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A WORLD BANK COUNTRY STUDY



Indonesia

Health Planning and Budgeting

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PREFACE

This report was prepared in 1988 in order to contribute insights into the broad directions of a health sector strategy for REPELITA V (the fifth five-year plan beginning in 1989/90). The report is presented in five chapters. Chapter I provides a broad overview of trends in sectoral performance and in levels and patterns of government expenditure on health in response to the fiscal shock experienced during REPELITA IV. Chapters II, III and IV then focus in detail on the fiscal adjustment experience and its implications for planning and budgeting in the major subsectors: hospital services, community and preventive health programs and health manpower respectively. Chapter V complements this review of expenditure issues with an assessment of cost recovery policies and related health insurance arrangements which might mobilize additional nonbudgetary resources for the health sector.

The report outlines a policy agenda focusing on six broad policy problems and issues: health sector performance, resource mobilization, equity, internal efficiency, resource allocation, and the information base for planning and budgeting. Recognizing that interventions to improve health are an important policy instrument in the Government's overall strategy to alleviate poverty and improve the welfare of the Indonesian population, the Government has taken important steps to address this policy agenda. The REPELITA V plan calls for a significant increase in the health sector share of the Central Government development budget. After collapsing from 2.1% at the beginning of REPELITA IV in 1984/85 to 1.4% in 1987/88, the health sector share of development spending climbed back to 2.3% in the 1989/90, the first year of REPELITA V. The 1990/91 budget raises the health sector share further to an estimated 3.2%, and provides special additional funds for operations and maintenance of hospitals and health centers in isolated areas.

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This report was prepared by a team led by Nicholas Prescott. The principal contributors were John Akin, Howard Barnum, Ken Chomitz and Mark Wheeler. Other contributors were Mark Brooks, James Chin, Geoffrey Ferster and John Krister.

CURRENCY EQUIVALENTS

<u>Before November 15, 1978</u>	US\$1.00 - Rp 415
<u>Annual Average 1979-87</u>	
1979	US\$1.00 - Rp 623
1980	US\$1.00 - Rp 627
1981	US\$1.00 - Rp 632
1982	US\$1.00 - Rp 661
1983	US\$1.00 - Rp 909
1984	US\$1.00 - Rp 1,026 /a
1985	US\$1.00 - Rp 1,111
1986	US\$1.00 - Rp 1,283 /b
1987	US\$1.00 - Rp 1,644
1988	US\$1.00 - Rp 1,686
<u>July 31, 1988</u>	US\$1.00 - Rp 1,693

FISCAL YEAR

Government	-	April 1 to March 31
Bank Indonesia	-	April 1 to March 31
State Banks	-	January 1 to December 31

/a On March 30, 1983 the Rupiah was devalued from US\$1.00 - Rp 703 to US\$1.00 - Rp 970.

/b On September 12, 1986, the Rupiah was devalued from US\$1.00 - Rp 1,134 to US\$1.00 - Rp 1,644.

INDONESIA

ISSUES IN HEALTH PLANNING AND BUDGETING

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INDONESIA

HEALTH PLANNING AND BUDGETING

SUMMARY AND CONCLUSIONS

Introduction

(i) Interventions to improve health are an important policy instrument in the Government's overall strategy to alleviate poverty and improve the welfare of the Indonesian population. Three main factors justify this policy concern with the health sector. First, relief from the burden of illness and premature death satisfies directly a basic consumption need which is an important social policy goal in itself. Second, improvements in health constitute an investment in human capital formation leading to future yields in increased productivity among the poor: better health promotes learning, reduces absenteeism and increases energy output. And third, reductions in infant and child mortality also contribute indirectly to reducing poverty by helping to lower high fertility rates: lower mortality not only helps parents to achieve their desired family size with fewer births, it leads them to want smaller families as well.

(ii) Indonesia's record of health improvement over the past two decades has been solid and impressive. The infant mortality rate has been roughly halved from around 132 per 1,000 live births in the late 1960s to about 71 in the early 1980s. These improvements were associated with the substantial expansion in coverage with government-financed community and preventive health programs which took place during the oil boom period of the 1970s and early 1980s. However, since 1982 the external environment faced by Indonesia has deteriorated considerably as a consequence of the sharp decline in real oil prices and the rising burden of external debt service. The resulting necessity for tight public expenditure restraint to facilitate macroeconomic adjustment has led to a dramatic reduction in central government spending on the health sector. Direct central spending on health (excluding intergovernmental transfers) fell by 45% in real terms between 1982/83 and 1987/88. The severity of this fiscal adjustment was enough to cut real spending by central government back to the levels attained in the late 1970s, thus reversing much of the budgetary gains made by the health sector over the previous decade. This deterioration reflects the sector's heavy fiscal dependence on a low budgetary share of declining levels of central government expenditure. Although it is too early to assess what impact these adverse expenditure trends have had on health conditions in Indonesia, they have clearly threatened the prospects for sustaining the rate of progress achieved during the previous decade.

(iii) In this changing economic environment the major challenge facing Indonesian health policymakers is to define a sectoral adjustment strategy which in the short term protects past gains and which in the longer term promotes a sustained recovery in the rate of health improvement. This

strategy will have to pursue two complementary policy objectives: restructuring government expenditure patterns to make more efficient use of scarce public resources, while at the same time mobilizing additional resources needed to finance higher levels of sectoral spending. With regard to the use of public resources, the main issues include the need to strike an appropriate balance between curative and preventive health services, between capital investment and recurrent expenditure on operations and maintenance (O&M), and between subsidies to better-off and poor beneficiaries. With respect to resource mobilization, key issues are: the scope for increasing the low sectoral budget share of central government spending, the prospects for mobilizing additional resources from local governments--particularly those with greater fiscal capacity, and the potential for selective increases in cost recovery from users from public services. Preparation of the next five-year development plan, REPELITA V, provides a timely opportunity to define and introduce this policy agenda.

(iv) The purpose of this Report is to contribute insights into the broad directions of a health sector strategy for REPELITA V responding to the changing economic environment in Indonesia. Chapter I provides a broad overview of recent trends in sectoral performance and in levels and patterns of government expenditure on health. Chapters II, III and IV then focus in detail on the recent adjustment experience and its implications for planning and budgeting in the major subsectors: hospital services, community and preventive health programs and health staffing, respectively. Chapter V complements this review of expenditure issues with an assessment of cost recovery policies and related health insurance arrangements which might mobilize additional nonbudgetary resources for the health sector.

Sectoral Performance and Expenditure Trends

(v) Three main issues emerge from the assessment of sectoral performance and expenditure trends in Indonesia. First, although significant progress has been achieved, the poverty alleviation impact of health sector interventions has been modest in absolute terms. This is reflected in Indonesia's high average mortality levels and low service utilization rates relative to Indonesia's comparators in the Asia region, and also in the substantial disparities in these variables among provinces, between urban and rural areas, and between income classes. Second, the sector's ability to sustain the momentum of health improvement has been significantly impaired by the changing economic environment since the early 1980s. Four major policy problems have emerged: (a) a resource mobilization problem, resulting from the sector's heavy fiscal dependence on a low budgetary share of declining levels of central government expenditure, and from the disincentives to local resource mobilization in better-off regions associated with the regressive interregional distribution of central spending; (b) an equity problem, reflected in the strongly inegalitarian role of central spending in augmenting rather than reducing interregional inequalities in per capita spending on health; (c) an internal efficiency problem, reflected in declining real levels of overall recurrent expenditure, and in a rapidly growing imbalance between personnel and nonpersonnel expenditures which are critical inputs to making health staff productive; and (d) an allocation problem, manifested in a significant reallocation of spending priorities away from communicable disease control activities in favor of curative services. Third, the information base

on sectoral outputs and government resource inputs is seriously deficient and constitutes a major impediment to effective planning and budgeting in the face of sharply reduced fiscal resources in the health sector.

(vi) These considerations suggest that the main elements of health sector strategy in REPELITA V should include measures to: (a) substantially improve institutional capacity to undertake up-to-date monitoring of levels and differentials in performance indicators (especially mortality and utilization data), and in levels and patterns of government spending across all government authorities (including regular consolidation and improved classification of budgetary disbursements in the government accounts); (b) to achieve a more efficient use of public resources given the constrained budgetary situation. In particular, steps should be taken to restrain investment expenditure and to increase spending on underfunded recurrent expenditures (especially critical nonpersonnel inputs), based on a careful review of operation and maintenance (O&M) requirements in the various subsectors. These incremental O&M requirements are tentatively estimated at around Rp.460 billion (comprising Rp.208 billion for hospitals, Rp.210 billion for community health services and Rp.40 billion for communicable disease control), or about double the existing level of recurrent expenditure on the health sector. At the same time, allocative priorities should be reassessed with emphasis placed on financing public goods (communicable disease control) rather than private goods (curative services) except where justified on equity grounds; and (c) to strengthen resource mobilization efforts aimed at redressing the present underfunding of recurrent expenditure requirements of existing sectoral capacity, while in the longer term financing new investment in capacity expansion. These measures should include: an increase in the very low health sector share of central government spending; redistribution of central spending to poorer provinces, accompanied by greater resource mobilization in better-off provinces; and selective increases in cost recovery from richer beneficiaries of public services, particularly the insured, combined with extension of coverage with health insurance.

Hospital Services

(vii) Three major problems confront the hospital subsector. First, the utilization of hospital services is extremely low relative to Indonesia's comparators. Hospital utilization rates are particularly low among the poor, as demonstrated in the close association between interregional differences in utilization rates and household income. This reflects the low average level and inequalitarian distribution of hospital bed provision. However the low endowment of existing capacity is itself characterized by low utilization rates, reflecting the low demand largely attributed to the poor quality of the limited available services. Second, efforts to develop the hospital subsector during REPELITA IV have been substantially frustrated by the sharp fiscal decline. The hospital investment program sustained a very large cutback, including deep cuts in the high priority rehabilitation and upgrading program aimed at improving the quality of Class C and D hospitals which serve the majority of the population. At the same time, overall levels of recurrent expenditure have at best been held constant in real terms in the face of massive underfunding of the operations and maintenance requirements of existing capacity. However, this appears to have been achieved at the cost of an erosion in spending on non-personnel expenditures. These deficiencies in O&M funding are exacerbated by an inappropriate allocation of resources

favoring tertiary hospitals at the expense of lower level facilities. This is exemplified in a pattern of overstaffing of Class A and B hospitals, particularly with doctors and specialists, coexisting with understaffing in the Class C and D facilities. Third, there is an acute shortage of necessary planning and budgeting information, reflected in the difficulty of identifying and consolidating data on budgetary expenditures on hospitals, and in the lack of clear estimates or norms for staffing and other recurrent expenditure requirements in different types of hospital.

(viii) Given limited budgetary resources, the Government's main focus in REPELITA V should be on achieving more efficient use of available resources in the hospital sector to help raise the quality and utilization of existing physical infrastructure. The main elements should include the following measures. On the recurrent expenditure side: (a) overall budgetary resources for O&M should be substantially increased by continuing the policy of tight restraint in public investment on hospitals. Incremental O&M requirements are estimated at around Rp.208 billion per year, compared to recurrent expenditures in 1985/86 of about Rp.173 billion; (b) the allocation of existing staff (particularly doctors in the four basic specialty areas of surgery, obstetrics, pediatrics and internal medicine) should be redistributed from the overstaffed tertiary hospitals to the understaffed Class C and D facilities, including payment of supplementary incentives as appropriate; (c) complementary emphasis should be placed on supporting specialist doctors in lower level hospitals with improved staffing of the diagnostic services (radiography and laboratory technicians) and equipment repair and maintenance facilities, together with adequate resources to overcome the serious shortage of funds for spare parts and expendable items such as laboratory reagents. With regard to investment expenditure: (a) the level of investment in new expansion of hospital capacity should be limited by the affordability of incremental recurrent costs, taking into account the need to first meet the full O&M requirements of existing infrastructure which are estimated to total around Rp.349 billion per year; (b) to facilitate this restraint, rigorous project evaluation procedures for review of hospital investment proposals should be instituted, including a realistic projection of anticipated O&M requirements together with staffing needs; and (c) overriding priority should be given to investment spending which raises the quality and impact of the existing hospital stock, for example the rehabilitation and upgrading program for the Class C and D hospitals, and in referral support facilities including laboratories and equipment repair and maintenance workshops.

(ix) This focus on improved efficiency of public resource management in the hospital subsector should be supported by strong efforts to improve the information base for planning and budgeting. These should include initiatives to: (a) as part of a general effort to improve the classification of budgetary disbursements in the government accounts, to refine the classification of hospital spending, particularly to disentangle hospitals from other expenditures such as health centers and general administration which are often lumped together in the district routine budgets; (b) to develop a proper hospital accounting system to generate consolidated accounts for individual hospitals, and to include financial data as part of the routine hospital reporting system; and (c) to make detailed estimates of O&M requirements, including staffing for hospitals, to provide appropriate planning and budgeting norms for different hospital facilities.

Community and Preventive Health Services

(x) Considerable progress has been made in expanding coverage with community health infrastructure through the INPRES grant program, and more recently in enhancing village level outreach through the POSYANDU delivery system for preventive health services. However, utilization rates remain low in Indonesia. This reflects the low density and unequal distribution of facilities, which still leaves many rural residents beyond the effective range of the health center system. This implies a long-term need for investment in additional capacity to improve access to services in poor remote areas. However, there are also indications of substantial underfunding of present O&M requirements, implying low quality of existing services. This has been exacerbated by recent fiscal constraints, resulting in roughly constant recurrent expenditure levels on O&M in the face of a growing demand for additional O&M support created by rapid expansion of the posyandu network. Tentative estimates suggest that the order of magnitude of annual O&M requirements for the community health system might be as much as Rp.350 billion, compared to recurrent expenditure levels in 1985/86 of some Rp.140 billion. A similar pattern of underfunding the communicable disease control (CDC) programs has emerged from the recent adjustment experience, with large reductions in the already low share of sectoral spending on CDC implying a reallocation of expenditure priorities away from preventive health to curative health services. Although some programs have been protected others, such as malaria and tuberculosis control, have sustained devastating cutbacks. This trend is not consistent with the strong case for public sector involvement in financing preventive interventions on externality grounds and should be reversed.

(xi) Given the tight outlook for budgetary resources the main focus of expenditure priorities in the near term should be on substantially increasing O&M funding for the community and preventive health programs. With regard to community health, these requirements include: (a) increasing funds for nonsalary expenditures on transport to enable health center staff to travel to villages to provide support to the POSYANDU; and (b) increasing funds for maintenance of buildings, equipment and vehicles to help maximize the returns from past investments, and minimize the need for costly replacements. Turning to communicable disease control programs, there is an urgent need for the Ministry of Health to reassess the full requirements of a core program of major CDC activities, and to assign the core program a priority claim on sectoral resources which would be protected in the future. Incremental O&M requirements for CDC programs probably total around Rp.40 billion annually. Over the medium term, as additional resources become available, it may be possible to expand the presently low provision of community health infrastructure, but this should be contingent on the affordability of the additional O&M requirements created by new investment, taking into account the need to provide adequate O&M funding for existing service capacity. In setting investment priorities, consideration should be given to expanding the provision and role of subcenters which may prove to be a more cost-effective instrument than health centers in extending access to basic curative care and providing technical backup for preventive services delivered through village-level POSYANDU.

(xii) Planning and budgeting for efficient resource use in community and preventive health services needs to be strengthened with significant improvements in the information base. In particular steps should be taken to: (a) develop institutional capacity to monitor levels and trends in utilization rates by income class of the different components of the community health system, in order to improve assessment of its effectiveness and distributional impact; (b) undertake research into the determinants of utilization differentials, including focus group methods to gain insights into client perceptions of the quality of community health services; (c) strengthen the budgetary system by refining the classification of health center expenditures in order to provide a baseline for evaluating the adequacy of overall expenditure levels; (d) to develop an integrated financial accounting system for health centers, and to incorporate financial data into the routine health center reporting system to help evaluate adequacy of spending in individual centers; and (e) develop detailed estimates of O&M requirements, including staffing, for individual community health services as a basis for setting budgeting norms for adequate funding of service capacity in the future.

Health Manpower

(xiii) Excess supply of paramedical manpower. During REPELITA IV, public paramedical schools graduated several thousand more paramedics than the government was able to absorb given fiscal constraints on hiring rates. In addition, graduates from private paramedical schools are also likely to greatly outnumber available openings in the private sector. The feasibility of various policy responses needs to be explored, including: (a) diversion of some pekarya kesehatan posts to paramedics; (b) selective school closings via enforced accreditation standards, especially in provinces with the highest levels of excess supply (with some of the cost-savings devoted to retraining or placement of affected students); (c) reabsorption of existing staff or new graduates into supplementary training programs. Among these, the pekarya issue is of particular importance. The Ministry of Health (MOH) has devoted a significant part of its scarce new paramedical posts to these auxiliary paramedics, who receive only four months of training but are paid at the same scale as paramedics with three years of education. In theory, pekarya will greatly improve rural health services, since they are recruited from the neighborhood of under staffed health centers, but this theory needs to be verified.

(xiv) Allocation of new posts. Via the INPRES program, MOH has achieved a relatively equitable distribution of new posts among provinces. Routine posts are less equitably distributed, with Jakarta taking a disproportionately large share. However, scattered evidence suggests that the intraprovincial distribution of posts deviates from goals of equity and efficiency, resulting in substantial mismatches between facility staffing and utilization. To some extent this may result from a pragmatic recognition of the difficulties of assigning staff to rural areas. It may also reflect political pressures on local administrators combined with a lack of staffing standards and staffing data. The new utilization-based staffing standards developed under the ISN system are addressed to the latter problem. An ISN-like system is necessary in an era where the unpredictability of annual budgets requires flexible, prioritized manpower plans. It is important that the ISN system adopt a feasible system of data collection and be institutionalized in time to aid in planning.

(xv) Placement and distribution of manpower. Although some provinces produce more paramedics than they hire, and others suffer from a deficit of paramedics, there is relatively little intraprovincial placement of paramedical graduates. Recognizing this problem, the MOH has instituted a quota system for allocating public paramedical school slots by province. The success of this strategy has yet to be assessed. Inadequate reliable information exists on the placement of new graduates within provinces, or on the filling of vacancies. It is widely thought that difficulties in placing paramedics in rural areas have led to understaffed health centers and overstaffed hospitals and health offices. Provision of doctors to rural areas and remote health centers is accomplished by rotating recent medical school graduates on two-year mandatory duty tours. It is therefore extremely difficult to augment the doctor/population ratio, or to maintain health center staffing in these areas. In eleven provinces, more than one-quarter of all health centers are reported to lack a doctor. It is possible that provision of generous and innovative incentives for rural residence might help the situation. Such incentives might include, for instance, subsidized education for the doctors' children at high-quality boarding schools. Such incentives might be financed, in part, by recovering the cost of medical education from doctors who practice in urban areas. This would also serve to increase the relative attractiveness of the rural posts.

(xvi) Worker productivity. Scattered evidence suggests that average productivity is low, but highly varied, throughout the health system. To a large extent, low productivity may be rooted in a failure of the personnel allocation process to match staff with existing workload. The new ISN staff planning system is directly addressing this problem. Low productivity may also stem from structural barriers to utilization, e.g., lack of specialized equipment, staff, or drugs, or inconvenient opening hours. Another problem lies in the lack of an incentive structure. With few exceptions, the system has lacked any penalties for lack of effort, or rewards for exceptional effort. Current MOH plans to link promotions in salary rank to work effort are a laudable step in the right direction. Further mechanisms for improving employee management should be explored.

(xvii) The quantity/quality tradeoff. The conventional view is that there is an urgent need for additional paramedical staff. For this reason, REPELITA IV chose to emphasize rapid expansion of staff quantity, making quality improvement a long-term goal. From this viewpoint the recent necessity to reduce paramedical output is a regrettable, almost paradoxical, short-term expedient. It is appropriate, however, periodically to reexamine the quantity-quality tradeoff in light of changing conditions and experience. As noted above, there is evidence of areas of low labor productivity throughout the health sector. To the extent that the existing labor force is inefficiently utilized, one may question the necessity for adding additional staff. It may in fact be more productive to devote more resources to improving the quality and efficiency of existing staff, while slowing the rate of growth of the labor force. The recent period of retrenchment may offer an opportunity to redirect manpower policy in this direction.

(xviii) Staffing information. The manpower information system is inadequate for the management of the Ministry of Health's most important single resource, accounting for over Rp.243 million in annual recurrent costs. The system: (a) does not cover about one-third of all employees working in

MOH-supervised facilities; (b) provides no information on the facility or function to which a staff member is assigned. These shortcomings hobble basic planning and analysis, especially regarding the allocation and distribution of employees. The MOH recognizes these problems and is implementing an improved personnel information system. So far, a low response rate to baseline data collection has prevented operationalization of the system. It is important that this problem be diagnosed, and that the solutions be enthusiastically supported. Overlaps and redundancies between competing information systems should be minimized.

Cost Recovery and Insurance

(xix) With the provision of adequate health services threatened by the scarcity of fiscal resources it is appropriate to review options for increasing cost recovery directly from the beneficiaries of publicly provided services. Although Indonesia has adopted a policy of charging fees for services, the revenue yield is low with only 10% of total recurrent expenditure recovered through user charges. While cost recovery ratios are higher for hospitals, averaging about 20%, even these are low compared to the performance of some developing countries. In Thailand cost recovery in hospitals averages 40%; in China it averages about 80%. These figures suggest that there may be substantial scope for mobilizing additional resources by raising user charges. However, caution should be exercised before any major increase in charges is adopted in order to ensure that equity and efficiency objectives are also adequately reflected in the fee structure. It is important to note that striking an appropriate balance between the revenue generation, equity and efficiency objectives of pricing policy in the health sector will still entail a substantial role for government expenditure, particularly in the poorer regions. There also remains substantial scope for increasing the sector share of central government expenditure from its presently low level (about 2.5%) relative to Indonesia's international comparators (about 5%).

(xx) The main elements of an appropriate policy on cost recovery for the health sector in REPELITA V include the following: (a) fees should be consistent with ability to pay in order to maintain utilization of necessary health services. For equity reasons it is desirable in principle to charge higher prices to the better-off and low prices to the poor. Since administration of a direct means test to distinguish the poor from the nonpoor is not practical, this price discrimination can be achieved in three main ways: within facilities, by targeting price increases to achieve full cost recovery for the higher quality classes of hospital inpatient accommodation (VIP, Class I and Class I) which tend to be self-selected by the better-off; among individuals, by targeting price increases at those who are protected by health insurance coverage, in particular at ASKES beneficiaries who presently pay only about one-fifth of the cost of public sector services; and among geographic regions, by targeting price increases to facilities in higher income regions. Thus, instead of a uniform national tariff for health center outpatient visits, central government guidelines would need to specify differential fees by region. Regional differentiation of fees by income level would need to be linked explicitly with a policy of redistributing central subsidies from richer to poorer regions in order to compensate for the lower ability to pay and higher unit costs entailed by the need for incentives to induce skilled manpower to move to poor areas; (b) the system for granting

certificates of exemption to the poor who are absolutely unable to pay should be strengthened by formalizing eligibility criteria, eliminating abuses by local officials responsible for granting certificates, and establishing a public fund to reimburse facilities for exempted services; (c) fees should be structured to encourage efficient utilization of services. In particular, for curative care, higher fees need to be charged for hospital than for health center out patient visits, and also for non-referred use of higher level hospitals, in both cases in order to encourage efficient use of the health service referral system. At the same time fees should not be charged for preventive health services with public goods characteristics, including immunization, other communicable disease control activities (e.g. malaria and tuberculosis control), prenatal care and health education; and (d) revenue retention by facilities should be formally adopted both in order to provide incentives to mobilize additional revenues, and to help ensure that extra fees are used to improve the quality of health services provided in hospitals and health centers.

(xxi) These elements illustrate the broad directions of a new cost recovery strategy responding to the changing fiscal environment in Indonesia. However, additional data collection and analysis will be needed to translate this strategy into specific actions. Priority areas for support include the following: (a) the effect of fees on utilization of services by households in different income groups needs to be studied carefully as a basis for targeting price discrimination for public services; (b) institutional responsibility and mechanisms need to be established to monitor levels and trends in unit costs, tariff structures and revenues for public services in order to provide a continuing basis for recommending periodic adjustments in official cost recovery policy; and (c) improvements in financial accounting and reporting systems are needed for government hospitals and health centers to generate comprehensive and reliable data on unit costs and revenues.

(xxii) Measures to strengthen cost recovery policy in REPELITA V need to be accompanied by improvements in the availability and efficiency of health insurance coverage in Indonesia. This requires the institutionalisation of a strong central policy framework governing the future development of health insurance. Since insurance coverage is a key criterion for price discrimination, the presently low base of enrollment presents a major obstacle to significant increases in cost recovery. Options for consideration include the following: (a) for ASKES, available evidence suggests that there is a strong case for substantially raising ASKES premiums in order to reimburse the full cost of services. Estimates show that ASKES reimbursements presently recover only about 20% of actual costs, resulting in a large and regressive public subsidy to these beneficiaries. In addition to raising reimbursements mediated through ASKES, those covered could also be required to pay an out-of-pocket copayment, either in the form of a deductible or of coinsurance for services provided, instead of benefiting from first-rupiah insurance coverage. As well as serving the objectives of revenue generation and equity, this would also help to promote efficiency by reducing the strong incentive on the demand side for ASKES beneficiaries to overuse services in the face of presently zero net prices; (b) efforts to implement the DUKM proposal to extend health insurance coverage to private sector employees should be encouraged, but only on a strictly experimental basis in order to clarify an appropriate design. To satisfy the revenue objective, particular attention needs to be given to ensuring that payroll deduction rates and associated reimbursement levels are

set high enough to achieve full cost recovery. And for efficiency reasons, consideration needs to be given to the inclusion of private insurers within the DUKM framework, including both conventional insurance carriers and pre-paid plans, to help ensure adequate competitive incentives for efficient provision of services; and (c) the priority given to extension of rural health insurance through the dana sehat should be reassessed, on the grounds both that past performance has demonstrated their inability to provide efficient insurance coverage, and also that poor rural villagers should be protected from price increases which would necessitate provision of health insurance coverage.

I. SECTORAL PERFORMANCE AND EXPENDITURE TRENDS

A. Introduction

1.01 Interventions to improve health are an important policy instrument in the Government's overall strategy to alleviate poverty and improve the welfare of the Indonesian population. Three main factors justify this policy concern with the health sector. First, relief from the burden of illness and premature death satisfies directly a basic consumption need which is an important social policy goal in itself. Second, improvements in health constitute an investment in human capital formation leading to future yields in increased productivity among the poor: better health promotes learning, reduces absenteeism and increases energy output. And third, reductions in infant and child mortality also contribute indirectly to reducing poverty by helping to lower high fertility rates: lower mortality not only helps parents to achieve their desired family size with fewer births, it leads them to want smaller families as well.

1.02 Indonesia's record of health improvement over the past two decades has been solid and impressive. The infant mortality rate has been roughly halved from around 132 per 1,000 live births in the late 1960s to about 71 in the early 1980s. These improvements were associated with the substantial expansion in coverage with government-financed community and preventive health programs which took place during the oil boom period of the 1970s and early 1980s. However, since 1982 the external environment faced by Indonesia has deteriorated considerably as a consequence of the sharp decline in real oil prices and the rising burden of external debt service. The resulting necessity for tight public expenditure restraint to facilitate macroeconomic adjustment has led to a dramatic reduction in central government spending on the health sector. Direct central spending on health (excluding intergovernmental transfers) fell by 45% in real terms between 1982/83 and 1987/88. The severity of this fiscal adjustment was enough to cut real spending by central government back to the levels attained in the late 1970s, thus reversing the budgetary gains made by the health sector over the previous decade. This deterioration reflects the sector's heavy fiscal dependence on a low budgetary share of declining central government expenditure. Although, it is too early to assess what impact these adverse expenditure trends have had on health conditions in Indonesia, they have clearly threatened the prospects for sustaining the rate of progress achieved during the previous decade.

1.03 In this changing economic environment the major challenge facing Indonesian health policymakers is to define a sectoral adjustment strategy which in the short term protects past gains and which in the longer term promotes a sustained recovery in the rate of health improvement. This strategy will have to pursue two complementary policy objectives: restructuring government expenditure patterns to make more efficient use of scarce public resources, while at the same time mobilizing additional resources needed to finance higher levels of sectoral spending. With regard to the use of public resources, the main issues include the need to strike an appropriate balance between curative and preventive health services, between capital investment and recurrent expenditure on operations and maintenance (O&M), and between subsidies to rich and poor beneficiaries. With respect to

resource mobilization, key issues are: the scope for increasing the low sectoral budget share of central government spending, the prospects for mobilizing additional resources from local governments--particularly those with greater fiscal capacity, and the potential for selective increases in cost recovery from users from public services. Preparation of the next five-year development plan, REPELITA V, provides a timely opportunity to define and introduce this policy agenda.

1.04 The purpose of this Report is to contribute insights into the broad directions of a health sector strategy for REPELITA V responding to the changing economic environment in Indonesia. Chapter I provides a broad overview of recent trends in sectoral performance and in levels and patterns of government expenditure on health. Chapters II, III and IV then focus in detail on the recent adjustment experience and implications for planning and budgeting of the major subsectors: hospital services, community and preventive health programs, and health personnel respectively. Chapter V complements this review of expenditure issues with an assessment of cost recovery policies and related health insurance arrangements which might mobilize additional nonbudgetary resources for the health sector.

B. Sectoral Performance Indicators

Mortality Decline

1.05 Past trends. Indonesian statistics do not facilitate a comprehensive assessment of mortality trends. Because Indonesia does not have a usable vital registration system for continuous recording of births and deaths, the main sources of national mortality data are indirect estimates of infant and child mortality derived from periodic population censuses and intercensal surveys carried out between 1971 and 1985. However, reliance on these sources for analysis of mortality trends is unsatisfactory for several reasons: (a) estimates of infant and child mortality derived from census and survey data on children ever born and children surviving by age of mother are subject to a variety of sampling, reporting and methodological errors; (b) these sources do not yield reliable estimates of adult mortality and life expectancy; (c) they do not provide information on the structure of causes of death; and (d) the resulting mortality estimates are necessarily infrequent and do not permit up-to-date monitoring of mortality trends.

1.06 The available data suggest that Indonesia's record of mortality reduction has been solid and impressive. A key indicator is infant mortality which accounts for around 30% of total deaths. Periodic census and intercensal survey data show that over the last two decades the infant mortality rate has been roughly halved from around 132 per 1,000 live births in the mid-1960s to a level of about 71 in the early 1980s (see Table 1.1). This reflects an accelerating pace of mortality decline, increasing from an average annual rate of 1.2% between the 1971 and 1980 censuses to 9.1% between the 1980 census and the SUPAS 1985 intercensal survey. These results suggest that the REPELITA IV target of reducing the infant mortality rate to 70 by 1989 had already been achieved in the early 1980s. However, these figures are only indicative of trends over time and may not provide reliable estimates of absolute levels. The World Bank projections based on United Nations estimates

provide a more conservative assessment of mortality levels (see Table 1.2). These estimates show that, despite the significant mortality decline achieved over the past two decades, Indonesia's performance still lags far behind the levels achieved in comparator countries. Infant mortality averages only around 45 in the East and Southeast Asia region as a whole. Corresponding rates in the individual ASEAN countries are also much lower than in Indonesia: 54 in the Philippines, 49 in Thailand, 36 in Malaysia and 20 in Singapore.

Table 1.1: INFANT MORTALITY RATES, 1971-85
(per 1,000 live births)

Census/survey date	Reference date	Urban	Rural	Total
1971 Census	1968/69	104	137	132
1976 SUPAS	1972/73	95	113	110
1980 Census	1977/78	88	112	112
1985 SUPAS	1982/83	57	74	71

Source: Central Bureau of Statistics (1987), Proyeksi Penduduk Indonesia, 1985-2005, Jakarta.

Table 1.2: COMPARATIVE MORTALITY PROJECTIONS, 1985-2000

	Infant mortality (per 1,000 live births)		Life expectancy at birth (years)	
	1985	2000	1985	2000
Indonesia	89	57	56	63
Malaysia	36	25	68	71
Philippines	54	35	64	69
Thailand	49	32	65	69
Singapore	20	15	73	75
East & Southeast Asia	45	30	68	71

Source: Zachariah, K.C. and Vu, M.T. (1988), World Population Projections: 1987/88 Edition, The World Bank.

1.07 The poor have benefited less than the better-off from Indonesia's progress in mortality reduction. This disadvantage is reflected in the regional variations in infant mortality levels within Indonesia, ranging from a low of 29 in Yogyakarta to a high of 146 in West Nusa Tenggara. In fact, these interprovincial differences have widened over time because faster declines have taken place in provinces with initially lower mortality rates (see Statistical Annex Table 1.1). These variations are closely associated with regional differences in per capita expenditure and the incidence of poverty. There is a strong negative association between the provincial infant mortality rate and household expenditure per capita, with an estimated elasticity of -0.74. In other words, a 10% increase in provincial expenditure per capita is associated with a 7% lower infant mortality rate. This pattern is confirmed by household survey data showing large mortality differentials by income class as proxied by levels of education. Estimates from the 1987 National Indonesia Contraceptive Prevalence Survey (NICPS) for the ten-year period 1977-87 indicate that infant mortality rates averaged around 90 per 1,000 for mothers with none or only some primary schooling, compared to only around 30 per 1,000 for those with secondary or more schooling (see Table 1.3). Similar differentials stratified by education of the head of household are shown by the 1986 Household Health Survey (HHS).

Table 1.3: INFANT MORTALITY RATES BY LEVEL OF EDUCATION

Level of Education <u>/a</u>	HHS 1986	NICPS 1987 <u>/b</u>
None	87.5	98.8
Some primary	81.9	82.5
Primary completed	53.5	60.1
Secondary or more	45.6	33.9
<u>Total</u>	<u>71.8</u>	<u>75.2</u>

/a Level of education refers to the head of household in HHS 1986 and to the mother in NICPS 1987.

/b Average mortality rates computed for the period 1977-87.

Source: Budiarmo; L.R. et. al. (1986) Survai Kesehatan Rumah Tangga, Ministry of Health; and Central Bureau of Statistics (1987) Indonesia: National Contraceptive Prevalence Survey.

1.08 Closing the large infant mortality gap between the poor and the nonpoor will require intensified action against the main causes of high infant mortality among the poor. Four major groups of diseases accounted for more than three-quarters of all infant deaths reported in the 1986 Household Health Survey (see Table 1.4). The highest proportion, 28%, was caused by the group of immunizable diseases, the most important of which was tetanus which alone caused 19% of infant mortality. The second largest proportion of infant deaths was contributed by perinatal causes, most often due to obstructed labor

and un-hygienic delivery, often exacerbated by low birth-weight or prematurity. Diarrhea was the third largest cause, contributing 16% of infant deaths, followed by acute respiratory infections (ARI) which caused 14% of the total.

Table 1.4: UNDERLYING CAUSES OF INFANT MORTALITY, 1986
(% of deaths)

	Neotanal	Post-neonatal	All Infants
<u>Immunizable Diseases</u>	<u>40.9</u>	<u>19.9</u>	<u>28.0</u>
Tetanus	39.5	6.6	19.4
Measles, diphtheria & pertussis	1.4	13.3	8.6
Perinatal causes	42.3	2.9	18.4
Diarrhea	2.3	24.3	15.6
Acute respiratory infection	2.3	21.7	14.4
Other	12.2	31.2	23.6
<u>Total</u>	<u>100.0</u>	<u>100.0</u>	<u>100.0</u>

Source: Government of Indonesia - UNICEF (1989) Situation Analysis of Children and Women in Indonesia, Tables 3.6 and 3.7.

1.09 Future prospects. Substantial further progress in infant mortality reduction will be essential to enable Indonesia to achieve its poverty alleviation goals. Government population projections envisage a continuing but slower pace of infant mortality decline averaging 4% between 1985-90, 3% between 1990-95 and 2% between 1995-2005 leading to a rate of 45 in the year 2000. These implied targets are modest in relation to the magnitude of the task facing the health sector. Table 1.2 shows that achievement of these targets by the end of this century would only reduce infant mortality to the current average for the region, thus leaving Indonesia well behind the much lower rates likely to be achieved by its comparators in the future. More rapid improvements will therefore be needed to enable Indonesia to reach the level of social development enjoyed by neighboring countries. This will depend primarily on further progress in prevention and cure of the major communicable diseases.

1.10 The information system needed to document mortality change is necessarily part of the development process. Thus it is not surprising that the mortality data currently available in Indonesia are inadequate to meet the needs of routine sectoral performance monitoring and planning. However these deficiencies will become more acute in the longer term as Indonesia undergoes the epidemiological transition from a mortality structure dominated by communicable disease mortality among children to noncommunicable disease mortality among adults. This transition will result from: (a) the gradual ageing of the population induced by continuing declines in infant and child mortality and fertility; and (b) the higher age-specific incidence of

noncommunicable diseases resulting from lifestyle changes associated with economic development such as increasing prevalence of smoking, consumption of higher fat diets, and rising incidence of traffic accidents. Strengthening the information system needed to monitor, analyze and plan appropriate policy interventions in response to these mortality trends is a high priority. Particular consideration needs to be given to development of a reliable vital registration system and also the capacity to undertake epidemiological analyses of the causes and underlying determinants of adult mortality.

Utilization of Health Services

1.11 The level and pattern of health service utilization are important complementary indicators of health sector performance because they are suggestive of morbidity improvements which are not fully reflected in mortality data. Available information shows that Indonesia's high mortality rates are associated with remarkably low utilization rates, especially among the poor.

1.12 Provider choice. Estimates from the 1987 National Socioeconomic Survey (SUSENAS) show that the sick poor use fewer modern curative health services and choose lower quality providers than the nonpoor (see Table 1.5). A higher proportion of the poor reporting illness did not receive any treatment. Furthermore, a higher proportion of the sick poor resorted to self-treatment only. Of those reporting illness, fewer of the ill poor used modern health care providers. Among modern providers, government health centers turn out to be by far the most important choice for all persons reporting illness, with only a slight decline in frequency of use between the poor and the nonpoor. However, for high-quality modern providers (doctors and hospitals) there is a strong pattern of higher use among the better-off:

Table 1.5: PROVIDER CHOICE BY EXPENDITURE CLASS, 1987
(% of those reporting ill (a))

	<u>Urban</u>			<u>Rural</u>			<u>Total</u>		
	Poor	Nonpoor	Total	Poor	Nonpoor	Total	Poor	Nonpoor	Total
Not treated	4.8	2.1	2.4	7.3	3.9	5.0	7.1	3.4	4.4
Self-treated	37.7	22.4	23.8	31.8	26.8	28.5	32.2	25.6	27.4
Traditional	2.4	1.5	1.5	5.4	4.7	5.0	5.2	3.8	4.2
Modern	55.0	73.9	65.0	55.5	64.5	61.5	55.4	67.1	64.0
Doctor	7.7	26.8	25.1	2.6	8.8	6.8	3.0	13.9	10.9
Hospital	7.9	11.9	11.6	2.6	4.8	4.1	3.0	6.8	5.8
Health center	27.2	25.4	25.6	30.9	30.3	30.5	30.6	28.9	29.4
Clinic	1.9	2.8	2.7	3.4	2.9	3.0	3.3	2.9	3.0
Paramedic	10.3	7.0	7.3	16.0	17.7	17.1	15.5	14.6	14.9

(a) Based on three-month recall.

Source: World Bank staff estimates from 1987 SUSENAS survey.

fewer of the ill poor visited a hospital, compared to the ill nonpoor; and, fewer of the ill poor visited a doctor, compared to the nonpoor. Better access to high-quality providers in urban areas is reflected in higher proportions of the poor visiting doctors and hospitals than in rural areas.

1.13 Utilisation rates. The combination of low reported morbidity and low use of modern health providers results in low absolute rates of health service utilization by the poor (see Table 1.6). Outpatient visits per person per year among the poor were significantly lower than among the nonpoor. Most of this difference is due to the much higher utilisation rates of high-quality providers (doctors and hospitals) among the better-off, with little difference in levels for the lower-quality sources of care. The differential in hospital admission rates is much wider, averaging three times as many for the nonpoor compared to the poor. On average, these rates are somewhat lower than were reported by the 1986 Household Health Survey but the pattern of differentials by income class as proxied by levels of education are broadly consistent (see Table 1.7).

Table 1.6: UTILISATION OF MODERN PROVIDERS BY EXPENDITURE CLASS, 1987
(Rates per year /a)

	<u>Urban</u>			<u>Rural</u>			<u>Total</u>		
	Poor	Nonpoor	Total	Poor	Nonpoor	Total	Poor	Nonpoor	Total
Hospital admission /b	6.55	22.44	21.72	4.90	12.72	10.72	5.00	15.79	13.63
Outpatient visits /c	0.23	0.31	0.31	0.24	0.35	0.33	0.24	0.34	0.32
<u>Total visits /c</u>	<u>0.24</u>	<u>0.33</u>	<u>0.33</u>	<u>0.26</u>	<u>0.38</u>	<u>0.35</u>	<u>0.25</u>	<u>0.36</u>	<u>0.34</u>
Doctor	0.03	0.12	0.11	0.01	0.05	0.04	0.01	0.07	0.06
Hospital	0.03	0.05	0.05	0.01	0.03	0.02	0.01	0.04	0.03
Health center	0.12	0.12	0.12	0.14	0.18	0.17	0.14	0.16	0.16
Clinic	0.00	0.01	0.01	0.02	0.02	0.02	0.02	0.02	0.02
Paramedic	0.05	0.03	0.03	0.07	0.10	0.10	0.07	0.08	0.08

/a Annualized rates based on three-month recall.

/b Per 1,000 persons.

/c Per person.

Source: World Bank staff estimates from the 1987 SUSENAS survey.

Table 1.7: UTILISATION OF MODERN PROVIDERS BY LEVEL OF EDUCATION, 1986
(Rate /a per year)

	None	Some primary	Primary completed	Secondary or more	Total
<u>Hospital Admission /b</u>	<u>7.04</u>	<u>9.65</u>	<u>11.75</u>	<u>21.14</u>	<u>19.71</u>
Government hospitals	6.10	8.23	9.26	16.96	16.13
Private hospitals	0.94	1.42	2.49	4.18	3.58
<u>Outpatient Visits /c</u>	<u>0.380</u>	<u>0.432</u>	<u>0.467</u>	<u>0.567</u>	<u>0.452</u>
Government hospitals	0.023	0.023	0.042	0.071	0.037
Private hospitals	0.003	0.004	0.006	0.012	0.006
Health centers	0.224	0.252	0.241	0.234	0.239
Private clinics	0.001	0.003	0.005	0.005	0.003
Doctors	0.044	0.065	0.088	0.186	0.088
Paramedics	0.084	0.086	0.085	0.060	0.080

/a Based on one-month recall.

/b Per 1,000 persons.

/c Per persons

Source: 1986 Household Health Survey.

1.14 International comparisons. Even more striking than the relatively low utilization rates among the poor in Indonesia, especially for hospital admissions, is the fact that these rates are extremely low even for the nonpoor compared to levels prevailing in other countries. Household survey data derived from the World Bank's Living Standards Measurement Study (LSMS) program show average hospital admission rates between 5 and 10 times higher than the Indonesia average of 13.6 per 1,000 per year (see Table 1.8). Even

Table 1.8: COMPARATIVE HOSPITAL ADMISSION RATES BY CONSUMPTION QUINTILE
(per 1,000)

	Consumption Quintiles					Total
	I	II	III	IV	V	
Cote d'Ivoire	45.4	60.5	55.3	60.4	111.8	66.6
Ghana	87.0	126.4	156.6	143.3	214.1	145.4
Jamaica	68.8	85.9	85.6	17.0	94.6	70.3
Peru	40.3	55.1	95.2	87.6	90.1	73.6

Source: World Bank staff estimates derived from the Living Standards Measurement Surveys.

in the poorest consumption quintile hospital admission rates in these four countries are 3 to 6 times higher than the average for Indonesia as a whole. Thus the poor in Indonesia face differential access to a health system which itself delivers relatively few services even to the nonpoor.

1.15 Distance. Travel time is an important determinant of levels of utilisation and patterns of provider choice. The opportunity cost of time is a bigger access barrier for the poor than the nonpoor. Unfortunately the SUSENAS 1987 only reports travel time as reflected in distance travelled by actual users, instead of for all respondents; as a result, it does not reflect differentials in access for the population as a whole. However, the results do suggest that the poor face higher access costs, and that they are sensitive to these costs (see Table 1.9). For example, the average distance travelled to a health center is higher for the poor than the nonpoor. Distances travelled to hospital treatment are much higher, and those poor who decide to use them are willing to travel less far than the nonpoor.

Table 1.9: DISTANCE TO MODERN TREATMENT BY EXPENDITURE CLASS, 1987
(Average distance per user in km /a)

	Urban			Rural			Total		
	Poor	Nonpoor	Total	Poor	Nonpoor	Total	Poor	Nonpoor	Total
Doctor	3.5	3.1	3.1	10.2	9.9	9.9	9.0	6.3	6.4
Hospital	1.8	5.6	5.5	10.9	15.2	14.6	9.5	10.6	10.5
Health center	2.4	1.4	1.4	3.4	3.4	3.4	3.4	3.0	3.0
Polyclinic	0.4	2.0	2.0	2.8	2.9	2.9	2.8	2.7	2.7
Paramedic	2.5	1.8	1.8	3.2	3.0	3.1	3.2	2.9	2.9
All providers	2.4	2.7	2.7	4.9	4.9	4.7	3.9	4.3	4.2

/a Based on three-month recall.

Source: World Bank staff estimates from the 1987 SUSENAS survey.

1.16 These data demonstrate that the poverty alleviation impact of available health services in Indonesia is modest. Access to modern facilities is low compared to other Asian countries, and utilization is much lower among the poor. As with mortality data, substantial improvements in the availability and quality of utilization statistics are needed to facilitate sectoral monitoring and planning. At present, there is no institutional mechanism to generate regular and comprehensive utilization data based on national-level household surveys to permit analysis of trends in levels and patterns of use among different income classes. Development of this capacity should be a priority to ensure better assessment and targeting of the poverty alleviation impact of health sector interventions.

C. Government Expenditure Trends

Budgetary Sources and Structure

1.17 Before examining government expenditure trends, it is important to understand the complexity of the existing pattern of government finance and its implications for planning and budgeting in the health sector. Three major problems with the system of budgetary finance are: (a) the fragmentation of funding between different budget channels split between the central and regional governments; (b) the lack of a comprehensive data source which aggregates these multiple sources into a consolidated account of sectoral expenditure; and (c) the obscurity of accounting classifications used in different budgets. Together, these three features of the budgetary system mean that there is no readily available information on total government expenditure on health, or on its composition between recurrent and investment spending, or on its functional allocation between different sectoral programs, or on its distribution between regions. In other words, no comprehensive view of actual budgetary allocations is normally available to sectoral policymakers as a basis for assessing the need for changes in expenditure priorities.

1.18 The fragmentation of financing between multiple budget channels split between the central and regional levels of government is illustrated in Table 1.10. The actual financing picture is more complex than suggested by this list because it only includes services delivered under the auspices of the central Ministry of Health and the regional health offices; related health expenditures funded through the Armed Forces, the Ministry of Education, and other departments and state enterprises are excluded. There are at least ten different budgetary sources of funds for the main public health system. Figure 1.1 illustrates the flow of funds through the three main tiers of government in Indonesia. At central government level the most important sources take the form of central grants to the regions: the Subsidi Daerah Otonom (SDO) and the specific Instruksi Presiden grant for health (INPRES Kesehatan) channeled for routine and development expenditure respectively. An important feature is the rigidity associated with the earmarking of those grants for specific uses. The SDO covers salaries for all regional government staff whose appointments are centrally approved, including a large number of staff working in regional health facilities such as hospitals and health centers. The sectoral INPRES grant mainly finances health center construction and operating costs through a per capita subsidy for drugs. Next in importance are the national budget (APBN) allocations to the Ministry of Health for routine (Daftar Isian Kegiatan or DIK) and development (Daftar Isian Proyek or DIP) expenditure, both of which finance directly a large amount of spending incurred in the regions. Additional central sources include foreign grants and loans (Bantuan Luar Negeri or BLN) channeled through the development account, and the Subsidi Bantuan Biaya Operasional-Rumah Sakit Umum Daerah (SBBO-RSUD) for routine expenditure. The SBBO-RSUD complements the SDO grant with the specific purpose of subsidizing nonsalary expenditure (excluding drugs) requirements in provincial and district hospitals. Corresponding regional sources include the development and routine budgets allocated to health offices attached to the provincial and district governments (level I and II regions respectively).

Table 1.10: MAJOR BUDGETARY SOURCES OF HEALTH SECTOR FINANCE

Central Government

APBN-DIP	Central Ministry of Health development budget
APBN-DIK	Central Ministry of Health routine budget
INPRES Kesehatan	Health sector grant to regional governments
BLN	Project aid (grants and loans)
SDO	Salary grant to regional governments
SBBO-RSUD	Nonsalary grant for regional hospitals

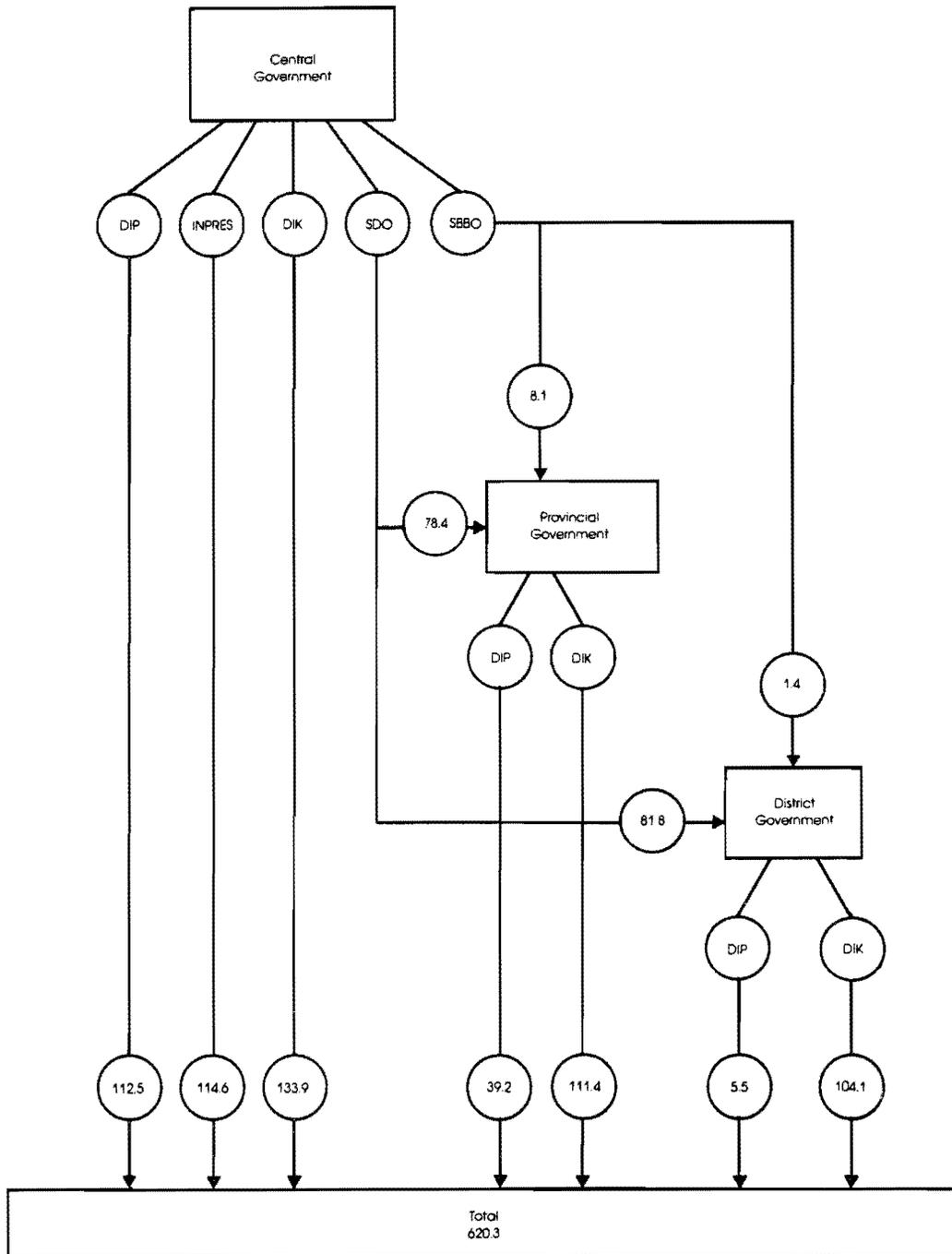
Regional Governments

APBD1-DIP	Provincial health office development budget
APBD1-DIK	Provincial health office routine budget
APBD2-DIP	District health office development budget
APBD2-DIK	District health office routine budget

1.19 There is no comprehensive data source which aggregates these multiple budget channels into a consolidated account of budgeted or actual expenditure on health. As a result it is very difficult to identify and coordinate all relevant financial flows to the health sector or to particular services within the sector. This reflects the absence of any institutional responsibility for maintaining an up-to-date information system for budgetary statistics in the health sector. The resulting paucity of data is manifested in two main ways: (a) available information on the different central government funding sources is substantially incomplete because the Ministry of Home Affairs is unable to provide a breakdown of the sectoral distribution of the SDO grant which is transferred to the regional government routine budgets to pay for staff salaries (the health sector share can only be identified from the salary component of the regional government routine budgets); and (b) data on regional government spending on health are normally not available. As a result only about one-half of total government spending is readily identifiable without undertaking a major survey of the individual regional government budgets. Although regional government accounts are published annually by the Central Bureau of Statistics, these only provide an economic classification of expenditure. A sectoral breakdown can therefore be obtained only by referring directly to the individual provincial and district budgets, which are often not accessible at central level.

1.20 For budget data that are available, the obscure classification of budgetary disbursements often fails to reveal the actual composition of expenditures: (a) the distinction between development and routine budgets does not adhere to the conventional classification of investment and recurrent expenditures because a large amount of recurrent spending is funded through the development budget. Thus a useful breakdown between investment and recurrent expenditure can only be obtained by examining the detailed economic classification of the development budgets. However this cannot be done for the sectoral INPRES grant or for the provincial and district development budgets which do not provide any economic classification of expenditures; and (b) the functional breakdowns provided by individual budget accounts are often too inconsistent and general to permit meaningful aggregation across budgets in order to identify overall patterns of resource allocation between

Figure 1.1: BUDGETARY FLOWS FOR HEALTH, 1985/86
(Rp. billion)



different programs. This problem is especially great for the district government routine budgets in which, for example, health center expenditures are often lumped together with hospitals or health department administration.

1.21 The expenditure data presented subsequently need to be interpreted cautiously in light of these qualifications. For the most part these data were collected through a special survey of central, provincial and district government accounts covering the period 1983/84-1985/86 undertaken with World Bank assistance by the Bureau of Planning in the Ministry of Health (see ANNEX I). This represents the first effort to assemble a comprehensive set of sectoral accounts in Indonesia and the resulting data base provides a starting point for developing a proper time-series of public expenditure on health in Indonesia.

Aggregate Expenditure Levels and Trends

1.22 Table 1.11 shows the overall structure and evolution of budgetary finance for health from 1983/84 to 1985/86. The main implications of these figures are twofold: (a) that government expenditure on health is extremely low in Indonesia relative to its international comparators, and (b) that sectoral spending is heavily dependent on declining levels of central government finance.

Table 1.11: SOURCES OF GENERAL GOVERNMENT EXPENDITURE
ON HEALTH, 1983/84-1985/86
(Rp.billion)

	1983/84	1984/85	1985/86
<u>Central Government</u>	<u>425.8</u>	<u>445.0</u>	<u>530.7</u>
APBN-DIP /a	119.1	117.5	112.5
INPRES /a	98.5	98.5	114.6
APBN-DIK	86.1	103.4	133.9
SDO1	52.3	54.8	78.4
SDO2	61.7	62.6	81.8
SBBO-RSUD1 /a	6.1	6.4	8.1
SBBO-RSUD2 /a	2.0	1.8	1.4
<u>Provincial Governments</u>	<u>40.8</u>	<u>49.8</u>	<u>64.1</u>
APBD1-DIP	25.0	27.3	39.2
APBD1-DIK /b	15.8	22.5	24.9
<u>District Governments</u>	<u>20.2</u>	<u>20.4</u>	<u>26.4</u>
APBD2-DIP	3.6	5.5	5.5
APBD2-DIK /b	16.6	14.9	20.9
<u>Total</u>	<u>486.8</u>	<u>515.2</u>	<u>621.2</u>

/a Budget figures.

/b Net of SDO and SBBO-RSUD transfers.

Source: World Bank staff estimates.

1.23 Total expenditures on health of central and regional governments amounted to around Rp.621 billion in 1985/86, comprising about Rp.348 billion of routine account expenditure and Rp.272 billion of development expenditure. This was equivalent to some Rp.3,781 (US\$3.4) per capita. This level of spending is far lower than in Indonesia's comparator countries. Table 1.12 compares sectoral expenditures of Indonesia and the other ASEAN countries in terms of proportions of central government spending and GDP. These figures show that expenditure on health is about 2.3% of central government spending in Indonesia, compared to an average 5.6% in the other countries. Expressed as a proportion of GDP, government expenditure on health is about 0.6% in Indonesia compared to around 1.3% elsewhere in the region. In other words, Indonesia's government expenditure effort is only about half of what would be expected based on the performance of neighboring countries.

Table 1.12: COMPARATIVE HEALTH EXPENDITURE RATIOS

	Year	As % of central government expenditure	As % of GDP	US\$ per capita
Indonesia	1985	2.56	0.56	3.37
Malaysia	1981	4.39	1.36	23.40
Philippines	1985	5.95	0.63	3.75
Thailand	1985	5.69	1.20	8.98
Singapore	1985	6.47	1.78	122.29

Source: International Monetary Fund, Government Finance Statistics Yearbook: 1987 and World Bank staff estimates.

1.24 Turning to the revenue side, the central government is clearly the dominant source of finance for budgetary expenditure. Table 1.13 summarizes the sources and uses of funds in 1985/86, the most recent year for which comprehensive data are available. Although the great bulk of sectoral expenditure (89%) is incurred in the regions, central government sources provided by far the largest contribution to financing overall expenditure (86%). Nearly half (46%) of spending was financed through central grants (SDO, SBBO-RSUD and INPRES) and more than one-third (40%) by direct spending on regionally-incurred services channeled through the routine and development budgets allocated to the central Ministry of Health. Provincial and district government sources financed less than one-fifth of total expenditure (10% and 4% respectively). This large vertical imbalance between regional government expenditure responsibilities and financing capacity reflects the fact that regional governments generate very little of their own revenues in Indonesia. In fact these figures overstate the regional government contribution to sectoral finance because the provincial and district government development budgets for health are financed indirectly by the INPRES general grant program

(INPRES Dati I and II) which contributes a large proportion of regional development expenditure. In addition, the magnitude of regional routine budget expenditure (net of central transfers) is to a considerable extent geared to the volume of revenues collected from health service charges, particularly at district level.

**Table 1.13: SOURCES AND USES OF FUNDS FOR HEALTH
BY LEVEL OF GOVERNMENT, 1985/86
(Rp.billion)**

	Central /a	Regional	Total sources	% of total
Central	71.5	459.2	530.7	85.5
APBN-DIP	28.7	83.8	112.5	18.1
INPRES	21.0	93.6	115.6	18.5
APBN-DIK	21.8	112.1	133.9	21.6
SDO	-	160.2	160.2	25.8
SBBO-RSUD	-	9.5	9.5	1.5
Regional	-	89.7	63.7	14.5
APBD1-DIP	-	39.2	39.2	6.3
APBD1-DIK	-	24.0	24.0	3.9
APBD2-DIP	-	5.5	5.5	0.9
APBD2-DIK	-	21.0	21.0	3.4
Total Uses	71.5	548.9	620.4	100.0
% of total	11.5	88.5	100.0	

/a Refers to central government expenditure which cannot be identified as allocated to particular regions.

Source: World Bank staff estimates.

1.25 This pattern of heavy fiscal dependence on a low budgetary share of central government expenditure has serious implications for the health sector's ability to sustain already inadequate levels of spending. Indeed it is already clear that a significant decrease in sectoral spending levels has been forced by the oil price decline and the consequent fall in central government revenues. Although a detailed assessment of recent developments is precluded by the lack of comprehensive and up-to-date budgetary statistics since 1985/86, this adverse trend is evident from information on the four directly accessible central budget sources (APBN-DIK, SBBO-RSUD, APBN-DIP and INPRES) which together accounted for nearly two-thirds (60%) of sectoral expenditure in 1985/86. Table 1.14 summarizes the trends in these sources during REPELITAs III and IV, from 1979/80 to 1987/88.

1.26 Budgeted expenditures channeled through these sources began to fall in real terms when the Government initiated its adjustment program in 1983, and this decline subsequently accelerated with the intensification of adjustment measures taken in response to the collapse of oil prices in 1986. As a result, by 1987/88 real spending levels had declined by 45% compared to the peak level achieved in 1982/83. The magnitude of this decline was such that central expenditure (excluding SDO and BLN) in 1987/88 was lower in real terms than the level achieved nearly a decade earlier in 1979/80 at the beginning of REPELITA III. In per capita terms, this collapse was even greater.

**Table 1.14: AGGREGATE /a CENTRAL GOVERNMENT EXPENDITURE /b
ON HEALTH: TRENDS IN REPELITAS III AND IV
(Rp.billion)**

	<u>Development</u>		<u>Routine</u>		<u>Total</u>	
	APBN-DIP	INPRES	APBN-DIK	SBBO-RSUD	At current prices	At constant prices <u>/c</u>
REPELITA III						
1979/80	50.1	30.0	32.4	0.0	112.5	200.9
1980/81	78.2	50.0	50.1	0.0	178.3	244.3
1981/82	97.6	79.0	74.4	0.0	251.0	306.1
1982/83	119.1	98.5	78.5	7.8	303.8	345.2
1983/84	119.1	98.5	82.4	8.1	308.1	308.1
REPELITA IV						
1984/85	117.5	98.5	93.5	8.2	317.7	283.7
1985/86	112.5	114.6	116.5	9.5	353.1	291.8
1986/87	61.3	114.6	138.1	17.6	331.5	269.5
1987/88	34.6 <u>/d</u>	76.5	140.2	14.0	265.3	195.1

/a Excludes SDO.

/b Budget figures.

/c GDP deflator, 1983 = 100.

/d Includes supplementary budget (ABT).

Source: Ministry of Health and World Bank staff estimates.

1.27 Fragmentary indications are that regional government spending did not compensate for this dramatic decline in the level of central government outlays. In fact, in some provinces regional government expenditure also fell, thus contributing even further to the decline. Table 1.15 shows illustrative data for two provinces from 1982/83 to 1987/88. In East Kalimantan real expenditures fell by 35% overall, reflecting not only a 43% cut in central government finance but also an 18% cut in regional spending. Similarly, in West Nusa Tenggara aggregate expenditures have sustained a 23% cut in real terms, as a result of declining levels of both central and regional government finance. Clearly, therefore, overall spending levels have

not been sustained by either central or regional governments since the adjustment process was initiated in the early 1980s. Indeed, the budgetary deterioration has been substantial, amounting to about one-third overall. A solution to this resource mobilization problem will require a significant reordering of central government expenditure priorities in favor of the health sector together with increased resource mobilization by the regional governments.

**Table 1.15: CONSOLIDATED GENERAL GOVERNMENT EXPENDITURE ON HEALTH:
TRENDS IN SELECTED PROVINCES, 1982/83-1987/88
(Rp.billion)**

	<u>Expenditure /a at constant prices /b</u>			Central as % of total
	Central	Regional	Total	
<u>East Kalimantan</u>				
1982/83	7.209	2.866	10.076	72
1983/84	5.884	2.111	7.994	74
1984/85	5.533	2.368	7.901	70
1985/86	5.958	2.839	8.797	68
1986/87	5.196	2.877	8.073	64
1987/88	4.140	2.358	6.497	64
<u>West Nusa Tenggara</u>				
1982/83	6.370	0.834	7.204	88
1983/84	6.371	0.646	7.018	91
1984/85	5.869	0.631	6.500	90
1985/86	6.483	0.835	7.318	89
1986/87	6.058	0.825	6.883	88
1987/88	4.771	0.767	5.538	86

/a Includes: development (APBN-DIP plus INPRES) and routine (APBN-DIK, APBD1-DIK, APBD2-DIK, SDO and SBBO-RSUD) accounts.

/b GDP deflator, 1983 = 100.

Source: World Bank staff estimates.

Regional Distribution of Expenditure

1.28 The problems emerging in the recent period of resource scarcity are exacerbated by wide provincial variations in levels of government spending on health. Table 1.16 summarizes the provincial distribution of per capita government expenditure in 1985. These figures show that overall government spending per capita, including central and regional government sources, varied from a low of Rp.2,012 in Lampung to a high of Rp.8,215 in Irian Jaya. These inequities are largely determined by the regressive allocation of central

Table 1.16: DISTRIBUTION OF GOVERNMENT EXPENDITURE ON HEALTH BY PROVINCE, 1985
(Rp. per capita)

	<u>Government expenditure</u>						Monthly household expenditure	Local revenues
	Total	Central	APBN-DIK	SDO	APBN-DIP	INPRES	1984 /a	1983 /b
<u>Java</u>								
DKI Jakarta	6,249	5,059	3,920	191	542	405	33,352	25,147
West Java	2,336	2,109	526	754	321	508	17,332	5,467
Central Java	3,033	2,562	606	1,014	378	564	12,222	6,547
DI Yogyakarta	5,103	4,673	1,888	1,281	901	603	15,642	8,857
East Java	2,661	1,920	253	940	259	469	13,705	6,346
<u>Sumatra</u>								
Lampung	2,012	1,629	135	718	344	432	11,678	4,171
Bengkulu	5,065	4,731	438	1,495	1,376	1,422	18,461	15,097
South Sumatra	3,660	3,244	1,230	799	667	548	18,230	11,376
Riau	3,848	2,689	305	1,159	572	653	21,101	17,445
Jambi	4,051	3,268	396	1,138	981	754	17,474	16,112
West Sumatra	4,723	4,089	1,216	1,140	1,077	655	18,902	7,770
North Sumatra	2,818	2,078	350	920	311	497	16,806	9,344
DI Aceh	3,865	2,922	321	1,304	625	672	20,934	10,483
<u>Kalimantan</u>								
West Kalimantan	3,302	2,725	388	918	731	688	16,594	7,092
Central Kalimantan	5,684	4,922	307	1,974	1,195	1,447	18,651	12,656
South Kalimantan	4,653	3,690	447	1,467	1,013	763	19,050	7,939
East Kalimantan	5,897	3,847	467	1,334	1,092	954	25,713	19,595
<u>Sulawesi</u>								
Central Sulawesi	4,005	3,492	371	1,652	813	656	12,163	8,012
North Sulawesi	5,691	4,711	528	2,205	1,290	688	17,462	11,061
South Sulawesi	3,731	2,958	429	1,415	581	534	15,219	15,117
Southeast Sulawesi	4,656	3,950	509	1,712	916	813	14,507	13,869
<u>Other Islands</u>								
Bali	5,907	5,154	1,778	1,691	1,068	617	14,723	10,515
West Nusa Tenggara	3,084	2,489	187	936	762	605	11,377	5,629
East Nusa Tenggara	2,700	2,304	213	542	893	656	10,754	10,903
Maluku	3,461	3,131	400	554	1,167	1,010	16,404	9,094
Irian Jaya	8,215	6,417	702	2,388	1,706	1,621	29,383	27,366

/a SUSENAS 1984.

/b Includes: current receipts minus SDO transfer plus IPEDA revenues for provincial plus district governments.

Source: World Bank staff estimates.

government finance. Central spending strongly favors the better-off provinces, with higher levels of central spending closely associated with higher per capita incomes. Similarly striking is the positive association between per capita central spending and local government revenues. Many provinces benefiting from substantial central expenditure have equally substantial local tax bases which should reduce their need for central government support. For example, Jakarta has five times the per capita local revenues of West Nusa Tenggara but receives twice as much in central subsidies for health. Thus instead of compensating for differences in local fiscal capacity, the inequitable distribution of central spending actually reinforces them.

1.29 A statistical analysis of these relationships is shown in Table 1.17 which presents elasticities of government spending with respect to per capita provincial incomes and local revenues. The overall distribution with respect to incomes is summarized in an estimated elasticity of +0.82. In other words a 10% increase in average income in a province is associated with an 8% increase in combined central and regional government spending per capita. The components of this total have different distributional effects. Looking at the central budget sources, the most strikingly regressive pattern is exhibited by the routine budget of the Ministry of Health (APBN-DIK) which has a very high elasticity of +1.38. A substantial proportion of this expenditure is devoted to funding large centrally-owned tertiary hospitals. By contrast the SDO grant for salaries appears to be distributionally neutral. However the distribution of both the development budgets, APBN-DIP and INPRES, also turns out to be quite regressive with elasticities of +0.53 and +0.41 respectively. Turning to the distribution with respect to local revenues, the

Table 1.17: ELASTICITIES /a OF GOVERNMENT EXPENDITURE ON HEALTH WITH RESPECT TO HOUSEHOLD INCOME AND LOCAL REVENUES

Government expenditure per capita, 1985	Household expenditure /b per capita, 1984	Local revenue /c per capita, 1983
General government /d	+0.82	+0.54
Central government /e	+0.72	+0.49
APBN-DIK	+1.38	+0.62
SDO	-0.10	+0.11
APBN-DIP	+0.53	+0.53
INPRES	+0.41	+0.35

/a OLS estimates of double-log equations for 26 provinces (excluding East Timor).

/b SUSENAS 1984 survey data.

/c Routine receipts minus SDO plus IPEDA revenues for provincial plus district governments.

/d Central plus regional governments.

/e Includes APBN-DIP, INPRES, APBN-DIK and SDO; excludes BLN and SBBO-RSUD.

Source: World Bank staff estimates.

failure of overall central spending to compensate for regional differences in ability to finance expenditure from local revenues is clear from the estimated elasticity of +0.54.

1.30 The apparent role of central spending patterns in augmenting rather than reducing interregional inequalities implies a serious equity problem in the distribution of benefits from public expenditure on health. It also contributes significantly to the overall resource mobilization problem for the sector because of its obvious disincentive effects on potential revenue generation by the better-off regional governments. Clearly, therefore, the regional distribution of central spending should be reassessed and better targeted in order to help meet the goal of reducing inequalities in access to health services, and of encouraging the better-off local governments to finance a larger proportion of their expenditure requirements from local sources. This would require up-to-date monitoring of regional expenditure patterns and fiscal capacity, together with the development of more appropriate regional allocation criteria designed to compensate for differences in local resource availability. Although the implementation of changes in distribution criteria for some central budget sources would require generic rather than sector-specific reforms (for example in the SDO grant from which health receives an incidental budget share), adjustments in the allocation patterns of other major budgets clearly lie within the policy control of the Ministry of Health, especially the large sectoral routine budget and the DIP and INPRES budgets for development expenditure.

Shifts in Composition and Allocation

1.31 The sharp fiscal adjustment experienced by the health sector has been effected by significant changes in the composition and allocation of sectoral expenditures. Table 1.18 shows the composition and allocation of consolidated spending on health in 1985/86. Unfortunately, an assessment of more recent

Table 1.18: COMPOSITION AND ALLOCATION OF CONSOLIDATED GENERAL GOVERNMENT EXPENDITURE ON HEALTH, 1985/86
(Rp.billion)

	Recurrent	Investment	Unallocated	Total
Hospitals	172.5	25.1	10.4	208.0
Health Centers	68.2 ^{/a}	42.5	5.9	116.6
Communicable Disease Control	24.9	1.4	3.0	29.3
Training	20.9	4.4	1.6	26.9
Other	175.1	39.2	26.1	240.4
<u>Total</u>	<u>462.8</u>	<u>112.6</u>	<u>47.0</u>	<u>621.2</u>

^{/a} Recurrent expenditure on health centers appears to be substantially underestimated due to classification errors in the local government accounts (see Chapter III).

Source: World Bank staff estimates.

trends in this overall pattern cannot be made because up to date statistics on regional government budgets (including the SDO transfer) are not available. Instead Table 1.19 summarizes available statistics on recent trends in the composition of expenditure for selected central government budgets during the first four years of REPELITA IV from 1984/85 to 1987/88.

Table 1.19: COMPOSITION OF CENTRAL GOVERNMENT EXPENDITURE /a
ON HEALTH: TRENDS IN REPELITA IV
(Rp.billion)

	1984/85	1985/86	1986/87	1987/88
<u>At Current Prices</u>	<u>314.7</u>	<u>347.6</u>	<u>326.2</u>	<u>265.1</u>
Recurrent <u>/b</u> (of which: salaries)	<u>207.1</u> (54.5)	<u>233.6</u> (68.9)	<u>239.9</u> (84.8)	<u>238.5</u> (87.0)
APBN-DIK	90.6	111.1	132.8	140.2
SBBO-RSUD	8.2	9.5	17.6	14.0
APBN-DIP <u>/c</u>	68.0	67.7	34.3	16.8 <u>/d</u>
INPRES <u>/e</u>	40.3	45.3	55.2	67.5
Investment	<u>107.6</u>	<u>114.0</u>	<u>86.3</u>	<u>26.6</u>
APBN-DIP <u>/f</u>	49.5	44.8	27.0	17.8
INPRES	58.1	69.2	59.3	8.8
<u>At Constant Prices /g</u>	<u>281.0</u>	<u>287.3</u>	<u>265.2</u>	<u>195.0</u>
Recurrent (of which: salaries)	184.9 (48.6)	193.1 (56.9)	195.0 (68.9)	175.4 (64.0)
Investment	96.1	94.2	70.2	19.6
<u>Memo Items</u>				
Development <u>/h</u> as % of total	68.6	65.3	53.9	41.9
Routine as % of total	29.0	32.0	40.7	52.9
Recurrent as % of total	65.8	67.2	73.5	90.0
Recurrent as % of development <u>/h</u>	50.1	49.8	50.9	76.0
Recurrent as % of APBN-DIP	57.9	60.2	56.0	48.6
Recurrent as % of INPRES	40.9	40.0	48.2	88.2
Salaries as % of recurrent	26.3	29.5	35.4	36.5

/a Budget figures.

/b Excludes SDO.

/c Includes salaries, materials, transport and "other."

/d Includes supplementary budget (ABT)

/e Drug subsidy.

/f Land, construction and equipment.

/g GDP deflator, 1983 = 100.

/h Development comprises APBN-DIP plus INPRES.

Source: World Bank staff estimates.

1.32 Composition of expenditure. These figures show that overriding priority has been given to recurrent expenditure on operations and maintenance and consequently the main burden of adjustment has fallen on investment expenditure. This is reflected in two underlying factors: (a) a shift in the allocation of central expenditure on health towards the routine budget, which nearly doubled its share from 29% to 53%; and (b) a shift in the allocation of shrinking development budgets towards recurrent expenditure funding, which rose from 50% to 76% as a proportion of total development expenditure. This was largely due to the sharp increase in the share of INPRES Kesehatan allocated to funding the per capita drug subsidy, which rose from Rp.250 to Rp.400 per capita. INPRES has thus emerged as one of the principal vehicles for recurrent expenditure funding in the health sector. As a result of these shifts, recurrent expenditure funding rose as a proportion of overall central spending from 66% to 90% during the first four years of REPELITA IV.

1.33 However this switch in expenditure priorities was not sufficient to maintain previous levels of recurrent expenditure in real terms. By 1987/88 real outlays on recurrent expenditure had dipped by 5% compared with 1984/85. Of major concern, however, is the deteriorating level of funding for nonpersonnel expenditures implied by the increase in the salary share from 22% to 35% of recurrent spending. In real terms expenditure on salaries actually increased by 32% while nonpersonnel expenditures fell by 22%. This pattern of adjustment has therefore created a significant internal efficiency problem manifested in growing underfunding of nonsalary recurrent expenditures for inputs such as materials, transport and maintenance which critically affect the effectiveness of health staff. The corresponding implications of these trends for investment spending, and consequently for implementation of the REPELITA IV investment program, have been devastating. By 1987/88 investment outlays (defined as expenditures on land, construction and equipment) totalled only Rp.27 billion, representing an 80% cut since the beginning of the new five-year plan in 1984/85. Overall, therefore, the impact of fiscal adjustment on the health sector appears to have been a virtual halt in capacity expansion coupled with a substantial deterioration in the quality of services available from existing capacity.

1.34 Allocation of expenditure. Table 1.20 summarizes trends in the functional allocation of overall central government spending (including routine plus development budgets) between five broad program areas during REPELITA IV. The main feature of these trends is the significant reallocation of expenditure priorities away from communicable disease control (CDC) towards curative health services. CDC expenditure was already disproportionately low with an 8% budget share in 1984/85, but by 1987/88 this had been slashed to a mere 3% of central spending. By contrast, hospitals and health centers rose as a proportion of spending to 36% and 31% respectively while training and other programs (consisting largely of administration) maintained their budget shares. In absolute terms, therefore, real spending on CDC was cut by nearly three-quarters (72%), compared to the overall reduction of about one-third (30%) since 1984/85.

1.35 These disproportionately large cutbacks sustained by the CDC program have not been appropriate, resulting in a substantial scaling back of some major programs (malaria control) and virtual elimination of others (tuberculosis control). Indeed, this switch in expenditure priorities runs counter to the policy prescription to target government subsidies on public

goods which produce externalities accruing to the community as a whole, and for which there is low private willingness to pay. Moreover, many communicable disease control programs (for example, childhood immunization and diarrheal disease control) are among the most cost-effective interventions to reduce mortality which is a major goal of government policy. By contrast, curative health services are largely private goods and tend to be relatively cost-ineffective in reducing mortality. The reallocation from CDC to hospitals and health centers therefore indicates the emergence of a significant allocation problem and underlines the need for a major reassessment and reordering of public expenditure priorities in the future.

**Table 1.20: FUNCTIONAL ALLOCATION OF CENTRAL GOVERNMENT EXPENDITURE /a
ON HEALTH: TRENDS IN REPELITA IV
(Rp.billion)**

	1984/85	1985/86	1986/87	1987/88
<u>At Current Prices</u>	<u>314.8</u>	<u>347.7</u>	<u>326.2</u>	<u>265.2</u>
Hospitals	101.0	104.4	103.9	94.1
Health centers	93.9	103.0	96.4	83.0
Communicable disease control	26.4	29.1	16.5	9.1
Training	27.1	24.3	25.5	22.3
Other	66.4	86.8	83.9	56.7
<u>At Constant Prices /b</u>	<u>281.1</u>	<u>287.4</u>	<u>265.2</u>	<u>195.0</u>
Hospitals	90.2	86.3	84.5	69.2
Health centers	83.8	85.1	78.4	61.0
Communicable disease control	23.6	24.0	13.4	6.7
Training	24.2	20.1	20.7	16.4
Other	59.3	71.7	68.2	41.7
<u>As Percentage of Total</u>	<u>100.0</u>	<u>100.0</u>	<u>100.0</u>	<u>100.0</u>
Hospitals	32.1	30.0	31.9	35.5
Health centers	29.8	29.6	29.6	31.3
Communicable disease control	8.4	8.4	5.1	3.4
Training	8.6	6.7	7.8	8.4
Other	21.1	25.0	25.7	21.4

/a Includes development expenditure (APBN-DIP plus INPRES) and routine expenditure (APBN-DIK plus SBBO-RSUD). Excludes SDO.

/b GDP deflator, 1983 = 100.

Source: World Bank staff estimates.

D. Policy Agenda for REPELITA V

1.36 Three central conclusions emerge from this analysis of sectoral performance and expenditure trends in Indonesia during REPELITA IV. First, although significant progress has been achieved, the poverty alleviation impact of health sector interventions has been modest in absolute terms. This is reflected in Indonesia's high average mortality levels and low service utilization rates relative to Indonesia's comparators in the Asia region, and also in the substantial disparities in these variables among provinces, between urban and rural areas, and between income classes. Second, the sector's ability to sustain the momentum of health improvement has been significantly impaired by the changing economic environment since the early 1980s. Four major policy problems have emerged: (a) a resource mobilization problem, resulting from the sector's heavy fiscal dependence on a low budgetary share of declining levels of central government expenditure, and from the disincentives to local resource mobilization in better-off regions associated with the regressive interregional distribution of central spending; (b) an equity problem, reflected in the strongly inegalitarian role of central spending in augmenting rather than reducing interregional inequalities in per capita spending on health; (c) an internal efficiency problem, reflected in declining real levels of overall recurrent expenditure, and in a rapidly growing imbalance between personnel and nonpersonnel expenditures which are critical inputs to making health staff productive; and (d) an allocation problem, manifested in a significant reallocation of spending priorities away from communicable disease control activities in favor of curative services. Third, the information base on sectoral outputs and government resource inputs is seriously deficient and constitutes a major impediment to effective planning and budgeting in the face of sharply reduced fiscal resources in the health sector.

1.37 These considerations suggest that the main elements of health sector strategy in REPELITA V should include measures to:

- (a) substantially improve institutional capacity to undertake up-to-date monitoring of levels and differentials in performance indicators (especially mortality and utilization data), and in levels and patterns of government spending across all government authorities (including regular consolidation and improved classification of budgetary disbursements in the government accounts);
- (b) to achieve a more efficient use of public resources given the constrained budgetary situation. In particular, steps need to be taken to restrain investment expenditure and to substantially increase spending on underfunded recurrent expenditures (especially critical nonpersonnel inputs), based on a careful review of O&M requirements in the various subsectors. These incremental O&M requirements are tentatively estimated at around Rp.460 billion annually, or about double the existing level of recurrent expenditure. At the same time, allocative priorities need to be reassessed with emphasis placed on financing public goods (communicable disease control) rather than private goods (curative services) except where justified on equity grounds; and

- (c) to strengthen resource mobilization efforts aimed at redressing the present underfunding of recurrent expenditure requirements of low levels of existing sectoral capacity, while in the longer term financing new investment in capacity expansion. These measures should include: an increase in the very low health sector share of central government spending; redistribution of central spending to poorer provinces, accompanied by greater resource mobilization in better-off provinces; and selective increases in cost recovery from richer beneficiaries of public services, particularly the insured, combined with an extension of coverage with health insurance.

II. HOSPITAL SERVICES

A. Introduction

2.01 Setting appropriate expenditure priorities for hospital services is a source both of concern and complexity in the health sector in Indonesia. The main reason for concern is the sizeable claim that hospitals place upon the limited resources available to the health sector as a whole. The complexity arises from the difficulty of trading off the welfare gains associated with reducing mortality and morbidity through curative hospital care against the benefits of reducing infant and child mortality through preventive health services. This policy tradeoff is acute in Indonesia where high mortality rates coexist with an unusually low level of provision and utilization of hospital services in the face of very limited budgetary resources. The organization of hospital services is summarized in Section B and current patterns of hospital availability and utilization are reviewed in Section C. Section D evaluates hospital expenditures and the impact of fiscal adjustment on the investment program and the adequacy of O&M funding for hospitals. Section E then outlines an appropriate strategy for hospital sector development given the budget outlook.

B. Organization of Hospital Services

2.02 The hospital sector in Indonesia is large and complex with services provided by a variety of different hospital types and ownership. Table 2.1 provides summary statistics for 1985. There are a total 1/ of 683 hospitals, with 313 controlled by the central or regional Ministry of Health, 115 belonging to other ministries, 80 operated by quasi-public or nongovernmental organizations (NGOs) and 175 private (for profit) hospitals.

2.03 Public sector hospitals. Public sector ownership dominates, with the majority of public sector hospitals operated under the auspices of the Ministry of Health. Most of them are general hospitals, which are classified into categories A, B, C, and D according to the range of services and facilities provided, reflecting a pyramidal referral system. The Class A and B hospitals are the highest level tertiary referral facilities, and also provide the teaching hospital beds for Indonesia's 13 medical faculties. The majority are owned and operated by the central Ministry of Health. The lower level Class C and D hospitals are intended to provide the bulk of hospital care close to people's homes and are mainly the responsibility of local governments. The main characteristics of these Ministry of Health facilities can be summarized as follows:

- (a) There are two Class A hospitals with approximately 1,450 beds each. These hospitals provide the complete range of specialties and offer the most advanced forms of treatment, such as oncology and cardiac surgery. The staffing ratios per bed are the most intense relative

1/ Excluding nongovernment specialty hospitals.

to other Indonesian hospitals, with 0.6 medical doctors, 0.9 nurses and a total of 2.9 employees per bed. Both Class A hospitals are associated with a medical school. One is owned by the central Ministry of Health, the other by the provincial government of East Java.

- (b) There are 15 Class B hospitals ranging in size from 300 to 800 beds with an average of 625 beds. While lacking the most technical services available in Class A hospitals, Class B hospitals normally provide ten or more specialties, and have sophisticated X-ray and other imaging equipment and a full range of laboratory services. Although considerably lower than the two Class A hospitals, the

Table 2.1: SUMMARY STATISTICS FOR HOSPITALS, 1985 /a

	Number of hospitals	Number of beds	Ratios			
			Beds per hospital	Medical doctors per bed	Nurses per bed	All staff per bed
<u>Public Sector</u>						
MOH general	313	43,140	140	0.17	1.59	1.37
Class A	2	2,918	1,450	0.59	0.88	2.85
Class B	15	9,396	625	0.37	0.75	2.11
Class C	79	15,247	190	0.07	0.51	1.04
Class D	217	15,579	70	0.06	0.52	0.96
MOH specialty /b	74	11,062	150	-	-	-
Other public /c	115	11,539	100	0.10	0.62	1.23
<u>Private Sector</u>						
NGO hospitals /d	80	8,762	110	0.06	0.44	1.07
Private hospitals	175	20,947	120	0.12	0.53	1.49
<u>Total</u>	<u>683</u>	<u>95,450</u>	<u>124</u>	<u>0.14</u>	<u>0.56</u>	<u>1.35</u>

/a Based on unpublished information for reporting hospitals from MOH, Department of Statistics. There may be limited omissions, especially in the NGO and private categories.

/b MOH, Directorate General of Medical Care, List of Hospitals, 1982, Table 2.3, p. 30. These include: mental (33 hospitals, 6,000 beds), leprosy (25 hospitals, 3,724 beds), tuberculosis (11 hospitals, 772 beds), eyes (1 hospital, 236 beds), orthopedic (1 hospital, 150 beds), and quarantine (1 hospital, 76 beds) and maternity (2 hospitals, 104 beds) hospitals.

/c Primarily Ministry of Defense.

/d Specialty hospitals omitted.

staffing ratios per bed for Class B are also high relative to other hospitals in Indonesia, averaging 0.4 medical doctors, 0.8 nurses and a total of 2.1 staff per bed. Several of the Class B hospitals are also associated with medical schools. The majority are financed by the central Ministry of Health, and the remainder by provincial governments.

- (c) There are 79 Class C hospitals ranging in size from 50 to 390 beds, with an average of 190 beds. They are mainly owned by provincial or district governments. These hospitals are intended to provide the bulk of specialist services, referring upwards only those patients requiring advanced diagnostic or treatment services by high-level specialties. They are designed to be manned by four basic specialists: internal medicine, surgery, pediatrics, and obstetrics and gynecology. Major diagnostic services are usually limited to a medium-powered X-ray, basic clinical pathology and cardiography equipment, but the range of available equipment varies widely, reflecting the large variation in size of the Class C hospitals. Average staff ratios are 0.07 medical doctors, 0.5 nurses, and a total of 1.04 staff per bed. In REPELITA IV, the MOH introduced plans to upgrade the larger Class C hospitals to C+ by adding three priority specialties to the four basic specialty departments: a radiologist, clinical pathologist and anesthesiologist. This would increase the capability of the hospitals in diagnostic and emergency services.
- (d) There are 217 Class D hospitals averaging 70 beds per hospital. Ownership is vested mainly in the district level governments. These provide only general services with all specialized needs being referred to higher levels. In many cases, Class D hospitals lack the technical complements, such as X-ray and laboratory services, needed to provide effective medical services. Average staffing ratios are 0.06 medical doctors, 0.5 nurses, and a total of 0.96 staff per bed.
- (e) Excluding maternity homes, there were 74 MOH specialty hospitals in 1982: 33 mental hospitals, 25 leprosy hospitals, 11 tuberculosis, 1 eye, 1 orthopedic, and 2 obstetric hospitals. Of these, 29 mental hospitals and 12 other specialty hospitals are financed by the central MOH.

2.04 Most other public sector hospitals are operated by the Ministry of Defense. The size and services of these hospitals vary and cover four categories that closely parallel the MOH categories. These include two Class 1 hospitals of approximately 750 beds each, 11 Class 2 hospitals with from 150 to 400 beds, 27 Class 3 hospitals averaging about 100 beds and 75 Class 4 hospitals averaging less than 50 beds each. The coverage of the larger hospitals, especially those in populous urban areas, is greater than indicated by their classification and a broad range of services are provided for dependents as well as military personnel. Many of the hospitals in Class 4 are as small as 10 to 20 beds and would probably be more aptly classified as clinics or health centers.

2.05 Private sector hospitals. This category mainly comprises industrial hospitals, most notably those run by Pertamina for employees and their families. The hospitals range in size from 20 to 500 beds. As with the military hospitals, the largest of these hospitals provide comprehensive and high-quality services for a localized clientele and the smallest are misclassified as hospitals. The average staffing ratios are comparable to Class C public-sector hospitals, but the range in sizes obscures the fact that there is great variation in staffing ratios and possibly by implication, variation in quality of services across this category.

2.06 Both profit-making hospitals and nonprofit charitable and religious hospitals are classified together as private sector hospitals. Together with the fact that there is great variation of size and services, this makes it difficult to characterize the private sector category or to draw comparisons in performance or role with the public sector classifications. The number of beds range from 14 to 600 and averages 175 per hospital. The smallest private hospitals primarily provide maternity services. The average staffing ratios for the medium-size private hospitals that are comparable in bed size to MOH Class C hospitals tend to be about one third larger than the MOH Class C averages. Averaged over all private hospitals, the number of medical doctors per bed is 0.12, nurses per bed is 0.53 and total staff is 1.49.

C. Availability, Quality and Utilization

Availability and Quality

2.07 The availability of hospital beds in Indonesia averages only around 0.6 per 1,000 population. This ranks Indonesia among the lowest of all developing countries regardless of income level (see Table 2.2). It amounts to only about one-quarter the ASEAN average and less than three-quarters of the average provision in poorer low-income countries.

Table 2.2: COMPARATIVE HOSPITAL BED RATIOS

	Beds per '000
Indonesia	0.6
Malaysia	2.5
Philippines	2.0
Thailand	1.4
Singapore	5.0
Low income	0.9
Lower middle income	1.3
Upper middle income	2.5
Industrial market economies	10.0

Source: Social Indicators of Development 1987, Socioeconomic Data Division, International Economics Department, The World Bank.

2.08 This low level of hospital bed capacity reflects the fact that increases in the number of hospital beds have scarcely kept pace with population growth over the past decade. From 1978 to 1986, the number of general hospital beds per 1,000 in the public sector increased from only 0.324 to 0.327, while private sector provision expanded from 0.173 to 0.177. However some significant shifts in the composition of hospital provision have taken place. Within the public sector there has been an increase in the proportion of beds in the Class C and D hospitals, reflecting an appropriate shift of emphasis towards the lower referral levels which serve the majority of the population. And within the private sector there has been a shift in the proportion of total beds from NGOs to privately operated hospitals, consistent with a policy of encouraging private sector provision of hospital services.

2.09 This low level of bed capacity is unequally distributed, ranging from a low of 0.18 beds per 1,000 persons in Lampung to 1.24 in Jakarta (see Table 2.3). The inter-provincial distribution of bed capacity is positively associated with per capita income levels, as reflected in a high elasticity of +0.88 with respect to household expenditure per capita. In other words, a 10% increase in income is associated with a 10% increase in the availability of general hospital beds in a province. This reflects the failure of Ministry of Health bed capacity to offset the unequal distribution of private sector hospital beds. Instead of following a redistributive pattern of placement, the density of government bed provision also appears to be higher in better-off provinces.

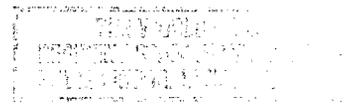
2.10 Poorer people not only have less access to hospital facilities but face a lower quality of service as well. The ratio of doctors per hospital bed tends to be lower in poorer provinces, with an elasticity of +1.07 with respect to household expenditure per capita. This reflects a manpower allocation problem within the government hospital system. In general the higher level Class A and Class B hospitals are overstaffed with doctors, while the lower level Class C and D hospitals which serve most of the population, and in particular the poor, are understaffed. Thus, the income elasticity of doctors per bed in Ministry of Health hospitals is even higher at +1.50 than it is for all hospitals including the private sector.

**Table 2.3: PROVINCIAL DISTRIBUTION OF HOSPITAL AVAILABILITY,
QUALITY AND UTILISATION, 1985 /a**

	<u>Beds per 1,000</u>		<u>Doctors per Bed</u>		<u>Utilisation</u>		<u>Household Expenditure Per Capita, 1987 (Rp/Month)</u>
	All	MOH	All	MOH	Dis- charges Per 1,000	Out- patient Visit Per Person	
DI Aceh	0.46	0.29	0.08	0.082	9.72	0.24	23,024
North Sumatra	1.08	0.26	0.12	0.268	21.06	0.32	23,250
West Sumatra	0.61	0.44	0.09	0.101	15.34	0.31	25,459
Riau	0.50	0.24	0.08	0.082	11.95	0.26	24,919
Jambi	0.39	0.24	0.07	0.085	6.73	0.17	23,023
South Sumatra	0.62	0.24	0.11	0.141	16.92	0.39	24,041
Bengkulu	0.31	0.29	0.13	0.134	7.39	0.10	21,758
Lampung	0.18	0.15	0.15	0.087	5.89	0.06	19,472
DKI Jakarta	1.24	0.40	0.28	0.451	32.59	0.65	48,932
West Java	0.26	0.14	0.16	0.191	9.11	0.14	22,960
Central Java	0.43	0.27	0.15	0.169	15.38	0.15	18,016
DI Yogyakarta	0.81	0.35	0.19	0.347	20.72	0.28	22,245
East Java	0.43	0.24	0.12	0.157	13.94	0.20	20,099
Bali	0.70	0.58	0.13	0.135	24.98	0.26	22,056
West Nusa Tenggara	0.22	0.19	0.08	0.068	7.66	0.11	16,375
East Nusa Tenggara	0.47	0.26	0.03	0.042	13.24	0.24	15,998
East Timor	0.70	0.44	0.06	0.087	14.88	0.49	15,039
West Kalimantan	0.45	0.37	0.05	0.048	10.98	0.10	19,770
Central Kalimantan	0.41	0.39	0.06	0.059	8.36	0.17	21,084
South Kalimantan	0.53	0.30	0.07	0.079	10.28	0.21	24,158
East Kalimantan	0.96	0.53	0.08	0.091	29.14	0.36	30,666
North Sulawesi	0.97	0.40	0.11	0.143	24.82	0.30	23,135
Central Sulawesi	0.54	0.42	0.05	0.059	13.61	0.20	19,601
South Sulawesi	0.50	0.29	0.11	0.114	11.65	0.23	17,265
Southeast Sulawesi	0.60	0.32	0.06	0.040	13.22	0.45	14,901
Maluku	0.82	0.39	0.04	0.048	18.09	0.28	20,206
Irian Jaya	0.96	0.68	0.04	0.030	24.28	0.42	21,117
Indonesia	0.51	0.26	0.135	0.168	14.55	0.22	
<u>Memo Item:</u>							
Elasticity with respect to house- hold expenditure per capita	+0.87 (2.39)	+0.29 (0.93)	+1.07 (2.78)	+1.50 (3.19)	+0.85 (2.40)	+0.78 (1.72)	

/a OLS estimates of double-log equations; t - statistics in parenthesis.

Source: World Bank staff estimates.



Utilization of Services

2.11 This low provision of hospital beds is associated paradoxically with a low utilization of the existing capacity. According to hospital service statistics, the number of inpatient discharges (approximately equal to admissions) averaged around 14.6 per 1,000 in 1985 (see Table 2.4). As noted in Chapter I, this average is low compared to other developing countries. And it masks much lower levels of utilization by the poor. There are wide interregional variations in hospital admission rates, ranging from a low of 6.7 per 1,000 in Jambi up to 32.6 per 1,000 in Jakarta. As shown in Table 2.3, these differentials are closely related to per capita expenditure levels, with an estimated elasticity of +0.85.

Table 2.4: SUMMARY SERVICE STATISTICS BY CLASS OF HOSPITAL, 1985

	Number of hospitals	Beds	Discharges	Bed-days	Outpatient visits	Bed Occupancy rate (%)
<u>Ministry of Health</u>	<u>313</u>	<u>43,140</u>	<u>1,390,460</u>	<u>9,317,216</u>	<u>19,553,472</u>	<u>58</u>
Class A	2	2,918	85,340	801,400	2,017,356	75
Class B	15	9,396	269,960	2,347,044	4,229,048	66
Class C	79	15,247	528,216	3,323,696	5,780,396	58
Class D	217	15,579	506,944	2,745,076	7,526,672	42
Other Ministry	115	11,539	22,780	1,904,212	6,359,132	44
NGO <u>/a</u>	80	8,762	18,260	1,410,904	4,461,996	40
Private sector	175	20,947	583,312	4,215,148	5,799,792	48
Total public	428	54,679	1,413,240	11,121,428	25,912,604	
Total private <u>/b</u>	255	29,709	601,572	5,626,052	10,261,788	
<u>Grand Total</u>	<u>683</u>	<u>84,388</u>	<u>2,014,812</u>	<u>16,747,480</u>	<u>36,174,392</u>	

/a Nongovernment organizations.

/b NGOs and private sector.

Source: Ministry of Health, Directorate General of Medical Care.

2.12 As shown in Table 2.4, the majority of hospital services are provided through the public sector (66% of total inpatient days), and most of these are provided through Ministry of Health facilities (55% of total). Among the Ministry of Health hospitals, the lower level Class C and D facilities provide the bulk of services, accounting for around two-thirds of inpatient days. However, this dominant role of the Ministry of Health hospitals in overall service provision is characterized by relatively low utilization of available capacity. Overall bed occupancy rates averaged only 58% in 1985. Occupancy

rates are lowest in the Class D hospitals (42%), and rise progressively through Class C (58%) and Class B (66%) to reach 75% in the highest level Class A hospitals. There is enormous variation around these averages within each hospital class. Among all Class C and D hospitals, half have bed occupancy rates under 50% and one out of six have rates lower than 25%. This indicates a very inefficient match between facility size and number of inpatients. These low utilization rates have important adverse implications for the economic efficiency of Ministry of Health hospitals. Low occupancy rates imply idle capacity and underemployment of staff, which substantially raises the unit cost of service delivery: large fixed costs are divided by a small number of patients.

2.13 The determinants of Indonesia's low hospital utilization rates are not well understood and need further research to define policy solutions. Possible causes include demand side variables that are not within the policy control of the Ministry of Health, for example: (a) underlying morbidity patterns, reflected in a high proportion of communicable diseases requiring less hospitalization and shorter duration of hospital stay than other countries with ageing populations and a high proportion of chronic episodes of hospitalization; and (b) education and cultural factors, with poorer and less educated people resistant to using modern hospital facilities except in a grave emergency. But they also include variables on the supply side which are amenable to policy intervention: (a) cash prices, in the form of user fees for services and drug charges; (b) the time price of access, which is inversely related to the proximity of the hospital to patients in the catchment area; and (c) the quality of services in terms of the adequacy of staffing and the availability of critical specialties.

2.14 Some important insights into the determinants of utilization are suggested by an analysis of utilization data for 288 Class C and D hospitals in 1985. Table 2.5 summarizes the regression results. As might be expected, the number of inpatient days in a hospital is strongly related to district population size; is much higher for urban hospitals, and lower outside Java; and is much higher when there are a large proportion of ASKES members in the population. But the most important regression result is the extremely strong effect of service quality. Hospitals which offer surgical services have 42% higher inpatient utilization than similar hospitals which do not offer surgery. Adding a specialist doctor (not necessarily a surgeon) boosts utilization by 83%. These two effects combine: start with a hospital which does not have a specialist or offer surgery; add both services and utilization will increase by a factor of 2.6.

Table 2.5: DETERMINANTS OF INPATIENT UTILIZATION IN CLASS C AND D HOSPITALS, 1985

Effect of:	% Change in inpatient days
10% increase in district population	+4.5
10% increase in district area	-0.5
10% increase in ASKES ratio	+4.5
10% increase in relative bed ratio <u>/a</u>	+2.2
Urban location <u>/b</u>	+49.3
Region 2 location <u>/c</u>	-27.4
Region 3 location <u>/c</u>	-27.2
Radiology services available	+10.6
Surgical services available	+42.1
Specialist doctor available	+82.7

/a Ratio of hospital beds to total beds in district.

/b Relative to rural.

/c Relative to Java.

Source: World Bank staff estimates.

2.15 These results suggest a strong conclusion: low service quality is a key determinant of the low level of hospital utilization in Indonesia. Adding a specialist doctor and providing basic surgical facilities in the lower level hospitals could increase service quality and quantity dramatically. Total costs would rise but unit costs would probably fall with increased utilization. Clearly the problem in implementing this policy is that it is difficult to attract specialist doctors to small outlying hospitals: the financial opportunity cost at present public sector salary levels is too great because of the lack of effective demand for supplementary private practice in poor remote areas. But this analysis strongly suggests that it might be worthwhile offering a large financial incentive to attract specialists to these hospitals. Without a specialist and basic facilities the hospital is little more than an empty shell, with the operating costs and sunk investment costs substantially wasted. Paying market wages for specialists, and providing necessary facilities, might yield a very high payoff.

D. Expenditure Aggregates and Fiscal Adjustment

Expenditure Patterns and Trends

2.16 Table 2.6 shows the overall structure of consolidated general government spending on hospitals in 1985/86. Total expenditure amounted to Rp.208 billion, comprising around Rp.172 billion in recurrent expenditure and Rp.25 billion in investment expenditure. The composition of the residual Rp.10 billion channeled through the regional development budgets cannot be identified on the basis of the existing classification of budgetary

disbursements in these accounts. This total for hospitals represents a sizeable claim of about one-third (33%) of consolidated general government spending on the health sector, with a slightly higher share of recurrent expenditure (37%) and less for investment spending (22%). However, it is important to note that this hospital share is lower than commonly found in other developing countries, where hospitals often absorb around 50%-60% of recurrent government expenditure on health. This has been achieved by a policy of restraint in the expansion of hospital capacity, combined with substantial underfunding of the recurrent expenditure requirements of existing capacity. By contrast, another developing country with a similarly low hospital expenditure share, China, provides four times as many hospital beds per capita by relying heavily on cost recovery to finance recurrent expenditure in hospitals.

Table 2.6: SOURCES AND COMPOSITION OF CONSOLIDATED GENERAL GOVERNMENT EXPENDITURE ON HOSPITALS, 1985/86 (Rp.billion)

	Recurrent	Investment	Unallocated	Total
<u>Central Government</u>	<u>144.0</u>	<u>25.1</u>	<u>0.0</u>	<u>169.1</u>
APBN-DIP /a	6.4	25.1	0.0	31.5
INPRES /a	0.0	0.0	0.0	0.0
APBN-DIK	77.9	0.0	0.0	77.9
SDO1	25.3	0.0	0.0	25.3
SDO2	24.9	0.0	0.0	24.9
SBBO-RSUD1 /a	8.1	0.0	0.0	8.1
SBBO-RSUD2 /a	1.4	0.0	0.0	1.4
<u>Provincial Governments</u>	<u>17.6</u>	<u>0.0</u>	<u>9.0</u>	<u>26.6</u>
APBD1-DIP	0.0	0.0	9.0	9.0
APBD1-DIK /b	17.6	0.0	0.0	17.6
<u>District Governments</u>	<u>10.9</u>	<u>0.0</u>	<u>1.4</u>	<u>12.3</u>
APBD2-DIP	0.0	0.0	1.4	1.4
APBD2-DIK /b	10.9	0.0	0.0	10.9
<u>Total</u>	<u>172.5</u>	<u>25.1</u>	<u>10.4</u>	<u>208.0</u>
<u>Memo Item</u>				
Hospitals as % of sector	37.2	22.0	23.3	33.4

/a Budget figures.

/b Net of SDO and SBBO-RSUD transfers.

Source: World Bank staff estimates.

2.17 Turning to the revenue side, the pattern of hospital financing reflects the general predominance of central government sources, which contributed at least 81% of total spending and 84% of recurrent expenditure. Looking at recurrent expenditure, the central Ministry of Health routine budget was the most important budgetary channel, accounting for almost half (45%) of total hospital spending. This amount finances most of the major tertiary level Class A and B hospitals, together with a number of specialty hospitals. Next in importance is the SDO grant (29%) earmarked for salaries of staff working mainly in the lower level Class C and D hospitals owned by the provincial and district governments. The other central routine grant, the SBBO-RSUD which is earmarked for support of nonsalary expenditures (excluding drugs) in local government hospitals, contributed only 6% of total spending. The residual contribution to recurrent expenditure which is financed by the regional government's own revenue is largely geared to the volume of revenues generated by hospital user charges, particularly at district level. In 1985/86 provincial governments spent Rp.18 billion, or about double hospital revenues of Rp.9 billion. By contrast, the contribution of district governments was only Rp.11 billion, compared to Rp.16 billion in hospital revenues (see ANNEX I).

2.18 This pattern of financing results in substantially lower levels of recurrent funding in the lower level hospitals serving the majority of the population. As shown in Table 2.7 more than half of government hospital expenditure is absorbed by the tertiary level Class A and B facilities which account for about one-quarter of Ministry of Health general hospital beds. Expenditure per bed decreases from about Rp 8.4 million per bed in Class A hospitals to an average of Rp.2.3 billion in the Class C and D group. Note that expenditures on the C and D group cannot be disaggregated because of the obscure program classifications used in the regional government routine expenditure accounts.

Table 2.7: ROUTINE BUDGET EXPENDITURE ON GENERAL HOSPITALS, 1985

	Total expenditure /a (Rp.billion)	Expenditure per bed (Rp.million)
Class A	24.5	8.4
Class B	50.2	5.3
Class C and D	66.7	2.2
<u>Total</u>	<u>141.4</u>	<u>3.3</u>

/a Refers to routine budget expenditure by central, provincial and local governments only. Excludes Ministry of Education expenditure on specialists employed in Ministry of Health hospitals (see ANNEX IV).

Source: World Bank staff estimates.

2.19 The impact of the fiscal decline on recent trends in hospital expenditure is summarized in Table 2.8 for selected central government budget sources for 1984/85 and 1987/88. These figures reflect the general pattern of sectoral adjustment described in Chapter I. The impact on the hospital subsector was mitigated by an increase in its share of spending to over one-third. Overall spending fell by one-quarter, with the bulk of adjustment falling on very deep cuts in investment expenditure. This enabled levels of recurrent expenditure on hospitals to be maintained roughly constant in real terms, but this forced a significant switch in the balance of recurrent spending away from nonpersonnel expenditure to salaries. In real terms salaries increased by nearly half, while nonpersonnel spending eroded by about 12%.

**Table 2.8: COMPOSITION OF CENTRAL /a GOVERNMENT EXPENDITURE /b
ON HOSPITALS: TRENDS IN REPELITA IV
(Rp.billion)**

	<u>Recurrent</u>			Investment	Total
	Salaries	Nonsalaries	Total		
<u>At Current Prices</u>					
<u>1984/85</u>	<u>20.4</u>	<u>49.6</u>	<u>70.0</u>	<u>31.0</u>	<u>101.0</u>
APBN-DIK	19.4	32.0	51.4	0.0	0.0
SBBO-RSUD	0.0	8.2	8.2	0.0	8.2
APBN-DIP	1.0	9.4	10.4	31.0	41.4
INPRES	0.0	0.0	0.0	0.0	0.0
<u>1987/88</u>	<u>36.2</u>	<u>52.7</u>	<u>88.9</u>	<u>5.4</u>	<u>94.3</u>
APBN-DIK	36.1	37.5	73.6	0.0	73.6
SBBO-RSUD	0.0	14.0	14.0	0.0	14.0
APBN-DIP <u>/c</u>	0.1	1.2	1.3	5.4	6.7
INPRES	0.0	0.0	0.0	0.0	0.0
<u>At Constant Prices /d</u>					
1984/85	18.2	44.3	62.5	27.7	90.2
1987/88	26.6	38.8	65.4	4.0	69.3
<u>Hospitals as % of sector</u>					
1984/85	37.5	32.5	33.8	28.8	32.1
1987/88	41.6	34.8	37.3	20.3	35.6

/a Excludes SDO.

/b Budget figures.

/c Includes supplementary budget (ABT).

/d GDP deflator, 1983:100.

REPELITA IV Investment Program

2.20 Stated in the most general terms, the broad objective of the REPELITA IV investment program for hospitals was to expand the capacity of the referral system at all levels in order to support the community health services. As such, the program included provision for rehabilitation, upgrading, improvements and expansion in all classes of hospitals, together with ancillary services such as laboratories and equipment maintenance centers. The structure of the hospital investment program is summarized in Table 2.9.

Table 2.9: HOSPITAL INVESTMENT PROGRAM: PLANS AND ACHIEVEMENT, REPELITA IV (Rp.billion)

	Requirement of plan targets	Investment costs /a			% of plan achieved
		Budgeted (APBN-DIP) 1984/85-1986/87	Require-ment of projects started	Require-ment to complete starts	
<u>By Type of Hospital</u>	<u>949.1</u>	<u>40.1</u>	<u>574.6</u>	<u>534.4</u>	<u>4.2</u>
Class A	192.4	5.9	192.4	186.5	3.1
Class B	170.8	3.2	125.9	122.7	1.8
Class C	108.8	6.5	38.7	32.2	6.0
Class D	308.7	12.0	147.8	135.8	3.9
Specialty	168.4	12.5	69.8	57.3	7.4
<u>By Type of Investment</u>	<u>949.1</u>	<u>40.1</u>	<u>574.5</u>	<u>534.4</u>	<u>4.2</u>
Additions	286.3	5.2	242.5	237.3	1.8
Upgrading	155.5	12.2	09.6	97.3	7.9
Rehabilitation	358.9	16.4	187.7	171.3	4.6
Strengthen/improve	148.4	6.3	34.8	28.5	4.3

/a Excludes referral support facilities (e.g., laboratories and equipment maintenance centers).

Source: ANNEX II.

2.21 An important element of the investment program was to rehabilitate and upgrade the Class C and D hospitals in order to lessen the referral burden on the Class A and B facilities, and to provide closer technical support for the health center network. This represents part of a long-term strategy to eliminate the redundant overlap between health centers and Class D hospitals by upgrading them to Class C, while upgrading the Class C hospitals to provide a core package of basic specialties. Thus, the long-term goal is that Class C hospitals will ultimately provide the basic referral complement to the health centers. During REPELITA IV, 30% of Class D hospitals would have been upgraded to Class C, while 50% of existing Class C hospitals would have been upgraded to Class C+ by adding radiologists, anesthesiologists and clinical

pathologists, together with necessary facilities. Implementation of this part of the program for Class C and D hospitals would have required about Rp.418 billion, or nearly half of total planned hospital investment.

2.22 From a resource allocation perspective, however, the major part of the REPELITA IV hospital program consisted of proposals to rehabilitate and expand the tertiary level A and B hospitals, together with a number of specialty hospitals. These amounted to an investment requirement of around Rp.532 billion, or more than half of proposed hospital investment. Major elements included new construction of: one Class B and two Class A teaching hospitals (Rp.189 billion), a specialized cancer hospital (Rp.37 billion) and several mental hospitals.

2.23 The deep cuts in investment expenditure experienced in REPELITA IV forced major cuts in implementation of the hospital program. As shown in Table 2.9, only about Rp.40 billion was budgeted for hospital investment through the APBN-DIP development budget during the first three years from 1984/85 to 1986/87. This amounted to only about 4% of total planned investment for REPELITA IV. By and large, the impact of these cuts fell about equally on all major elements of the program, with somewhat greater emphasis placed on rehabilitation and upgrading expenditures at the expense of new additions to capacity. This pattern of adjustment reflects an appropriate policy to cut investment in the face of sharply reduced fiscal resources. But it also implies an allocation problem, with preliminary expenditures having been made on several low-priority projects including the new Class A and B teaching hospitals, the cancer hospital and the mental hospitals.

2.24 An important feature of these cutbacks is the large number of projects started and left in a state of partial completion. About 60% of programmed expenditures were initiated, leaving a large backlog of expenditure requirements totaling Rp.534 billion to complete projects which have been started. Completion of the rehabilitation and upgrading program alone would cost around Rp.267 billion. It will be important in REPELITA V to undertake rigorous scrutiny of proposals to clear the backlog of uncompleted hospital investment projects carried over from REPELITA IV. Project selection should be based on careful analysis of the cost-effectiveness of alternative investment proposals, including: (a) measures of hospital outputs in terms of bed-days and outpatient visits and the distributional impact in terms of likely beneficiaries; and (b) comprehensive measures of future costs, including both investment and recurrent expenditure requirements.

2.25 A preliminary assessment of investment priorities in descending order is as follows: (a) rehabilitation and upgrading of the lower-level Class C and D hospitals which benefit the majority of the population. This is likely to have the greatest impact on raising the quality and utilization of hospital services, while requiring lower investment and recurrent costs; (b) investment in new laboratories and equipment maintenance centers which will help to raise the productivity of existing hospital capacity; (c) new Class A and B teaching hospitals should receive lower priority on grounds of their limited population coverage and high recurrent cost requirements which threaten to divert scarce resources from lower-level hospitals; (d) new specialized hospitals should receive minimal priority. The proposed cancer hospital, while offering potential benefits in terms of improved research and training, and ultimately in cancer prevention and treatment, will have only a limited impact on health

status in the near term. Similarly, the proposed new long-stay mental institutions and upgrading of older hospitals appear to command low priority and need to be reassessed. An alternative and less costly approach might be to develop the capability for prevention and early diagnosis of mental disorders at community level and provision for acute short-term psychiatric care in health centers and general hospitals.

Operations and Maintenance

2.26 Despite the protection afforded to overall levels of recurrent expenditure in real terms, the decline in funding of nonpersonnel spending indicates a deterioration in the internal efficiency of hospital expenditure, with growing underfunding of critical inputs such as drugs, laboratory reagents, transport and equipment maintenance needed to make hospital staff productive. This trend therefore suggests an urgent need to make detailed estimates of the operations and maintenance (O&M) requirements of the hospital subsector and to develop a strategy for meeting them to ensure that the potential returns on hospital investment are fully realized.

2.27 In principle, the optimal level and mix of staffing and other operational inputs to hospital facilities in Indonesia should reflect the benefits and costs associated with them. However, in practice, there is obviously great uncertainty about the relationship between inputs and outputs, whether these are measured in terms of their ultimate impact in lowering morbidity and mortality or in terms of intermediate outputs such as numbers of hospital admissions or inpatient days. Nevertheless, it should be possible to establish that a given level of staffing and other operational inputs is necessary to achieve a minimally acceptable level of service. The specification of these norms can then be used as a first approximation to evaluate the adequacy of current levels of O&M funding.

2.28 O&M norms. The Ministry of Health has not developed official recurrent expenditure norms for O&M funding in public sector hospitals. However, a rough assessment can be made using a sample of routine budget requests provided by the Directorate of Hospitals. These indicative norms are summarized in Table 2.10. Based on these figures, the recurrent expenditure requirements for general hospitals would be around Rp.349 billion compared to current spending levels of about Rp.141 billion. The implication is that current funding levels satisfy only about 40% of recurrent expenditure requirements. The implied funding deficit of about Rp.208 billion should, of course, be regarded only as suggestive. However, the existence of an O&M funding problem is clearly indicated by the very large magnitude of the implied deficit, and from the adverse trend in the composition of recurrent spending away from nonpersonnel expenditures. It is also important to recognize that the implication of substantial underfunding of present O&M requirements does not take into account the additional future requirements generated by recent and planned investment in new hospital facilities.

**Table 2.10: UNIT COST NORMS AND IMPLIED O&M REQUIREMENTS
FOR GENERAL HOSPITALS**

	Salaries	Nonsalaries	Total
<u>Unit Cost Norms per Bed /a (Rp.million)</u>			
Class A	6.2	13.0	19.3
Class B	3.1	6.7	9.8
Class C	1.1	6.5	7.6
Class D	2.5	3.6	6.1
<u>Implied O&M Requirements /b (Rp.billion)</u>			
Class A	103.0	256.1	359.3
Class B	18.1	37.9	56.3
Class C	29.1	63.0	92.1
Class D	16.8	99.1	115.9
<u>Actual Expenditure /c (Rp.billion)</u>			
Class A			141.4
Class B			24.5
Class C and D			50.2
			66.7

/a Based on a sample of routine budget requests provided by the Ministry of Health, 1986/87.

/b Based on unit cost norms per bed and total bed capacity (see Table 2.1).

/c 1985/86 routine budgets (see Table 2.7).

Source: World Bank staff estimates.

2.29 The appearance of substantial underfunding of hospital O&M requirements reflects the overall resource mobilization problem in the health sector. However, it is exacerbated by an allocation problem, reflected in the extreme deprivation of lower-level hospitals relative to tertiary facilities. Although all levels of hospital appear to be underfunded, the degree of underfunding is clearly greatest among the Class C and D hospitals, which meet only about one-third of their requirements, compared to about one-half in the Class A and B hospitals. It is also amplified by an equity problem in the distribution of central government subsidies for hospitals, which tend to be lower in poorer regions where the lower-level hospitals are the dominant source of hospital care.

2.30 The rough nature of this assessment of the O&M problem for hospitals highlights the need to undertake a proper study of O&M requirements needed to provide an adequate quality of service in the hospital system. It also emphasizes the need for institutional strengthening to improve financial reporting and management of government hospitals. Although the Ministry of Health maintains a good hospital reporting system for data on services and staffing of individual hospitals, there is no provision for simultaneous reporting of hospital expenditures. Further development of the hospital

reporting system to integrate financial data, and improvements in the accounting system for individual hospitals to generate this information, is a high priority in order to facilitate monitoring of the adequacy and efficiency of hospital expenditures in Indonesia.

2.31 Staffing norms. Evaluation of the adequacy of existing staffing levels is complicated by the availability of different sets of staffing norms for hospitals in Indonesia. Table 2.11 compares actual staffing levels with requirements based on two alternative sets of norms: the official guidelines (based on staff per bed) issued by the Ministry of Health in 1979, and new guidelines released by the Directorate General for Medical Care in 1986 (based on staff per facility). The main implication of both sets of norms is that the hospital sector as a whole is understaffed in relation to requirements. However, looking at the composition of staff requirements and availability shows a mixed picture, with overstaffing for doctors and understaffing for all other categories of personnel, especially nonnursing paramedics and other nonmedical staff.

Table 2.11: HOSPITAL STAFFING AND REQUIREMENTS

	Medics	Nurses	Paramedics	Other	Total
<u>1985 Actual</u>	<u>7,331</u>	<u>25,616</u>	<u>3,203</u>	<u>23,007</u>	<u>59,157</u>
Class A	1,712	2,569	443	3,589	8,313
Class B	3,569	7,149	985	8,317	20,043
Class C	1,135	7,836	860	5,977	15,808
Class D	915	8,062	915	5,124	15,016
<u>1979 Norms /a</u>	<u>5,812</u>	<u>31,245</u>	<u>9,751</u>	<u>34,135</u>	<u>80,942</u>
Class A	730	1,945	973	2,918	6,565
Class B	2,349	6,264	3,132	9,396	21,141
Class C	1,694	15,247	3,049	11,435	31,425
Class D	1,039	7,789	2,597	10,386	21,811
<u>1986 Norms /b</u>	<u>3,453</u>	<u>25,264</u>	<u>21,536</u>	<u>28,084</u>	<u>78,337</u>
Class A	240	3,216	1,734	1,258	6,448
Class B	765	8,250	5,925	6,435	21,375
Class C	1,580	7,505	7,584	11,060	27,729
Class D	868	6,293	6,293	9,331	22,785

/a Based on staffing norms expressed per bed; derived from Tables 2.4 and 4.5.

/b Based on staffing norms expressed per facility; derived from Tables 2.4 and 4.5.

Source: World Bank staff estimates.

2.32 An important part of the apparent understaffing problem in the hospital subsector clearly results from a serious allocation problem in the assignment of staff to different levels of hospital. In general, the Class A and B hospitals are at least adequately staffed (nurses and nonmedics) or heavily overstaffed (doctors), while the Class C and D hospitals are substantially understaffed in all categories, except perhaps nurses. These figures indicate that there is substantial scope for improvements in the internal efficiency of the hospital system by reallocating staff from tertiary level to Class C and D hospitals.

2.33 The particular importance of efficient allocation of specialists deserves emphasis in the context of any possible reallocation of doctors. As noted previously, the availability of specialists is a critical constraint on effectively upgrading Class D to C hospitals, and selected Class C to C+. This represents the highest priority component of the hospital development strategy because it would probably have the largest single impact on raising utilization rates of lower level hospitals by the poor majority. However, while the aggregate availability of specialists may be sufficient to meet present and increased future requirements (around 1,850 and 250 respectively, based on the 1986 norms), virtually all of them are employed by the Ministry of Education and Culture in tertiary-level teaching hospitals. This reflects the reluctance of highly educated specialists to work in remote rural districts in view of the poor living conditions and lack of opportunities for supplementary private practice. But the potentially high returns from inducing this reallocation of specialist skills to lower-level hospitals emphasizes the high priority which should be given to consideration of paying market wages to specialists.

E. Problems and Priorities

2.34 Three major problems emerge from this analysis. First, the utilization of hospital services is low relative to Indonesia's comparators. Hospital utilization rates are particularly low among the poor, as demonstrated in the close association between province-level utilization rates and household expenditure per capita. This reflects the low average level and inegalitarian distribution of hospital bed provision. However the low endowment of existing capacity is itself characterized by low utilization rates, reflecting the low demand attributed primarily to the poor quality of the limited available services. Second, efforts to develop the hospital subsector during REPELITA IV have been frustrated by the sharp fiscal decline. The hospital investment program sustained a large cutback, including deep cuts in the high priority rehabilitation and upgrading program aimed at improving the quality of Class C and D hospitals which serve the majority of the population. At the same time, overall levels of recurrent expenditure were at best held constant in real terms in the face of massive underfunding of the operations and maintenance requirements of existing capacity. However, this appears to have been achieved at the cost of an erosion in spending on non-personnel expenditures. These deficiencies in O&M funding are exacerbated by an inappropriate allocation of resources favoring tertiary hospitals at the expense of lower level facilities. This is exemplified in a pattern of overstaffing of Class A and B hospitals, particularly with doctors and specialists, coexisting with understaffing in the Class C and D facilities.

Third, there is an acute shortage of necessary planning and budgeting information, reflected in the difficulty of identifying and consolidating data on budgetary expenditures on hospitals, and in the lack of clear estimates or norms for staffing and other recurrent expenditure requirements in different types of hospital.

2.35 Given limited budgetary resources, the Government's main focus in REPELITA V should be on achieving more efficient use of available resources in the hospital sector to help raise the quality and utilization of existing physical infrastructure. The main elements should include the following measures. On the recurrent expenditure side: (a) overall budgetary resources for O&M should be substantially increased by continuing the policy of tight restraint in public investment on hospitals. Incremental O&M requirements are estimated at around Rp.208 billion per year, compared to recurrent expenditures in 1985/86 of about Rp.173 billion; (b) the allocation of existing staff (particularly doctors in the four basic specialty areas of surgery, obstetrics, pediatrics and internal medicine) should be redistributed from the overstaffed tertiary hospitals to the understaffed Class C and D facilities, including payment of supplementary incentives as appropriate; (c) complementary emphasis should be placed on supporting specialist doctors in lower level hospitals with improved staffing of the diagnostic services (radiography and laboratory technicians) and equipment repair and maintenance facilities, together with adequate resources to overcome the serious shortage of funds for spare parts and expendable items such as laboratory reagents. With regard to investment expenditure: (a) the level of investment in new expansion of hospital capacity should be limited by the affordability of incremental recurrent costs, taking into account the need to first meet the full O&M requirements of existing infrastructure which are estimated to total around Rp.349 billion annually; (b) to facilitate this restraint, rigorous project evaluation procedures for review of hospital investment proposals should be instituted, including a realistic projection of anticipated O&M requirements together with staffing needs; and (c) overriding priority should be given to investment spending which raises the quality and impact of the existing hospital stock, especially the rehabilitation and upgrading program for the Class C and D hospitals, and the development of referral support facilities including laboratories and equipment repair and maintenance workshops.

2.36 This focus on improved efficiency of public resource management in the hospital subsector should be supported by strong efforts to improve the information base for planning and budgeting. These should include initiatives to: (a) as part of a general effort to improve the classification of budgetary disbursements in the government accounts, to refine the classification of hospital spending, particularly to disentangle hospitals from other expenditures such as health centers and general administration which are often lumped together in the district routine budgets; (b) to develop a proper hospital accounting system to generate consolidated accounts for individual hospitals, and to include financial data as part of the routine hospital reporting system; and (c) to make detailed estimates of O&M requirements, including staffing for hospitals, to provide appropriate planning and budgeting norms for different hospital facilities.

III. COMMUNITY AND PREVENTIVE HEALTH PROGRAMS

A. Introduction

3.01 Community and preventive health services play a critical role in bringing health improvement to poor people living at the periphery in Indonesia. Health centers and subcenters provide the bulk of modern curative services used by the rural poor. And they provide the infrastructure base needed to support outreach delivery of cost-effective preventive health interventions aimed at lowering mortality rates which are highest among the poor. The extension and consolidation of community and preventive health services therefore has significant implications for the effectiveness of the Government's overall strategy to alleviate poverty in Indonesia. This chapter focuses on recent trends in the context of fiscal adjustment. Section B reviews the organization of service delivery and Section C the availability and utilization of services. Section D assesses expenditure patterns and trends, and Section E the impact of fiscal adjustment. Section F then outlines expenditure priorities over the medium term.

B. Organization of Services

3.02 Community and preventive health services in Indonesia are organized in a three tier system at the periphery of the health service. The upper tier consists of the health center (PUSKESMAS) which is designed to provide both curative and preventive health services. Outpatient curative care is rendered by a doctor if present or by a nurse if not. At a few of the larger puskesmas, specialized clinic services (dental and ophthalmic) may also be obtainable. Maternal and child health (MCH) care is rendered by midwives and nurses, including auxiliaries. This comprises antenatal care, post-natal care, infant care with emphasis on immunization and growth monitoring, and family planning. The majority of communicable disease control activities are executed by field workers on the staff of the health center and its subordinate units, working under the direction of the health center doctor. Malaria and tuberculosis patients are diagnosed and treated at the health center and it provides the base from which the anti-malarial house-spraying teams work. Thus the effective performance of these preventive programs in the community depends critically on the ability of the health center staff to provide supervision and logistical support, which in turn depends on the availability of transport and the personal incentive of the staff.

3.03 Health centers are supposed to be headed by a doctor, although a significant minority lack a doctor, especially in the outer islands. This is attributed to a lack of social amenities and the limited opportunities for private practice in peripheral locations. Many health center doctors are transients, fulfilling their compulsory service obligations on graduation, and turnover is high. Some health centers are large, with up to 30 or more staff, but the average on Java is around 15 and half that in the outer islands. Only about 130 of 5,000 health centers have in-patient services, and the standard

design constructed in REPELITAs II and III did not provide in-patient accommodation. REPELITA IV set a target ratio of one health center per 30,000 people.

3.04 The middle tier is made up of the health subcenter (PUSKESMAS PEMBANTU) a term which is now applied to all units below the level of the health center. The subcenter combines the curative care and maternal and child health functions associated with two types of precursor facility: a small clinic known as Balai Pengobatan (BP) clinic or dispensary, and a maternal and child health center known as Kesehatan Ibu dan Anak (BKIA). The head of a health subcenter is usually a nurse or midwife, and the total staff generally numbers less than three. Planning targets specify a ratio of 3 or 4 subcenters per health center, depending on the region.

3.05 At the periphery of the system there has been in recent years a dramatic expansion of integrated service posts (or POSYANDU) at village level. These are not permanently staffed facilities, but take the form of a monthly clinic held in borrowed premises, at which the visiting team from the health center reinforce resident village health volunteers (kaders). The POSYANDU service concentrates on delivering five priority maternal and child health interventions. Government planning targets call for establishment of one POSYANDU per 100 children under five, implying a total of about 220,000 needed to achieve full coverage.

3.06 Virtually all health centers are administered and said to be owned by the second level regional governments. If constructed in recent years, the capital finance will have come from INPRES, which may also have supplied equipment, a vehicle, and vehicle operating costs for the first year. The core operating budget is provided through the district level routine budget (APBD1-DIK), but this is mainly financed indirectly from the SDO salary grant and fee revenue. In principle the non-salary element of the routine budget provides for items such as materials, travel expenses, maintenance, but in practice it is generally inadequate. Most of the funding for drugs used in the health center is channelled separately through the drug subsidy component of the sectoral INPRES grant. In addition, salary supplements may come from a variety of sources, especially from the APBN-DIP development budget to provide incentives for staff to implement communicable disease control programs. Thus the system is one in which the core routine budget ensures the presence of the staff and minimal logistical support, while the inputs to virtually all activities are provided from other, mostly central, budgetary sources.

C. Availability and Utilization

3.07 Health centers and subcenters. The community health infrastructure plays a critical role in delivering curative outpatient and preventive health services to the poor. The health center network services more than half the modern health provider visits made by the poor (see Chapter I). Indonesia has made substantial progress in expanding this infrastructure from a low base over the past decade. The number of health centers increased from 3,735 to 5,174 from 1974/75 to 1986, while the provision of health subcenters grew at a much faster rate reaching 12,568 in 1986. This reflects the important role of the sectoral INPRES grant in financing the development of health

infrastructure at district level. Nevertheless the provision of peripheral capacity remains low compared to other developing countries. For example, in 1981 China had an average of 63 health centers per million people or roughly double Indonesia's average of 32 per million. In Thailand the availability of health centers is five times higher at around 141 per million. Similarly, in 1981 China provided about 1,608 barefoot doctors per million rural residents. No comparable services combining basic curative and preventive care at village level have yet been developed in rural Indonesia, although the POSYANDU provides an important vehicle for extending outreach of selected preventive health services directed at mothers and children. The significance of these availability ratios lies in their implications for average distance to and consequently for utilisation of the facilities. As noted above, the majority of users are drawn from within a narrow radius.

3.08 The effective coverage of community health facilities depends primarily on the service area to be covered. Measuring access in terms of distance (radius of the average service area) shows enormous interprovincial variations in accessibility to health centers, ranging from 0.8 km in Jakarta to 32.6 km in Irian Jaya (see Table 3.1). These differentials in access are closely associated with income levels, as reflected in an elasticity of -1.15 with respect to household expenditure per capita. In other words, a 10% increase in income is associated with a 12% decrease in average distance to a health center. These variations in access to physical facilities are exacerbated by quality differences reflected in the availability of staffing inputs. The ratio of doctors per health center varies from only 0.35 in Irian Jaya to 1.78 in Jakarta. These quality differences are also related to income levels, as reflected in an elasticity of +0.56 for doctors per health center. Thus, the poor not only have to travel further to reach a health center, but also they are less likely to be served by a doctor once they get there.

3.09 An important new development in REPELITA IV was the creation of integrated service posts at village level. These POSAYNDU are intended to provide five core preventive health interventions on a monthly outreach basis: nutrition weighing and education program, immunization, family planning, diarrheal disease control through ORT, and maternal care. As such they represent a potentially powerful instrument for reaching the poor who otherwise would remain beyond the effective reach of fixed facilities. By June 1988 there was a reported number of 133,984 within the catchment area served by the 63% of all health centers which provided a report. However, as with health centers, there is less access to POSYANDU in poorer provinces, as reflected in higher average distances (see Table 3.1).

Table 3.1: PROVINCIAL DISTRIBUTION OF COMMUNITY HEALTH RESOURCES, 1987

	Health centers		Subcenter distance (km)	POSYANDU distance (km)	Household expenditure per capita
	Distance (km)	Doctors per center			
DI Aceh	11.27	1.04	6.27	3.9	23,024
North Sumatra	8.75	1.04	4.79	2.0	23,250
West Sumatra	10.21	1.03	5.71	2.0	25,459
Riau	17.09	1.03	8.82	4.8	24,919
Jambi	13.28	0.96	7.11	4.0	23,023
South Sumatra	13.54	1.02	8.45	3.3	24,041
Bengkulu	9.41	1.03	5.48	2.8	21,758
Lampung	8.89	0.99	5.95	1.5	19,472
DKI Jakarta	0.82	1.78	n.a.	0.2	48,932
West Java	4.66	1.00	3.95	0.8	22,960
Central Java	4.00	0.98	3.08	0.6	18,016
DI Yogyakarta	3.18	1.02	1.95	0.5	22,245
East Java	4.31	0.89	3.54	0.7	20,099
Bali	4.54	1.26	2.34	0.7	22,056
West Nusa Tenggara	8.40	1.10	4.67	1.6	16,375
East Nusa Tenggara	10.95	0.50	5.98	2.9	15,998
East Timor	8.60	0.69	6.71	2.8	15,039
West Kalimantan	17.70	0.79	9.61	6.6	19,770
Central Kalimantan	22.37	0.77	10.66	7.3	21,084
South Kalimantan	8.68	0.53	5.56	3.1	24,158
East Kalimantan	24.20	0.74	15.36	7.7	30,666
North Sulawesi	7.16	1.03	3.48	1.6	23,135
Central Sulawesi	17.43	1.01	7.15	4.7	19,601
South Sulawesi	9.66	0.83	5.41	2.0	17,265
Southeast Sulawesi	11.47	0.85	6.24	2.8	14,901
Maluku	15.32	0.67	9.25	5.0	20,206
Irian Jaya	32.64	0.35	20.23	13.6	21,117
Memo Item:					
Elasticity with respect to household expenditure per capita $\frac{1}{a}$					
	-1.15 (1.95)	+0.56 (2.31)	+0.47 (0.77)	-1.05 (1.32)	

$\frac{1}{a}$ OLS estimates of double-log equations; t-statistics in parentheses.

Source: World Bank staff estimates.

3.10 Despite the significant expansion in coverage with POSYANDU its effectiveness should be strengthened. First, a large number of reported POSYANDU are not fully operational because they provide fewer than five of the

planned services; for reporting purposes any post offering at least two of the five services is counted as a POSYANDU. This partly reflects the difficulty of providing adequate logistical support in the form of skilled manpower and materials from the community health infrastructure. Second, actual compliance of the target population with POSYANDU is often low: regular attendance has been found to be as low as 20%. Thus effective coverage of the POSYANDU system is substantially lower than nominal reported coverage. And third, even with full coverage and compliance, the effectiveness of the POSYANDU would remain limited by problems such as the absence of referral for nutritional supplementation and, the exclusion of basic curative care such as antibiotic therapy for acute respiratory infections which are a major cause of infant mortality.

3.11 Table 3.2 shows the substantial scope remaining for expanding coverage with essential interventions aimed at lowering infant and child mortality. It also illustrates the potentially enormous impact that may be made by further expansion and consolidation of the POSYANDU delivery system. Already two-thirds of child weighing activities and over half of DPT and polio immunizations are provided through the POSYANDU.

**Table 3.2: COVERAGE AND SOURCE OF PREVENTIVE SERVICES:
12 PROVINCE SURVEY, 1986**

	Coverage as % of target group			Source as % of coverage		
	Average/ ^a	Highest	Lowest	Health Center	POSYANDU	Other
MCH (antenatal care)	64	82	36	50	11	29
Contraceptive use	49	56	31	51	23	26
Nutrition (weighing)	52	65	39	11	74	15
Immunization						
DPT 1	49	62	33	26	61	13
Polio 3	34	48	14	25	61	14
TT 2	46	46	20	57	22	21
Diarrhea treatment	34	51	20	48	14	38

^a Average of 12 province level observations.

Source: Ministry of Health (1987) Assessment of Integrated Family Health Package, 1987.

D. Expenditure Patterns and Trends

Expenditure Patterns

3.12 Table 3.3 shows the overall structure of consolidated general government expenditure on the health center system in 1985/86. These figures suggest that total expenditure amounted to Rp.117 million, of which some

Rp.68 million was for recurrent expenditure and Rp.43 million for investment expenditure plus another Rp.6 million in unallocated regional development spending. These imply a health center share of about 19% of total sectoral expenditure, with a high share (37%) of investment and a low share of 15% of recurrent expenditure. Unfortunately these data exemplify deficiencies in the classification of budgetary disbursements in the government accounts. It is clear that the figures for recurrent expenditure underestimate the amount allocated to health centers through the district government routine budgets. The salary cost only of staff presently employed in the health center system is probably around Rp.80 billion instead of Rp.9 billion, implying that total recurrent expenditure is probably about Rp.139 billion. This problem arises because health centers are often lumped together with other functions in broad line items: health center expenditure may be lumped together with hospitals and coded as hospital expenditure (e.g. RS dan PUSKESMAS), or merged with district health office expenditure and coded as administration (e.g. Dinkes/ PUSKESMAS). The result is an indeterminate but possibly substantial understatement of actual levels of recurrent expenditure on health centers. Looking at the revenue side, these estimates show a striking picture of virtually total dependence on central government finance (93%) in the health center system, especially for recurrent expenditure (97%).

Table 3.3: SOURCES AND COMPOSITION OF CONSOLIDATED GENERAL GOVERNMENT EXPENDITURE ON HEALTH CENTERS, 1985/86
(Rp. billion)

	Recurrent	Investment	Unallocated	Total
<u>Central Government</u>	<u>66.4</u>	<u>42.5</u>	<u>0.0</u>	<u>108.9</u>
APBN-DIP /a	10.6	2.9		13.5
INPRES /a	45.3	39.6	0.0	84.9
APBN-DIK	1.8	0.0	0.0	1.8
SDO1	0.1	0.0	0.0	0.1
SDO2	8.6	0.0	0.0	8.6
SBBO-RSUD	0.0	0.0	0.0	0.0
<u>Provincial Governments</u>	<u>0.1</u>	<u>0.0</u>	<u>3.5</u>	<u>3.6</u>
APBD1-DIP	0.0	0.0	3.5	3.5
APBD1-DIK /b	0.1	0.0	0.0	0.1
<u>District Government</u>	<u>1.7</u>	<u>0.0</u>	<u>2.4</u>	<u>4.1</u>
APBD2-DIP	0.0	0.0	2.4	2.4
APBD2-DIK	1.7	0.0	0.0	1.7
<u>Total</u>	<u>68.2</u>	<u>42.5</u>	<u>5.9</u>	<u>116.6</u>
<u>Memo Item</u>				
Health Centers as % of sector	<u>14.8</u>	<u>378.3</u>	<u>13.2</u>	<u>18.8</u>

/a Budget figures.

/b Net of SDO transfer.

3.13 Table 3.4 shows similar data on the structure of government expenditure on communicable disease control (CDC) activities, which are largely provided through the health center delivery system. Total expenditure in 1985/86 was around Rp.20 million, most of which was for recurrent expenditure on operational disease control activities. This represents a strikingly low claim at only 5% of sectoral expenditure. By contrast, a comparable estimate for China shows a 15% share for communicable disease control activities in 1981. Similarly, in Thailand communicable disease control claimed 19% of Ministry of Health expenditure in 1985. Turning to the revenue picture, the critical role of central government finance in financing CDC programs is evident with a central share of 90%. Especially important is the role of the central APBN-DIP budget channel, which provides virtually all of the central government resources for CDC. This budgetary pattern has made CDC funding acutely vulnerable to the deep cuts recently forced on the central development budget.

Table 3.4: SOURCES AND COMPOSITION OF CONSOLIDATED GENERAL GOVERNMENT EXPENDITURE ON COMMUNICABLE DISEASE CONTROL, 1985/86
(Rp. billion)

	Recurrent	Investment	Unallocated	Total
<u>Central Government</u>	<u>24.9</u>	<u>1.4</u>	<u>0.0</u>	<u>26.3</u>
APBN-DIP /a	24.5	1.4	0.0	25.9
INPRES	0.0	0.0	0.0	0.0
APBN-DIK	0.1	0.0	0.0	0.1
SDO1	0.1	0.0	0.0	0.1
SDO2	0.2	0.0	0.0	0.2
SBBO-RSUD	0.0	0.0	0.0	0.0
<u>Provincial Governments</u>	<u>0.0</u>	<u>0.0</u>	<u>1.0</u>	<u>1.0</u>
APBD1-DIP	0.0	0.0	1.0	1.0
APBD1-DIK /b	0.0	0.0	0.0	0.0
<u>District Governments</u>	<u>0.0</u>	<u>0.0</u>	<u>2.0</u>	<u>2.0</u>
APBD2-DIP	0.0	0.0	2.0	2.0
APBD2-DIK /b	0.0	0.0	0.0	0.0
<u>Total</u>	<u>24.9</u>	<u>1.4</u>	<u>3.0</u>	<u>29.3</u>
<u>Memo Item</u>				
CDC as % of sector	<u>5.4</u>	<u>1.0</u>	<u>6.7</u>	<u>4.7</u>

/a Budget figures.

/b Net of SDO transfer.

Source: World Bank staff estimates.

Expenditure Trends in REPELITA IV

3.14 Recent expenditure trends for health centers are summarized in Table 3.5 for selected central government budget sources for 1984/85 and 1987/88. The main feature is a 27% decline in real spending levels during the first four years of REPELITA IV. This was effected by a large cut in investment expenditure (87%), which enabled recurrent expenditure to rise in real terms by 16%. This in turn was achieved by an increase in fiscal outlays on non-salary spending due to a substantial rise in the real value of the per capita drug subsidy channelled through the sectoral INPRES grant. However this occurred at the expense of a significant reduction in other components of non-salary recurrent expenditure such as DIP funding for transport and personnel incentives for health center staff to provide outreach services. Overall, however, health centers maintained their claim on central spending at around 30%, reflecting the Government's commitment to supporting the health center program.

Table 3.5: COMPOSITION OF CENTRAL /a GOVERNMENT EXPENDITURE /b ON HEALTH CENTERS: TRENDS IN REPELITA IV (Rp. billion)

	<u>Recurrent</u>			<u>Investment</u>	<u>Total</u>
	<u>Salaries</u>	<u>Nonsalaries</u>	<u>Total</u>		
<u>At Current Prices</u>					
<u>1984/85</u>	<u>1.5</u>	<u>51.8</u>	<u>53.3</u>	<u>40.6</u>	<u>93.9</u>
APBN-DIK	1.2	1.2	2.4	0.0	2.4
SBBO-RSUD	0.0	0.0	0.0	0.0	0.0
APBN-DIP	0.3	10.3	10.6	2.9	13.5
INPRES	0.0	40.3	40.3	37.7	78.0
<u>1987/88</u>	<u>2.2</u>	<u>73.1</u>	<u>75.3</u>	<u>11.1</u>	<u>83.2</u>
APBN-DIK	2.0	1.2	3.2	0.0	0.0
SBBO-RSUD	0.0	0.0	0.0	0.0	0.0
APBN-DIP /c	0.2	4.4	4.6	2.3	6.9
INPRES	0.0	67.5	67.5	8.8	76.3
<u>At Constant Prices /d</u>					
1984/85	1.3	46.3	47.6	36.3	83.8
1987/88	1.6	53.8	55.4	8.2	61.2
<u>Health Centers as % of Sector</u>					
1984/85	2.3	33.9	25.8	37.7	29.8
1987/88	1.8	48.3	31.6	41.7	31.1

/a Excludes SDO.

/b Budget figures.

/c Includes supplementary budget (ABT).

/d GDP deflator, 1983 = 100.

Source: World Bank staff estimates.

3.15 A rather different picture emerges from Table 3.6, indicating a massive collapse in central government funding for communicable disease control. Total spending was slashed by 72% in real terms, with only Rp.9 billion budgeted in 1987/88. This reflects a major deterioration in the already low CDC sector share of central spending, from around 8% to only 3%. The underlying switch in expenditure priorities away from preventive health to the provision of curative services is surprising, and may partly reflect an unintended consequence of the fragmentation of budgetary sources for spending in the health sector. Unlike most programs, CDC funding is almost exclusively dependent on a single source, the APBN-DIP development budget, which was heavily cut to effect the overall switch from investment to recurrent expenditure.

Table 3.6: COMPOSITION OF CENTRAL /a GOVERNMENT EXPENDITURE /b ON COMMUNICABLE DISEASE CONTROL: TRENDS IN REPELITA IV (Rp. billion)

	<u>Recurrent</u>			Investment	Total
	Salaries	Nonsalaries	Total		
<u>At Current Prices</u>					
<u>1984/85</u>	<u>4.6</u>	<u>19.9</u>	<u>24.6</u>	<u>1.9</u>	<u>26.4</u>
APBN-DIK	1.5	0.8	2.3	0.0	2.3
SBBO-RSUD	0.0	0.0	0.0	0.0	0.0
APBN-DIP /c	3.2	19.1	22.3	1.9	24.1
INPRES	0.0	0.0	0.0	0.0	0.0
<u>1987/88</u>	<u>3.2</u>	<u>5.2</u>	<u>8.4</u>	<u>0.7</u>	<u>9.1</u>
APBN-DIK	2.6	1.1	3.7	0.0	3.7
SBBO-RSUD	0.0	0.0	0.0	0.0	0.0
APBN-DIP /c	0.6	4.1	4.7	0.7	5.4
INPRES	0.0	0.0	0.0	0.0	0.0
<u>At Constant Prices /d</u>					
1984/85	4.1	17.8	21.9	1.7	23.6
1987/88	2.4	3.8	6.2	0.5	6.7
<u>CDC as % of Sector</u>					
1984/85	8.4	3.09	11.9	1.8	8.4
1987/88	3.7	3.4	3.5	2.6	3.4

/a Excludes SDO.

/b Budget figures.

/c Includes supplementary budget (ABT).

/d GDP deflator, 1983 = 100.

Source: World Bank staff estimates.

E. Impact of Fiscal Adjustment

Community Health Services

3.16 Since much of the burden of adjustment was borne by cuts in investment expenditure, the most obvious impact was a major scaling back in the investment program. During the first four years of REPELITA IV, 265 health centers were constructed out of plan target of 500. Similarly, 3,501 subcenters were constructed compared to a plan target of 6,000. Thus only about one-half of planned expansion of the health center system was achieved by the end of REPELITA IV. This underfulfillment of plan targets was exacerbated by downward revisions in estimates of the actual stock of facilities existing at the end of 1986.

3.17 Turning to recurrent expenditure, the immediate impact was felt in cutbacks from previous spending levels. Although a strong effort was made to increase expenditure on drugs through the INPRES grant, other nonsalary expenditures were reduced. Examples of cuts made in the APBN-DIP budget in 1987/88 include: (a) the standard budget for operational costs per health center was reduced to Rp.220,000; (b) the allocation for vehicle operating and maintenance costs was cut from Rp.1,300,000 to Rp.297,000; and (c) lump sum honoraria for supervisory staff were reduced.

3.18 Less obvious, but more important in the long term, is the effect of recurrent expenditure constraints on perpetuating present underfunding of the O&M requirements of existing community health services. The magnitude of this deficiency is suggested by a variety of indicators: (a) eleven provinces had more than one-quarter of their health centers operating without a doctor in 1985; (b) staffing of subcenters is often suboptimal, with many lacking full time staff and consequently opened infrequently by visiting staff from the main health center; (c) INPRES drug supplies are widely considered to be inadequate, providing only about three-quarters of the need for drugs even with low levels of present utilization of health center services; and (d) the rapid and continuing expansion of the POSYANDU delivery system has created a major new demand for additional manpower and logistical support from the health center.

3.19 The implications of these factors for additional O&M requirements to achieve adequate funding of the community health service are hard to assess in the absence of clearly formulated budgeting norms. However, rough estimates can be made as follows. As shown in Table 3.7, adequate O&M budgets might be around Rp.50 million for a health center and Rp.3 million for a subcenter. This implies a total requirement of about Rp.300 billion for existing numbers of health centers and subcenters. Additional requirements are superimposed by the accelerating establishment of village level outreach services through the POSYANDU. Recent estimates indicate a unit cost of about Rp.200,000 per POSYANDU, implying that full coverage with some 220,00 POSYANDU would entail additional O&M costs of around Rp.44 billion. Thus total O&M requirements for community health might be of the order of Rp 350 billion, compared with present recurrent expenditure levels of perhaps Rp.140 billion. These figures suggest a need for recurrent expenditure to be raised by around Rp.210 billion over and above 1985/86 levels in order to provide adequate O&M for existing community health infrastructure and related programs.

Table 3.7: ADEQUATE O&M BUDGETS FOR COMMUNITY HEALTH
(Rp. thousands)

	Health center	Subcenter	POSYANDU <u>/a</u>
Salaries	24,400 <u>/b</u>	2,100 <u>/b</u>	118
Drugs	19,134 <u>/c</u>	-	-
Other materials	3,250 <u>/d</u>	500	47
Transport	600	-	28
Maintenance, of which:			
Building	600	250	-
Vehicle	750	-	-
Total	48,634	2,850	193

/a Estimates for West Sumatra.

/b Based on Ministry of Health staffing norms.

/c Based on a drug budget of Rp.600 per capita.

/d Includes: office supplies, medical supplies, non-medical supplies and others.

Source: World Bank staff estimates.

3.20 These figures should only be regarded as illustrative. As such they highlight the urgent need to make detailed estimates of O&M requirements in order to set proper planning and budgeting norms for the health center system. Attention should also be given to the scope for efficiency gains. Possible measures include: (a) redistribution of manpower from overstaffed to understaffed facilities, including subcenters; (b) strengthening the role of the subcenter in supporting the POSYANDU network in order to relieve the burden on health center staff; and (c) improvement in drug prescription practices to help minimize drug requirements.

Communicable Disease Control Programs

3.21 Despite its recurrent nature, CDC program expenditure is concentrated in the central development budget, most of which is passed on to the regional health administrations for implementation by staff based at the health center. Health center staff are therefore able to carry out CDC activities only to the extent that the material inputs to those activities (drugs, vaccines, insecticides, travel cost and incentives, and wages for daily paid staff such as malaria spraymen) are provided through the DIP.

**Table 3.8: APBN-DIP ALLOCATIONS /a FOR CDC BY PROGRAM, 1985/86-1987/88
(Rp. millions)**

	1985/86	1986/87	1987/88 <u>/b</u>
<u>Provincial Programs</u>			
Project administration	730	950	231
Malaria	7,045	3,492	484
Arboviruses	980	412	0
Filariasis	311	248	0
Entomological surveys	257	143	0
Rabies	411	233	0
Schistosomiasis and taeniasis	13	n.a.	18
Anthrax	17	8	0
Plague	7	2	0
Tuberculosis	1,608	748	0
Diarrhea/Cholera	861	438	344
Leprosy	163	295	0
Yaws	284	162	0
STD	213	120	0
Helminthiasis	189	94	0
EPI	5,274	4,901	1,407
Surveillance	362	281	0
Haj	158	104	0
Transmigration	154	86	0
Isolation/Quarantine	102	83	0
Port Health	560	83	0
Subtotal	<u>19,700</u>	<u>10,418</u>	<u>2,485</u>
Central Programs	7,027	2,481	1,815
<u>Grand Totals</u>	<u>26,727</u>	<u>12,899</u>	<u>4,300</u>

/a Budget figures.

/b Excludes ABT.

Source: Ministry of Health

3.22 As shown in Table 3.8 the APBN-DIP allocations for CDC peaked in nominal terms in 1985/86, when the total reached Rp.25.9 billion. Since then there has been a dramatic collapse of funding, with the total allocation falling to Rp.13.9 billion in 1986/87 and to only Rp.4.3 billion in 1987/88. In the first year of budgetary collapse, when resources were roughly halved, the response was to preserve all programs in all provinces in which they had previously operated, but to scale back resources for each. This was in effect an abrupt reversal of the process of slow accretion in previous years, during which each program was allowed to increase pro rata. This created two problems: (a) the division of the budget among 21 programs with a total of 56

distinct activities operating in most of or all of 27 provinces resulted in earmarked amounts which in some cases were too small to be useful; and (b) the constant relative size of the programs did not reflect appropriate priorities at the margin.

3.23 In the face of a further reduction in the budget to one-third of the previous year's, it was decided to concentrate in 1987/88 on three of the largest programs (malaria, diarrheal disease control, and immunization) each of which continued to operate in all 27 provinces. At least two of these priorities, immunization and diarrheal disease control, are explicitly linked to the overriding goal of reducing infant mortality, and a case can also be made for malaria on these grounds. Funding was withdrawn from all other disease specific activities, except a small amount to combat schistosomiasis in Central Sulawesi and taeniasis in Bali. This implies that the effective operation of all other disease control programs substantially ceased in 1987: for example, no funds for rabies vaccine, for tuberculosis control drugs or for port health activities. Those programs which survived have done so on much reduced budgets. Some funding remained with each province for project administration to maintain minimal surveillance activities so that there will be a preservation of capacity to revive when funding is restored. Relatively more of the central program funding was preserved, including retention of the whole of the previous contingency reserve for epidemics of Rp.500 millions; these funds can be applied flexibly to meet needs arising from any flare-up of disease, as may be expected from the cessation of some control programs.

3.24 The malaria program in Java and Bali has already succeeded in reducing transmission to a low level, although problems of DDT resistance have forced the use of the more expensive fenitrihion insecticide in Central Java and East Java. Despite low levels of funding, some spraying continued, using accumulated stocks of insecticides. Funds to employ temporary staff to carry out active case detection were eliminated. Previous experience suggests that in areas where spraying is stopped, the incidence will increase within the first year, and rise to serious levels within two years.

3.25 Outside Java and Bali, where transmission rates are generally much higher, program effort has previously been concentrated in transmigration areas and other economic development and frontier areas. It was estimated that a reduced program in the transmigration areas alone would cost Rp.2.3 billions, which was not attainable. It was therefore agreed with the Department of Transmigration that should fund the program in transmigration areas, and Ministry of Health funds would be used in other priority areas. The previous program entailed spraying twice a year each home of some 750,000 recent migrant households, representing those who had migrated over the last five years. In the reduced program, only those who migrated within the previous two years, numbering around 315,000, would benefit from house spraying. In other areas, house spraying was virtually eliminated. For example, in West Nusa Tenggara program coverage was cut from 96,000 houses in 1986/87 to 5,000 in 1987/88.

3.26 The immunization program emerged as the best endowed of all CDC programs. As overall rupiah resources for CDC shrunk, the EPI share rose to half the total. In 1985/86, EPI took Rp.6.8 billion out of a total of Rp.26.7 billion. In 1986/87, it took Rp.5.2 billion out of Rp.12.9 billion, while in 1987/88 was expected to obtain Rp.2.1 billion out of Rp.4.3 billion.

Over the same period, however, the growth of external funding offset the fall in rupiah funding, thus permitting total expenditure to rise in order to meet targets for increasing coverage.

3.27 Although aggregate expenditure was projected to increase in 1987/88, there were still concerns about program effectiveness because project aid would not take over the funding of certain operational costs that were previously met from the DIP. In 1985/86 there was Rp.2.6 billion in the provincial DIPs for operational costs, of which Rp.0.7 billion was for honoraria, Rp.0.8 billion for transport, and Rp.0.4 billion for equipment. In 1987/88, the total amount in provincial DIPs was only Rp.0.6 billion. Provision for equipment purchases and honoraria was eliminated, and the allocation for transport was much reduced. Although some donors made additional contributions to operational costs, they were not willing to assume what had previously been government responsibilities. The regional governments were asked to assume the responsibility of funding some nonvaccine material costs, such as kerosene for refrigerators. There is clearly a risk that the security of the cold chain might be impaired by this attempt to devolve financial responsibility to the regions.

3.28 No funding for the tuberculosis control program was provided in provincial DIPs in 1987/88. A small amount of Rp.59 million from central programs was used to maintain a residual program in Central Java, a high prevalence area. The 60 health centers involved were distributed across the province and were selected on the basis of local prevalence rates, population density, and extent of community participation. The total number of new patients likely to be treated was estimated at 700, or less than 0.3% of the estimated number of new cases arising annually. In all other provinces, the only resort was to the routine curative care program of the puskesmas. The INPRES drug supply includes the drugs used in long course therapy (streptomycin and INH) but not rifampicin which is the drug used in the more cost-effective short course therapy. It is very unlikely in practice that more than a tiny minority would obtain effective treatment for TB in this way. There is very little donor assistance for tuberculosis control programs, while the activities of the voluntary TB Association are confined to one district of West Sumatra.

3.29 As shown in Table 3.9, the effective cessation of TB control activities in 1987/88 merely terminates a decline in program effort evident over a number of years. Although the REPELITA IV target was to reduce the tuberculosis prevalence rate to 2 per thousand from a 1984 level of 2.5 per thousand, funds have never been allocated to the program in sufficient volume to make progress toward the target likely. Based on experience in the years of peak performance, a crude estimate is that treatment of 100% of new patients would cost around Rp.20 billion annually at 1986/87 prices. Program effort on this scale would reduce the transmission rate within a few years.

Table 3.9: TUBERCULOSIS PROGRAM COVERAGE AND EXPENDITURE, 1979/80-1987/88

	Cases (thousands)	New Cases (thousands)	Number treated (thousands)	Percent of Target	Expenditure (Rp. million)
1979/80	429	215	20	9	439
1980/81	439	219	25	11	1,077
1981/82	449	224	29	12	1,667
1982/83	458	229	33	14	2,015
1983/84	469	234	33	14	1,773
1984/85	479	239	38	15	1,800
1985/86	489	245	33	13	1,778
1986/87	500	250	17	7	749
1987/88	510	255	1	13	59

Source: Directorate General for CDC, Ministry of Health.

3.30 The diarrheal disease control program suffered one of the smallest proportionate cuts, from Rp.1,093 million in 1985/86 to Rp.385 million in 1987/88. Most of the cutback has been in the supply of oralit, which was taken up by increased supply from donor sources, mostly UNICEF and IBRD. Following the recommendations of the joint GOI/UNICEF/WHO review, provision for other methods of treatment of dehydration (infusions, antibiotics and anti-diarrheals) was reduced, and preparedness for cholera outbreak control was de-emphasized.

3.31 The main picture emerging from these trends is that preventive health services were not adequately protected from the fiscal decline. Although domestic funding cuts were partly offset by project aid for some high priority programs, other communicable disease control activities, notably malaria and tuberculosis control, have suffered a major deterioration. This reflects a serious allocation problem in setting overall expenditure priorities because the case for public sector financing is particularly strong on externality grounds for these programs which yield benefits to the community as a whole rather than just individuals. The Government should therefore take steps to identify the financing requirements of a minimum core program of CDC activities which should be given a priority claim on sectoral spending and protected from adverse trends in overall resource availability in the future.

F. Issues and Priorities

3.32 Considerable progress has been made in expanding coverage with community health infrastructure through the INPRES grant program, and more recently in enhancing village level outreach through the POSYANDU delivery system for preventive health services. However, utilization rates remain low in Indonesia. This reflects the low density and unequal distribution of

facilities, which still leaves many rural residents beyond the effective range of the health center system. This implies a long-term need for investment in additional capacity to improve access to services in poor remote areas. However, there are also indications of substantial underfunding of present O&M requirements, implying low quality of existing services. This has been exacerbated by recent fiscal constraints, resulting in roughly stable recurrent expenditures on O&M in the face of a growing demand for additional O&M support created by rapid expansion of the POSYANDU network. Tentative estimates suggest that the order of magnitude of annual O&M requirements for the community health system might be as much as Rp.350 billion, compared to recurrent expenditure levels of some Rp.140 billion in 1985/86. A similar pattern of underfunding the communicable disease control programs emerged from the recent adjustment experience, with large reductions in the already low CDC share of sectoral spending implying a reallocation of expenditure priorities away from preventive health to curative health services. Although some programs were protected, others such as malaria and tuberculosis control sustained devastating cutbacks. This trend is not consistent with the strong case for public sector involvement in financing preventive interventions on externality grounds and should be reversed.

3.33 The main focus of expenditure priorities in the near term should be on substantially increasing O&M funding for the community and preventive health programs. With regard to community health, these requirements include: (a) increasing funds for non salary expenditures on transport and incentives to enable health center staff to travel to villages to provide support to the POSYANDU; and (b) increasing funds for maintenance of buildings, equipment and vehicles to help maximize the returns from past investments, and minimize the need for costly replacements. Turning to communicable disease control programs, there is a need for the Ministry of Health to reassess the full requirements of a core program of major CDC activities, and to assign the core program a priority claim on sectoral resources which would be protected in the future. Incremental O&M requirements for CDC programs probably total around Rp.40 billion annually. Over the medium term, as additional resources become available, it may be possible to expand the presently low provision of community health infrastructure, but this should be contingent on the affordability of the additional O&M requirements created by new investment, taking into account the need to provide adequate O&M training of existing service capacity. In setting future investment priorities, consideration should be given to expanding the provision and role of subcenters which may prove to be a more cost-effective instrument than health centers in extending access to basic curative care and providing technical backup for preventive services delivered through village-level POSYANDU.

3.34 Planning and budgeting for efficient resource use in community and preventive health services needs to be strengthened with significant improvements in the information base. In particular steps should be taken to: (a) develop institutional capacity to monitor levels and trends in utilization rates by income class of the different components of the community health system, in order to improve assessment of its effectiveness and distributional impact; (b) undertake research into the determinants of utilization differentials, including focus group methods to gain insights into client perceptions of the quality of community health services; (c) strengthen the budgetary system by refining the classification of health center expenditures in order to provide a baseline for evaluating the adequacy of overall

expenditure levels; (d) to develop an integrated financial accounting system for health centers, and to incorporate financial data into the routine health center reporting system to help evaluate adequacy of spending in individual centers; and (e) develop detailed estimates of O&M requirements, including staffing, for individual community health services as a basis for setting budgeting norms for adequate funding of service capacity in the future.

IV. HEALTH MANPOWER

A. Introduction

4.01 Skilled manpower is an input to the entire public sector health system. Indeed it is the single most important input, comprising about 50% of sectoral recurrent expenditure. Certain staffing issues such as planning, allocation and distribution, therefore cut across all health subsectors and constitute the focus of this chapter. Section B presents a quantitative picture of the current state of health manpower in the public sector. Section C reviews public sector demand: the process by which new posts of medics and paramedics are planned, authorized and distributed. Sections D and E then describe the market-clearing mechanism: the balance between job applicants and open posts, and how the two are matched. Section F outlines selected policy issues.

B. Stock and Distribution

4.02 This section describes the current stock and distribution of public health personnel. The primary data source is the BAKN-based "old system" (see ANNEX III). Consequently, the data here cover only civil servants with a formal Ministry of Health appointment (i.e., NIP 14 employees), unless specifically noted. Data are for January 1986.

Size and Composition

4.03 Available data do not permit accurate estimation of the health sector workforce, even the portion under Ministry of Health supervision. The MOH Data Center counts a total of 200,690 employees, but this is not a reliable total. The count of NIP 14 employees, at 153,849, is reasonably reliable. The residual 46,000 employees are the non-NIP 14 employees as of 1983; these records have not been updated since 1983, nor have the records of new non-NIP 14 employees been added. The number of non-NIP 14 employees (largely nonmedical staff, from menial to supervisory levels) has probably expanded since 1983. This suggests that the total number of employees under MOH purview may now be in the range of 200 to 210 thousand.

4.04 Data on health personnel outside the Ministry of Health is limited to hospital staff data and doctor's license data. Hospitals run by governmental and quasi-governmental agencies other than MOH employed 552 physicians, 4508 paramedics, and 4273 others in 1985. At the same time, private hospitals reported employing 2510 physicians, 12201 paramedics, and 16423 others. Most of the doctors at private hospitals, and an indeterminate proportion of paramedics, can be assumed to be holding government positions as well. An indeterminate, and possibly large, number of paramedics may hold positions in the health departments of private corporations, or with small clinics. Thus it is not possible to estimate the total magnitude of health sector employment in Indonesia.

4.05 Of the 155,000 NIP 14 workers, approximately one-third (53,741) are classed as nonmedical workers. There is probably an equal number of nonmedical workers appointed by the Ministry of Home Affairs. Of the remainder, all but a handful are doctors or paramedics.^{1/} High-school level (SLTA) paramedics are the backbone of the medical workforce, numbering 57,656; paramedics with less than a high school education number 22,799 (both these paramedical categories include pekarya kesehatan). Academy-level (e.g., AKPER) paramedics, primarily nurse supervisors, are a relatively small category, numbering only 3,946. There were 11,789 general doctors and 2,630 dentists on the MOH rolls; interestingly, 11% of the doctors and 25% of the dentists were employed in the central administrative facility of the Ministry of Health. The total of only 287 specialist doctors is misleading; most specialists hold a teaching position under the Ministry of Education and Culture (MOE), but also work at MOH hospitals. There were reports 3,300 full-time teachers in medical faculties at public universities in 1984.

4.06 A more comprehensive picture of Indonesia's physician work force is provided by data on issuance and renewal of doctors' licenses (S.I.D.). Table 4.1 shows data from December 1985 on the breakdown of Indonesian physicians by employer. Because licenses are renewed at four year intervals, these data may not be comprehensive.

Table 4.1: DISTRIBUTION OF PHYSICIANS BY EMPLOYER

MOH	11,205
Other departments	2,956
Armed forces	1,350
Private employment only	999
Pensioners	319
<u>Total</u>	<u>16,829</u>

Source: Ministry of Health.

Functional Distribution

4.07 The central MOH information system does not permit a breakdown of employees by type of facility. However, both the hospital directorate and the health center directorate independently collect manpower data on their own operations. As shown in Table 4.2, these two directorates are virtually equal in the size of the operational staff, at about 73,000 employees each. Note that these data, in principle, includes all employees stationed at the facilities, even those appointed by departments other than MOH. It is noteworthy that the 17 top-level Class A and B hospitals together employ 28,175 workers, including approximately 30% of Indonesia's doctors.

^{1/} See Statistical Annex Table 5.1.

Table 4.2: HEALTH MANPOWER AT HOSPITALS AND HEALTH CENTERS, 1985

	Number of Facilities	Number Reporting	Number of Employees /a			
			Medics	Paramedics	Others	Total
<u>MOH Facilities</u>						
Health Centers	5,014	5,014	5,745	496,964	20,768	73,477
<u>Hospitals</u>	<u>425</u>	<u>415</u>	<u>8,354</u>	<u>36,822</u>	<u>27,901</u>	<u>73,077</u>
Class A	2	2	1,712	3,012	3,589	8,313
Class B	15	15	3,474	8,048	8,340	19,862
Class C	79	79	1,135	8,696	5,977	15,808
Class D	216	216	915	8,977	5,124	15,016
Special	113	103	1,118	8,089	4,871	14,078
<u>Total</u>			<u>14,099</u>	<u>83,789</u>	<u>48,669</u>	<u>146,554</u>
Other Government & Quasigovernment Hospitals	80	79	552	4,508	4,273	9,333
Private Hospitals	175	171	2,510	12,201	16,423	31,134
<u>Memo Item:</u>						
Total MOH-Appointed Employees:			<u>14,706</u>	<u>84,401</u>	<u>53,741</u>	<u>152,848</u>

/a Employee counts as reported by health centers and hospitals are supposed to be comprehensive, i.e., include all employees regardless of employee's departmental classification.

Sources: Ministry of Health.

Budgetary Responsibility

4.08 As noted above a large class of public-sector health employees are appointed and funded by departments other than MOH. This fragmentation of budgetary responsibility occurs even within the narrower category of MOH-appointed employees. Within this category, there are two major funding sources. Central employees (pegawai pusat or pegawai dipekerjakan) are funded out of the MOH national-level routine budget (APBN-DIK). Employees in this category can be freely transferred between provinces; MOH is also free to refill any vacancies left by the resignation of a central employee. By contrast, pegawai diperbantukan are paid through the provincial or district routine budgets (APBD1-DIK and APBD2-DIK). Those budgets, however, are ultimately provided by the central government through its regional salary subsidy, the SDO. Diperbantukan employees cannot easily be transferred between provinces, because their salaries are granted to the province for which they work. By the same token, any vacancies created by the departure of a pegawai diperbantukan can in principle be reassigned by the provincial governor to other departments.

4.09 While the central-vs-local distinction is important for budgetary reasons, it has only a loose correlation with the employee's function or placement. INPRES-related positions such as health center staff tend to be *diperbantukan*, while the employees of vertical (centrally-run) hospitals are likely to be centrally funded. A breakdown of MOH-appointed staff by funding source ^{2/} shows that among all paramedics, about 71% are *diperbantukan*; the higher a paramedic's education, the more likely she is to be centrally funded. Jakarta's very low proportion (23%) of *diperbantukan* paramedics reflects the concentration of vertical hospitals in the capital; the presence of vertical hospitals also affects the employee mix in South Sumatra, West Sumatra, and Bali. The same story applies to doctors. Interestingly, the majority of NIP 14 nonmedical personnel are centrally funded, despite their generally low rank. This may reflect a tendency for the central government to compensate for the general underprovision of nonmedical help by local governments. Not surprisingly, virtually all headquarters staff are centrally-funded.

Interregional Distribution

4.10 An issue of critical interest is the degree to which health personnel are equitably distributed among the regions of Indonesia. A rather crude measure, the ratio of health personnel to population, will have to suffice as an indicator of equity. To facilitate comparison between provinces, this indicator will be normalized. The resultant relative staff ratio (RSR) is the ratio of (provincial staff/provincial population) to (national staff/national population). Alternatively, the RSR is the ratio of the provincial share of manpower to the provincial share of population.^{3/} Thus a province with an RSR of 2.0 has twice as many health personnel per capita as the national average.

4.11 Because the relative staff ratio is a crude measure, it should be interpreted with caution. Equity of distribution must ultimately depend on equity of access. Thus a truly equitable distribution would result in a relative staff ratio of less than 1.0 for densely populated provinces, where the average distance to a doctor or nurse must be lower. Similarly, equity would suggest a relative staff ratio of less than 1.0 for wealthier provinces boasting private facilities, or for provinces with long-established health care systems and lower morbidity and mortality rates. In the Indonesian context, this would imply, ideally, RSRs of less than 1.0 for provinces in Java/Bali, and RSRs greater than unity for the less-developed and less dense provinces in the Outer Islands.

4.12 The absolute number of paramedics per million population averages about 500 and ranges from 182 in Lampung to 967 in Southeast Sulawesi. The RSRs for paramedics seem roughly consistent with the goal of interregional equity. The densely populated provinces of East, Central, and West Java have RSRs in the 0.6 to 0.8 range, while most provinces outside Java have RSRs of unity or above. There are, however, some interesting exceptions. Lampung has an exceptionally low ratio of 0.37, and East and West Nusa Tenggara have RSRs of 0.81 and 0.63, respectively. Bali, despite its very high population

^{2/} See Statistical Annex Table 5.2.

^{3/} Absolute and relative staff ratios for paramedics and doctors, by province are summarized in Statistical Annex Table 5.3.

density and relative wealth, has an RSR of 1.88. Jakarta and Yogyakarta are also high, at 1.7 and 1.3 respectively; these ratios reflect the presence of tertiary care hospitals which, in theory, serve a catchment area extending across provincial borders. However, the ratios do not include national headquarters staff or private employees; inclusion of these categories would greatly boost the measured health worker-to-population ratio.

4.13 Turning to the doctor-population ratio, much the same story is evident. On average there are about 64 MOH general doctors per million population (excluding Jakarta headquarters staff), but the ratio varies from 41 in East Java to above 150 in East Kalimantan and E. Timor. Aside from a relatively dense supply of doctors in Jakarta and Bali, and a relative dearth in Lampung, the provincial distribution of doctors seems to accord with distributional equity, with relatively low per capita concentrations in Java and relatively higher concentrations elsewhere.

4.14 Studies in Indonesia and elsewhere indicate that hospitals draw most of their clientele from a small geographic and economic strata of society. It is therefore useful to focus on health centers, which constitute the health system's chief interface with the general public. To what extent are health center personnel equitably distributed between provinces? Despite the exclusion of staff at hospitals and regional administrations, the distributional picture for health center personnel appears much the same as for the gross staff ratios; that is, the provincial distribution appears generally equitable.^{4/} Again, the rural provinces of Java have RSRs in the 0.6 to 0.8 range, while most of the Outer Provinces are well above unity. Once again, however, Jakarta, Yogyakarta, and Bali appear to be relatively overprovided with personnel, while Lampung seems to be anomalously deprived.

4.15 These data must, however, be interpreted with extreme caution, as it reflects official rather than actual placements of personnel. It is widely thought that many personnel nominally assigned to health centers are informally reassigned to hospitals and health offices. This reassignment process stems from both supply and demand factors. On the demand side, staff shortages at locally-run hospitals may be more noticeable, and perceived as more serious, than health center shortages. On the supply side, it may become evident that many rural posts are hard to fill because of paramedics' preference for town or city posts; local health authorities may allow posts to be shifted rather than experience a combination of unfilled health center posts and unemployed paramedical school graduates. It is thus possible that the staffing data are not a useful description of reality.

Intraprovincial Distribution

4.16 The distribution of medical staff among provinces provides only a crude measure of equity of access to medical personnel; distribution of personnel within the province may be much more important. Powerful incentives, both social and economic, draw health personnel to district seats and provincial capitals. On the demand side, a variety of non-economic factors may influence the allocation of health posts among provincial facilities. Some hint of the implications for efficiency are provided by an

^{4/} See Statistical Annex, Table 4.4.

analysis of hospital staffing below. It is shown there that highly understaffed and overstaffed district hospitals can coexist within the same province. A comprehensive and detailed analysis of intraprovincial staffing, however, awaits further development of the personnel information system.

C. The Demand for Health Manpower

4.17 This section describes the demand side of the labor market or, at least, the large portion of demand which is generated by the Ministry of Health. It begins with a recapitulation of the Repelita IV staffing standards and targets. It then discusses the annual personnel planning and allocation process, through which new posts are authorized and deployed. The results of that process are then examined, with particular attention to issues of distributional equity and allocative efficiency. Finally, some recently-proposed staffing standards are discussed.

REPELITA IV: Targets and Achievements

4.18 At the end of REPELITA III (during 1983/84), MOH undertook a major staff planning exercise, defining aggregate requirements to the year 2000. In the course of the exercise, fifteen working groups were assigned to establish, in great detail, unit staffing standards for facilities or activities, for example, normative doctor/bed ratios for hospitals. The unit standards were multiplied by projected units to yield projected personnel requirements. These were computed for each five-year plan period to the end of the century. Five variants of the projections were considered. On the basis of staff supply constraints, the two most ambitious alternatives were ruled out, and the middle alternative was adopted. This envisioned a MOH workforce of 312,000 by the end of REPELITA IV (1988/89), an increase of 85% over the estimated 1983/84 strength of 169,000. After consultation with BAPPENAS, the proposal for 1988/89 was scaled down to 284,000.

4.19 The final personnel targets and the implied annual net additions to the workforce are summarized in Table 4.3. Note that the REPELITA IV staffing plans used an assumed five-year attrition rate of 12% for nurses and 8% for non-nurse paramedics. To fill posts left open by attrition, actual hiring would have to exceed net additions. A key feature of the plan is the accelerated absorption of nurses and other paramedics during the final years of the plan. This acceleration was to have been made possible through the introduction of parallel classes (i.e., double shifts) at the nursing schools. The inconsistency of the growth pattern of medical personnel (doctors, pharmacists, and other graduates) during the final year of the plan is not explained in plan documents.

Table 4.3: HEALTH MANPOWER PLAN FOR REPELITA IV

	REPELITA IV					
	1983/84	1984/85	1985/86	1986/87	1987/88	1988/89
<u>Total Manpower</u>	<u>169,291</u>	<u>184,962</u>	<u>202,983</u>	<u>225,990</u>	<u>255,488</u>	<u>283,897</u>
Specialist doctor	2,104	2,242	2,380	2,518	2,656	3,424
General doctor	8,088	9,305	10,522	11,739	12,956	13,614
Dentist	1,650	1,746	1,842	1,938	2,034	1,773
Pharmacist	259	419	555	705	855	1,754
Other college graduate	770	1,423	2,100	2,763	3,426	3,529
Nurse	45,417	48,297	51,897	55,697	66,897	76,238
Other paramedic	11,347	12,747	14,820	22,479	30,138	38,461
Assistant paramedic	40,069	42,147	44,225	46,303	48,381	50,461
Nonmedical staff	59,587	66,636	74,642	81,848	88,145	94,643
<u>Implied Net Additions</u>		<u>15,671</u>	<u>18,021</u>	<u>23,007</u>	<u>29,498</u>	<u>28,409</u>
Specialist doctor		138	138	138	138	768
General doctor		1,217	1,217	1,217	1,217	658
Dentist		96	96	96	96	-261
Pharmacist		160	136	150	150	899
Other college graduate		653	677	663	663	103
Nurse		2,880	3,600	3,800	11,200	9,341
Other paramedic		1,400	2,073	7,659	7,659	8,323
Assistant paramedic		2,078	2,078	2,078	2,078	2,080
Nonmedical staff		7,049	8,006	7,206	6,297	6,498
<u>Actual Formasi Authorized</u>		<u>9,887</u>	<u>11,127</u>	<u>11,683</u>	<u>16,932</u>	
Medics		1,554	1,285	1,265	2,425	
Paramedics		4,119	5,158	4,665	11,907	
Pekarya Kesehatan		2,210	3,849	5,000	2,600	
Nonmedical staff		2,004	835	753	0	
<u>of which:</u>						
INPRES		5,700	6,450	9,700	9,600	
ROUTINE		4,187	4,677	1,983	7,332	

Source: Ministry of Health.

4.20 In the event, unforeseen fiscal constraints prevented realization of the massive expansion plan. Table 4.3 compares planned staffing additions to actual creation of new posts (formasi). It is clear that the plan proved overly ambitious from the start of REPELITA IV, with the gap between plan and realization widening as central government revenues fell and the planned rate of expansion accelerated. The gap was about 5,800 in 84/85, 6,900 in 85/86, 11,300 in 86/87, and 12,600 in 1987/88.

Creation and Allocation of New Posts

4.21 The annual planning and budgeting process translates the broad guidelines of the five-year plan into the authorized, funded creation of new posts. In principle, this is a bottom-up planning process. Individual facilities submit their staffing requests to the district health office. From this office, requests for medical and paramedical employees to be appointed by MOH are passed upwards through the provincial health office to MOH headquarters. However, the district health office sends requests for most nonmedical personnel upwards through the Governor to the Ministry of Home Affairs. For its part, MOH compiles the requests, compares them to the five-year plan and to expected personnel supply, and drafts a formal proposal for submission to BAKN (the civil service commission) and MENPAN (Ministry for the Operation of the State Apparatus). These agencies, in consultation with the Finance Ministry and the three largest governmental employers (Education, Home Affairs, and the Armed Forces), match staffing requests with budgetary constraints and issue an approved list of authorized formasi.

4.22 There are two types of MOH formasi: INPRES and routine. INPRES formasi primarily support the expansion of the health center system. Requests for INPRES formasi already specify their provincial distribution. Because of the national priority attached to the INPRES program, these requests have, historically, been approved by BAKN/MENPAN with only minor alterations. INPRES formasi also have the property of remaining indefinitely open until filled. Proposals for routine formasi, by contrast, are usually subject to cuts by BAKN/MENPAN. The reduction in formasi involves reprogramming their allocation among directorates and provinces. In practice, MOH first reallocates the formasi among directorates, with the hospital directorate generally getting the lion's share. Each directorate then allocates its routine formasi among provinces. An important consideration in allocating routine formasi is that they evaporate if not filled within the fiscal year of their creation. This provides an incentive to assign them to areas popular with staff, rather than to relatively remote areas.

4.23 The division of health employees between the MOH and the Ministry of Home Affairs has sometimes resulted in coordination problems. There has been a tendency to underallocate, or to divert, nonmedical hospital personnel. In drastic cases, MOH will step in and appoint its own personnel to understaffed hospitals.

Patterns of New Post Creation

4.24 Analysis of the number of new posts created over 1984/85 to 1986/87, broken down by INPRES vs. routine, shows that these two budgetary categories have been roughly equal in importance, although this was no longer true after 1986/87, when INPRES dominated. Medics and paramedics are funded under both budgets. INPRES funds most of the pekarya kesehatan, and routine has funded most of the MOH-appointed nonmedics.

4.25 For paramedics, the interregional allocation 5/ of INPRES formasi shows a reasonably progressive pattern. That is, the densely populated provinces of Java receive a somewhat lower per capita number of formasi, while the more lightly populated outer provinces receive a slightly higher ratio of INPRES paramedics per capita. Jakarta receives a particularly low ratio of paramedics to population, which is fair in light of the existing concentration of medical resources in the capital. Relatively high allocations go to some of the remoter provinces: Irian Jaya, Bengkulu, East and Central Kalimantan, and East Timor. However, Lampung seems to be short-changed. It is more difficult to interpret the pattern of allocation of routine formasi for paramedics. Statistics for 1984/85 and 1985/86 show about 30 percent of routine formasi nominally assigned to Jakarta. However an indeterminate and possibly large proportion of these posts were assigned to the Directorates-General at MOH headquarters and then seconded to provinces outside of Jakarta. In 1986/87, the statistics were revised to reflect the actual province of placement. In that year, which saw a severe cut in the total number of positions authorized, Jakarta received only slightly more formasi per capita than average. Similar data on formasi of doctors and dentists 6/ show that the INPRES positions are progressively distributed among provinces. Once again Jakarta receives more than its population share of routine formasi, but many of these may have been reassigned elsewhere.

Allocative Efficiency

4.26 Allocative efficiency of personnel requires that the workload of a particular type of employee be constant across facilities. It would probably be inefficient if nurses at hospital x handled 50 patients a day, while nurses at hospital y averaged 10; a transfer of nurses would decrease slack time at y while increasing the quality of care at x. Data on hospital staffing and utilization permit a preliminary examination of allocative efficiency. To illustrate, consider the 217 class D general hospitals. The expected number of staff given the hospital's output of inpatient-days and outpatient-visits can be derived statistically by estimating a regression equation relating staff to utilization. The simplest possible assumption is that hospitals have (or should have) a core staff independent of utilization, to which is added additional staff proportional to the inpatient and outpatient workload. Table 4.4 summarizes the regression results. On average, each class D hospital employed 22 paramedics, plus an additional paramedic for every 974 in-patient-days/year, plus an additional paramedic for every 5,205 outpatient-visits/year. This is merely average practice; it is not known whether this average represents an acceptable level of staffing. The question is simply: are there highly overstaffed and highly understaffed hospitals in relation to this average.

5/ The provincial allocation of INPRES and routine paramedical formasi over the two-year period 1984/85 to 1985/86 is summarized in Statistical Annex, Table 5.5.

6/ See Statistical Annex, Table 5.6.

Table 4.4: PARAMEDIC /a STAFFING AND UTILIZATION IN CLASS D HOSPITALS

$$\text{PARAMEDICS} = 21.72 + 0.00103 \cdot \text{INPATIENT-DAYS} + 0.000192 \cdot \text{OUTPATIENT VISITS}$$

(7.0) (2.6)

[t-statistics in parentheses; R-squared = 0.36]

/a Paramedics include nurses plus non-nurse paramedics.

Source: World Bank staff estimates.

4.27 A comparison of actual staffing with predicted staffing using the regression parameters shows substantial variation between hospitals. There were nineteen hospitals which employed more than twice the number of staff that would be expected, given the hospital's utilization. Among them, the nineteen hospitals employed an excess of 945 employees more than would be sufficient to meet the average for their utilization level. By contrast, there were 46 hospitals employing less than two-thirds the expected number of paramedics; 24 of them were staffed at 50% or less of the strength specified by the regression equation. The paramedical deficit among the 46 hospitals amounted to a gap of 817 employees. It is interesting to look at the provincial distribution of the most overstaffed and most understaffed hospitals. Of the nineteen most overstaffed hospitals, six are in North Sumatra, two in West Sumatra and two in Bali. Among the hospitals staffed at below 50% of expected strength, five are in Nusa Tenggara Timur, and four are in Western Kalimantan. The provinces of South Sulawesi, South Sumatra, and Central Kalimantan each have the distinction of including both an overstaffed and an understaffed hospital.

4.28 It should be understood that this is a cursory and preliminary analysis which raises, rather than answers, questions. A detailed analysis would of course examine local conditions, including case mix, before comparing workloads. However, many medical planning and evaluation systems routinely use this kind of quantitative analysis to flag facilities or processes for indepth evaluation.

Alternative Staffing Standards

4.29 The Indicators of Staffing Needs (ISN) Project currently underway, is an attempt to develop new staffing standards for use in both long and short-term planning. A key feature of ISN is its emphasis on utilization-based, rather than facility-based norms (e.g., doctors per patient-day, rather than doctors per bed). The ISN staffing norms, developed by seven specialized working groups, specify standards for over forty types of employees for about a dozen different types of facilities. ISN's emphasis on utilization-based standards stems from the perception that there are large disparities in staff workload between otherwise comparable facilities. As a short-range planning tool, ISN is intended to be used both by planners at all levels for allocating new positions, and reallocating existing staff, to facilities with the greatest need. The inescapable drawback of an approach of this sophistication is its need for voluminous and timely data on staffing and utilization. The

initial plan was to mount an annual survey of every health facility in Indonesia. This approach risked substantial noncompliance by facilities; largely duplicated data already collected by the hospital and health center directorates; and placed a great deal of faith in the computational competence of respondents, who were required to apply relatively complex algebraic formulae. Discussions have been underway to determine the extent to which centrally-available data can be used for ISN purposes, in order to economize on special surveys.

4.30 The Hospital directorate announced on 27 October 1986 a new set of minimal staffing needs for class A,B,C, and D hospitals. As shown in Table 4.5, these standards are not related to facility size or utilization; they simply specify a minimum number of each type of personnel for each facility. These standards have the advantage of being simple to administer; they do not, however, explicitly allow for the substantial variation in scale within each class of hospital. For instance, the smallest class B hospital has 300 beds, with an annual load of 108,000 outpatient visits and 63,000 inpatient bed-days; the largest class B hospital has 1070 beds, 554,000 outpatient visits, and 350,000 bed-days. Similarly, utilization of class C hospitals ranges from 1000 to 111,000 bed-days annually. These standards would therefore imply enormous inefficiencies in staff allocation within the hospital system.

Table 4.5: HOSPITAL STAFFING NORMS: 1979 and 1986

	<u>Hospital Class</u>			
	<u>A</u>	<u>B</u>	<u>C</u>	<u>D</u>
General doctors	0	11	11	3
Dentists	6	3	2	1
Specialist doctors	114	37	7	0
Nurses	1,608	550	95	29
Other paramedics	867	385	96	29
Nonmedical staff	629	429	140	43
<u>Total</u>	<u>3,224</u>	<u>1,415</u>	<u>351</u>	<u>105</u>

Source: Ministry of Health, Directorate General for Medical Care.

D. Paramedic Supply and Demand

Aggregate Balance

4.31 Although the health labor market is moving into a condition of excess supply in the aggregate, there is substantial geographic variation in the supply/demand balance. Many regions are experiencing an excess demand for paramedical personnel. In six outlying provinces, more than 40% of the INPRES

paramedical posts created over the past six years have never been filled. This section describes available evidence on supply/demand balance and outlines possible policy responses.

4.32 As noted above, REPELITA IV called for an extremely ambitious expansion of paramedical staff, predicated on the assumption of continued high government revenues. To meet that demand, parallel classes (split shifts) were instituted in 245 schools, starting with the incoming class of August, 1984; this effectively doubled the intake of all government schools. Parallel classes were also instituted for the class entering in 1985, but were discontinued for 1986, as the excess supply situation began to be apparent. The two parallel-class cohorts graduated in 1987 and 1988. Assuming 5% annual attrition, each of these graduating classes number about 19,000 to 20,000; approximately 11,000 in each class will be graduated from government schools (i.e., MOH central or provincial schools). Upon graduation, these students encountered a labor market very different from that envisioned at the time of their enrollment. Cutbacks in government expenditure have resulted in a much lower rate of new post creation than planned in REPELITA IV. As shown in Table 4.6, paramedical graduates outnumbered new government job openings by around 45,000 during REPELITA IV.

Table 4.6: PARAMEDICAL MANPOWER: TOTAL SUPPLY AND GOVERNMENT DEMAND
1979-1988

Year	Total graduates	New government graduates	New government posts	Excess of graduates over new government posts	Excess of government graduates over new government posts
1979/80	5,941	2,789	5,651	290	-2,862
1980/81	5,320	2,589	6,898	-1,578	-4,309
1981/82	4,654	2,521	5,860	-1,206	-3,339
1982/83	5,164	2,912	4,687	477	-1,775
1983/84	5,601	3,033	5,220	381	-2,187
1984/85	6,810	4,807	4,119	2,691	688
1985/86	8,495	5,825	5,158	3,337	667
1986/87	12,807	9,138	4,665	8,276	4,473
1987/88	20,659	13,754	11,907	16,128	1,847
1988/89	18,812	11,902	11,907	14,281	-5

Source: World Bank staff estimates.

4.33 It is possible that some of the excess supply of labor can be placed in the 3,900 open (never-filled) INPRES positions backlogged from earlier years. However, these positions are open because no one has volunteered to fill them; it remains to be seen if excess supply and consequent unemployment will provide the impetus for graduates to take posts in remote or rural areas. Annual attrition and backlogged vacancies may also provide places for

graduates. No reliable attrition data exist, but the planning department assumes that nurse attrition is approximately 2.5% annually. If so, filling vacancies left by attrition could absorb an extra 2,000 applicants per year.

4.34 Can the private sector absorb the excess of graduates over government posts? Unfortunately, no comprehensive data exist on the private sector, and projection of hiring trends is not possible. However, some indirect evidence suggests that the private sector will not be able to fill the gap. First, it is thought that private sector (and military) hiring absorbs most of the output of the private (and military) schools. If so, this sector will have to increase its hiring rate by 40% in 1987/88 merely to keep up with its own output of trainees. Meanwhile, the graduates of government schools, who are given preference in the assignment of government jobs, will outnumber those jobs by a total of about 15,000 over 1986/87 to 1988/89. Another useful comparison is to look at the magnitude of private hospital employment; this may constitute the majority of non-government health staff employment. In 1985, private hospitals employed 12,201 paramedics; armed forces hospitals employed 8,189; and quasipublic hospitals employed 4,508. Thus a total of about 25,000 paramedics were employed in nongovernmental hospitals. If the private sector were to absorb all paramedical graduates not hired by the government over 1986/87 to 1989/90, it would be equivalent to tripling the size of nongovernment hospital employment over that three year period. Assessment of the situation requires much better information on hiring trends and prospects in the private sector. Other factors in the supply/demand equation also are in need of quantification. There does not appear to be readily available data on the attrition rate of staff, so the extent to which job vacancies make it possible to absorb additional paramedics is not known.

Regional Balance

4.35 Measures of aggregate excess supply obscure substantial regional variations in excess supply. There are number of provinces, and probably many scattered districts, apparently experiencing excess labor demand. Posts in these areas are unfilled despite the presence of excess supply elsewhere. This means that, for labor surplus areas, excess supply is more severe than the aggregate figures would indicate.

4.36 Although the MOH has allocated a favorable proportion of new paramedical posts to outlying provinces, it has often been difficult to fill these posts.^{1/} Of the 22,071 INPRES positions created over 1979/80 to 1985/86, about 83% are ever-filled (the qualification is necessary, because some of the posts may have since been vacated). There are substantial disparities between provinces in the success in filling these positions. More than 40% of the INPRES positions have never been filled in six provinces: Central, West and South Kalimantan; South Sumatra; Irian Jaya; and East Timor. In contrast, more than 97% of INPRES positions were filled in North Sumatra, Jakarta, West and East Java, Yogyakarta, and Bali. Routine posts, which tend to be in hospitals and urban areas, are much more easily filled. More than 96% of the 4,114 routine posts created during 1984/85 and 1985/86 were filled; West Java was the province with the lowest record, at 89% filled. As noted

^{1/} See Statistical Annex, Table 5.7.

earlier, the MOH has an incentive to fill routine positions first, or to create these positions in places which will be easy to fill, since routine positions are forfeit if not filled.

4.37 A substantial number of posts remain unfilled at the same time that aggregate manpower supply exceeds aggregate demand. This suggests that supply and demand do not equilibrate between provinces. The available data ^{8/}, although rough and not comprehensive, show excess supply in some provinces and excess demand in others. These data cover only supply and demand for SPK (high school) level nursing positions created under INPRES, which are primarily health center positions. Supply here includes only those graduates who have applied for a public position; those who seek or have found private sector positions are excluded. Graduates are classified by their province of education, not their province of origin. Of the 4,244 open posts, 1,364 remain unfilled; these are concentrated in the excess demand provinces of South Sumatra, Bengkulu, Central Java, all of Kalimantan, and Irian Jaya. At the same time, East Java has a surplus of 1,298 unplaced graduates, and Jakarta has an excess supply of 569. In sum, there are around 2,600 unplaced graduates. While some of these unplaced graduates may subsequently have obtained positions created under the routine budget, only 1,000 such positions were available nationwide. Thus: (a) there is a mismatch between production and absorption of paramedical personnel by province; (b) this mismatch is not equilibrated by interprovincial placement or migration.

4.38 Once in place, a paramedic is very unlikely to move between provinces. In 1985/86, there were a total of 513 interprovincial moves among the hundred thousand or so employees of rank I or II, a class that includes most paramedics. There are a number of plausible explanations for the reluctance of paramedical students to apply for out-of-province posts. Unlike physicians, most paramedical staff do not receive free housing; hence there is a strong incentive for the student to stay within the sphere of her social network, where housing can be arranged with friends or relatives. Cultural barriers between different regions of Indonesia can be formidable, and single women may have a particularly hard time in unfamiliar settings. Marriages contracted while the student is in paramedical school may be another constraint on reassignment. However, all these explanations remain untested hypotheses. It would be worthwhile to undertake a student survey (especially in East Java) to determine the actual constraints on placement. It is possible that some streamlining of administrative procedures, or an increase in the transportation and resettlement allowance, might be useful.

Student Recruitment Policy: Quotas

4.39 Recognizing the difficulty of equilibrating supply and demand through outplacement of graduates, MOH has adopted a policy of encouraging recruitment of students in excess demand areas; the goal is that each province (if not each district) should be able to supply its own SPK-level, and much of its academy-level, nursing personnel. This policy takes the shape of provincial quotas for admission to nursing schools; provinces with insufficient training capacity are assigned slots at schools in neighboring provinces. For instance, for academic year 1986/87, 87 school slots were reserved for

^{8/} See Statistical Annex, Table 5.8.

students from Central Kalimantan. Forty of these were assigned to the SPK at Palangkaraya, the provincial capital. The remaining 47 were assigned to a variety of types of schools outside the province, in Banjarmasin, Bandung, Surakarta, and Jakarta. Quotas also exist at the district level. The quota scheme applies only to the 96 vertical schools, funded and operated directly by MOH. These schools offer 6,200 of the total 14,480 slots open for entering students. The quota schedule is devised by the central admissions committee, chaired by the head of Pusdiknakes. There is no formal representation of the Planning Bureau or the Personnel Bureau on the Committee.^{9/}

E. Doctor Supply and Demand

Aggregate Balance

4.40 General doctors are trained at thirteen public universities operated by the Ministry of Education and Culture; and at ten private universities. Upon graduation, doctors have four possible sources of employment: (a) as a MOH employee (though possibly seconded to a local government); (b) as a MOEC employee; (c) the armed forces; (d) certain private employment interpreted as meeting the national interest (there is however no formal list of private employers which satisfy this requirement).

4.41 There is some disagreement concerning the equilibrium between supply and demand. Although all doctors are required to register with MOH upon graduation, MOH keeps statistics only on its own hiring.^{10/} However, MOH staff maintain that most general doctors find employment after graduation; the exception is a group of approximately 150 long-term unemployed doctors who seek a Jakarta based job, usually because of a spouse employed there. According to MOH roughly 300 graduates per year obtain positions with MOEC or the armed forces, and about 100 obtain private positions. MOEC, however, maintains that there is a high degree of unemployment among recent graduates. There is agreement, however, that there is a substantial degree of unemployment among dentists. This reflects the surplus of dental graduates over new posts.^{11/} In addition, there is some tendency for dentists (the majority of whom are women) to defer to their spouses' job locations (as evidenced in the large queue of requests for Jakarta jobs).^{12/}

^{9/} The quota scheme and student selection procedure is described in detail in the Pedoman Pelaksanaan, Seleksi Penerimaan siswa/Mahasiswa Baru, published by Pusdiknakes.

^{10/} See Statistical Annex, Table 5.10.

^{11/} See Statistical Annex Table 5.10.

^{12/} See Statistical Annex, Table 5.11.

Regional Balance

4.42 Two to five years of mandatory service is required of all medical school graduates, public and private. Completion of this service is a prerequisite for admission to specialist training. To promote better geographical distribution of doctors, the mandatory service period is shorter for the less attractive provinces. The classification of provinces by service period has varied over time. The most recent one is shown in Table 4.7.

Table 4.7: MANDATORY SERVICE REQUIREMENTS FOR DOCTORS

<u>Five years</u>	Region I: Java.
<u>Three years</u>	Region II: Sumatra, Bali, West Nusa Tenggara, Sulawesi (except Southeast Sulawesi), South Kalimantan.
<u>Two years</u>	Region III: Southeast Sulawesi, Kalimantan (except South Kalimantan), East Nusa Tenggara, Maluku, Irian Jaya, and East Timor; plus designated remote areas within Regions I and II.

4.43 Placement procedure. Graduates applying for MOH positions specify their preferred provinces. These preferences are matched, on a first-come, first-serve basis, with available positions; INPRES positions are filled first. Applicants are not obliged to accept any position, but the consequence of refusal is likely to be at least a year of unemployment. The provincial supply/demand situation for doctors can be illustrated with data showing for each province the number of INPRES positions available (i.e., health center positions), and the number of applicants specifying that province as first choice.^{13/} The overwhelming popularity of Jakarta is clear. In 1986/87, 192 applicants listed Jakarta as their first choice, although no INPRES positions were available. MOH Bureau of Personnel staff estimate that approximately 150 of these applicants are long-term unemployed graduates who seek a Jakarta position because their spouses work there. Other popular areas include the rest of Java, Bali, South Sulawesi (Ujung Pandang) and North Sumatra (Medan). Turning to deficit provinces, where open positions exceed applicants, Kalimantan heads the list, with 23 applicants for 65 positions. Other deficit areas include South and West Kalimantan, Aceh, East Nusa Tenggara, Maluku, Irian Jaya, and East Timor.

4.44 The results of the assignment process over the past two years mirror the selection priorities discussed above.^{14/} Among newly created INPRES positions over 1984/85-85/86, most new physician posts in South and Central Kalimantan were left unfilled; about a quarter of the new posts in Maluku and Southeast Sulawesi were also not filled. Dentists were reluctant to be posted to health centers in East Nusa Tenggara, Irian Jaya, Central Kalimantan, and

^{13/} Statistical Annex, Table 5.12.

^{14/} Statistical Annex, Table 5.13.

South Kalimantan. By contrast, virtually all routine posts over 1985/86 and 1986/87 were filled; the routine posts are more likely to be located in hospitals, and in provincial capitals, and are thus more attractive.

4.45 Transfers, attrition and understaffing. In essence, the current system provides doctors to remote areas by rotating new graduates through on two-year tours of duty. Although some doctors may decide to stay on at their posts, most will opt for specialist training, which offers the possibility of an urban posting with a lucrative side-practice. It is therefore hard to augment the doctor/population ratio in outlying regions.

4.46 The rapid throughput of doctors implies that it is very difficult to maintain full staffing of facilities in outlying regions, explaining the substantial proportion of health centers without doctors. Eleven provinces have more than one-quarter of their health centers operating without a doctor in 1985. These are official statistics on placement; the informal reassignment process discussed previously means that these statistics probably underestimate the proportion of doctorless health centers. A very rough estimate of the rate of accumulation of medics (doctors and dentists)^{15/} clearly suggests that the system acts to accumulate medics in Jakarta, and to a lesser extent, Central and West Java. By contrast, East Nusa Tenggara, South Kalimantan, and Aceh seem to be suffering from a net loss of medics over time. On a per capita basis, the accumulation of doctors in East Java lags far behind other Javanese provinces. Outside Java, Bali, and Sumatra, the annual net increment of medics is in the single-digit range. This places a binding constraint on the possible expansion rate of the health center network.

4.47 Another constraint on the distribution of doctors is the lack of a centralized mechanism for filling vacated posts (lowongan). In theory, new graduates are supposed to be assigned only to newly-created INPRES posts. Vacancies at old posts (left, for instance, by the departure of a doctor after his two-year service period) are not filled through a centralized process, but by application to the provincial health office. If this rule is strictly adhered to, it is hard to see how the vacancies could be filled in places such as Central Kalimantan where even the new positions are left vacant.

4.48 Provision of doctors' services to outlying areas depends on the throughput of doctors as they traverse a period of public service between basic and specialized medical education. In many provinces, that throughput is insufficient, despite direct cash incentives (which may, however, only offset the higher cost of living in these areas) and the incentive of a reduced service period. Even where the quantity of doctors is adequate, the rapidity of the throughput means that a health center doctor never has time to become truly familiar with local people and conditions. A possible alternative to this system is to provide large incentives for doctors to remain in outlying areas. Such incentives might include a salary comparable to a Java-based doctor's outside income, paid leaves to Jakarta or province of

^{15/} See Statistical Annex, Table 5.14. The estimate calculates the inflow from INPRES and routine appointments, outflow to specialist training, and in- and out-flows from transfers. Outflows from specialist training are not available, but are surely concentrated on Jakarta and other urban centers.

birth, and subsidized high-quality education for the doctor's children. In assessing the expense of such a scheme, it must be remembered that the current system supports the large expense of subsidized medical education in exchange for a rather small output of public goods, namely two or three years of service by some medical graduates in areas unable to support a private physician. Over the long run, it might be desirable to shift away from the indiscriminate subsidy of medical school students toward highly targeted incentives for service in the public interest.

F. Policy Issues

4.49 Personnel information. The current personnel information system is inadequate for the management of the Ministry of Health's most important single resource, accounting for over Rp.243 million in annual recurrent costs. The current system: (a) does not cover about one-third of all employees working in MOH-supervised facilities; (b) provides no information on the facility or function to which a staff member is assigned. These shortcomings hobble basic planning and analysis, especially regarding the allocation and distribution of employees. The MOH recognizes these problems and is currently implementing an improved personnel information system. So far, a low response rate to baseline data collection has prevented operationalization of the system. It is important that the low response rate problem be diagnosed, and that the solutions be enthusiastically supported. Overlaps and redundancies between competing information systems should be minimized.

4.50 If it is necessary to continue using the current information system as a stopgap, consideration should be given to negotiating with BAKN for direct, continuing access to civil service data. The current procedure is to update MOH information independently of the BAKN. Direct access would save time and effort, provide more timely information, and could provide up to date information on health facility employees formally belonging to other departments.

4.51 Excess supply of paramedical personnel. During REPELITA IV, public paramedical schools have graduated several thousand more paramedics than the government has been able to absorb given fiscal constraints on hiring rates. In addition, graduates from private paramedical schools are also likely to greatly outnumber available openings in the private sector. This represents a policy problem for two reasons. First, it is wasteful to spend Rp.0.5 million per student year in providing a skill that may never be utilized. Second, there is some danger of a cobweb cycle: the paramedical glut could deter new admissions, resulting in quality or quantity shortfalls three years hence.

4.52 There is a need for estimating the extent of, and determining if there are any barriers to, private-sector absorption of these graduates. Indeed, if MOH is to continue as central planner of all paramedical supply for the country, this information should be gathered on a routine and continuing basis. Further research is also needed to explore the feasibility of various policy responses, including: (a) diversion of some pekarya kesehatan posts to paramedics; (b) selective school closings via enforced accreditation standards, especially in provinces with the highest levels of excess supply (with some of the cost-savings devoted to retraining or placement of affected

students); (c) reabsorption of existing staff or new graduates into supplementary training programs. Among these, the pekarya issue is of particular importance. MOH has devoted a significant part of its scarce new paramedical posts to these auxiliary paramedics, who receive only four months of training but are paid at the same scale as paramedics with three years of education. In theory, pekarya will greatly improve rural health services, since they are recruited from the neighborhood of understaffed health centers. The success of this theory in practice needs to be verified.

4.53 Allocation of new posts. Via the INPRES program, MOH has achieved a relatively equitable distribution of new posts among provinces. Routine posts are less equitably distributed, with Jakarta taking a disproportionately large share. However, scattered evidence suggests that the intraprovincial distribution of posts deviates from the goals of equity and efficiency, resulting in substantial mismatches between facility staffing and utilization. To some extent this may result from a pragmatic recognition of the difficulties of assigning staff to rural areas. It may also reflect political pressures on local administrators combined with a lack of staffing standards and staffing data.

4.54 The new utilization-based staffing standards developed under the ISN system are addressed to the latter problem. An ISN-like system is necessary in an era where the unpredictability of annual budgets requires flexible, prioritized staffing plans. It is important that the ISN system adopt a feasible system of data collection and be institutionalized to aid in planning.

4.55 Another planning problem results from the fragmentation of budgetary responsibility for health employees. Approximately one-quarter of all workers at MOH-supervised facilities are nonmedical staff appointed at the provincial or local level by the Ministry of Home Affairs. The resultant coordination problems are said by MOH to result in some under-provision of nonmedical staff to local-level hospitals.

4.56 Placement and distribution of personnel. Although some provinces produce more paramedics than they hire, and others suffer from a deficit of paramedics, there is relatively little intraprovincial placement of paramedical graduates. Recognizing this problem, the MOH has instituted a quota system for allocating public paramedical school slots by province. The success of this strategy has yet to be assessed. Inadequate reliable information exists on the placement of new graduates within provinces, or on the filling of vacancies. It is widely thought that difficulties in placing paramedics in rural areas have led to understaffed health centers and overstaffed hospitals and health offices. Verifying the extent to which this is true, and verifying the accepted hypotheses on why it is difficult to place paramedics, will require research.

4.57 Provision of doctors to rural areas and remote doctors is accomplished by rotating recent medical school graduates on two-year mandatory duty tours. It is therefore extremely difficult to augment the doctor/population ratio, or to maintain health center staffing in these areas. In eleven provinces, more than one-quarter of all health centers were reported to lack a doctor in 1985. It is possible that provision of generous and innovative incentives for rural residence might help the situation. Such

incentives might include, for instance, subsidized education for the doctors' children at high-quality boarding schools. Such incentives might be financed, in part, by recovering the cost of medical education from doctors who practice in urban areas. This would also serve to increase the relative attractiveness of the rural posts.

4.58 MOH is currently in the process of establishing staffing coordinators at the provincial level. It is hoped that these officers will be able to improve both the provincial supply/demand situation and the intraprovincial allocation of manpower.

4.59 Worker productivity. Scattered evidence suggests that average productivity is low, but highly varied, throughout the health system. To a large extent, low productivity may be rooted in a failure of the personnel allocation process to match staff with existing workload. The new ISN manpower planning system is directly addressing this problem. Low productivity may also stem from structural barriers to utilization, e.g., lack of specialized equipment, staff, or drugs, or inconvenient opening hours. Another problem lies in the lack of an incentive structure. With few exceptions, the system has lacked any penalties for lack of effort, or rewards for exceptional effort. Current MOH plans to link promotions in salary rank to work effort are a laudable step in the right direction. Further mechanisms for improving employee management should be explored.

4.60 The quantity/quality tradeoff. The conventional view is that there is an urgent need for additional paramedical staff. For this reason, REPELITA IV chose to emphasize rapid expansion of staff quantity, making quality improvement a long-term goal. From this viewpoint the current necessity to reduce paramedical output is a regrettable, almost paradoxical, short-term expedient. It is appropriate, however, periodically to reexamine the quantity-quality tradeoff in light of changing conditions and experience. As noted above, there is evidence of areas of low labor productivity throughout the health sector. To the extent that the existing labor force is inefficiently utilized, one may question the necessity for adding additional staff. It may in fact be more productive to devote more resources to improving the quality and efficiency of existing staff, while slowing the rate of growth of the labor force. The current period of retrenchment may offer an opportunity to redirect personnel policy in this direction.

V. COST RECOVERY AND HEALTH INSURANCE

A. Introduction

5.01 Previous chapters have shown that the provision of adequate health services is threatened by the scarcity of fiscal resources in Indonesia. This provides an appropriate context to review options for increasing cost recovery to offset the decline in budgetary revenues. Experience in some developing countries shows that prices can play an important role in mobilizing supplementary resources to help finance provision of public sector services. Section B reviews current practice and performance in Indonesia. However, raising cost recovery would also increase the need for risk-pooling health insurance systems in order to alleviate the potentially catastrophic financial consequences of illness, and to ensure that utilization of necessary services is not reduced by higher fees. Sections C, D and E review the status of insurance coverage for civil servants (ASKES), private sector workers (DUKM) and rural villagers (dana sehat) respectively. Section F identifies selected policy issues in health insurance development. Section G then outlines appropriate policy directions in Indonesia.

B. Pricing and Cost Recovery

Tariff Structure

5.02 Unlike many developing countries, Indonesia has adopted a system of user charges for public sector health services. For hospitals the pricing structure consists of three main tariffs: (a) a fixed fee per outpatient visit; (b) a fixed fee per inpatient day, differentiated by the class of accommodation; and (c) a schedule of fees for a wide range of special services, including operations, diagnostic services (such as X-ray and laboratory examinations) and drug sales. Of these three tariffs, the largest source of hospital revenue generation is typically the fees for special services, which account for about half of total revenues; most of the remainder is generated by inpatient fees, with outpatient fees contributing only a small proportion. Responsibility for setting hospital tariffs rests with the level of government which owns the facility. For vertical hospitals owned by the central government, tariff levels are determined by the MOH Directorate General of Medical Care. New guidelines for setting tariffs were issued in 1987 and summarized in Table 5.1. Tariffs for provincial or district hospitals are determined by the relevant government authority. These are expected to conform roughly to the guidelines for central government hospitals, but the central MOH plays no role in determining or monitoring regional government fee schedules. The level of fees corresponding to this tariff structure is illustrated for selected hospitals in Table 5.2. These tariffs are set well below the actual cost of delivering hospital services, for which recent estimates are summarized in Table 5.7.

Table 5.1: GUIDELINES FOR HOSPITAL TARIFFS

Outpatient Visit	
Class A	- 50% (Drug Cost Index)
Class B	- 40% (Drug Cost Index)
Class C	- 30% (Drug Cost Index)
Class D	- 20% (Drug Cost Index)
Inpatient Day	
Class III A	- 1.5 (Food Cost Index) /a
Class III B	- Class III A/3
Class II	- 2 to 5 (Class III A) plus 30% medical consultation
Class I	- 6 to 9 (Class III A) plus 30% medical consultation
Class VIP	- 10 to 13 (Class III A) plus 30% medical consultation

/a Food Cost Index - Rp.1,200 in 1987.

Source: Regulation 66/MENKES/SK/II/1987 (Pola Tarip Rumah Sakit Pemerintah).

**Table 5.2: SELECTED HOSPITAL TARIFFS
(Rupiah)**

	RSU Cipto Class A, Jakarta 1987	RSU Mataram Class B, NTB 1984
Outpatient Visit	500	350
Inpatient Day /a		
Class III B	600	600
Class III A	1,800	1,500
Class II	12,000	2,500
Class I	21,060	6,000
Class VIP	30,420	-

/a Tariffs for Classes II, I and VIP include charges for medical consultation but exclude additional charges for drugs. Classes III A and III B are exempt from charges for medical consultation and drugs.

5.03 For health centers the basic user charge comprises a fixed fee per outpatient visit which is supposed to cover medical consultation plus three days supply of drugs. Central government guidelines issued jointly by the

Ministries of Health and Interior in 1977 ^{1/} established a maximum health center fee of Rp.150 per outpatient visit, with exemptions for the certified indigent and those requiring immunization or treatment for communicable diseases. However, in practice many local governments set higher fees ranging from Rp.300 to Rp.1,000 per visit. New guidelines issued in 1988 have raised the official outpatient fee to Rp.300 per visit. As with hospital tariffs, the health center fee is set far below the full cost of service provision. Recent estimates for health centers in four provinces show an average cost per outpatient visit of around Rp.1,370.

Cost Recovery Ratios

5.04 Although the Indonesian health sector does have a system of user fees, it generates a low volume of revenues. Table 5.3 summarizes cost recovery data for 1983/84-1985/86 by program. In 1985/86 revenues totalled only Rp.47 billion, equivalent to 10% of recurrent expenditure. The majority of health sector revenues are generated by hospital charges, which accounted for Rp.35 billion or about three-quarters of sectoral revenues in 1985/86. The cost recovery ratio in the hospital subsector averages around 20%, or about double the sectoral average. By contrast, only about Rp.2 billion was generated by health centers, yielding a very low cost recovery ratio of 3%. However this figure may be biased by classification errors in the government accounts (see para. 3.11).

Table 5.3: COST RECOVERY, 1983/84-1985/86

	<u>Total ^{/a} Revenue</u> <u>(Rp.billion)</u>			<u>Revenue as % of</u> <u>recurrent expenditure</u>		
	<u>1983/84</u>	<u>1984/85</u>	<u>1985/86</u>	<u>1983/84</u>	<u>1984/85</u>	<u>1985/86</u>
Hospitals	24.2	30.8	34.5	20.2	22.0	19.9
Health centers	1.8	1.0	2.1	3.8	1.6	3.0
CDC	0.0	0.0	0.0	0.0	0.0	0.0
Training	0.0	0.0	0.0	0.0	0.0	0.0
Other	11.7	10.5	10.6	9.6	8.0	6.0
<u>Total</u>	<u>37.7</u>	<u>42.4</u>	<u>47.1</u>	<u>8.7</u>	<u>11.5</u>	<u>10.2</u>

^{/a} Includes central, provincial and district levels of government.

Source: ANNEX I.

5.05 Cost recovery performance in Indonesia compares favorably with some developing countries. For example, cost recovery in the Philippines is estimated to have declined to about 5% of public sector spending on health in

^{1/} Regulation 179/MENKES/SK/VIII/77 (Pedoman Pelaksanaan Pemungutan Biaya Pelayanan Kesehatan).

1985. However, Indonesian performance is modest compared to the polar case of China. A recent World Bank survey of Chinese hospitals showed cost recovery ratios averaging over 80% of recurrent expenditure. These high ratios are achieved by restricting government subsidies to labor costs, while recovering all other operational costs from service fees and for-profit drug sales. Introduction of a similar cost recovery policy for Indonesia would triple hospital revenues from around Rp.34 billion to Rp.91 billion in order to cover current levels of nonsalary recurrent expenditure on hospitals.

Revenue Retention

5.06 Government regulations require fee revenues to be remitted to the level of government which owns the facility. These revenues tend to be treated as an earmarked charge rather than an addition to general revenues. As shown in Table 5.4, provincial governments budget more (about three times as much) than they collect in revenues from the health sector. But district governments budget less: overall the size of this negative local subsidy is small but in some districts it may be large. This fact has been characterized as a tax on illness, although this description is not appropriate given that local health services are heavily subsidized by the central government. Introduction of an explicit policy of decentralized revenue retention by facilities would probably help to mobilize additional resources to finance O&M in hospitals and health centers. In addition to capturing existing revenue leakages, revenue retention would give local managers an incentive to generate more revenues by enforcing fee payments. At the same time, decentralized revenue management would increase accountability of facility managers to their users, thus promoting more efficient resource use to provide better quality services.

Table 5.4: ROUTINE EXPENDITURE AND REVENUE FOR HEALTH
BY LEVEL OF GOVERNMENT, 1983/84-1985/86
(Rp. billion)

	<u>Routine Expenditure</u>			<u>Revenue</u>		
	1983/84	1984/85	1985/86	1983/84	1984/85	1985/86
Central (APBN-DIK)	86.1	103.4	133.9	8.7	10.9	13.0
Provincial (APBD1-DIK) /a	21.9	23.9	33.0	8.1	9.0	10.9
District (APBD2-DIK) /a	18.6	16.7	22.3	20.8	22.6	23.3

/a Net of SDO transfer from central government (assumed equal to the salary component of regional routine budgets).

Source: ANNEX I.

Protection of the Poor

5.07 A critical issue in setting user fees is whether price increases will reduce the use of health care by those who need it. That the poor in fact presently spend relatively large amounts on health care, often to pharmacists and traditional healers, suggests that the ability to pay for good care does exist (see ANNEX VI). However, any reductions in utilisation as a result of price increases will almost certainly be sustained by the very poor and it is essential that the poor should be subsidized or protected from high fees in some other manner. Several policies are already in place to provide this protection to the poor in Indonesia.

5.08 Low Outpatient Fee. As noted above, the official fee for outpatient services at health centers has been kept at only Rp.150 since 1977. For a family of four making two visits per person per year, the total of eight visits would cost only Rp.1,200. Based on the 1984 SUSENAS data, average rural per capita income per year could be estimated at Rp.210,000. Thus the cost of visits for the whole family for a year at the basic fee level would total only about 0.6% of annual income. Even if routine visits are estimated to cost Rp 800, the median number in the MOH household survey for the cost of a public outpatient visit (see Annex F), the percentage of income spent on health care visits at a level of two visits per person per year would be only about 3% of rural income per capita.

5.09 Low Cost Hospital Beds. Besides being protected to some extent by the low costs for basic outpatient care, however, the very poor also need to be protected from the possibly large costs of hospital inpatient care. Two government policies seek to provide this protection. All private sector hospitals are required to make at least 25% of their beds available at the lowest room rate offered. While this regulation is often cited as a protection for the poor, in reality it has almost no effect. Hospitals which do not desire to offer low cost services for the poor simply provide no beds at a low fee level, and those that do make such beds available (usually religious hospitals) are by no means forced to do so by the regulation. More effective is the requirement that public sector hospitals make available a large proportion of beds at low tariffs. As shown in Table 5.2, tariff levels are differentiated by class of accommodation and the majority (60%) of beds must be allocated to the lowest cost Class III accommodation (30% each in Classes III B and III A), with 20% allocated to Class II.

5.10 Affidavit of Indigency. Indigent persons can request their village chief or other authorized official to issue an affidavit which exempts them from paying fees for health services at all public health centers or hospitals. The effectiveness of this affidavit procedure is unclear. However, evidence that affidavits can be obtained by those who need them badly is that a major reason given by some Dana Sehat leaders for not attempting to provide hospital coverage for participants in these cooperative insurance schemes is that the indigent can easily obtain letters of exemption from payment from the village chief.

C. ASKES Insurance for Government Employees

5.11 ASKES (formally BPDPK or Perum Husada Bhakti) is the compulsory health insurance system covering civil servants, active and retired. GOI has provided health benefits to civil servants since 1950. Initially, civil servants had the right to use any health care provider, and submit claims for payment to the Ministry of Health. As the number of civil servants expanded, this system became unsupportable. In 1968, a version of the current system was introduced. Premium payments were required and civil servants were allowed free choice of providers who submitted claims to the government for payment. The system underwent several reorganizations as a result of continued financial difficulties and eventually ASKES members were restricted mainly to government health facilities. In 1984 ASKES was reorganized as a parastatal company, Perum Husada Bhakti, which is responsible to both the MOH and the Ministry of Finance, which must jointly approve its budget. As a perum (public corporation), however, the organization has greater flexibility in management, especially personnel management, than a government agency.

Coverage

5.12 In 1986, the ASKES rolls included 3,256,330 cardholders, including civil servants and pensioners. This represents an increase of about 35% over 1981/82 enrollment. For provinces providing a breakdown, 21% of cardholders are pensioners. It is interesting that a significant proportion of civil servants do not hold ASKES cards; in 1983/84, for example, civil servants holding ASKES cards number 11.7% fewer than the Civil Service Commission (BAKN) count of 2,722,766. ASKES coverage also extends to the card holder's spouse and not more than three children. BAKN reports an actual average of 2.22 dependents per active civil servant. This yields an enrollment estimate of about 10.5 million or about 6% of the total population. If pensioners have fewer dependents, this is an overestimate. ASKES statistics assume an average of three dependents per cardholder, yielding a total enrollment estimate of about 14 million or about 9% of the total population.

5.13 ASKES coverage entitles beneficiaries to free use of government health centers, including basic drugs. Many health centers offer special afternoon sessions exclusively for ASKES participants. These are supposed to be less crowded and more convenient than the morning sessions which are open to the general public. Participants are also entitled to free use of government hospitals. Until recently, participants were entitled only to Class III accommodations (the lowest category) without paying additional charges. Under new regulations, however, rank III civil servants (8.5% of the total) may receive Class II accommodations without copayment, and rank IV staff (0.6%) are entitled to Class I. Patients may upgrade their accommodations by paying the difference in rates, and many elect to do so. They can also choose to use private hospitals, but have to pay for any difference between the charges and the official ASKES reimbursement schedule.

Revenue and Expenditure

5.14 The system is principally funded by a payroll deduction of 2% of base salary for active employees and pension payments for retirees. These funds are collected directly by the central office of the Ministry of Finance. Premium revenue rose, in nominal terms, from Rp.18.14 billion in 1979/80 to a projected Rp.79 billion in 1986/87. ASKES also receives interest on its substantial time and savings deposits. In 1987 as in past years ASKES revenues will be more than sufficient to pay the costs of the system. However, ASKES reimbursement rates are based on subsidized tariffs which are set well below the full cost of provision of the services. For ASKES patients as for all other users there is, therefore, a government subsidy implicit in any use of public health services at the official fee schedules.

5.15 The 1987 budget projects operational expenditure of Rp.84.6 billion, of which Rp.71.4 billion is allocated to health care, and the remainder to administration, support, and depreciation. As shown in Table 5.5, ASKES supports health care through three different types of payment: (a) Claims for medical service. ASKES reimburses claims for outpatient treatment, inpatient treatment and selected other medical services. These reimbursements account for a large proportion of total cost recovery in the health sector; (b) Provision of drugs. ASKES provides direct physical allocations of drugs to health centers and hospitals; and (c) Staff honoraria. ASKES also makes direct payments to health center and hospital staff to reward them for attention to ASKES patients, e.g., for offering special health center sessions in the afternoon. These payments are monthly lump sums, the size of the payment being tied to the type of facility regardless of the number of staff or number of patients served.

Reimbursement Policy

5.16 Until recently, claims were made by health facilities to ASKES for reimbursement on a fee-for-service basis. This situation had several adverse consequences for ASKES: (a) ASKES had little control over the level of fees set by local governments; (b) there was an incentive for local facilities to provide more billable services (e.g. radiological and laboratory exams) than optimal; (c) detailed itemization of charges led to costly and time-consuming claims-processing procedures. These problems are addressed by a set of new hospital reimbursement policies which became effective in 1987.^{2/} Under these policies, ASKES will reimburse inpatient services on the basis of a fixed packet price per day. In order to contain costs, length of stay will be monitored and reimbursement subject to guidelines on maximum length of stay by diagnosis. The packet price is designed to cover three main components: (a) hospital services, including room, food, standard medicines, and use of equipment and operating room; (b) materials (e.g., X-ray film, laboratory supplies); and (c) medical services including surgery, medical consultations, laboratory and radiology tests and administration. Selected special services such as intensive care, heart operations, and hemodialysis will be billed separately. The packet reimbursement rates set for 1987 are shown in Table 5.6. Although these are no longer the same as official tariffs for non-

^{2/} Regulations 751/MENKES/SK/X/1986 on vertical hospitals and 68/MENKES/SKB/II/1987 on local hospitals.

ASKES patients, it is clear that they are set far below the full cost of service provision. Table 5.7 shows average estimates of unit costs in a sample of government hospitals, which are around five times higher than ASKES reimbursement levels. As such they entail a large subsidy for ASKES users of hospital services. For example, ASKES reimbursement per inpatient day in a Class B hospital is Rp.4,500, compared to an estimated average cost of around Rp.25,000.

Table 5.5: ASKES REVENUE AND EXPENDITURE, 1987
(Rp. billion)

<u>Revenue</u>	
Premium contributions	79.0
Interest	8.0
<u>Total</u>	<u>87.0</u>
<u>Expenditure</u>	
Reimbursement of Claims	<u>31.4</u>
Health center outpatient	4.8
Hospital outpatient	3.7
Hospital inpatient	15.2
Other <u>/a</u>	7.7
Drugs	<u>33.8</u>
Health centers	18.4
Hospitals	15.4
Staff Honoraria	<u>6.2</u>
Health centers	5.5
Hospitals	0.7
Administration	<u>13.2</u>
<u>Total</u>	<u>84.6</u>

/a Includes: Other medical services (e.g. hemodialysis), births, eyeglasses, prostheses and hearing aids.

Source: ASKES

Table 5.6: ASKES HOSPITAL REIMBURSEMENT RATES, 1987

Hospital Class	Rp. per Inpatient Day
Class A	7,500
Class B3	5,000
Class B2	4,500
Class B1	4,000
Class C3	3,500
Class C2	3,000
Class C1	2,500
Class D1	2,000

Source: ASKES.

Table 5.7: ESTIMATED UNIT COST OF HOSPITAL SERVICES
(Rp.)

	Per outpatient visit	Per inpatient day
Class B	9,862	24,469
Class C	3,691	13,052
Class D	3,948	12,554

Source: STATISTICAL ANNEX, Table 3.11.

5.17 The new regulations also introduced major changes in revenue retention policy. Vertical hospitals are formally allowed to retain all ASKES revenue. ASKES is to make a monthly deposit against drug and material costs, rather than waiting to process claims. Local hospitals are required to pass to the local government the 30% of reimbursement allocated to the hospital services component. However, the remainder of the fee packet is to be retained at the facility.

5.18 Utilization and subsidies. As shown in Table 5.8, ASKES utilization rates are high, especially for health centers. The health center utilization rate is about 2.5 visits per covered person per year, or about five times the national average. The hospitalization rate is about 38 per 1,000 persons enrolled per year, again about 5 times the national average of around 8 per 1,000 for Ministry of Health hospitals. However, it is not clear whether ASKES members use health services at a higher rate than private workers with comparable income levels. Most ASKES families are probably in the top

quartile of the Indonesian income distribution and, indeed, ASKES members comprise a substantial proportion of this group. The combination of five times higher utilization, as might be expected from the zero net price facing ASKES users, and the large subsidy per unit of service, implies that ASKES members capture a disproportionately large share of public subsidies for health. As shown in Table 5.9, this per capita ASKES subsidy amounts to around Rp.6,500 compared to only Rp.1,200 per capita among the general non-ASKES population.

Table 5.8: ASKES MEDICAL SERVICES: QUANTITY AND COST IN 11 PROVINCES /a

	Monthly cases	Total monthly cost (Rp.)	Unit cost per case (Rp.)	Utilization rate (per 1,000 enrollees) per year <u>/b</u>
Health center outpatient	918,141	142,753,689	155	2,511
Hospital outpatient	69,685	84,018,937	1,206	191
Minor surgery (outpatient)	9,162	9,796,500	1,069	25
Hospital care (kabupaten)	6,743	182,321,437	27,039	19
Hospital care (province/central)	5,431	351,473,227	64,716	15
Maternity (hospital delivery)	1,542	26,911,499	17,452	4

/a Aceh, West Sumatra, Riau, Jambi, South Sumatra, West Java, Central Java, South Kalimantan, North Sulawesi, West Nusa Tenggara, East Nusa Tenggara. Number of ASKES cardholders in these 11 provinces = 1,362,336. Number of cardholders nationwide = 2,650,276.

/b Enrollees calculated using BAKN average family size of 3.22 per civil servant.

Source: ASKES, "Laporan Penyelenggaraan Program Pemeliharaan Kesehatan Pegawai Negeri Penerima Pensiun and Keluarganya, Tahun 1985," Table 1. Unit costs recalculated from cases and total cost.

Table 5.9: AN ESTIMATE OF THE ASKES SUBSIDY

	Number			Percent Shares	
	ASKES	Non-ASKES	Total	ASKES	Non-ASKES
Membership	10,485,383	154,144,235	164,629,618	6	94
<u>Utilisation rate</u>					
A&B Hospital Inpatients per 1000	14.86	1.29	2.16		
C&D Hospital Inpatients per 1000	18.45	0.55	0.63		
Total Hospital Inpatients per 1000	33.30	6.76	8.45		
Hospital Outpatients per person	0.22	0.11	0.12		
Health Center Outpatients per person	2.51	0.24	0.38		
<u>Total Utilisation</u>					
A&B Hospital Inpatients	155,778	199,522	355,300	44	56
C&D Hospital Inpatients	193,410	841,750	1,035,160	19	81
Total Hospital Inpatients	349,188	1,041,272	1,390,460	25	75
Hospital Outpatients	2,261,573	17,291,899	19,553,472	12	88
Health Center Outpatients	26,335,090	36,566,585	62,901,675	42	58
<u>Total Costs (Rp. billion)</u>					
A&B Hospital Inpatients	33.78	43.26	77.04	44	56
C&D Hospital Inpatients	14.54	63.30	77.84	19	81
Total Hospital Inpatients	48.32	106.56	154.88	31	69
Hospital Outpatients	13.03	99.62	112.65	12	88
Health Center Outpatients	28.63	39.75	68.37	42	58
<u>Total Revenues (Rp. billions)</u>					
A&B Hospital Inpatients	10.08	12.91	22.99	44	56
C&D Hospital Inpatients	5.23	22.76	27.99	19	81
Total Hospital Inpatients	15.31	35.67	50.98	30	70
Hospital Outpatients	2.73	20.85	23.58	12	88
Health Center Outpatients	4.08	5.67	9.75	42	58
<u>Net Subsidy (Rp. billions)</u>					
A&B Hospital Inpatients	23.70	30.35	54.05	44	56
C&D Hospital Inpatients	9.31	40.54	49.85	19	81
Total Hospital Inpatients	33.01	70.89	103.90	32	68
Hospital Outpatients	10.30	78.77	89.07	12	88
Health Center Outpatients	24.54	34.08	58.62	42	58
<u>Net Subsidy (Rp. per capita)</u>					
A&B Hospital Inpatients	2,260	197	328		
C&D Hospital Inpatients	888	263	303		
Total Hospital Inpatients	3,148	460	631		
Hospital Outpatients	983	511	541		
Health Center Outpatients	2,341	221	356		

Source: World Bank staff estimates.

D. PKTK Insurance for Private Employees

5.19 PKTK (Pemeliharaan Kesehatan Tenaga Kerja or 'health care for workers') refers to a government-sponsored pilot health insurance scheme for private employees. As such it is one element of the still nascent DUKM (Dana Upaya Kesehatan Masyarakat or 'funds for public health') policy framework which will encompass all health insurance activities in Indonesia. This framework will be based on the following principles: (a) mandatory, universal coverage through a variety of programs; (b) cross-subsidization of the poor by the better-off; (c) a mixture of public and private sector participation under

government regulation; (d) an emphasis on programs offering capitated coverage of defined populations; (e) emphasis on a family doctor as entry point into the health system, with a well-defined referral system.

5.20 Implementation of the DUKM framework will ultimately involve drafting national legislation on health insurance and the establishment of a health insurance supervisory body. The extent to which the government will itself provide the envisioned insurance or health services is still under discussion. The voluntary PKTK insurance program is a private-sector analog of ASKES, providing health care for employees and their families, almost exclusively at government facilities at the regular subsidised tariffs, in exchange for employer-paid premiums. PKTK was initiated in Jakarta in April 1985, and has since been extended to 18 different regional schemes.

PKTK: Jakarta Pilot Scheme

5.21 Management. PKTK is a collaborative effort between the Jakarta office of the Ministry of Health and ASTEK, a parastatal company under the Ministry of Labor which provides social security insurance for workers. ASTEK is responsible for marketing the program and for collecting the premiums. The Health Department, through an office called DUKM-Jakarta, is responsible for providing and paying for health services. Collected funds are divided as follows: 2% to the DUKM coordinating body; 8% to ASTEK for administration; Health for administration; 10% to the Ministry of Health for administration; 70% for health care.

5.22 PKTK offers comprehensive health insurance to participating firms' employees and their families. Table 5.10 shows the basis for calculating the premium. These are costs for medical care only. In Jakarta, an additional 25% is added for administration and contingencies. An average family size of 3.4 was assumed, and an average wage of Rp.110,000/month. Based on these considerations, the Jakarta premium was set at 7% of wages, with an applicable salary range of Rp.50,000 to Rp.300,000 monthly. This covers the employee, spouse, and up to three children living at home. Additional family members can be enrolled at Rp.2500/month. Employers need not enroll all employees, and generally do not enroll management or other highly-paid staff. However, firms whose enrolled employees have an average salary under Rp.110,000 per month must pay an alternative minimum premium of Rp.2,500 per covered person per month.

5.23 Benefits. The initial health service point is one of 38 specially-designated health centers. These include some of the best in the city, including a newly built, Rp.500 million showcase center. These centers receive PKTK participants during special afternoon sessions, shared with ASKES participants. Like ASKES members, PKTK members receive basic medications without additional charge. In case of hospitalization, PKTK members are entitled without cost to either class II accommodations at government hospitals or class III accommodations at private hospitals.

Table 5.10: EXPECTED COSTS OF PKTK EXPERIMENT
(Rp. per enrollee per month)

	Jakarta	Semarang
Medical and paramedical services (health center)	500	462
Dental services	125	--
Medicine	500	--
Inpatient care	416	215
Specialist consultation	32	--
Diagnostics	26	25
Operations and special care	65	82
Maternity	20	15
Eyeglasses and hearing aids	11	22.5
Other	84	25
Total	1,779	841.5

Note: Categorization of service may not be strictly comparable between Jakarta and Semarang. Health center drugs apparently not included for Semarang.

5.24 PKTK reimburses participating health center staff on a capitation basis. To allow for low utilization during the program's startup, capitation is on a sliding scale, with a lump sum of Rp.150,000/month for 250 enrollees or less, Rp.400 per enrollee per month for the next 250 enrollees, and Rp.200 per additional enrollee per month for up to a maximum registration of 3,000 enrollees (including family members) per health center. The supervising doctor receives 60 to 70% of these funds, with the remainder distributed among paramedical staff. Drugs are funded separately. PKTK reimburses participating hospitals, public and private, for inpatient care at a fixed rate of Rp.27,000 per day, including drugs, food, and medical service. This rate is substantially higher than the standard ASKES reimbursement rates established in 1987. However, there are indications that this reimbursement rate is not sufficient to achieve full cost recovery for the level of services expected. This signals a potential danger with projected expansion of PKTK coverage. Unless reimbursement rates are carefully set to recover actual costs, the additional utilization of public facilities that will be induced by provision of free coverage for PKTK beneficiaries may increase the need for public subsidies instead of reducing it.

5.25 Participation has been far below original expectations. In February 1987, almost two years after the program's inception, there were 51 participating companies and a total enrollment of 11,000 individuals (including workers and their dependents). About 90% of companies approached by ASTEK declined to join PKTK; four companies joined but later dropped out (three as a result of bankruptcy). Participating companies are small; of the

companies enrolled at mid-year 1986, 82% had fewer than 100 employees, and 27% had fewer than 20. Almost all are service-sector companies rather than manufacturing industries.

5.26 Utilization of health centers has been slightly below ASKES levels, at 0.168 visits per enrollee per month. Most of the visits have been concentrated at 11 of the 38 participating health centers. Given fixed costs of administration, and the sliding scale for capitation, including a guaranteed minimum payment, the current enrollment level is substantially below the break-even point. Compounding PKTK's fiscal difficulties is its lack of control of drug use. Health center drug usage is currently running at Rp.3,330/visit, perhaps partly reflecting diversion of PKTK drugs to usage by other health center clients. PKTK management hopes to be able to reduce costs to Rp.2,000/visit in the near future, and eventually to implement a capitated system of drug allocation to the health centers.

Causes of Low Enrollment

5.27 Voluntary enrolment in PKTK programs relative to ASTEK membership is very low. By 1988 PKTK covered only around 90,000 private sector workers and their dependents, or less than 1% of the entire population. This compares to an actual ASTEK membership base of 3 million employees, and a potential base of 5.5 million.

5.28 The marketing plan for PKTK appears to have been based on three premises: (a) most formal sector employers offer health benefits to their employees; (b) employers have difficulty containing the cost of these benefits; (c) PKTK, through efficient management, can offer equivalent health care at a lower price. Premise (a) is strongly supported by a 1984 ASKES-sponsored survey of private employers in Jakarta; 171 out of 173 were found to provide health benefits to their employees. Premise (b) is plausible; for instance, many companies were found to be unable to provide breakdowns of health expenditure. Companies which were able to provide breakdowns reported spending a large proportion on drugs. Premise (c), however, requires a leap of faith. In the 1984 survey, average health expenditure per employee was about Rp.132,000 per employee. PKTK proposes to provide equal or better quality service for an average of Rp.92,400 per employee, of which 30% is deducted for administration and reserves.

5.29 The lack of response to PKTK's offer almost certainly indicates lack of acceptance of premise (c) by potential participants. Some detailed hypotheses about the nature of that failure include:

- (a) PKTK is expensive relative to self-insurance. A comparison with ASKES is useful here. PKTK and ASKES provide roughly comparable benefits to employees, but ASKES costs 2% of wages while PKTK costs 7%. Private employers can and do achieve comparable coverage simply by paying their employee's charges at government health centers and hospitals, and selected private hospitals. In doing so, the employer takes advantage of the subsidized fee levels for the general public. As long as PKTK remains voluntary and government health facility prices remain low, this will be a rational decision.

- (b) Health centers are unattractive to employees. From the employees' viewpoint, a well-maintained, reliably staffed clinic at the workplace is far more attractive than a public health center with limited hours. Although PKTK has taken steps to improve health center conditions and image, their general appearance remains inferior to that of most private clinics. Doctors sometimes do not show up for the PKTK sessions, or are present for less than the requisite three hours. The ratio of patients to staff is often higher at the exclusive afternoon session than at the morning sessions for the general public. PKTK is aware of these problems. One proposed solution is to offer PKTK services at some of the private 24-hour clinics now open in Jakarta. Another is to permit employers to use in-house clinics for primary health care under the umbrella of DUKM coverage.
- (c) Some employers prefer to offer higher-quality benefits. Pertamina is an obvious example of a firm preferring to offer better care than is available through PKTK; it has traditionally offered its employees health care considerably better than that available in public facilities, at a cost per employee several times the level of ASKES or PKTK. Many companies now offering high quality care simply will not desire to reduce the quality of care offered. In principle, PKTK could respond to the market by offering a variety of coverage plans at different premium rates, but it has not yet done so.
- (d) Employers are waiting for PKTK to demonstrate viability. Still in its pilot stages, PKTK has had various operational problems. The future of PKTK, and indeed of the Indonesian health insurance industry, is still in flux. Under these conditions, companies may be understandably reluctant to dismantle a working health care system in favor of one with an uncertain future.

5.30 These hypotheses about the causes of lack of success of the pilot DUKM project in Jakarta are mutually compatible, and it is likely that all are to some extent valid. To the extent that hypothesis (a), high cost relative to what is available to all, is the main explanation, PKTK will become more successful if hospital and health center fees are raised so that costs to the non-insured increase. To the extent that the hypotheses of low quality and of uncertain viability are true, the problems of PKTK are probably more deep-seated, and need to be resolved before the system can expand. These latter hypotheses, if true, would also suggest that it may be advisable not to make PKTK mandatory, at least under the present plan in which only public sector providers are allowed. PKTK is a potentially valuable effort, but should be regarded as experimental. Caution should be exercised before replacing the existing, well-functioning system of employer health benefits with an experiment still in process.

Providing Insurance for Wage Earners

5.31 DUKM's general principles, including the goal of mandatory insurance for the wage-based sector are appropriate. This group, which may comprise more than 20 million individuals (including both wage-earners and their dependents), is a disproportionately heavy user of curative health services,

and therefore a prime recipient of a large and regressive public subsidy for those services. These families can afford to pay the full cost of their health care provided that they can insure against the costs of catastrophic illness. Provision of insurance is therefore a crucial complement to a policy of raising health facility fees.

- (a) Design and incentives. The design of a health insurance system has important incentive implications for both participants and providers. Recognizing this, DUKM places great faith in capitated funding of providers as a cost-containment mechanism. However, in any insurance system (especially one employing capitated payments) competition among insurance carriers and among health providers is essential. A monopoly insurance carrier paid by capitation does have an incentive to contain costs, but no incentive to pass these savings to the consumer. The incentive to contain costs may jeopardize quality; without competition, there is no automatic check to make sure that quality standards are upheld. Competition is equally important in the context of fee-for-service reimbursement. A monopoly insurance carrier has no incentive to minimize administrative costs, or to set premiums in accordance with expenses. For this reason, the Government should not impose a single, government-run insurance system on the wage-based sector, or allow a private provider to monopolize the market; there would be a tendency for this to result in an inefficient, unresponsive bureaucracy. It is especially important not to scrap the current, working system of employer self-insurance without a demonstrated alternative.
- (b) Role of Government. The government's role in the insurance market is an important one, however. At a minimum, the government must set up the legal and regulatory framework for the market, including the requirement that all wage-earners be insured. The government may want to act as a collector of premiums, allowing firms or individuals to apply those premiums to any one of a competing number of plans. The advantage of this scheme is that it facilitates cross-subsidization of the poor by the better-off through differential premium rates, while maintaining the advantages of competition. The disadvantage is that it may be difficult to implement, judging by the example of ASTEK. Although all employers are theoretically obliged to belong to ASTEK, in fact only a small proportion are members. The majority of employers apparently view the benefits of ASTEK membership as smaller than the costs.

5.32 PKTK-type government insurance systems may be able to play their most important role if they are only one of a number of competitors. Current PKTK schemes require management development as well as further experimentation with premiums, benefits, and choice of service providers.

E. Rural Health Insurance: Dana Sehat

Dana Sehat in Theory

5.33 Dana sehat (or "health funds") are village-level organizations intended to insure village members against the costs of primary health care. Small fixed contributions are levied on each family; the proceeds are primarily used to pay basic health center charges. In addition, the funds may be used to finance public health activities or household income-generation projects.

5.34 A handbook with suggested guidelines for rural dana sehat was published in 1986 by the MOH Directorate for Community Participation. In this conception, dana sehat are not standardized, and they are not officially linked with the government. Rather, they are to be designed and operated by the village, with the advice and technical assistance of the local health center. The handbook suggests piggybacking dana sehat on existing economic, social, or religious organizations. It presents a hypothetical illustration of the economics of a dana sehat, summarized in Table 5.11. This simple example does not allow for secondary level outpatient care, or for management costs. Nonetheless, it suggests that, in theory, dana sehat should be able to provide coverage at very low cost. The premium, equivalent to Rp.40 or 50 per person per month, is small even compared to the fourth percentile rural consumption level (1984) of Rp.5,000 per person per month. It is important to note, however, that a working system of dana sehat would not increase cost recovery by the government unless prices were raised. The dana sehat would simply collect money for a fund to pay costs already being paid by the individuals who would be members of the dana sehat.

Table 5.11: DANA SEHAT: AN ILLUSTRATION

Initial contact with health system: health volunteers (kaders).

Assumed morbidity rate = 14% per month. Sick people are supposed to consult first with their neighborhood health volunteers, who are supplied with very basic drugs (e.g. aspirin).

Monthly cost: 280 patients x Rp.75/case = Rp.21,000.

First referral level: health center.

Kaders refer 50% of their patients to the health center for treatment. The dana sehat pays the standard health fee of Rp.150 (this is the standard, subsidized price which an uninsured member of the general public would pay).

Monthly cost: 140 cases x Rp.150/case = Rp.21,000.

Second referral level: district hospital.

Health centers are assumed to refer 2% of visitors to the local hospital for inpatient treatment.

Monthly cost: 3 cases x 8 days/case x Rp.1500/day = Rp 36,000.

Required premium per family = Rp.(21,000 + 21,000 + 36,000)/400 = Rp.195/month.

Source: Directorate for Community Participation, Ministry of Health.

5.35 Some policymakers hope to establish a goal of universal rural coverage by dana sehat. In this vision, the dana sehat would be tied into nationwide health insurance, under the umbrella of DUKM; presumably this mechanism would allow some cross-subsidization of rural health care. Detailed plans for achieving this goal have not yet been drawn up.

Dana Sehat in Practice

5.36 Dana sehat first emerged in the 1970's, principally in Java and Bali. For the most part, these were spontaneous or NGO-sponsored efforts rather than government operations. A few villages with successful dana sehat attracted extraordinary attention. Unfortunately, the resulting popularity of the dana sehat concept may have fostered unrealistic hopes. Despite recent government encouragement, dana sehat have diffused very slowly. A recent estimate by the Ministry of Health placed the number of dana sehat at about 600 in nine reporting provinces; it is likely that some of these are inactive. In Bali, where social cohesion is very strong and the dana sehat concept might be expected to take root, the famous example of Pejaten village has inspired little emulation. Pejaten's success appears to be more a result of good economic fortune than of the dana sehat organization itself. As a result of a favorable market position in roof tiles, the village became wealthy and was able to set up an endowment for health. In general, the lack of diffusion of dana sehat indicates either low perceived benefits, significant organizational barriers, or simple inability of rural dwellers to pay useful amounts of money.

5.37 The operation of dana sehat can be illustrated by the experience of Karanganyar kabupaten (central Java), where 86 of the 177 villages have some kind of health fund. In Kerjo kecamatan (population 32,000), dana sehat coverage is nominally universal. The mechanics of the system are as follows. Villages or subvillages collect a fixed monthly contribution of Rp.50 or 100 from each family. Parallel funds have been set up among school children; some of these are financed by the sale of firewood or building stones gathered by the children. Sick people are supposed to consult first with their neighborhood health volunteer. A volunteer covers approximately 30 households; in a month she might receive twelve patients, and write two or three letters of referral to the health center. These letters excuse the bearer from the Rp.150 health center fee; in turn, the health center can claim Rp.100 from the patient's dana sehat.

5.38 Approximately half of the health center's 1,400 to 1,800 monthly visits are covered by dana sehat. The remainder includes about 180 visits by ASKES members, and self-referrals by members of the general public, who could not find or did not seek a health volunteer. About 1% of patients are referred to the district hospital. The costs of their treatment, which might total Rp.50,000 for an episode of dengue fever, are not covered by dana sehat. However, hospital patients from Kerjo can generally obtain a certificate of poverty excusing them from payment.

5.39 This dana sehat arrangement imposes a tremendous administrative burden on the volunteer staff, who must not only gather and disburse funds but also keep detailed financial and patient records. However, the burden is clearly unsupportable in poorer villages, or where a strong, enthusiastic

village chief is lacking. In their present form, dana sehat impose tremendous nonfinancial costs and in return yield only small financial benefits. The current schemes have the following disadvantages:

- (a) Large transaction costs. Very small sums of money must be gathered each month from a very large number of families. This money must be considered, accounted for, and disbursed against health center claims. At the health center, patients have to be recorded on special registers for each village, and claims must be drawn up. It is difficult to estimate the number of paid and unpaid person-hours involved in administration, but it is clearly substantial. Even valued at the subsistence wage of Rp.100/hour, unreimbursed time costs are probably large in relation to the size of the funds.
- (b) Minimal gains from insurance. Insurance is most beneficial when applied against catastrophes: low probability, high-cost mishaps. Dana sehat, however, insure against high probability (approximately 0.5 times per year), low cost (Rp.150 or the cost of three cigarettes) events. In other words, even very poor families can self-insure against health center costs.
- (c) No contribution to health center cost recovery. As generally set up, dana sehat substitute for, rather than augment, the standard fee paid by the patient to the health center. They may possibly increase health center utilization and revenues, since visits are free to insurers at the point of service. However, it is likely that the marginal revenue from these visits is insufficient to cover the marginal costs of treatment.

5.40 Providing rural health insurance. Implementation of rural health insurance is a much more difficult task than is provision for wage earners. It is important to note however that low income itself is not necessarily a binding constraint, given the modest contribution level required. Table 5.12 shows a rough estimate of the cost of catastrophic insurance for the rural population using actuarial data based on the experience of ASKES. The unit costs are standard health facility fees, which are less than full cost. However, even if true costs are four times greater, a premium of Rp.500 per person per month should be affordable by the majority of the population. Placed in perspective, rural families in the Rp.8,000-10,000 monthly per capita bracket of total household expenditure (about 9th to 23rd percentile) consumed an average Rp.414 worth of tobacco and betelnut per capita per month in 1984. Those between the 40th and 70th percentile consumed Rp.1,008 per capita per month. The principal obstacles facing rural insurance are first, a lack of consumer demand for insurance against rare but catastrophic expenses; and second, a lack of an efficient administrative mechanism for collecting and managing funds. These obstacles are reflected in the operation of dana sehat. As a result of the lack of demand for hospitalization insurance, dana sehat tend to concentrate inefficiently on insurance against small, routine health center fees. At the same time, the dana sehat must expend a tremendous amount of organizational effort and volunteer time on frequent collection of very small premiums.

Table 5.12: HYPOTHETICAL COST OF HOSPITALIZATION INSURANCE

Service type	Frequency per person per month	Unit cost (Rp.)	Expected cost per person (Rp.)
Hospital outpatient visit	.0128	1,202	15.4
Inpatient care (kabupaten level)	.0012	26,835	32.2
Inpatient care (province/central)	.0010	64,202	64.2
Total (excluding drugs)			111.8
Total (including drugs)			138.6

Source: ASKES, Laporan Penyelenggaraan Program Pemeliharaan Kesehatan Pegawai Negeri, Penerima Pensiun and Keluarganya, Tahun 1985; Table 1. Frequency assumes average family size of 4.0.

F. Policy Issues in Health Insurance Development

5.41 There are three main policy problems associated with present health insurance arrangements in Indonesia.

Resource Mobilization

5.42 Existing health insurance arrangements are not an effective resource mobilization instrument because they all reimburse public services on the basis of ordinary tariffs which are heavily subsidized. On average this subsidy amounts to around 75% of the cost of delivering public services. The effect of these insurance arrangements is only to lower the net price to users by pooling financial risks entailed by existing public tariffs. It does not alter the prices received by public facilities on the supply side. As a result this arrangement does not increase the volume of revenues generated by public facilities, except insofar as the zero net price charged to insured users increases the demand for public services. For example, the utilization rates of ASKES beneficiaries are about five times higher than non-ASKES users. However, because of the subsidized reimbursement policy, any such increase in public revenues entails a proportionately larger requirement for additional public subsidies. Thus the net fiscal impact of existing insurance arrangements tends to be substantially negative. This reflects a failure to link pricing policy with the provision of insurance coverage in pursuit of the resource mobilization objective; this could be achieved by differential pricing with full cost-recovery tariffs for the insured. In addition, there may be resource mobilization losses for insurance schemes which are not financially viable even with subsidized reimbursements to the public sector. This appears not to be the case for ASKES but probably is the case for some PKTK and dana sehat schemes.

5.43 The resource mobilization impact of any future extension of health insurance coverage beyond its presently low base is necessarily limited by constraints on potential coverage. These reflect both institutional and

economic factors. Institutional constraints include the low compliance of private sector employers with existing mandatory provisions for social security coverage, and the lack of an organized transactions base for collecting insurance premiums in the rural economy. Economic constraints reflect the trade-off between cost recovery and demand for coverage. Unless insurance reimbursements are based on a level higher than presently subsidized public sector tariffs, expansion of insurance coverage would tend to have a negative net fiscal effect instead of making a positive contribution to resource mobilization for the health sector. However, if cost recovery from insurance is increased the premium may become unaffordable, resulting in lower demand for voluntary coverage.

Efficiency

5.44 Existing health insurance arrangements are characterized by several efficiency problems. The ASKES and PKTK schemes are faced with a lack of efficiency incentives on the demand side, providing first-rupee insurance coverage without any copayments to restrain utilization (deductibles or coinsurance). They also face a lack of efficiency incentives to restrain supplier-induced demand (such as limits on reimbursement per diagnosis). The rural dana sehat are typically organized on too small a basis (village level) to exploit fully the efficiency benefits of risk-pooling, and are generally restricted to an inefficient emphasis on low-cost outpatient coverage (instead of potentially catastrophic high-cost inpatient coverage) which does not exploit the welfare gains from insurance.

Equity

5.45 The tendency of existing insurance arrangements to have a negative net fiscal impact means that they draw more public resources to finance services for the better-off with insurance, thus depriving the poor of the benefits which could be provided by those public funds. Subsidized health services therefore disproportionately benefit the better-off. Thus, the net subsidy per capita for ASKES users of public sector hospitals and health centers is about five times higher than for the rest of the population. Moreover, efforts to extend insurance coverage to the rural poor through dana sehat are not consistent with the need to protect poor villagers from facing prices high enough to necessitate such coverage.

Institutional and Policy Framework

5.46 Responsibility for decision making on health insurance development is fragmented in an ad hoc manner among different agencies without the benefit of a central policy framework. The ASKES scheme is managed by Perum Husada Bhakti responsible to the Ministry of Health. Development of dana sehat is also the responsibility of the Ministry of Health. However, the Ministry of Health does not have a functional unit responsible for overseeing these activities. The PKTK scheme is managed by Perum ASTEK which is responsible to the Ministry of Labour. Neither BAPPENAS nor Ministry of Finance plays a coordinating role in establishing an overall policy framework for these fragmented activities.

5.47 The policy problems resulting from existing health insurance arrangements will tend to be exacerbated by present efforts to expand coverage along the same lines. These considerations imply the need for the Government to undertake a systematic assessment of issues and options for future health insurance development within the broad context of health sector financing arrangements in general. This would need to provide an integrated analysis of the role of insurance, pricing and budgetary subsidies in financing the future development of the health sector in line with the overall objectives of development policy in Indonesia. The scope of such an assessment embraces not only the policy interests of the Ministries of Health and Labour but also those of BAPPENAS and the Ministry of Finance. In view of its important and complex long-term implications for the health sector, it would also need to take into account the lessons of relevant international experience gained in other developing countries which have attempted to develop large-scale health insurance systems.

G. Policy Recommendations

5.48 With the provision of adequate health services threatened by the scarcity of fiscal resources it is appropriate to review options for increasing cost recovery directly from the beneficiaries of publicly provided services. Although Indonesia has adopted a policy of charging fees for services, the revenue yield is low with only 10% of total recurrent expenditure recovered through user charges. Although cost recovery ratios are higher for hospitals, averaging about 20%, even these are low compared to the performance of some developing countries. In Thailand cost recovery in hospitals averages 40%; in China it averages about 80%. These figures suggest that there may be substantial scope for mobilizing additional resources by raising user charges in Indonesia. However, caution should be exercised before any major increase in charges is adopted in order to ensure that equity and efficiency objectives are also adequately reflected in the fee structure. It is important to note that striking an appropriate balance between the revenue generation, equity and efficiency objectives of pricing policy in the health sector will still entail a substantial role for government expenditure, particularly in the poorer regions. As shown in Chapter I, there remains substantial scope for increasing the sector share of central government expenditure from its presently low level (about 2.5%) relative to Indonesia's international comparators (around 5%).

5.49 The main elements of an appropriate policy on cost recovery for the health sector in Repelita V include the following:

- (a) fees should be consistent with ability to pay in order to maintain utilization of necessary health services. For equity reasons it is desirable in principle to charge higher prices to the better-off and low prices to the poor. Since administration of a direct means test to distinguish the poor from the nonpoor is not practical, this price discrimination can be achieved in three main ways: within facilities, by targeting price increases to achieve full cost recovery for the higher quality classes of hospital inpatient accommodation (VIP, Class I and Class I) which tend to be self-selected by the better-off; among individuals, by

targeting price increases at those who are protected by health insurance coverage, in particular at ASKES beneficiaries who presently pay only about one-fifth of the cost of public sector services; and among geographic regions, by targeting price increases to facilities in higher income regions. Thus, instead of a uniform national tariff for health center outpatient visits, central government guidelines would need to specify differential fees by region. Regional differentiation of fees by income level would need to be linked explicitly with a policy of redistributing central subsidies from richer to poorer regions in order to compensate for the lower ability to pay and higher unit costs entailed by the need for incentives to induce skilled manpower to move to poor areas;

- (b) the system for granting certificates of exemption to the poor who are absolutely unable to pay should be strengthened by formalizing eligibility criteria, eliminating abuses by local officials responsible for granting certificates, and establishing a public fund to reimburse facilities for exempted services;
- (c) fees should be structured to encourage efficient utilization of services. In particular, for curative care, higher fees need to be charged for hospital than for health center outpatient visits, and also for non-referred use of higher level hospitals, in both cases in order to encourage efficient use of the health service referral system. At the same time fees should not be charged for preventive health services with public goods characteristics, including immunization, other communicable disease control activities (e.g. malaria and tuberculosis control), prenatal care and health education; and
- (d) revenue retention by facilities should be formally adopted both in order to provide incentives to mobilize additional revenues, and to help ensure that extra fees are used to improve the quality of health services provided in hospitals and health centers.

5.50 These elements illustrate the broad directions of a new cost recovery strategy responding to the changing fiscal environment in Indonesia. However, additional data collection and analysis will be needed to translate this strategy into specific actions. Priority areas for support include the following:

- (a) the effect of fees on utilization of services by households in different income groups needs to be studied carefully as a basis for targeting price discrimination for public services;
- (b) institutional responsibility and mechanisms need to be established to monitor levels and trends in unit costs, tariff structures and revenues for public services in order to provide a continuing basis for recommending periodic adjustments in official cost recovery policy; and

- (c) improvements in financial accounting and reporting systems are needed for government hospitals and health centers to generate comprehensive and reliable data on unit costs and revenues.

5.51 Measures to strengthen cost recovery policy in REPELITA V need to be accompanied by improvements in the availability and efficiency of health insurance coverage in Indonesia. This requires the institutionalisation of a strong central policy framework governing the future development of health insurance. Since insurance coverage is a key criterion for price discrimination, the presently low base of enrollment presents a major obstacle to significant increases in cost recovery. Options for consideration include the following:

- (a) for ASKES, available evidence suggests that there is a strong case for substantially raising ASKES premiums in order to reimburse the full cost of services. Estimates show that ASKES reimbursements presently recover only about 20% of actual costs, resulting in a large and regressive public subsidy to these beneficiaries. In addition to raising reimbursements mediated through ASKES, those covered could also be required to pay an out-of-pocket copayment, either in the form of a deductible or of coinsurance for services provided, instead of benefiting from first-rupiah insurance coverage. As well as serving the objectives of revenue generation and equity, this would also help to promote efficiency by reducing the strong incentive on the demand side for ASKES beneficiaries to overuse services in the face of presently zero net prices;
- (b) efforts to implement the DUKM proposal to extend health insurance coverage to private sector employees should be encouraged, but only on a strictly experimental basis in order to clarify an appropriate design. To satisfy the revenue objective, particular attention needs to be given to ensuring that payroll deduction rates and associated reimbursement levels are set high enough to achieve full cost recovery. And for efficiency reasons, consideration needs to be given to the inclusion of private insurers within the DUKM framework, including both conventional insurance carriers and pre-paid plans, to help ensure adequate competitive incentives for efficient provision of services; and
- (c) the priority given to extension of rural health insurance through the dana sehat should be reassessed, on the grounds both that past performance has demonstrated their inability to provide efficient insurance coverage, and also that poor rural villagers should be protected from price increases which would necessitate provision of health insurance coverage.

ANNEX I

SURVEY OF CENTRAL, PROVINCIAL AND DISTRICT GOVERNMENT EXPENDITURE AND REVENUE

1983/84 - 1985/86

Table 1	Central Government Routine Expenditure and Revenue by Program and Province, 1985/86 (Actual)
Table 2	Provincial Government Routine Expenditure and Revenue by Program and Province, 1985/86 (Actual)
Table 3	District Government Routine Expenditure and Revenue by Program and Province, 1985/86 (Actual)
Table 4	Central Government Development Expenditure by Program and Province, 1985/86 (Budget)
Table 5	Provincial Government Development Expenditure by Program and Province, 1985/86 (Actual)
Table 6	District Government Development Expenditure by Program and Province, 1985/86 (Actual)
Table 7	Central Government INPRES Expenditure by Program and Province, 1985/86 (Budget)
Table 8	Central Government Routine Expenditure and Revenue by Program and Province, 1984/85 (Actual)
Table 9	Provincial Government Routine Expenditure and Revenue by Program and Province, 1984/85 (Actual)
Table 10	District Government Routine Expenditure and Revenue by Program and Province, 1984/85 (Actual)
Table 11	Central Government Development Expenditure by Government and Province, 1984/85 (Budget)
Table 12	Provincial Government Development Expenditure by Program and Province, 1984/85 (Actual)
Table 13	District Government Development Expenditure by Program and Province, 1984/85 (Actual)
Table 14	Central Government INPRES Expenditure by Program and Province, 1984/85 (Budget)
Table 15	Central Government Routine Expenditure and Revenue by Program and Province, 1983/84 (Actual)
Table 16	Provincial Government Routine Expenditure and Revenue by Program and Province, 1983/84 (Actual)
Table 17	District Government Routine Expenditure and Revenue by Program and Province, 1983/84 (Actual)
Table 18	Central Government Development Expenditure by Program and Province, 1983/84 (Budget)
Table 19	Provincial Government Development Expenditure by Program and Province, 1983/84 (Actual)
Table 20	District Government Development Expenditure by Program and Province, 1983/84 (Actual)

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CENTRAL GOVERNMENT ROUTINE EXPENDITURE AND REVENUE BY PROGRAM AND PROVINCE 1985/86 (ACTUAL)
(Rp. thousands)

	Salaries	Materials	Maintenance	Transport	Other	Total	Revenue
<u>Program</u>	<u>72,317,820</u>	<u>43,103,998</u>	<u>7,517,990</u>	<u>1,188,486</u>	<u>9,808,844</u>	<u>133,937,138</u>	<u>12,958,542</u>
Hospitals	32,161,655	31,508,050	4,357,890	86,543	9,788,844	77,902,982	12,161,142
Health Center	1,068,704	499,216	167,948	13,744	0	1,749,612	160,624
CDC	36,131	5,719	4,193	643	0	46,686	0
Training	4,986,087	4,448,120	717,482	62,435	0	10,214,124	29,925
Other	34,065,243	6,642,893	2,270,477	1,025,121	20,000	44,023,734	606,851
<u>Province</u>	<u>72,317,820</u>	<u>43,103,998</u>	<u>7,517,990</u>	<u>1,188,486</u>	<u>9,808,844</u>	<u>133,937,138</u>	<u>12,958,542</u>
Central	16,558,126	3,323,285	1,169,229	723,857	20,000	21,794,497	119,141
DKI Jakarta	11,258,475	9,533,294	1,725,545	11,411	8,165,422	30,694,147	5,714,769
West Java	8,375,492	6,577,526	1,011,147	36,745	170,917	16,171,827	1,564,690
Central Java	8,023,658	6,772,148	803,099	45,148	677,124	16,321,177	2,557,457
Yogyakarta	2,373,963	2,089,219	365,070	16,506	757,072	5,601,830	1,278,641
East Java	5,562,248	1,986,547	268,178	37,139	0	7,854,112	264,197
DI Aceh	512,042	357,188	73,029	15,051	0	957,310	22,390
North Sumatra	2,415,349	741,619	128,135	21,054	0	3,306,157	69,742
West Sumatra	2,294,659	1,827,101	297,583	21,439	18,309	4,459,091	270,685
Riau	463,177	222,667	66,317	13,639	0	765,800	7,452
Jambi	389,501	231,646	53,900	8,271	0	683,318	12,097
South Sumatra	3,332,582	2,910,171	397,883	17,112	0	6,657,748	490,853
Lampung	577,649	174,866	49,773	6,782	0	809,070	5,357
West Kalimantan	592,535	408,201	81,768	10,874	0	1,093,378	24,404
Central Kalimantan	217,889	98,495	25,455	7,945	0	349,784	7,380
South Kalimantan	582,351	345,552	83,285	10,995	0	1,022,182	32,623
East Kalimantan	422,887	218,781	63,478	12,657	0	717,803	41,145
North Sulawesi	769,331	401,064	67,235	16,236	0	1,253,866	31,284
Central Sulawesi	294,901	211,573	51,594	13,009	0	571,077	15,059
South Sulawesi	1,408,738	1,189,230	202,619	27,970	0	2,822,557	64,988
Southeast Sulawesi	313,989	176,723	49,213	11,261	0	551,186	11,227
Maluku	424,554	178,716	37,655	12,081	0	653,006	3,301
Bali	2,583,236	1,859,410	231,875	14,826	0	4,689,347	312,314
West Nusa Tenggara	335,709	186,724	36,045	9,877	0	568,355	12,909
East Nusa Tenggara	438,100	159,405	32,204	14,901	0	644,610	4,411
Irian Jaya	684,916	209,396	34,060	24,758	0	953,130	16,747
Bengkulu	256,363	118,435	29,762	5,622	0	410,182	3,192
East Timor	855,400	595,016	82,854	21,321	0	1,554,591	87

ANNEX I
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PROVINCIAL GOVERNMENT ROUTINE EXPENDITURE AND REVENUE BY PROGRAM AND PROVINCE, 1985/86 (ACTUAL)
(Rp. thousands)

	Salaries	Materials	Maintenance	Transport	Other	Total	Revenue
Program	78,385,779	25,801,096	5,101,690	555,266	1,151,900	111,359,731	10,899,181
Hospitals	25,292,423	20,590,156	3,591,576	182,577	1,206,240	50,962,912	8,781,986
Health Centers	86,565	66,756	5,166	1,151	805	160,443	39,640
CDC	63,022	4,998	550	9,346	600	78,516	0
Training	0	69,381	0	204	0	69,585	0
Other	52,943,769	5,069,805	1,404,458	361,988	308,255	60,088,275	2,077,555
Province	78,385,779	25,801,096	5,101,690	555,266	1,515,900	111,359,731	10,899,181
Central	0	0	0	0	0	0	0
DKI Jakarta	1,495,584	2,123,885	141,450	6,970	34,221	3,802,110	824,495
West Java	13,629,202	805,642	26,748	13,500	4,187	13,759,279	0
Central Java	15,625,493	308,749	2,099,857	20,814	91,758	18,146,671	1,488,111
Yogyakarta	3,067,445	106,459	5,479	0	4,704	3,184,087	18,673
East Java	15,167,650	8,348,873	1,141,299	25,224	286,324	24,969,370	2,498,326
DI Aceh	776,999	662,610	216,729	31,881	24,601	1,712,820	171,670
North Sumatra	191,780	3,597,657	380,715	123,425	159,831	4,453,408	1,298,548
West Sumatra	1,162,793	907,206	113,019	21,024	7,426	2,244,468	174,996
Riau	474,536	350,054	98,415	5,955	62,150	991,110	159,721
Jambi	529,748	106,234	2,188	22,030	8,102	668,302	94,948
South Sumatra	1,090,663	224,817	7,996	13,801	8,297	1,345,574	8,708
Lampung	1,884,871	926,835	79,675	8,930	252,334	3,149,645	644,556
West Kalimantan	1,613,166	622,078	11,783	26,296	6,848	2,280,171	108,564
Central Kalimantan	398,785	129,262	2,249	20,087	10,981	561,364	72,955
South Kalimantan	2,538,395	679,037	100,626	17,068	4,982	3,340,108	345,889
East Kalimantan	1,196,869	1,255,821	98,038	24,023	87,779	2,662,530	437,027
North Sulawesi	3,278,896	738,966	261,224	16,050	162,647	4,457,783	613,823
Central Sulawesi	1,695,729	84,190	5,077	2,868	0	1,787,864	68,746
South Sulawesi	1,910,968	1,623,168	116,607	19,069	25,460	3,695,272	459,917
Southeast Sulawesi	515,641	103,863	7,461	9,861	3,548	640,374	73,173
Maluku	633,130	363,905	11,063	7,354	4,800	1,020,252	115,747
Bali	4,459,675	803,132	56,594	12,716	14,067	5,346,184	609,920
West Nusa Tenggara	673,403	371,284	23,332	0	90,798	1,158,817	209,275
East Nusa Tenggara	501,739	205,082	14,978	23,205	16,017	761,021	150,344
Irian Jaya	1,615,581	904,570	71,503	64,844	141,243	2,797,741	160,824
Bengkulu	1,031,745	93,182	2,085	8,785	2,795	1,138,592	90,225
East Timor	1,228,293	74,535	5,500	9,486	0	1,317,814	0

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DISTRICT GOVERNMENT ROUTINE EXPENDITURE AND REVENUE BY PROGRAM AND PROVINCE, 1985/86 (ACTUAL)
(Rp. thousands)

	Salaries	Materials	Maintenance	Transport	Other	Total	Revenue
<u>Program</u>	<u>81,764,107</u>	<u>13,976,766</u>	<u>4,036,399</u>	<u>820,945</u>	<u>3,513,233</u>	<u>104,111,449</u>	<u>23,274,776</u>
Hospitals	24,921,295	8,098,150	1,868,711	186,188	2,074,164	37,148,507	13,527,927
Health Centers	8,597,034	877,268	258,297	96,402	437,540	10,266,540	1,871,903
CDC	179,502	7,968	365	6,380	600	194,815	1,167
Training	3,120	0	31	0	0	3,151	0
Other	48,063,157	4,993,379	1,908,995	531,975	1,000,929	56,498,435	7,873,778
<u>Province</u>	<u>81,764,107</u>	<u>13,976,766</u>	<u>4,036,399</u>	<u>820,945</u>	<u>3,513,233</u>	<u>107,111,449</u>	<u>23,274,776</u>
Central	0	0	0	0	0	0	0
DKI Jakarta	0	0	0	0	0	0	0
West Java	9,537,496	3,623,763	695,102	212,882	1,264,317	15,333,560	6,795,976
Central Java	11,696,268	2,628,086	1,123,998	90,046	967,322	16,506,080	6,630,163
Yogyakarta	731,644	129,118	36,133	800	102,555	1,000,250	578,728
East Java	14,004,076	1,964,907	260,913	154,245	443,435	16,827,576	3,423,160
DI Aceh	3,109,026	327,780	50,717	21,052	80,036	3,588,611	312,419
North Sumatra	8,496,021	610,363	64,204	49,790	112,548	9,332,926	1,279,776
West Sumatra	3,016,647	185,938	20,187	22,662	32,247	3,277,680	423,997
Riau	2,440,476	272,929	39,788	24,616	8,856	2,786,665	379,849
Jambi	1,436,017	310,723	52,169	16,813	54,125	1,869,847	196,881
South Sumatra	3,231,317	385,963	862,602	31,677	20,635	4,532,194	330,122
Lampung	2,416,255	155,277	30,767	2,077	101,219	2,705,594	458,862
West Kalimantan	970,175	97,940	6,721	9,822	5,159	1,089,816	118,066
Central Kalimantan	1,851,165	81,478	12,215	28,613	15,868	1,989,339	116,526
South Kalimantan	817,859	255,136	62,128	10,777	76,055	1,221,955	203,300
East Kalimantan	854,061	210,659	38,449	19,543	22,709	1,145,421	2,693
North Sulawesi	1,959,067	427,696	17,002	30,350	33,413	2,467,526	580,898
Central Sulawesi	847,563	140,726	7,876	11,489	0	1,007,654	170,245
South Sulawesi	7,427,821	1,631,897	599,439	32,104	57,235	9,748,496	550,028
Southeast Sulawesi	1,339,527	51,742	15,775	8,369	2,800	1,418,213	99,266
Maluku	270,640	13,358	5,964	445	775	291,182	32,178
Bali	0	0	0	0	0	0	0
West Nusa Tenggara	2,177,437	201,042	24,452	6,194	23,472	2,432,597	262,220
East Nusa Tenggara	1,140,669	171,145	6,791	23,261	54,563	1,396,428	248,682
Irian Jaya	1,625,133	87,735	2,500	12,391	32,689	1,760,447	51,667
Bengkulu	367,389	11,365	509	929	1,200	381,392	29,075
East Timor	0	0	0	0	0	0	0

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CENTRAL GOVERNMENT DEVELOPMENT EXPENDITURE BY PROGRAM AND PROVINCE, 1985/86 (BUDGET)
(Rp. thousands)

	Salaries	Materials	Transport	Other	Land	Construction	Equipment	Total
Program	10,591,330	24,469,670	12,874,184	19,782,733	6,873,067	24,209,328	13,717,386	112,517,698
Hospitals	750,699	3,003,498	1,462,917	1,152,610	2,320,815	13,891,979	8,926,762	31,509,279
Health Centers	433,684	1,717,884	1,396,848	7,233,556	0	2,462,098	1,821,850	15,065,920
CDC	3,657,122	14,131,587	4,490,808	2,196,841	45,075	595,600	767,684	25,884,715
Training	3,007,695	1,272,684	1,324,080	4,994,063	2,083,052	2,185,447	174,772	15,041,792
Other	2,742,130	4,344,018	4,199,531	4,205,663	2,424,125	5,074,205	2,026,319	25,015,991
Province	10,591,330	24,469,670	12,874,184	19,782,733	6,873,067	24,209,328	13,717,386	112,517,698
Central	2,956,910	5,191,901	5,410,720	4,033,600	2,435,772	4,938,739	3,725,689	28,693,331
DKI Jakarta	329,000	566,264	96,674	556,152	9,000	1,425,603	1,261,864	4,244,556
West Java	769,033	2,231,815	586,226	1,648,113	169,696	2,875,270	1,587,028	9,867,182
Central Java	964,186	3,189,155	544,961	1,681,964	355,500	2,252,357	1,185,283	10,173,406
Yogyakarta	220,882	640,316	136,856	449,593	449,771	649,120	126,564	2,673,101
East Java	792,769	2,566,082	576,404	1,975,755	95,166	1,401,911	626,125	8,034,210
DI Aceh	271,460	499,413	254,704	411,459	4,500	299,538	120,621	1,861,693
North Sumatra	307,955	805,584	399,959	755,230	10,000	302,589	355,676	2,936,991
West Sumatra	366,449	769,925	271,558	614,360	78,500	804,007	1,045,004	3,949,803
Riau	148,573	322,067	189,742	305,591	41,700	293,151	137,415	1,438,239
Jambi	176,157	417,379	175,893	355,882	87,250	300,346	181,578	1,694,485
South Sumatra	273,591	618,781	268,363	537,549	202,114	1,167,058	540,095	3,607,552
Lampung	192,808	580,494	110,999	411,952	208,205	402,561	153,881	2,060,900
West Kalimantan	181,722	454,280	270,746	349,693	149,537	258,002	394,495	2,058,474
Central Kalimantan	148,831	243,473	290,228	383,401	14,200	158,938	122,496	1,361,567
South Kalimantan	201,376	355,459	230,497	433,848	106,659	938,746	52,214	2,318,798
East Kalimantan	154,439	407,279	202,714	399,397	35,176	59,462	421,212	1,679,680
North Sulawesi	207,088	421,888	252,277	508,020	877,250	468,533	327,906	3,062,960
Central Sulawesi	153,993	204,415	261,194	327,009	0	227,836	76,595	1,251,042
South Sulawesi	424,034	709,863	442,054	881,424	450,000	711,900	212,017	3,831,291
Southeast Sulawesi	149,603	198,595	158,117	298,327	3,375	76,665	108,808	992,490
Maluku	144,082	310,712	294,847	390,857	102,899	580,127	82,687	1,906,210
Bali	246,936	592,125	177,862	459,680	22,500	1,178,053	140,673	2,871,829
West Nusa Tenggara	206,156	486,326	205,446	328,323	678,672	219,519	197,996	2,322,438
East Nusa Tenggara	264,061	651,627	353,743	381,606	262,000	645,845	146,339	2,705,220
Irian Jaya	144,913	579,493	398,612	447,904	9,600	608,233	126,219	2,314,974
Bengkulu	110,507	300,619	109,115	256,431	6,600	372,311	131,730	1,287,312
East Timor	83,818	154,341	203,675	200,615	7,425	592,910	129,180	1,371,964

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PROVINCIAL GOVERNMENT DEVELOPMENT EXPENDITURE BY PROGRAM AND PROVINCE, 1985/86 (ACTUAL)
(Rp. thousands)

	Total
<u>Program</u>	<u>39,202,956</u>
Hospitals	9,036,878
Health Centers	3,503,380
CDC	973,769
Training	1,071,227
Other	24,617,702
<u>Province</u>	<u>39,202,956</u>
Central	0
DKI Jakarta	7,009,594
West Java	503,796
Central Java	3,834,157
DI Yogyakarta	810,196
East Java	8,989,777
DI Aceh	1,232,452
North Sumatra	1,237,581
West Sumatra	977,545
Riau	7,998,970
Jambi	581,587
South Sumatra	524,146
Lampung	633,823
West Kalimantan	830,036
Central Kalimantan	518,080
South Kalimantan	810,331
East Kalimantan	1,341,493
North Sulawesi	597,400
Central Sulawesi	530,620
South Sulawesi	955,218
Maluku	129,169
Bali	1,101,323
West Nusa Tenggara	981,624
East Nusa Tenggara	676,141
Irian Jaya	1,039,433
Bengkulu	190,533
East Timor	611,011

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DISTRICT GOVERNMENT DEVELOPMENT EXPENDITURE BY PROGRAM AND PROVINCE, 1985/86 (ACTUAL)
(Rp. thousands)

	<u>Total</u>
<u>Program</u>	<u>5,491,556</u>
Hospitals	1,346,639
Health Centers	2,366,263
CDC	184,114
Training	53,095
Other	1,541,445
<u>Province</u>	<u>5,491,556</u>
Central	0
DKI Jakarta	0
West Java	537,392
Central Java	1,521,485
DI Yogyakarta	78,533
East Java	1,371,636
DI Aceh	164,528
North Sumatra	660,999
West Sumatra	38,772
Riau	53,198
Jambi	199,135
South Sumatra	174,815
Lampung	105,025
West Kalimantan	8,998
Central Kalimantan	49,031
South Kalimantan	189,110
East Kalimantan	52,714
North Sulawesi	43,428
Central Sulawesi	6,755
South Sulawesi	44,325
Southeast Sulawesi	4,500
Maluku	3,452
Bali	0
West Nusa Tenggara	90,670
East Nusa Tenggara	7,247
Irian Jaya	84,309
Bengkulu	1,500
East Timor	0

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CENTRAL GOVERNMENT INPRES EXPENDITURE BY PROGRAM AND PROVINCE, 1985/86 (BUDGET)
(Rp. thousands)

	Salaries	Materials	Transport	Other	Land	Construction	Equipment	Total
Program	<u>0</u>	<u>45,333,733</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>69,227,241</u>	<u>0</u>	<u>114,560,974</u>
Hospitals	0	0	0	0	0	0	0	0
Health Centers	0	45,333,733	0	0	0	39,554,241	0	84,887,974
CDC	0	0	0	0	0	0	0	0
Training	0	0	0	0	0	0	0	0
Other	0	0	0	0	0	29,673,000	0	29,673,000
Province	<u>0</u>	<u>45,333,733</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>69,227,241</u>	<u>0</u>	<u>114,456,974</u>
Central	0	0	0	0	0	20,975,778	0	20,975,7780
DKI Jakarta	0	2,086,604	0	0	0	1,087,358	0	3,173,962
West Java	0	8,400,563	0	0	0	7,204,568	0	15,605,131
Central Java	0	7,459,255	0	0	0	7,742,071	0	15,201,326
Yogyakarta	0	790,869	0	0	0	999,138	0	1,790,007
East Java	0	8,523,499	0	0	0	6,021,561	0	14,545,060
DI Aceh	0	822,300	0	0	0	1,181,893	0	2,004,193
North Sumatra	0	2,632,309	0	0	0	2,057,811	0	4,690,120
West Sumatra	0	1,103,479	0	0	0	1,299,606	0	2,403,085
Riau	0	697,140	0	0	0	943,803	0	1,640,943
Jambi	0	467,349	0	0	0	834,890	0	1,302,239
South Sumatra	0	1,453,534	0	0	0	1,511,081	0	2,946,811
Lampung	0	1,593,889	0	0	0	898,460	0	2,583,349
West Kalimantan	0	815,751	0	0	0	1,120,938	0	1,936,689
Central Kalimantan	0	329,549	0	0	0	1,139,290	0	1,648,839
South Kalimantan	0	621,391	0	0	0	1,125,420	0	1,746,811
East Kalimantan	0	466,724	0	0	0	1,000,250	0	1,466,974
North Sulawesi	0	638,658	0	0	0	995,584	0	1,634,242
Central Sulawesi	0	413,188	0	0	0	596,539	0	1,009,727
South Sulawesi	0	1,804,910	0	0	0	1,719,035	0	3,523,945
Southeast Sulawesi	0	298,631	0	0	0	581,886	0	880,517
Maluku	0	504,423	0	0	0	1,144,059	0	1,648,482
Bali	0	727,203	0	0	0	900,646	0	1,627,849
West Nusa Tenggara	0	822,714	0	0	0	1,019,117	0	1,841,831
East Nusa Tenggara	0	887,882	0	0	0	1,100,100	0	1,987,982
Irian Jaya	0	417,423	0	0	0	1,781,848	0	2,199,271
Bengkulu	0	252,360	0	0	0	1,078,260	0	1,330,620
East Timor	0	302,136	0	0	0	895,253	0	1,197,389

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CENTRAL GOVERNMENT ROUTINE EXPENDITURE AND REVENUE BY PROGRAM AND PROVINCE, 1984/85 (ACTUAL)
(Rp. thousands)

	Salaries	Materials	Maintenance	Transport	Other	Total	Revenue
Program	53,478,272	37,588,190	6,708,988	867,808	4,743,012	103,386,6270	10,866,732
Hospital	23,440,993	26,462,470	3,895,188	57,532	4,704,232	58,560,415	10,044,224
Health Centers	827,512	478,061	177,144	12,807	0	1,495,524	155,413
CDC	35,289	4,581	7,416	534	0	47,820	0
Training	3,851,773	4,028,637	681,678	40,015	18,780	8,620,883	59,487
Other	25,322,705	6,614,441	1,947,562	756,920	20,000	34,661,628	607,608
Province	53,478,272	37,588,190	6,708,988	867,808	4,746,012	103,386,270	10,866,732
Central	14,725,476	4,244,706	1,012,971	538,485	20,000	20,541,638	187,746
DKI Jakarta	7,956,491	8,241,678	1,618,904	9,201	4,364,562	22,187,836	5,268,776
West Java	5,778,726	5,702,421	904,658	27,180	0	12,412,985	1,404,530
Central Java	5,683,615	5,568,314	733,485	29,404	317,820	12,332,638	2,085,533
Yogyakarta	1,634,748	1,712,478	322,647	13,494	0	3,683,367	375,748
East Java	3,901,021	1,730,919	237,235	29,566	18,780	5,917,521	271,162
DI Aceh	345,708	277,741	68,039	10,541	0	702,029	21,688
North Sumatra	2,079,805	591,325	108,403	12,390	0	2,791,923	67,839
West Sumatra	1,588,162	1,723,559	275,931	16,309	21,850	3,625,811	244,099
Riau	296,220	129,352	41,453	9,106	0	476,131	5,248
Jambi	264,466	93,781	23,103	4,895	0	386,245	2,926
South Sumatra	2,076,526	2,302,035	382,252	13,650	0	4,774,463	429,140
Lampung	361,663	171,419	45,131	5,186	0	583,399	3,726
West Kalimantan	414,399	339,123	61,991	6,955	0	822,468	22,794
Central Kalimantan	149,689	84,449	27,342	6,317	0	269,797	4,396
South Kalimantan	409,421	294,875	62,764	7,693	0	774,753	28,997
East Kalimantan	284,171	205,046	55,040	8,416	0	549,643	25,488
North Sulawesi	547,055	350,490	61,521	11,102	0	970,168	19,669
Central Sulawesi	204,682	94,010	21,719	7,790	0	328,201	5,155
South Sulawesi	952,673	885,210	197,279	21,780	0	2,056,942	57,555
Southeast Sulawesi	202,515	101,620	21,983	7,071	0	333,189	6,605
Maluku	286,335	148,437	36,615	8,396	0	479,783	2,663
Bali	1,871,167	1,590,569	220,192	9,318	0	3,691,246	288,920
West Nusa Tenggara	223,822	167,872	27,584	5,881	0	425,159	13,999
East Nusa Tenggara	279,634	123,072	23,997	10,362	0	437,065	4,398
Irian Jaya	204,122	140,659	25,967	16,119	0	386,867	15,129
Bengkulu	130,920	82,935	22,522	3,683	0	240,060	2,742
East Timor	628,070	490,095	71,260	17,518	0	1,206,943	61

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PROVINCIAL GOVERNMENT ROUTINE EXPENDITURE AND REVENUE BY PROGRAM AND PROVINCE, 1984/85 (ACTUAL)
(Rp. thousands)

	Salaries	Materials	Maintenance	Transport	Other	Total	Revenue
<u>Program</u>	<u>54,778,270</u>	<u>21,662,778</u>	<u>4,238,028</u>	<u>494,650</u>	<u>2,581,682</u>	<u>83,715,408</u>	<u>8,980,238</u>
Hospitals	17,388,960	17,478,878	3,133,109	196,724	2,321,440	40,519,111	6,994,646
Health Centers	24,750	22,134	1,831	0	252	48,967	15,811
CDC	0	10,196	500	0	0	10,696	0
Training	0	0	0	0	0	0	0
Other	32,364,560	4,111,570	1,102,588	297,926	259,990	43,136,634	1,969,781
<u>Province</u>	<u>54,778,270</u>	<u>21,622,778</u>	<u>4,238,028</u>	<u>494,650</u>	<u>2,581,682</u>	<u>83,715,408</u>	<u>8,980,238</u>
Central	0	0	0	0	0	0	0
DKI Jakarta	1,038,587	1,786,165	144,464	9,882	31,656	3,010,754	784,938
West Java	9,421,620	61,333	19,313	11,770	0	9,514,036	0
Central Java	11,575,864	220,516	1,792,853	21,180	124,357	13,734,770	1,291,088
Yogyakarta	2,051,809	91,618	4,553	0	4,007	2,151,987	13,100
East Java	9,317,613	6,497,761	774,200	17,539	1,472,750	18,079,863	2,070,440
DI Aceh	541,106	446,871	101,236	16,263	19,251	1,124,727	117,837
North Sumatra	131,596	3,896,951	578,125	144,638	188,717	4,940,027	1,069,355
West Sumatra	898,429	750,650	104,359	19,097	6,798	1,779,333	127,994
Riau	315,945	288,389	57,893	6,380	58,905	727,512	106,627
Jambi	360,843	91,748	1,720	21,419	6,579	482,309	59,777
South Sumatra	876,834	138,113	19,496	12,577	8,789	1,055,809	5,261
Lampung	1,317,693	757,776	67,804	12,006	257,889	2,413,168	564,572
West Kalimantan	1,076,367	602,894	9,359	29,123	5,673	1,723,416	112,157
Central Kalimantan	315,433	137,267	15,455	19,820	8,757	496,732	71,576
South Kalimantan	1,654,569	487,276	57,115	14,595	19,021	2,232,576	212,018
East Kalimantan	892,785	626,555	38,895	17,854	73,159	1,649,248	347,639
North Sulawesi	2,030,198	628,877	159,465	12,553	60,231	2,891,324	406,250
Central Sulawesi	1,130,711	146,146	98,186	3,304	20,000	1,398,347	237,816
South Sulawesi	1,335,843	1,495,922	47,192	20,071	12,219	2,911,247	295,601
Southeast Sulawesi	365,484	69,034	4,300	8,150	3,427	450,395	58,350
Maluku	418,386	363,624	15,962	6,957	4,002	880,931	95,335
Bali	3,173,969	648,618	12,994	3,118	449	3,839,148	4633,863
West Nusa Tenggara	559,768	295,751	22,422	0	37,165	915,106	165,605
East Nusa Tenggara	1,353,577	149,715	6,625	19,151	16,245	1,545,313	125,998
Irian Jaya	1,187,696	872,387	75,187	35,728	49,891	2,250,889	134,237
Bengkulu	628,373	24,350	2,855	6,475	61,745	723,798	42,804
East Timor	807,172	46,471	6,000	5,000	0	864,643	0

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DISTRICT GOVERNMENT ROUTINE EXPENDITURE AND REVENUE BY PROGRAM AND PROVINCE, 1984/85
(Rp. thousands)

	Salaries	Materials	Maintenance	Transport	Other	Total	Revenue
Program	62,545,012	10,753,990	1,980,062	984,072	3,003,485	79,266,621	22,546,468
Hospitals	20,412,375	6,645,971	2,277,196	404,032	1,736,244	30,475,181	13,747,615
Health Centers	6,279,888	974,850	148,639	81,764	336,450	7,821,591	802,135
CDC	76,506	3,692	0	2,547	600	83,345	72,466
Training	2,623	0	388	99	0	3,110	0
Other	35,773,619	3,129,477	553,839	495,630	930,192	40,882,756	7,924,252
Province	62,545,012	10,753,990	1,980,062	984,072	3,003,485	79,266,621	22,546,468
Central	0	0	0	0	0	0	0
DKI Jakarta	0	0	0	0	0	0	0
West Java	5,691,856	2,179,901	291,867	121,892	966,972	9,252,488	6,197,986
Central Java	9,187,150	2,637,291	582,095	83,681	429,580	12,919,797	5,536,066
Yogyakarta	569,227	184,275	32,809	850	93,340	880,501	496,180
East Java	10,107,459	1,39,662	258,917	139,532	556,925	12,456,494	3,960,357
DI Aceh	2,196,181	337,229	58,246	20,997	156,869	2,769,523	190,605
North Sumatra	6,960,480	525,507	73,063	44,115	94,007	7,697,172	1,075,032
West Sumatra	2,101,761	227,779	34,383	21,761	35,400	2,421,083	326,911
Riau	1,659,414	211,952	39,230	13,464	32,242	1,956,302	267,819
Jambi	896,555	274,371	64,335	17,069	66,818	1,856,489	80,300
South Sumatra	2,544,697	315,988	60,201	22,418	21,263	2,964,567	586,964
Lampung	1,737,791	89,607	25,334	1,950	1,807	1,856,489	221,566
West Kalimantan	1,815,432	259,338	5,169	14,504	6,572	2,101,015	274,803
Central Kalimantan	1,327,947	170,672	22,126	45,136	17,239	1,583,120	107,101
South Kalimantan	649,550	189,749	44,372	12,485	161,630	1,057,785	152,085
East Kalimantan	694,020	199,775	57,573	30,925	44,613	1,026,907	564,712
North Sulawesi	1,328,191	232,239	160,145	23,786	31,128	1,775,489	550,979
Central Sulawesi	727,703	113,067	30,848	16,069	26,105	913,791	237,340
South Sulawesi	3,985,341	398,419	39,290	245,634	40,048	4,708,732	562,785
Southeast Sulawesi	892,250	63,771	8,702	8,555	1,450	974,728	73,851
Maluku	1,121,097	97,298	3,136	19,385	6,184	1,247,100	119,262
Bali	0	0	0	0	0	0	0
West Nusa Tenggara	1,512,355	179,383	35,948	5,340	28,840	1,7661,866	895,698
East Nusa Tenggara	1,401,009	264,061	17,212	47,278	128,749	1,858,310	505,966
Irian Jaya	3,008,909	132,179	18,046	23,250	46,349	3,228,733	90,083
Bengkulu	428,637	76,479	17,017	3,996	9,355	535,484	72,017
East Timor	0	0	0	0	0	0	0

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CENTRAL GOVERNMENT DEVELOPMENT EXPENDITURE BY GOVERNMENT AND PROVINCE, 1984/85 (BUDGET)
(Rp. thousands)

	Salaries	Materials	Transport	Other	Land	Construction	Equipment	Total
Program	9,120,894	23,136,192	11,415,532	24,369,167	1,697,674	31,559,299	16,241,024	117,539,783
Hospitals	985,291	4,041,163	1,406,072	3,968,812	284,680	20,960,668	9,724,931	41,371,617
Health Centers	273,778	1,206,264	1,269,880	7,866,306	0	1,148,917	1,765,030	13,530,175
CDC	3,172,198	13,253,124	3,612,121	2,248,176	37,155	808,604	1,012,672	24,144,049
Training	3,048,151	817,056	1,994,770	5,868,315	335,339	4,147,362	1,070,639	17,281,631
Other	1,641,477	3,818,585	3,132,690	4,417,560	1,040,500	4,493,749	2,667,752	21,212,311
Province	9,120,894	23,136,192	11,415,532	24,369,167	1,697,674	31,559,299	16,241,024	117,539,783
Central	3,238,340	5,508,848	4,808,456	6,891,990	819,750	3,261,259	3,545,788	28,074,430
DKI Jakarta	256,542	659,788	94,796	657,603	10,480	3,293,348	1,632,795	6,605,351
West Java	514,082	1,854,534	514,382	1,576,415	117,500	2,837,458	2,121,028	9,535,399
Central Java	792,981	3,331,114	469,325	1,857,633	122,870	3,148,178	879,662	10,601,762
Yogyakarta	172,962	641,909	112,541	428,402	15,000	787,878	955,339	3,114,031
East Java	616,282	2,433,527	484,409	2,125,006	105,800	1,791,072	1,177,520	8,733,614
DI Aceh	218,645	486,458	263,103	479,604	6,000	702,108	192,667	2,348,585
North Sumatra	268,840	939,716	377,151	835,870	27,500	1,665,345	301,802	4,416,223
West Sumatra	247,203	620,360	254,135	684,703	4,000	1,485,457	844,408	4,140,264
Riau	116,126	282,804	185,318	327,053	69,519	365,053	146,046	1,491,920
Jambi	140,124	418,238	150,528	343,739	0	675,742	931,582	2,659,953
South Sumatra	220,804	522,686	234,131	541,984	7,400	1,487,258	414,453	3,428,715
Lampung	150,597	551,671	91,444	453,375	6,000	609,670	173,059	2,0305,815
West Kalimantan	126,099	396,118	223,930	327,956	7,750	460,307	173,742	1,715,902
Central Kalimantan	121,815	259,666	268,840	391,646	71,000	429,612	109,140	1,651,719
South Kalimantan	141,091	350,492	198,331	424,597	46,875	430,537	260,369	1,852,292
East Kalimantan	137,002	358,421	229,912	1,065,270	5,100	443,545	201,167	2,440,416
North Sulawesi	146,294	363,880	215,808	469,624	6,000	815,278	143,388	2,160,271
Central Sulawesi	140,518	217,609	226,353	393,026	3,000	374,205	158,325	1,513,035
South Sulawesi	332,340	634,314	408,880	869,822	48,930	1,642,621	314,886	4,251,793
Southeast Sulawesi	121,757	178,166	143,825	319,600	0	235,368	71,310	1,070,026
Maluku	102,983	268,407	227,316	356,793	5,625	681,204	101,616	1,743,944
Bali	207,633	388,998	165,722	706,193	19,000	1,212,830	178,107	2,878,483
West Nusa Tenggara	136,948	361,924	176,686	460,315	81,000	669,680	98,714	9,985,266
East Nusa Tenggara	176,382	259,548	282,143	445,252	55,500	238,020	705,960	2,162,805
Irian Jaya	124,135	496,363	364,598	489,749	16,225	668,227	127,574	2,286,871
Bengkulu	93,774	264,578	91,933	264,813	9,500	580,634	185,729	1,490,961
East Timor	58,598	86,058	151,539	181,137	10,350	567,411	94,851	1,149,943

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PROVINCIAL GOVERNMENT DEVELOPMENT EXPENDITURE BY PROGRAM AND PROVINCE, 1984/85 (ACTUAL)
(Rp. thousands)

	<u>Total</u>
<u>Program</u>	<u>27,330,785</u>
Hospitals	6,013,024
Health Centers	2,562,054
CDC	653,118
Training	527,044
Other	17,575,545
<u>Province</u>	<u>27,330,758</u>
Central	0
DKI Jakarta	5,176,664
West Java	690,880
Central Java	1,985,237
DI Yogyakarta	395,951
East Java	5,375,372
DI Aceh	912,825
North Sumatra	1,213,785
West Sumatra	479,604
Riau	1,298,551
Jambi	518,023
South Sumatra	156,589
Lampung	143,521
West Kalimantan	620,664
Central Kalimantan	497,509
South Kalimantan	846,235
East Kalimantan	1,278,835
North Sulawesi	405,389
Central Sulawesi	490,501
South Sulawesi	764,270
Southeast Sulawesi	227,235
Maluku	226,380
Bali	740,251
West Nusa Tenggara	329,436
East Nusa Tenggara	462,832
Irian Jaya	946,832
Bengkulu	222,818
East Timor	927,637

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DISTRICT GOVERNMENT DEVELOPMENT EXPENDITURE BY PROGRAM AND PROVINCE, 1984/85 (ACTUAL)
(Rp. thousands)

	Total
<u>Program</u>	<u>5,451,429</u>
Hospitals	1,950,633
Health Centers	1,932,774
CDC	182,764
Training	38,702
Other	1,346,556
<u>Province</u>	<u>5,451,429</u>
Central	0
DKI Jakarta	0
West Java	409,591
Central Java	1,405,127
DI Yogyakarta	64,002
East Java	1,105,648
DI Aceh	87,580
North Sumatra	390,875
West Sumatra	33,670
Riau	148,117
Jambi	8,878
South Sumatra	72,088
Lampung	105,080
West Kalimantan	8,389
Central Kalimantan	45,721
South Kalimantan	215,549
East Kalimantan	58,451
North Sulawesi	40,300
Central Sulawesi	10,448
South Sulawesi	28,412
Southeast Sulawesi	4,000
Maluku	566,861
Bali	0
West Nusa Tenggara	101,474
East Nusa Tenggara	22,191
Irian Jaya	127,542
Bengkulu	391,436
East Timor	0

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CENTRAL GOVERNMENT INPRES EXPENDITURE BY PROGRAM AND PROVINCE, 1984/85 (BUDGET)
(Rp. thousands)

	Salaries	Materials	Transport	Other	Land	Construction	Equipment	Total
Program	0	40,344,602	0	0	0	58,104,397	0	98,448,999
Hospitals	0	0	0	0	0	0	0	0
Health Centers	0	40,344,602	0	0	0	37,655,398	0	78,000,000
CDC	0	0	0	0	0	0	0	0
Training	0	0	0	0	0	0	0	0
Other	0	0	0	0	0	20,448,999	0	20,448,999
Province	0	40,344,602	0	0	0	58,104,397	0	98,448,999
Central	0	0	0	0	0	10,080,065	0	10,080,065
DKI Jakarta	0	1,285,183	0	0	0	1,400,391	0	3,225,574
West Java	0	7,434,888	0	0	0	5,076,461	0	12,511,349
Central Java	0	6,669,350	0	0	0	5,798,055	0	12,467,405
Yogyakarta	0	710,998	0	0	0	1,146,213	0	1,857,211
East Java	0	7,634,798	0	0	0	5,855,670	0	13,490,468
DI Aceh	0	726,207	0	0	0	1,534,800	0	2,261,007
North Sumatra	0	2,310,179	0	0	0	1,526,629	0	3,836,808
West Sumatra	0	972,615	0	0	0	1,439,558	0	2,412,173
Riau	0	607,150	0	0	0	1,307,784	0	1,914,934
Jambi	0	407,999	0	0	0	997,900	0	1,405,899
South Sumatra	0	1,278,206	0	0	0	1,304,199	0	2,582,405
Lampung	0	1,369,735	0	0	0	1,659,779	0	3,029,514
West Kalimantan	0	763,585	0	0	0	1,425,839	0	2,189,424
Central Kalimantan	0	305,169	0	0	0	914,076	0	1,219,245
South Kalimantan	0	552,153	0	0	0	1,425,169	0	1,977,322
East Kalimantan	0	424,044	0	0	0	1,244,198	0	1,668,242
North Sulawesi	0	567,140	0	0	0	1,093,849	0	1,660,989
Central Sulawesi	0	361,525	0	0	0	646,646	0	1,008,171
South Sulawesi	0	1,607,995	0	0	0	2,016,955	0	3,624,950
Southeast Sulawesi	0	261,709	0	0	0	665,306	0	927,015
Maluku	0	444,909	0	0	0	1,275,394	0	1,720,303
Bali	0	649,865	0	0	0	937,704	0	1,587,569
West Nusa Tenggara	0	730,634	0	0	0	1,145,589	0	1,876,223
East Nusa Tenggara	0	834,393	0	0	0	1,598,013	0	2,432,406
Irian Jaya	0	375,773	0	0	0	2,198,399	0	2,574,172
Bengkulu	0	219,355	0	0	0	1,300,973	0	1,520,328
East Timor	0	299,045	0	0	0	1,088,783	0	1,387,828

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CENTRAL GOVERNMENT ROUTINE EXPENDITURE AND REVENUE BY PROGRAM AND PROVINCE, 1983/84 (ACTUAL)
(Rp. thousands)

	Salaries	Materials	Maintenance	Transport	Other	Total	Revenue
Program	43,849,162	32,659,775	6,856,936	867,209	1,891,514	86,124,596	8,714,814
Hospital	20,811,375	23,757,573	4,130,866	60,138	1,867,471	50,627,423	7,978,465
Health Centers	755,618	475,940	183,081	12,890	0	1,427,529	141,400
CDC	41,537	5,716	11,879	526	0	59,658	0
Training	3,166,971	3,401,092	641,181	40,060	13,925	7,263,229	32,821
Other	19,073,661	5,019,454	1,889,929	753,595	10,118	26,746,757	562,128
Province	43,849,162	32,659,775	6,856,936	867,209	1,891,514	86,124,596	8,714,814
Central	11,992,016	2,357,831	989,254	543,316	10,118	15,892,535	237,413
DKI Jakarta	7,242,539	8,087,983	2,005,431	12,291	1,548,584	18,896,828	4,059,523
West Java	4,789,492	5,043,116	819,049	27,096	0	10,678,753	1,258,258
Central Java	4,941,116	4,923,050	801,376	28,028	282,284	10,975,854	1,662,477
Yogyakarta	1,442,953	1,286,613	336,889	13,195	0	3,079,650	282,619
East Java	3,401,592	1,698,614	221,199	31,084	13,925	5,366,414	139,725
DI Aceh	254,968	226,070	55,584	9,505	0	546,127	14,894
North Sumatra	607,746	581,222	101,325	13,096	0	1,303,389	40,967
West Sumatra	1,352,429	1,547,881	261,632	14,528	36,603	3,213,073	253,464
Riau	223,522	116,486	35,381	9,201	0	384,590	5,600
Jambi	205,734	85,902	20,320	4,347	0	316,303	1,948
South Sumatra	1,593,899	1,974,021	382,673	11,879	0	3,962,472	301,244
Lampung	298,048	168,652	44,894	4,456	0	516,050	2,526
West Kalimantan	328,716	313,932	59,229	7,146	0	709,023	18,465
Central Kalimantan	111,801	81,641	21,299	6,243	0	220,984	3,241
South Kalimantan	349,340	279,291	51,692	8,080	0	688,403	27,838
East Kalimantan	258,283	200,094	53,759	8,693	0	520,829	21,102
North Sulawesi	503,232	345,812	59,467	11,721	0	920,232	13,228
Central Sulawesi	100,337	99,208	23,245	8,205	0	230,995	4,919
South Sulawesi	674,323	656,670	120,034	16,772	0	1,467,799	39,496
Southeast Sulawesi	160,277	97,315	23,792	6,964	0	288,348	5,479
Maluku	228,644	151,421	42,671	8,672	0	431,408	2,624
Bali	1,607,291	1,424,382	169,112	9,680	0	3,210,465	286,059
West Nusa Tenggara	169,238	138,523	27,533	5,803	0	341,102	13,747
East Nusa Tenggara	193,583	114,83	22,075	9,637	0	340,129	4,495
Irian Jaya	130,391	135,634	28,176	16,675	0	310,876	11,951
Bengkulu	120,138	85,113	19,742	3,681	0	228,674	1,390
East Timor	567,514	438,459	60,103	17,215	0	1,083,291	122

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PROVINCIAL GOVERNMENT ROUTINE EXPENDITURE AND REVENUE BY PROGRAM AND PROVINCE, 1983/84 (ACTUAL)
(Rp. thousands)

	Salaries	Materials	Maintenance	Transport	Other	Total	Revenue
Program	52,339,804	16,020,785	3,397,366	392,122	1,997,986	74,148,063	8,082,369
Hospitals	16,080,333	12,474,876	2,389,439	101,974	1,728,617	32,775,239	6,169,109
Health Centers	24,383	20,540	1,497	442	250	47,112	18,433
CDC	90,502	17,854	3,885	4,540	0	116,781	0
Training	0	0	0	0	0	0	0
Other	36,144,586	3,507,515	1,002,545	285,166	269,119	41,208,931	1,894,827
Province	52,339,804	16,020,785	3,397,366	392,122	1,997,986	74,148,063	8,082,369
Central	0	0	0	0	0	0	0
DKI Jakarta	859,735	1,666,342	83,627	313	0	2,610,017	698,110
West Java	8,353,344	64,186	10,309	12,242	0	8,440,081	0
Central Java	10,406,758	175,960	1,714,401	23,243	131,073	12,451,435	1,332,725
Yogyakarta	1,844,625	82,075	3,984	0	2,611	1,933,295	10,258
East Java	7,724,323	4,619,600	415,978	17,717	1,207,670	13,985,288	1,747,846
DI Aceh	495,922	386,141	91,551	18,734	23,171	1,015,519	114,505
North Sumatra	3,462,439	2,323,134	373,135	59,934	43,140	6,261,782	996,438
West Sumatra	747,538	436,053	111,601	15,999	6,805	1,317,996	123,464
Riau	282,238	200,349	11,033	3,751	43,337	540,708	91,893
Jambi	335,240	41,069	1,725	18,262	37,621	433,971	39,264
South Sumatra	830,068	44,403	7,545	11,802	3,699	897,517	7,088
Lampung	1,893,002	663,953	63,186	5,427	196,181	2,821,749	546,775
West Kalimantan	1,025,211	459,185	7,701	25,501	8,305	1,525,903	113,850
Central Kalimantan	276,131	110,392	12,797	15,851	39,678	453,849	63,747
South Kalimantan	1,530,195	374,889	26,136	12,749	10,348	1,954,317	161,872
East Kalimantan	853,786	429,108	19,761	16,438	3,255	1,322,348	339,338
North Sulawesi	1,772,561	610,514	110,104	6,863	26,043	2,526,085	382,032
Central Sulawesi	939,412	149,181	100,010	4,021	0	1,192,624	166,815
South Sulawesi	1,207,208	1,052,837	47,588	22,209	0	2,329,842	244,202
Southeast Sulawesi	353,296	37,842	44,423	7,848	1,177	444,586	43,032
Maluku	393,666	351,369	14,267	5,633	3,475	768,410	90,966
Bali	2,901,558	517,313	14,467	7,133	3,864	3,444,335	341,980
West Nusa Tenggara	500,927	208,243	22,309	0	61,903	793,382	147,109
East Nusa Tenggara	1,157,286	110,619	8,359	20,110	56,069	1,352,443	126,135
Irian Jaya	1,083,816	839,579	74,789	51,192	31,496	2,080,872	127,476
Bengkulu	524,593	20,749	2,080	6,150	58,065	611,637	25,499
East Timor	584,926	45,700	4,500	3,000	0	638,126	0

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DISTRICT GOVERNMENT ROUTINE EXPENDITURE AND REVENUE BY PROGRAM AND PROVINCE, 1983/84 (ACTUAL)
(Rp. thousands)

	Salaries	Materials	Maintenance	Transport	Other	Total	Revenue
Program	<u>61,669,415</u>	<u>9,904,006</u>	<u>4,566,874</u>	<u>1,544,377</u>	<u>2,655,941</u>	<u>80,340,613</u>	<u>20,808,250</u>
Hospitals	20,367,270	5,402,800	1,804,389	456,005	1,646,726	29,677,191	9,945,339
Health Centers	5,841,476	821,491	188,811	61,817	111,286	7,024,881	1,651,573
CDC	85,323	4,170	0	2,709	1,018	93,220	0
Training	2,059	569	123	48	0	2,799	0
Other	35,373,288	3,674,977	2,573,551	1,023,797	896,910	43,542,523	9,211,338
Province	<u>61,669,415</u>	<u>9,904,006</u>	<u>4,566,874</u>	<u>1,544,377</u>	<u>2,655,947</u>	<u>80,340,613</u>	<u>20,808,250</u>
Central	0	0	0	0	0	0	0
DKI Jakarta	0	0	0	0	0	0	0
West Java	7,039,030	2,105,880	1,469,052	136,821	989,867	11,740,650	5,382,340
Central Java	8,604,127	1,975,148	901,755	67,298	255,302	11,803,631	5,832,228
Yogyakarta	499,926	92,699	29,637	4,145	354,851	981,259	367,473
East Java	9,775,637	1,305,568	211,001	140,134	417,304	11,849,643	3,149,792
DI Aceh	2,027,758	209,337	22,274	39,724	22,547	2,321,640	198,084
North Sumatra	5,828,021	472,733	78,304	43,173	84,906	6,507,136	522,360
West Sumatra	1,912,264	168,231	26,808	18,290	36,026	2,161,619	325,183
Riau	2,751,206	182,763	343,933	511,001	96,887	3,885,790	221,410
Jambi	779,167	201,275	34,179	11,542	44,007	1,070,170	103,649
South Sumatra	2,470,313	227,635	149,201	40,618	58,360	2,946,127	313,884
Lampung	896,483	71,979	20,706	1,435	0	990,603	330,627
West Kalimantan	734,824	217,625	2,895	12,090	8,766	976,200	219,527
Central Kalimantan	2,186,679	110,773	15,887	33,057	13,250	2,359,646	108,368
South Kalimantan	623,349	92,042	34,531	12,238	35,816	797,975	151,485
East Kalimantan	979,135	132,260	35,669	27,289	44,107	1,218,459	69,335
North Sulawesi	1,401,853	321,851	17,580	26,183	5,698	1,773,164	1,118,721
Central Sulawesi	862,171	125,159	25,447	18,318	25,278	1,056,372	424,001
South Sulawesi	3,875,184	368,984	36,652	24,014	20,544	4,325,378	539,594
Southeast Sulawesi	785,167	767,547	934,787	279,032	728	2,767,262	76,693
Maluku	1,224,912	150,983	14,789	23,302	6,423	1,420,409	124,311
Bali	0	0	0	0	0	0	0
West Nusa Tenggara	1,359,941	142,057	48,194	6,027	16,724	1,572,943	142,105
East Nusa Tenggara	1,308,987	249,893	92,401	38,681	61,828	1,751,790	560,140
Irian Jaya	3,339,039	203,137	19,271	28,485	48,631	3,638,564	492,696
Bengkulu	404,244	8,446	1,923	1,479	8,093	424,185	34,244
East Timor	0	0	0	0	0	0	0

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CENTRAL GOVERNMENT DEVELOPMENT EXPENDITURE BY PROGRAM AND PROVINCE, 1983/84 (BUDGET)
(Rp. thousands)

	Salaries	Materials	Transport	Other	Land	Construction	Equipment	Total
Program	9,775,261	13,713,048	9,208,643	9,497,631	3,166,130	36,982,517	12,035,518	94,378,448
Hospitals	1,069,014	3,055,554	1,090,757	1,505,301	939,910	28,740,700	8,891,848	45,293,084
Health Centers	2,937,393	688,272	1,100,862	2,039,184	0	1,164,122	738,910	8,668,743
CDC	2,574,113	6,280,501	3,227,034	1,104,570	40,530	776,465	559,979	14,563,192
Training	1,603,144	413,697	1,188,885	2,010,787	436,100	2,267,562	684,084	8,604,259
Other	1,591,597	3,275,025	2,601,106	2,837,789	1,749,590	4,033,668	1,160,397	17,249,171
Province	9,775,261	13,713,048	9,208,643	9,497,631	3,166,130	36,982,517	12,035,518	94,378,448
Central	1,706,913	1,647,698	1,977,936	1,899,432	696,000	877,341	733,705	9,539,025
DKI Jakarta	217,894	526,600	69,356	215,534	19,875	2,518,061	2,405,607	5,972,927
West Java	851,187	1,175,024	516,252	672,838	80,000	4,401,849	1,536,590	9,233,739
Central Java	1,200,574	2,684,737	524,911	791,654	314,750	3,731,310	1,403,886	10,641,822
Yogyakarta	216,602	353,006	161,726	209,503	10,000	1,021,283	382,192	2,345,311
East Java	1,069,409	1,898,709	563,766	935,301	124,700	3,286,820	871,437	8,750,142
DI Aceh	271,948	210,933	291,230	181,318	8,000	1,009,455	214,917	2,187,801
North Sumatra	351,181	691,000	434,314	342,908	67,500	805,075	352,379	3,044,357
West Sumatra	284,954	497,909	270,021	400,014	30,000	2,153,745	515,246	4,152,889
Riau	154,076	178,904	187,535	128,507	11,250	686,448	149,885	1,496,604
Jambi	180,807	144,067	187,077	178,951	3,750	671,946	102,369	1,468,966
South Sumatra	248,550	266,724	280,463	296,445	10,000	1,965,262	526,943	3,594,387
Lampung	203,601	191,918	122,472	176,914	150,000	635,165	97,274	1,577,344
West Kalimantan	166,263	260,610	240,384	149,082	5,000	825,743	87,680	1,761,764
Central Kalimantan	177,162	131,812	269,585	175,430	2,000	618,985	80,686	1,455,658
South Kalimantan	199,437	229,165	243,031	322,823	28,250	949,350	353,087	2,325,143
East Kalimantan	155,246	227,359	233,583	147,473	14,855	771,520	161,571	1,711,606
North Sulawesi	205,322	246,973	246,096	232,441	7,500	903,445	116,867	1,958,643
Central Sulawesi	178,350	160,495	281,211	177,035	120,600	345,285	161,921	1,424,897
South Sulawesi	452,673	446,874	470,412	403,876	968,050	1,433,080	421,788	4,596,754
Southeast Sulawesi	125,382	113,072	163,281	126,497	120,600	517,285	143,681	1,309,798
Maluku	133,425	144,675	216,680	193,560	7,500	938,075	170,904	1,804,819
Bali	257,659	376,793	186,612	263,358	55,250	1,651,616	287,716	3,082,003
West Nusa Tenggara	196,260	197,616	170,213	186,013	179,000	813,263	141,717	1,884,081
East Nusa Tenggara	239,955	234,135	285,461	253,030	66,950	735,270	112,269	1,927,070
Irian Jaya	153,751	267,849	336,220	233,554	19,950	1,156,997	172,324	2,340,644
Bengkulu	120,428	118,020	109,703	121,069	600	829,100	174,464	1,473,384
East Timor	56,252	90,372	166,114	93,072	44,200	711,746	155,120	1,316,875

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PROVINCIAL GOVERNMENT DEVELOPMENT EXPENDITURE BY PROGRAM AND PROVINCE, 1983/84 (ACTUAL)
(Rp. thousands)

	Total
<u>Program</u>	<u>25,049,363</u>
Hospitals	5,223,496
Health Centers	1,815,070
CDC	296,278
Training	500,348
Other	17,214,171
<u>Province</u>	<u>25,049,363</u>
Central	0
DKI Jakarta	2,489,880
West Java	748,985
Central Java	1,668,155
DI Yogyakarta	7,694,352
East Java	0
DI Aceh	558,529
North Sumatra	1,053,311
West Sumatra	459,639
Riau	1,292,522
Jambi	651,991
South Sumatra	212,490
Lampung	419,228
West Kalimantan	295,498
Central Kalimantan	762,697
South Kalimantan	472,085
East Kalimantan	1,002,029
North Sulawesi	328,316
Central Sulawesi	285,639
South Sulawesi	397,743
Southeast Sulawesi	302,649
Maluku	254,007
Bali	729,722
West Nusa Tenggara	309,281
East Nusa Tenggara	188,430
Irian Jaya	2,276,311
Bengkulu	180,399
East Timor	15,475

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DISTRICT GOVERNMENT DEVELOPMENT EXPENDITURE BY PROGRAM AND PROVINCE, 1983/84 (ACTUAL)
(Rp. thousands)

	<u>Total</u>
<u>Program</u>	<u>3,590,841</u>
Hospitals	1,137,192
Health Centers	1,255,740
CDC	219,046
Training	8,244
Other	970,619
<u>Province</u>	<u>3,590,841</u>
Central	0
DKI Jakarta	0
West Java	574,021
Central Java	898,978
DI Yogyakarta	55,531
East Java	834,118
DI Aceh	191,243
North Sumatra	256,200
West Sumatra	56,106
Riau	49,787
Jambi	8,440
South Sumatra	50,164
Lampung	5,650
West Kalimantan	3,575
Central Kalimantan	13,975
South Kalimantan	101,692
East Kalimantan	164,599
North Sulawesi	10,625
Central Sulawesi	8,543
South Sulawesi	59,381
Southeast Sulawesi	0
Maluku	102,630
Bali	0
West Nusa Tenggara	75,016
East Nusa Tenggara	37,118
Irian Jaya	19,742
Bengkulu	13,709
East Timor	0

ANNEX II
Table 1 of 2

PHYSICAL HOSPITAL INVESTMENT TARGETS AND ACHIEVEMENTS IN REPELITA IV

	Unit Cost (Rp.millions)/b	Number of Physical Facilities				
		Repelita IV Plan	Budget (DIP) /a			
		1984/85	1985/86	1986/87	Total	
Local Government						
Upgrade hospitals, Class D to C	1,285	70	46	10	3	59
Upgrade hospitals, Class C to C	1,420	39	15	3	0	18
Upgrade hospitals, Class C to B	2,029	5	4	0	0	4
New satellite hospitals (C+)	5,001	7	0	1	0	1
New hospital rehabilitation units (C)	165	26 /c	0	0	0	0
Rehabilitate hospitals, Class A	30,848	1	1	0	0	1
Rehabilitate hospitals, Class B	14,157	6	4	2	0	6
Rehabilitate hospitals, Class D	1,468	149 /d	41	5	3	49
Central Government						
New teaching hospitals, Class A	77,122	2 /e	2	0	0	2
New teaching hospitals, Class B	35,393	1	0	1	0	1
Improve hospital rehabilitation units, Class A	7,275	1	0	1	0	1
Improve hospital rehabilitation units, Class B	5,605	9	0	1	0	1
New hospital rehabilitation units, Class C	200	20	0	0	0	0
Speciality Hospitals						
New cancer hospitals	36,800	1	0	1	0	1
New mental hospitals	5,533	3	2	0	0	2
Improve TB hospitals	3,480	6	1	1	0	2
Improve leprosy hospitals	2,498	3	1	2	0	3
Improve eye hospitals	5,742	1	1	0	0	2
Improve orthopedic hospitals	1,683	1	1	0	0	1
Rehabilitate mental hospitals	2,213	11	0	0	0	0
Strengthen mental hospitals	NA	-	0	0	0	0
Referral Support						
New medical laboratory (central)	2,602	1	1	0	0	1
Strengthen medical laboratory (provincial)	979	27 /f	1	1	0	2
New environmental health laboratories	2,602	4	NA	NA	NA	NA
New equipment maintenance workshops	1,775	4	NA	NA	NA	NA
New hospital family planning units	785	27	26	1	0	27
Red Cross	NA	NA	NA	NA	NA	NA
Private hospitals (local)	NA	NA	65	100	71	236
Private hospitals (central)	NA	NA	NA	NA	NA	NA
Evacuation	NA	NA	6	12	NA	18
Drugs for local government hospitals	NA	NA	256	274	228	758

/a Data refer to individual projects started in terms of numbers of facilities, and do not imply completion of the project.

/b Unit costs are given in 1985/86 prices.

/c MOH notes give 36; 26 is consistent with unit costs and planned expenditure.

/d MOH notes give 176; 149 is consistent with unit costs and planned expenditure.

/e Alternative sources give either 500 beds or 1350 beds each.

/f Estimated number of units budgeted.

NA Indicates not available.

Source: Ministry of Health, Directorate of Hospitals

ANNEX II
Table 2 of 2

FINANCIAL HOSPITAL INVESTMENT TARGETS AND ACHIEVEMENTS IN REPELITA IV
(Rp. millions)

	Repelita IV Plan	Budgeted (APBN-DIP)				Total	Total Cost of Units Started	Cost to Complete Units Started
		1984/85	1985/86	1986/87	Total			
Local Government:								
Upgrade hospitals, Class D to C	89,950	1,906	2,445	1,654	6,005	7,5815	66,292	
Upgrade hospitals, Class C to C	55,380	1,597	1,714	668	3,979	25,560	19,250	
Upgrade hospitals, Class C to B	10,145	340	897	992	2,229	8,116	4,581	
New satellite hospitals (C+)	35,007	0	253	0	253	5,001	4,600	
New hospitals rehabilitation units (C)	4,290	0	0	0	0	0	0	
Rehabilitate hospitals, Class A	30,848	1,485	1,195	195	2,875	30,848	27,973	
Rehabilitate hospitals, Class B	84,942	687	278	399	1,364	84,942	83,578	
Rehabilitate hospitals, Class D	218,732	3,470	1,701	843	6,014	71,932	62,395	
Central Government:								
New teaching hospitals, Class A	154,244	1,972	365	681	3,018	154,244	151,226	
New teaching hospitals, Class B	35,393	0	986	700	1,686	35,393	33,707	
Improve hospital rehabilitation units, Class A	7,275	0	36	0	36	7,275	7,239	
Improve hospital rehabilitation units, Class B	50,445	20	99	0	119	5,605	5,486	
New hospital rehabilitation units, Class C	4,000	0	0	0	0	0	0	
Speciality Hospitals								
New cancer hospital /a	36,800	0	96	37	133	36,800	36,667	
New mental hospital	16,599	83	0	0	83	11,066	10,983	
Improve TB hospitals	20,880	109	66	0	175	6,960	6,785	
Improve leprosy hospitals	7,494	1,263	1,542	109	2,914	7,494	4,580	
Improve eye hospitals	5,742	894	692	72	1,658	5,742	4,084	
Improve orthopedic hospitals	1,683	869	355	193	1,417	1,683	266	
Rehabilitate mental hospitals	24,343	3,212	2,627	273	6,112	NA	NA	
Strengthen mental hospitals	54,805	NA	NA	NA	NA	NA	NA	
Referral Support								
New medical laboratory (central)	2,602	265	273	316	854	2,602	1,748	
Strengthen medical laboratory (provincial)	26,433	574	1,189	51	1,814	NA	NA	
New environment health laboratories	10,408	NA	NA	NA	NA	NA	NA	
New equipment maintenance workshops	7,100	NA	NA	NA	NA	NA	NA	
New hospitals family planning units	21,195	394	412	15	821	21,195	20,374	
Red Cross	2,500	220	200	47	467	NA	NA	
Private hospitals (local)	10,250	1,550	258	78	1,886	NA	NA	
Private hospital (central)	12,250	0	275	34	309	NA	NA	
Evacuation	210,935	31	325	0	356	NA	NA	
Drugs for local government hospitals	11,442	2,002	1,230	914	4,146	NA	NA	
Dental Health Services	15,980	NA	NA	NA	NA	NA	NA	
Total	1280,092	22,943	19,509	8,271	50,723	NA	NA	

/a Land was purchased but there was no construction by 1987

ANNEX III

HEALTH MANPOWER DATA SOURCES

A. Introduction

1. Existing health manpower data sources are severely limited in comprehensiveness and detail. A newly-instituted data system aims for complete and detailed coverage of public health manpower, but has not yet been fully implemented. Very little data exist on health manpower employed by quasipublic or private organizations. These data limitations are a major restriction on staff planning and evaluation. This annex briefly reviews the scope, coverage, advantages, and disadvantages of health manpower data sources.

2. Data coverage is usually defined on the basis of the employee's workplace or employer. It is therefore useful to present a concise taxonomy of health workers by their place of employment, as follows:

- (i) Private sector: Self-employed health workers; private clinics and hospitals; and industrial and commercial firms with in-house health services;
- (ii) Public enterprises (BUMN): e.g., Pertamina;
- (iii) ABRI (the armed forces);
- (iv) Depdikbud (Ministry of Education and Culture): employs the faculty of medical schools;
- (v) Health facilities under Ministry of Health responsibility: vertical facilities (centrally funded through MOH); regional facilities (funded by provincial or district governments.)

Two things should be noted about this classification. First, it is possible for a health worker to hold two or more jobs simultaneously: most if not all doctors in private employment also hold a government position. Second, a government worker may work at one facility but be employed by another. For instance, centrally-funded workers may be assigned to work at provincial facilities: and Ministry of Education and Culture employees may work at Ministry of Health hospitals (e.g., specialists).

B. "Old System" (BAKN-Based)

3. Description. The principal existing source of manpower data is maintained by the MOH Data Center and is based on records from the Civil Service Bureau (BAKN). In 1983, the Data Center obtained BAKN data tapes describing all civil servants working in MOH-supervised facilities. Since obtaining the data, the Data Center has independently updated it using information forwarded by the MOH Personnel Bureau.

4. Coverage. The chief drawback of this system is that the Personnel Bureau only processes appointments, promotions, and transfers for employees of MOH (i.e., civil servants with NIP 14). However, many employees at MOH-supervised facilities are technically classified as employees of other departments. In particular, many nonmedical employees of provincial and district facilities are formally employees of the Ministry of Home Affairs. Many specialist physicians are formally on the rolls of the Ministry of Education and Culture. An accurate count of these two important classes of employees exists only for 1983.

5. Detail. The BAKN records are concise, containing basic data for pay computation. These data include:

- Basic demographics: date and place of birth, sex, marital status, religion;
- Educational level;
- Ever-attendance at a training course;
- Rank and seniority in the civil service;
- Province and kabupaten of current workplace;
- Whether or not a centrally-paid employee;
- Whether or not on probationary (calon) status; and
- Number of dependents.

6. The BAKN records omit some information which is important for planning and evaluation purposes. Data are not available on the following:

- Characteristics of the workplace: it is not possible to distinguish between hospital, health center, and administrative personnel;
- Precise location of workplace: for instance, it is not possible to determine whether an employee is stationed at the district headquarters or in the outlying rural areas;
- Educational or functional specialization: among paramedics, for instance, it is not possible to distinguish nurses from technicians; and
- Wages: however, base pay and allowances can be calculated from salary grade, seniority and number of dependents.

7. Accuracy and timeliness. Updating of the "Old System" records is a multi-step process, involving transfers of information from health facility to provincial office to the Personnel Bureau and finally to the Data Center. At best the process takes several months; at worst, there may be some information loss. An indicator of the problem is the high proportion, approximately 40%, of employees listed as being on probationary status. Probationary status is officially supposed to last only for the first year after recruitment, so the proportion should be no higher than the annual growth rate of employment, around 6%. To some extent the high reported proportion may reflect noncompliance with regulations on promotion. But it also indicates delays or lapses in updating.

C. SP2TK (Sistem Pencatatan Dan Pelaporan Tenaga Kesehatan)

8. Description and scope. Recognizing the need for improved personnel manpower monitoring, the Data Center formally introduced a new system (SP2TK) at the end of December 1985. The system employs a set of well-documented forms which are filled out by employees and forwarded directly to the Data Center in Jakarta for input and processing. In principle, the system should cover all employees working at facilities under MOH responsibility.

9. Detail. In addition to the data gathered by the old system, the SP2TK gathers precise information on:

- Type of education; and
- Workplace.

10. Coverage and implementation issues. Assessing the degree of coverage is difficult because no accurate benchmark census of employees exists. The Data Center uses as a benchmark the total number of employees listed under the old system: the more-or-less current number of formal MOH (NIP 14) employees, plus the number of employees classified under other departments as of 1983. Since the number of non-NIP 14 employees has probably grown over the past four years, the benchmark total of 200,690 employees is probably an underestimate.

11. As it approaches its first anniversary, SP2TK is still in its startup phase. This involves the formidable task of collecting data on all of MOH's approximately 200,000 employees. Bottlenecks exist at both the reporting and data entry stages. As of 31 October 1986, forms had been received on 155,505 employees; of these, 60,073 had been entered and checked. The data entry bottleneck is temporary and simply reflects the large volume of start-up data as compared with a small data entry staff. The low reporting rate is more difficult to diagnose and may indicate that the system is not yet understood, or that it is encountering administrative or compliance problems. The provinces with the lowest reporting rates are shown in Table 1. Communications constraints may account for the low response rate from Maluku and Irian Jaya. In Jakarta, however, nonreporting by two large hospitals accounts for the comparatively low response rate.

Table 1: SP2TK REPORTING RATES, 1986

Estimated % of employees reported	
Maluku	18
West Sumatra	23
Irian Jaya	31
West Nusa Tenggara	43
South Sulawesi	46
Jakarta	53

12. Another indication of implementation problems is the very low nationwide rate of employee file updating (promotions, transfers, etc). The Data Center sent teams to twenty provinces in December 1986 to diagnose bottlenecks and assist local administrators in institutionalizing the reporting system. Clearly the viability and usefulness of the system depends on this kind of institutionalization.

D. Other Manpower Data Sources at Ministry of Health

13. YanMed hospital data. YanMed, the hospital services directorate, operates an independent data center which collects personnel data from all Indonesian hospitals, public, semi-public, and private. At the hospital level, data are collected on number of employees by detailed skill classification by source of salary. The data therefore include personnel who work at MOH facilities but are formally classed as Home Affairs or DepDikbud employees. YanMed also collects employee data at the individual level, though here coverage is less than universal. In principle, these data could be used to indicate the extent of multiple job holding by government employees.

14. Binkesmas health center data. Binkesmas, the health center directorate, compiles personnel data on all government health centers. The published compilation lists number of employees by type (doctor, dentist, nurse, other paramedic, nonmedic) by district. It has been suggested that informal reassignment of health center posts to hospitals and health offices undercuts the reliability of this data, however.

15. Personnel bureau data. The personnel bureau collects a great deal of data on recruitments, appointments, and some transfers; in general, the data are not comprehensive and lacks detail on the employee's work unit.

16. Doctor license data. The Bureau of Personnel also processes applications for, and renewals of, doctor's licenses (S.I.D.) for all doctors, regardless of employer. Because renewal is at five-year intervals, and because there may be some non-reporting, these data can only be used as an approximation; it remains, however, the best source of data on the national stock of physicians.

17. Indicators of Staffing Needs Data. The ISN project is an ambitious attempt to rationalize staff planning and allocation. It establishes, for each type of MOH facility, detailed staffing norms based on facility utilization (e.g., number of nurses required at a hospital is a function of number of outpatients and number of inpatient-days.) Application of the ISN system requires data on both current utilization and current staff from all MOH facilities.

E. Summary and Recommendations

18. Labor costs constitute a major portion of public health expenditures, and this component is under direct government control. Efficient allocation

of existing staff, and planning and budgeting for staff expansion, requires detailed, accurate and comprehensive information on the manpower situation. Such data currently do not exist.

19. The SP2TK labor reporting system is the designated solution to this problem. The system, which relies on timely centralized collection of individual-level data from all employees, faces severe compliance problems and may not be supportable. Evaluation of the system's prospects needs to be made; if necessary, a less ambitious system should be substituted. At the same time, efforts need to be made to eliminate redundant collection of staffing data.

ANNEX IV

WAGES AND PRODUCTIVITY

A. Wages and Productivity

Wages and Income

1. Essentially all employees of the Ministry of Health at the national or local level are civil servants (pegawai negeri). As such, they are subject to the civil service salary structure. Salary is a function of tenure (i.e., years in service) and rank (golongan). Starting rank, in turn, is a function of education, as follows:

- Rank I: Starting salary Rp.33,200/month; less than high school education, e.g., drivers, janitors;
- Rank II: starting salary Rp.55,500/month; high school or academy education, e.g. most paramedics;
- Rank III: starting salary Rp.81,000/month; university degree, e.g., general doctors; and
- Rank IV: starting salary Rp.93,200/month; advanced degree.

2. Within each rank, salary doubles after about twenty years of service and plateaus at 24. It is possible to advance from step to step within each rank, and sometimes to advance ranks. The maximum base salary achievable by, for example, a specialist doctor after 24 years of service, is Rp.265,600/month, or approximately US\$2,000 per year.

3. To this base salary a number of official supplements (tunjungan) are added:

- (a) All civil servants are entitled to a rice allowance of 10 kg per family member per month, paid in kind. The retail price of rice is about Rp.400/kg, so this supplement could be relatively substantial for a low-ranking employee with a large family. The opportunity cost to the government of providing the rice may be less than the retail price;
- (b) Functional supplements are paid to employees who are in certain service-providing positions. These supplements are not incentives, because they are not contingent on whether the employee actually provides those services. Thus doctors at health centers or hospitals receive an additional Rp.50,000/month, and paramedics receive Rp.15,000;
- (c) Structural supplements are paid to the occupants of so-called structural posts, which are for the most part directorships of a bureau, section, or facility. For instance, a health center doctor receives Rp.25,000/month by virtue of being director of the health center. These supplements can range up to Rp.150,000/month for rank IV administrators;

- (d) Cost of living supplements are paid by some outlying provinces to health center staff, especially doctors. Ranging up to Rp.100,000/month, these supplements probably serve as an incentive for recruitment and retention, in addition to compensating for higher prices;

4. In addition to these standard regular supplements, a system of informal incentives has arisen based on honoraria, travel per diems in excess of average actual expenses, and special project funds. These are used to reward staff who participate in special task forces or projects. In some cases, a DIP-funded project may be used to stimulate activities which strictly speaking would be classified as routine. While these payment mechanisms may be susceptible to abuse, they do have the noteworthy property of being incentives to effort in a system which generally lacks performance-related rewards or sanctions.

5. Finally, almost all doctors, and many paramedics, have private practices or second jobs in addition to their government duties. For doctors, particularly specialists, this outside income can be very substantial, ranging up to a large multiple of their government salary. Data on private sector wages or earnings for health workers are not readily available.

6. It is useful to evaluate these income figures against the general income distribution in Indonesia. Table 1 provides information on the percentile ranking of individuals according to per-capita family expenditure:

Table 1: RANKING BY PER CAPITA EXPENDITURE, SUSENAS 1984

Monthly per capita expenditure (Rp.)	Percentile Rank	
	Indonesia	Jakarta
80,000	99.5	96.2
60,000	98.7	96.2
40,000	95.8	75.5
30,000	91.2	57.8
20,000	77.5	25.6

Source: Biro Pusat Statistik, Pengeluaran Untuk Konsumsi Penduduk Indonesia per Province, 1984.

7. A consequence of the fragmentation of budgetary responsibility for health personnel is that no comprehensive data on the public-sector wage bill is available. MOH-appointed employees are paid, variously, from the central, provincial, or local routine budgets; some salaries are also paid through the development budget. In addition, about one-third of all employees working at MOH-supervised facilities are officially employed by the Home Affairs Ministry

and therefore entirely beyond MOH budgetary purview. An incomplete estimate of the wage bill for 1985/86, derived from the central and regional health budget allocations is given in Table 2.

Table 2: PUBLIC SECTOR WAGE BILL FOR HEALTH BY LEVEL OF GOVERNMENT, 1985/86

Budget	Salaries	Total expenditure	% salaries
Central routine	72.3	133.9	54.0
Provincial routine	78.4	112.5	69.7
District routine	81.8	104.1	78.6
Central development	10.6	112.5	9.4
	<u>243.1</u>	<u>463.0</u>	<u>52.5</u>

8. These figures do not include Home Affairs employees. An alternative estimate of the bill can be made by applying the civil service salary scale to a breakdown of MOH personnel by rank and tenure. A rough estimate of the public-sector wage bill for health is given in Table 3.

Table 3: PUBLIC SECTOR WAGE BILL FOR HEALTH BY TYPE OF EMPLOYEE, 1986
(Rp. thousands)

	Number of employees <u>/a</u>	Monthly wage <u>/b</u>	Monthly supplements <u>/c</u>	Annual wage bill
<u>Ministry of Health</u>				<u>164,870,052</u>
Doctor (specialist)	287	139	75	737,016
Doctor (general)	11,789	113	75	26,595,984
Dentist	2,630	113	75	5,933,280
Other graduate	1,971	113	25	3,263,976
Paramedic, academy ed	3,946	83	15	4,640,496
Paramedic, high school	57,656	79	15	65,035,968
Paramedic, Jr. high	22,759	58	10	18,571,344
Nonmedic, Rank III/IV	1,543	113	50	3,018,108
Nonmedic, Rank II	15,264	79	0	14,470,272
Nonmedic, Rank I	36,934	51	0	22,603,608
<u>Ministry of Home Affairs</u>				
Nonmedics	50,000	65	0	39,000,000
<u>Ministry of Education and Culture</u>				
Specialits doctors	3,300	139	75	8,474,400
<u>Grand Total</u>				<u>212,344,452</u>

/a Does not include private, quasi-public or armed forces personnel.

/b Base salary assumes average of six to seven years' tenure.

/c Salary supplements estimates are informed guesses. Does not include in-kind rice supplement of 10 kg per family member per month.

B. Productivity Issues

9. Scattered data suggest that worker productivity is low on average, but highly variable between facilities. Berman and Suomi ^{1/} studied workload at health centers in 22 subdistrict of three rural districts in the neighborhood of Yogyakarta. Workers were asked to report the allocation of their time between curative, immunization, and MCH services; output per full-time equivalent day was then calculated for each of these activities. Curative output was found to average 11 contacts per day; however, the most productive subdistrict had 12 times the contacts/day of the least productive. Similarly, the average MCH productivity was 4.6 contacts per day, with variation over a factor of 19, and immunizations averaged 5.5 per day with variation over a factor of 6.

10. Likewise, hospital data reveals a very low workload at some facilities. An extreme case, for instance, is Sungguminasa hospital in South Sulawesi, where three doctors and 29 paramedics were reported to handle an average daily workload of about 20 outpatient visits and two occupied beds.

11. There are a number of possible sources of, and remedies for, low productivity. To a large extent, low productivity may be rooted in a failure of the manpower allocation process to match staff with existing workload. The new ISN manpower planning system is directly addressing this problem. Low productivity may also stem from structural barriers to utilization. For instance, some private health centers have achieved much greater utilization rates than public health centers through the simple expedient of offering clinic hours during evening and Sunday hours convenient to the client. Similarly, lack of drugs, specialized staff or equipment may deter use of some health centers and Class D hospitals.

12. Another problem lies in the lack of an incentive structure. With few exceptions, the system has lacked any penalties for lack of effort, or rewards for exceptional effort. Promotions, for instance, have been automatic at four-year intervals, and dismissals are extremely rare. However, MOH is preparing to implement a point system for medical and paramedical promotions. Nurses, for instance, will get points for each patient served; a threshold number of points will suffice for promotion between steps within a rank, and from the top step of a rank to the next rank. Ceilings on the rank achievable by a paramedic will be removed.

^{1/} Berman, Peter and Suomi Sakai. "The Productivity of Rural Health Manpower in Java". Draft, The Johns Hopkins University, Department of International Health, September 1986.

ANNEX V

PARAMEDICAL MANPOWER TRAINING

A. Paramedical Training Schools

1. Training of paramedical staff in Indonesia is currently conducted at 365 institutions, which can be cross-classified in a number of different ways.

2. Specialization. There are approximately 22 different types of schools (see Table 1). However, more than half the schools (188) fall into a single category, the SPK, or high-school level general nursing school. Three other types of nursing schools (academy-level general nursing, dental nurses, and psychiatric nurses) comprise another 50 schools. The SGP category comprising four schools, trains nursing teachers. The remainder of paramedical manpower types are usually lumped together as non-nurse paramedics, a heterogenous category that includes sanitarians, nutritionists, assistant pharmacists and technicians.

3. Academic Level. There are three levels of institution. The basic level is a three-year course at the level of a vocational high school; SPKs are an example of this type. The academy level (abbreviation starting with A) is also a three year course; a high school degree (general or health-related) is a prerequisite for admission. AKPERs, the advanced or supervisory nursing schools, are the most familiar example. Finally, there are one-year continuing education schools, oriented to supplemental training of experienced paramedics; these include the SGP teacher-training schools, the lab technician schools and the psychiatric nursing schools.

4. Ownership and Funding. Slightly less than half of all paramedical schools are public schools, directly funded and operated by the central Ministry of Health. For convenience they can be called central or vertical schools. Another 38 public schools are operated by provincial or local governments. The Armed Forces operate 24 schools. The remaining 132 schools are privately operated; most of these are nursing schools, and many are attached to private hospitals. In theory, all schools are subject to the technical supervision of the Ministry of Health.

5. Distribution by Province. Table 2 shows the provincial distribution of paramedical schools. Jakarta, with 5% of the country's population, has 15% of its paramedical schools, including 13% of its SPKs. However, the Jakarta schools recruit some of their students from other provinces. Every province has at least one SPK.

6. Expansion of system. At the end of REPELITA III (December 1983) there were 282 paramedical schools. In the first two years of REPELITA IV, the number of private schools increased 31%, public schools 32%, and military schools 4%. By the beginning of 1987 there were 373 institutions; construction or refurbishing was underway for 30 institutions, including six multi-stream academies. The target for the end of REPELITA IV had been set at 413. Emphasis during REPELITAs V and VI is to be placed on the upgrading of basic (SPK-level) schools to the academy (diploma level).

Table 1: PARAMEDICAL SCHOOLS BY CATEGORY,
ACADEMIC LEVEL, AND OWNERSHIP, 1987

	<u>Ownership Category</u>				<u>Total</u>
	<u>Central</u>	<u>Local</u>	<u>Military</u>	<u>Private</u>	
<u>BASIC LEVEL /a</u>					
SPK General nursing	62	33	19	77	190
SPRG Dental nursing	15	2	1	0	18
SMAK Laboratory assistant	11	3	1	6	21
SMF Pharmacy assistant	6	2	2	29	39
<u>ACADEMY LEVEL /b</u>					
AKPER Nursing	16	1	1	14	32
AKZI Nutrition	6	0	0	2	8
APKTS Sanitation technology	8	0	0	1	9
ATEM Electro-medical technician	1	0	0	0	1
APRO Radiology	2	0	0	0	2
AKNES Anesthesiology	4	0	0	0	4
AKFIS Physiotherapy	2	0	0	0	2
Other Optics, rehabilitation, etc.	1	0	0	4	5
<u>CONTINUING /c</u>					
SGP Teacher training	4	0	0	0	4
SPPH Assistant sanitarian	19	1	1	0	21
SPKSJ Psychiatric nursing	4	0	0	0	4
SPAG Assistant nutritionist	9	1	0	1	11
SPTG Dental technician	1	0	0	0	1
STLKF Laboratory	1	0	0	0	1
<u>TOTAL</u>	<u>172</u>	<u>42</u>	<u>25</u>	<u>134</u>	<u>373</u>
<u>MIDWIFE PROGRAM</u>	12	0	0	15	27

/a 3-year course, equivalent to high school.

/b 3-year course, post high school.

/c 1-year course, continuing education for civil servants.

Source: Ministry of Health, Pusediknakes.

Table 2: PARAMEDICAL SCHOOLS BY CATEGORY /a AND PROVINCE, 1986

	SPK	SPKSJ	SGP	SPRG	SPTG	SMF	STLKF	SMAX	SPPE	SPAG	AKPER	APKTS	AKZI	ATEMA	PRO	AKNES	AKFIS	APM	AAM	AAN	AO	RO	TOTAL
Jakarta	25	-	1	2	1	8	1	3	-	1	5	1	1	1	1	1	-	1	-	-	-	1	54
West Java	25	1	1	2	-	-	-	1	2	2	5	1	-	-	-	-	-	-	1	-	-	-	46
Central Java	21	1	-	1	-	4	-	4	1	1	4	1	1	-	1	1	1	-	-	1	-	-	43
Yogyakarta	5	-	-	1	-	1	-	1	-	-	1	1	1	-	-	-	-	-	-	-	-	-	11
East Java	22	1	1	1	-	4	-	1	2	-	4	1	1	-	-	1	-	-	-	-	1	-	40
Aceh	18	-	-	1	-	4	-	2	1	2	1	-	-	-	-	-	-	-	-	-	-	-	29
West Sumatra	5	-	-	1	2	-	-	1	-	1	1	1	-	-	-	-	-	-	-	-	-	-	12
Riau	2	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3
Jambi	3	-	-	1	-	1	-	1	1	-	1	-	-	-	-	-	-	-	-	-	-	-	8
South Sumatra	8	-	-	1	-	2	-	1	-	1	1	-	-	-	-	-	-	-	-	-	-	-	14
Lampung	4	-	-	-	-	1	1	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	7
West Kalimantan	4	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	6
Central Kalimantan	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
South Kalimantan	4	-	-	1	-	1	-	1	1	-	1	1	-	-	-	-	-	-	-	-	-	-	10
East Sulawesi	3	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	4
North Sulawesi	5	-	-	1	-	1	-	-	1	-	1	-	1	-	-	-	-	-	-	-	-	-	10
Central Sulawesi	2	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	3
South Sulawesi	8	1	1	1	-	2	-	1	2	1	1	1	1	-	-	-	1	-	-	-	-	-	21
Southeast Sulawesi	1	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	2
Maluku	3	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	4
Bali	3	-	-	1	-	1	-	-	1	-	1	1	1	-	-	-	-	-	-	-	-	-	9
West Nusa Tenggara	2	-	-	-	-	-	-	1	-	1	-	-	-	-	-	-	-	-	-	-	-	-	4
East Nusa Tenggara	3	-	-	1	-	1	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	6
Irian Jaya	3	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	4
Bengkulu	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
East Timor	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Total	188	4	4	17	3	38	2	20	21	11	29	9	8	1	2	4	2	1	1	1	1	1	365

/a See Table 1 for an explanation of acronyms denoting category of paramedical school.

7. Quality of Facilities and Instruction. The paramedical physical facilities schools have long been recognized as inadequate, and loans from the Asian Development Bank and the World Bank have been addressed to this problem. Pusdiknakes estimates that for 1986/87, only 48% of Ministry of Health schools possess 'complete' facilities, and only about 50% of private schools possess 'adequate' facilities. Cited as especially lacking are basic teaching aids, and library materials. Observers asked to generalize on quality differentials between private and public schools suggest that private schools are more variable, with some schools above the public school standard and others below.

B. System Capacity, Enrollment and Output

8. The normative capacity of each school is 40 students per class: the three-year schools have a normative enrollment of 120 and the one-year schools accommodate 40 students. There is considerable variation around this norm. A couple of schools have only fifteen students, several have over 300, and one has over 1,100 students enrolled. To meet REPELITA IV's ambitious plans for expanding the work force, parallel classes (split shifts) were instituted for much of the cohort entering school in August 1984 (the graduating class of July 1987). The introduction of parallel classes effectively doubled the intake rate of participating schools. Parallel classes were continued in the entering cohort of 1985, but discontinued for students entering in 1986 as the emerging personnel glut became evident.

9. Parallel classes resulted in a bulge in student enrollments. Table 3 shows student enrollment in academic 85/86, together with estimated enrollment of entering students in academic 86/87. The graduating class of 1986 numbered about 14,000, including about 2,000 graduates of one-year institutions. Centrally-run schools account for nearly half of enrollment, locally-run public schools another 10%. About one-third of enrollment is in private schools, and the remaining 7% in military-run schools. The class of 1988, already enrolled, number about 22,000, not counting one-year students.

10. The increase in enrollment is apparent in all four ownership categories. Projected graduates by year are shown in Table 4, which assumes a 5% annual attrition rate (attrition data on drop-outs and failures have not been compiled by Pusdiknakes, although the raw data exist).

11. In opting for parallel classes, a deliberate decision was made to trade-off quality of instruction of quantity of output. As a consequence, the parallel class cohorts are experiencing overcrowded facilities, increased student/teacher ratios, and greatly decreased opportunities for patient contact via clinical or field experience. Despite the increase in intake, there is tremendous competition for admission to public paramedical schools. Pusdiknakes estimates a 10:1 ratio of applicants to available places. A standardized nationwide admissions test has just been put in place. However, there is not a nationwide passing grade; to encourage recruitment of students in outlying regions, each district is allocated a quota of students for vertical MOH schools. Test scores are used to rank students within each district. Non-vertical schools, public and private, are supposed to use the test to rank students within their own applicant pool.

Table 3: PARAMEDICAL SCHOOL ENROLLMENT BY SCHOOL OWNERSHIP

	Graduating Class /a			
	1986	1987	1988	1989
Public	<u>8,512</u>	<u>11,469</u>	<u>12,126</u>	NA
Central	7,231	9,265	9,762	6,200
Local	7,231	2,204	2,364	NA
Private	4,783	6,877	8,173	NA
Armed Forces	919	1,378	1,559	NA
Total	<u>14,214</u>	<u>19,724</u>	<u>21,858</u>	<u>14,480</u>

/a Class of 1986 includes about 2000 graduates of one-year courses; classes of 87 to 89 do not.

Source: Ministry of Health, Puskdiknakes.

Table 4: PARAMEDICAL TOTAL SUPPLY AND GOVERNMENT DEMAND, 1979-1988 /a

Year	Total /b Graduates	Government Graduates /c	New Government Posts /d	Excess of total graduates new posts	Excess of Government graduates over new posts
79/80	5,941	2,789	5,651	290	-2,862
80/81	5,320	2,589	6,898	-1,578	-4,309
81/82	4,654	2,521	5,860	-1,206	-3,339
82/83	5,164	2,912	4,687	477	-1,775
83/84	5,601	3,033	5,220	381	-2,187
84/85	6,810	4,807	4,119	2,691	688
85/86	8,495	5,825	5,158	3,337	667
86/87	12,807	9,138	4,665	8,276	4,473
87/88	20,659	13,754	11,907	16,128	1,847
88/89	18,812	11,902	11,907	14,281	-5

/a Data exclude Pekarya Kesehatan.

/b All Indonesian paramedical schools.

/c Central Government (MOH) and local government only; excludes armed forces.

/d Newly created formasi (routine plus INPRES). Numbers for 1988/89 are illustrative only.

Source: Ministry of Health, Puskdiknakes and Personnel Bureau.
Government posts: MOH, Personnel Bureau.

C. Teaching Staff

12. Quantity. In academic 1985/86 there were slightly more than 2,000 full-time teachers, of whom about half hold full-time appointments at public (non-military) institutions (see Table 5). The resultant teacher/student ratio of about 1:25 is augmented by heavy use of part-time teachers. A total of 8,250 part-time teaching appointments were reported nationwide. Because multiple-job holding is the rule rather than the exception, the actual number of individuals engaged in teaching is far less than 10,000. Most part-time teachers hold several such appointments, in addition to a full-time appointment as a doctor, nurse, administrator or (most often) teacher at another paramedical school.
13. Teacher/student Ratio. Table 6 examines the teacher/student ratio in more detail. The full-time teacher/student ratio falls far below the norm of 0.100 for basic and continuing schools, and 0.160 for academies. At centrally-run public schools, the ratios are 0.032 and 0.017 respectively. But by 1987 the ratio at all central schools combined had risen to 0.062. In compensation, the ratio of part-time teaching appointments to students is rather high. Academies, perhaps because they offer more specialized subject matter, place much greater reliance on part-time teachers. However, there is no standard conversion factor giving the full-time equivalency of a part-time teacher.
14. It is difficult to compare teacher/student ratios between government and private schools because of a lack of standardization of the definitions of full and part-time. Private institutions, on average, place more reliance on full-time teachers than public institutions. Private SPK-level schools have a full-time teacher/student ratio almost three times that of central public schools; but the part-time teaching appointment ratio is twice as high at the public schools. Overall, the armed forces schools have the highest student/teacher ratios by a slight margin.
15. Within ownership categories, there is substantial variation in teacher/student ratios. Several schools have no full-time faculty. One might expect substitutability between part-time and full-time teachers, so that schools with a limited full-time staff compensate by hiring additional part-time teachers. In fact, there is no significant statistical correlation between the full-time and part-time teacher/student ratios. That is, schools fortunate enough to have a large contingent of full-time staff also tend to have relatively high numbers of part-time staff.
16. Teacher Productivity and Job-sharing. The low teacher/student ratio is exacerbated by inefficient utilization of full-time staff. Full-time public school paramedical teachers are estimated to devote an average of 0.8 hours daily to their principal job. This permits the typical teacher to hold several additional, part-time appointments, often at other government-run schools.

Table 5: PARAMEDICAL SCHOOL EMPLOYEES, ACADEMIC YEAR 1985/86

Ownership category	Number <u>/a</u>	Full-time teachers <u>/b</u>	Part-time teaching appointments	Other employees
Private	129	797	2,721	1,020
Public central	154	803	4,362	2,960
Public local	32	248	664	285
Armed forces	23	178	503	235
<u>TOTAL</u>	<u>338</u>	<u>2,026</u>	<u>8,250</u>	<u>4,500</u>

/a Number of schools reporting both enrollment and staff.

/b Because many individuals hold multiple part-time appointments, often in addition to a full-time appointment, the total number of teachers is less than the total number of appointments.

Source: Computed from data on employees and enrollment compiled by Ministry of Health, Pusdiknakes, Division IV.

Table 6: TEACHER/STUDENT RATIOS, ACADEMIC YEAR 1985/86

School type	Ownership	Teachers per student	
		Full-time	Part-time <u>/a</u>
<u>Basic 3-year</u>	Central public	0.032	0.142
	Local public	0.040	0.115
	Private	0.084	0.067
<u>Academy 3-year</u>	Central, public	0.017	0.233
	Private	0.034	0.111
Continuing 1-year	Central	0.051	0.236

/a "Part-time" should be read as "part-time appointments per student". An individual may hold several part-time appointments at different schools, so it is not correct to interpret the ratio as part-time teachers per student.

Source: Calculated from data on school enrollments and teachers, compiled by Ministry of Health, Pusdiknakes, Division IV. Averages exclude schools with missing data.

17. Anecdotal evidence suggests that the comparable teachers in non-health fields devote far more effort to their principal jobs. This may not be true of medical education, however; the University of Indonesia, for instance, employed 613 full-time teachers to instruct 843 students in 1984, but did not provide the tutorial instruction that ratio implies. To some extent, low utilization may reflect the need for specialized staff at the academy level i.e., there are economies of scale which are not realized by the average, 120-student school. To a greater extent, however, low utilization probably results from the temptations posed by high demand for teachers in a period of rapid school expansion, combined with school managers' lack of effective sanctions against low effort.

18. The effect of this pattern may be that the government effectively employs paramedical teachers at well above the nominal civil service salary, fractionating their work among several institutions. The result is much less efficient than would be obtained if teachers were employed at a single institution, even at a compensation rate equal to their current total income. Fractionation of job assignments has resulted in a lack of identification with, or responsibility to, any single institution.

19. Development of multistream academies would be a partial solution to this problem. The multistream academy, by combining several schools on a single campus, potentially offers economies of scale in the use of both specialized facilities and specialized staff. It is hoped, therefore, that teachers would in effect consolidate their multiple job-holdings under one roof. There may also be economies of scale in management.

20. Teacher Training. The principal teacher training institution is the SGP, a one-year school which trains nursing teachers, primarily for SPK. Participants in this training, for the most part, have only an SPK (i.e., high school) education, and three years of practical experience. The four SGPs are all centrally run public schools. Their output in 1986 was about 240, projected to increase to 340 in 1987.

21. Teachers for non-nurse paramedical schools are trained by Pusdiknakes in collaboration with the Ministry of Education and Culture under the Akta III and IV programs. These have as admission prerequisites a nursing academy degree, and a university degree, respectively. About 80 graduates of these programs were expected during academic 1986/87. Degree programs for nurses are under development.

D. Costs and Financing

22. Financing. Centrally-run public schools, in principle, have their operating costs funded out of the national routine budget (DIK) and investment out of the development budget (DIP). In practice, as it is true throughout the health sector, a substantial portion of operating costs are supported through the DIP, and some investment costs through the DIK. A problem specific to the training subsector, however, is that schools are not supposed to be funded through the routine budget until they are accredited by MENPAN and the Ministry of Education and Culture. In 1986 only 98 of the 171

vertical schools were fully accredited; 112 of the schools were listed in the routine budget. The schools also receive a small amount of funding from fees. Berlian et.al. 1/ report average per-student receipts of Rp.50,000 to Rp.280,000 per year in a sample of 12 vertical schools: the higher figures include dormitory fees. In some cases, private contributions for school facilities can be substantial; the SPK attached to Cipto Hospital in Jakarta received almost one-quarter billion Rupiah over the period 1979-85.

23. Locally-run public schools are funded primarily out of the regional government budget, although they may receive development funds from the central budget. Private schools are funded principally through tuition fees, which range up to one million Rupiah annually. Other private contributions may be important, especially for church-run schools.

24. Unit Costs. The principal source of unit cost information is the study of 22 schools undertaken by Berlian et al. Strictly speaking, the study deals with unit revenue rather than unit costs. Unit revenues are computed based on a five year average of revenues and graduates. There appears to be no correction for inflation, or for variations over time in the enrollment to graduate ratio. In addition, the distinction between revenue and costs is blurred, and there may be some double-counting. Moreover, the sample is drawn entirely from Jakarta and West Java, and therefore may not be typical of the country as a whole. The results of the study are shown in Table 7. In this sample, central schools seem to be more costly than other types. The central AKPERs and SPKs are all in the range of Rp.8 to 9 million per graduate. In contrast, the private SPKs and AKPERs were in the two to four million range. The three one-year schools in the sample were correspondingly less expensive than the three-year schools, at about one to two million rupiah per graduate. It is important to maintain the distinction between revenues and costs. Although public schools are supposed to have a balanced budget, revenue data provides an imperfect guide to the actual structure of costs. The distinction is more important for private schools, some of which are suspected of having revenues substantially in excess of expenses.

25. An independent source of unit cost information can be obtained from data on enrollment and revenue at accredited central schools, since the national DIK provides most of the funding for these schools. Unit costs computed from these data will be underestimated to the extent that income from DIP, school fees, and private contributions is ignored. One interesting feature of these data is the tremendous variation between schools in average cost. Table 8 shows average cost data for 90 central schools for which data on FY85/86 DIK allocations were available. These statistics suggest that the sample taken by Berlian et.al. overrepresented above-average cost schools.

1/ Berlian T.P. Siagian et.al. (1986) Studi Biaya Pendidikan Paramedis Serta Pendaaygunaannya sampai tahun 2000. Ministry of Health, Pusdiknakes.

Table 7: UNIT COSTS PER GRADUATE OF SELECTED PARAMEDICAL SCHOOLS

Type	Ownership	Name	Cost per graduate (Rp. thousand)
<u>Academy Level</u>			
AKZI	Central	Jakarta	3,398
APK	Central	Jakarta	6,757
AKPER	Central	Bandung	8,237
AKPER	Central	Jakarta	8,513
AKPER	Private	RS PGI Cikini	2,748
AKPER	Private	Advent Bandung	4,644
<u>Basic Level</u>			
SPRG	Central	Bandung	4,608
SPRG	Central	Jakarta	6,246
SPK	Central	Bandung	8,727
SPK	Central	Cipto Mangunkusumo, Jakarta	9,128
SPK	Local	PEMDA Garut	2,105
SPK	Private	Immanuel, Bandung	2,048
SPK	Private	Yarsi	2,812
SPK	Military	RSAL Mintohardjo	3,088
<u>Continuing (one-year) Schools</u>			
SPAG	Central	Jakarta	1,361
SPPH	Central	Jakarta	2,354
SPAG	Private	LPIG Bandung	1,037

Source: Berlian Siagian et.al., (1986) Studi Biaya Pendidikan Paramedis Serta Pendaaygunaanya sampai Tahun 2000, Ministry of Health, Pusdiknakes.

Table 8: AVERAGE COST PER STUDENT PER YEAR
(Rupiah)

Mean (over schools)	465,000
Standard deviation	350,000
Minimum	88,000
Maximum	2,130,000

26. A regression analysis of these schools (excluding the three largest), including only basic (SPK-level) institutions, yielded the following statistically significant relation (t-statistic in parenthesis):

$$\text{TOTAL COSTS} = 50,193,000 + 114,000 * \text{ENROLLMENT} \\ (3.7)$$

A quadratic term in ENROLLMENT was tested and rejected. This analysis indicates that the government tends to allocate a large fixed sum per school (about Rp.50 million), plus a marginal sum of Rp.114,000 per student. Average cost thus tends to decrease as enrollment increases; at the nominal school capacity of 120, average costs would be about Rp.562,000 per student per year, or 1,687,000 per graduate (assuming no attrition). It should be stressed that this analysis is descriptive, rather than prescriptive; there should be no presumption that this cost structure is optimal, even given funding constraints.

27. Total Costs. Comprehensive data on total costs do not exist for government-run schools, let alone private schools. The 1985/86 central budget for health training allocates Rp.9.30 billion from the routine budget, and Rp.10.60 billion in recurrent costs from the development budget. This sum includes the budget of all vertical paramedical schools; Pusdiknakes and Pusdiklat headquarters; and an indeterminate amount of training activities. Data on provincial allocations for health training are not available. A very rough order-of-magnitude estimate can be obtained by applying the cost equation derived above to a system (under all ownerships) with 365 schools and 55,000 students, yielding annual costs of Rp.26.24 billion.

E. Pekarya Kesehatan

28. Pekarya kesehatan, a type of auxiliary paramedic, constitute a major additional class of health worker, trained outside of the school structure discussed above. Recruited, trained for four months, and posted at the district level, pekarya are primarily assigned to health centers, though some are assigned to hospitals. The program was designed to meet two major staffing problems: first, the need to rapidly expand paramedical personnel to meet REPELITA IV goals; and second, the difficulties of assigning paramedical school graduates to remote rural health centers.

29. REPELITA IV set a five-year goal of training 20,000 pekarya. Some 6,323 were actually recruited in the first two years of the plan, and posts for an additional 5,000 were authorized for 1986/87. Responsibility for training them was assigned not to Pusdiknakes, which supervises the paramedical schools, but to Pusdiklat, the MOH unit primarily devoted to in-service training. Candidates are recruited ideally from the vicinity of the health center to which they are assigned. With the exception of those recruited in Irian Jaya and East Timor, all candidates are required to have a general high school education. Training takes place at the district level, in whatever facilities are available. The seventeen week training course includes 236 hours of classroom instruction and 436 hours of field practice.

Emphasis is placed on health center administrative tasks; assistance to paramedics and doctors (e.g., blood pressure readings, equipment sterilization, and first aid); and health education activities.^{2/}

30. Pusdiklat's proposed 1986/87 budget set aside direct costs of Rp.441 million for training 4,850 health center pekarya and Rp.70 million for training 1,000 hospital-based pekarya the implied unit costs are about Rp.90,000 and 70,000 respectively. Costs vary considerably between provinces, however; the unit cost in Irian Jaya, for instance, is Rp.194,000.

F. In-Service Training

31. Mindful of the need to increase the quality of health staff, REPELITA IV proposed a significant amount of retraining activity, including technical training for 270,000 participants, management and administrative training for 67,000 participants, and the training of 4,400 trainers. Under the recent reorganization of personnel training, in-service training activities were split off from preservice activities and assigned to Pusdiklat and Pusdiknakes respectively. The reorganized Pusdiklat has not yet reached full capacity; most training activities are funded and conducted outside Pusdiklat. During 1985/86, only 517 of the 19,959 trainees were trained in Pusdiklat facilities (BLKMs). Pusdiklat was, however, projected to grow rapidly with 24 BKLMs by the end of REPELITA IV (see Table 9).

Table 9: PUSDIKLAT BUDGET, 1986/87 - 1987/88

	1986/87	1987/88
Operational budget (Rp. billion)	1.14	2.15
Employees	483	688
BLKM (training centers)	9	17
Trainees (in-house)	4,770	12,160

A review is being carried out to determine how best Pusdiklat should be structured and financed, to establish coordinating procedures for training and to develop a national training program.

^{2/} The curriculum is outlined in Pedoman Latihan Pekarya Kesehatan pusat Kesehatan Masyarakat, Ministry of Health, Pusdiklat, 1986.

ANNEX VI

HOUSEHOLD EXPENDITURE PATTERNS

A. Survey Estimates of Expenditure

1. Household expenditure encompasses most but not all private-sector health expenditure. The principal additional source of private expenditure is employer-funded health benefits for employees. Smaller additional sources are the quasipublic insurance funds such as Jasa Raharja (transportation accidents) and ASTEK (occupation injuries). There are three recent sources of data on household health expenditure and use of health providers:

- (a) Susenas Survey, 1984. The large (50,000 households) nationwide survey focused on household consumption patterns, particularly food consumption. A limited number of questions on health expenditures were included. Respondents were asked the value of expenditure during the past month on: doctors; perawatan (= "nursing" or "care" usually interpretable as inpatient hospital care); midwives; contraception; traditional healers; medicine with prescription; medicine without prescription; other direct costs; and health and accident insurance. A noteworthy feature of the survey is the availability of data on the household's economic status. The survey uses total household consumption (including value of nonmonetary home production) as a proxy for household income. All individuals are classified according to the per capita consumption level of their family.
- (b) MOH Household Health Survey 1985-86. This very large survey, fielded between August 1985 and May 1986, covered over 300,000 individuals in 58,000 households. It covered only seven provinces: Yogyakarta, Bali, North Sulawesi, Bangkulu, West Kalimantan, Maluku, and West Nusa Tenggara. The basic questionnaire includes demographic data on all household members, and basic household characteristics (not including, however, a monetary measure of total consumption, income or wealth). Supplemental questionnaires deal with morbidity, mortality, pregnancy, and births. Of particular interest is a series of questions in the morbidity questionnaire on health service providers and their unit costs. Unfortunately, the questionnaire does not seek to ascertain total spending on health, or total contacts with health providers. Instead, it asks for details (including cost) concerning the single most important contact made. It asks about drugs present in the household, but does not ask for expenditure on drugs. There are also questions on the cost of inpatient care, including whether the cost was borne by a third party.
- (c) FKM Rural West Java Survey, 1985. This survey, carried out during summer of 1985 in two West Java regencies, comprised 2,700 households. Unique features of the survey include: data on all contacts with health providers (including drug vendors); and differentiation between transportation costs and service costs.

2. These sources of information unfortunately provide an inconsistent view of total household spending on health. SUSENAS estimates a nationwide total of Rp.327.02 billion in out-of-pocket household health spending for 1984; this is equivalent to Rp.2,088 per person per year (see Table 1). This sum may in fact be substantially augmented by employer spending. A sample of ASTEK-registered Jakarta firms spent an average Rp.132,000 per employee during 1983; some large employers are known to spend much more. Assuming a national average of Rp.25,000 per employee per year in employer provided health benefits, employer-payments would total Rp.8,125 billion nationwide, implying an additional Rp.525 per person for the nation.

3. The MOH Household Health Survey, as noted above, underestimates total expenditure by excluding multiple contacts with health providers and excluding most expenditure on drugs. It probably does, however, include some third-party (mainly employer) expenditures. Average spending on inpatient and outpatient care over the entire sample (including those who did not report a sickness episode) was equivalent to Rp.3,542 per person per year. Blown up to the national level, this implies over Rp.584 billion in health spending. This figure does not, however, include most over-the-counter drug expenditures; maternity expenditures; or expenditures on patients who subsequently died. Moreover, the sample excludes Indonesia's five largest urban areas, which have high concentrations of hospitals, specialist doctors, and drug stores and can be expected to have higher than average levels of per capita health expenditures. Inclusion of these categories of expenditures would substantially boost the national total, probably to a level at least double the SUSENAS estimate. The discrepancy in the estimates based on the two different samples may be attributable to the greater precision and depth of the MOH Health Survey as well as the interposition of more than a year of inflation.

4. Preliminary findings from the FKM survey of West Java estimated annual per capita spending at Rp.3,124 per person; Rp.135 of this amount was for travel (cash cost of transportation only, not including imputed value of time costs). Of the three survey questionnaires, that of the FKM is certainly the most comprehensive in ascertaining household health costs. However, the FKM sample is not representative, because it excludes urban areas. Bold extrapolation from this West Java result to a national total, assuming a 3:1 urban/rural differential, gives a national spending level of about Rp.627 billion (exclusive of transportation costs), again not including spending by employers.

5. Neither of these household surveys provides results that appear to be consistent with the estimate of drugs sales provided by POM (the Food and Drug Directorate-General of the MOH). Based on a nonrepresentative but adjusted sample of pharmacies, POM estimates the nationwide wholesale value of drug sales at Rp.649 for 1985. Approximately 15% of this total is said to be purchased by the government, with the remainder marked up (the official markup is 43.4%) and sold to private retail purchasers. This implies estimated private purchases of over Rp.770 billion. POM is attempting to cross-check this estimate and reconcile it with the household surveys, which are nearly an order of magnitude lower.

Table 1: HEALTH-RELATED SPENDING BY ECONOMIC STRATUM, 1984

Monthly household expenditure per capita (Rp. thousand)	Number of individuals	Monthly per capita expenditure (rupiah) /a								Total
		Doctors	Inpatient care	Mid-wives	Contra-ception (Bidan)	Dukun	Medicine		Other	
							Pre-scription	No pre-scription		
Under 5	5,142,526	3	2	0	0	5	1	6	2	19
5 - 6	5,713,433	6	4	1	0	5	2	8	3	29
6 - 8	18,136,422	10	6	2	0	8	2	10	5	43
8 - 10	21,471,232	13	8	3	0	9	4	15	6	58
10 - 15	45,695,651	24	12	4	1	10	10	20	9	91
15 - 20	25,215,703	46	19	11	1	11	24	27	12	151
20 - 30	21,438,038	83	41	13	2	12	64	40	18	273
30 - 40	7,274,916	164	107	28	15	13	109	53	32	521
40 - 60	4,479,237	267	122	29	9	15	221	78	22	763
60 - 80	1,260,733	405	98	27	11	20	341	96	41	1,039
80 and over	791,029	941	659	34	11	21	1,428	136	151	3,381
<u>All</u>	<u>156,618,920</u>	<u>52</u>	<u>27</u>	<u>8</u>	<u>2</u>	<u>10</u>	<u>38</u>	<u>25</u>	<u>12</u>	<u>174</u>

/a Health spending in the highest economic class may be misleading here. The economic classification is based on total spending during the survey month. Relatively low income households with high medical bills during the survey month will be classified in a high economic class because of that spending.

Source: Central Bureau of Statistics, Pengeluaran Untuk Konsumsi Penduduk Indonesia per Provinsi 1984, Jakarta. Number of households by expenditure class: Seri 1, pages 7-10. Monthly expenditure by category: Seri 3, pages 133-134.

6. In sum, it is difficult to develop a very precise estimate of private health spending with currently available data. The problem is compounded by lack of information on the impact of the October 1986 devaluation on the price of health care. However, current spending probably exceeds Rp.1.5 billion.

B. Spending by Income Class

7. SUSENAS is the only source of data for spending by economic class. These data must be interpreted with caution. First, as noted, SUSENAS apparently underestimates total health expenditure. Second, SUSENAS does not report actual household income; instead, it uses total household spending (on all goods and services) as a proxy for income. But the relation between total spending and health spending is necessarily more positive than the relation between income and health spending. Consider, for instance, a household with a monthly income of Rp.50,000, and usual monthly expenditures of Rp.40,000. If, during the survey month, the household had to pay a hospital bill of Rp.100,000, it would be classified in the Rp.140,000 total expenditure class instead of the Rp.100,000 health expenditure class; the mean for this class would therefore be skewed upward. With this caution in mind, Table 1 shows monthly per capita health expenditure by income (actually total expenditure per family member) class. Spending is highly income-elastic. In the lowest 7% of the population with income under Rp.6,000 per family member per month, average health spending was Rp.291 per person per year. In the Rp.10-15,000/person/month income category, which spans the 32nd to 51st percentiles, health spending averaged Rp.12,468 per person.

8. Some perspective on the size of health expenditure is provided in Table 2 which compares spending on health with spending on tobacco and betelnut. Expenditure on tobacco and betelnut greatly dominates in all but the highest income categories. This is not to suggest that it would be feasible to divert tobacco expenditure to health, but merely to establish a crude benchmark for affordable levels of nonsubsistence expenditure.

C. Spending by Service Category

9. Again SUSENAS provides a nominally comprehensive picture, but one with potentially serious flaws. The SUSENAS breakdown is shown in Table 3. The largest single component of expenditure is for drugs, which comprise 36.2% of the total. As noted, however, this is drastically at variance with the MOH estimate. Doctors' fees absorb another 29.9%; another 15.5% is devoted to "care", presumably inpatient care for the most part. Note that these estimates implicitly include payments both to private and public providers. SUSENAS does not, however, ask an explicit question about payments to private practice paramedics and it is not clear whether respondents would include such payments in any of the listed categories. The household surveys show that this is an important item of expenditure. A lower bound for the ratio of spending on private practice paramedics to private doctors ranged from 0.07 (Maluku) to 1.02 (West Kalimantan) according to the MOH household survey.

Table 2: SPENDING ON HEALTH AND TOBACCO BY ECONOMIC STRATUM, 1984

Monthly household expenditure per capita (Rp. thousand)	Number of individuals /a	<u>Monthly per capita spending (Rp.)</u>	
		All health items	Tobacco and Betel
Under 5	5,142,526	19	162
5 - 6	5,713,433	29	231
6 - 8	18,136,422	43	296
8 - 10	21,471,232	58	418
10 - 15	45,695,651	91	652
15 - 20	25,215,703	151	988
20 - 30	21,438,038	273	1,359
30 - 40	7,274,916	521	1,786
40 - 60	4,479,237	763	2,232
60 - 80	1,260,733	1,039	2,607
80 and over	791,029	3,381	2,857
<u>All</u>	<u>156,618,920</u>	<u>174</u>	<u>823</u>

/a Each individual is classified by his/her family's per person total consumption level (roughly equal to income per person).

Source: Central Bureau of Statistics, Pengeluaran Untuk Konsumsi Penduduk Indonesia 1984, Seri 1, Table 3.1.

Table 3: HOUSEHOLD HEALTH EXPENDITURE: SUSENAS 1984 BREAKDOWN

	Annual expenditure (Rp. million)	Percent of total
Doctors	97,730	29.9
Inpatient care	50,745	15.5
Midwives	15,035	4.6
Contraception	3,759	1.1
Dukuns	18,794	5.7
Drugs (prescription)	71,418	21.8
Drugs (other)	46,976	14.4
Other	22,553	6.9
<u>Total</u>	<u>327,020</u>	<u>100.0</u>

Source: Central Bureau of Statistics.

10. Table 4 shows SUSENAS estimates of spending on health and accident insurance. Total reported spending is about Rp.17 billion annually, equivalent to 5% of the SUSENAS-reported direct health payments. Insurance spending is highly concentrated among the higher-income classes, with the top 1.3% of the population in per capita total expenditures accounting for over 40% of health and accident premium payments. Amounts reported here may overlap somewhat with mandatory premiums paid to two quasi-public insurance firms, ASKES (civil servants' health insurance) and Jasa Raharja (health and accident insurance for airlines, trains and motor vehicles). ASKES collected Rp.41 billion in contributions during 1983/84; Jasa Raharja collected Rp.43 billion in payments in 1983.

Table 4: EXPENDITURE ON HEALTH AND ACCIDENT INSURANCE, 1984

Per capita expenditure class (Rp. thousand)	Number of individuals in class	Per capita insurance expenditures (Rp)	Total Expenditure per class (Rp. thousand)
Under 5	5,142,526	0	0
5 - 6	5,713,433	0	0
6 - 8	18,136,422	0	0
8 - 10	21,471,232	0	0
10 - 15	45,695,651	1	45,696
15 - 20	25,215,703	3	75,647
20 - 30	21,438,038	10	214,380
30 - 40	7,274,916	30	218,247
40 - 60	4,479,237	56	250,837
60 - 80	1,260,733	172	216,846
80 and over	791,029	454	359,127
<u>All</u>	<u>156,618,920</u>	<u>9</u>	<u>1,380,781</u>

Source: Central Bureau of Statistics, Pengeluaran untuk Konsumsi Penduduk Indonesia 1984, Seri 1, Table 6 (urban plus rural), item E5.

D. User Costs for Health Care

11. The MOH household survey provides a wealth of information about user costs of health care (see Table 5). Respondents seeking outpatient health care (except self-treaters) were asked the cost of a single treatment at their most important source of care. Cost was defined to include the cost of prescribed the distribution of responses over all categories of providers. Just over 15% reported that care was "gratis". Some of these respondents may have had their expenses covered by ASKES or their employer (that is, the cost was "gratis" to the respondent). Just under 20% paid between Rp.100 and 399;

these are probably puskesmas clients. There are additional modal responses at Rp.500 (10.6%), Rp.1,000 (18.1%) and Rp.2,000 (9.9%). The median payment is Rp.800, and 92% of patients pay less than Rp.6,000. There is a very small tail of high payments: 2% of reported payments are over Rp.20,000. Further investigation is needed to determine whether these are coding errors; but these are plausible figures for a specialist consultation plus medicine or a minor surgical procedure. In either case, these rare but high payments will boost computed average expenditure by a few hundred rupiah, and will result in very high standard deviations of expenditure.

Table 5: OUTPATIENTS BY COST OF TREATMENT IN SEVEN PROVINCE, 1985/86

Cost class /a (Rupiah)		Percent in class	Cumulative percentage
From	To		
0		15.3	15.3
1	99	0.3	15.5
100	199	7.0	22.6
200	299	6.6	29.3
300	399	5.8	35.0
400	499	1.8	36.7
500	599	10.6	47.3
600	699	0.8	48.1
700	799	2.1	50.2
800	899	1.2	51.4
900	999	0.2	51.6
1,000	1,999	18.1	69.7
2,000	2,999	9.9	79.6
3,000	3,999	6.4	85.9
4,000	4,999	2.3	88.2
5,000	5,999	3.5	91.7
6,000	6,999	2.9	94.5
10,000	19,999	3.5	98.0
20,000	29,999	0.9	98.9
30,000 and higher		1.1	100.0
<u>Total</u>		<u>100.0</u>	<u>100.0</u>

/a Respondents who reported being sick during the reference month were asked to designate the single most important source of treatment; this table includes all responses excluding self-treatment. Costs are for a single treatment (visit) including cost of drugs, but excluding transportation cost. Zero-cost responses may include patients insured by ASKES.

Source: Preliminary tabulations, Ministry of Health Household Survey.

12. Table 6 reports average costs by type of provider and province. There are substantial differences between provinces as well as substantial variation with provinces for each type of provider. PUSKESMAS visits are relatively inexpensive in the inner provinces of Yogyakarta and Bali (at Rp.259 and 463), but more expensive elsewhere, ranging from Rp.589 in West Nusa Tenggara to Rp.2,085 in West Kalimantan. In each case, the standard deviation is much greater than the mean, indicating that a small but extreme right tail of high-spenders is pulling up the mean. These means are, of course, higher than the official charges of Rp.150 to 300. It is impossible to determine, however, whether the higher reported figures reflect payments for drugs not available at the PUSKESMAS, or whether they represent higher actual service fees (official or unofficial). Patients who reported seeing the PUSKESMAS doctor also reported paying more than patients who only saw a nurse; but this pattern is consistent with both hypotheses.

13. The next most expensive sources of care were dukuns (traditional healers) and private practice paramedics. Cost per dukun visit averaged Rp.1,100 or below in four provinces, and from Rp.2,300 to 5,100 in the remaining three. For paramedics, provincial averages fell in the Rp.900 to 2,300 range. Doctors in private practice were significantly more expensive, with provincial averages ranging from Rp.3,600 to 9,500. Generally the most expensive source of outpatient care was at hospitals, both private and public, where provincial averages ranged from Rp.5,200 to 14,700 (government hospitals) and from Rp.2,700 to 18,000 (private hospitals and clinics). In the case of government hospitals, these charges are far above the standard official rates, and must indicate some combination of additional drug purchase, laboratory fees, and unofficial service charges.

14. Data on cost of inpatient care were based on a very small number of cases. Charges at government hospitals averaged Rp.261,000 over 147 cases; the 36 cases at private hospitals reported average charges of Rp.446,000. The standard deviations were 804,000 and 942,000 respectively, indicating a wide range of variation.

Table 6: PRINCIPAL SOURCE AND AVERAGE COST OF PAID OUTPATIENT CARE IN SEVEN PROVINCES, 1985/86 /a

Provider	Yogyakarta		Bali		North Sulawesi		Bengkulu		West Kalimantan		Maluku		West Nusa Tenggara	
	Share of visits	Av. cost per visit	Share of visits	Av. cost per visit	Share of visits	Av. cost per visit	Share of visits	Av. cost per visit	Share of visits	Av. cost per visit	Share of visits	Av. cost per visit	Share of visits	Av. cost per visit
Puskesmas	62.6	259	31.9	463	43.9	839	39.4	1,323	74.6	2,085	43.8	779	61.9	589
Government hospitals	6.5	5,168	5.9	6,421	5.9	8,207	8.0	9,505	1.4	14,704	13.9	6,247	4.4	6,762
Private hospitals /b	7.0	7,921	0.9	5,850	0.9	18,086	0.6	10,778	1.777	2,738	3.2	5,771	0.6	13,644
Paramedics /c														
Private practice	6.7	1,599	34.9	1,543	14.0	1,367	19.4	1,794	14.0	2,270	14.7	1,127	16.6	889
Doctors														
Private practice	16.4	5,990	21.6	3,587	34.7	5,868	26.9	7,640	4.8	6,500	24.2	9,426	11.5	3,185
Dukun	0.8	938	4.8	927	0.7	1,100	5.7	2,353	3.6	5,142	0.6	4,056	5.0	796
Total	100.0	2,155	100.0	1,937	100.0	3,241	100.0	3,880	100.0	2,616	100.0	3,866	100.0	1,295

/a Respondents include persons who met the following criteria: (a) sick during reference month; (b) sought treatment; (c) did not report that treatment was "gratis"; (d) did not report home self-treatment as the principal source of treatment. Each respondent was asked to report the single most important source of treatment, so this table excludes secondary contacts and therefore probably underestimates use of dukuns, paramedics, and puskesmas. Treatment cost is for a single treatment, including provider's fee and any additional cost for drugs, even if obtained elsewhere; transportation not included.

/b "Private hospitals" includes both hospitals and clinics.

/c "Paramedic" includes both paramedics and "kader Kesehatan".

E. Choice of Provider

15. Table 6 also provides information on the market share of the different types of outpatient treatment providers. Again only the "principal" provider for each illness episode is included.

16. Patterns of provider choice vary tremendously between provinces, preventing any simple generalization to the national level from this atypical sample. Dependence on puskesmas, for instance, varies from a low of 32% in Bali to a high of 75% in West Kalimantan. Of particular interest is the large market share achieved by private providers, who cover more than half the market in each of three provinces. For the most part, these providers are the same doctors and paramedics who provide services at public facilities at a fraction of their private fee. Their private clients pay a premium for some combination of more attention, more drugs (especially injections), shorter waiting time, and more conveniently scheduled office hours (or in the case of paramedics, house calls). Anecdotal evidence suggests that injections are a particularly powerful drawing card; it should be noted, however, that paramedics are not legally empowered to give unsupervised injections. Traditional healers have a relatively small share, or else they are used mainly for initial consultations, rather than principal treatments. This result is consistent with other surveys (including the FKM survey), although anecdotal evidence tends to suggest that dukuns play a more important role.

F. Morbidity Rates and Utilization Rates

17. Table 7 shows morbidity rates and provider utilization rates for the seven provinces in the MOH household study. Self-reported illness rates are shown in the first row. The morbidity rate is in the range of 8 to 9% per month, with the outliers of Yogyakarta (4.7%) and West Kalimantan (10.4%). The second row shows the proportion of the total population who treated their illness, including self-treatment. The third row, of principal interest here, is the proportion of the total population who sought treatment for an illness during the past month. With the exception of Yogyakarta, this rate is remarkably constant between provinces, ranging between 4.2% and 4.7%. For comparison ASKES and DUKM populations use outpatient services at a rate of about 18% to 20% per month.

18. The final row of Table 7 shows that the hospitalization rate for the general population is on the order of 4 to 12 cases per 10,000 population per month.

Table 7: MORBIDITY AND TREATMENT RATES IN SEVEN PROVINCES, 1985-86
(per 1,000 population)

	Yogyakarta	Bali	North Sula- wesi	Beng- kulu	West Kali- mantan	Maluku	West Nusa Teng- gara
Illness during past month	47.4	78.8	82.0	83.4	106.9	91.8	88.3
Illness was treated	32.3	60.,9	55.4	54.6	61.6	53.8	51.7
Treatment by doctor, para- medic, or dukun	27.1	46.7	46.1	41.9	44.0	45.0	43.2
Hospitalization	0.98	0.45	1.29	0.68	0.52	0.53	0.39
Total Respondents <u>/a</u>	41,842	38,065	41,832	45,561	43,883	43,771	45,591

/a Number of respondents includes all individuals, sick or well, regardless of age, covered in the survey.

Source: Preliminary tabulations, Ministry of Health Household Survey.

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INFANT MORTALITY RATES BY PROVINCE, 1971-85

Province	Per 1,000 live births			Average Rate of Decline (% p.a.) /a	
	1971	1980	1985	1971-80	1980-85
D.I. Aceh	141	91	47	4.8	13.2
North Sumatra	120	89	64	3.2	6.6
West Sumatra	151	121	76	2.4	9.3
Riau	141	113	55	2.4	14.4
Jambi	155	118	60	2.9	13.5
South Sumatra	151	118	71	4.8	10.2
Bengkulu	166	106	62	5.0	10.7
Lampung	147	97	59	4.5	9.9
DKI Jakarta	126	80	36	4.9	16.0
West Java	165	129	89	2.7	7.4
Central Java	143	96	65	4.4	7.8
D.I. Yogyakarta	98	62	29	5.1	15.2
East Java	119	99	74	2.0	5.8
Bali	127	88	58	4.0	8.3
West Nusa Tenggara	219	187	145	1.7	5.1
East Nusa Tenggara	151	124	74	2.2	10.3
East Timor	69
West Kalimantan	143	116	57	2.3	14.2
Central Kalimantan	128	100	58	2.7	10.9
South Kalimantan	165	121	83	3.3	7.5
East Kalimantan	151	99	40	0.7	18.1
North Sulawesi	114	94	50	2.1	12.6
Central Sulawesi	146	128	94	1.4	6.2
South Sulawesi	159	108	69	4.2	9.0
Southeast Sulawesi	191	114	73	5.6	8.9
Maluku	145	124	68	1.7	12.0
Irian Jaya	113	106	38	0.8	20.5
Indonesia	143	107	70	3.2	8.5

/a Reference periods are: 1968-69 for the 1971 census, 1977-78 for the 1980 census and 1982-83 for SUPAS 1985.

Source: Central Bureau of Statistics.

CENTRAL DEVELOPMENT EXPENDITURE (APBN-DIP)
ON HEALTH BY PROGRAM, 1979/80-1987/88 (BUDGET)
(Rp. billions)

	<u>REPELITA III</u>					<u>REPELITA IV</u>			
	<u>1979/80</u>	<u>1980/81</u>	<u>1981/82</u>	<u>1982/83</u>	<u>1983/84</u>	<u>1984/85</u>	<u>1985/86</u>	<u>1986/87</u>	<u>1987/88</u>
Youth movement	0.2	0.3	0.4	0.4	0.4	0.4	0.4	0.2	0.0
Manpower training	2.1	6.0	6.6	9.7	10.0	13.0	15.0	13.6	6.8
Health education	0.8	1.2	1.3	1.4	1.3	1.8	2.0	1.5	0.5
Health services	30.7	42.3	56.5	66.8	68.4	62.3	51.5	24.1	8.7
Communicable disease control	10.7	16.5	19.5	22.5	23.8	25.3	25.9	13.9	4.3
Nutrition	1.0	3.0	3.3	4.0	3.5	4.0	5.2	4.0	1.6
Food and drug administration	1.3	2.1	2.4	3.0	3.0	4.5	3.3	2.2	0.5
Womens movement	0.3	0.4	0.4	0.5	0.4	0.3	0.3	0.2	0.0
Water supply	0.8	1.5	2.1	2.5	2.0	1.5	1.7	0.5	0.3
Sanitation	0.2	0.5	0.6	0.8	0.6	0.6	0.6	0.3	0.1
Research and development	0.8	0.9	1.0	1.1	0.9	1.4	1.4	0.7	0.2
Management	0.5	0.6	0.9	1.1	0.9	1.0	0.9	0.5	0.1
Infrastructure	1.0	2.9	2.8	5.5	4.0	3.1	3.6	3.7	0.0
Total	<u>50.1</u>	<u>78.2</u>	<u>97.6</u>	<u>119.1</u>	<u>119.1</u>	<u>119.1</u>	<u>111.7</u>	<u>65.4</u>	<u>22.9</u>

CENTRAL INPRES EXPENDITURE ON HEALTH
1979/80-1987/88
(in Rp. billions)

	<u>REPELITA III</u>					<u>REPELITA IV</u>			
	<u>1979/80</u>	<u>1980/81</u>	<u>1981/82</u>	<u>1982/83</u>	<u>1983/84</u>	<u>1984/85</u>	<u>1985/86</u>	<u>1986/87</u>	<u>1987/88</u>
Health centers	21.1	34.4	55.9	74.0	72.6	78.0	84.9	84.9	74.6
Of which:									
drugs	(12.7)	(21.6)	(29.7)	(38.0)	(38.9)	(40.3)	(45.3)	(55.2)	(67.5)
Water supply	7.8	14.5	20.6	21.4	21.9	18.8	28.0	28.0	1.7
Sanitation	1.1	1.1	2.5	3.0	4.0	1.6	1.7	1.6	0.0
<u>Total</u>	<u>30.0</u>	<u>50.0</u>	<u>79.0</u>	<u>98.5</u>	<u>98.5</u>	<u>98.4</u>	<u>114.6</u>	<u>114.6</u>	<u>76.3</u>

CENTRAL ROUTINE EXPENDITURE (APBN-DIK)
ON HEALTH BY PROGRAM, 1979/80-1987/88 (BUDGET)
(Rp. billions)

	REPELITA III					REPELITA IV			
	1979/80	1980/81	1981/82	1982/83	1983/84	1984/85	1985/86	1986/87	1987/88
Secretary general	9.5	18.9	25.8	27.7	27.7	21.8	31.5	38.7	40.4
Education and training						7.9	9.2	12.2	12.0
Inspector general	0.2	0.2	0.3	0.3	0.4	0.4	0.4	0.5	0.5
Medical care	19.3	28.3	41.4	43.0	46.3	53.2	63.4	72.6	73.6
Community health	1.1	1.6	2.2	2.3	2.5	2.5	3.0	3.8	3.2
Communicable disease control	1.2	1.5	2.2	2.3	2.5	2.6	3.2	3.7	3.7
Food and drug administration	1.1	1.3	2.4	2.8	3.1	3.5	3.7	5.1	4.7
Research and development						1.7	1.9	1.6	2.1
Total	<u>32.4</u>	<u>50.1</u>	<u>74.4</u>	<u>78.5</u>	<u>82.4</u>	<u>93.5</u>	<u>116.5</u>	<u>138.1</u>	<u>140.2</u>

CENTRAL SBBO-RSUD GRANT
FOR HEALTH, 1982/83-1986/87
(Rp. millions)

	8 Teaching Hospitals	22 District Hospitals	299 District Hospitals	Total
1982/83	6,126	1,625	0	7,751
1983/84	6,126	2,017	0	8,143
1984/85	6,390	1,810	0	8,200
1985/86	8,077	1,376	0	9,453
1986/87	8,439	1,347	7,805	17,592

NUMBER OF GENERAL HOSPITALS
BY TYPE AND OWNERSHIP
1978/79-1985/86

Type	1978/79	1979/80	1980/81	1981/82	1982/83	1983/84	1984/85	1985/86
MOH Central	<u>10</u>	<u>11</u>	<u>11</u>	<u>11</u>	<u>13</u>	<u>13</u>	<u>13</u>	<u>14</u>
Class A	1	1	1	1	1	1	1	1
Class B	8	9	9	9	9	9	9	9
Class C	1	1	1	1	3	3	3	3
MOH Local	<u>265</u>	<u>278</u>	<u>288</u>	<u>295</u>	<u>295</u>	<u>295</u>	<u>302</u>	<u>300</u>
Class A	1	1	1	1	1	1	1	1
Class B	5	5	5	5	5	6	6	6
Class C	41	42	42	42	41	76	76	76
Class D	218	230	240	247	248	212	219	217
MOH Total	<u>275</u>	<u>289</u>	<u>299</u>	<u>306</u>	<u>308</u>	<u>308</u>	<u>315</u>	<u>313</u>
Class A	2	2	2	2	2	2	2	2
Class B	13	14	14	14	14	15	15	16
Class C	42	43	43	43	44	79	79	79
Class D	218	230	240	247	248	212	219	217
Other ministry	129	129	130	130	115	115	115	115
NGO <u>/a</u>	76	77	78	76	75	76	78	80
Private sector	132	134	135	149	157	167	169	175
Total public	394	407	418	425	410	410	417	415
Total private <u>/b</u>	208	211	213	225	232	243	247	255
Grand total	<u>602</u>	<u>618</u>	<u>631</u>	<u>650</u>	<u>642</u>	<u>653</u>	<u>664</u>	<u>670</u>

/a Non-governmental organisations.

/b NGOs and Private sector.

NUMBER OF GENERAL HOSPITAL BEDS
BY TYPE AND OWNERSHIP
1978/79-1985/86

Type	1978/79	1979/80	1980/81	1981/82	1982/83	1983/84	1984/85	1985/86
<u>MOH Central</u>	<u>5,610</u>	<u>6,728</u>	<u>6,794</u>	<u>6,735</u>	<u>7,892</u>	<u>7,800</u>	<u>7,928</u>	<u>7,992</u>
Class A	1,280	1,388	1,389	1,360	1,335	1,388	1,388	1,388
Class B	4,029	5,026	5,055	5,025	5,993	5,868	5,996	6,024
Class C	301	314	350	350	564	544	544	580
<u>MOH Local</u>	<u>28,090</u>	<u>29,286</u>	<u>29,937</u>	<u>30,359</u>	<u>31,379</u>	<u>33,270</u>	<u>34,454</u>	<u>35,148</u>
Class A	1,483	1,466	1,518	1,512	1,504	1,513	1,516	1,530
Class B	2,946	3,018	3,019	2,936	2,933	3,347	3,329	3,372
Class C	7,851	8,307	8,590	8,643	8,780	14,176	14,303	14,667
Class D	15,810	16,495	16,810	17,268	18,162	14,234	15,306	15,579
<u>MOH Total</u>	<u>33,700</u>	<u>36,014</u>	<u>36,731</u>	<u>37,094</u>	<u>39,271</u>	<u>41,070</u>	<u>42,382</u>	<u>43,140</u>
Class A	2,763	2,854	2,907	2,872	2,839	2,901	2,904	2,918
Class B	6,975	8,044	8,074	7,961	8,926	9,215	9,325	9,396
Class C	8,152	8,621	8,940	8,993	9,344	14,720	14,847	15,247
Class D	15,810	16,495	16,810	17,268	18,162	14,234	15,306	15,579
Other ministry	13,025	12,895	12,525	13,178	12,072	11,481	11,565	11,539
NGO <u>/a</u>	9,412	9,345	9,310	9,381	8,826	8,854	8,911	8,762
Private sector	15,515	16,430	17,200	18,270	19,069	19,704	20,257	20,947
Total public	41,115	42,181	42,462	43,537	43,451	44,751	46,019	46,687
Total private <u>/b</u>	24,927	25,775	26,510	27,651	27,895	28,558	29,168	29,709
<u>Grand total</u>	<u>66,042</u>	<u>67,956</u>	<u>68,972</u>	<u>71,188</u>	<u>71,346</u>	<u>73,309</u>	<u>75,187</u>	<u>76,396</u>

/a Non-governmental organisations.

/b NGOs and Private sector.

NUMBER OF GENERAL HOSPITAL BEDS
PER 1000 POPULATION
1978/79-1985/86

Type	1978/79	1979/80	1980/81	1981/82	1982/83	1983/84	1984/85	1985/86
Ministry of								
<u>Health /a</u>	<u>0.234</u>	<u>0.244</u>	<u>0.244</u>	<u>0.241</u>	<u>0.250</u>	<u>0.256</u>	<u>0.259</u>	<u>0.258</u>
Class A	0.019	0.019	0.019	0.019	0.018	0.018	0.018	0.017
Class B	0.048	0.055	0.054	0.052	0.057	0.057	0.057	0.056
Class C	0.057	0.058	0.059	0.058	0.059	0.092	0.091	0.091
Class D	0.110	0.112	0.112	0.112	0.116	0.089	0.093	0.093
Other ministry	0.090	0.087	0.083	0.086	0.077	0.072	0.071	0.069
NGO /b	0.065	0.063	0.062	0.061	0.056	0.055	0.054	0.052
Private sector	0.108	0.111	0.114	0.119	0.121	0.123	0.124	0.125
Total public	0.324	0.332	0.327	0.327	0.327	0.328	0.329	0.327
Total private /c	0.173	0.175	0.176	0.180	0.178	0.178	0.178	0.177
<u>Grand total</u>	<u>0.497</u>	<u>0.506</u>	<u>0.503</u>	<u>0.507</u>	<u>0.504</u>	<u>0.506</u>	<u>0.507</u>	<u>0.504</u>

/a Including central and local government administered hospitals.

/b Non-governmental organisations.

/c NGOs and Private sector.

SUMMARY OF SERVICE STATISTICS
BY CLASS OF HOSPITAL

Hospital Category	Number of Hospitals	Beds	Discharges	Bed-days	Outpatient Visits
<u>Ministry of Health</u>	<u>313</u>	<u>43,140</u>	<u>1,390,460</u>	<u>9,217,216</u>	<u>19,553,472</u>
Class A	2	2,918	85,340	801,400	2,017,356
Class B	15	9,396	269,960	2,347,044	4,229,048
Class C	79	15,247	528,216	3,323,696	5,780,396
Class D	217	15,579	506,944	2,745,076	7,526,672
Other ministry	115	11,539	22,780	1,904,212	6,359,132
NGOs <u>/a</u>	80	8,762	18,260	1,410,904	4,461,996
Private sector	175	20,947	583,312	4,215,148	5,799,792
Total public	428	54,679	1413,240	11,121,428	25,912,604
Total private <u>/b</u>	255	29,709	601,572	5,626,052	10,261,788
<u>Grand total</u>	<u>683</u>	<u>84,388</u>	<u>2,014,812</u>	<u>16,747,480</u>	<u>36,174,392</u>

/a Non-governmental organisations.

/b NGOs and private sector.

SERVICE STATISTICS FOR ALL HOSPITALS
BY PROVINCE, 1985

	Number of Hospitals	Beds	Discharges	Bed-days	Outpatient Visits	Length of Stay (Day)	Occupancy Rate
D.I. Aceh	18	1,382	28,980	179,068	701,676	6.18	0.355
North Sumatra	73	10,206	198,880	1,641,576	2,989,428	8.25	0.441
West Sumatra	19	2,228	56,236	467,228	1,126,824	8.31	0.575
Riau	20	1,260	30,052	193,392	643,552	6.44	0.421
Jambi	9	682	11,620	59,724	291,416	5.14	0.240
South Sumatra	32	3,351	91,540	602,112	2,120,636	6.58	0.492
Bengkulu	5	290	6,920	42,384	93,608	6.12	0.400
Lampung	9	1,087	35,264	194,660	331,696	5.52	0.491
D.K.I. Jakarta	36	9,681	255,196	2,178,904	5,047,304	8.54	0.617
West Java	60	8,092	280,032	1,830,044	4,246,188	6.54	0.620
Central Java	71	11,515	414,376	2,584,020	3,945,996	6.24	0.615
D.I. Yogyakarta	11	2,397	61,480	473,816	814,532	7.71	0.542
East Java	89	13,704	432,612	3,020,372	6,241,800	6.98	0.604
Bali	16	1,836	65,908	438,132	686,240	6.65	0.654
West Nusa Tenggara	9	674	23,344	150,720	324,908	6.46	0.613
East Nusa Tenggara	22	1,432	40,092	251,332	727,888	6.27	0.481
East Timor	5	439	9,288	94,080	303,048	10.13	0.587
West Kalimantan	14	1,278	30,912	230,020	278,940	7.44	0.493
Central Kalimantan	11	465	9,532	55,404	194,676	5.81	0.326
South Kalimantan	20	1,208	23,516	166,308	487,556	7.07	0.377
East Kalimantan	17	1,481	44,804	261,956	556,008	5.85	0.485
North Sulawesi	19	2,307	58,940	440,356	700,568	7.47	0.523
Central Sulawesi	12	828	20,948	127,556	300,624	6.09	0.422
South Sulawesi	38	3,275	76,888	553,660	1,495,856	7.20	0.463
Southeast Sulawesi	12	648	14,324	86,788	490,272	6.06	0.367
Maluku	16	1,340	29,544	221,608	463,884	7.50	0.453
Irian Jaya	20	1,302	32,944	202,260	569,268	6.14	0.426
<u>Total</u>	<u>683</u>	<u>84,388</u>	<u>2,384,172</u>	<u>16,747,480</u>	<u>36,174,392</u>	<u>6.84</u>	<u>0.484</u>
<u>Memo Item:</u> Coefficient of variation						0.16	0.21

SERVICE STATISTICS FOR MOH HOSPITALS
BY PROVINCE, 1985

	Number of Hospitals	Beds	Discharges	Bed-days	Outpatient Visits	Length of Stay (Day)	Occupancy Rate
D.I. Aceh	9	864	16,476	116,896	301,904	7.09	0.371
North Sumatra	19	2,471	53,412	381,968	704,712	7.15	0.424
West Sumatra	13	1,620	41,092	352,156	787,840	8.57	0.596
Riau	7	611	15,292	97,452	309,808	6.37	0.437
Jambi	6	423	7,244	37,600	203,172	5.19	0.244
North Sumatra	10	1,293	41,364	286,656	718,636	6.93	0.607
Bengkulu	4	268	6,496	38,796	78,236	5.97	0.397
Lampung	5	896	31,024	169,940	258,976	5.48	0.520
D.K.I. Jakarta	6	3,134	85,068	665,136	2,480,400	7.82	0.581
West Java	27	4,428	176,456	1,107,880	2,279,324	6.28	0.685
Central Java	37	7,164	288,188	1,757,992	2,777,844	6.10	0.672
D.I. Yogyakarta	5	1,047	25,588	217,492	380,456	8.50	0.569
East Java	37	7,387	270,780	1,793,448	3525,632	6.62	0.665
Bali	9	1,521	58,924	391,852	600,456	6.65	0.706
West Nusa Tenggara	6	570	20,388	128,808	261,404	6.32	0.619
East Nusa Tenggara	13	786	26,732	144,904	571,688	5.42	0.505
East Timor	3	275	6,140	67,340	188,428	10.97	0.671
West Kalimantan	10	1,030	23,752	178,092	130,104	7.50	0.474
Central Kalimantan	10	440	9,352	54,216	177,756	5.80	0.338
South Kalimantan	11	698	13,544	89,696	306,332	6.62	0.352
East Kalimantan	7	809	27,024	156,588	279,512	5.79	0.530
North Sulawesi	6	961	29,336	212,864	329,740	7.26	0.607
Central Sulawesi	8	640	17,044	103,028	252,580	6.04	0.441
South Sulawesi	24	1,891	48,764	344,500	803,028	7.06	0.499
Southeast Sulawesi	5	350	8,936	52,484	229,664	5.87	0.411
Maluku	7	640	17,164	122,616	212,000	7.14	0.525
Irian Jaya	9	923	24,880	146,816	395,840	5.90	0.436
<u>Total</u>	<u>313</u>	<u>43,140</u>	<u>1,390,460</u>	<u>9,217,216</u>	<u>19,553,472</u>	<u>6.52</u>	<u>0.496</u>
<u>Memo Item:</u> Coefficient of variation						0.18	0.23

SERVICE STATISTICS PER CAPITA FOR ALL HOSPITALS
BY PROVINCE, 1985
(per 1,000 population)

	Beds	Dis- charges	Bed-days	Out- patient visits	Medics	Nurse	Para- medics	Non medics
D.I. Aceh	0.46	9.72	60.08	235.40	0.04	0.27	0.04	0.11
North Sumatra	1.08	21.06	173.82	316.54	0.13	0.45	0.06	0.39
West Sumatra	0.61	15.34	127.44	307.35	0.05	0.36	0.06	0.29
Riau	0.50	11.95	76.92	255.96	0.04	0.28	0.05	0.21
Jambi	0.39	6.73	34.57	168.67	0.03	0.15	0.01	0.12
South Sumatra	0.62	16.92	111.28	391.91	0.07	0.37	0.04	0.41
Bengkulu	0.31	7.39	45.29	100.03	0.04	0.25	0.03	0.15
Lampung	0.18	5.89	32.52	55.41	0.03	0.12	0.01	0.12
D.K.I. Jakarta	1.24	32.59	278.30	644.67	0.35	1.09	0.19	1.31
West Java	0.26	9.11	59.55	138.16	0.04	0.17	0.02	0.19
Central Java	0.43	15.38	95.94	146.50	0.06	0.20	0.02	0.28
D.I. Yogyakarta	0.81	20.72	159.72	274.57	0.15	0.51	0.07	0.58
East Java	0.44	13.94	97.31	201.10	0.05	0.21	0.03	0.29
Bali	0.70	24.98	166.09	260.15	0.09	0.54	0.06	0.27
West Nusa Tenggara	0.22	7.66	49.47	106.64	0.02	0.12	0.01	0.09
East Nusa Tenggara	0.47	13.24	82.97	240.30	0.01	0.22	0.01	0.20
East Timor	0.70	14.88	150.69	485.40	0.04	0.23	0.03	0.50
West Kalimantan	0.45	10.98	81.70	99.08	0.02	0.15	0.01	0.10
Central Kalimantan	0.41	8.36	48.61	170.81	0.02	0.36	0.04	0.09
South Kalimantan	0.53	10.28	72.67	213.04	0.04	0.30	0.04	0.18
East Kalimantan	0.96	29.14	170.37	361.61	0.07	0.55	0.04	0.31
North Kalimantan	0.97	24.82	185.41	294.97	0.10	0.51	0.02	0.37
Central Sulawesi	0.54	13.61	82.86	195.29	0.03	0.32	0.02	0.11
North Sulawesi	0.50	11.65	80.89	226.65	0.05	0.27	0.03	0.11
Southeast Sulawesi	0.60	13.22	80.10	452.51	0.04	0.41	0.04	0.19
Maluku	0.82	18.09	135.73	284.11	0.03	0.35	0.02	0.17
Irian Jaya	0.96	24.28	149.04	419.47	0.04	0.50	0.04	0.20
<u>Total</u>	<u>0.51</u>	<u>14.55</u>	<u>102.20</u>	<u>220.74</u>	<u>0.07</u>	<u>0.29</u>	<u>0.04</u>	<u>0.30</u>
<u>Memo Item:</u>								
Coefficient of variation	0.44	0.46	0.53	0.51	1.03	0.57	0.88	0.89

SERVICE STATISTICS PER CAPITA FOR MOH HOSPITALS
BY PROVINCE, 1985
(per 1,000 population)

	Beds	Dis- charges	Bed-days	Out- patient visits	Medics	Nurse	Para- medics	Non medics
D.I. Aceh	0.29	5.53	39.22	101.28	0.02	0.16	0.03	0.07
North Sumatra	0.26	5.66	40.45	74.62	0.07	0.21	0.03	0.16
West Sumatra	0.44	11.21	96.05	214.89	0.04	0.28	0.04	0.20
Riau	0.24	6.08	38.76	123.22	0.02	0.10	0.02	0.10
Jambi	0.24	4.19	21.76	117.60	0.02	0.11	0.01	0.07
South Sumatra	0.24	7.64	52.98	132.81	0.03	0.15	0.02	0.17
Bengkulu	0.29	6.94	41.46	83.60	0.04	0.23	0.03	0.13
Lampung	0.15	5.18	28.39	43.26	0.01	0.08	0.01	0.06
D.K.I. Jakarta	0.40	10.87	84.95	316.81	0.18	0.38	0.06	1.48
West Java	0.14	5.74	36.05	74.16	0.03	0.08	0.01	0.09
Central Java	0.27	10.70	65.27	103.13	0.04	0.12	0.01	0.16
D.I. Yogyakarta	0.35	8.63	73.31	128.25	0.12	0.22	0.04	0.23
East Java	0.24	8.72	57.78	113.59	0.04	0.12	0.02	0.14
Bali	0.58	22.34	148.55	227.63	0.08	0.46	0.05	0.23
West Nusa Tenggara	0.19	6.69	42.28	85.80	0.01	0.10	0.01	0.07
East Nusa Tenggara	0.26	8.83	47.84	188.73	0.01	0.14	0.01	0.10
East Timor	0.44	9.83	107.86	301.81	0.04	0.23	0.03	0.50
West Kalimantan	0.37	8.44	63.26	49.05	0.02	0.11	0.01	0.05
Central Kalimantan	0.39	8.21	47.57	155.97	0.02	0.32	0.04	0.09
South Kalimantan	0.30	5.92	39.19	133.85	0.02	0.22	0.03	0.09
East Kalimantan	0.53	17.58	101.84	181.78	0.05	0.34	0.03	0.11
North Sulawesi	0.40	12.35	89.62	138.83	0.06	0.30	0.01	0.13
Central Sulawesi	0.42	11.07	66.93	164.08	0.02	0.28	0.02	0.09
South Sulawesi	0.29	7.39	52.20	121.67	0.03	0.17	0.02	0.05
Southeast Sulawesi	0.32	8.25	48.44	211.98	0.01	0.23	0.02	0.08
Maluku	0.39	10.51	75.10	129.84	0.02	0.21	0.01	0.03
Irian Jaya	0.68	18.33	108.18	291.68	0.02	0.40	0.02	0.09
<u>Total</u>	<u>0.26</u>	<u>8.48</u>	<u>56.25</u>	<u>119.32</u>	<u>0.04</u>	<u>0.16</u>	<u>0.02</u>	<u>0.14</u>
<u>Memo Item:</u> Coefficient of variation	0.37	0.45	0.46	0.48	0.90	0.48	0.59	0.81

STATISTICAL ANNEX
Table 3.9

MANPOWER AT ALL HOSPITALS
BY PROVINCE, 1985

	Medics	Nurse	Para-medics	Non-medics	Staff ratio per bed		
					Medic	Nurse	Total
D.I. Aceh	107	790	126	322	0.077	0.572	0.973
North Sumatra	1,189	4,245	579	3,644	0.117	0.416	0.946
West Sumatra	198	1,316	236	1,066	0.089	0.591	1.264
Riau	100	699	127	539	0.079	0.555	1.163
Jambi	46	260	25	200	0.067	0.381	0.779
South Sumatra	352	1,988	207	2,211	0.105	0.593	1.420
Bengkulu	38	233	26	137	0.131	0.803	1.497
Lampung	164	713	71	695	0.151	0.656	1.511
D.K.I. Jakarta	2,718	8,571	1459	10,529	0.281	0.885	2.377
West Java	1,302	5,132	587	5,831	0.161	0.634	1.588
Central Java	1,706	5,378	637	7,417	0.148	0.467	1.315
D.I. Yogyakarta	455	1,510	200	1,716	0.190	0.630	1.619
East Java	1,599	6,600	873	8,852	0.117	0.482	1.308
Bali	234	1,414	153	705	0.127	0.770	1.365
West Nusa Tenggara	56	364	36	279	0.083	0.540	1.091
East Nusa Tenggara	44	681	24	612	0.031	0.476	0.950
East Timor	24	146	16	311	0.055	0.333	1.132
West Kalimantan	63	424	23	289	0.049	0.332	0.625
Central Kalimantan	27	415	41	103	0.058	0.892	1.260
South Kalimantan	87	696	95	421	0.072	0.576	1.075
East Kalimantan	111	841	65	471	0.075	0.568	1.005
North Sulawesi	243	1,203	48	871	0.105	0.521	1.025
Central Sulawesi	41	495	30	169	0.050	0.598	0.888
South Sulawesi	361	1,786	223	731	0.110	0.545	0.947
Southeast Sulawesi	41	442	44	204	0.063	0.682	1.128
Maluku	53	579	26	275	0.040	0.432	0.696
Irian Jaya	57	681	52	267	0.044	0.523	0.812
<u>Total</u>	<u>11,416</u>	<u>47,602</u>	<u>6,029</u>	<u>48,597</u>	<u>0.135</u>	<u>0.564</u>	<u>1.347</u>
<u>Memo Item:</u> Coefficient of variation						0.25	0.30

MANPOWER AT MOH HOSPITALS
BY PROVINCE, 1985

	Medics	Nurses	Para-medics	Non-medics	Staff ration per bed		
					Medics	Nurses	Total
D.I. Aceh	71	486	94	199	0.082	0.563	0.984
North Sumatra	663	2,017	312	1,512	0.268	0.816	1.823
West Sumatra	164	1,016	158	747	0.101	0.627	1.287
Riau	50	249	53	244	0.082	0.408	0.975
Jambi	36	183	20	114	0.085	0.433	0.835
South Sumatra	182	792	87	909	0.141	0.613	1.524
Bengkulu	36	219	24	122	0.134	0.817	1.496
Lampung	78	474	52	367	0.087	0.529	1.084
D.K.I. Jakarta	1,412	2,953	469	3,784	0.451	0.942	2.750
West Java	846	2,513	282	2,725	0.191	0.568	1.438
Central Java	1,210	3,266	367	4,340	0.169	0.456	1.282
D.I. Yogyakarta	363	647	123	681	0.347	0.618	1.733
East Java	1,157	3,590	488	4,222	0.157	0.486	1.280
Bali	205	1,207	136	611	0.135	0.794	1.419
West Nusa Tenggara	39	297	31	211	0.068	0.521	1.014
East Nusa Tenggara	33	420	16	295	0.042	0.534	0.972
East Timor	24	146	16	311	0.087	0.531	1.807
West Kalimantan	49	303	20	147	0.048	0.294	0.504
Central Kalimantan	26	368	40	103	0.059	0.836	1.220
South Kalimantan	55	494	67	204	0.079	0.708	1.175
East Kalimantan	74	520	46	162	0.091	0.643	0.991
North Sulawesi	137	711	24	312	0.143	0.740	1.232
Central Sulawesi	38	433	30	132	0.059	0.677	0.989
South Sulawesi	215	1,113	157	328	0.114	0.589	0.959
Southeast Sulawesi	14	254	24	85	0.040	0.726	1.077
Maluku	31	342	13	43	0.048	0.534	0.670
Irian Jaya	28	538	33	120	0.030	0.583	0.779
<u>Total</u>	<u>7,236</u>	<u>25,551</u>	<u>3,182</u>	<u>23,030</u>	<u>0.168</u>	<u>0.592</u>	<u>1.368</u>
<u>Memo Item:</u>							
Coefficient of variation					0.77	0.24	0.35

ESTIMATED UNIT COSTS FOR HOSPITAL SERVICES
(Rupiah)

Hospital category and code	Per outpatient visit	Per inpatient day
MOH Class B		
04	14,748.91	35,227.16
37	4,974.14	13,711.38
MOH Class C		
	<u>3,238.76</u>	<u>13,052.22</u>
05	1,714.80	20,201.93
06	2,898.83	17,276.09
09	4,523.33	23,710.46
10	4,560.56	12,990.31
11	3,302.66	10,893.44
14	5,295.76	7,233.45
15	2,422.43	6,233.45
22	1,883.32	8,824.11
33	2,694.70	7,176.55
38	3,691.22	15,823.73
MOH Class D		
	<u>3,947.58</u>	<u>12,554.00</u>
07	685.54	4,929.34
08	1,645.18	10,469.49
12	7,440.27	7,460.37
13	3,128.90	9,698.98
16	2,146.83	13,661.65
17	4,720.83	11,808.01
19	643.28	5,176.68
20	1,766.31	7,839.21
23	3,533.38	14,860.16
24	3,331.92	4,142.69
25	2,111.42	28,367.65
26	5,291.24	15,647.23
28	4,341.48	11,964.65
29	15,706.18	18,953.96
30	8,703.27	39,940.10
31	4,716.59	8,581.22
34	2,978.15	10,992.01
35	2,752.51	10,232.91
39	1,584.07	6,333.41
40	1,724.43	10,020.47
Armed Forces		
01	7,780.41	22,195.14
18	6,957.90	14,165.95
32	5,708.19	21,130.20
State-Owned Companies		
02	44,200.35	232,010.56
36	12,008.76	14,971.45
Private		
03	8,776.56	73,942.27
21	4,058.99	8,291.67
27	9,332.14	15,122.33

Source: Ministry of Health and University of Indonesia (1988) Evaluation and Analysis of Hospital Costs: Phase II, Jakarta.

PROVINCIAL DISTRIBUTION OF COMMUNITY HEALTH FACILITIES, 1986

	Puskesmas			Puskesmas Pembantu		
	Inpres	Non-inpres	Total	Gov- ernment	Non- Government	Total
D.I. Aceh	99	47	146	387	22	409
North Sumatra	186	101	287	1,009	100	1,109
West Sumatra	90	52	142	396	45	441
Riau	70	24	94	326	22	348
Jambi	55	20	75	257	8	265
South Sumatra	125	50	175	459	36	495
Lampung	84	44	128	366	17	383
Bengkulu	64	12	76	239	16	255
D.K.I. Jakarta	60	232	292	0	0	0
West Java	430	213	643	948	302	1,250
Central Java	385	257	642	833	87	920
D.I. Yogyakarta	61	39	100	228	8	236
East Java	477	343	820	1,004	126	1,130
West Java	109	34	143	374	31	405
West Kalimantan	109	34	143	374	31	405
Central Kalimantan	78	14	92	319	29	348
South Kalimantan	101	26	127	391	17	408
East Kalimantan	76	34	110	253	43	296
North Sulawesi	68	51	119	518	62	580
Central Sulawesi	46	26	72	348	22	370
South Sulawesi	127	94	221	786	60	846
Southeast Sulawesi	47	22	69	252	11	263
Bali	63	20	83	330	25	355
West Nusa Tenggara	73	17	90	280	6	286
East Nusa Tenggara	111	23	134	381	58	439
Maluku	61	39	100	167	17	184
Irian Jaya	104	22	126	287	142	429
East Timor	44	24	68	108	10	118
Indonesia	<u>3,294</u>	<u>1,880</u>	<u>5,174</u>	<u>11,246</u>	<u>1,322</u>	<u>12,568</u>

RATIOS OF PUSKESMAS TO POPULATION BY PROVINCE, 1986

	1985 Population (thousand)	Reported Puskesmas 3/86	Ratio PUSKESMAS Population	Implied number 1:30,000
D.I. Aceh	2,981	146	1:20,418	99
North Sumatra	9,444	285	1:33,137	315
West Sumatra	3,666	141	1:26,000	122
Riau	2,514	92	1:27,326	84
Jambi	1,728	76	1:22,737	58
South Sumatra	5,411	167	1:32,401	180
D.K.I. Jakarta	7,829	280	1:27,961	261
West Java	30,733	615	1:49,972	1,024
Central Java	266,934	606	1:44,446	898
D.I. Yogyakarta	2,967	101	1:29,376	99
East Java	31,039	817	1:37,991	1,035
Lampung	5,987	126	1:47,515	200
Bengkulu	936	79	1:11,848	31
West Kalimantan	2,815	137	1:20,547	94
West Kalimantan	1,140	92	1:12,391	38
South Kalimantan	2,289	124	1:18,460	76
East Kalimantan	1,538	109	1:14,110	51
North Sulawesi	2,375	114	1:20,833	79
Central Sulawesi	1,539	72	1:21,375	51
South Sulawesi	6,600	222	1:29,730	220
Southeast Sulawesi	1,083	69	1:15,696	36
Bali	2,638	83	1:31,783	88
West Nusa Tenggara	3,047	88	1:34,625	102
East Nusa Tenggara	3,029	133	1:22,774	101
Maluku	1,633	100	1:16,330	54
Irian Jaya	1,357	125	1:10,856	45
East Timor	624	61	1:10,230	21
<u>Total</u>	<u>163,876</u>	<u>5,060</u>		<u>5,462</u>

PROVINCIAL DISTRIBUTION OF POSYANDU, 1986

	Number of POSYANDU Reported	Percent of PUSKESMAS Reporting	Number of POSYANDU Pro-rated
D.I. Aceh	544	76	716
North Sumatra	3,679	86	4,278
West Sumatra	1,861	87	2,139
Riau	1,096	97	1,130
Jambi	1,644	94	685
North Sumatra	1,556	85	1,831
Lampung	2,513	93	2,702
Bengkulu	517	93	556
D.K.I. Jakarta	2,008	81	2,479
West Java	16,545	90	18,383
Central Java	13,381	90	14,868
D.I. Yogyakarta	3,014	90	3,349
East Java	19,551	92	21,251
West Kalimantan	1,196	79	1,514
Central Kalimantan	970	95	1,021
South Kalimantan	1,077	83	1,298
East Kalimantan	1,309	83	1,577
North Sulawesi	1,543	90	1,714
Central Sulawesi	1,193	72	1,657
South Sulawesi	4,130	95	4,347
Southeast Sulawesi	369	63	586
Bali	840	100	840
West Nusa Tenggara	726	88	825
East Nusa Tenggara	1,162	76	1,529
Maluku	510	75	680
Irian Jaya	464	51	910
East Timor	290	87	333
Indonesia	<u>82,688</u>	<u>87</u>	<u>93,198</u>

HEALTH CENTER STAFF BY PROVINCE, 1985

	Total /a				Per million /b		RSR /c	
	Doctors	Dentists	Para-medics	Others	Doctors	Para-medics	Doctors	Para-medics
D.I. Aceh	96	14	1,953	323	32.2	353.2	1.17	1.23
North Sumatra	227	100	5,084	457	29.3	538.3	1.06	1.88
West Sumatra	131	25	1,383	367	35.7	377.3	1.29	1.32
Riau	104	15	1,059	194	41.4	421.2	1.50	1.47
Jambi	69	4	588	100	39.9	340.3	1.45	1.19
South Sumatra	165	21	1,518	581	30.5	280.5	1.10	0.98
Bengkulu	67	3	461	61	71.6	492.5	2.59	1.72
Lampung	128	20	1,159	417	21.4	193.6	0.77	0.68
DKI Jakarta	379	205	1,730	701	48.4	221.0	1.75	0.77
West Java	605	212	5,388	3,966	19.7	175.3	0.71	0.61
Yogyakarta	110	55	1,119	628	37.1	377.1	1.34	1.32
Central Java	602	195	5,341	4,631	22.4	198.3	0.81	0.69
East Java	719	246	6,635	5,249	23.2	213.8	0.84	0.75
West Kalimantan	101	16	706	251	35.9	250.4	1.30	0.87
Central Kalimantan	56	2	728	100	49.1	638.6	1.78	2.23
South Kalimantan	84	9	811	158	36.7	354.3	1.33	1.24
East Kalimantan	70	13	665	163	45.5	432.4	1.65	1.51
North Sulawesi	111	16	1,724	209	46.7	725.9	1.69	2.53
Central Sulawesi	59	1	731	106	38.3	475.0	1.39	1.66
South Sulawesi	178	7	3,082	511	27.0	467.0	0.98	1.63
Southeast Sulawesi	41	0	578	83	37.9	533.7	1.37	1.86
Bali	84	14	1,329	216	31.8	503.8	1.15	1.76
West Nusa Tenggara	81	7	711	287	26.6	233.3	0.96	0.81
East Nusa Tenggara	71	3	1,143	294	23.4	377.4	0.85	1.32
Maluku	60	5	828	139	36.7	507.0	1.33	1.77
Irian Jaya	40	7	1,217	193	29.5	896.8	1.07	3.13
East Timor	37	5	194	383	59.3	310.9	2.15	1.08
Total	4,525	1,220	46,964	20,768	27.6	286.6	1.00	1.00

/a Health centers staff include staff assigned to health subcenters. Pekarya kesehatan classified under "other" staff.

/b Doctor to population ratio excludes dentists.

/c Relative staff ratio measures the provincial share of staff to the provincial share of population.

Source: Ministry of Health, Binkesmas, "Gambaran Tenaga pada Puskesmas Menurut Propinsi di Indonesia, Tahun 1985".

PROPORTION OF PUSKESMAS WITH DOCTORS BY PROVINCE, 1985

	Number of Puskesmas	Percent with Doctor Present
D.I. Aceh	146	65.1
North Sumatra	285	80.4
West Sumatra	139	94.2
Riau	91	96.7
Jambi	74	89.2
South Sumatra	165	92.1
Bengkulu	69	97.1
Lampung	123	97.6
DKI Jakarta	278	95.3
West Java	603	85.4
Yogyakarta	100	97.0
Central Java	602	95.2
East Java	818	86.2
West Kalimantan	137	73.0
Central Kalimantan	92	59.8
South Kalimantan	124	72.2
East Kalimantan	108	63.0
North Sulawesi	114	90.4
Central Sulawesi	72	80.6
South Sulawesi	222	73.4
Southeast Sulawesi	68	58.8
Bali	83	98.8
West Nusa Tenggara	87	93.1
East Nusa Tenggara	131	53.4
Maluku	99	57.6
Irian Jaya	124	30.6
East Timor	61	60.7
Total	5,015	82.6

Source: Ministry of Health, Planning Bureau.

MINISTRY OF HEALTH MEDICAL AND PARAMEDICAL STAFF
BY PROVINCE, 1986 ^{/a}

	Doctors		Dentists	Paramedics		
	Specialist	General		Academy	High school	Junior high
D.I. Aceh	2	258	35	32	1,188	381
North Sumatra	12	762	164	106	5,549	3,229
West Sumatra	2	329	31	87	2,242	843
Riau	4	238	30	53	873	335
Jambi	5	156	17	60	707	164
South Sumatra	15	394	50	226	1,960	321
Bengkulu	1	140	14	69	616	88
Lampung	4	256	36	69	750	268
Jakarta	64	1,135	319	549	5,423	584
West Java	37	1,260	281	384	5,848	2,880
Yogyakarta	3	200	63	94	1,384	434
Central Java	26	1,161	272	269	6,190	3,399
East Java	35	1,364	335	499	7,793	3,592
West Kalimantan	5	228	29	40	891	483
Central Kalimantan	1	114	13	25	561	379
South Kalimantan	5	212	22	46	1,057	355
East Kalimantan	4	247	40	30	1,094	170
North Sulawesi	2	263	33	60	1,275	816
Central Sulawesi	0	159	9	60	627	394
South Sulawesi	1	439	49	301	3,258	1,174
Southeast Sulawesi	1	99	8	52	647	348
Bali	3	250	46	104	1,806	532
West Nusa Tenggara	0	212	20	41	673	238
East Nusa Tenggara	1	221	12	40	732	441
Maluku	3	149	20	31	916	412
Irian Jaya	1	153	17	28	596	87
East Timor	0	94	11	19	290	43
Subtotal	<u>237</u>	<u>10,493</u>	<u>1,976</u>	<u>3,374</u>	<u>54,946</u>	<u>22,398</u>
Headquarters	50	1,296	654	572	2,710	401
<u>Grand total</u>	<u>287</u>	<u>11,789</u>	<u>2,630</u>	<u>3,946</u>	<u>57,656</u>	<u>22,799</u>

^{/a} Data for January 1986. Includes only MOH-appointed (NIP 14) personnel.

Source: Ministry of Health, Data Center (BAKN masterfile).

MINISTRY OF HEALTH MEDICAL AND PARAMEDICAL STAFF
BY BUDGETARY CATEGORY, 1986 /a

	Paramedics									
	Academy		High School		Junior High		All		Doctors General	
	Total	% DPB /b	Total	% DPB /b	Total	% DPB /b	Total	% DPB/b	Total	% DPB /b
D.I. Aceh	32	62.5	1,188	84.6	381	97.6	1,601	87.3	258	84.9
North Sumatra	106	59.4	5,549	84.8	3,229	95.4	8,884	88.3	762	79.4
West Sumatra	87	39.1	2,242	52.7	843	82.8	3,172	60.3	329	78.1
Riau	53	60.4	873	85.1	335	96.1	1,261	87.0	238	83.6
Jambi	60	50.0	707	84.0	164	85.4	931	82.1	156	83.3
South Sumatra	226	25.2	1,960	45.1	321	72.0	2,507	46.7	394	75.6
Bengkulu	69	62.3	616	89.4	88	98.9	773	88.1	140	81.4
Lampung	69	52.2	750	83.5	268	93.7	1,087	84.0	256	91.8
Jakarta /c	549	15.7	5,423	24.7	584	24.0	6,556	23.9	1,135	31.8
West Java	384	38.3	5,848	60.3	2,888	75.8	9,120	64.3	1,260	71.2
Yogyakarta	94	33.0	1,384	38.1	434	50.7	1,912	40.7	200	63.0
Central Java	269	46.8	6,190	60.3	3,399	73.5	9,858	64.5	1,161	77.6
East Java	499	62.9	7,793	73.3	3,592	88.0	11,884	77.3	1,694	70.6
West Kalimantan	40	70.0	891	84.1	483	79.1	1,414	82.0	228	86.0
Central Kalimantan	25	72.0	561	88.4	379	93.9	965	90.2	114	89.5
Sentral Kalimantan	46	58.7	1,057	81.6	355	91.3	1,458	83.3	212	82.1
East Kalimantan	30	60.0	1,094	83.4	170	92.4	1,294	84.0	247	83.4
North Sulawesi	60	56.7	1,275	90.2	816	81.1	2,151	85.8	263	79.1
Central Sulawesi	60	55.0	627	85.0	394	96.4	1,081	87.5	159	86.2
South Sulawesi	301	73.4	3,258	90.6	1,174	95.7	4,733	90.8	439	82.2
Southeast Sulawesi	52	78.8	647	87.3	348	98.6	1,047	90.6	99	89.9
Bali	104	49.0	1,806	48.6	532	72.9	2,442	53.9	250	77.2
West Nusa Tenggara	41	65.9	673	85.9	238	98.3	952	88.1	212	85.8
East Nusa Tenggara	40	70.0	732	86.3	441	72.8	1,213	80.9	221	90.5
Maluku	31	64.5	916	83.0	412	92.5	1,359	85.4	149	80.5
Irian Jaya	28	75.0	596	86.9	87	94.3	711	87.3	153	93.5
East Timor	19	57.9	290	65.2	43	32.6	352	60.8	94	70.2
Subtotal	<u>3,374</u>	<u>47.3</u>	<u>54,946</u>	<u>67.2</u>	<u>22,398</u>	<u>82.8</u>	<u>80,718</u>	<u>70.7</u>	<u>10,493</u>	<u>73.2</u>
Headquarters	572	4.2	2,710	2.5	401	2.0	3,683	2.7	1,296	7.6
Grand Total	<u>3,946</u>	<u>41.1</u>	<u>57,656</u>	<u>64.1</u>	<u>22,799</u>	<u>81.3</u>	<u>84,401</u>	<u>67.7</u>	<u>11,789</u>	<u>66.0</u>

/a Data for January 1986.

/b DPB denotes *diperbantukan*, i.e., paid by province or kabupaten/kotamadya.

/c Jakarta staff excludes headquarters staff.

Source: Ministry of Health, Pusdakes BAKN files.

RATIO OF MINISTRY OF HEALTH MEDICAL AND PARAMEDICAL STAFF TO POPULATION
BY BUDGETARY CATEGORY, 1986

	Staff per million population					Relative Staff Ratio				
	Doctors General	Paramedic				Doctors General	Paramedics			
	Academy	High school	Junior high	All	Academy	High school	Junior high	All		
D.I. Aceh	86.5	10.7	398.5	127.8	537.1	1.35	0.52	1.19	0.94	1.09
North Sumatra	80.7	11.2	587.6	341.9	940.7	1.26	0.55	1.75	2.50	1.91
West Sumatra	89.7	23.7	611.6	230.0	865.2	1.40	1.15	1.82	1.68	1.76
Riau	94.7	21.1	347.3	133.3	501.6	1.48	1.02	1.04	0.97	1.02
Jambi	90.3	34.7	409.1	94.9	538.8	1.41	1.69	1.22	0.69	1.09
South Sumatra	72.8	41.8	362.2	59.3	463.3	1.14	2.03	1.08	0.43	0.94
Bengkulu	149.6	73.7	658.1	94.0	825.9	2.34	3.58	1.96	0.69	1.68
Lampung	42.8	11.5	125.3	44.8	181.6	0.67	0.56	0.37	0.33	0.37
Jakarta	145.0	70.1	692.7	74.6	837.4	2.26	3.41	2.07	0.55	1.70
West Java	41.0	12.5	190.3	94.0	296.7	0.64	0.61	0.57	0.69	0.60
Yogyakarta	67.4	31.7	466.5	146.3	644.4	1.05	1.54	1.39	1.07	1.31
Central Java	43.1	10.0	229.8	126.2	366.0	0.67	0.49	0.69	0.92	0.74
East Java	43.9	16.1	251.1	115.7	382.9	0.69	0.78	0.75	0.85	0.78
West Kalimantan	81.0	14.2	316.5	171.6	502.3	1.26	0.69	0.94	1.26	1.02
Central Kalimantan	100.0	21.9	492.1	332.5	846.5	1.56	1.07	1.47	1.43	1.72
South Kalimantan	92.6	20.1	416.8	155.1	637.0	1.45	0.98	1.38	1.13	1.29
East Kalimantan	160.6	19.5	711.3	110.5	841.4	2.51	0.95	2.12	0.81	1.71
North Sulawesi	110.7	25.3	536.8	343.6	905.7	1.73	1.23	1.60	2.51	1.84
Central Sulawesi	103.3	39.0	407.4	256.0	702.4	1.61	1.89	1.22	1.87	1.43
South Sulawesi	66.5	45.6	493.6	177.9	707.1	1.04	2.22	1.47	1.30	1.46
Southeast Sulawesi	91.4	48.0	597.4	321.3	966.8	1.43	2.33	1.78	2.35	1.96
Bali	94.8	39.4	684.6	201.7	925.7	1.48	1.91	2.04	1.48	1.88
West Nusa Tenggara	69.6	13.5	220.9	78.1	312.4	1.09	0.65	0.66	0.57	0.63
East Nusa Tenggara	73.0	13.2	241.7	145.6	400.5	1.14	0.64	0.72	1.07	0.81
Maluku	91.2	19.0	560.9	252.3	832.2	1.43	0.92	1.67	1.85	1.69
Irian Jaya	112.7	20.6	439.2	64.1	523.9	1.76	1.00	1.31	0.47	1.06
East Timor	150.6	30.4	464.7	68.9	564.1	2.35	1.48	1.39	0.50	1.15
Average	64.0	20.6	335.3	136.7	492.6	1.00	1.00	1.00	1.00	1.00

/a Jakarta data excludes Ministry of Health headquarters staff.

Sources: Manpower data from Ministry of Health (BAKN masterfile)

NEW MINISTRY OF HEALTH POSTS, 1979/80 TO 1987/88

	79/80	80/81	81/82	82/83	83/84	84/85	85/86	86/87	87/88
<u>Medics</u>	<u>1.953</u>	<u>1.583</u>	<u>1.576</u>	<u>921</u>	<u>1.334</u>	<u>1.554</u>	<u>1.285</u>	<u>1.265</u>	<u>2.425</u>
Inpres	600	610	660	610	660	700	700	700	1,000
Routine	1,353	973	916	311	674	854	585	565	1,425
<u>Paramedics</u>	<u>5.651</u>	<u>6.898</u>	<u>5.860</u>	<u>4.687</u>	<u>5.220</u>	<u>4.119</u>	<u>5.158</u>	<u>4.665</u>	<u>11.907</u>
Inpres	3,950	3,925	3,200	3,200	3,275	2,790	2,301	3,250	6,000
Routine	1,701	2,973	2,660	1,487	1,945	1,329	2,857	1,415	5,907
<u>Pekarya Kesehatan</u>	<u>0</u>	<u>0</u>	<u>800</u>	<u>800</u>	<u>1.225</u>	<u>2.210</u>	<u>3.849</u>	<u>5.000</u>	<u>2.600</u>
Inpres	0	0	800	800	1,225	2,210	3,449	5,000	2,600
Routine	0	0	0	0	0	0	400	0	0
<u>Nonmedics</u>	<u>1.856</u>	<u>3.564</u>	<u>5.906</u>	<u>5.367</u>	<u>2.907</u>	<u>2.004</u>	<u>835</u>	<u>753</u>	<u>0</u>
Inpres	0	0	0	0	0	0	0	750	0
Routine	1,856	3,564	5,906	5,367	2,907	2,004	835	3	0
Total Inpres	4,550	4,535	4,660	4,610	5,160	5,700	6,450	9,700	9,600
Total Routine	4,910	7,510	9,482	7,165	5,526	4,187	4,677	11,983	7,332
<u>Grand Total</u>	<u>9.460</u>	<u>12.045</u>	<u>14.142</u>	<u>11.775</u>	<u>10.686</u>	<u>9.887</u>	<u>11.127</u>	<u>11.683</u>	<u>16.932</u>

Source: Ministry of Health, Personnel Bureau (unpublished compilations, 15 August 1986).

PARAMEDICAL /a FORMASI CREATED BY PROVINCE 1984/85 AND 1985/86:

	<u>Inpres 1984/85 & 1985/86</u>			<u>Routine 1984/85 & 1985/86</u>		
	<u>Number</u>	<u>Percent</u>	<u>RSR /b</u>	<u>Number</u>	<u>Percent</u>	<u>RSR /b</u>
D.I. Aceh	55	1.20	0.66	36	2.60	1.43
North Sumatra	193	4.20	0.73	71	5.12	0.89
West Sumatra	146	3.18	1.42	83	5.99	2.68
Riau	73	1.59	1.04	24	1.73	1.13
Jambi	45	0.98	0.93	38	2.74	2.60
South Sumatra	224	4.87	1.48	55	3.97	1.20
Bengkulu	57	1.24	2.17	26	1.88	3.28
Lampung	35	0.76	0.21	24	1.73	0.47
DKI Jakarta	1,382	30.08	6.60	85	6.13	1.28
West Java	488	10.62	0.57	130	9.38	0.50
Yogyakarta	387	8.42	4.65	25	1.80	1.00
Central Java	188	4.09	0.25	183	13.20	0.80
East Java	235	5.11	0.27	143	10.32	0.54
West Kalimantan	44	0.96	0.56	9	0.65	0.38
Central Kalimantan	191	4.16	5.98	24	1.73	2.49
South Kalimantan	54	1.18	0.84	23	1.66	1.19
East Kalimantan	47	1.02	1.09	17	1.23	1.31
North Sulawesi	110	2.39	1.65	51	3.68	2.54
Central Sulawesi	71	1.55	1.65	30	2.16	2.30
South Sulawesi	225	4.90	1.22	116	8.37	2.08
Southeast Sulawesi	33	0.72	1.09	21	1.52	2.29
Bali	91	1.98	1.23	37	2.67	1.66
West Nusa Tenggara	38	0.83	0.44	24	1.73	0.93
East Nusa Tenggara	66	1.44	0.78	63	4.55	2.46
Maluku	44	0.96	0.96	15	1.08	1.09
Irian Jaya	36	0.78	0.95	22	1.59	1.92
East Timor	37	0.81	2.11	11	0.79	2.08
<u>Total</u>	<u>4,495</u>	<u>100.00</u>	<u>1.00</u>	<u>1,386</u>	<u>100.00</u>	<u>1.00</u>

/a Data includes nurses and nonnurse paramedics but exclude pekarya kesehatan.

/b RSR denoted the relative staff ratio which measures the provincial share of formasi to the provincial share of population.

Source: Ministry of Health, Personnel Bureau (unpublished data).

DOCTORS AND DENTISTS FORMASI, 1984/85 AND 1985/86
BY PROVINCE

	Doctors								Dentists							
	Inpres				Routine				Inpres				Routine			
	No.	%	RSR	/a	No.	%	RSR	/a	No.	%	RSR	/a	No.	%	RSR	/a
D.I. Aceh	35	2.9	1.60		8	0.8	0.46		4	2.0	1.10		6	1.3	0.73	
North Sumatra	58	4.8	0.84		66	6.8	1.19		11	5.5	0.95		21	4.7	0.81	
West Sumatra	41	3.4	1.53		24	2.5	1.11		8	4.0	1.79		12	2.7	1.19	
Riau	33	2.8	1.79		23	2.4	1.55		5	2.5	1.63		10	2.2	1.45	
Jambi	26	2.2	2.05		14	1.5	1.38		6	3.0	2.85		5	1.1	1.06	
South Sumatra	44	3.7	1.11		49	5.1	1.54		10	5.0	1.51		10	2.2	0.67	
Bengkulu	29	2.4	4.23		19	2.0	3.45		7	3.5	6.13		4	0.9	1.56	
Lampung	36	3.0	0.82		30	3.1	0.85		8	4.0	1.09		8	1.8	0.49	
Jakarta	12	1.0	0.21		107	11.1	2.32		2	1.0	0.21		68	15.1	3.17	
West Java	152	12.7	0.68		157	16.3	0.87		19	9.5	0.51		9	20.3	1.08	
Yogyakarta	16	1.3	0.74		17	1.8	0.97		4	2.0	1.10		3	3.6	1.97	
Central Java	167	13.9	0.85		80	8.3	0.50		19	9.5	0.58		44	9.8	0.60	
East Java	83	6.9	0.37		115	11.9	0.63		20	10.0	0.53		64	14.3	0.75	
West Kalimantan	31	2.6	1.50		7	0.7	0.42		4	2.0	1.16		8	1.8	1.04	
Central Kalimantan	36	3.0	4.31		11	1.1	1.64		5	2.5	3.59		4	0.9	1.28	
South Kalimantan	31	2.6	1.85		7	0.7	0.52		6	3.0	2.15		5	1.1	0.08	
East Kalimantan	39	3.3	3.46		12	1.2	1.32		7	3.5	3.73		4	0.9	0.95	
North Sulawesi	33	2.8	1.90		22	2.3	1.57		8	4.0	2.76		6	1.3	0.92	
Central Sulawesi	24	2.0	2.13		10	1.0	1.10		3	1.5	1.60		3	0.7	0.71	
South Sulawesi	54	4.5	1.12		36	3.7	0.93		7	3.5	0.87		13	2.9	0.72	
Southeast Sulawesi	27	2.3	3.40		8	0.8	1.25		4	2.0	3.03		6	1.3	2.02	
Bali	27	2.3	1.40		43	4.5	2.77		7	3.5	2.17		13	2.9	1.80	
West Nusa Tenggara	28	2.3	1.25		19	2.0	1.06		6	3.0	1.61		6	1.3	0.72	
East Nusa Tenggara	34	2.8	1.53		13	1.3	0.73		4	2.0	1.08		6	1.3	0.72	
Maluku	32	2.7	2.68		8	0.8	0.83		4	2.0	2.01		8	1.8	1.79	
Irian Jaya	42	3.5	4.23		4	0.4	0.50		7	3.5	4.23		5	1.1	1.34	
East Timor	30	2.5	6.57		56	5.8	15.24		5	2.5	6.57		3	0.7	1.75	
Total	1.200	100.0	1.00		965	100.0	1.00		200	100.0	1.00		449	100.0	1.00	

/a RSR denotes the relative staff ratio which measures the ratio of provincial share of formasi to provincial share of population

Source: Ministry of Health, Personnel Bureau (unpublished compilation).

PROPORTION OF NEW PARAMEDICAL NEW POSTS EVER-FILLED, 1979/80-1985/86,
BY PROVINCE

	<u>Inpres</u>		<u>Routine</u>	
	<u>Formasi</u>	<u>% Filled</u> /a	<u>Formasi</u>	<u>% Filled</u>
D.I. Aceh	655	85.9	43	93.02
North Sumatra	1,265	98.7	98	92.86
West Sumatra	633	93.2	133	96.99
Riau	512	82.4	60	98.33
Jambi	431	73.1	38	97.37
South Sumatra	927	57.7	188	96.81
Bengkulu	460	72.0	30	96.67
Lampung	660	87.4	46	100.00
DKI Jakarta	252	98.0	1,688	96.56
West Java	2,380	98.7	392	88.52
Yogyakarta	368	97.8	188	100.00
Central Java	2,553	85.7	324	99.07
East Java	2,686	97.0	176	98.30
West Kalimantan	755	55.4	43	100.00
Central Kalimantan	595	51.4	105	99.05
South Kalimantan	735	55.1	47	89.36
East Kalimantan	540	88.9	44	90.91
North Sulawesi	763	96.2	67	100.00
Central Sulawesi	546	66.3	59	100.00
South Sulawesi	978	91.5	60	98.33
Southeast Sulawesi	375	75.5	29	100.00
Bali	452	98.5	78	100.00
West Nusa Tenggara	525	67.2	32	100.00
East Nusa Tenggara	519	80.3	38	97.37
Maluku	475	87.4	44	97.73
Irian Jaya	679	52.0	32	96.88
East Timor	342	60.5	32	93.75
<u>Total</u>	<u>22,071</u>	<u>83.4</u>	<u>4,114</u>	<u>96.40</u>

/a Inpres positions filled as of September 1986. Excludes pekarya kesehatan.

Source: Ministry of Health, Personnel Bureau.

SUPPLY AND DEMAND FOR INPRES NURSING POSITIONS, 1985/86

	Demand (open posts <u>/a</u>)	Supply <u>/b</u> (graduates)	Excess demand	Intra- provincial placement	Out- place- ment <u>/c</u>	In- place- ments <u>/c</u>	Net open posts	Net unplaced graduates <u>/d</u>
D.I. Aceh	185	198	-13	184			1	14
North Sumatra	133	473	-340	133	52		0	288
West Sumatra	121	190	-69	107		1	13	83
Riau	169	51	118	63		30	76	-12
Jambi	147	42	105	51		13	83	-9
South Sumatra	210	141	69	93		4	113	48
Bengkulu	170	38	132	40		8	122	-2
Lampung	161	93	68	124		5	32	-31
Jakarta	11	584	-573	11	4		0	569
West Java	223	389	-166	223	12		0	154
Yogyakarta	58	163	-105	58			0	105
Central Java	619	348	271	449		3	167	-101
East Java	257	1,554	-1,297	256			1	1,298
West Kalimantan	162	61	101	61		4	97	0
Central Kalimantan	183	25	158	35			148	-10
South Kalimantan	160	53	107	40			120	13
East Kalimantan	133	84	49	96		1	36	-12
North Sulawesi	161	153	-98	55			0	98
Central Sulawesi	83	76	7	59			24	17
South Sulawesi	161	235	-74	161	12		0	62
Southeast Sulawesi	100	77	23	52			48	25
Bali	42	134	-92	41			1	93
West Nusa Tenggara	152	36	116	81		4	67	-45
East Nusa Tenggara	108	46	62	82		4	22	-36
Maluku	142	128	14	131		3	8	-3
Irian Jaya	230	81	149	79			151	2
East Timor	69	46	23	35			34	11
Total	<u>4,244</u>	<u>5,499</u>	<u>-1,255</u>	<u>2,800</u>	<u>80</u>	<u>80</u>	<u>1,364</u>	<u>2,619</u>

/a Open posts (siswa formasi) = never-filled INPRES positions for SPK trained nurses, plus midwives.

/b Supply (lulusan) = new graduates who have applied for public positions, classified by province of education.

/c Out and in placement refer to interprovincial placements of graduates.

/d Net unplaced graduates should never, in theory, be negative; the negative entries indicate that some graduates have been classified under the wrong province; e.g., Bali-educated students from NTB have been mistakenly classified under their province of birth. Thus estimates for individual provinces should be taken with caution. Column sums, however, are not affected by misclassification.

Source: Ministry of Health, Bureau of Personnel "Alokasi lulusan tenaga paramedis untuk INPRES dari propinsi lebih ke propinsi kurang th. 1985. Perawat Kesehatan" (31 Maret 1986).

PROVINCIAL DISTRIBUTION OF PARAMEDICAL STAFF, 1986 /a

Province	Academy		High School		Junior High		All	
	Number	% DPB /b	Number	% DPB /b	Number	% DPB /b	Total	% DPB /b
Province	3,374	47.3	54,946	67.2	22,398	82.8	80,718	70.7
D.I. Aceh	32	62.5	1,188	84.6	381	97.6	1,601	87.3
North Sumatra	106	59.4	5,549	84.8	3,229	95.4	8,884	88.3
West Sumatra	87	39.1	2,242	52.7	843	82.8	3,172	60.3
Riau	53	60.4	873	85.1	335	96.1	1,261	87.0
Jambi	60	50.0	707	84.0	164	85.4	931	82.1
South Sumatra	226	25.2	1,960	45.1	321	72.0	2,507	46.7
Bengkulu	69	62.3	616	89.4	88	98.9	773	88.1
Lampung	69	52.2	750	83.5	268	93.7	1,087	84.0
Jakarta	549	15.7	5,423	24.7	584	24.0	6,556	23.9
West Java	384	38.3	5,848	60.3	2,888	75.8	9,120	64.3
Yogyakarta	94	33.0	1,384	38.1	434	50.7	1,912	40.7
Central Java	269	46.8	6,190	60.3	3,399	73.5	9,858	64.5
East Java	499	62.9	7,793	73.3	3,592	88.0	11,884	77.3
West Kalimantan	40	70.0	891	84.1	483	79.1	1,414	82.0
Central Kalimantan	25	72.0	561	88.4	379	93.9	965	90.2
South Kalimantan	46	58.7	1,057	81.6	355	91.3	1,458	83.3
East Kalimantan	30	60.0	1,094	83.4	170	92.4	1,294	84.0
North Sulawesi	60	56.7	1,275	90.2	816	81.1	2,151	85.8
Central Sulawesi	60	55.0	627	85.0	394	96.4	1,081	87.5
South Sulawesi	301	73.4	3,258	90.6	1,174	95.7	4,733	90.8
Southeast Sulawesi	52	78.8	647	87.3	348	98.6	1,047	90.6
Bali	104	49.0	1,806	48.6	532	72.9	2,442	53.9
West Nusa Tenggara	41	65.9	673	85.9	238	98.3	952	88.1
East Nusa Tenggara	40	70.0	732	86.3	441	72.8	1,213	80.9
Maluku	31	64.5	916	83.0	412	92.5	1,359	85.4
Irian Jaya	28	75.0	596	86.9	87	94.3	711	87.3
East Timor	19	57.9	290	65.2	43	32.6	352	60.8
Central /c	572	4.2	2,710	2.5	401	2.0	3,683	2.7
Sekjen	156	3.8	1,004	3.6	113	3.5	1,273	3.6
Inspjen	19	5.3	55	29.1	3	33.3	77	23.4
Binkesmas	48	10.4	125	1.6	26	3.8	199	4.0
P3M	112	3.6	199	0.0	42	0.0	353	1.1
Yankes	148	2.7	764	0.7	151	0.7	1,063	0.9
PGM	23	0.0	349	1.1	38	2.6	410	1.2
Litbangkes	30	3.3	139	2.2	14	0.0	183	2.2
Pusdiklat	36	8.3	75	2.7	14	0.0	125	4.0
Total	3,946	41.1	57,656	64.1	22,799	81.3	84,401	67.7

/a Data for for January 1986 from Ministry of Health, PusdakKes (BARN files).

/b DPB = diperbantukan, i.e., paid by province or kabupaten/kotamadya.

/c Staff listed under the directorate-generals are all Jakarta-based, but are not included in the Jakarta provincial totals.

MEDICAL MANPOWER SUPPLY AND GOVERNMENT DEMAND,
1979-1986

Year	Graduates /a	Ministry of Health /b		Graduates Minus Appointments
		New Posts	Appointments	
<u>Doctors</u>				
79/80	1,124	1,482	927	197
80/81	1,079	1,092	839	240
81/82	1,173	1,132	1,075	98
82/83	1,648	700	690	958
83/84	1,245	910	866	379
84/85	1,023	910	482	541
85/86	1,336	1,003	1,059	277
<u>Dentists</u>				
79/80	302	358	317	-15
80/81	288	324	280	8
81/82	363	347	344	19
82/83	426	148	141	285
83/84	413	260	242	171
84/85	390	300	132	258
85/86	447	162	170	277

/a Graduates of all schools, public and private.

/b New posts and appointments include both central and provincial position (pusat dan diperbantukan).

/c General doctors (dokter umum) only.

Source: Ministry of Health, Personnel Bureau, New Posts Section.

INPRES FORMASI AND APPOINTMENTS FOR DOCTORS, 1986/87 /a

	<u>Available Position</u>			Applications	Appointments	Unfilled positions	Unplaced applicants
	Backlog	New	Total				
D.I. Aceh	2	28	30	20	20	10	-
North Sumatra	-	24	24	38	24	-	14
West Sumatra	-	20	20	29	20	-	9
Riau	1	15	16	16	16	-	-
Jambi	-	18	18	18	18	-	-
South Sumatra	-	24	24	35	24	-	11
Bengkulu	-	7	7	10	7	-	3
Lampung	-	33	33	35	33	-	2
DKI Jakarta	-	-	-	102	-	-	192
West Java	2	59	61	87	61	-	26
Central Java	-	48	48	72	48	-	24
D.I. Yogyakarta	5	10	15	15	15	-	-
East Java	1	56	57	118	57	-	61
Bali	-	8	8	26	8	-	18
West Nusa Tenggara	-	21	21	21	21	-	-
East Nusa Tenggara	-	20	20	19	19	1	-
West Kalimantan	3	18	21	14	14	7	-
Central Kalimantan	43	22	65	23	23	42	-
South Kalimantan	20	23	43	16	16	27	-
East Kalimantan	1	16	17	17	17	-	-
North Sulawesi	-	13	13	18	13	-	5
Central Sulawesi	-	15	15	15	15	-	-
South Sulawesi	-	33	33	33	33	-	-
Southeast Sulawesi	8	16	24	19	19	5	-
Maluku	8	14	22	17	17	5	-
Irian Jaya	1	16	17	14	14	3	-
East Timor	-	23	23	21	2	-	-
<u>Total</u>	<u>95</u>	<u>600</u>	<u>605</u>	<u>058</u>	<u>593</u>	<u>102</u>	<u>365</u>

/a Data as of September 1986.

Source: Ministry of Health, Personnel Bureau.

INPRES FORMASI AND APPOINTMENTS FOR DENTISTS, 1986/87 /a

	<u>Available Positions</u>			Applications	Appointments	Unfilled positions	Unplaced applications
	Backlog	New	Total				
D.I. Aceh	-	2	2	6	2	-	4
North Sumatra	-	5	5	15	5	-	10
West Sumatra	-	5	5	15	5	-	10
Riau	-	2	2	10	2	-	8
Jambi	3	-	3	3	3	-	-
South Sumatra	-	2	2	10	2	-	8
Bengkulu	-	2	2	3	2	-	1
Lampung	-	5	5	9	5	-	4
DKI Jakarta	-	-	-	213	-	-	213
West Java	-	16	16	96	16	-	80
Central Java	-	16	16	36	16	-	20
D.I. Yogyakarta	-	6	6	12	6	-	6
East Java	-	17	17	71	17	-	54
Bali	-	2	2	5	2	-	3
West Nusa Tenggara	3	2	5	5	5	-	-
East Nusa Tenggara	5	-	5	-	-	5	-
West Kalimantan	1	2	3	3	3	-	-
Central Kalimantan	5	-	5	-	-	5	-
South Kalimantan	6	-	6	6	6	-	-
East Kalimantan	1	2	3	3	3	-	-
North Sulawesi	7	-	7	6	6	1	-
Central Sulawesi	2	-	2	2	2	-	-
South Sulawesi	1	5	6	6	6	-	-
Southeast Sulawesi	7	-	7	6	6	1	-
Maluku	-	2	2	2	2	-	-
Irian Jaya	5	5	10	6	6	4	-
East Timor	-	2	2	2	2	-	-
<u>Total</u>	<u>46</u>	<u>100</u>	<u>146</u>	<u>549</u>	<u>135</u>	<u>11</u>	<u>414</u>

/a Data as of September 1986

Source: Ministry of Health, Personnel Bureau.

INPRES FORMASI AND APPOINTMENTS FOR DOCTORS AND DENTISTS ,
1984/85 AND 1985/86 COMBINED

	Doctors			Dentists		
	Total Formasi	Unfilled Formasi	Percent Unfilled	Total Formasi	Unfilled Formasi	Percent Unfilled
D. I. Aceh	35	0	0.0	4	0	0.0
North Sumatra	58	0	0.0	11	0	0.0
West Sumatra	41	0	0.0	8	0	0.0
Riau	33	1	3.0	5	0	0.0
Jambi	26	0	0.0	6	3	50.0
South Sumatra	44	0	0.0	10	0	0.0
Bengkulu	29	0	0.0	7	0	0.0
Lampung	36	0	0.0	8	0	0.0
Jakarta	12	0	0.0	2	0	0.0
West Java	152	2	1.3	19	0	0.0
Yogyakarta	16	0	0.0	4	0	0.0
Central Java	167	0	0.0	19	0	0.0
East Java	83	0	0.0	20	0	0.0
West Kalimantan	31	3	9.7	4	0	0.0
Central Kalimantan	36	32	88.9	5	4	80.0
South Kalimantan	31	20	64.5	6	6	100.0
East Kalimantan	39	1	2.6	7	1	14.3
North Sulawesi	33	0	0.0	8	4	50.0
Central Sulawesi	24	0	0.0	3	2	66.7
South Sulawesi	54	0	0.0	7	1	14.3
Southeast Sulawesi	27	7	25.9	4	4	100.0
Bali	27	0	0.0	7	0	0.0
West Nusa Tenggara	28	0	0.0	6	1	16.7
East Nusa Tenggara	34	0	0.0	4	4	100.0
Maluku	32	8	25.0	4	0	0.0
Irian Jaya	42	1	2.4	7	5	71.4
East Timor	30	0	0.0	5	0	0.0
<u>Total</u>	<u>1,200</u>	<u>75</u>	<u>6.3</u>	<u>200</u>	<u>35</u>	<u>17.5</u>

Source: Personnel Bureau, Ministry of Health (unpublished compiled).

STATISTICAL ANNEX
Table 5.14

ROUGH ESTIMATES OF MEDICS OUTFLOW AND INFLOW BY PROVINCE, 1985/86

	Inflow				Outflow			Net Inflow
	Appointments		In- Transfers /c	Gross Inflow	Out- transfers/c	Advanced Training	Gross Inflow /d	
	Routine /b	Inpres						
Aceh	8	16	0	24	20	19	39	-15
North Sumatra	11	25	8	44	2	13	15	29
West Sumatra	4	18	7	29	0	4	4	25
Riau	6	19	1	26	2	16	18	8
Jambi	3	15	0	18	1	4	5	13
South Sumatra	9	19	6	34	0	8	8	26
Bengkulu	4	20	1	25	1	7	8	17
Lampung	5	23	3	31	2	9	11	20
Jakarta	245	4	88	337	9	5	14	323
West Java	29	105	17	151	36	15	51	100
Yogyakarta	4	12	10	26	6	2	8	18
Central Java	15	118	9	142	19	18	37	105
East Java	23	45	12	80	11	9	20	60
West Kalimantan	2	15	0	17	5	8	13	4
Central Kalimantan	6	4	0	10	5	4	9	1
South Kalimantan	2	5	3	10	3	11	14	-4
East Kalimantan	3	19	2	24	7	9	16	8
North Sulawesi	6	13	0	19	9	6	15	4
Central Sulawesi	0	15	2	17	5	4	9	8
South Sulawesi	0	24	7	31	3	20	23	8
Southeast Sulawesi	4	10	1	15	3	5	8	7
Bali	8	17	5	30	3	1	4	26
West Nusa Tenggara	4	13	4	21	5	8	13	8
East Nusa Tenggara	3	16	1	20	11	11	22	-2
Maluku	2	13	1	16	7	3	10	6
Irian Jaya	2	18	2	22	6	6	12	10
East Timor	9	18	0	27	11	15	26	1
Total	417	639	190	1,246	192	240	432	814

/a Medics refers to general doctors plus dentists. This table should be read as a rough attempt at establishing orders of magnitude of interprovincial personnel flows, not as an authoritative statement.

/b Estimated routine appointments in 1985/86 is the number of routine appointments for the two year period 1984/85, 1985/86, multiplied by the 85/86 share of routine formasi of those two years.

/c Outtransfers and intranfers include all interprovincial transfers of Golongan (rank) III and IV employees; a majority of these are doctors.

/d Advanced training refers to the number of doctors accepting for specialist study from each province during calendar year 1985; all other columns refer to FY85/86. Data on inflow from advanced training are not available.

Source: MOH, Personnel Bureau.

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