

**AGENCY FOR
INTERNATIONAL
DEVELOPMENT**



ANNUAL BUDGET SUBMISSION

FY 82

INDONESIA ANNEX

JUNE 1980

UNITED STATES INTERNATIONAL DEVELOPMENT COOPERATION AGENCY
WASHINGTON, D.C. 20523

U S A I D / I N D O N E S I A

FY 1982

A N N U A L B U D G E T S U B M I S S I O N

A N N E X

S E C T O R S S T R A T E G Y S T A T E M E N T S

JUNE 1980

FY 1982 ANNUAL BUDGET SUBMISSION

STRATEGY STATEMENTS ANNEX

TABLE OF CONTENTS

	PAGE
1. USAID/Indonesia Overall Strategy Statement.....	1
2. Agricultural and Rural Development Strategy Statement.....	7
3. Population Strategy Statement.....	17
4. Health and Nutrition Strategy Statement.....	27
5. Education and Human Resources Development Strategy Statement.....	35
6. Energy Sector Strategy Statement.....	42

USAID/Indonesia Overall Strategy Statement

The AID Approach.

The goal of the U.S. economic assistance program to Indonesia is a significant expansion by 1986 of the Indonesian Government's institutional capacity to use its own financial resources, primarily, and those of Multi-lateral Development Banks (MDBs) and other donors to meet the basic needs of the rural population, particularly in the areas of employment opportunities, food supply, health, family planning services, energy and training opportunities. All of the AID projects proposed for implementation during the next several years will be justified on the basis of their specific contribution to the attainment of this overall objective.

Major increases in the price for Indonesia's petroleum exports along with projected sales of Liquefied Natural Gas augur well for Indonesia's financial future. In recognition of Indonesia's improved financial position, AID projects are designed to develop and support institution building pilot activities with the potential of making significant contributions to overcoming development bottlenecks and serving as models for large-scale undertakings using Indonesian oil revenues and multilateral bank and other major donor resources. An example of this concept is embodied in the village family planning program which was supported on a pilot basis in selected villages on Java and Bali with AID grant funds beginning in 1974, and which is now fully operational throughout these islands and is largely financed by the Indonesian Government. The AID-assisted Village Family Planning project has made the single most important contribution to the success of the internationally recognized Indonesian Family Planning program which has reduced population growth rates to below 2.0 percent from a high of 2.6 percent only seven years ago; and made it possible for the GOI to expand the Family Planning services to the Outer Islands. Similarly, since the initial year of AID involvement in the Indonesian Government's small-scale Sederhana Irrigation program, the GOI's annual budgetary allocation in support of the program has grown threefold, in large part due to the improved Indonesian Sederhana Irrigation institutional capacity made possible through AID assistance.

The experimental, problem-solving orientation of the USAID program needs also to be viewed in terms of its contribution toward improving the efficiency of Indonesian organizations charged with responsibility for carrying out development activities. AID projects are designed to demonstrate the viability of new approaches to development problems and to reduce the waste and poor quality associated with many on-going

Indonesian efforts in which AID is not itself involved. Thus, the success of the AID program should be measured not only in terms of the qualitative and quantitative improvement to programs operating within already established funding ceilings but also in terms of "spill-over" or second generation benefits derived by expanded and new programs and the economy generally.

USAID assistance furnished through the Indonesian Government's Rural Works project has brought about a significant change in the way Indonesia views Rural Works. The Rural Works program was begun in 1974 as a social welfare program, the sole purpose of which was to provide jobs and cash income for the rural under/unemployed during agriculture slack seasons. Because of USAID provided technical assistance and reimbursement requirements, the GOI has gradually added as a major purpose the construction of rural infrastructure which will be economically beneficial in the long term. Although the subprojects are still implemented only in poor rural areas to assist rural under/unemployed, the Government has adopted subproject selection criteria developed by the USAID financed technical assistance team, that are designed to identify subprojects that will contribute to long term economic development as well.

During the FY 82-86 period AID projects will increasingly attempt to help the GOI and other donors, particularly the MDB's undertake major programs designed to develop and utilize alternative energy sources and to increase productive off-farm employment opportunities. Rural Electrification and selected Energy Planning and Training activities currently underway or being planned are expected to result in good opportunities for increased GOI and IBRD or ADB participation in these areas.

Over the next several years the USAID program will also increasingly emphasize technical assistance and training so that by 1983 the program, while smaller overall than in previous years, will be improved qualitatively. The 1983 program will consist entirely of technical assistance and training grants plus a relatively small loan for the import of oral contraceptives. A critical aspect in the success of this program transition will be the need for flexibility to respond to unexpected opportunities and to support Indonesia agencies which are interested in the basic human needs approach to development and which are willing to commit their own resources to finance major program activities, particularly construction. Grant funds by 1983 will be used to finance U.S. consultants, research and testing in support of Indonesian or MDB funded companion projects, as well as training programs. This combination of grants and Indonesian and/or MDB resources, which emphasizes extensive technical aid, should enable AID to continue its program building and institutional development role in Indonesia without substantially reduced impact.

A critical aspect of AID's ability to increase the

relevance of its contribution at a significantly decreased but qualitatively improved funding level is the maintenance of the relatively large USAID field staff. This staff will be needed to perform essential planning management and policy functions vis a vis AID itself and the GOI and, increasingly, to work together with other donors. USAID assistance, despite its modest level will continue to be considered by both the Indonesian Government and other donors as being important and uniquely capable of responding to certain critical Indonesian needs because of the large complement of language-trained, culturally-sensitive, and technically-competent Mission personnel.

Increasingly our projects will be geographically focused to achieve "critical mass" benefits in selected areas where provincial and lower level governmental institutions are also being strengthened. The eight provinces where the Provincial Development Program (PDP) is currently being implemented provide the framework for the future program concentration. The Province of East Timor will be a special area for U.S. development programs in health, rural works and agriculture. Beyond this, the basic concepts of the PDP will be extended to other provinces. This will help to marshal local institutional and manpower resources as well as popular support and thereby contribute to a more decentralized, participatory style of rural development.

We will intensify efforts to affect sector and sub-sector policies through demonstration of key management, economic and technological principles in the implementation of relevant technical assistance projects. The successful testing of new innovative approaches to some of the most stubborn constraints impeding the flow of real benefits to the rural poor are expected to affect Indonesian development policies at the National and lower levels.

Indonesia's Development Problems and Challenges

The poverty and problems of Indonesia, like the country itself, are immense and complex and appear to be susceptible to major, lasting improvement only over a relatively long period of time. A large and growing population; insufficient farm land for the work and food consumption needs of the population; inadequate social, physical and technological infrastructure; and insufficient cadres of skilled entrepreneurial and managerial talent, all function as causes and perpetrators of the country's widespread poverty.

It is estimated that in 1979 per capita income was \$370, with perhaps 80 million persons living at or below a poverty line (established by the GOI on a provincial basis) and some 50 million having a per capita income of less than \$90 a year.

Other indicators of the intensity and extensiveness of Indonesia's poverty situation include:

- an infant mortality rate estimated at between 100 and 150 per 1000;
- a life expectancy at birth of 48 years;
- a protein calorie malnutrition condition affecting one-third of all children under the age of five (about seven million children);
- an illiteracy rate of 35%; and
- an effective unemployment rate estimated at 30-40 percent

Because more than 80 per cent of the population is rural, poverty in Indonesia (despite pockets of extreme urban poverty) is predominantly a rural phenomenon. Additionally, it is concentrated most heavily on the Inner Islands (Java, Madura and Bali) where some two thirds of the population live on about seven per cent of the country's land. And like rural poverty almost everywhere, it is characterized by a low return on labor and a scarcity of fundamental productive inputs and services, e.g., improved seed and credit and marketing services, and of social services such as potable water and electricity.

While substantial progress has been made during the past 12 years or so in physical infrastructure development and establishment of the GOI's over-all and sectoral institutional capacity, Indonesia continues to be severely lacking in transport and communications facilities, power generation, irrigation structures, industrial capacity and private sector participation in the economy. These factors combined with the severe shortage of adequate numbers of trained manpower at all but the highest levels of Government and a general cultural attitude which tends to suppress entrepreneurial effort reflect the relatively limited Indonesian absorptive capacity for additional economic development programs.

On the other hand, during most of the 1970's financial resources were not an operative impediment to accelerated development. And, since late 1979, the financial situation has improved even further. As a consequence, the matters to which the GOI must give major attention now and for a least the next few years, center on how best to use these resources to promote development in ways that will improve the conditions of the country's poor. To a large extent this means generating off-farm employment and increasing agricultural productivity to increase both food availability and the income of the poor; increasing and strengthening government manpower and institutional capability (at central and lower levels) to plan and manage development programs; and expanding the goods and services available to the rural poor while controlling inflation, particularly for basic commodities consumed by them.

Since poverty in Indonesia is predominantly a rural

phenomenon and since two-thirds of all Indonesians earn the major part of their livelihood through agricultural pursuits (while producing only one-third of the GDP), any improvement in Indonesia's economy and in the living conditions of the rural poor will depend on improvements in the productivity of the agricultural sector. And since that sector, on both the Inner and Outer Islands, is limited in its capacity to absorb additional entrants into the labor market (estimated at 1.5 million annually), little can be done to improve agricultural/rural productivity and income without increasing wage earnings through economically and socially useful productive off-farm employment.

GOI Development Efforts

Indonesia emerged as an independent nation in 1949 in a weaker position than most other colonized countries. This was particularly the case in the areas of governmental and institutional structures and trained manpower capacities. Transport, communications and other aspects of required infrastructure were also weak.

The period of 1949 through 1966 was devoted largely to nation building and the pursuit of foreign adventures and ideological interests to the detriment of economic development. By the end of that period agriculture was stagnating and Indonesia had virtually no industry, the minimal infrastructure was deteriorating and the lack of capable economic stewardship had resulted in an environment which fostered economic decline rather than progress. Since then Indonesia has achieved substantial gains in the development of its economy and in improved economic conditions for virtually all segments of the population. Though the poorest 20% have apparently benefitted the least, conditions for the middle 60% of the population have improved significantly.

The first five-year plan (Repelita I), initiated in 1949, emphasized political and economic stabilization, rehabilitation of the deteriorated infrastructure, and laying of the groundwork for future development. Repelita II, inaugurated in 1975, took a new direction by placing emphasis on expansion of employment opportunities and income and more equitable distribution of income and development benefits.

The Repelita II target of creating jobs for virtually all of the new entrants into the labor force each year was missed by a substantial margin due to a variety of factors, including the bias in investment toward capital intensive and large scale industries, and the absence of actionable plans to create low capital cost, non-farm jobs. Moreover, Indonesia's almost total focus on rice production as a means for achieving food self-sufficiency contributed to the deterioration of the relative price and non-price incentives to produce other crops. About the middle of Repelita II the GOI began to recognize the

negative effects of an excessive reliance on rice and initiated programs to cover other crops. The GOI development budgets for Repelita II demonstrated not only a strong emphasis on growth generally, but also an expanding emphasis on agriculture, and basic human needs and transmigration.

Repelita III increases the emphasis on growth with equity and on meeting basic human needs objectives and places greater emphasis on off-farm employment and protecting/improving the natural environment. It also places added emphasis on food production (as opposed to the emphasis of earlier Plans on rice production alone). Recent dramatic increases in oil revenues have greatly increased the resources available to carry out Repelita III. The GOI has made it clear that Repelita III is being accelerated, not altered, by the current increases in petroleum revenues.

Other Donors

Bilateral and international economic development assistance to Indonesia is coordinated through the Inter-Governmental Group on Indonesia (IGGI). Total foreign assistance commitments through the IGGI have increased substantially from \$560 million in IFY 1970 to about \$2.0 billion "pledged" for IFY 1980/81, more than \$1.8 billion of which will be provided by other (non-US) donors. The largest and most important of these, and their estimated IFY 80/81 contributions, are: IBRD, \$800 million; ADB, \$250 million; Japan, \$300 million; Canada, \$85 million; Holland, \$75 million; France, \$70 million; Germany, \$65 million; and Australia \$45 million. The developmental importance of the assistance provided by these donors is undeniable; but because of the lack of available qualified field staffs they have not been particularly successful in designing and financing New Directions type development projects. Further cooperation between these donors, particularly the MDB's, the Japanese and USAID should help to correct this situation. Thus, USAID will increasingly work to identify and test new, rural poor oriented projects which subsequently can be undertaken on a larger scale by the GOI with assistance as needed by other donors.

AGRICULTURAL AND RURAL DEVELOPMENT STRATEGY STATEMENT

The Situation

Problems and Challenges

Notwithstanding the decline in recent years of the relative importance of agriculture it remains the mainstay of the Indonesian economy, accounting for about one third of GDP and about 60 per cent of employment. Within the agriculture sector, the food crops subsector is the most important, accounting for about 60 per cent of value added in agriculture.

Under Repelita I and Repelita II the Government's agricultural strategy placed highest priority on the increase of rice production, with self-sufficiency as the goal. The primary means for achieving this goal was the rehabilitation of irrigation facilities and the supplying to farmers of high-yielding varieties (HYV) together with essential complementary inputs and credit through rice production programs (e.g. BIMAS and INMAS). Due largely to these efforts, rice production increased at a rate of 4.5 per cent annually during Repelita I and 3.8 per cent annually during Repelita II. Principally because of the GOI's preoccupation with rice during the period of Repelita II the production of other non-rice food staples (e.g. corn, cassava, and soybeans) grew only slowly at 1.6% per annum even though approximately fifty per cent of the population's total calorie intake is derived from these secondary sources.

The growth in food-crop production overall has lagged behind rising demand generated by population and income growth; the resultant gap has necessitated annual rice imports of increasing magnitude. Rice imports reached 2.6 million tons in 1977/1978 despite the very impressive production gains made during the first two plan periods. In addition, wheat imports reached 1.2 million tons in IFY 1978/79. Consequently, Indonesia is in the very difficult position of having to import major quantities of basic food stuffs to feed its growing population. Grain imports during 1977-78 accounted for 20% of the total grain available to the Indonesian people. The IBRD has recently estimated that by 1985 Indonesia will experience an energy food gap amounting to the equivalent of about 7 million tons of rice. The consequences of rice and non-rice deficits of the magnitude projected by the IBRD -- apart from the obvious burden on the balance of payments -- include a serious lack of food security as Indonesia must depend on the small international rice market for up to 20% of her annual food grain requirements.

Outside of, but closely linked to, the problems of increasing agricultural production to meet basic food requirements has been the need to repair and expand Indonesia's rural infrastructure which suffered from years of neglect during the Sukarno era and which still lags behind ASEAN levels in virtually every respect. During Repelita I, the GOI began to address this problem with the rehabilitation of national highways, ports, irrigation systems and other rural infrastructure. With Repelita II the Government mounted a wide variety of smaller-scale, rural infrastructure programs. Most important among these initiatives was the series of "INPRES" Programs which channel national resources to local levels of government (much like revenue-sharing in the U.S.) for the planning and implementation of small-scale, primarily infrastructure activities. There are now eight basic Inpres Programs directed to the provincial, district and village levels of government for the construction of basic economic infrastructure. Similar rural infrastructure programs, also initiated during Repelita II, include the Rural Works and Sederhana Irrigation Programs, both of which USAID supports.

Regional differences in Indonesia have had a considerable influence on rural and agriculture development. Since independence Indonesia has suffered from major regional secessionist movements until as late as the mid 1960's. This experience continues to influence national-level thought processes and policies, such as the need for "balanced" geographical growth and the degree of decentralization which can be permitted while still maintaining national stability and control. Also, population is unevenly distributed with the majority of the population concentrated on the islands of Java, Bali, Lombok and Madura. On these Inner Islands one finds: very high population densities (610 persons/km² compared with 69 persons/km² nationwide and with 510 persons/km² in Bangladesh) making these islands some of the most crowded rural areas in the world; extremely small farm sizes (.4 hectares on Java) and a high degree of landlessness or near landlessness (60% of rural households); a severe and mounting deterioration of the physical environment as growing rural populations farm steeper and more marginal lands; a relatively well developed physical and institutional rural infrastructure when compared with the rest of Indonesia but not when compared with other ASEAN countries; and an increasingly important need to generate productive off-farm employment opportunities in rural areas.

The Outer Islands, on the other hand, are generally thinly populated (e.g. the population densities of Sumatra, Sulawesi, Kalimantan are estimated respectively at only 43, 41 and 10 persons/km²). Due to both the lack of manpower as well as more

difficult soils and other agricultural conditions, more than 18 million hectares of agricultural lands on the outer islands are not cultivated. The existence of this untapped agricultural potential is particularly significant since Indonesia has not been able to meet its staple food needs and remains the world's largest importer of rice. Infrastructure on these outer islands lags behind that on Java. There are, for example, .35 km of roads per square kilometer of land on Java but only .05 km of roads per square kilometer on the outer islands. The underdeveloped state of outer island infrastructure contributes not only to the physical isolation but also to the psychological isolation of outer island inhabitants. Also, as one would expect, the institutional capability to provide government services is greatly diminished in these locations. Partly to overcome these labor shortages and stimulate regional development as well as to alleviate localized overcrowding on Java, Bali, Lombok and Madura, the GOI has mounted a substantial transmigration program. However, due to a combination of institutional, technical and policy constraints, the Government was able to move only approximately 50,000 persons annually by the end of Repelita II, which is considerably short of the rate of resettlement necessary to achieve any of the program's objectives.

The Government began to develop operational structures and programs to deal with regional differences with the commencement of Repelita II. Among these have been the creation of provincial planning boards; the execution of a number of regional planning studies; the expansion of the Inpres Programs (to the point where now over 20% of the national development budget is allocated to these programs) which place primary responsibility on local governments for development of local infrastructure and the establishment of semi-annual regional conferences for an exchange of views between local officials and national counterparts. However, the general shortage of skilled Indonesian administrators, particularly outside of the national capital and at the lower administrative levels, has retarded the pace of rural and regional development throughout the initial two planning periods.

Employment, equity and poverty issues also plague the rural landscape. While there have been improvements in the absolute levels of consumption and incomes for all groups in society during the second plan period, there has also been a marked increase in relative income inequality, particularly between urban and rural groups and between rural laborers and established property owners. Consequently, despite the absolute gains made in consumption and income over the past decade, more than 50 million Indonesians still exist on less than twenty-five U.S. cents a day.

That the real wage level has not fallen during the 1970s (though there has been no discernible upward movement) suggests that the Indonesian economy has been able to match the growth in the labor force (4.7% per year) with employment opportunities. Despite the deceleration in the rate of population growth which has occurred during the 1970s it will be some years before a corresponding decline can be expected in the growth of the labor force which, in fact, is projected to increase by approximately 1.5 million annually over the next five years.

Given this expected annual growth in the labor force, Indonesia faces the central problem of providing productive and remunerative employment for the growing numbers of workers. While the experience of the last few years is encouraging in this regard, that experience cannot simply be translated into a sanguine view of the future for a number of reasons. Among these reasons is the expectation that the relative proportion of the workforce employed in the agriculture sector will continue to decline as the rate of expansion of irrigation in the inner islands declines and as the Green Revolution with its labor displacing techniques continues to spread. Also the ability of the agricultural sector to create additional employment will decrease as the Outer Islands account for a greater share of the nation's output than they do at present since less labor-intensive farming techniques are used in the outer islands.

GOI Plans and Priorities

The most noteworthy aspect of the agricultural strategy under Repelita III is the transition from the prior goal of rice self-sufficiency to food self-sufficiency. This important goal redefinition reflects the GOI's recognition of underlying constraints to continued rapid increases in rice production as well as recognition of the substantial scope for increasing production of non-rice foodcrops. Food self-sufficiency is to be achieved through greater attention to production and consumption of non-rice foodcrops while efforts in rice production are maintained. Food production increases will be achieved through both intensification and extensification efforts, the former being promoted through strengthening and expansion of the BIMAS and INMAS programs, not only for rice, as in the past, but also for secondary foodcrops. The core of the programs for extensification will be an expansion of cultivated areas through water resources development with over two million hectares targeted for such assistance over the third five-year development period. Both intensification and extensification will depend heavily on the application of new research findings.

Further expansion of rural infrastructure will also continue, much of which will support the agricultural intensification and extensification effort. The Inpres Programs are expected to remain the centerpiece of this strategy with increasing resources provided to local governments for the execution of these activities. The Rural Works and Sederhana Irrigation programs will also assume major roles in this endeavor. As noted above, irrigation will be a major thrust of Repelita III to increase agricultural production, with the GOI moving into tertiary canal development and the introduction of improved water management practices at the system and farm level.

Regional development has assumed added importance under Repelita III. GOI policy makers have recognized that local potentials and national equity objectives cannot be realized without significant involvement in the development process by local government. This recognition is evidenced by the continued expansion of the Inpres Programs; the creation of planning boards down to the district level; the implementation of a larger number of area development schemes of which USAID is at the forefront; and the general call for local government to have a stronger voice in executing national sectoral programs. Transmigration objectives have also expanded with the target being more than a tenfold increase in the annual rate of resettlement by the end of the plan period.

Repelita III places great importance on generating productive non-agricultural employment alternatives for the rural population even though the majority of rural workers may remain dependent on agriculture as their principal source of income. As in Repelita I and II strong emphasis will be placed on public works employment generation through such activities as the INPRES programs and the Rural Works program. More decisive in the long term, however, will be the range of industrialization policies emphasized in Repelita III, including expansion of programs for faster rural industrialization. Significant in this respect will be planned policy and institutional reforms, including simplification of investment approval procedures, financial assistance through the banking system and technical assistance in marketing and management to rural entrepreneurs.

In a sense, the gains in agricultural production and rural development already made have been "easy"; for example, the rehabilitation and improvement of major physical infrastructure, the distribution of HYVs of seed and fertilizers, and the achievement of economic stabilization were achieved despite a generally weak but over-centralized government administration.

Further development, however, particularly along lines of the growth with equity strategy laid out in Repelita III will require a more sophisticated institutional system as well as a higher degree of rural participation by recipients. For example, now that expanded physical irrigation works are in place, the more difficult task of organizing farmers to effectively use and maintain water resource infrastructure must be faced. Further intensification of rice culture and the promotion of secondary food crop production will require a more skilled extension service and more efficient administrative operations. Further promotion of local governments as agencies for planning and executing programs of rural development will require major upgrading of skills and the continued development of procedures designed to decentralize the development process.

Donor Response to Indonesia's Development Needs

The efforts of the GOI to achieve its development objectives in the agricultural/rural sector receive continuing support from the donor community. A major part of the \$2.0 billion pledged by the IGGI donor community for IFY 1980/81 is for a wide range of agricultural/rural development and related projects.

The financing provided by the IBRD and the ADB is focused on large scale infrastructure, in particular irrigation and flood control, primary and secondary road construction, and power generation and transmission. In addition the IBRD has in recent years extended credits in support of medium and small scale industry, the creation of an integrated agricultural extension service and transmigration. AID's existing and planned project portfolio is complementary to these programs.

The bilateral donors generally undertake more limited programs that reflect their particular interests and resource availabilities, in some cases collaborating on projects with other bilateral donors or the MDB s. For example, the Government of the Netherlands is associated with USAID in the implementation of the Rural Works Project. USAID is exploring possibilities, with both the GOI and the Netherlands Government, for future technical cooperation in the development of the North Luwu Plain in South Sulawesi. On Java USAID is coordinating its inputs into the Citanduy River Basin with those of the Asian Development Bank.

USAID's unique characteristic among donors is its focus on helping the rural poor and on improving the institutional capability of GOI and private sector organizations, particularly at

the local level, to discharge more efficiently their development responsibilities. USAID's pilot effort to promote rural development through Provincial and district level government now serves as the model for similar IBRD, Dutch and Australian supported local government projects.

USAID Strategy and Program

The USAID strategy for assistance to the agricultural/rural development sector is in a sense entering its "second generation", the "first generation" coinciding with Repelitas I and II. In the agricultural sector during the first five-year development period USAID assistance supported training of agricultural scientists and agricultural research both of which strengthened the Government's institutional capability in rice research and contributed to the large gains made in rice production. During Repelita II, this assistance was broadened to include brackish water fisheries and agricultural development planning and administration within the Ministry of Agriculture.

The second five-year development plan commenced in 1975 two years after Congress passed the "New Directions" legislation which, in Section 103, directed AID to support the development of greater food and agricultural production for the benefit of the world's rural poor. During this period, USAID's rural development program consisted of a series of projects of high priority to the Government of Indonesia which addressed key issues and problems. The USAID program concentrated on increasing agricultural productivity to meet basic food needs; developing rural infrastructure to support agricultural production; experimenting with replicable models for inner and outer island rural development; promoting employment in rural areas; and strengthening and more fully utilizing local government in the rural development process.

Given the modest financial resources available to USAID/Indonesia, the Mission limited its involvement in the agricultural/rural development sector to projects designed to strengthen the institutional capability of selected national and local government institutions or to projects which promised to address important constraints to agriculture/rural development in an innovative manner. Indeed, each of USAID's rural development projects during this period, e.g. in agricultural research and planning, rural electrification, small scale irrigation, integrated area development, rural works and provincial and lower level institutional development, were "firsts" in Indonesia. Almost all are still in process of implementation in

their original form or as follow-on "second-generation" activities. The experience acquired in the implementation of this "first generation" of New Directions projects has helped to establish the direction our agricultural/rural development assistance program must take during the next few years within the context of AID funding constraints and the availability of other donor/GOI interest in rural development and relatively abundant resources.

Foremost among these lines of program direction is the need to complete successfully those efforts currently underway to assure that the manpower/institutional, substantive and process gains planned are achieved.

Beyond this, USAID's "second generation" of agricultural and rural development projects in Indonesia will build directly on this initial experience with "New Directions" projects initiated during REPELITA II, but includes also several new project initiatives in areas of priority to the GOI as articulated in REPELITA III.

In agriculture USAID will assist the GOI in shifting its attention and effort from rice self-sufficiency to food self-sufficiency. We will work toward this end through a secondary food crops development project and through continued efforts to upgrade agricultural training and research institutions, especially in the Outer Islands. We will also explore possibilities for mounting a project to reduce the extensive pre- and post-harvest losses which result in food crops from inadequate pest control. USAID support for the development of small scale irrigated agriculture initiated under the Sederhana I and II Project loans will be continued through a new project proposed for FY 1982. The focus of this and subsequent USAID assistance in this sub-sector will shift from system construction to development of the institutional framework, including water users organizations, required to increase and then sustain agricultural productivity within the thousands of systems developed under Sederhana I and II.

The ongoing Rural Works II projects will place increasing emphasis on the creation of durable, labor intensive rural infrastructure, rather than employment generation only as in the past. The Rural Electrification II Project proposed for FY 1981 will build on the experience of the pilot Rural Electrification I Project and will strive to develop a nationwide, self-sustaining program. This will involve provision of affordable electricity for personal home and a wide range of developmental uses outside the home. And most importantly it will promote the uses of

electricity for activities that will both generate employment opportunities and goods and services needed to improve the quality of life among the rural poor.

A.I.D. will continue to assist in the development of appropriate institutional models and development schemes for promoting Inner and Outer island regional development. Phase II of the GOI's Citanduy River Basin Development program will be assisted, starting in late FY 1980, by a second phase Mission Citanduy project. This new project will concentrate on the basin-wide extension of the successful upland agriculture and erosion-control pilot activity developed under Phase I of the project as well as on the continued institutionalization of an Inner Islands river basin development program. Given the importance of erosion control especially on the Inner Islands USAID is prepared to assist the GOI, through a Soil Conservation project, to study the current situation in detail and perhaps to make needed institutional changes and develop ways of addressing the country's wide-spread soil erosion and deforestation problems in specific river basins.

Under the ongoing Luwu Area and Transmigration Development project, USAID will provide additional technical assistance to develop a comprehensive development plan for the North Luwu Plain. This plan along with the extensive experience acquired during the initial phase of the project should result in the articulation of a realistic and replicable model for advancing Outer Island regional development in coming years. In face of the lower than previously planned FY 1983 assistance level and its exclusive technical assistance character, the future role A.I.D. can play in the design and execution of the Phase II comprehensive development program for the North Luwu Plain is uncertain. We will try, in the absence of loan funds, to develop a complementary arrangement to provide the technical assistance required to increase the technical and planning abilities of the various institutions involved in the region's development as well as provide technical assistance to conduct specific feasibility studies for component projects of the comprehensive plan that would then be financed by other donors or the GOI directly.

In recognition of the growing need to develop productive off-farm employment opportunities for the growing labor force USAID plans to initiate in FY 1982 an area specific Off-Farm Employment project. This proposed project would develop in one inner island province a fully integrated and locally administered package of technical, financial, managerial and marketing assistance to increase the productivity and, in turn, the income and employment generating capacity of selected cottage and small scale industries. The project would also finance a number of important

studies and seminars which would address some of the policy issues that have impeded the industrialization process generally in Indonesia but which have also significantly retarded the pace of rural industrialization through cottage and small scale industry. We believe this broad area of off-farm employment will continue to need very heavy attention and resources during the coming years. The ways in which AID can link-up with other donors and perform a useful role in this critical area remain to be determined.

Local government will be further upgraded and its key role in rural development further enhanced as a result of USAID's assistance in coming years. The Provincial Area Development Program (PDP) III, proposed for FY 1982, would begin the process of national expansion from eight Provinces under PDP I and II to include all rural provinces and kabupaten over a nine-year period, making PDP one of the principal GOI programs for translating national revenues into concrete programs which directly assist poorer rural groups increase their income. The resources required for this undertaking are very large. Indications are that the GOI appreciates the need for and dimensions of this requirement and is prepared to satisfy it. Indications are that the GOI also appreciates the need for high level and broad government support for this undertaking and that it is prepared to provide this support clearly and effectively.

Under a separate but closely related activity we will help the GOI implement a training strategy developed with USAID assistance over Repelita II to upgrade all provincial and kabupaten officials in planning and management skills. Aside from these projects which directly assist local government, USAID will utilize its other rural development projects, to increase the cadre of technical and managerial talent needed to expand the role of local government in the process of rural development.

In summary, USAID is engaged in a collaborative, long-term effort with the Government of Indonesia to meet a well-defined set of problems impeding its basic agricultural and rural development efforts. USAID's program focuses on innovative approaches and on removing institutional barriers to agriculture and rural development while relying on the Government and other donors, to finance the required replication.

POPULATION STRATEGY STATEMENT

The Setting - Problems and Challenges

The Government of Indonesia sees its population problems resulting from three factors:

- The absolute size of the population. Indonesia is the world's fifth most populous country with an estimated population of 142 million persons. The population increased by 25 million persons during the past decade. This increase alone is larger than the total populations of 101 of 119 developing countries. The population of Indonesia would be about 200 million persons by the year 2000, if the recent 2% average annual growth rate continues throughout the intervening years. But the growth rate is declining and if present trends continue, the total population by the year 2000 may be as low as 189 million.
- The rate of population growth. In 1970, the annual population growth rate of 2.7% meant the population of Indonesian would double in just 26 years. The investment required to meet the demands for jobs, schools, housing, and other social services created by such rapid growth would strain or exceed the capacity of most countries. By 1979, the annual population growth rate had dramatically declined to 1.9% as the family planning program expanded rapidly to meet the ready demand. But at 1.9% annual growth, population would still double every 36 years, providing little relief from the steady demands for social-economic services. The GOI counts on a population growth rate of 1.3% to 1.1% by the year 1990, which would extend the population doubling time to 53-63 years. Even this lower growth rate is probably unacceptable over the long term, but it will alleviate some of the development burdens created by more rapid population growth.
- The gross maldistribution of the population. Nearly two-thirds of the people of Indonesia are crowded into the islands of Java-Madura-Bali which have less than seven percent of the land area. Population density on Java is 1,725 persons per square mile, making it amongst the most densely populated areas in the world. At the other extreme, population density in the large undeveloped province of West Irian is

only six persons per square mile. Kalimantan, the third largest island in the world, contains 27% of the land area of Indonesia, yet has only four percent of the population.

The impact of the large population, its rapid growth rate and uneven distribution are multi-dimensional, directly affecting every other important development sector. Population size, growth and distribution are directly related to problems of unemployment, food shortages, poor health, illiteracy, pollution, overcrowded cities, landless or land-short peasantry, depletion of mineral and water resources, energy shortages, erosion and deforestation. These are all conditions which have a direct and serious impact on economic development, particularly on poor people.

The Government promotes the concept of the small, healthy and prosperous family, within the context of overall economic development and improved social equity. GOI policy aims to slow the rate of population growth through its family planning program, and, thereby, help to improve socio-economic conditions for all citizens.

The specific family planning goal of the OGI is to reduce the crude birth rate to 23 births per 1000 population by the year 1990 from a rate of 46 births per 1000 in 1971. Achieving this 50% reduction of fertility during a twenty year period (1971 to 1990) would represent one of the most remarkable fertility reductions ever recorded anywhere. By early 1980 the birth rate was 33 per 1000, which means that the GOI has achieved more than half of the proposed fertility decline during the first decade of the national family planning program.

To achieve the 1990 goal, the Government of Indonesia will have to extend its family planning service delivery network throughout the country, improve existing delivery services and broaden the range of available birth control services.

GOI Efforts and Progress

The Indonesia population strategy continues to be an evolving one. Family Planning activities were pioneered by the Indonesia Planned Parenthood Association in the late 1950's. President Suharto signed the World Leaders Declaration on Population in 1969. In 1970, a National Family Planning Coordinating Board

(BKKBN) was created as an independent agency, reporting directly to the President and responsible for coordinating the family planning program. BKKBN has primary responsibility for dealing with family size. Other ministries are responsible for helping to assure healthy and prosperous families. The BKKBN is a coordinating board which relies on many governmental ministries and private organizations for program implementation.

During the Second Five Year Plan (1974-1978), the Government announced the goal of reducing the 1971 birth rate of 46 births per 1000 population by 50% by the year 2000. By 1979, in view of fertility reductions already achieved, family planning organizational capabilities, and other factors the Government changed the goal. It now aims to achieve the 50% reduction in the birth rate by the year 1990. It is confident that a large unmet demand for family planning services exists. And it is confident that BKKBN and other implementing agencies can expand their family planning services to meet that demand.

The Government has ambitious plans to correct some of the imbalance in population distribution through a major transmigration program. According to the Third Five Year Plan (1979-1984), one million families will be moved from Java-Madura-Bali to new settlements on less-densely populated islands. Even this immense undertaking, however, involving extensive infrastructure development, will have very limited impact on population distribution. This emphasizes the importance of pursuing Family Planning programs intensively with populations in place.

The strategy for national family planning service delivery programs also has been an evolving one, with two distinct phases to the program. During the first phase, from 1970-1974, the program was clinic based. Family planning services were offered solely in health clinics, mostly owned and operated by the Ministry of Health. The program focused on the most densely populated islands of Java-Bali, which include 64% of all married couples of reproductive age. The program gained wide support for family planning at all levels of public and private life. It was a vivid demonstration of the latent desire of couples to control their fertility and their willingness to do so when provided with information and contraceptives. Family planning current users grew from 181,000 persons in 1970 to 1.5 million persons in 1974.

By 1974, there was wide recognition that the successful clinic-based delivery system could not expand fast enough to reach the millions of couples in the villages. Thus, the BKKBN

entered the second phase of its service delivery program. Family planning services were expanded from the clinics to the villages of Java-Madura-Bali, first to facilitate resupply by establishing village and hamlet contraceptive resupply points, and later to distribute the first cycle of oral contraceptives directly to new acceptors in their homes. This was the beginning of the village Family Planning program. It aimed to bring family planning information and contraceptives to the village level and to make the villagers themselves directly responsible for the family planning program.

Also in 1974, the Family Planning program expanded to include ten large provinces outside Java-Madura-Bali; they comprised 26% of the married couples of reproductive age. In these provinces family planning services were first offered in health clinics. By 1977, the village family planning system was introduced in these ten provinces. Finally, in mid 1979, clinic-based family planning services were initiated in the remaining eleven provinces which contain 10% of the married couples of reproductive age. By early 1980, there were 6.5 million current contraceptive users in BKKBN programs.

It is important to note that BKKBN is a coordinating board which relies on many governmental and private organizations for program implementation. On a small scale, BKKBN is directly involved in projects to piggy-back some health, nutrition, income-generating, and cooperative activities onto the existing village family planning delivery network.

Throughout the Third Five Year Plan (ending March 1984), the BKKBN's family planning strategy will continue to recruit new acceptors by extending services into more remote areas; increase contraceptive use by providing resupplies, motivation, and support to individual family planning users; institutionalize family planning in the villages by encouraging local residents to assume responsibility for village resupply depots and maintaining acceptor groups; expand the use of additional contraceptive technologies as rapidly as politically, socially, and logistically feasible; and deliver other developmental services, such as health, nutrition, and income-generating projects, to the villagers via the village family planning system.

Utilizing the family planning delivery system to promote and deliver other socio-economic services represents a major new policy direction for the BKKBN. The concept and practice of family planning has spread quickly in Indonesia. Relatively speaking, other development activities have lagged. The

promise of a healthier, more prosperous family has not yet been met. BKKBN officials worry that acceptor couples will become disenchanted with the Family Planning program if other socio-economic benefits are not more forthcoming. Thus the very success of the Family Planning program in providing a highly desired service to the villagers may become a problem because other ministries have not reached down to the villages with their services. Regardless of the theoretical arguments for and against using one service delivery system to piggy-back other services, BKKBN is determined to do so.

To fill this gap in village services, the BKKBN is seeking to integrate family planning with health and nutrition activities; income generating schemes; cooperatives; education programs throughout the school system and in non-formal education programs; rural development projects; and agricultural projects. Initially, only villages with a well-established village family planning service structure will be included in the expanded program.

GOI financial support for the Family Planning program during the past decade has increased steadily in amount and as a percentage of all program funds. The following table (in millions of US dollars and percent of total Family Planning budget) illustrates the changes in Government and donor financial support during the 1970's:

	<u>1970</u>	<u>1975</u>	<u>1980</u>
GOI	1.3 (28%)	12.5 (49%)	49.3 (64%)
Donors	3.3 (72%)	13.0 (51%)	27.5 (36%)

Costs of the Family Planning program will continue to increase in the decade ahead, as they have in the past decade. The cost of implementation, administration, and supervision will rise as the program expands to the more remote areas, to reach the hard core of non-acceptors, or to maintain higher levels of current users. The Government of Indonesia expects to increase its budget for family planning each year. However, there will be a continuing need for increased donor support throughout the 1980's.

Program results over the past decade are impressive. During the decade of the 1970's:

- the birth rate dropped from 46 to 33 births per 1000 population;
- the population growth rate fell from 2.7% to 1.9% annually;
- current users of contraceptives within BKKBN programs increased from 181,000 in 1970 to 6.5 million by March 1980;
- prevalence of contraceptive use grew from 1% to 36.7% (30.7% in BKKBN programs and 6% in the commercial sector);
- family planning service outlets soared from a few hundred clinics in 1970 to 5,787 hospitals, clinics and health centers; 32,084 village family planning depots, and 75,250 sub-village depots and family planning acceptor groups in 1980;
- distribution of oral contraceptives grew from less than one million monthly cycles in 1970 to over 44 million cycles in 1979;
- tens of thousands of persons were trained to assist in the family planning program, including physicians, nurses, mid-wives, field workers, village volunteer distributors, educators, and others;
- contraceptive prevalence rates increased to 57% of the married couples of reproductive age in East Java, a province of nearly 30 million people who experienced only limited socio-economic gains during the decade;
- reductions in total fertility rates of 15-21% in Java-Bali by 1976 were reported in the national fertility survey (1976);
- political support for the Family Planning program from government leaders at all levels remains firm;
- oral contraceptives were the overwhelming choice (63.5%) of contraceptive users in 1980, followed by IUD (26.9%), and condoms, injections and other methods (9.6%);
- reporting and feedback systems are in place and are utilized for managerial, supervisory, and planning

purposes.

Donor Assistance

Three organizations (USAID, UNFPA, and World Bank) provide most of the donor resources to the BKKBN. Most of the private population donor organizations are also active in Indonesia, working with the BKKBN or with private Indonesian organizations.

Each donor organization has staked out a special area of assistance; overlapping of assistance is largely on the margin. USAID has the largest population assistance program, concentrating on providing contraceptives and other service related commodities, overseas training, and local cost support for provincial village planning programs. UNFPA supports extension of family planning services to the most remote island provinces, urban and hospital family planning services, population/family planning communications, 1980 census, population research and training at several institutions, and in the future, raw materials for local oral contraceptive production. The World Bank will continue to finance construction of provincial headquarters, warehouses and training buildings, two and four wheel vehicles, and population education programs. Specialized assistance from private donor groups is available for demographic research and analysis; population policy research; biomedical and operations research; training of physicians, nurses, other health personnel, and others involved in extension of population-family planning programs; information and education activities; and family planning service delivery activities with government agencies, the organized business sector and private organizations.

Coordination of all population-family planning assistance is the responsibility of the BKKBN. Because the Indonesian organizations involved in population-family planning activities are limited in number, their leaders meet frequently on an informal basis. Similarly, coordination among donors, among Indonesian organizations, and between donors and local organizations is handled on an informal, frequent basis.

Substantial donor inputs will be required during most of the 1980's if the Government is to come close to achieving its goal of reducing the birth rate to 23 births per 1000 population by the year 1990. AID's Asia Bureau Regional Population Strategy Paper concluded that significant donor assistance will be required for Indonesia throughout the 1980's. USAID concurs

in that judgment and expects to continue as the largest donor.

Proposed USAID Assistance

During the 1980's USAID expects to:

- continue as the main supplier of oral contraceptives; This is an area in which AID has a comparative advantage over other donors in terms of procurement, price and delivery.
- continue as the main source of training funds; Many of the key BKKBN and other family planning-population officials received advanced academic training under AID auspices. Indonesian organizations are still handicapped by the lack of well-trained mid-level personnel. While BKKBN is better off than many other organizations, it, too, needs more trained people, especially in the provinces outside Java-Madura-Bali. USAID will continue sending selected individuals for training in the United States, but will focus primarily on persons who will return to training institutions in Indonesia, such as the Faculty of Public Health, Demographic Institute, population institutes at the universities, and on some BKKBN staff members. The aim of the 1980's will be to up-grade and expand in-country training capabilities.
- continue local cost financing for innovative village family planning activities, focusing especially on the low acceptor areas of Java and on the ten large outer island provinces; Seven provinces, including West, Central, and East Java, contain two-thirds of all the non-acceptor married women of reproductive age. While it is important to make family planning services freely available to all couples in Indonesia, future achievements in the few most populous provinces will have the greatest impact on national fertility rates.
- support an expansion of voluntary sterilization services through whichever mechanism is most acceptable to the Government of Indonesia; Voluntary sterilization services are increasing yearly, but are still low compared to other countries in the region. Although Government leaders have raised with us some concerns of potential political sensitivities about voluntary sterilization, steadily increasing numbers of Indonesian are requesting this service.
- promote the integration of other development activities with family planning, so long as the Family Planning program

does not suffer, USAID's new Village Family Planning/ Mother and Child Welfare project will assist the GOI to add some limited health, nutrition and income-generating activities in areas with high family planning acceptor rates.

No system is perfect; the BKKBN Family Planning program is no exception. The problem areas cited below must be viewed in the context of an outstanding program. From USAID's point of view, these problem areas must be corrected if the success of the Family Planning program is to be continued. The emphasis of USAID assistance in the 1980's will be on efforts to help the GOI address and resolve these problems:

- the lack of paid family planning field workers in the outer island provinces, coupled with a general lack of infrastructure, may reduce the potential for reaching projected family planning acceptor targets. The BKKBN has added a full-time field person at each sub-district (kecamatan) level, but has been slow in providing support for transportation and per diem.
- there is an increasingly bureaucratic structure at BKKBN, partly as a result of reorganization and partly as a result of program expansion. Decision-making takes longer, and more people and offices are involved.
- BKKBN is adding many development projects to the existing village family planning structure; what effect this may have on family planning performance is not evident.
- urban family planning services programs are not progressing as fast as rural programs, in part because of initial BKKBN rural priorities and in part because traditional village self-help approaches are not yet developed in the cities.
- voluntary sterilization services are still not included within the official BKKBN Family Planning program, although the Government gives strong support to it. Friction continues between the private voluntary sterilization association (PUSSI) and the BKKBN about strategy for expansion of voluntary sterilization services. Most likely voluntary sterilization will become a part of health services provided by the Ministry of Health.

- in-country training capability still needs improvement, both in quality and quantity of output.
- although the concept of family planning appears to be widely accepted by a large majority of the Indonesian population, it is not yet clear that the concept of the small (two-child) family has become the accepted norm for most families. However, the trend is clearly for smaller families.

HEALTH & NUTRITION STRATEGY STATEMENT

Current Situation/Problems.

The health of the vast majority of the population of Indonesia remains poor and precarious despite considerable progress in recent years in the health sector. Health statistics for Indonesia are rudimentary and inadequate but indicate the magnitude of the problem.

A comparison of infant mortality rates and life expectancy for selected Asian countries indicates infant mortality in Indonesia remains among the highest in Southeast Asia and life expectancy among the lowest:

	Infant Mortality Rates (1979)	Life Expectancy (1979)
Burma	140	50
Indonesia	137	48
Philippines	80	58
Thailand	89	61
Korea	47	65
Malaysia	41	68
Singapore	12	71
Taiwan	25	70

The communicable disease burden remains tragically heavy, especially among young children as indicated by estimates of the yearly toll on young children from preventable disease:

<u>Preventable Childhood Disease</u>	<u>Estimated Cases</u>	<u>Estimated Deaths</u>
Pertussis (whooping cough)	4,240,000	258,000
Tetanus	168,000	74,000
Diphtheria	28,000	5,000
Tuberculosis	95,000	21,000

The Ministry of Health has been increasing the quantity and quality of its public health oriented activities in recent years, but an enormous gap exists between central health planning and policies and the need for widespread village based programs of immunizations, nutrition, and primary health care.

Source: Population Reference Bureau,
"World's Children Data Sheet", 1979.

Given the reality that the public sector resources allocated to the Department of Health are extremely small compared to the basic health/nutrition needs of Indonesia's population of 142 million, some policy choices have to be made by the GOI directed toward implementing broadbased, low cost but high quality, high impact programs.

The Ministry of Health is presently examining the policy issues and implications of primary care delivery through the public sector. Specific concerns center on: formulation of a primary care policy appropriate to the Indonesian context; achievement of a balance between hospital services, outpatient clinical services and purely preventive services; determination of which services can be integrated with others and which are practical only as single problem programs; and means for achieving greater public participation in utilization of the services offered.

Enormous population and geographical diversity within Indonesia makes a unified approach to the health/nutrition sector extremely difficult. In Java and Bali population density is high yet the population is scattered in thousand of villages and towns putting great strains on the service delivery system. In the outer islands, internal and external communications are severely limited, logistical support from Java is severely hampered, distances are often great and transportation difficult and irregular. Ethnic, cultural and linguistic diversities are profound, adding further obstacles to the employment of a simple, uniform, centrally planned and managed health/nutrition system.

Food production in Indonesia today is insufficient for present consumption needs and is expected to continue to be a major constraint to providing proper nutrition to a population continuing to grow at even the substantially reduced annual levels currently planned. Market forces alone, even when imported foods are included, cannot guarantee proper distribution of nutrients to all sectors of the population. Traditional food beliefs and low incomes combine with the inherent difficulties of providing relevant and practical nutrition education to contribute to the high prevalence of protein, calorie, vitamin and mineral malnutrition among all age groups.

GOI Development Efforts in the Health Sector.

The Third Five Year Plan (Repelita III) sets, among others, the following objectives:

- provision of adequately trained personnel to staff the health facilities network;
- expansion of preventive and curative health services;
- increased physical access to health care;
- motivation of the population to participate in community health/nutrition activities;
- improvement and expansion of the delivery of health services to low-income populations.

The Ministry of Health is committed to the goals established by Repelita III as indicated by the Ministry's current program and policy directions.

Planning and Policy: The MOH recognizes that quantitative and qualitative manpower development issues are of critical importance as the health system's components expand and change character. A major inhouse analytical and planning process to develop a primary health care strategy for the next two decades (Health for all by the year 2000) has been undertaken by the MOH.

Nutrition: Important expressions of interest in nutrition issues have appeared within the past two years, manifested by: the placement of a vigorous new Director of Nutrition within the Community Health Services Directorate of the MOH; a concomitant reevaluation of nutrition programs' past successes and failures; the MOH commitment to the World Bank Nutrition Loan and the UNICEF assisted village-oriented nutrition intervention program; and the National Family Planning Coordinating Board (BKKBN) and MOH's commitment to the AID-assisted Village Family Planning - Mother-Child Welfare Project - an integration of nutrition services into the existing village family planning delivery system. The relationship and needed coordination among agricultural planners, food logisticians and nutrition experts are being addressed programmatically for the first time through the coordinating mechanisms in the AID-assisted National Nutrition Surveillance Project.

In some areas where specific nutritional deficiencies cannot be realistically overcome by changes in food production, food distribution or income re-distribution, specific nutrient supplementation intervention programs are underway or under consideration. Most often these programs focus on Vitamin A,

iodine, iron or protein supplements. Famine control also is being addressed through disaster relief programs (as in East Timor), predictive programs such as agricultural forecasting, and surveillance programs such as the AID assisted National Nutrition Surveillance Project.

Communicable Disease Control: GOI interest continues in communicable disease control, especially malaria, and in reducing the incidence of the preventable childhood diseases through immunizations. The GOI is now successfully managing malaria control programs in Java and Bali and small areas of the outer islands, but expansion in the outer islands is severely hampered by deficiencies in trained manpower. A nationwide Expanded Program in Immunization (EPI) was started in 1979 and, although proceeding slowly, is expected to gain momentum. An effective nationwide approach and commitment to diarrheal diseases control, specifically a national oral rehydration training scheme has not yet appeared. The provision of safe water and adequate sanitation is still a distant target although the GOI spent between U.S. \$ 15-20 million on water supplies in Pelita II and plans to spend from US \$ 20-25 million/year in Pelita III.

Health Education: Health and nutrition education efforts are as yet weak and scattered. There are good intentions and several pilot projects but as yet no decision for a large scale, comprehensive program.

Health Statistics and Support Services: Health statistics and epidemiological capabilities are still poor and will need more attention in the future. Malaria surveillance on Java and Bali are well developed but central reporting and response is still inadequate. Analysis of what is happening and has happened regarding health/nutrition status is still largely guesswork, but demographic data are improving and the Family Planning management information system provides a useful example to the MOH.

Planning, management, delivery and evaluation of health/nutrition services through the government's public health centers still are not receiving nationally required attention. Different aspects of service delivery are being investigated in a variety of pilot projects run by the MOH and BKKBN with bilateral and multilateral donor assistance with a view to improving future planning and implementation efforts.

Foreign Donor Activities.

Major support for MOH efforts by international donor agencies

are provided by the World Bank, UNICEF, WHO, and USAID.

The World Bank activities in the health/nutrition sector have been limited largely to institution building and field trials in nutrition. Plans for future H/N loans are as yet unclear.

The ADB is considering a loan to increase government pharmaceutical production capabilities, but has failed to address many issues regarding pharmaceutical use in the government health system, pharmacology training, and present inappropriate or ineffective pharmaceutical regulation in the private and public sectors. Both banks finance large scale provincial urban water supply projects.

UNICEF has been a leader in water supply design and in supporting attempts to propagate village level nutrition intervention programs, primarily through child weighing, food preparation education and supplemental feeding. UNICEF is a commodity and training provider for the expanded immunization program (EPI) and has been advocating a more rational primary health care delivery program and a school health program, though with marginal effect. UNICEF has also provided support to the GOI's low-keyed, but continuing, campaign to promote breast-feeding.

WHO provides long term consultants in malaria control, health planning, primary health care and immunizations and short term consultants in various fields.

Other bilateral donors have been active in water and sanitation but otherwise had little more than token activity in the H/N sector. For example, Japan, New Zealand and UNDP are assisting the Community Health Nurse (Perawat Kesehatan) Program by building new schools with WHO providing technical assistance.

USAID Activities.

Despite decreasing funding levels, AID is presently trying to maintain a meaningful input into the health/nutrition sector. Current activities include:

- Health Training Research and Development Project designed to upgrade manpower development planning at the central level; strengthen government health research activities through improved health research design and performance; strengthen selected provincial planning capability; and develop plans to improve health education.

- National Nutrition Surveillance Project is a unique attempt to detect and react to severe food shortages and consumption problems at a very early stage and to catalyze cooperative action at several organizational levels of government and among various concerned technical disciplines, including:

- efforts to translate the findings from the Vitamin A Blindness Field Study into a nationwide program to control Vitamin A deficiency;

- preliminary plans to conduct an Infant Feeding Practices Study and several nutrition education interventions;

- assistance for malaria control in Java/Bali and for a field malaria research center; Should the GOI request assistance in new malaria control efforts in East Timor and possibly other outer islands, AID would attempt to assist.

- the nationwide Expanded Program in Immunization which in its implementation will also help improve community health services, especially epidemiologic approaches to health problems;

- an urban water project to demonstrate organizational requirements and urban water system studies that might be implemented by the GOI with other donor assistance and rural water supply systems; implemented primarily through PVO Co-Financed activities;

- Rural Sanitation Manpower Development which has completed curriculum development for the training of rural sanitarians and is now assisting with the construction and equipping of 11 new regional training centers;

- Provincial Comprehensive Health Improvement Project which will attempt to begin bridging the gap between central H/N program and policy planning and actual service delivery needed in the field if the health of the rural poor is to be improved.

Health/Nutrition Strategy.

Given present and anticipated future resource constraints, we plan to fully fund all current (on-going) activities by FY 82. These activities will be completed by FY 86. Any additional activities started in FY 83 or beyond will be designed to explore and test improved or new interventions in areas related to improved health for women and children with a view toward encouraging the GOI itself or possibly other donors to operationalize and institutionalize those interventions proved feasible and desirable.

Within this framework we will more closely orient the Health and Nutrition program to support the twin objectives of reduced population growth rate and increased domestic food production and improved consumption.

The HN program will focus on assisting GOI health and nutrition programs which will most directly reduce infant (0-1 year) and young child (1-5 years) mortality rates. It is expected that increased child survival rates will encourage parents to limit and space pregnancies, utilize available family planning services, and contribute to a reduction in the net population growth rate. The focus will place priority on programs designed to save the greatest number of infant and young child lives at the lowest cost per capita. Projects aimed at effecting a more general reduction of morbidity in the overall population will receive lower priority even though they may be considered very important in the context of the GOI's total health program. This HN strategy supports GOI health objectives as well as USAID's overall strategy and, in fact, contributes to achieving a synergistic effect with family planning and food self-sufficiency programs.

The following types of interventions are considered to have the greatest positive impact on mortality of under 5's and thereby on extension of life expectancy: village based nutrition; immunization; primary health care services using village health workers and mothers; and malaria control in highly endemic areas. Consequently, HN will support GOI programs which provide those services directly or which train manpower to plan, monitor and evaluate, such programs.

In HN project/operational terms efforts will be made to:

- accelerate implementation of EPI;
- achieve maximum coordination of the VFP/MCW project with this HN strategy;
- initiate the Provincial Comprehensive Health Improvement Project as early as possible as an operational demonstration of comprehensive village oriented primary health services aimed at mortality reduction of under 5's;
- assure that HTR&D planning, research and training activities support this strategy;
- initiate modest support for nutrition and primary health care planning activities of the Community Health Services Directorate General of MOH;

- support maternal and infant nutrition research and promotional activities available from AID/W;
- initiate a malaria control program in East Timor and NTT, and possibly other limited areas;
- initiate health/nutrition education activities to support programs aimed at reducing infant and young child mortality which mutually reinforce the family planning program objectives.

EDUCATION AND HUMAN RESOURCES DEVELOPMENT
STRATEGY STATEMENT

The Context: Major Problems and Challenges

During the colonial period education was badly neglected in Indonesia; schools that did exist were primarily for Europeans. Those designed for Indonesians were village primary schools with only three years of instruction. A few carefully selected Indonesians were admitted to Dutch schools, but even these until 1920 did not extend beyond the high school level. In the 1920's an engineering college, a law college, and a medical college were established. In 1938, a business college was started and on the eve of World War II (1940-41) two other colleges, law and agriculture, were opened. To best illustrate the dearth of educational opportunities, only about 300 Indonesians had graduated from colleges in Indonesia by the beginning of the Second World War. A favored few managed to go abroad for their education. An estimated 250 received some post-secondary training in Holland and perhaps that many more attended colleges in the Middle East.

World War II disrupted the meagre opportunities in education as did the revolution and war for independence, so that as one historian points out, when the country gained its independence and started to build a nation, "Indonesia was deplorably short of technical and administration skills necessary for the running of a modern state." (Legge, J.P., Indonesia, p. 11).

The Indonesian Government has recognized the need to improve access to education, and in recent years has pursued a vigorous expansion program, particularly at the first level of schooling. Current estimates suggest that almost 23 million are enrolled, or approximately 85 percent of the total number of children in the age group.

Such expansionist policies require a substantial financial outlay, not only for buildings and facilities, but also for salaries of teachers, administrators and other employees, and for books, materials and equipment. Indonesia spends an estimated 3 percent of GNP for all education, public and private. While this is a significant investment, it must be borne in mind that the per pupil expenditure is still quite modest, on the order of \$100 per primary school pupil and \$150 per secondary pupil.

Expansion entails a number of problems. Student repetition rates are high and costly at the primary school level. Repeaters in 1977 used-up \$21 million in teachers' salaries, an equivalent of 66,000 classrooms, and \$19 million in special payments by parents to schools.

Qualitative problems constitute an important challenge, particularly with respect to teaching. At least one-fifth of primary school teachers have less than the minimum qualifications; secondary school teacher training is marked by serious inefficiencies and failure to concentrate sufficiently on the content and methods of teaching in the schools, particularly in the sciences and mathematics; and at the university level, most faculty members are very young and undertrained, with fewer than 4 percent having Ph.D's (1975 data).

Conditions in Public Sector Universities 1975

Number of institutions	29
Full-time faculty	7,631
With Ph.D.	29
With foreign experience	647
Part-time faculty	9,848
Percent part-time of all faculty	56%

The problem of undertrained and inexperienced leadership, broadly defined, is not unique to the schools and universities; it is at the root of many of the organizational, administrative and managerial bottlenecks of Indonesia today. The relatively small number of capable individuals in the various departments of the public sector tend to be overworked, having only a thinly experienced and trained staff for support. For example, at the time of its March, 1975 census, the Government of Indonesia employed some 1.7 million civil servants, of whom fewer than 3 percent were nominally university graduates.

Education Levels of GOI Civil Service

Education Level

	Male	Female	Total	%
Illiterate	48,019	4,950	52,969	3.2
Elementary School Dropouts	138,004	4,478	142,482	8.5
Elementary School	410,377	42,712	453,089	27.1
Junior High School	283,692	83,697	367,389	21.9
High School	388,273	149,689	537,962	32.1
Junior College (3 years)	67,664	11,637	79,301	4.7
University (5 years)	36,125	5,394	41,519	2.5
Not known	128	32	160	0.0
Totals	1,372,282	302,589	1,674,871	100.0

This leadership constraint is a crucial blockage in the flow of information, education and other services and resources out to the poor majority, and the return communication regarding problems and requirements to the various agencies commissioned and empowered to undertake remedial action.

GOI Plans and Priorities

The Third Five Year Plan (REPELITA III) identifies, among others, the following objectives: Creation of an educational system appropriate to the nation's development goals; maintenance and

improvement of quality for all types and levels of education; attention to the problem of ineffective teaching methods; installation of information systems and administrative support to facilitate innovation; and promotion of education opportunities for those who have had little or no access in the past.

Impressive progress has been made, particularly in quantitative terms, and much effort and money will be expended to realize the Government's goals. For example, by 1985:

- Primary school enrollment will reach 26 million, requiring the building of more than 15,000 new elementary schools, and the training and recruitment of over 100,000 new teachers. Enrollment will rise from 2.4 million to 4 million in grades 7-9 and from .7 million to 1.2 million in grades 10-12.

- More than 200 million textbooks and teaching aids in mathematics, science, social science and Indonesian language will be printed and distributed.

- In technical-vocational education, up to 18 four-year and 100 three-year technical schools are to be developed.

- In higher education, 800 post-graduate and 500 Ph.D's will be produced.

Donor Response

The World Bank. The Bank is by far the largest education donor, assisting in construction of agricultural high schools, secondary school teacher training institutes, and technical training schools, including six polytechnics. It is currently involved in a massive program which will provide four basic textbooks for each primary school pupil.

Asian Development Bank. Among other things, the ADB has provided the buildings and facilities for the Technical Institute of Surabaya and Hasanuddin University, and for seventeen technical high schools and technical centers.

Foundations. The Ford Foundation has a project to help develop the educational planning capabilities in the regions as well as in the Ministry's Planning Office. The Rockefeller Foundation has concentrated its efforts on upgrading Gajah Mada University. The Asia Foundation has focused on improving university administration and libraries.

Bilateral Activities. The German Government has concentrated primarily on providing postgraduate training, while German foundations have helped upgrade several universities. France focuses on public administration training and postgraduate opportunities. The British Council assists with English teaching and postgraduate work in England. The Dutch work in technical and higher education and offer

postgraduate training in Holland. Japan provides some postgraduate work. Canada has concentrated on helping the primary school textbook project.

The USAID Strategy of Assistance

Indonesian goals and activities are in close accordance with AID's objectives to improve education and training for the poor majority, and to increase the GOI's institutional capability to develop the corps of technical and managerial staff needed to plan and implement the expanding national development program.

USAID strategy, therefore, is to support existing and planned GOI programs, taking several principles into account. First, it is obvious that other donors and the GOI will make the heavy investments for construction and physical expansion and account for the lion's share of total funding. USAID's contributions will therefore be undertaken in cooperation with other donors, and selectively, to provide a dimension that would otherwise be lacking were AID not to participate. In the Education and Human Resources Development area this dimension is quality and relevance of education and training. The means by which we shall attempt to carry out this quality enhancement role will be to capitalize on the comparative advantage enjoyed by the United States in a number of important fields. To apply this advantage, we shall identify American experts to provide on-the-scene technical assistance, and we shall continue to respond to strong and persistent requests for different kinds of training.

There are three human resources development areas in which we expect strong GOI interest in continued AID participation.

Area A: Introducing innovative and effective instructional technology in the schools. Because Indonesia will need to be as innovative as possible to maximize the impact of its educational expenditures, USAID has helped to develop capabilities in the use of modern instructional technology, a field in which the United States has taken a position of leadership.

With the Palapa communications satellite now in place, an Indonesian capability to produce effective programming for the satellite is essential. To this end, an ongoing project, Education Communications Development, will bring outstanding U.S. talent to Indonesia to provide technical guidance and identify Indonesians for training in American institutions with established development communications capability.

A small experimental project sponsored by INNOTECH, SEAMEO's agency for educational innovation, was the basis for USAID's new Self-Instructional Learning System project. This five-year program will help the Ministry of Education and Culture to apply the INNOTECH experimental techniques on a kabupaten or county level. Some 5,500 primary school students and 4,500 out-of-school youngsters will participate.

There are other ways in which we can assist Indonesia as it consolidates its quantitative expansion of schools and upgrades the quality of educational programs. A strong possibility is to help with the establishment of an Indonesian National Assessment Center, a process already well underway by the GOI. Testing and measurement is a field in which U.S. experts are preeminent. For a relatively small investment of key specialists and training opportunities, AID can have a part in an endeavour in which there is promise of a considerable quality impact on the total formal human resources education and training system of Indonesia.

Similarly, USAID is interested in participating in a possible pilot project that the GOI may initiate, to deliver basic education services to remote areas through a combined mobile team-instructional radio approach. Here the impact may very well reach not only to other Asian countries, but to LDCs worldwide. The potential of this new approach to reach scattered rural populations is a compelling argument for our support, if only in modest terms. This project will be located in Kabupaten Sorong in Irian Jaya, one of the least developed areas of Indonesia. It will test and evaluate radio and other media programs produced under the Self-Instructional Learning and Education Communications Development projects. The fact that this project would in all probability draw on key U.S. specialists and would apply lessons gained from earlier projects funded by AID is another argument for our participation.

Area B: Upgrading agricultural training. Recognizing the vital role agriculture plays in the Indonesian economy, USAID gives special attention to upgrading agricultural training to produce the skills required to solve educational and management problems in the agricultural sector and to increase food production.

Again, USAID pursues this avenue of human resources development because the United States has the top agricultural scientists of the world, and an agricultural higher education system that is without peer. Through a program of technical guidance and advice, carefully scheduled U.S. and in-country training, and cooperating with other development initiatives by the GOI and external donors in the agricultural sector (as well as other sectors), USAID hopes to contribute to the increase in the quantity of skilled manpower as well as to accomplish its major goal: a positive impact on the quality of agricultural education in Indonesia.

USAID's strategy, in concert with the Directorate of Higher Education, is one of network creation, making use of "leader" universities. As a first step, and building on an earlier project carried out by the University of Kentucky (1957-66), MUCIA is working with two institutions, Gajah Mada and the Agricultural University of Bogor (IPB). These two institutions have established modern four-year (reduced from the outmoded five-year) curricula which, in turn, have been introduced in six provincial universities.

As a second step, the University of Wisconsin (under Title XII) will provide specialized assistance in administration, curriculum

development and research, to enable IPB to reach front-rank status as an agricultural graduate school equal to the best in Southeast Asia.

The graduate school at IPB will serve as a significant resource in the third step, in which one of the six provincial institutions that has been part of the network of the original "leader" universities of IPB and Gajah Mada, will organize its own network. The provincial university chosen for this leadership role is Hasanuddin, in Ujung Pandang. The objective, making use of Title XII and Washington State University, is to help the Eastern Islands Association of Universities to share achievements and strengths, a sharing that will be not only outward from Hasanuddin to the other universities of the Association, but also among and between all members.

The next step will be to initiate a third networking process with the Sumatra Association of Universities. Again using Title XII, the University of Kentucky has been selected to design a project linking the Sumatra institutions in a manner similar to the Eastern Islands effort.

This approach will leave in place an outstanding graduate program in IPB. Also, following GOI priorities, it will result in greatly strengthened capabilities in the major agricultural universities of Indonesia to undertake research and community service and to offer quality instruction in the agricultural sciences and related studies. Many university staff members will pursue graduate work in-country and abroad to prepare them for their enlarged responsibilities.

Area C: Making available a wide range of leadership training opportunities for key personnel at various levels. Training has long been a USAID priority in Indonesia. Because manpower constraints are considered a key obstacle to Indonesian development, virtually every USAID project has a training element, and this is a significant part of the overall EHRD strategy.

Formerly it was necessary to send most participants to the U.S. and third countries, but with the return of greater numbers of qualified personnel from abroad, more adequately staffed facilities are becoming available in Indonesia. Prospects for greater in-country training are much improved and we expect an increasing amount of this kind of training over the long term. In the short term, however, training abroad is essential in selected development areas, and remains an important element in the total USAID effort.

A vitally important aspect of our training strategy is to address the full range of leadership requirements proven to exist sector by sector. Top echelon, mid-level and lower-level workers are being provided with appropriate knowledge and skills for the special roles they play in development. For example,

- Food and Nutrition projects train leaders for integrated rural development;

- Population Planning and Health projects train rural sanitarians and primary health workers;

- Selected Development Problems projects provide the skills necessary for the transfer and application of appropriate technologies.

Development Administration. The need for improved management and direction of development activities persists as a sizable problem in every sector. The training of individuals who are expected to plan, implement and evaluate development programs within the several GOI ministries and departments is an important part of the USAID strategy. Associated with this objective is the search for effective ways to strengthen within government administrative and management science programs, a very critical quality-improvement objective.

As in agricultural education and educational technology, the United States enjoys a solid reputation in development administration. Two loan-funded projects manifest USAID's recognition of this comparative advantage.

Under the first loan (\$5.9 million), training is being provided for officials (largely mid and lower echelon) of the National Development Planning Institute of Administration (LAN), and the three principal government agencies that provide leadership in planning, resource allocation, fiscal management and the administration of Indonesia's regular and development budgets. The training will be in the U.S., in Third Countries and in Indonesia. The second loan-funded project (\$5 million) will concentrate on building managerial strengths within two of the GOI's line agencies, the Departments of Agriculture and Education.

A new project for FY 82 will aim to upgrade the administrative capabilities of other Ministries deeply involved in national development: Public Works, Manpower, Health and Social Welfare.

ENERGY SECTOR STRATEGY STATEMENT

Historical Overview and Background.

The achievement of an adequate rate of economic growth in Indonesia requires the use of increasing amounts of energy. In particular, higher productivity and incomes for people in the rural areas, where approximately 80 percent of Indonesia's 140 million people live, depends critically on the expanded availability of both renewable and non-renewable energy supplies. Yet Indonesia is depleting its oil and firewood resources to meet the growing demands of population growth and agricultural and industrial development. This process may limit Indonesia's future foreign exchange revenues for development as well as pose serious environmental problems from deforestation.

Ninety percent of the domestic energy consumption is satisfied by oil, 8 percent by gas, and only 2 percent by other energy resources. Domestic energy consumption is very low, still less than one barrel of oil equivalent per capita, meaning that most oil can be exported. However, consumption requirements have been increasing by more than 13 percent per annum since 1969, and unless alternatives are found, Indonesia's entire oil production may be needed to supply the domestic market by sometime in the 1990's. Fortunately, Indonesia has large, relatively untapped, non-oil resources, particularly coal (but of a poor or moderate quality).

In brief, Indonesia's potential use of various energy sources may be summarized as follows.

Oil. Indonesia currently produces about 1.6 million barrels/day of crude oil, of which about 1.2 million barrels/day is exported. Present oil reserves are estimated at between 10-12 billion barrels but new exploration is accelerating rapidly, providing hope that new reserves may be discovered in the future. Most new discoveries are being made offshore in relatively small fields and an intensified drilling program is necessary if new finds are to keep pace with production depletion. Indonesia's crudes are generally low sulfur and enjoy transportation and quality preference in environmentally conscious markets, particularly Japan and the U.S. West Coast.

Gas. Natural Gas, which has been overshadowed to date by crude oil may eventually become Indonesia's most important hydrocarbon resource, both in terms of export earnings and as feedstock for domestic industry. Indonesia has a large and growing LNG industry which has potential for significant expansion. By 1990 LNG may surpass crude oil as Indonesia's dominant foreign exchange earning export. Indonesia is believed to have very large reserves of gas which will be increasingly developed over the next 2-3 decades and which should form the foundation for growth of a petrochemical industry and perhaps regional industrial growth in the outer islands.

Coal. Coal is plentiful, but in isolated places. It is of low or mixed quality (e.g. 40 percent water in some deposits). Transportation to domestic users is limited. Expensive processing is required to compete in export markets.

Hydropower. This is a good resource, but it has limited potential due to the location vs. need problem. The more obvious hydropotential has already been exploited. New dammed areas could displace thousands of families and cover millions of hectares of agricultural land. Electric power grids are not well enough developed for transmitting power to markets.

Geothermal. Moderate potential and further development is constrained by a number of problems: e.g., isolation of sources, insufficient heat, corrosive chemical content, and undeveloped capability to transmit power to markets.

Biomass. Plentiful in sparsely settled areas, but on Java and Bali, with two-thirds of the population and most of the land under cultivation, biomass "energy farms" have limited potential due to space restrictions. If energy farms are established in less populous islands, there are added costs to process and transport the energy. Biogas, pyrolytic conversion and alcohols have important potential, but require a long-term build-up of technology.

Direct Solar. There are periods of intense sunlight nearly every day, although the long rainy season and generally overcast skies produce rather sizeable seasonal differences. Large arrays of flat plate collectors have many problems. Major potential appears to be some village and household use, but costs are not inconsequential for fabrication of such things as water heating and food drying units for families. Photovoltaic generation is still too costly for widespread application.

Nuclear. Some uranium exists, but without a national power grid and the high capital costs and advanced technology required, Indonesia's use of nuclear energy is in the distant future.

Wind. Very limited as a resource, because most of Indonesia does not have strong, steady winds.

Wood. Indonesia has the highest per capita consumption of fuelwood in Asia. An estimated 122 million hectares of land areas is in

forest. Production for all purposes reached nearly 129 million cubic meters in 1975. Estimated fuelwood consumption for all Indonesia was 40 million tons, and may rise to perhaps as much as 50 million tons over the next decade. As total harvesting has increased, the lack of firewood in Java, Madura and Bali has become more severe. Timber for fuel, and as a resource for industrial and other purposes, is a significant part of Indonesia's natural endowment. Careful planning of its use is required to prevent negative environmental effects and to assure replanting and reforestation.

Looking at the technical aspects, Indonesia's primary energy problem is not one of lack of overall energy resources, but one of distribution. Its energy resources are not present where its people and industry are located. Ninety million (i.e., 65 percent of Indonesia's population of 140 million) live on the islands of Java and Bali, which are about the size of Louisiana and constitute only 7 percent of Indonesia's land area. Furthermore, the original forests of Java and Bali are long gone, replaced by people and rice fields in particular. Indonesia's fossil fuels and present forest resources are found on the other, underpopulated islands, where population density is only 27 persons per square kilometer, compared to the Java-Madura-Bali figure of 670 persons. Industry is concentrated in West Java, the location of Jakarta, now estimated to have 6 million inhabitants. Fifty per cent of electric power used is locally produced by diesel or gasoline powered generators. The centrally-generated (oil-fired) grid for the remaining 50 percent is very limited. Highly subsidized kerosene substitutes for wood in areas where wood is scarce (e.g. Java-Bali).

A final aspect of the background of forces and factors affecting energy programs is the lack of trained personnel. At top leadership levels, the small number of Ph.D. and M.Sc. degree holders are usually individuals overloaded with responsibilities, holding several important jobs simultaneously. Even the B.Sc. level is inadequate. Poor English language capability--a key factor because much of the world's technical literature is available in English--is also a fact of life.

Beyond this is the fact that management theory, practice and experience are generally at a low level. As many new managers become trained, they are siphoned off into business and commercial establishments, again putting heavy loads on the small leadership

cadre remaining in government.

In terms of technical skills, there is inadequate depth of practice and experience in the various energy-related fields. In-country training of technicians is insufficient and often outdated and of low quality.

Indonesia's Objectives, Organization and Program.

Energy. The GOI Five Year Development Plan III projects a doubling of commercial energy consumption by its end in 1984. To meet this anticipated demand while ensuring a continuous contribution of energy exports to the balance of payments and public revenues, the Plan calls for (1) accelerated exploration of conventional energy sources, especially oil and gas; (2) enhanced conservation of oil resources and a shift in the present pattern of consumption to a more balanced one; (3) diversification of energy sources; and (4) intensified research, development, and utilization of renewable and non-conventional energy technologies.

The GOI has also intensified its national planning concerning energy needs and resources, energy data acquisition, management and analysis, and agency and institutional reform, to better deal with future energy problems.

The Ministry of Mines was reorganized in 1978 as the Ministry of Mines and Energy, and now contains Directorate Generals of Mining (including coal), Oil and Gas, and Power. The Ministry is particularly responsible for developing national energy plans and policies, and operates research institutes for oil and gas, and minerals (including coal). PERTAMINA remains the large state company concerned with oil and gas. PLN is the State Electric Power Company and operates an Electric Power Research Institute. The Agency for Development and Application of Technology (BPPT) headed by the State Minister for Research and Technology, has a technology division which includes energy R&D, and is building an energy resources laboratory. The National Institute of Sciences (LIPI) has established an R&D goal of developing alternative energy technology. The independent (but small) National Atomic Energy Agency (BATAN), makes contribution to studies on nuclear power potential. The Institute of Technology in Bandung (ITB) has organized a faculty group called "The Energy Cluster", and other universities have modest energy research projects or incipient programs. The Ministry of Agriculture's Forest Research Institute

and Forest Products Research Institute have projects investigating "Energy Farms" of fast-growing tropical tree species for fuel. There is an important interagency "Technical Committee of Energy Resources" of about 27 energy leaders, chaired by the Ministry of Mines and Energy.

Applied and Appropriate Technology. Since Independence, the GOI has developed a variety of applied, technical research institutions (such as LIPI and the BPPT, mentioned above), developed the technical side of various ministries, and established a State Minister for Research and Technology, with growing responsibilities and influence. The first steps toward meeting the acute shortage of qualified scientists and engineers have been taken, by training abroad, and by expansion and improvement of technical universities and faculties.

Regarding appropriate technology, the Development Technology Center has been established at the Institute of Technology, Bandung, and is progressing well. A private group, "Dian Desa" is also active and expanding, and the Ministry of Industry has an important group and program (BIPIK) devoted to the development of small industry and decentralized small industry employment opportunities. The new focus of the GOI on energy diversification will accelerate the appropriate technology approach to rural energy needs, e.g., windmills, microhydro power, biomass conversion, and direct solar energy utilization.

Activities of Other Donors. Although a number of assistance agencies provide help in the energy field, the contribution of the World Bank is by far the largest, current projects amounting to some \$577 million. More than fifty per cent of the World Bank funds are being used to construct electric power generating facilities for Jakarta and West Java. Another twenty per cent is for construction of similar installation at Semarang. The remainder will build a large dual fired coal and oil power plant, also in Java.

Among the programs of other donors are these:

- The European Economic Community supports a biogas energy project;
- The United Nations Industrial Development Organization and the International Labor Organization operate energy training programs;
- Japan will spend \$10 million per year for ten years on renewable energy resources;

- Canada (\$22 million) and the Netherlands (\$5 million) support rural electrification;
- New Zealand provides experts for development of geothermal energy;
- West Germany has charge of a Solar Energy Village Project.

The USAID/Indonesia Energy Sector Strategy. USAID's energy sector strategy focuses on at least three of Indonesia's four major technical and management problems, listed earlier. These are manpower, data base (including analysis and planning), and energy technology adaptation (R & D and dissemination for alternative energies, in particular). The fourth problem --energy distribution-- is being addressed by USAID in the specific instance of rural electrification, but not in the technologies of energy resources transportation, such as processing and transporting coal or forestry wastes to market areas. This could be an area of future energy sector program development, if funds and workforce (i.e., a direct hire energy specialist) become available.

Manpower. USAID believes there is ample evidence to support the designation of workforce training as its highest priority activity with respect to energy. In keeping with GOI preferences, our training initially concentrates on helping to educate highly qualified scientists or "energy leaders", in both software aspects (energy economics, energy policy and planning, energy administration and management), and hardware aspects (e.g. various energy technologies, energy data processing). Preparation of this trained group will provide expertise for assessing energy needs and resources with development needs, from family and village levels up to large industry levels.

Institution Building; Analysis and Planning. Institutions are necessary to employ to best effect the experts trained to deal with energy problems. Indonesia has a number of such institutions, both government and academic. USAID's emphasis will be on finding ways to strengthen these, to enable them better to coordinate their several activities, and to marshal and deploy their expertise in planning new energy programs and ways to attach problems.

In furtherance of this aim, a special team arranged by the U.S. Department of Energy recently provided assistance to the GOI on the planning and development of an Energy Resources Laboratory being built a new National Center of Research Institutes (PUSPIPTEK) near Jakarta.

In 1979, USAID and the GOI signed a grant project agreement ("Energy Planning for Development"). The first phase provides technical assistance in (a) demand analysis and technology assessment; (b) pilot surveys of firewood/kerosene use; (c) short-term training in energy planning and analysis; and (d) design and development of an Energy Information System. In 1981, a second phase will provide (a) alternative ways of matching supply/need and projected demand, and an analysis of the consequences of these alternatives; and (b) the examination and formulation of various financing schemes for the exploration, exploitation and use of indigenous energy resources.

This set of activities is aimed at obtaining a detailed understanding of the energy implications of development trends and programs as well as the social, economic, and environmental consequences of energy pricing technology and resource development options. The purpose of this part of our energy program, in short, is to enhance the capabilities of Indonesian planners to analyze the role of energy in development, and to chart a well-reasoned national energy program.

Institution building may also benefit from provision of funds to pay for key studies and experiments in especially critical (and often risky) research areas. The Mission's on-going Science and Technology Project includes attention to R & D on alternative energy production. A series of grants being made this year will underwrite R & D on (a) biogas from water phyacienths; (b) ethanol from sago palm and other carbohydrates; (c) methanol from biomas; (d) wind and small hydropower sources for DC electricity (battery chargers) for small users in remote areas; and (e) utilization of waste rice straw for village energy.

Should the Mission have the prospect for increased funding for energy programs, both training and institution building program areas could expand. The creation of the Energy Resources Laboratory at PUSPIPTEK provides an institutional focus. Under the aegis of the laboratory, U.S. technical assistance could prove valuable in a high priority undertaking: the fleshing out of a coal production and distribution "master plan", including the design of the technology and management of a program for the extraction, processing, transportation, and utilization of coal as the primary short-term and longer-term trainging could complement the technical assistance.

In the alternative energy area, training and technical assistance might be provided to assist in the application on a larger scale of

lessons gained from in-country research efforts with ethanol and methanol, wind and hydropower generators, utilization of waste agricultural products, and the like.

With respect to renewable energy sources, training and technical assistance could be made available to undertake a comprehensive forest resources management and utilization program.