Non-medics	no. '000		63.2	94.6
Total	no. '000		162.1	283.9

/a Official plan targets for REPELITA IV.

Source: GOI, REPELITA IV plan.

Objectives and Targets

2.88 Against this background, the plan identifies five basic principles to guide the development of the health sector during REPELITA IV:

- (a) strengthening health service delivery, including measures to support and expand primary health care activities at the community/village level;
- (b) improving the supply, distribution and quality of drugs, medicines and medical supplies;
- (c) expanding programs to improve nutrition, potable water supply and environmental health;^{80/}

80/ Of these programs, only nutrition falls within the plan's definition of the health sector.

- (d) improving the overall management of the health system; and
- (e) strengthening programs for health manpower development.

Related targets for health status, facilities and manpower are summarized in Table 2.28. Achievement of these targets would clearly be desirable, given that the quantity and quality of health resources continue to be inadequate in Indonesia and levels of health status are correspondingly low. The important issues, therefore, concern the financial feasibility of related investments and of the recurrent costs and manpower requirements that they will generate.

2.89 In order to cost out an indicative investment program, the following assumptions have been made on physical progress under the major health programs during REPELITA IV:

- (a) The community health program warrants top priority in the provision of health facilities. Consistent with the plan targets, the indicative program includes provision for the addition of 500 health centers, 6,000 subcenters and 1,500 mobile centers. In addition, provision has been made to rehabilitate or expand another 10,000 centers. The drug subsidy, available to patients at health centers, is assumed to be capped at its present level in real terms.^{81/}
- (b) The plan is less explicit on its targets for medical care, in part because of the important role the private sector can play in this area. The indicative program provides for 18 new hospitals, including 7 local government satellite hospitals, 9 mental hospitals, 1 teaching hospital (Class B) and 1 cancer hospital. In addition, 44 hospitals will be upgraded, 11 improved and 193 rehabilitated. Provision has also been made to add or improve rehabilitation and family planning units at 93 hospitals.
- (c) The disease control and nutrition programs are important elements of the Government's strategy to improve health status, especially for infants. Key plan targets for REPELITA IV are to: (i) reduce the incidence of communicable diseases (including malaria, cholera, diarrhea and TB) by 25%-50%; (ii) increase the immunization coverage of children under 14 months from 40% to 60%; and (iii) expand the family nutrition program (UPGK) to lower protein-caloric deficiency in 25,000 new villages and 40,000 villages already covered. These targets are appropriate, although some rephrasing will be required to reflect underfunding of these programs during 1984/85 and 1985/86.

^{81/} The Government reduced the health center consultation fee from Rp 450 to Rp 150 in 1979. This fee covers up to three days of drug supplies. With further expansion of the community health system, a constant subsidy implies a steady increase in consultation fees.

Costs and Financing

2.90 The indicative investment program for the health sector, based on the physical targets discussed above, is summarized in Table 2.29. The total cost for REPELITA IV is estimated to be Rp 1.6 trillion at current prices. This amount is 20% less than allocated in the plan (Rp 2.1 trillion). However, in large part, this shortfall is due to the budgetary constraints that have already been imposed in 1984/85 and 1985/86, which impacted particularly strongly on the disease control and nutrition programs. On the assumption that these programs return to targetted levels (on an annual basis), the indicative investment program rises in real terms by 28% during 1986/87 and then stays at this higher level for the remainder of the plan. Overall, expenditure levels average 0.31% of GDP, marginally higher than the 0.28% recorded during REPELITA III.

Table 2.29: INDICATIVE INVESTMENT PROGRAM FOR HEALTH
(in Rp billion at current prices)

Program	1984/85	1985/86	1986/87	1987/88	1988/89	Total
<u>Community health</u>	93.2	103.0	99.1	109.2	121.4	525.9
Health centers	20.7	21.3	19.2	20.9	22.8	104.8
Drug subsidy	40.3	43.7	46.7	50.4	54.4	235.5
Other programs	32.1	38.0	33.2	38.0	44.2	185.6
<u>Medical care</u>	98.0	105.2	128.4	129.8	95.6	556.9
General hospitals	64.9	68.1	82.5	81.8	59.0	356.3
Special hospitals	20.6	23.3	27.6	28.0	15.4	114.9
Other programs	12.5	13.8	18.4	20.0	21.1	85.8
<u>Disease control</u>	38.0	34.9	83.5	101.9	120.0	378.3
Vector borne	12.0	10.8	26.0	31.0	35.0	114.8
Other diseases	11.0	11.9	30.9	39.4	48.5	141.7
Immunization	10.0	7.6	16.2	18.9	21.5	74.2
Other programs	5.0	4.6	10.4	12.6	14.9	47.6
<u>Other programs</u>	24.1	11.9	41.5	49.2	50.1	176.9
Health education	1.8	2.2	3.0	3.9	5.1	16.0
Nutrition	5.9	5.2	28.2	33.5	32.2	105.0
Food and drug admin.	16.4	4.5	10.3	11.8	12.8	55.9
<u>Total</u>	<u>253.3</u>	<u>255.0</u>	<u>352.4</u>	<u>390.1</u>	<u>387.2</u>	<u>1,638.0</u>
Financed by:						
DIP	97.8	100.9	194.8	217.4	210.7	821.7
INPRES	80.0	88.7	74.1	79.5	86.1	408.4
External loans	75.5	65.4	83.5	93.2	90.3	407.9

Source: Annex Table 3.

2.91 The major components of the indicative investment program are for medical care (34%), community health (32%), disease control (23%) and nutrition (6%). This composition is broadly similar to that proposed in the plan.^{82/} However, compared to budgeted expenditures during REPELITA III, it represents a major reallocation from community health to disease control and nutrition. This trend reflects the priority attached to these last two programs. Although community health remains a priority as well, the phase of rapid expansion of facilities is now over and the drug subsidy needs to be capped. It may also be possible to make further cuts in the medical care program, especially in areas where there is scope for private sector development. More generally, all health investment should be carefully scrutinized to ensure that they contribute effectively to achieving the plan's targets. In this regard, substantially more work is required on the regional distribution of investments and the financial/organizational mechanisms for their implementation.

2.92 There are two complementary areas for which resources will be required if these investments are to be translated into quality health services: manpower development and recurrent expenditure. The plan targets a 75% increase in health manpower by 1988/89 (see Table 2.28). To achieve this target, the Ministry of Health has prepared a manpower development program, which gives priority to expanding the output of paramedics (nurses and other technical personnel) and improving the quality of in-service education and training. The total cost of this program, which is budgeted under the training subsector (09.2) of the plan, could run as high as Rp 400 billion at current prices. By comparison, actual budget allocations totalled only Rp 13 billion in 1984/85, or 20% of the annual requirement. This is clearly an area where substantial increases in funding are warranted. Similar arguments apply to recurrent allocations for operations and maintenance. Over the past decade, the Ministry of Health's routine budget has risen on average by only 8% per annum, and the ratio of routine to development expenditure has fallen from 81% to 30%. To some extent, this decline has been offset by the inclusion of some recurrent items (e.g., the drug subsidy) in the development budget. Local government recurrent expenditures are also heavily subsidized throughout the SDO, for which a functional breakdown is unavailable. Nevertheless, the impact of underfunding for operations and maintenance is evident throughout the health system. To remedy this situation it is important to assess the needs, budgetary sources and financial availability for future recurrent costs and, if necessary, adjust planned investment levels accordingly.

^{82/} The plan allocates somewhat more to medical care and community health together (70%) at the expense of nutrition (2%). No breakdown of plan allocations between medical care and community health is available.

2.93 The indicative investment program is fully funded from the Central Government's development budget.^{83/} As in the past, most of the community health program is assumed to be financed from the INPRES account; the balance of investment is funded from DIP allocations and external loans (see Table 2.29). In recent years, up to 10% of public health expenditures (recurrent and investment) has been recovered through fees. While this share is high compared to many other countries in the region (e.g., 5% recovery in the Philippines), it still implies that public health services are highly subsidized. Furthermore, the degree of subsidy has probably increased as the real level of fees has been eroded by inflation. There is also evidence to suggest that even low-income families could afford to pay more for health services^{84/} and in practice often do for traditional medicine (by a factor of ten times in some instances). Therefore, fee adjustments and reductions in subsidies (as proposed above for drugs) could well be justified. The Government should also take advantage of the recent trend towards greater participation by the private sector in the provision of health services. In 1982/83, for example, it is estimated that the private sector provided about 60% of health services, including through retail sales of drugs, private medical practice and hospitals. This share can be expected to continue rising, as higher incomes lead to increased emphasis on health care and the quality of service. As a result, the Government can concentrate on those programs where the private sector is less active (e.g., preventive services, especially in rural areas and for low-income groups).

83/ Provincial and district government contributions are not included; these totalled about Rp 8 billion in 1982/83, or less than 5% of the Central Government's development budget for the health sector.

84/ For example, assuming an average per capita income for the poorest quintile of Rp 30,000 per annum in 1982/83, then about Rp 500 (1.5%) could be spent on health care. This amount is sufficient for three courses of out-patient treatment at a health center, compared to the WHO norm of two.

INDONESIA

PUBLIC INVESTMENT IN REPELITA IV

Annex Tables

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2.	Trends in Public Finance and Investment	3
3.	Indicative Sectoral Programs for REPELITA IV . .	6

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Annex Table 1: DEVELOPMENT EXPENDITURE BY SECTOR
(in Rp billion at current prices)

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Code	Sector	Actual					Budget		SEP. III		SEP. IV
		79/80	80/81	81/82	82/83	83/84	84/85	85/86	Plan	Actual	Plan
01	Agriculture & irrigation	285.2	445.1	582.9	511.2	588.8	942.7	872.4	2,278.9	2,711.2	7,314.3
01.1	Agriculture w/ -Estate crops	125.6	282.5	222.0	221.7	315.6	424.4	343.0	763.8	1,177.4	2,246.3
01.1.04	-Other						246.2	179.9	184.6		1,674.5
	-Other						178.2	163.1	31.2		671.3
01.2	Irrigation	257.7	342.6	330.9	289.4	273.2	518.3	529.4	1,533.1	1,533.8	4,668.0
02	Industry	336.3	415.1	529.4	506.5	512.8	630.1	633.1	1,174.0	2,328.1	4,281.9
03	Mining & energy	376.4	506.7	827.5	1,164.8	2,299.6	1,300.9	1,301.7	2,943.9	3,174.9	12,122.9
03.1	Mining	46.3	75.9	297.5	404.7	1,640.0	273.6	276.0	413.3	2,466.2	2,497.1
03.2	Energy	330.1	430.7	530.1	759.1	639.6	1,027.3	1,025.7	2,530.6	2,708.7	9,625.8
03.2.01	-Power						706.6	1,015.2	2,507.3		7,347.9
03.2.02	-Oil & gas						318.6	10.5	21.3		1,780.8
04	Communications & tourism	463.6	780.0	807.3	873.7	1,327.7	1,372.1	1,423.4	3,284.3	4,456.3	9,923.1
04.1	Roads & bridges	242.6	342.8	376.1	373.2	469.1	592.3	621.7	1,666.5	1,303.3	4,220.4
04.2	Land transport	60.3	79.5	117.6	104.3	575.9	226.6	238.1	238.8	923.7	1,598.2
04.3	Sea transport	103.4	143.3	147.8	220.9	309.1	274.4	274.7	324.4	926.6	1,764.4
04.4	Air transport	39.1	132.8	111.2	86.8	125.9	109.2	190.4	468.5	496.8	1,324.4
04.5	Posts & telecommunications	9.7	57.0	24.1	52.8	33.1	70.7	71.6	246.4	176.6	599.5
04.5.01	-Posts & giro						9.5	8.6	30.0		91.0
04.5.02	-Telecommunications						61.2	63.0	216.4		118.5
04.6	Tourism	9.8	23.6	20.5	6.6	16.6	23.6	28.9	45.7	87.1	216.2
05	Trade & cooperatives	30.5	103.2	57.7	131.8	198.6	127.1	128.8	191.9	521.8	969.2
05.1	Trade	12.1	73.5	21.9	93.1	128.2	28.6	60.0	53.6	338.7	433.5
05.2	Cooperatives	18.4	29.7	35.8	38.7	40.4	98.5	68.8	138.3	183.0	535.7
06	Power & transmission	162.2	326.3	416.3	432.9	436.6	673.1	676.8	1,240.7	1,797.6	4,531.3
06.1	Power	19.4	26.7	40.8	48.6	57.9	98.3	98.5	150.0	193.3	727.5
06.2	Transmission	142.8	299.6	375.5	384.3	378.7	574.8	578.3	1,090.7	1,604.3	3,803.8
07	Regional development	333.7	482.4	615.9	711.3	748.9	909.9	968.2	2,142.9	2,894.2	5,379.1
08	Religion	19.0	31.7	40.4	50.8	54.0	62.9	63.6	132.5	193.9	507.2
09	Education, youth & culture	241.7	274.6	723.7	703.2	1,032.3	1,501.9	1,510.8	2,276.8	3,397.5	11,539.5
09.1	Education & youth	222.1	314.3	656.4	626.9	944.7	1,324.9	1,341.1	1,764.8	3,064.4	10,447.5
09.2	Trasmiq	23.7	41.0	47.0	56.7	67.6	99.3	102.1	221.9	227.9	743.3
09.3	National culture	15.9	19.3	22.3	19.6	19.9	47.6	47.6	90.1	93.1	348.7

Code	Sector	Actual					Budget		REP. III		REP. IV
		79/80	80/81	81/82	82/83	83/84	84/85	85/86	Plan	Actual	Plan
10	Health & population	142.4	218.1	283.5	259.4	278.8	408.0	412.4	229.1	1,194.2	7,516.5
10.1	Health	99.7	145.7	172.1	163.9	154.4	253.3	255.0	555.2	725.8	2,051.7
10.2	Social welfare	17.2	32.7	47.0	48.1	42.7	57.7	28.2	70.9	187.8	445.7
10.3	Population	25.6	39.6	64.3	47.4	81.7	97.0	100.1	202.0	260.6	1,021.2
11	Housing & resettlement	117.3	190.7	166.3	150.8	220.8	432.7	437.6	532.0	845.9	2,980.6
11.1.01	-People's housing						186.0	197.6	114.4		1,331.7
	-other						246.7	240.0	417.6		1,628.9
12	Law	70.8	52.7	53.6	66.1	56.6	80.4	80.7	193.0	289.8	629.2
13	Defense & security	320.2	479.0	565.1	476.8	525.9	697.8	714.1	1,483.6	2,277.1	5,223.9
14	Information	22.4	33.9	44.3	50.3	27.5	67.1	67.7	151.0	178.4	498.5
15	Research & development	57.9	87.8	95.4	128.4	302.6	206.0	207.9	447.6	672.1	1,737.7
15.1	Science & technology	4.9	13.7	16.3	16.3	170.1	73.7	74.4	60.9	221.4	782.1
15.2	Research	53.0	74.1	79.1	112.0	132.5	132.2	133.6	286.7	450.7	995.6
16	Government apparatus	111.5	167.6	180.9	242.6	316.3	162.0	176.4	579.7	1,018.9	1,347.4
17	Business development	465.6	388.9	389.4	280.7	233.9	226.9	229.1	270.3	1,758.5	1,689.7
18	Resources & environment	120.3	148.3	183.3	193.5	193.4	256.9	259.2	707.2	940.8	1,928.8
18.1.01	-Water management						231.2	202.8	621.9		1,724.5
	-Other						25.7	26.4	35.3		224.3
	SUB-TOTAL	3,289.2	5,632.1	6,569.1	6,939.6	9,573.2	10,000.3	10,389.0	21,099.4	32,503.2	73,609.5
	Plus:										
	Fertilizer subsidy b/	123.0	284.0	371.0	420.0	324.0	459.0	528.0	750.0	1,524.0	3,000.0
	TOTAL	4,014.2	5,916.1	6,940.1	7,359.6	9,897.2	10,459.3	10,917.0	21,849.4	34,027.2	76,609.5

a/ Excluding fertilizer subsidy.

b/ Estimated for plan numbers.

Sources: Ministry of Finance and GNI, REP. III and REP. IV.

No.	Item	Actuals										Estimates		Projections		Sources	
		79/80	80/81	81/82	82/83	83/84	84/85	85/86	86/87	87/88	88/89	Historical	Projected	Historical	Projected		
A. CENTRAL GOVERNMENT BUDGET																	
1.	Domestic receipts	6,497	10,227	12,213	12,376	15,303	17,981	17,436	19,131	21,160	22,904	Sum of (2..4)		Sum of (2..4)			
2.	Oil & LNG revenues b/	6,240	7,020	8,478	8,328	10,390	12,425	10,524	11,280	12,201	12,627	Ministry of Finance		World Bank			
3.	Other taxes	2,250	2,892	3,248	3,812	4,396	4,789	6,180	7,030	8,819	9,185	Ministry of Finance		World Bank			
4.	Non-tax receipts	187	315	316	436	520	487	732	817	920	1,092	Ministry of Finance		World Bank			
5.	Routine expenditure	4,042	5,800	6,978	7,154	8,773	9,494	12,050	13,401	15,590	18,257	Sum of (4..13)		Sum of (4..13)			
6.	Personnel	1,420	2,023	2,278	2,418	2,757	3,047	4,117	4,471	5,300	6,015	Ministry of Finance		World Bank			
7.	Materials	540	671	922	1,043	1,057	1,183	1,510	1,737	1,972	2,240	Ministry of Finance		World Bank			
8.	Subsidies to regions	478	974	1,269	1,315	1,547	1,883	2,590	2,938	3,331	3,778	Ministry of Finance		World Bank			
9.	Internal debt service	37	31	14	20	30	39	30	30	30	30	Ministry of Finance		World Bank			
10.	External debt service																
11.	-Interest	381	439	456	480	1,164	1,492	1,402	1,893	2,214	2,555	Ministry of Finance		World Bank			
12.	-Amortization	247	315	459	525	909	1,510	1,546	1,833	2,378	3,469	Ministry of Finance		World Bank			
13.	Other b/	719	1,345	1,437	1,154	1,310	560	636	100	143	30	Ministry of Finance		World Bank			
14.	Development expenditure	4,014	5,916	6,910	7,340	9,899	9,952	9,586	10,244	11,108	11,820	Ministry of Finance		Sum of (15..17)			
15.	Fertilizer subsidy	125	284	371	441	458	732	667	602	537	472	Ministry of Finance		World Bank			
16.	Other recurrent items	401	583	965	1,158	1,141	1,008	1,188	1,225	1,376	1,510	Sum of (14-15-24)		World Bank			
17.	Other expenditure	3,489	5,049	5,464	5,741	8,301	8,212	7,731	8,418	9,196	9,438	14-15-16		18-19-16			
18.	Borrowing	1,379	1,489	1,705	1,938	3,370	1,745	4,200	4,515	5,518	6,773	5:14-1		5:14-1			
19.	External	1,381	1,494	1,709	1,940	3,882	1,745	4,200	4,515	5,518	6,773	Ministry of Finance		18-20			
20.	Domestic	(2)	(5)	(4)	(2)	(513)	0	0	0	0	0	18-19		World Bank			
B. OTHER BASIC DATA																	
External public debt																	
21.	Gross disbursements	1,176	1,599	1,701	2,024	4,883	4,020	4,837	5,100	5,949	7,051	World Bank		World Bank			
22.	Amortization	828	584	470	743	1,273	1,716	2,178	2,419	2,989	3,886	World Bank		World Bank			
23.	Interest	480	516	633	772	1,215	1,702	1,758	2,007	2,280	2,403	World Bank		World Bank			
Central Government																	
24.	Net domestic borrowing	(1,218)	(1,748)	(1,371)	822	(2,342)	(2,506)	452	396	507	1,246	Bank Indonesia		World Bank			

No.	Item	Actuals					Estimates		Projections			Sources	
		79/80	80/81	81/82	82/83	83/84	84/85	85/86	86/87	87/88	88/89	Historical	Projected
D. INVESTMENT SUMMARY													
46.	Gross domestic investment	7,184	10,167	12,634	15,354	15,595	17,676	17,713	18,754	21,066	23,773	29	29
47.	Public fixed investment	2,654	3,738	5,051	7,011	7,412	8,897	9,810	10,149	11,201	12,310	Sum of (18..49)	Sum of (18..49)
48.	- Direct Govt investment	881	1,445	3,121	3,448	2,451	3,987	3,766	5,085	5,401	6,170	39	39
49.	- PE investment	1,773	2,293	2,730	4,163	4,761	4,910	3,444	3,085	5,401	6,170	45	45
50.	Private fixed investment	4,050	5,747	5,702	6,303	7,015	6,204	4,902	8,044	9,278	16,271	44-47-51	44-47-51
51.	Change in stocks	480	482	1,081	1,440	369	2,567	1,402	571	587	460	31	31
52.	Gross national savings	8,588	11,478	10,903	10,944	11,447	15,713	14,780	15,544	17,763	19,788	32	32
53.	Public savings	2,651	4,175	4,670	4,693	4,241	8,427	5,574	6,293	6,856	6,963	Sum of (51..55)	Sum of (51..55)
54.	- Govt savings	2,376	3,075	4,358	4,328	5,040	7,977	5,075	5,734	6,216	6,274	34	34
55.	- PE savings	275	301	312	365	401	450	501	557	620	689	42	42
56.	Private savings	5,937	7,303	6,233	6,252	5,206	7,286	9,204	9,273	10,908	12,825	52-53	52-53
Shares of GDP (%)													
57.	Gross domestic investment	22.4	22.4	23.4	25.9	21.1	20.7	19.0	18.0	17.9	18.0	46/28+100	46/28+100
58.	Public fixed investment	8.3	8.2	10.0	12.0	10.1	10.4	10.1	9.8	9.5	9.4	47/28+100	47/28+100
59.	- Direct Govt investment	2.8	3.4	5.0	4.0	3.6	4.7	4.0	4.9	4.8	4.7	48/28+100	48/28+100
60.	- PE investment	5.5	4.8	5.1	8.0	6.5	5.7	6.0	4.9	4.8	4.7	49/28+100	49/28+100
61.	Private fixed investment	12.6	12.6	10.6	10.4	10.6	7.3	7.4	7.7	7.9	8.2	50/28+100	50/28+100
62.	Change in stocks	1.5	1.5	2.0	2.7	0.5	3.0	1.5	0.5	0.5	0.5	51/28+100	51/28+100
63.	Gross national savings	26.8	25.3	26.2	18.0	15.5	18.4	15.8	14.9	15.1	15.0	52/28+100	52/28+100
64.	Public savings	8.3	9.2	8.6	7.7	8.5	9.8	6.0	6.0	5.8	5.3	53/28+100	53/28+100
65.	- Govt savings	7.4	8.5	8.1	7.1	7.9	9.3	5.4	5.5	5.3	4.8	54/28+100	54/28+100
66.	- PE savings	0.9	0.7	0.6	0.6	0.5	0.5	0.5	0.5	0.5	0.5	55/28+100	55/28+100
67.	Private savings	18.5	16.1	11.5	10.3	7.1	8.5	9.8	8.9	9.3	9.7	56/28+100	56/28+100

a/ Excluding investments funded from local government sources.

b/ Official data adjusted in 82/83 and 83/84.

Sources: As noted on the table.

Annex Table 3: INDICATIVE SECTORAL PROGRAMS FOR REFELITA IV
(In Rp billion)

Page 1

No. Program	At current prices						At 83/84 prices					
	81/85	85/86	86/87	87/88	88/89	Total	81/85	83/84	86/87	87/88	88/89	Total
	I. MAJOR TREE CROPS											
A. RUBBER	203.6	231.6	273.7	290.1	297.8	1,296.8	188.5	190.6	217.3	213.2	202.7	1,020.3
1. Estates	70.0	83.6	90.1	109.8	119.3	481.8	65.2	71.7	77.9	80.7	81.2	376.7
NES	47.0	50.7	53.0	51.3	50.7	253.6	40.3	43.5	42.1	37.7	36.5	202.1
Processing	0.7	9.6	19.1	31.2	36.1	106.6	0.1	0.1	15.2	22.9	24.6	70.9
PIR	13.0	23.4	25.9	27.3	32.5	123.0	12.0	20.1	20.6	20.1	22.1	95.7
2. Smallholders	133.2	148.0	175.6	180.3	178.5	815.6	123.3	126.9	139.4	132.5	121.5	643.6
NES	40.2	36.2	33.0	26.9	15.9	148.9	37.2	29.3	26.0	18.3	10.0	122.4
Non-credit	7.9	6.1	5.5	3.3	1.6	24.4	7.3	5.2	4.4	2.4	1.1	20.4
PIR	31.8	45.8	42.9	61.8	55.4	257.0	28.8	32.3	49.9	45.4	37.7	201.1
Non-credit	5.5	9.1	11.6	11.8	10.4	48.5	5.1	7.0	9.2	0.7	7.1	37.9
SROP	12.2	13.6	20.0	26.3	31.9	104.0	10.3	13.4	16.5	19.3	21.7	82.2
Non-credit	0.5	5.2	7.2	9.0	13.2	37.1	0.2	6.5	5.7	6.6	7.6	28.6
PRPIE	24.0	24.0	27.5	35.2	41.3	150.0	22.2	22.3	21.0	25.9	20.1	120.3
Non-credit	7.0	5.9	6.4	8.0	10.9	39.0	7.2	5.1	5.4	5.9	7.4	30.7
B. OIL PALM	190.7	276.1	355.9	350.4	420.5	1,405.6	184.0	236.7	282.5	260.5	284.2	1,249.9
1. Estates	130.9	183.8	235.1	206.7	237.9	904.3	121.2	137.6	186.6	151.9	161.9	779.2
Field etc	105.6	119.3	130.9	146.3	157.9	660.1	97.0	102.3	107.1	107.5	107.5	522.2
Processing	25.3	64.5	104.1	60.4	79.9	330.3	23.4	35.3	79.5	44.4	54.4	257.0
2. Smallholders	67.0	92.3	120.8	147.0	182.6	611.3	62.0	79.1	95.9	108.6	122.3	470.7
Credit	53.7	76.5	101.0	123.7	153.1	510.0	51.6	65.6	80.2	90.9	104.2	392.5
Non-credit	12.1	15.7	19.8	23.1	29.5	101.2	11.2	13.5	15.7	17.7	20.1	78.2
C. COCONUT	94.0	105.4	118.5	135.5	150.9	405.2	87.8	90.4	94.1	99.6	102.7	470.6
1. Estates	9.0	6.3	5.8	5.2	4.0	30.2	0.3	5.4	4.6	3.8	2.7	20.8

No. Program	At current prices						At 01/00 prices										
	01/05	05/06	06/07	07/08	08/09	Total	01/05	05/06	06/07	07/08	08/09	Total					
2. Smallholders	85.9	99.1	112.7	130.3	146.9	575.0	79.5	85.0	89.5	95.0	100.0	449.0					
NES																	
	Credit	12.6	17.0	21.7	19.9	11.9	81.9	11.7	15.3	17.2	14.6	8.1	66.9				
	Non-credit	2.3	3.1	3.9	3.4	1.9	14.6	2.1	2.7	3.1	2.5	1.3	11.7				
SCBP	Credit	11.2	11.6	16.3	19.5	24.5	83.1	10.4	11.7	12.9	14.3	16.7	66.0				
	Non-credit	2.9	3.6	6.5	3.6	6.5	23.1	2.7	3.1	3.6	4.1	4.4	17.9				
PRPTE	Credit	45.4	49.7	56.7	67.6	86.3	301.9	42.2	42.6	43.6	49.7	57.4	235.3				
	Non-credit	11.2	11.2	16.7	16.4	17.0	64.3	10.4	9.6	9.3	10.6	12.1	52.0				
TOTAL		497.4	613.2	740.1	780.0	869.2	3,507.6	460.3	525.7	593.9	573.3	591.6	2,766.0				
Financed by:																	
Estates						1,505.0						1,170.3					
IBRD						150.0						123.4					
Other loans						696.0						543.7					
PIP equity						651.0						511.0					
Smallholders						2,001.9						1,566.3					
GOI budget						352.0						275.4					
IBRD						302.0						290.9					
Other loans						1,267.9						992.1					
II. WATER RESOURCES																	
A. IRRIGATION						415.5	517.4	707.0	400.0	431.4	2,935.3	440.3	443.0	541.3	444.0	429.5	2,310.9
1. Ongoing						472.9	594.0	679.2	553.9	570.4	2,780.4	437.0	430.5	539.2	477.2	380.3	2,207.0
Small	Foreign	11.2	15.4	9.7	0.0	0.0	36.4	10.4	13.2	7.7	0.0	0.0	31.3				
	GOI	12.0	13.4	21.4	31.5	39.6	118.9	11.9	11.7	17.0	23.1	26.9	90.6				
Medium	Foreign	15.2	30.0	35.7	15.4	21.0	117.4	16.1	25.7	28.4	11.3	14.3	93.8				
	GOI	19.7	18.0	26.6	21.0	15.1	100.4	18.2	15.4	21.2	15.5	16.3	86.5				
Large - Dir I	Foreign	90.0	88.5	123.2	120.0	99.7	530.9	91.5	75.9	97.8	88.8	67.9	421.7				
	GOI	9.0	11.9	31.0	39.0	40.5	132.9	9.0	10.2	25.2	28.6	27.5	100.4				
Large - Dir II	Foreign	67.1	77.3	49.0	22.4	12.5	249.2	62.2	66.3	39.5	16.5	22.1	206.4				
	GOI	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Large - Dir rivers	Foreign	72.4	69.4	176.8	104.4	117.4	540.2	67.0	59.5	110.3	76.9	79.7	423.4				
	GOI																

No.	Program	At current prices						At 1986 prices					
		84/85	85/86	86/87	87/88	88/89	Total	84/85	85/86	86/87	87/88	88/89	Total
	Groundwater Foreign	19.0	20.8	20.3	21.8	25.9	107.8	17.4	17.8	14.1	16.0	17.4	85.7
	GOI	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	Tertiary Foreign	0.5	0.7	0.4	0.0	0.0	1.5	0.4	0.4	0.3	0.0	0.0	1.3
	GOI	4.0	4.5	5.3	5.8	6.5	26.1	3.7	3.9	4.2	4.3	4.4	20.0
	Rehab -Dir I Foreign	37.4	42.8	55.2	51.5	47.2	229.2	30.2	34.7	43.8	37.9	32.1	180.4
	GOI	13.3	14.3	23.3	23.4	24.4	102.9	12.3	12.3	18.5	18.8	18.0	70.9
	Rehab -Dir II Foreign	53.9	52.3	34.4	26.4	24.7	196.0	49.9	44.8	29.1	19.4	14.8	148.1
	GOI	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	O & M Foreign	1.7	1.9	4.3	4.4	5.6	21.4	1.4	1.4	1.4	1.4	1.4	16.9
	GOI	24.2	28.3	30.4	33.0	35.7	153.0	24.3	24.3	24.3	24.3	24.3	121.4
	O & M special Foreign	3.9	4.4	8.1	8.9	9.4	35.0	3.4	3.8	4.5	4.5	4.5	27.0
	GOI	8.8	10.8	20.1	21.8	24.0	85.4	8.1	9.2	15.9	16.0	14.4	65.7
2.	New	2.7	10.8	27.8	50.4	40.5	151.9	2.5	9.3	22.1	34.8	41.2	111.9
	Small Foreign	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	GOI	0.0	0.0	0.0	0.2	2.7	3.0	0.0	0.0	0.0	0.2	1.9	2.1
	Medium Foreign	0.0	0.0	0.3	0.4	1.0	1.9	0.0	0.0	0.2	0.4	0.7	1.3
	GOI	0.0	0.9	7.5	14.2	20.4	43.2	0.0	0.0	3.9	10.5	14.0	31.2
	Large -Dir I Foreign	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	GOI	0.0	0.0	0.0	0.3	1.4	1.9	0.0	0.0	0.0	0.3	0.9	1.3
	Large -Dir II Foreign	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	GOI	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	Large -Dir rivers Foreign	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	GOI	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	Groundwater Foreign	0.0	5.9	4.8	6.2	2.8	21.4	0.0	5.1	3.4	4.5	1.9	14.9
	GOI	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	Tertiary Foreign	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	GOI	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	Rehab -Dir I Foreign	2.7	3.5	12.3	27.4	30.8	76.7	2.5	3.0	9.8	20.1	21.0	56.4
	GOI	0.0	0.5	0.9	1.1	1.2	3.7	0.0	0.4	0.7	0.8	0.8	2.8
8.	RIVERS	94.8	100.5	144.0	144.1	139.5	427.0	87.8	84.2	115.9	107.4	95.0	492.3
1.	Ongoing	94.8	97.4	124.3	124.9	115.4	559.1	87.8	83.5	100.3	91.8	78.7	442.1
	Emergency disaster Foreign	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	GOI	3.5	3.4	5.2	5.7	4.1	24.0	3.2	2.9	4.2	4.2	4.2	18.7
	Volcanic debris Foreign	3.2	12.8	4.1	6.3	4.9	35.3	2.9	11.0	4.8	4.7	4.7	28.1
	GOI	2.5	2.5	3.8	4.2	4.5	17.4	2.3	2.1	3.1	3.1	3.1	13.4
	River improvement Foreign	71.3	42.1	71.5	49.2	70.2	344.2	44.0	53.2	54.7	50.9	47.8	274.6
	GOI	9.8	12.4	9.3	10.1	10.9	52.5	9.1	10.4	7.4	7.4	7.4	41.9
	Flood control Foreign	4.4	4.3	30.3	29.5	17.0	85.7	4.2	3.7	24.1	21.7	11.4	65.2
	GOI						0.0	0.0	0.0	0.0	0.0	0.0	

No. Program	All current prices						AR 01/01 prices					
	01/05	05/06	06/07	07/08	08/09	Total	01/05	05/06	06/07	07/08	08/09	Total
2. New	0.0	3.2	19.7	21.2	23.9	40.0	0.0	2.7	15.7	15.6	16.2	50.2
--- River improvement	0.0	0.0	4.3	3.0	0.6	8.0	0.0	0.0	3.4	2.0	0.4	6.7
Foreign GOI	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Flood control	0.0	3.2	15.4	17.4	23.2	59.2	0.0	2.7	12.2	12.8	15.8	43.5
Foreign GOI	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
C. SWAMP	21.0	26.1	26.9	20.2	27.0	130.0	19.5	22.6	21.0	20.7	10.9	102.0
1. Ongoing	4.4	7.5	7.9	7.0	0.9	36.5	0.0	6.5	4.2	5.7	4.1	20.5
New tidal swaps	1.3	3.3	0.0	3.2	5.6	20.2	1.2	2.0	3.0	3.0	3.0	15.5
Foreign GOI	0.3	0.7	0.0	0.0	0.0	1.9	0.4	0.6	0.6	0.0	0.0	1.6
Rehab tidal swaps	0.7	1.6	0.2	0.3	0.9	3.7	0.7	1.3	0.2	0.2	0.6	3.0
Foreign GOI	1.9	2.0	2.0	2.3	2.0	10.6	1.7	1.7	1.6	1.7	1.6	8.4
2. New	16.6	18.6	19.1	20.4	18.9	93.5	15.4	15.9	15.1	15.0	12.9	74.3
--- New tidal swaps	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Foreign GOI	4.4	6.4	7.4	8.0	7.3	35.7	5.9	5.5	5.9	5.9	5.1	28.3
Rehab tidal swaps	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Foreign GOI	1.2	2.2	1.7	2.0	2.0	9.0	1.1	1.9	1.4	1.4	1.3	7.1
Inland swaps	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Foreign GOI	9.1	9.9	10.0	10.4	9.1	48.8	8.4	8.5	7.9	7.6	6.4	38.9
B. PLANNING	11.5	12.5	13.4	10.4	15.3	67.1	10.6	10.7	10.6	10.6	10.4	53.0
1. Ongoing	11.5	11.3	11.1	10.9	10.7	55.5	10.6	9.7	8.8	8.0	7.3	46.4
--- River basin plan	11.5	11.3	11.1	10.9	10.7	55.5	10.6	9.7	8.8	8.0	7.3	46.4
Foreign GOI	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2. New	0.0	1.2	2.3	3.5	4.6	11.6	0.0	1.0	1.8	2.6	3.2	8.6
--- River basin plan	0.0	1.2	2.3	3.5	4.6	11.6	0.0	1.0	1.8	2.6	3.2	8.6
Foreign GOI	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	402.9	456.7	493.4	792.7	813.8	3,759.3	358.2	363.0	709.2	582.7	551.8	2,967.0
Financed by												
GOI budget	317.7	389.9	595.0	602.1	444.3	2,599.0	322.0	330.3	472.3	402.5	452.1	2,023.2
External loans	255.2	266.8	298.4	190.7	149.5	1,160.3	236.3	228.8	236.9	180.2	101.7	943.8

No. Program	At current prices						At 83/84 prices					
	01/85	05/84	06/87	07/88	08/89	Total	01/85	05/84	06/87	07/88	08/89	Total
	III. MANUFACTURING											
A. MINISTRY OF INDUSTRY	46.4	450.4	400.0	550.0	500.0	2,347.0	63.0	557.0	076.3	6.2	310.3	1,021.6
1. Pre-1985/84 projects	45.7	356.3	410.6	17.1	0.0	937.0	62.3	303.7	96.1	12.6	0.0	450.7
Kaltin I Rehabilitation	12.3					12.3	11.4	0.0	0.0	0.0	0.0	11.4
PT Barata Indonesia Improvement	7.7	24.1	25.7	6.6		64.0	7.1	20.7	20.4	4.7	0.0	52.0
PT Bona Bisma Indra Improvement	6.2	19.4	17.7	10.7		54.0	5.7	16.7	14.0	7.0	0.0	43.3
PT Kerlas Kraft Aceh plant	19.5	313.0	75.2			407.4	18.1	248.3	59.7	0.0	0.0	346.1
2. 1985/84 projects	0.0	294.1	446.7	236.7	50.0	1,057.0	0.7	253.1	370.5	174.0	60.0	837.3
Kaltin III New plant		43.0	209.6	50.4		303.0	0.0	37.7	166.3	37.0	0.0	241.1
PT Pusri New ship		13.0	9.2			22.0	0.0	11.0	7.3	0.0	0.0	19.2
PT Seaan Gresik Fuel conversion		9.1	18.2	14.4		41.7	0.0	7.0	14.4	10.6	0.0	32.0
PT Seaan Gresik Renovation		6.6	5.4			10.1	0.0	3.9	4.4	0.0	0.0	8.3
PT Petrokimia Gresik CO2-amoniac plant		73.9	82.2	30.1		186.3	0.0	45.1	45.2	22.2	0.0	152.5
Pusri I-B Renovation		61.4	82.0	110.4	41.4	276.1	0.0	35.3	45.7	81.2	28.2	210.4
PT Ind. Kapal Indo.	0.0	26.2	19.6	12.6	4.5	63.0	0.7	22.5	15.4	9.3	3.1	51.1
PT Ind. Mesin Perk.		3.5	3.5	3.1	5.5	15.7	0.0	3.0	2.0	2.3	3.0	11.9
Perus Garas Renovation		2.1	4.9	0.3		17.3	0.0	1.0	3.3	6.1	0.0	13.4
PT Ind. Bandung I		13.4	22.0	7.3	7.3	51.0	0.0	11.6	18.1	5.4	5.0	40.1
PT Ind. Bandung II		59.0	6.3			65.1	0.0	31.3	5.0	0.0	0.0	36.3
3. New projects	0.0	0.0	16.7	296.2	441.2	752.1	0.0	0.0	11.7	217.7	300.3	529.7
B. OTHER INDUSTRIES	993.0	437.3	380.0	340.0	300.0	2,450.2	919.4	376.9	301.7	249.9	204.2	2,050.0
1. Industrial projects	746.1	200.1	180.0	160.0	140.0	1,456.2	709.3	170.4	142.9	117.4	93.3	1,243.3
2. Business development	226.9	229.2	200.0	180.0	160.0	994.0	210.1	196.5	158.8	132.3	108.9	806.5

No. Program	At current prices						At 83/84 prices						
	84/85	85/86	86/87	87/88	88/89	Total	84/85	85/86	86/87	87/88	88/89	Total	
TOTAL	1,019.4	1,087.8	920.0	890.0	800.0	4,797.2	962.4	932.6	770.0	654.2	549.5	3,871.7	
Financed by:													
GOI budget	169.4	122.8	100.0	80.0	50.0	502.2	130.3	105.3	79.4	58.8	34.0	415.8	
External loans	727.6	761.5	486.0	623.0	540.0	3,350.1	673.7	622.9	566.6	457.9	381.1	2,710.2	
Domestic loans	110.5	149.2	155.6	98.0	94.0	567.2	102.3	127.0	91.0	72.0	64.0	457.9	
PE funds	52.0	56.4	78.0	89.0	96.0	349.8	48.1	46.6	42.2	45.4	45.3	207.7	
IV. MINING													
1. Bukit Asam	Total cost	227.0	111.4	150.0	0.0	0.0	489.3	210.2	95.5	119.0	0.0	0.0	425.5
	Financed by:	-----											
	GOI budget	31.2	51.1	73.0			157.7	28.9	45.5	58.3	0.0	0.0	132.7
	External loans	195.8	50.3	77.5			331.6	181.3	50.0	61.5	0.0	0.0	292.8
2. Qabilin I	Total cost	30.7	2.9	0.0	0.0	0.0	37.6	36.8	2.5	0.0	0.0	0.0	39.2
	Financed by:	-----											
	GOI budget	2.4	2.9				5.5	2.4	2.5	0.0	0.0	0.0	4.9
	External loans	37.1					37.1	34.4	0.0	0.0	0.0	0.0	34.4
3. Qabilin II	Total cost	0.0	0.0	50.0	70.0	80.0	200.0	0.0	0.0	39.7	51.5	54.4	145.6
	Financed by:	-----											
	GOI budget			12.5	17.5	20.0	50.0	0.0	0.0	9.9	12.9	13.6	36.4
	External loans			37.5	52.5	60.0	150.0	0.0	0.0	29.8	38.6	40.8	109.2
4. Perambahan	Total cost	0.0	5.7	22.2	4.1	11.4	43.4	0.0	4.9	17.4	3.0	7.8	33.3
	Financed by:	-----											
	Private equity		5.7	22.2	4.1	11.4	43.4	0.0	4.9	17.4	3.0	7.8	33.3
5. E & S Kalimantan	Total cost	0.0	20.0	80.0	100.0	100.0	300.0	0.0	17.1	63.5	73.5	48.1	222.2
	Financed by:	-----											
	Private equity		20.0	80.0	100.0	100.0	300.0	0.0	17.1	63.5	73.5	48.1	222.2
6. Singkep I	Total cost	11.2	5.1	0.0	0.0	0.0	16.5	10.4	4.5	0.0	0.0	0.0	14.9
	Financed by:	-----											
	Domestic loans	1.7					1.7	1.4	0.0	0.0	0.0	0.0	1.4
	Private equity	9.5	5.1				14.8	8.8	4.5	0.0	0.0	0.0	13.3

No.	Program	At current prices						At 83/84 prices						
		84/85	85/86	86/87	87/88	88/89	Total	84/85	85/86	86/87	87/88	88/89	Total	
7.	PT Lalinusa	Total cost	77.9	19.5	2.2	0.0	0.0	49.4	25.0	16.7	1.7	0.0	0.0	43.3
		Financed by:												
		External loans	18.3	2.6				20.9	16.9	2.2	0.0	0.0	0.0	19.2
		Domestic loans	1.2	13.6	2.2			17.0	1.1	11.7	1.7	0.0	0.0	14.5
		Private equity	8.4	3.3				11.7	7.0	2.8	0.0	0.0	0.0	10.6
8.	Other projects	Total cost	0.0	0.0	0.0	100.0	120.0	220.0	0.0	0.0	0.0	73.5	81.7	155.2
		Financed by:												
		GDI budget				25.0	30.0	55.0	0.0	0.0	0.0	18.4	20.4	38.8
		External loans				75.0	90.0	165.0	0.0	0.0	0.0	55.1	61.3	116.4
		TOTAL	305.0	164.0	305.3	274.1	311.0	1,161.4	283.1	141.3	242.4	201.5	211.9	1,080.2
		Financed by:												
		GDI budget	33.0	56.0	85.0	42.5	50.0	268.2	31.3	48.0	48.2	31.2	34.0	212.8
		External loans	251.2	60.9	115.0	127.5	150.0	704.6	232.6	52.2	91.3	91.7	102.1	571.9
		Domestic loans	2.9	13.6	2.2	0.0	0.0	18.7	2.7	11.7	1.7	0.0	0.0	16.1
		Private equity	17.9	34.3	102.2	104.1	111.0	369.9	16.6	29.4	81.1	76.5	75.8	279.4

V. PETROLEUM

1.	Musi refinery I	Total cost	23.6	95.5	6.1	0.0	0.0	125.2	21.9	81.9	4.8	0.0	0.0	108.6
		Financed by:												
		External loans	14.4	51.7	1.8			67.9	13.3	44.3	1.4	0.0	0.0	59.1
		Other GDI	7.6	40.9	3.3			51.8	7.0	35.1	2.4	0.0	0.0	44.7
		Pertamina funds	1.6	2.9	1.0			5.5	1.5	2.5	0.0	0.0	0.0	4.0
2.	Ref. optimization	Total cost	0.0	54.5	103.8	0.0	0.0	160.3	0.0	48.4	82.4	0.0	0.0	130.8
		Financed by:												
		External loans		36.9	66.9			103.8	0.0	29.9	51.1	0.0	0.0	81.0
		Pertamina funds		21.6	36.9			58.5	0.0	18.5	29.3	0.0	0.0	47.8
3.	LPB export terminal	Total cost	37.9	16.7	0.0	0.0	0.0	54.6	35.1	16.3	0.0	0.0	0.0	49.4
		Financed by:												
		External loans	16.6	6.6				23.2	12.0	5.7	0.0	0.0	0.0	17.7
		Pertamina funds	3.3	16.1				19.4	3.1	8.7	0.0	0.0	0.0	11.7
4.	Asphalt plant	Total cost	1.5	14.9	3.5	0.0	0.0	19.9	1.4	12.8	2.8	0.0	0.0	16.9
		Financed by:												
		Pertamina funds	1.5	14.9	3.5			19.9	1.4	12.8	2.8	0.0	0.0	16.9

No.	Program	At current prices					Total	At 87/88 prices					Total	
		84/85	85/86	86/87	87/88	88/89		84/85	85/86	86/87	87/88	88/89		
5.	Methanol plant	Total cost	14.4	0.0	0.0	0.0	0.0	14.4	15.2	0.0	0.0	0.0	0.0	15.2
		Financed by												
		GOI budget	8.5					8.5	7.9	0.0	0.0	0.0	0.0	7.9
		External loans	7.9					7.9	7.3	0.0	0.0	0.0	0.0	7.3
6.	Aromatics plant I	Total cost	299.9	85.9	32.1	0.0	0.0	417.9	277.7	73.6	25.5	0.0	0.0	376.8
		Financed by												
		GOI budget	104.7	85.9	32.1			222.7	96.9	73.6	25.5	0.0	0.0	196.1
		External loans	195.2					195.2	180.7	0.0	0.0	0.0	0.0	180.7
7.	Ships	Total cost	42.4	126.4	158.8	171.4	165.8	704.8	57.8	148.4	126.1	126.0	126.5	544.6
		Financed by												
		Pertamina funds	42.4	126.4	158.8	171.4	165.8	704.8	57.8	148.4	126.1	126.0	126.5	544.6
8.	Domestic supply	Total cost	82.2	161.0	236.2	237.4	341.4	1,058.2	76.1	178.0	187.5	174.5	232.4	808.5
		Financed by												
		Pertamina funds	82.2	161.0	236.2	237.4	341.4	1,058.2	76.1	178.0	187.5	174.5	232.4	808.5
9.	Exploration & prod.	Total cost	928.1	998.0	1,047.9	1,100.7	1,154.7	5,229.4	859.4	855.6	831.9	809.0	785.9	4,141.8
		Financed by												
		External loans	27.5	13.0	48.4	55.0	57.7	222.1	25.5	11.5	54.3	40.5	39.3	171.0
		Pertamina funds	900.6	985.0	999.5	1,045.7	1,097.0	5,007.3	833.9	844.1	777.6	768.5	746.6	3,970.8
10.	City gas systems	Total cost	10.8	6.0	14.1	20.1	24.4	75.4	10.0	5.1	11.2	14.8	16.6	57.7
		Financed by												
		GOI budget	10.0	4.9	5.9	4.3	4.4	33.5	9.3	4.2	4.7	4.6	4.4	27.1
		External loans	0.8	1.1	8.2	15.8	18.0	41.9	0.7	0.9	6.5	10.1	12.3	30.6
TOTAL			1,462.8	1,540.9	1,602.5	1,529.6	1,706.3	7,867.1	1,156.4	1,338.2	1,272.1	1,124.3	1,161.3	6,250.4
Financed by:														
	GOI budget		123.2	90.8	38.0	6.3	6.4	264.7	114.1	77.8	30.2	4.6	4.4	231.1
	External loans		280.6	197.7	115.3	68.8	75.7	678.0	259.6	92.3	115.3	50.6	51.5	549.5
	Other GOI		7.4	10.9	3.3	0.0	0.0	51.8	7.0	15.1	2.6	0.0	0.0	44.7
	Pertamina funds		1,051.6	1,321.5	1,415.9	1,454.5	1,624.2	6,867.6	973.7	1,133.0	1,124.0	1,069.1	1,105.4	5,405.1

No. Program	At current prices										At 03/00 prices														
	01/05	05/05	02/07	07/08	02/08	02/08	02/08	02/08	02/08	02/08	01/05	05/05	02/07	07/08	02/08	02/08	02/08	02/08	02/08	02/08					
VI. POWER (PLN)																									
A. GENERATION																									
1. Hydro	433.1	500.3	529.0	495.4	544.3	2,341.7	401.0	435.0	205.0	343.9	305.4	1,071.0	793.6	903.3	299.4	011.5	952.0	4,100.6	730.0	033.0	102.9	594.5	410.5	3,429.6	
Penugagan	50M (02/01)	4.0	5.1	14.4	21.7	29.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Asahan 1	90M (02/01)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Asahan 1 2	90M (01/92)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Asahan III 1	75M (03/01)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mt 3	4M (05/01)	7.7	3.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Singhral 1-2	100M (03/01)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Koto Panjang	101M (03/01)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Tee 1	14M (09/01)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Besal	24M (02/03)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Musi 1	34M (01/01)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pade Kabayang 1	10M (01/92)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pade Kabayang 2	20M (02/03)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Riau Kiri	42M (03/01)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Tenggar 1	17M (07/01)	5.7	4.7	4.5	1.3	14.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Tenggar 1E	17M (01/92)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Bakara 1-1E	124M (08/01)	13.3	74.2	56.6	70.9	45.0	201.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sentani 1-2	13M (02/01)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Kedung Dobo	23M (08/01)	0.0	0.7	4.1	7.3	5.4	20.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Tulang Agung	30M (09/01)	0.0	0.4	15.3	10.0	14.0	51.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sempuruh	29M (07/01)	27.0	33.0	3.0	0.0	0.0	49.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Kosambi	33M (09/01)	5.0	10.1	23.3	20.0	20.3	91.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mrica	100M (04/01)	74.3	70.7	60.2	02.0	150.0	444.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mada Lintang	14M (07/01)	3.4	1.4	1.0	2.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
700M (05/01)	127.9	109.7	0.0	0.0	0.0	322.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
500M (08/01)	116.0	120.0	131.3	161.4	101.0	434.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cirata 1	500M (08/01)	116.0	120.0	131.3	161.4	101.0	434.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Jatigede	175M (04/01)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cung	4M (06/01)	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Ciliwung	10M (09/01)	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Stasiun	0.1	15.9	32.6	54.1	0.0	240.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Belawan 1	45M (04/01)	4.1	0.0	0.0	0.0	0.0	4.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Belawan 2	45M (04/01)	4.1	0.0	0.0	0.0	0.0	4.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Grasih 3	200M (07/01)	29.7	43.7	53.2	37.4	0.0	160.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Grasih 4	200M (07/01)	19.0	32.2	18.5	16.7	0.0	80.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

No. Program	At current prices						At 83/84 prices						
	84/85	85/86	86/87	87/88	88/89	Total	84/85	85/86	86/87	87/88	88/89	Total	
3. Steam coal	208.0	216.7	140.0	143.6	306.6	1,016.6	193.4	185.8	111.0	105.6	208.6	805.2	
Dablim 1	50KM (89/90)	0.0	0.0	10.5	22.4	18.6	51.5	0.0	0.0	0.0	16.4	12.4	37.4
Dablim II	50KM (90/91)	0.0	0.0	0.0	11.1	26.1	35.5	0.0	0.0	0.0	8.4	16.4	24.8
Bukit Asan 1-2	130KM (84/87)	41.4	25.6	1.0	0.0	0.0	48.8	38.3	22.0	1.5	0.0	0.0	61.7
Tarahan 1	50KM (91/92)	0.0	0.0	3.4	13.4	21.4	40.3	0.0	0.0	2.0	9.8	15.9	28.4
Tarahan 2	50KM (92/93)	0.0	0.0	0.0	3.8	14.4	18.1	0.0	0.0	0.0	2.8	9.8	12.6
Loakulu 1	50KM (93/94)	0.0	0.0	0.0	0.0	3.3	3.3	0.0	0.0	0.0	0.0	2.2	2.2
Banjarnasin 1	50KM (91/92)	0.0	0.0	0.0	4.5	17.0	22.0	0.0	0.0	0.0	3.3	12.2	15.5
Banjarnasin 2	50KM (92/93)	0.0	0.0	0.0	0.0	4.9	4.9	0.0	0.0	0.0	0.0	3.3	3.3
Paiton 1	400KM (92/93)	0.0	0.0	0.0	28.0	100.1	128.2	0.0	0.0	0.0	20.6	48.2	68.8
Paiton 2	400KM (93/94)	0.0	0.0	0.0	0.0	30.3	30.3	0.0	0.0	0.0	9.0	20.6	29.6
Surabaya 1-2	800KM (85/86)	91.0	56.2	0.0	0.0	0.0	148.0	85.0	48.2	0.0	0.0	0.0	133.2
Surabaya 3	400KM (86/89)	30.4	20.4	38.1	19.0	18.7	204.6	46.7	48.9	30.2	16.0	12.7	172.6
Surabaya 4	400KM (89/90)	25.3	51.0	26.8	41.1	20.4	228.3	23.4	46.7	48.9	30.2	14.0	183.1
Surabaya 5	400KM (93/94)	0.0	0.0	0.0	0.0	30.3	30.3	0.0	0.0	0.0	0.0	20.6	20.6
Surabaya 6	400KM (94/95)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4. Geothermal	33.0	15.0	5.5	7.0	28.9	89.3	30.5	12.0	4.4	5.2	19.6	72.5	
Dieng 1	55KM (93/94)	0.0	0.0	0.0	0.0	2.4	2.4	0.0	0.0	0.0	1.7	1.7	
Dieng 2	55KM (93/94)	0.0	0.0	0.0	0.0	2.4	2.4	0.0	0.0	0.0	1.7	1.7	
Salak 1	55KM (92/93)	0.0	0.0	0.0	2.2	8.4	10.7	0.0	0.0	0.0	1.7	5.7	7.4
Salak 2	55KM (93/94)	0.0	0.0	0.0	0.0	2.4	2.4	0.0	0.0	0.0	0.0	1.7	1.7
Brajat 1	55KM (92/93)	0.0	0.0	0.0	3.2	15.7	13.9	0.0	0.0	0.0	2.3	7.3	9.6
Brajat 2	55KM (93/94)	0.0	0.0	0.0	0.0	2.4	2.4	0.0	0.0	0.0	0.0	1.7	1.7
Kaojangan 2-3	110KM (87/88)	33.0	15.0	5.5	1.1	0.0	55.0	30.5	12.0	4.4	1.2	0.0	48.9
5. Gas turbine	2.6	0.0	0.0	0.0	0.0	2.6	2.4	0.0	0.0	0.0	0.0	2.4	
Banjarnasin	20KM (84/85)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Benpasar	20KM (84/85)	0.9	0.0	0.0	0.0	0.0	0.9	0.9	0.0	0.0	0.0	0.9	
Gresik	20KM (84/85)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
6. Diesel	50.3	167.5	181.5	111.6	51.1	566.1	50.3	163.6	144.1	82.1	34.8	434.8	
D. TRANSMISSION	337.9	316.2	269.1	280.2	316.3	1,520.6	312.9	315.9	273.6	213.3	215.3	1,240.9	
1. Transmission	147.0	138.5	133.6	129.1	107.7	676.0	136.1	135.9	104.1	94.9	73.3	564.3	
2. Substations	190.9	207.6	135.5	161.1	208.6	903.6	176.8	178.0	169.5	118.4	141.9	722.7	

No. Program	At current prices						At 03/01 prices					
	04/05	05/06	06/07	07/08	08/09	Total	04/05	05/06	06/07	07/08	08/09	Total
C. DISTRIBUTION	436.6	511.3	626.0	710.3	810.7	3,114.6	402.2	630.6	495.3	550.0	577.6	2,463.5
1. HV lines	62.0	73.6	86.0	100.5	115.1	438.0	50.1	63.1	80.3	73.9	70.4	301.7
2. LV lines	120.2	140.9	173.3	201.0	231.1	803.4	110.7	127.7	137.6	140.6	157.3	489.6
3. Transformers	149.5	173.7	202.2	235.6	269.0	1,030.9	130.4	140.9	140.5	173.2	103.7	601.7
4. Connections	25.6	30.1	35.1	41.0	46.9	178.7	23.7	25.0	27.9	30.1	31.9	139.0
5. Rural electrification	68.3	85.1	127.4	169.3	185.7	635.7	63.2	72.9	101.1	124.4	126.4	400.1
D. OTHER INVESTMENTS	29.9	35.5	31.1	36.0	42.6	175.1	27.7	30.4	24.7	26.4	29.0	130.3
TOTAL	1,595.0	1,896.3	1,803.6	1,885.9	2,160.3	9,221.9	1,477.6	1,625.0	1,336.5	1,306.2	1,470.3	7,296.3
Financed by:												
GDI budget	300.0	324.0	349.9	377.9	408.2	1,760.1	277.0	277.0	277.0	277.0	277.0	1,309.0
External loans	1,245.3	1,336.9	922.9	1,101.5	1,032.5	5,639.0	1,153.1	1,146.2	732.6	869.6	702.7	4,544.1
PLN funds	50.4	235.4	610.8	406.5	719.7	1,022.0	46.7	201.0	326.1	290.0	489.0	1,363.2

VII. TRANSPORT

A. ROADS & BRIDGES	666.9	677.6	789.3	930.7	1,106.3	4,170.8	615.7	501.0	626.6	689.9	751.6	3,244.7
1. Budget-financed	592.5	621.7	746.6	921.0	1,097.0	3,990.0	540.7	533.0	606.6	676.9	746.6	3,113.7
Maintenance	22.0	22.0	26.6	31.0	36.2	139.3	21.1	19.5	21.1	22.0	24.6	109.3
Support works	121.3	130.0	151.6	176.9	206.3	706.1	112.4	111.5	120.4	130.0	140.4	614.6
Improvement	337.4	340.0	440.9	544.2	641.2	2,123.6	312.4	291.5	350.0	400.0	450.0	1,603.9
Construction	111.1	120.9	147.5	160.9	193.3	749.7	102.9	110.5	117.1	126.1	131.6	506.2
2. Other investments	72.4	56.0	22.7	17.7	7.3	176.1	67.0	40.0	10.0	13.0	5.0	151.0
Jasa Marga	72.4	56.0	22.7	17.7	7.3	176.1	67.0	40.0	10.0	13.0	5.0	151.0

No. Program	At current prices						At 83/84 prices					
	81/85	85/86	86/87	87/88	88/89	Total	81/85	85/86	86/87	87/88	88/89	Total
B. LAND TRANSPORT	236.6	238.1	140.7	152.4	145.5	913.3	219.1	200.1	111.7	112.1	112.6	759.7
1. Budget-financed	236.6	238.1	140.7	152.4	145.5	913.3	219.1	200.1	111.7	112.1	112.6	759.7
Traffic facilities	9.3	10.0	11.2	12.0	14.2	57.3	8.4	8.4	8.9	9.3	9.6	45.0
Railway infrastructure	141.9	145.0	100.0	100.0	117.5	617.1	134.2	124.3	86.0	86.0	80.0	490.5
Railway system	79.7	80.0	25.2	27.2	29.4	241.5	73.0	48.6	20.0	20.0	20.0	202.6
Inland waterways	2.7	3.1	3.5	3.9	4.4	17.6	2.5	2.7	2.8	2.9	3.0	13.0
2. Other investments	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PM Doors	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PPD	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PJKA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
C. MARITIME TRANSPORT	279.4	277.7	220.1	239.1	259.7	1,276.0	250.7	218.1	174.7	175.7	176.0	1,024.0
1. Budget-financed	274.4	274.7	218.1	237.1	257.7	1,262.0	250.1	215.5	173.1	174.2	175.4	1,012.4
Port facilities	107.0	107.0	88.2	95.2	102.9	500.3	99.1	91.7	70.0	70.0	70.0	400.9
Dredging	10.2	10.2	11.5	12.9	14.5	59.1	9.4	8.7	9.1	9.5	9.8	46.5
Sea safety	10.0	10.0	21.1	23.7	24.6	109.0	17.4	16.1	16.0	17.4	18.1	85.0
Fleet development	136.2	134.2	94.5	102.0	110.2	579.1	126.1	116.0	75.0	75.0	75.0	487.9
Maritime services	2.2	2.5	2.9	3.2	3.6	16.4	2.1	2.2	2.3	2.4	2.4	11.5
2. Other investments	5.0	3.0	2.0	2.0	2.0	14.0	4.4	2.6	1.6	1.5	1.4	11.6
Shipping companies	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PERUMs	5.0	3.0	2.0	2.0	2.0	14.0	4.4	2.6	1.6	1.5	1.4	11.6
D. AIR TRANSPORT	189.2	190.4	100.0	108.0	117.5	704.0	175.2	163.2	80.0	80.0	80.0	578.4
1. Budget-financed	189.2	190.4	100.0	108.0	117.5	704.0	175.2	163.2	80.0	80.0	80.0	578.4
Airport facilities	84.0	84.0	50.4	54.4	50.0	337.2	80.4	74.4	40.0	40.0	40.0	274.0
Fleet development	102.4	103.6	50.4	54.4	50.0	369.6	94.0	88.0	40.0	40.0	40.0	303.6
2. Other investments	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Garuda	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other airlines	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

No. / Progra	At current prices					At 03/00 prices				
	01/03	05/04	04/07	07/08	Total	01/03	05/04	04/07	07/08	Total
TOTAL	1,370.2	1,303.9	1,250.0	1,430.1	5,404.1	1,001.1	1,047.1	1,001.1	1,210.7	4,260.9
Financed by:										
GDI budget	390.0	410.0	413.1	709.7	2,522.8	350.5	410.9	412.9	684.7	1,859.1
External loans	490.0	710.9	413.1	709.7	2,323.7	442.6	612.9	612.9	1,021.2	2,690.6
Guaranteed loans	65.0	54.0	22.7	17.7	159.4	61.0	40.0	40.0	10.0	151.0
Internal funds	11.5	3.0	2.0	2.0	20.5	10.6	2.4	1.6	1.5	17.1
A. OPERATING PROGRAM	103.0	249.2	320.3	291.4	1,064.9	93.4	213.6	240.7	214.3	762.0
1. Exchanges	39.4	64.4	40.9	41.9	167.6	30.5	51.9	72.1	30.0	134.5
2. Telen	2.7	0.1	31.2	4.0	48.0	2.5	7.0	24.7	3.6	37.8
Other	14.0	2.0	1.4	0.4	17.8	12.0	2.2	1.2	0.4	16.8
Digital (phase 2)	10.5	20.7	22.2	0.0	53.4	15.9	22.0	14.3	0.0	52.2
MC-10C	3.0	0.0	0.0	0.0	3.0	3.2	7.0	2.6	0.0	12.8
PRI-4	0.4	7.2	11.0	0.0	18.6	0.3	5.7	0.1	0.0	11.1
PRI-3	0.3	1.1	0.0	0.0	1.4	0.2	-0.9	0.0	0.0	0.3
Surveys	0.9	2.2	0.2	0.1	3.4	0.7	1.7	0.1	0.1	2.6
Coin box	1.4	3.0	0.0	0.0	4.4	1.2	2.4	0.0	0.0	3.6
Digital	15.0	20.4	0.7	0.0	36.1	13.6	16.2	0.5	0.0	30.3
PRI-2	1.0	0.4	0.0	0.0	1.4	1.5	4.0	0.0	0.0	5.5
PRI-1	2.9	4.4	2.4	0.0	9.7	2.5	5.1	1.9	0.0	9.5
EXD	0.9	0.5	0.1	0.0	1.5	0.8	0.4	0.1	0.0	1.3
3. Cable network	15.4	37.5	14.9	10.1	77.9	12.9	49.3	59.4	57.4	139.0
Other	0.0	0.0	1.5	0.0	1.5	0.0	1.2	0.3	0.0	1.5
Telen (REP III)	0.1	20.7	4.4	4.4	30.6	7.0	23.5	3.2	3.0	37.7
Pocket network	12.1	0.7	2.7	2.9	18.4	10.4	7.7	2.0	2.0	22.1
Arhub digital (phase 2)	1.0	10.2	3.2	3.5	18.9	9.3	0.1	2.4	2.4	14.2
Arhub digital (phase 3)	2.1	17.6	10.0	1.6	31.3	20.7	21.9	7.9	7.9	58.5
Arhub carrier	0.6	23.2	50.2	42.9	127.9	0.4	20.0	42.0	42.0	104.4

No. Program	At current prices					At 03/00 prices					
	01/05	05/06	06/07	07/08	Total	01/05	05/06	06/07	07/08	Total	
4. Ground transmission	0.9	19.0	36.1	26.1	13.2	103.3	0.7	16.3	20.4	19.2	9.0
GM Data-Bank	0.5	1.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	
GM Padang-B. Prang	2.0	0.7	7.0	5.3	0.0	2.6	4.9	5.0	5.0	1.6	
GM Sibarta (phase 1)	1.3	11.6	0.7	7.2	0.0	1.1	0.2	6.4	6.9	4.9	
GM NIT/lepa cables	0.9	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	
GM Jabarta-Bogor	1.1	1.3	0.0	0.0	0.0	0.9	1.0	0.0	0.0	0.0	
PLU	2.9	1.2	1.0	0.0	0.0	2.5	0.9	1.0	0.0	0.0	
SID	0.0	0.0	0.0	0.0	0.0	0.7	0.0	0.0	0.0	0.0	
GM Manado-Bitung	1.6	0.0	0.0	0.0	0.0	1.1	0.0	0.0	0.0	0.0	
MF	1.1	0.0	0.0	0.0	0.0	0.9	0.0	0.0	0.0	0.0	
GM Bafra-Atlitagan	2.4	0.4	3.2	0.0	0.0	2.1	4.7	2.3	0.0	0.0	
GM SIB	1.0	0.0	0.0	0.0	0.0	0.9	0.5	0.0	0.0	0.0	
GM Congkrang	1.2	1.7	5.0	0.0	0.0	1.0	1.3	3.7	0.5	0.5	
GM Patuhari-Buntar	1.1	1.1	1.1	0.0	0.0	1.2	1.3	1.3	0.0	0.0	
5. Satellite transmission	0.5	20.4	31.0	31.1	4.1	131.5	7.0	60.4	29.2	22.0	
IONA (IRP ITC)	3.5	13.0	7.7	6.0	6.0	3.0	12.6	5.7	3.1	3.1	
SCC 374	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	
GM/TA	2.1	3.2	3.6	0.0	0.0	2.1	4.1	0.1	0.0	0.0	
IT & C	0.3	0.5	0.0	0.0	0.0	0.2	0.1	0.0	0.0	0.0	
Equipment	0.4	1.2	0.0	0.0	0.0	0.5	1.0	0.0	0.0	0.0	
Carrier	3.2	1.5	0.0	0.0	0.0	2.7	1.2	0.0	0.0	0.0	
Palapa-B3	40.4	9.6	17.7	0.0	0.0	51.0	2.5	13.0	0.0	0.0	
Interal	0.0	0.0	0.0	0.0	0.0	0.0	2.1	0.0	0.0	0.0	
Other	7.9	33.6	50.5	109.5	110.3	327.9	7.3	20.0	44.5	40.5	
Facilities	0.0	16.1	37.3	40.3	40.3	7.6	12.0	27.4	27.4	27.4	
Land	16.2	17.1	7.5	0.1	0.1	12.2	13.5	5.5	9.5	17.6	
Rehabilitation	10.5	25.3	41.7	49.9	49.9	9.0	20.1	47.6	47.6	47.6	
NEW PROGRAMS	0.0	0.9	135.9	227.3	357.4	129.0	0.0	7.7	107.9	167.1	
Exchanges	0.0	0.0	33.3	72.0	135.3	260.6	0.0	0.0	42.1	52.9	
Digital (phase 2)	0.0	7.6	22.5	50.0	0.0	0.0	0.0	16.6	34.6	34.6	
Digital (phase 1)	0.0	45.0	49.4	01.5	0.0	0.0	0.0	36.3	57.5	57.5	
Outside plant	0.0	10.2	91.2	171.4	201.1	0.0	0.4	14.5	47.1	118.7	
Jarrah digital (phase 2)	0.3	10.0	28.2	15.1	0.3	0.3	0.6	20.7	10.3	10.3	
Jarrah digital (phase 1)	0.2	5.9	7.5	4.4	0.1	0.1	4.7	5.5	6.5	6.5	
Jarrah digital (phase 3)	0.0	1.2	43.0	122.1	0.0	0.0	0.0	12.2	01.5	01.5	
Jarrah digital (phase 4)	0.0	0.1	11.0	27.0	0.0	0.0	0.1	0.7	10.4	10.4	
Total	187.3	260.6	435.3	720.0	835.3	187.3	260.6	435.3	720.0	835.3	

No. Program	At current prices						At 85/86 prices					
	84/85	85/86	86/87	87/88	88/89	Total	84/85	85/86	86/87	87/88	88/89	Total
3. Ground transmission	0.0	8.5	44.3	44.1	48.0	144.9	0.0	7.3	51.1	47.1	32.7	138.1
Remote area (phase 1)		3.8	3.9	12.7	13.7			3.0	4.7	9.3	9.4	
Remote area (phase 2)		0.0	30.1	15.3	17.4			0.0	23.9	11.2	11.9	
PCN (phase 2)		0.0	14.3	6.4	6.0			0.0	11.4	4.8	2.7	
SIVB national		0.0	0.0	16.0	2.4			0.0	0.0	11.0	1.6	
HM system		0.0	0.7	2.7	3.0			0.0	0.6	2.0	2.0	
Rural conn. (phase 2)		2.7	13.3	10.4	6.0			2.3	10.4	7.6	4.1	
GM Trans Sumatra		0.0	0.0	0.4	1.0			0.0	0.0	0.3	1.0	
TOTAL	103.0	250.1	444.3	318.9	343.5	1,460.8	95.4	221.3	340.5	301.6	397.1	1,463.7
Financed by:												
External loans	70.7	81.4	101.0	104.6	62.0	502.5	65.5	71.5	103.7	74.9	42.8	460.3
Domestic loans	0.0	44.5	54.8	111.3	150.4	371.2	0.0	30.2	45.1	81.0	100.0	273.0
Concess bonds	0.0	0.0	76.5	103.0	62.0	241.5	0.0	0.0	60.0	75.7	42.2	178.7
User's credit	0.0	30.2	0.0	0.0	0.0	30.2	0.0	25.9	0.0	0.0	0.0	25.9
Internal funds	12.5	100.0	150.0	200.0	300.0	762.3	29.9	85.7	119.1	147.0	204.2	585.9

12. HOUSING (RUM)

A. PERUMNAS		34.2	98.3	144.0	170.7	184.3	631.5	31.7	86.3	114.3	123.5	125.5	481.1
1. Core houses		12.6	51.4	55.8	61.8	66.8	248.5	11.6	44.3	44.3	45.4	45.4	191.1
12/88	Row	0.7	2.7	2.9	3.3	3.5	13.1	0.6	2.3	2.3	2.4	2.4	10.1
15/88	Row	0.7	3.0	3.3	3.6	3.9	14.7	0.7	2.6	2.6	2.7	2.7	11.3
	Detached	2.1	0.7	9.4	10.4	11.3	41.9	2.0	7.3	7.5	7.7	7.7	32.2
18/82	Row	0.8	3.1	3.4	3.8	4.1	15.1	0.7	2.7	2.7	2.8	2.8	11.6
	Detached	1.4	5.0	6.3	7.0	7.5	28.0	1.3	5.0	5.0	5.1	5.1	21.5
21/90	Row	0.3	1.3	1.4	1.5	1.6	6.1	0.3	1.1	1.1	1.1	1.1	4.7
	Detached	1.7	7.0	7.6	8.4	9.0	33.7	1.6	6.0	6.0	6.2	6.2	25.9
27/90	Row	0.4	1.5	1.6	1.8	1.9	7.3	0.3	1.3	1.3	1.3	1.3	5.6
	Detached	2.0	8.4	9.0	10.0	10.0	40.3	1.9	7.2	7.2	7.4	7.4	31.0
30/120	Detached	2.4	10.1	10.9	12.0	13.0	48.4	2.3	8.6	8.6	8.8	8.8	37.2

No. Program	At current prices						At 03/04 prices					
	04/05	05/06	06/07	07/08	08/09	Total	04/05	05/06	06/07	07/08	08/09	Total
2. Standard houses	21.6	44.7	66.2	100.9	117.0	382.9	20.0	40.0	70.0	80.0	80.0	290.1
36/96 Detached	2.6	5.6	10.5	13.0	14.0	45.6	2.0	0.0	0.1	9.5	9.5	34.6
36/120 Detached	2.0	4.1	10.5	14.1	15.3	49.7	2.6	3.2	9.1	10.4	10.4	37.7
45/120 Detached	4.6	9.0	10.6	22.9	24.0	80.7	4.2	0.0	14.0	16.9	16.9	41.1
56/140 Detached	5.3	11.5	21.7	26.0	29.0	94.4	6.9	9.9	17.3	19.7	19.7	71.5
70/200 Detached	6.3	13.7	25.9	32.0	34.3	112.3	5.9	11.0	20.6	23.5	23.5	85.2
8. PRIVATE DEVELOPERS	173.0	192.9	135.1	107.0	171.0	619.1	160.2	165.3	107.3	100.1	116.0	637.3
1. Core houses	0.0	0.0	70.0	90.0	110.3	271.1	0.0	0.0	55.6	66.7	75.1	197.6
18/72 Row	0.0	0.0	2.0	3.6	0.3	10.7	0.0	0.0	2.2	2.6	3.0	7.8
18/72 Detached	0.0	0.0	7.6	9.9	12.0	29.5	0.0	0.0	4.4	7.3	0.2	21.5
21/90 Row	0.0	0.0	5.0	4.4	7.0	19.2	0.0	0.0	3.9	6.7	5.3	14.0
21/90 Detached	0.0	0.0	13.8	17.9	21.7	53.4	0.0	0.0	10.9	13.1	14.0	38.9
27/90 Row	0.0	0.0	9.9	12.0	13.6	38.3	0.0	0.0	7.9	9.0	10.6	27.9
27/90 Detached	0.0	0.0	16.5	21.4	26.0	63.9	0.0	0.0	13.1	15.7	17.7	46.5
30/120 Detached	0.0	0.0	10.5	10.0	22.9	36.2	0.0	0.0	11.5	13.0	15.6	40.9
2. Standard houses	173.0	192.9	65.1	56.2	60.7	547.9	160.2	165.3	51.7	41.3	41.3	439.9
36/96 Detached	16.2	10.0	6.1	5.3	5.7	51.2	15.0	15.4	4.0	3.9	3.9	42.9
36/120 Detached	23.4	26.0	0.0	7.6	0.2	74.0	21.6	22.3	7.0	5.6	5.6	42.1
45/120 Detached	25.3	20.2	0.5	0.2	0.0	80.1	23.4	21.2	7.6	6.0	6.0	47.2
56/140 Detached	46.7	32.1	17.6	15.2	16.6	148.0	43.3	41.7	14.0	11.2	11.2	124.2
70/200 Detached	61.5	60.5	25.1	20.0	21.6	196.7	56.9	50.0	10.4	10.7	14.7	143.4
TOTAL	207.2	201.2	279.1	317.7	355.4	1,450.5	191.8	249.6	221.6	233.5	241.9	1,130.4
Financed by:												
GOI budget	19.0	63.0	66.2	69.5	72.9	270.5	17.6	54.0	52.5	51.1	49.6	224.8
External loans			100.0	100.0	100.0	300.0	0.0	0.0	79.4	73.5	60.1	220.9
Bank Indonesia	170.0	200.0				370.0	157.4	171.5	0.0	0.0	0.0	328.9
Domestic borrowing	13.0	25.0	100.0	102.7	176.4	467.1	13.9	21.0	65.7	100.9	120.0	346.0
OTM funds	3.2	3.2	5.0	5.5	6.1	22.9	2.9	2.7	0.0	0.0	4.1	17.0

No. Program	At current prices						At 03/00 prices					
	01/05	05/06	06/07	07/08	08/09	Total	01/05	05/06	06/07	07/08	08/09	Total
I. TRANSPIGATION												
1. Sumatra	186.0	193.1	215.2	193.1	200.6	990.0	171.1	165.6	170.0	141.9	141.9	791.6
Upland	115.8	107.7	90.0	59.5	64.3	445.0	106.9	92.4	77.0	43.0	43.0	360.6
Tree crops	20.4	23.5	40.0	47.6	51.4	191.6	26.3	29.1	32.4	35.0	35.0	140.0
Swaps	41.0	61.9	76.0	86.0	92.9	350.1	37.9	53.1	60.7	63.2	63.2	270.1
2. Kalimantan	170.6	210.0	242.5	293.5	316.0	1,241.0	150.0	187.3	192.5	215.7	215.3	940.0
Upland	126.0	157.9	154.3	180.9	180.6	807.7	114.7	135.3	122.5	133.0	120.3	635.0
Tree crops	17.3	23.7	40.0	52.4	62.9	196.7	16.0	20.3	32.1	38.5	42.0	149.7
Swaps	27.3	28.9	47.0	60.2	65.0	237.1	25.3	31.6	37.9	44.2	44.2	165.3
3. Sulawesi & Moluccas	67.7	50.4	30.6	20.5	26.0	215.6	62.7	50.1	30.6	10.0	10.0	170.4
Upland	41.0	51.6	23.9	0.6	9.3	156.0	56.9	44.2	19.0	6.3	6.3	132.7
Tree crops	4.3	6.0	14.7	15.9	17.1	60.0	5.0	5.0	11.7	11.7	11.7	46.7
Swaps	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4. Irian Jaya	30.4	81.0	107.2	130.2	150.0	520.1	46.7	69.0	85.1	102.3	102.1	465.9
Upland	30.4	77.1	90.0	111.1	116.3	450.9	46.7	66.1	77.0	81.7	77.0	350.0
Tree crops	0.0	4.3	9.2	14.9	31.4	69.7	0.0	3.6	7.3	10.9	14.6	36.5
Swaps	0.0	0.0	0.0	13.2	14.3	27.5	0.0	0.0	0.0	9.7	9.7	19.4
5. Sub-total	473.6	551.3	603.4	650.3	701.6	2,980.0	430.3	472.6	470.0	470.0	477.4	2,345.5
Upland	353.3	394.3	374.1	360.2	376.6	1,850.3	327.2	330.0	297.0	266.7	256.2	1,483.1
Tree crops	52.0	50.2	105.1	130.7	152.0	490.9	40.1	49.9	83.4	96.1	104.0	381.6
Swaps	68.3	90.0	124.2	159.4	172.1	622.7	63.2	84.7	90.6	107.2	117.2	460.0
Less												
6. Locals	0.1	9.2	10.0	10.6	11.0	49.3	7.5	7.9	0.0	7.0	7.0	30.9
TOTAL	485.5	582.1	593.4	639.7	690.0	2,930.6	431.0	464.0	471.0	470.2	469.6	2,346.6
Financed by:												
GOI budget	186.2	216.0	237.3	255.9	276.0	1,172.3	172.4	185.9	188.4	180.1	187.0	922.6
External loans	279.3	325.3	356.0	383.8	414.0	1,758.4	258.6	278.9	282.6	282.1	281.0	1,384.0

No. Program	At current prices						At 81/80 prices					
	81/85	85/86	86/87	87/88	88/89	Total	81/85	85/86	86/87	87/88	88/89	Total
	21. EDUCATION											
A. EDUCATION & YOUTH	1,350.9	1,381.1	1,426.4	1,493.8	1,740.1	7,390.3	1,256.5	1,166.9	1,289.5	1,245.6	1,197.9	6,153.9
1. Primary education	636.7	656.8	666.5	775.3	79.3	2,890.6	589.5	541.4	352.9	262.4	51.0	1,740.1
IMPREG	580.8	617.0	377.9	206.1	0.0	1,779.8	537.8	529.6	380.0	150.0	0.0	1,516.8
Other	55.9	37.8	88.6	71.3	79.3	310.8	51.7	32.4	52.9	52.4	51.0	243.4
2. Secondary education	376.2	421.6	729.4	872.2	1,015.0	3,414.4	310.3	341.0	579.1	641.1	490.8	2,420.7
Junior	187.5	170.0	610.5	490.2	545.4	1,823.6	173.6	145.7	325.9	340.3	384.8	1,390.4
Senior	188.7	251.6	318.9	382.0	469.7	1,590.8	174.7	215.7	253.2	280.8	306.0	1,270.4
3. Higher education	259.6	218.4	375.8	462.5	576.1	1,888.0	210.3	187.2	210.4	340.6	389.1	1,435.0
4. Other programs	82.4	66.4	76.6	83.8	94.1	401.2	76.3	56.9	59.2	61.6	64.0	310.1
Special education	2.5	2.5	2.8	3.2	3.5	14.5	2.3	2.4	2.2	2.3	2.4	11.4
Community education	51.7	39.1	41.2	69.7	55.8	213.8	50.6	33.8	35.1	36.5	38.0	190.1
Youth development	11.3	11.5	12.9	10.5	14.3	60.5	10.5	9.9	10.3	10.7	11.1	52.3
Sports	8.0	8.0	9.0	10.1	11.3	46.4	7.4	6.9	7.1	7.4	7.7	36.5
Education system	5.9	5.0	5.6	4.3	7.1	29.9	5.5	6.3	4.5	6.6	6.8	23.7
B. TRAINING & CULTURE	187.0	189.7	170.6	193.9	226.7	881.7	136.2	120.4	135.2	142.5	150.2	692.5
1. Training	99.5	102.1	116.9	133.8	153.2	605.4	92.1	87.5	92.8	98.3	100.2	475.0
Agriculture & irrigation	31.7	27.4	31.4	35.9	43.1	167.5	29.4	23.5	26.9	26.0	28.0	132.1
Industry	3.3	3.4	3.9	4.5	5.1	20.2	3.1	2.9	3.1	3.3	3.5	15.8
Mining & energy	3.5	3.4	4.1	4.7	5.4	21.2	3.2	3.1	3.2	3.4	3.7	16.7
Communications & tourism	4.3	5.3	6.0	6.9	7.9	32.3	5.8	6.5	6.8	5.1	5.4	25.5
Trade & cooperatives	1.4	2.4	2.7	3.1	3.6	13.1	1.3	2.0	2.2	2.3	2.4	10.2
Manpower & transmigration	3.9	16.3	18.7	21.4	24.5	84.6	3.6	14.0	14.8	15.7	16.6	64.7
Education & religion	4.5	5.5	4.3	7.3	8.3	32.0	4.2	4.8	5.0	5.3	5.7	25.0
Health & population	18.7	16.4	18.8	21.5	24.6	99.8	17.3	16.0	16.9	15.8	16.7	78.7
Law	2.3	3.3	3.8	4.3	5.0	18.7	2.1	2.8	3.0	3.2	3.4	14.3
Information	3.1	3.2	3.7	4.2	4.8	19.0	2.9	2.8	2.9	3.1	3.3	14.9
Research & development	1.0	1.3	1.5	1.7	2.0	7.5	0.9	1.1	1.2	1.3	1.3	5.8
Government apparatus	19.9	14.0	16.1	18.4	21.1	89.4	18.4	12.0	12.8	13.5	14.3	71.1

No. Program	At current prices						At 03/04 prices					
	04/05	05/06	06/07	07/08	08/09	Total	04/05	05/06	06/07	07/08	08/09	Total
2. National culture	07.6	07.6	33.5	40.1	47.5	276.3	16.1	10.0	42.3	46.2	45.9	217.5
Technology & museums	16.2	13.5	15.2	17.0	19.1	80.9	15.0	11.6	12.0	12.5	13.0	64.1
Arts & culture	5.0	17.1	19.2	21.5	24.2	87.7	5.4	14.6	15.2	15.0	16.0	67.5
Language & literature	19.6	10.4	11.7	13.1	14.7	69.3	18.0	0.9	9.3	9.6	10.0	55.8
Cultural inventories	5.7	6.3	7.1	7.9	8.9	36.0	5.3	5.4	5.4	5.0	4.1	28.2
Religion	0.5	0.4	0.4	0.5	0.4	2.4	0.4	0.3	0.4	0.4	0.4	1.9
TOTAL	1,501.9	1,510.0	1,796.0	1,887.7	1,980.7	8,476.0	1,390.7	1,295.3	1,424.0	1,387.5	1,340.1	6,046.3
Financed by:												
GOI budget	1,217.2	1,273.0	1,542.0	1,415.4	1,486.9	7,335.6	1,127.1	1,091.2	1,226.0	1,187.5	1,140.1	5,778.0
External loans	284.7	237.0	254.0	272.1	293.9	1,340.5	263.6	203.9	200.0	200.0	200.0	1,047.5

III. HEALTH

A. COMMUNITY HEALTH	93.2	103.0	99.1	109.2	121.4	525.9	84.3	80.3	70.4	80.3	82.7	414.2
1. Health centers	20.7	21.3	19.2	20.9	22.0	104.0	19.2	18.2	15.2	15.3	15.5	83.5
New centers	2.9	3.2	3.4	3.7	4.0	17.2	2.7	2.7	2.7	2.7	2.7	13.4
New subcenters	11.5	12.0	9.2	10.0	10.0	54.7	11.0	11.0	7.3	7.3	7.3	41.0
Rehabilitate centers	1.1	1.0	1.3	1.4	1.0	6.7	1.0	0.0	1.0	1.0	1.3	5.2
Rehabilitate subcenters	1.1	0.9	1.3	1.4	1.0	6.7	1.0	0.0	1.0	1.1	1.2	5.2
Expand centers	3.1	3.0	3.6	3.9	4.3	18.0	2.9	2.4	2.9	2.9	2.9	14.2
Mobile centers	0.5	0.3	0.2	0.3	0.2	1.5	0.5	0.3	0.2	0.2	0.1	1.2
2. Drug subsidy	10.3	13.7	16.7	50.4	54.4	235.5	37.4	37.5	37.0	37.0	37.0	186.0
3. Other programs	32.1	38.0	33.2	38.0	44.2	185.4	29.7	32.4	24.4	27.9	30.1	146.0
IMPRES	19.0	23.7	8.2	8.3	8.9	68.8	17.5	20.3	4.5	4.1	4.1	56.5
BIP	13.2	14.4	25.0	29.7	35.3	117.6	12.2	12.3	19.9	21.0	24.0	90.2

No. Program	At current prices						At 83/84 prices					
	84/85	85/86	86/87	87/88	88/89	Total	84/85	85/86	86/87	87/88	88/89	Total
B. MEDICAL CARE	98.0	105.2	120.0	129.0	95.6	558.9	90.7	94.2	101.9	95.4	65.0	443.3
1. General hospitals	44.9	48.1	52.3	51.8	59.0	356.3	40.1	38.4	43.3	40.1	40.2	281.2
New satellite hosps	14.5	15.7	16.9	9.2	0.0	56.3	13.9	13.5	13.5	6.7	0.0	47.1
Upgrade hospitals	11.7	10.5	11.0	10.0	0.0	43.0	10.0	9.0	8.7	0.7	0.0	37.3
Rehab hospitals	16.9	16.1	17.0	18.4	13.1	81.4	15.7	13.8	13.5	13.5	8.9	65.3
New rehab units	0.8	0.9	1.0	1.0	1.3	5.1	0.8	0.8	0.8	0.8	0.9	4.0
New FP units	0.1	0.1	0.1	0.1	0.0	0.2	.0	.0	.0	.0	0.0	0.2
Other local	4.4	4.3	5.9	6.4	6.9	28.2	4.3	3.7	4.7	4.7	4.7	22.1
New teaching hosp	0.0	0.0	5.8	9.4	13.4	28.9	0.0	0.0	4.4	6.9	9.3	20.8
New cancer hosp	1.0	2.2	10.3	9.9	7.3	28.7	3.7	6.2	8.2	7.3	5.0	24.3
New rehab units	0.0	0.9	0.9	1.0	1.1	4.7	0.7	0.7	0.7	0.7	0.7	3.7
Improve rehab units	11.5	12.5	13.5	16.5	15.7	67.7	10.7	10.7	10.7	10.7	10.7	53.0
2. Special hospitals	20.6	23.3	27.4	28.0	45.4	144.9	19.1	20.0	21.9	20.6	10.5	92.0
New mental hosp	5.0	3.8	4.1	4.4	0.0	17.3	4.4	3.2	3.2	3.2	0.0	14.0
Improve mental hosps	7.1	16.0	15.2	15.0	10.4	59.4	6.6	9.3	12.1	11.6	7.1	46.7
Rehab mental hosps	4.5	4.9	4.7	6.4	2.7	21.2	6.0	4.2	3.7	3.2	1.9	19.0
Improve other hosps	2.0	3.9	3.6	3.3	2.3	15.0	1.8	3.3	2.9	2.4	1.3	12.0
3. Other programs	12.5	13.8	18.0	20.0	21.1	85.0	11.6	11.8	14.6	14.7	14.0	67.1
Referral	9.3	10.4	14.6	16.0	16.8	67.1	8.6	8.9	11.6	12.8	11.4	52.3
Dental health	3.2	3.5	3.7	4.0	4.3	17.7	3.0	3.0	3.0	3.0	3.0	14.8
C. DISEASE CONTROL	38.0	34.9	43.5	101.9	120.0	378.3	35.2	29.8	44.3	74.9	81.7	287.9
1. Vector borne	12.6	10.8	26.0	31.0	35.0	144.8	11.1	9.3	20.4	22.8	23.9	87.4
Malaria	0.0	7.4	18.2	22.1	25.5	81.0	7.4	6.5	14.5	16.2	17.4	61.9
Other	4.0	3.2	7.7	8.9	9.4	33.5	3.7	2.8	6.1	6.6	6.5	25.7
2. Other diseases	11.0	11.9	30.9	39.4	40.5	141.7	10.2	10.2	24.6	28.9	33.0	106.9
Cholera & diarrhea	4.0	4.3	11.3	14.9	18.9	51.5	3.7	3.7	9.0	11.0	12.9	40.2
Tuberculosis	5.0	5.4	15.1	20.1	25.4	70.9	4.6	4.6	12.0	14.7	17.3	53.2
Other	2.0	2.2	4.5	4.4	6.3	17.0	1.9	1.9	3.6	3.2	2.9	13.5
3. Immunisation	10.0	7.6	16.2	18.9	21.5	74.2	9.0	6.3	12.9	13.9	14.7	57.1
4. Other programs	5.0	4.4	10.4	12.4	14.9	47.4	4.4	4.0	8.2	9.3	10.2	36.3

No. Program	At current prices					At 03/00 prices					
	01/05	05/05	06/07	07/00	08/09	01/05	05/05	06/07	07/00	08/09	
0. OTHER PROGRAMS	20.1	11.9	01.5	09.2	50.1	176.9	22.0	10.2	32.9	30.1	135.0
1. Health education	1.0	2.2	5.0	8.9	5.1	14.0	1.7	1.9	2.0	3.5	12.3
2. Nutrition	5.9	5.2	20.2	33.5	32.2	105.0	5.5	4.4	22.0	20.6	70.9
3. Food & drug admin.	14.0	4.5	10.3	11.0	12.0	55.9	19.2	3.9	0.2	0.7	40.7
TOTAL	251.1	225.0	322.0	310.1	307.2	1,650.0	230.5	210.6	219.0	286.0	1,703.2
Financed by:											
DIP	97.0	100.9	194.0	217.0	210.7	821.7	90.6	84.5	150.7	159.0	615.0
IMRES	00.0	00.7	26.1	29.5	04.1	400.0	70.1	76.0	50.0	50.6	325.9
External loans	75.5	65.0	01.5	03.2	90.5	407.9	69.9	54.1	64.5	61.5	322.2