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**FY 83**

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FY 1983

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

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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 1981

FY 1983 ANNUAL BUDGET SUBMISSION  
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## USAID/INDONESIA OVERALL STRATEGY STATEMENT

### The AID Approach

The goal of the U.S. economic assistance program to Indonesia is a significant expansion by 1987 of Indonesia's governmental and private institutional capacity to use Indonesia's own financial resources, primarily, and those of Multilateral Development Banks (MDBs) and other donors and the technology and other resources of the U.S. private sector to meet the basic needs of the nation's rural population, particularly in the areas of employment, food supply, health, family planning, energy, environment and training. This goal reflects our view that AID's economic assistance program must contribute to overall U.S. efforts to ensure a long-term mutuality of Indonesia-U.S. bilateral interests and a set of relationships commensurate with Indonesia's needs, potential and position. We believe that movement toward achievement of this goal requires that U.S. assistance be informed by:

- (a) our traditional concern with helping Indonesia cope with its humanitarian and basic development problems, combined with
- (b) an appreciation of the need for the U.S. to be more competitive in Indonesian markets, and
- (c) a desire to be responsive to Indonesia's increasing need for the transfer of technology and skills.

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 during the FY 83-87 CDSS period. In recognition of Indonesia's improved financial position, AID projects are designed to develop and support institution and system (or process) building activities with the potential to contribute significantly to overcoming development bottlenecks and serving as models for large-scale undertakings using Indonesian revenues and MDB or other major donor or Indonesian and American private sector resources.

Given the Mission's anticipated funding and personnel profile during the coming few years, we believe it even more important than in the past to limit the range of our involvement to assure substantial development pay-off from each AID input. Accordingly, within the context further defined by GOI priorities and our own distinctive capabilities we will direct virtually all of our resources to: reducing the population growth rate; improving maternal and child health; and increasing rural incomes, employment and productivity through direct production-related activities, through

agricultural research and training, and through watershed-/upland development.

In carrying out all of these activities we will stress both training of technical and managerial staff and a decentralized development process designed to "marshall" both lower level bureaucratic and popular resources. We will also attempt further to improve our management/monitoring capabilities and to rely to the maximum extent feasible on "intermediaries" - U.S. universities, PVOs and private business firms.

An example of our "model" development function 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 a most important contribution to the success of the internationally recognized Indonesian Family Planning program which has reduced annual 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.

A third example and one which we believe is of major importance is the Provincial Development Program, the objectives of which are to increase the income and employment opportunities of the rural poor and to strengthen the capabilities of local and central government institutions to conduct and support decentralized rural development programs designed to deliver benefits to the poor. The response of the provincial, kabupaten and central government organizations to this decentralized approach has been highly positive. On the basis of progress achieved to date in pilot areas in eight provinces, the Government has committed itself to a national PDP program. The GOI believes that it requires further AID assistance to make this move to a national program effectively. We believe the GOI's commitment to "grass roots" development, to concepts of popular participation in development processes and benefits, and to a decentralized governmental approach to supporting development is strong and in effect represents a major development achievement. We also believe that a positive and forthcoming response to the GOI's request for our continued assistance in this area is central to our aid strategy here.

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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 83-87 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, including training as a means by which we can optimize the pay-off of our limited resources. Any funds needed for commodities or construction will be provided only if needed to support the AID provided technical services or to demonstrate an innovative technology or concept. A critical aspect in the success of this program 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 and to the extent feasible, loan 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 U.S. technical assistance and Indonesian and/or MDB resources, which emphasizes "qualitative" aspects of development, should enable AID to continue its program building and institutional development role in Indonesia without substantially reduced impact despite limited budget availabilities.

U.S. grant and loan funds will also be used (starting as early as FY 82) to promote increased participation in Indonesian development by the U.S. private sector. Such participation is, we believe, essential to Indonesia's development efforts and could be profitable and otherwise rewarding to U.S. firms. We have clear indications that the GOI is interested in working with us toward this end. We have not yet been able to determine the degree of interest and capability of other concerned U.S. agencies, e.g. the EXIM Bank and OPIC, whose participation in this area is vital. Under these circumstances we plan to start in FY 82 an initial exploratory project designed to further explore specific means by which we can pursue increase private sector participation.

Maintenance of a relatively large USAID field staff is a critical aspect of AID's ability to increase the relevance of its contribution at the very limited AAPLs provided in this ABS. 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 and the U.S. private sector. 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 relatively 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 and the six new provinces planned for introduction to the PDP in FY 83 and 84 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, to the extent our efforts are supportive of Indonesian national programs, e.g. Family Planning, and Irrigation, our program will be active in both the "inner" and the "outer" islands. A geographic division of labor among donors in these instances would be neither effective or efficient.

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 1980 per capita income was \$410 with perhaps 50-80 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 \$100 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 overall 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 at 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. Recent indications also suggest that the GOI recognizes the importance of gaining increased Indonesian

and foreign private sector participation in national development efforts. This is particularly important in terms of the need to generate new off-farm employment opportunities.

### 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 \$1.8 billion "pledged" for IFY 1981/82, about \$1.7 billion of which will be provided by other (non-U.S.) donors. The largest and most important of these, and their estimated IFY 81/82 contributions, are: IBRD, \$750 million; ADB, \$250 million; Japan, \$300 million; Holland, \$70 million; France, \$70 million; Germany, \$65 million; Canada, \$50 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.

## AGRICULTURE AND RURAL DEVELOPMENT SECTOR STRATEGY STATEMENT

### I. INTRODUCTION: PROGRAM GOALS AND CONTEXT

This statement builds on the FY 1982 Annual Budget Submission (ABS) and the FY 1983 Country Development Strategy Statement (CDSS) and attempts to further articulate the Mission's strategy to address key agricultural and rural development problems facing Indonesia in the 1980s. This statement also outlines the specific on-going and proposed new projects which constitute the foundation for implementation of this strategy and indicates their interlinkages and complementarities.

The goal of the Mission's Agriculture and Rural Development strategy is to promote growth in production and incomes derived in rural Indonesia through: increasing rural productivity - both on and off the farm; and increasing the quantity and quality of employment derived from such growth. In pursuit of this goal, the Mission will concentrate its agricultural and rural development programs in four key problem areas. These four concentration areas encompass Mission activities to:

- Increase agricultural productivity to attain self-sufficiency in food crops production;
- strengthen the capabilities of local government and promote regional development;
- improve environmental management of upland areas in densely populated regions; and
- generate off-farm employment through rural enterprise development.

In addition to our effort in this document to further articulate the Mission's agriculture and rural development program in terms of the concentration areas, there are several other themes that will increasingly influence how the Mission develops project activity within these concentration areas. First, by concentrating our program in four key problem areas we fully intend to reduce the number of projects in our portfolio in the years ahead. By FY 1984, the number of active projects will be reduced from 17 in FY 81 to 10. Second, related to our efforts to concentrate assistance in a few critical areas we see a need to extend assistance within these priority areas over a longer time frame. This is necessitated by the fact that our program activities within these concentration areas are heavily focused on institutional development and institution-building is a long-run

proposition. We therefore view the Provincial Development Program as a ten year assistant effort. Third, we have deemphasized the role of financial resource transfers in our program. We will no longer utilize concessional AID resources to finance major physical infrastructure such as exemplified in the Luwu I and Citanduy I projects. To the extent we do finance resource transfers, (e.g. as proposed for PDP III and the Non-Technical Irrigation Project), they will be at the minimal levels deemed essential to support new ideas and approaches and thereby to achieve the institution-building and policy objectives of the projects themselves. Fourth, it is the Mission's strategy to move, overtime, from a portfolio of strictly concessional grant/loan financing to mixed concessional/commercial financing as an intermediate stage, and to a commercial financing basis in the years ahead. During the FY 1983 - FY 1987 CDSS period, we still see a continuing need for substantial concessional assistance linked to institutional development, training and technology transfer. We have also identified, however, several activities which we believe can be "packaged" to mix concessional and commercial financing, as we describe later for regional transportation and water resources development and rural electrification/groundwater development. Finally, we are presently developing means to intensify the involvement of the Indonesian and U.S. private sectors in the development process. We seek to develop modalities particularly for the U.S. private sector to invest in and otherwise contribute to Indonesia's growing rural economy and to benefit in return from the sale of goods and services.

## II. RECENT AGRICULTURE AND RURAL DEVELOPMENT PROGRESS, PROBLEMS AND FUTURE GOI PLANS

### A. Agricultural Productivity of Food Crops .

The difficulties Indonesia has experienced in feeding its large and growing population has been documented in previous Annual Budget Submissions and Country Development Strategy Statements. In summary, past Government efforts have focused on achieving self-sufficiency in rice production. The primary means for achieving this goal were the rehabilitation of irrigation facilities, research, the dissemination of high-yielding varieties and the provision of essential inputs through various production credit and extension programs. Due largely to these efforts, rice production increased by 3.9 percent annually between 1969 and 1980. However, during this same period, production of non-rice food staples (e.g. corn, cassava and soybeans) which account for fifty percent of the nation's total caloric intake, grew less rapidly at 2.2% annually. Despite these gains, Indonesia's overall agricultural productivity is the lowest among the ASEAN countries.

The growth in total food crops production has lagged behind rising demand generated by population and income growth. The resultant gap has necessitated rice imports of between 1-2 million tons per year which accounts for at least 10% of the rice traded on the world market. Total food imports have also grown at an average rate of 12.5% per annum over the last five years. Recent estimates by the IBRD and USDA project that by 1985 Indonesia will experience an energy food gap amounting to the equivalent of between 4 and 7 million tons of rice annually. The consequences of such deficits, apart from the obvious burden on the balance of payments, include a serious lack of food security as Indonesia must depend on international markets for a significant percentage of its food requirements with the inherent economic, climatic and political uncertainty this entails.

The GOI accords highest priority to overcoming these food deficits. With Repelita III, the Government made a major policy shift from its prior goal of rice self-sufficiency to food self-sufficiency. This 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 secondary food crops. Food self-sufficiency is being pursued through greater attention to production and consumption of non-rice food crops while efforts in rice production are maintained. Food production increases are being encouraged through both intensification and extensification efforts. Intensification efforts are being pursued through strengthening and expansion of Bimas, Inmas and Insus programs, and related development of the extension service, not only for rice, but also for secondary crops. The core of the program for extensification is an expansion of cultivated areas through water resources development. Over the next forty years the GOI expects to add 4.0 million hectares to the existing 6.1 million hectares already under irrigation. Both intensification and extensification depend heavily on the development and application of new research findings, particularly on the outer-islands. The GOI accords high priority to all forms of agricultural research.

The Government faces a series of major constraints in its efforts to achieve food self-sufficiency. The limitations can be grouped into two basic areas. One is the limited institutional capacity of the GOI to plan and administer agricultural programs throughout the country's varied agro-climatic zones. The extreme shortage of technical manpower at all levels is and will remain for a number of years one of the central constraints to agricultural growth in Indonesia. This institutional barrier permeates and diminishes all efforts to plan and carry out the agricultural initiatives outlined in Repelita III.

The second limitation is the absence of tested and proven operational models and systems to achieve the food crops production targets for Repelita III and beyond. This is most evident with respect to secondary food crops production but is just as true for minimizing crop losses due to plant pests which destroy an estimated 15-20% of total annual food crop production.

#### B. Local Government and Regional Development

Regional differences in Indonesia have had a considerable influence on rural and agricultural 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/km<sup>2</sup> compared with 510 persons/km<sup>2</sup> in Bangladesh) making these islands some of the most crowded rural areas in the world; extremely small farm sizes (0.4 hectare on Java) and a high degree of landlessness (estimated at 60% of rural households); a relatively well developed physical and institutional rural infrastructure when compared with the rest of Indonesia but not when compared with other ASEAN countries; a severe and mounting deterioration of the physical environment as growing rural populations farm steeper and more marginal lands; and an increasingly important need to generate productive off-farm employment opportunities in rural areas. These last two problems, that is the massive un/underemployment and severe deterioration of the watersheds, are considered to be the primary development challenges facing rural Java, Bali, Madura and Lombok.

The "outer islands", on the other hand, are generally thinly populated (e.g. the population densities of Sumatra, Sulawesi and Kalimantan are estimated respectively at only 43, 41 and 10 persons/km<sup>2</sup>). Due to the lack of manpower and physical infrastructure 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 inability to tap this agricultural potential is all the more unfortunate considering that 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 and is considered by most observers to be the most limiting constraint to the realization of the productive potential of the outer islands. 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.

Efforts by the GOI to carry out standardized, nationally-administered rural development programs without regional modifications have rarely been successful. Consequently, 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 government for development of local infrastructure; and the establishment of semi-annual regional conferences for an exchange of views between local officials and national counterparts. This shift towards decentralized administration of development is clear and remarkable. At the same time, the general shortage of skilled Indonesian administrators and operational systems and programs to carry out decentralization at the national and lower administrative levels, has retarded the pace of decentralized rural and regional development and limits the capabilities of the GOI to deal with the many regional development concerns.

Regional development has assumed added importance under Repelita III. GOI policy makers have recognized that local potential 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 number of area development schemes; 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.

In short, Indonesia is a nation with a multitude of socio-economic, cultural and ecological regional variations. Past attempts to mount nationally-administered and standardized rural development programs without taking these varying conditions into account, have led to incidents of failure. Over the last two Repelitas, a number of programs, operational

procedures and organizations have been established to deal with regional and local differences. However, a key constraint to effective rural and regional development has been the weaknesses of these institutions to plan and administer such activities effectively.

### C. Environmental Management

The most serious issue with respect to long term agricultural development on the inner islands is the prospect of irreversible environmental deterioration of vital watersheds due to extreme population pressures and the consequent introduction of sedentary agricultural practices on steeper and more marginal slopes over time. The problem is now of such a dimension that siltation has become the most serious problem affecting the viability of irrigated agriculture throughout Java. Recorded sedimentation rates from several watershed areas throughout Java indicate that unless corrective measures are taken soon the fundamental character and productivity of inner island agriculture, both upland and lowland, will be seriously impaired within the time span of one or two generations.

The Government is keenly aware of this problem and has placed high level attention on this and other environmental problems and has mounted "regreening and reforestation" programs with more than sufficient funding. However, to date the GOI has been unable to develop a practical and operational program which brings the necessary technical skills to bear on the problem on a location-specific basis and matches these skills with the need for profitable production packages for the rural dwellers farming these hillsides. Thus, all too often, Government programs come in with terracing and planting of tree crops which are quickly dug up by the farmers who require other cropping patterns for the survival of themselves and their families. At present, the GOI desires to move into the eleven critical watersheds on Java and Madura with major upper watershed development programs but lacks the capability to do so effectively.

### D. Off-Farm Employment & Rural Enterprise Development

The Indonesian labor force is growing rapidly and is expected to increase by 1.8 to 2.0 million annually over the next twenty years. Over the last decade, the economy has barely been able to absorb these new entrants into the labor force with extremely low paying jobs. The agricultural sector has been the primary source of employment and income but it will diminish in importance in the future due to structural changes in production. Non-agricultural sources of employment and income at present provide partial income to 45% and full income

to 25% of all rural families. These activities will rise in importance in rural areas and an acceleration in the jobs provided off-the-farm will be required just to keep rural people at minimal levels of survival, not to mention increasing their overall well-being. This general problem is most severe on the overcrowded central islands where farm sizes are extremely small and landlessness is growing. For these reasons, the creation of additional and higher quality employment opportunities is viewed as one of the major challenges facing Indonesia in the years ahead.

Repelita III places great importance on generating productive non-agricultural employment alternatives for the rural population. As in Repelita I and II, strong emphasis continues on public works employment generation through such activities as the INPRES and the Rural Works programs. At the same time, Repelita III places greater emphasis on non-farm employment generation through the development of rural, small-scale and labor-intensive enterprises (in sharp contrast with Repelitas I and II which emphasized modern, capital-intensive and urban-based industries which did not contribute significantly to alleviating un/underemployment). Repelita III calls for specific Government actions, such as financial assistance, marketing assistance, provision of training facilities, relevant infrastructure and policies in support of the development of small-scale, labor-intensive enterprises. Consequently, a number of programs and policies have been put in place and expanded rapidly to support these objectives. Individually, these programs suffer from a number of technical and managerial weaknesses and collectively they lack an ability to integrate inputs in an effective manner. Furthermore, the Government lacks proven models for providing technical and financial inputs and an ability to draw on the private sector itself to contribute to its own upgrading.

### III. 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 \$2.1 billion pledged by the IGGI donor community for IFY 1981/82 is for a wide range of agricultural/rural development and related projects. In general the World Bank and Asian Development Bank both tend to finance major, large-scale projects with heavy emphasis on physical infrastructure. Bilateral donors generally undertake more limited programs that reflect their particular interests and resource availabilities, in some cases collaborating on projects with other bilateral or multi-lateral agencies.

Within the four major concentrations which AID is assisting in rural and agricultural development, we find the following complementary assistance provided by the donor community.

### A. Agricultural Productivity in Food Crops

AID is a lead donor in upgrading agricultural research, education and planning and administrative skills in Indonesia. The World Bank is also providing support in upgrading agricultural research under two large projects located in West Java and the outer islands, and these activities are closely coordinated with those of AID. In order to upgrade the capabilities of the educational system in Indonesia to produce higher quality agricultural professionals and technicians, we find that the Banks have made contributions to agricultural education chiefly by financing physical facilities while AID has concentrated on the "software", i.e. training of faculty and provision of resident technical expertise. No other donors provide support to improve the planning and administrative capabilities of the Department of Agriculture.

Irrigation, however, is a sector which has received massive infusions of foreign assistance, again with the World and Asian Development Banks in the lead. However, such assistance has been for the design and construction of large-scale irrigation systems. AID is the only donor who has supported development of small non-technical irrigation systems. Also, no donor to this date, including A.I.D., has supported efforts to develop water management capabilities on a significant scale, beyond those associated with the individual irrigation systems they have financed.

There has been no significant foreign donor support for secondary crops development and pest management in Indonesia to date.

### B. Local Government and Regional Development

AID is the lead donor agency supporting the decentralization process and institutional upgrading of local government in Indonesia. The other donor agencies with limited involvement include the World Bank which has a local government/rural development program in the Special Region of Yogyakarta. The West Germans support a similar effort in the Province of West Sumatra and the Dutch have made a proposal to finance a similar effort for the Province of Maluku. These efforts, however, have not, in our opinion, demonstrated that they have the ability or administrative flexibility required to substantively involve local governments in the decision-making process. Consequently, these projects are often viewed as national projects with foreign donor participation implemented in a given province, rather than collaborative projects which identify with and are managed by provincial governments. No other donors support efforts in upgrading local development planning and management skills (UNICEF has provided some support here, but it has been limited to social-sector activities).

In terms of regional development projects, there have been a number of significant foreign donor projects. Regional planning studies have been financed by the World Bank, and Japanese, German, Dutch and Canadian Governments as well as by USAID in Northern Sumatra. Outer-island regional development/transmigration programs have been financed most prominently by the World Bank but with other donors such as the ADB and USAID (Luwu Area Development in South Sulawesi) participating on a much more modest scale.

#### C. Environmental Management

The FAO was the first donor agency to attempt to develop technical solutions to the problem of degradation of the watersheds on Java with a pilot program in the Solo River Basin. USAID has carried on from where the FAO left off with work in the Citanduy River Basin which is described in the following section. The IBRD will shortly finance a project which will build on the past technical work carried out by FAO and which hopefully adopts the decentralized, interagency organizational model developed for the USAID-assisted Citanduy Watershed Project.

#### D. Off-Farm Employment/Rural Enterprise Development

UNIDO has the longest standing assistance program in support of industrial development in Indonesia. UNIDO assistance includes provision of technical expertise to the Ministry of Industry for program and policy formulation. The World Bank has taken the lead role in the financing of small/medium scale investment and working capital credits (average size loan less than \$4,000) through the banking system. Other donors have sponsored more limited activities, such as the Belgium Government upgrading a metal industry technology institute in Bandung. However, no donor has yet approached the problems of enterprise development on a comprehensive, multi-factor basis; nor have other donors supported cottage and household enterprises (which are the major generators of non-farm rural employment) with capital and other necessary assistance.

### IV. USAID'S RURAL AND AGRICULTURE STRATEGY - FY 1982/1983

The Mission's agricultural and rural development program will concentrate on four basic and interrelated problems facing Indonesia during the 1980s. These are:

- the need to increase agricultural productivity to attain self-sufficiency in food crop production;

the need to strengthen the capabilities of local government and encourage decentralized regional development;

- the need to improve environmental management of upland areas in densely populated regions; and
- the need to generate off-farm employment through rural enterprise development.

All proposed "new-starts" as well as continuations of the majority of existing projects requiring FY 1982/83 obligations are fully integrated within these four program areas.

(There are a few on-going USAID assisted projects, e.g. the Small Scale Fisheries Project, which do not completely fit within these four program concentrations but which require financial obligations during FY 1982/1983 to be completed).

These areas of program concentration also address the basic socio-economic dichotomy facing Indonesia: The inner islands being relatively developed but with extreme population pressures and the outer-islands being thinly populated with relatively little institutional and physical infrastructure. Thus our efforts in the areas of environmental management and off-farm employment creation are chiefly directed at Java. Our activities focused on increasing agricultural productivity are primarily, although not exclusively, located on the outer-islands. Mission support for development of local government capabilities has a nation-wide scope.

#### A. Agricultural Productivity of Food Crops

As pointed out, the GOI made a major policy shift with Repelita III towards achieving food crops self-sufficiency from an earlier near total preoccupation with rice. Our program objective is to support the Government in this effort by increasing the productivity of cultivating both rice and secondary crops by removing two major barriers. AID's support in this respect can be broadly differentiated between (1) those activities designed to increase the technical, planning and management capability and manpower base of the various institutions serving the agriculture sector and (2) those designed to directly support production and employment objectives with balanced emphasis on the promotion of secondary crops on rainfed, non-irrigated lands and the continued development of irrigated agriculture.

1. Developing Institutional Capability. The first constraint, that of institutional limitations, will be addressed through our effort to develop the capabilities of regional agricultural research institutions and higher education agricultural faculties and curriculum primarily on the outer-islands where

the long-term production potential is greatest and where the technologies for farming systems and professional manpower are least developed. During the ABS period, we will also complete an on-going project to upgrade the Department of Agriculture's planning, administration and policy-setting capabilities. Together these three priority areas of agricultural research, education and planning/administration represent a continuation and completion of projects begun several years ago and also suggest our future direction in this area. They clearly focus on improving the professional and institutional capabilities of Indonesia and are areas in which AID has the established competence, reputation and long-term commitment to and relationships with Indonesian officials and institutions. The assistance provided to the agricultural research and education subsectors best illustrate this long-term commitment and vision.

During the past decade, Mission assistance for agricultural research focussed on building central research capabilities, largely in support of rice production. During the 1980s, this assistance has shifted to developing regional capacities for applied research. Under the Sumatra Agriculture Research Project, we are developing facilities and professional capabilities for a network of ten research stations throughout the island. In FY 1980, USAID and the GOI initiated a second Applied Agricultural Research Project which is designed to strengthen institutional research capabilities on Kalimantan, Sulawesi, Maluku, Bali, NTT and West Java. Thus, during the present decade, USAID will assist the Government develop regional research capabilities largely for the outer islands where the long-term production potential exists.

In agricultural education, USAID has followed a strategy of working with regional associations of public universities to upgrade agricultural teaching faculties and curriculum. To date about one-half of the 27 regional universities within Indonesia have participated in this program. In FY 1981, a new component was launched with the Western Association of Universities which will develop capabilities for agricultural higher education on Sumatra. The final element is proposed to commence possibly in FY 1983 to address institution-building challenges in six universities in the southeastern quadrant (Nusa Tenggara) of the Indonesian archipelago. Therefore, over a fifteen year time span, USAID will help to engage the Indonesian university system and in particular the agricultural education institutions, in the agricultural development of the nation.

2. Agricultural Production Programs. The second constraint to achieving self-sufficiency in food crops which we will address relates to model program development and testing for programs designed to impact directly on production of secondary crops on rainfed lands and on production of rice on irrigated lands. Our support in this area is divided among the following areas:

secondary food crops production; pest management; and accelerating the pace and efficiency of non-technical irrigation system development.

We have previously pointed out the substantial but unrealized potential for increasing the productivity of secondary food crops in Indonesia, which currently lags behind the rest of its ASEAN neighbors. A feasibility study recently financed by USAID has pointed out specific constraints faced by these crops which revolve around a weak technological base, a shortage of technical and managerial manpower, an unorganized system of marketing and a consumption bias against secondary crops. A pilot program concentrated in four provinces is proposed for FY 1983 with research, extension and education, input delivery and output market development elements, to test operational models which can then be expanded on a national scale.

The second element of the Mission's food crops production effort is to support the development and application of pest management practices in the Government's programs in support of both rice and secondary food crops. In terms of research and extension programs, this is the most neglected functional area. USAID therefore proposes to initiate in FY 83 a project in pest management which will strengthen the institutional capacity of the Department of Agriculture to conduct applied research to adapt environmentally sound methods of plant pest control successfully used in other countries to conditions in Indonesia. This pest management work will include control programs for insects, rodents, diseases and weeds, and will be directed at all food crops.

Our third major food crops production component will be to assist the Government in greatly accelerating the pace, and efficiency, of irrigation development in Indonesia. To do so, we will move away from supporting a centrally-administered approach to irrigation to one in which regional and provincial/district water resource institutions assume prime responsibility for the design, construction and maintenance of major irrigation systems as well as smaller, Sederhana, or village-level systems. The proposal for a regional water resources development project, which combines concessional and commercial financing, is discussed below with other regional development concerns while here we explore the possibilities of non-technical irrigation. We also propose below to study the feasibility of developing the complementarities between rural electrification and groundwater pump irrigation.

The proposed Non-Technical Irrigation Project would build on the experience acquired in developing and implementing the Sederhana Irrigation Project. The difference between this and the on-going Sederhana project would be that this project would be designed and implemented at the provincial and/or district level government in a few (not more than five) selected

provinces. Secondly, farmer and village participation in all key decisions and activities regarding the design, construction and operation of the irrigation system would be a central tenet governing the project design and implementation process. Finally, the construction aspect of the project would be supported by an applied agronomic and water management research and extension program to insure that production and water management technology is available to project beneficiaries. At the end of the five-ten year implementation period we would expect the operating principles and organizational models developed and tested in the five areas to be ready for expansion to the remaining provinces with substantial non-technical irrigation potential.

The Government of Indonesia, with United Kingdom assistance, has embarked on a program to realize groundwater potential on Java and Lombok. Many of the sites with groundwater possibilities for irrigation purposes coincide closely with existing areas which will be electrified through the USAID-supported Rural Electrification project. Additionally, there are other rural areas which the Government intends to electrify which also have groundwater potential for irrigated agriculture. Consequently there appears to be benefits to be gained if both programs worked more closely together. Rural electrification would gain considerable productive uses, particularly during non-peak periods, while the groundwater program would gain a cheaper and more easily maintained source of power by use of electric as opposed to diesel pumps. The feasibility of this concept is yet untested and we are prepared to utilize the proposed FY 1982 feasibility study loan to carefully analyze the economic, financial and social viability of such a program. If determined to be feasible we would consider an integrated rural electrification/groundwater irrigation program to commence in FY 1984 where USAID might provide concessional technical assistance/training and where the Government, another foreign donor, or U.S. commercial sources, might finance the hardware and construction of the electric distribution systems and groundwater facilities.

#### B. Local Government and Regional Development.

As pointed out earlier, the Government of Indonesia has embarked on a clear and dramatic process of decentralization of development, giving increasing funding and responsibilities to local government to direct and manage their own development to respond to the region's varying socio-economic and ecological conditions. At the same time, the capabilities of local government to assume and effectively carry out this responsibility is limited. USAID is at the forefront of donor support of this decentralization process. This is perhaps our most significant rural development achievement over the preceding five-year period and we have mapped out an

assistance package over the upcoming decade to continue such support. We fully expect that by 1990/91 local governments will be significantly upgraded in skills and responsibilities to the point where they will be the main administrative channel for directing and administering the rural development of the nation.

USAID has two on-going programs to accomplish these objectives. The first is the Provincial Area Development Program (PDP) which is currently operating in eight Provinces (i.e. PDP I and II). During the CDSS period, an expansion of PDP (i.e. PDP III) will take place which will move the program into six additional provinces and thereby cover about half of all the provinces in Indonesia. The proposed PDP expansion will also extend assistance within the participating provinces for a period totaling ten years. This extended time frame is necessary to fully institutionalize the PDP processes within participating provinces; upgrade skills to a level where local agencies can carry on by themselves in a professional manner; and perfect and spread successful PDP pilot programs for directly reaching and assisting poorer rural dwellers province-wide.

Closely complementing this effort is our support to train provincial and district-level officers in development planning and management through the Local Government Training Project II. LGT II will establish a core of trainers, curriculum and four regional training centers to significantly upgrade the technical skills of local government development planners and administrators and will make use of PDP experience and case studies to spread lessons more widely. At the same time, the PDP will be able to draw on the regional training centers to improve the skills of planners and administrators in participating provinces. In FY 1984, we expect to follow with LGT III which will complete this support with the establishment of additional regional centers. Again, by 1990 we can expect a fully operational training system in place to continually upgrade local government technical and managerial personnel.

The Mission will also build local government components into our other rural development programs, both to capitalize on the institutional advantages inherent in decentralized administration of public programs as well as to upgrade the capabilities of local government agencies. Most notable in this regard are the on-going Citanduy River Basin Development II and Luwu Area/Transmigration Development Projects as well as the proposed Non-Technical Irrigation and Central Java Enterprise Development Projects.

With respect to regional development AID will continue to assist in the development of appropriate institutional mechanisms for both the inner and outer islands. Implementation of Phase II of the Citanduy River Basin

Development Project has only recently begun in conjunction with the Asian Development Bank. We expect it to pioneer institutional mechanisms for national planning and development of inner island river basins which includes a major role for local government. Phase II will concentrate on the basin wide extension of the successful upland agriculture and erosion control pilot activity developed and tested under Phase I. Given the importance of environmental management and erosion control especially on Java, Bali, Madura and Lombok, AID plans to extend this particular component more broadly as proposed below.

The Luwu Area and Transmigration Development Project has also become a model after which several donor-assisted transmigration and area development programs are patterned, particularly those of the World Bank which has assumed the donor leadership position. This model involves the creation of an area project office with responsibility for coordinating the investments of several national sectoral agencies in a defined geographic area. AID believes that a principal task should be to further strengthen the capability of local governments so they can increasingly assume and effectively discharge their responsibilities for guiding and coordinating regional development and we have designed this into the Luwu Area/Transmigration Development Project, through a FY 81 financial technical assistance agreement with the GOI.

An important lesson learned from the Luwu and other location-centered projects and from the growing literature on development needs and priorities for the outer islands is the importance of transport and water resources infrastructure to the development of these outlying regions. We have concluded, as have others, that the creation of this infrastructure base, and the employment generated in the process of its creation, could serve as the central stimulus to the pace of outer island economic development. Investment in infrastructure could also have a greater influence on stimulating spontaneous out-migration from the heavily populated inner-islands than government efforts at directed transmigration.

Accordingly, we plan to use funds from the proposed FY 1982 feasibility study loan to explore with the Government, the EX-IM Bank, and the U.S. private banking sector the collaborative undertaking of two projects that would link concessional technical assistance from AID with commercial credits from the EX-IM Bank or the U.S. commercial banking sector directly, to be used by the Government to purchase engineering supervision services and heavy equipment necessary to implement the proposed projects. One possibility would be development of a major transport planning and investment program on one of the major outer islands (e.g. Sumatra, Sulawesi or Kalimantan). The element financed by AID on a concessional basis would involve technical assistance focussed

on institutional development, transport planning (including feasibility study preparation), training and project implementation supervision.

The second project under consideration would involve selection of an outer-island region for long term U.S. focus in terms of water resources/agricultural development. By prior agreement with the GOI the project would be designed from the outset as a "package" program involving both concessional technical assistance and commercial financing linked to procurement of U.S. goods and services. The concessional technical assistance provided by A.I.D. would be used for three purposes:

- the preparation of a comprehensive water resources/agricultural development plan and feasibility studies for discrete project components;
- the development of the water resources and agricultural institutional capacity (e.g. Provincial Public Works and Agricultural Offices and/or special implementation offices that may be judged necessary to carry-out the program over-time); and
- a Title XII arrangement to develop the water resources engineering and agricultural manpower base through a U.S. Land Grant college tie-up with a local university located in the identified region.

This concessional assistance would in turn form part of a negotiated package which would tie construction of follow-on priority investments emerging from the plan and feasibility studies to U.S. sources for equipment and engineering supervision services. The package would then include concessional A.I.D. assistance for planning and institutional development linked to direct financing from the GOI to purchase U.S. equipment and engineering services. Alternatively, arrangements could be worked out whereby the GOI secures financing directly from the U.S. banking sector with possible limited Exim participation.

The Mission feels that the GOI, given its limited administrative capability but substantially improved financial resource position, would be receptive if the USG were to offer to organize and administer large scale development programs such as the transport and water resources projects described above, which packages concessional technical assistance and commercial financing into coherent development programs. Both of these regional development concepts would contribute substantially to the GOI development, employment, food and regional growth objectives and would probably be well received at all levels of the GOI as evidence of continuing U.S. commitment to Indonesia's development effort, even though the element of concessionality would be substantially reduced.

### C. Environmental Management

Earlier, the serious problem of environmental deterioration of the watersheds on the inner-islands was explored, along with pilot programs to reverse this erosion within the Solo and Citanduy River Basins on the island of Java. Under this program concentration, USAID proposes to assist the GOI develop the institutional structures and manpower capability, at both the national and local level, required to address systematically the interrelated problems of low agricultural productivity and environmental degradation found in the eleven major watersheds on the islands of Java, Bali, Lombok and Madura.

The National Watershed Development project would be designed and implemented in conjunction with GOI and the IBRD. The AID input would involve the provision of technical assistance, training and limited funds for pilot demonstration activities focussed on institutional development at the national and local levels. At the national level, technical assistance, including training support, would be provided to various government agencies, with particular emphasis on the Department of Agriculture, with the purpose of establishing an institutional structure and professional manpower base capable of formulating overall national watershed development policy, plans and programs. At the local, or specific watershed, level USAID would provide the technical assistance, training and limited capital resources required to plan and carry-out a comprehensive watershed program for two of the eleven critical watershed areas located on Java, Bali, Madura or Lombok. This technical assistance support at the watershed-specific level would be modeled after that presently being provided under the Citanduy II project. Given the complex and highly centralized nature of the Governmental bureaucracy, it is the Mission's belief that the best way to articulate and develop a national watershed program is through a combined and interactive effort of national level administrative and institutional reform and development coupled with the execution of several watershed specific projects. The presence of several on-going activities will insure that the national planning and institutional arrangements that emerge from this process are responsive to the needs and requirements of each watershed.

The IBRD would provide, should it decide to participate in the project, the capital resources required to finance the actual extension of the upland technology package throughout the two selected watersheds.

### D. Off-Farm Employment and Rural Enterprise Development

The mission places high priority on programs which offer the prospect of generating new employment opportunities and

increased labor productivity in rural Indonesia. As described earlier, we view the generation of off-farm employment as perhaps the most pressing problem facing the country, particularly for the overcrowded inner islands. We expect that many elements of our assistance for agricultural and rural development will continue to contribute to increased labor productivity and employment. For example, the environmentally-sound farming systems technology embodied in the Citanduy II Project not only increases the productive capacity of the land but also increases the labor component three-fold. At the same time, we recognize the need for additional measures to deal with non-agriculture employment. Therefore during the CDSS period, we plan to move from our involvement with labor-intensive, public works project activity (via Rural Works) towards more self-generating and sustainable employment creation via enterprise development.

The proposed FY 1983 Central Java Enterprise Project will be a pilot program to generate significant increases in employment in manufacturing, trade and service activities in one province. In line with our efforts to provide geographic and program concentration, AID plans to undertake this activity in Central Java where we have gained some experience through our association with the Rural Electrification and Provincial Area Development Programs. The Central Java Enterprise Development Project will analyze the multiple problems faced by such enterprises, and design and implement appropriate interventions, both programmatic as well as policy in nature, to overcome these problems. This will distinguish the proposed Project from on-going efforts to promote enterprise development which enter with single factor inputs, such as technical assistance or credit, but which do not have the capability to package assistance in a comprehensive manner to meet the needs of the target industries.

The purposes of the proposed project would be to: (i) Increase the capacity of non-farm enterprises in Central Java to grow at accelerated rates in terms of increased output and employment generation in higher quality jobs; and (ii) improve the capabilities of Indonesian public and private sector institutions and the business environment to support such growth. This will lead to the goal of increasing non-farm employment and income for the working poor majority found in the overpopulated regions of Indonesia.

## POPULATION STRATEGY STATEMENT

### The Setting - Problems and Challenges

The Government of Indonesia views its population problems from three perspectives:

- The absolute size of the population. Indonesia is the world's fifth most populous country with an estimated population of 147 million persons. The population increase of 28 million persons during the past decade alone is larger than the total population of most developing countries. The population of Indonesia could reach 200 million persons by the turn of the century.
- The rate of population growth. In 1970, the annual population growth rate of 2.7% meant the population of Indonesia would double in just 26 years. Investment, both public and private, has increased rapidly to meet the demands for jobs, schools, housing and social services created by such rapid growth. During the 1970s, the population grew 2.34% annually. By 1980 the annual population growth rate had declined to 2% or less, as the family planning program expanded rapidly to meet the ready demand for contraceptive services. But at 2% per year, population will still double every 35 years, providing little relief from the steady demands for social-economic services. The GOI counts on a population growth rate as low as 1.3% to 1.1% by the year 1990. This lower growth rate would alleviate some of the development burdens created by more rapid population growth but many will persist.
- The gross maldistribution of the population. Nearly two-thirds of the people of Indonesia are crowded into the islands of Java-Madura-Bali with less than 7% of the land area. Population density on Java is 1,725 persons per square mile, making it one of 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 contains 27% of the land area of Indonesia, and the third largest island in the world, yet has only 4% of the population.

Indonesia's large population, its rapid growth rate and uneven distribution directly affects every important national development goal. Population size, growth and distribution are related directly 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 the people of Indonesia, and particularly upon the poorest segments of the society.

The Government vigorously promotes the concept of the small, healthy and prosperous family. The GOI aims to slow the rate of population growth through its family planning program and other population activities, and, thereby, improve socio-economic conditions for all citizens.

The specific family planning goal of the GOI is to reduce the crude birth rate to 22 births per 1,000 population by the year 1990 from a rate of 44 births per 1,000 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 1981 the birth rate was 32-33 per 1,000, which means that the GOI has achieved more than half of the fertility decline target 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 contraceptive 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 1950s. President Suharto signed the World Leaders Declaration of Population in 1967. 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 achieving a smaller 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 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. A large unmet demand for family planning services exists and BKKBN and other implementing agencies are confident that family planning services can be extended to meet that demand.

The Government has plans to correct some of the imbalance in population distribution through a major transmigration program. According to the Third Five Year Plan (1979-1984) 500,000 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.

The strategy for national family planning service delivery programs also has been an evolving one, with two distinct phases. 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 program phase. 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 an additional 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 1981, there were 7.8 million current contraceptive users in BKKBN programs, or almost 40% of the eligible couples.

Throughout the Third Five Year Plan (ending March 1984), the BKKBN's family planning strategy will be to continue to recruit new acceptors by extending services into 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 villages 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 relatively quickly in Indonesia while other development activities have lagged. The promise of a healthier, more prosperous family has not yet been met. BKKBN officials worry that acceptor couples might 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 falter because other ministries have not reached down to the villages with their services. Regardless of the theoretical arguments for and against using the family planning service delivery system to deliver 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 U.S. dollars and percent of total family planning budget) illustrates the changes in Government and donor financial support during the 1970s:

	<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 remote areas, attempts to reach the hard core of non-acceptors, and strives 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 1980s.

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

- the birth rate dropped from 44 to 32-33 births per 1,000 population;
- the population growth rate fell from 2.7% to slightly less than 2%;
- current users of contraceptives within BKKBN programs increased from 181,000 in 1970 to 7.8 million by March 1981;

- prevalence of contraceptive use grew from 1% to nearly 40% of eligible couples (33.6% in BKKBN programs and 6% in the commercial sector);
- family planning service outlets soared from a few hundred clinics in 1970 to 5,793 hospitals, clinics and health centers; and 109,239 village family planning depots, sub-village depots and family planning acceptor groups in 1981;
- distribution of oral contraceptives grew from less than one million monthly cycles in 1970 to over 54 million cycles in 1980;
- tens of thousands of persons were trained to assist in the family planning programs, including physicians, nurses, mid-wives, field workers, village volunteer distributors, educators, and others;
- contraceptive prevalence rates increased to 60% of the married couples of reproductive age in East Java, a province of nearly 30 million people;
- political support for the family planning program from government leaders at all levels remains firm and is frequently expressed by them in public;
- reporting and feedback systems are in place and are utilized for managerial, supervisory, and planning purposes.

*not a program result*

#### Donor Assistance

Three organizations, USAID, UNFPA, and the World Bank provide most of the donor resources to the BKKBN. In addition, many private donor organizations are also active in Indonesia, working with BKKBN or with private Indonesian organizations.

Each donor organization offers assistance in special areas, and overlapping of assistance is marginal. USAID has the largest assistance program, concentrating on providing contraceptives and other service related commodities, overseas training, and local cost support for provincial family 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 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; bio-medical 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 accomplished on an informal but frequent basis.

Substantial donor inputs will be required during most of the 1980s if the Government is to come close to achieving its goal of reducing the birth rate to 22 births per 1,000 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 1980s. USAID concurs in that judgment.

#### Proposed USAID Assistance

During the 1980s USAID expects to:

- continue financing local costs 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 in Indonesia. 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 mechanisms acceptable to the Government of Indonesia. Voluntary sterilization services are increasing yearly, but are still low compared to other Asian countries. Government leaders have discussed with us some concerns of potential political sensitivities about voluntary sterilization, but steadily increasing numbers of Indonesians are requesting this service, thus assuring the need for an expanded service.
- 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. BKKBN needs more trained people, especially at the mid-level and geographically 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, as well as some BKKBN staff members. The aim of the 1980s will

be to upgrade and expand in-country training capabilities.

- support the expansion of family planning services in the relatively neglected urban areas, through hospitals, neighborhood clinics and commercial retail sales program.
- encourage BKKBN to assume financial responsibility for purchases of contraceptives, after the current AID loan terminates in FY-1982.
- 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 areas must be corrected if the success of the family planning program is to be continued unabated. The emphasis of USAID assistance in the 1980s 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 and plans to add two more persons per kecamatan during 1981-82. It has been slower 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 yet known.
- 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 may not be appropriate in the cities. UNFPA and USAID are developing projects with BKKBN for broad family planning programs in urban areas.
- voluntary sterilization services are still not included within the official BKKBN family planning program, although the Government policy seems to be changing.
- 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 AND NUTRITION SECTOR STRATEGY STATEMENT

### CURRENT SITUATION/PROBLEMS

Survival of young children in Indonesia is problematic. At least 1/5 of all children born in Indonesia do not survive past age 5. Those born to large, poor families have even less chance. USAID has identified the problems of child mortality and morbidity as the focal points for its health and nutrition program. Our projects are expected to contribute significantly to reducing infant and young child mortality resulting from severe morbidity and malnutrition through interventions and education activities that mutually reinforce the family planning objectives. Although improvement in overall economic standard of living will help, the improved health and nutritional status of this age group will require continued expansion and improvement of targetted health/nutrition services, with an emphasis on increasing women's knowledge and skills in the care and improvement of their family's health and nutritional condition, especially the feeding and care of infants, young children and mothers.

Public and private health and nutrition services remain among the weakest of all human services in Indonesia. The need for improvement and assistance in the public sector is enormous; yet the government's absorptive capacity in the health field is still limited. Under these circumstances and given AID resource limitations we will focus our limited health and nutrition program during the CDSS period on four areas which can most directly reduce infant and child mortality and morbidity: maternal and child health, nutrition, province-level primary health care delivery systems, and malaria control. In all of these areas our assistance will employ a demonstration approach integrated where feasible with government and other donor operations.

### DISEASE CONTROL

The communicable disease burden on Indonesia's children is enormous. Some of these diseases and illnesses can be combated by immunization and others not. It is estimated that by the end of this CDSS period the AID-assisted nationwide Expanded Program in Immunization (EPI) (immunization program) against tetanus, whooping cough, diphtheria and tuberculosis will save 150,000 children's lives per year. Many more lives could be saved or improved if the program could expand effective coverage for these diseases, especially if immunization against measles and polio were added to the program. Toward this end we plan to continue our assistance to the EPI program during the CDSS period.

Despite progress made against immunizable diseases, children will remain excessively vulnerable to other health hazards during the remainder of this century. Diarrheas, respiratory diseases and malnutrition, the major causes of infant and child mortality, are not preventable by immunization. The general level of sanitation is unlikely to improve greatly due to increasing population density, staff constraint and inadequate investment; potable water will still be unavailable to the majority of Indonesians; and breast feeding will probably decline. In view of these negative factors, the government must reach children's parents to improve their knowledge, attitudes and practices toward child care, and thereby help them to reduce their children's disease burden in spite of the poor environmental conditions.

Based on experience in other countries and early indicators in Indonesia, it appears inevitable that DDT resistance among mosquito and chloroquine resistance in the malaria parasites will spread during the 1980s. Under those circumstances, the related morbidity and mortality as well as the costs, technical and managerial demands and risks of malaria control operations are likely to increase. This is likely to be the case even in the Java-Bali program areas where malaria presently is under adequate control. Malaria control is not yet established in any of the other major islands in Indonesia where malaria serves as a major constraint to agricultural and general development. The AID assisted Timor Malaria Control Program is the first systematic outer island control operation. If successful, this program's systematic approach could be replicated by other donors such as the ADB on other islands - probably Flores, Sumba, Sumbawa, and Lombok at first - with larger programs later for Sumatra, Kalimantan, Sulawesi, and Irian Jaya.

## NUTRITION

Regarding nutrition, despite improving rice production, per capita caloric consumption for the majority of Indonesians may remain below adequate levels (much less, desirable ones) due to the high population growth rate, inadequate purchasing power, lack of secondary food crops, and inadequate nutrition education. Most of the factors that cause about 50,000 children a year to become blind from Vitamin A deficiency, that cause millions to suffer from goiter (some of whom then suffer debilitation and produce cretinous children) and that cause tens of millions to suffer debilitating but reversible nutritional anemias, can be changed only over the long term. Nevertheless, specific interventions can be undertaken and pursued during the 1983-87 planning period. Coordinated food-agriculture-nutrition policies and programs are essential and have barely begun; this will be a focus of AID efforts in the 1980s. AID has been assisting with several nutrition interventions including Vitamin A deficiency prevention, delivery of family nutrition services directly to villages through the

established family planning network, and nutrition surveillance and will include important nutrition components in the new CHIPPS project.

#### PRIMARY HEALTH CARE

The government is currently striving to define primary health care in the Indonesian context; even after definitions and principles are agreed upon, many years will pass before an adequate health care system is established. Although more than 4,000 health centers have been opened in nearly all areas of the country, the harsh realities are that their services affect less than one-fifth of the population. Special attention will have to be paid to the choice of services that reach the people and to the managerial, logistic and epidemiologic support provided, especially at provincial level and below. We plan to initiate assistance in this area through the CHIPPS project and to sustain it during the CDSS period.

To carry out all of the important programs referred to above, and more, the Ministry of Health requires more and better trained manpower. The need is fully recognized and is receiving priority attention. USAID is assisting by providing a health manpower planning consultant to the central planning unit and will include assistance for formal and non-formal training of paramedical personnel and management training in the new CHIPPS project.

#### OTHER DONORS

UNICEF, World Bank, WHO and UNFPA are the predominant other donors participating in the health sector in Indonesia. Taken together they support programs in primary health care, nutrition, malaria control, water supply, hospital construction, family planning, manpower development and planning. In addition, the Japanese and Dutch governments are assisting with construction of nurse training schools at several locations.

#### USAID PROGRAM

In summary, USAID will complete implementation of its Rural Sanitation Manpower Development project in early FY'83, continue implementation of Expanded Program In Immunization, Health Training Research & Development, Timor Malaria, Comprehensive Health Improvement Program and Village Family Planning/Mother Child Welfare projects. We believe this portfolio represents a coherent, manageable package of interventions in direct support of the GOI health sector priorities and which contribute directly improved health conditions for a segment of the population and to significant reduction of infant and young child mortality.

EDUCATION AND HUMAN RESOURCES AND  
DEVELOPMENT ADMINISTRATION SECTOR STRATEGY STATEMENTS

I. Education and Human Resources

Setting : Education and training at all levels of the Indonesian work force is essential to effective development. A major constraint all level is the establishment of institutions and procedures to supply up-to-date knowledge and technology where it is needed in a timely, cost-effective manner. Indonesia's unique geographical setting, cultural differences, and population distribution compound the difficulties it faces in providing education and training services. Universities are new and the demand for high level manpower to support provincial governments' development tasks far exceeds present supply. Development of essential human resources is a top priority of the GOI.

Nevertheless, despite the heavy emphasis on education, the shortage of trained workforce will continue to act as a brake on development in the 1980's, with large gaps between supply and demand for technical and professional workers actually justifying still higher levels of educational investment. Current estimates of the World Bank indicate that total needs for technical workforce (engineers, scientists, agriculturalists, accountants, economists and administrators managers) for the 1980-1990 period amount to 11,400 per annum, while university output in 1979 for these same fields amounted to 4,200, a potential shortfall of 62 per cent.

GOI Efforts : The Government of Indonesia is devoting 3.5 percent of GNP to education. Of this total, more than 2/3 of central government educational funds are allocated to primary schooling, 20 per cent to secondary education and about 10 per cent to higher education. Indonesia is making impressive progress in extending education to greater numbers of its population, particularly primary education, where participation rates rose from about 70 per cent in the early 1970's to well above 90 per cent by 1980. To accomodate this increase in 1980 alone approximately 15,000 new primary schools were built. Moreover, Indonesia is expanding its secondary technical and vocational training programs and greatly increasing its post secondary and university graduate programs. Over 1,000 new university staff are being recruited annually for the public higher education sector alone. In 1980-81 special allocations of \$173 million were made to university development budgets for books and journals, laboratory equipment and physical facilities. At the same time regular development and operation budgets are increasing about 25% annually. The GOI is taking steps at all levels to revise curricula, improve teaching, provide greater numbers of textbooks and experiment with alternative ways to extend education through the "small school," "open secondary school"

programs, provincial universities and the use of communications technology to make more efficient use of its thin veneer of highly trained experts.

Other Donors : The multilateral banks IBRD and ADB have been providing most of the external assistance in Indonesia's drive to make primary education available to all its citizens. UNESCO and UNICEF also are making substantial contributions through their own funds and as contractors for the Banks. The Banks are also heavily involved with secondary technical/vocational training and teacher education. At the higher education level bi-national donors and PVO's also render assistance on a "spot need" basis in both the private and public sectors. Australia, Canada, Great Britain, West Germany, Holland, France and Japan are the most heavily involved. ASEAN offers many opportunities for cooperation and mutual assistance. Ford and Rockefeller Foundations give substantial assistance to higher agricultural education and the Banks support overall development including construction at selected key universities.

AID is the only donor which offers assistance to the entire national university system in agriculture and rural development related programs, administration/management, library development and English-language improvement.

The AID Strategy : The AID strategy in education and training is designed to support host-country efforts to improve and expand selected elements of the Indonesian educational system. Given the heavy involvement of other donors in this sector and AID's concentration in other areas we will continue to confine our efforts to those government priority areas in which we have a comparative advantage. These efforts will be closely coordinated with those of other donors and will stress Indonesian objectives of improving education for the poor and increasing the education system's staff and institutional capability for planning and directing an expanding national development program. Our assistance stresses the provision of technical advisory services, educational software and training. These three elements complement the government's and other donor concentration on construction and physical expansion; in a sense, our "specialization" allows us to optimize our development investment by concentrating efforts in two areas in which we have special capabilities and interest :

- (1) To help with quality improvements in the Indonesian education system;
- (2) To help with leadership development problems in a variety of programs and sectors where U.S. training is especially valued and sought by Indonesia.

Quality Improvements in the Education System. USAID will concentrate on three aspects. The first is a continuation of our assistance to higher agricultural education to produce the skills

required to make Indonesian agriculture more productive.

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, USAID hopes to contribute to the increase of skilled manpower as well as to make 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, through strengthening associations of 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, Gadjah Mada and the Agricultural University of Bogor (IPB) in the Agriculture Education for Development project. 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 second step, the University of Wisconsin (under Title XII) is providing 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. This is the Graduate Agriculture School project.

The graduate school at IPB is serving as a significant resource in the third step, in which one of the six provincial institutions that has been part of the network associated with the universities of IPB and Gadjah Mada, is participating in another network, the Eastern Island Association of Universities. This is Hasanudin University in Ujung Pandang. Making use of Title XII and Washington State University, the project is helping the Eastern Islands Association to share achievements and strengths, a sharing that is not only outward from Hasanuddin to the other universities of the Association, but also among and between all members.

The fourth step is the initiation of a third networking process with the Western Association of Universities. Again using Title XII, the University of Kentucky was selected to design and implement a project linking institutions of Sumatra and one of Kalimantan in a manner to the Eastern Islands effort.

A new project, Nusa Tenggara Agricultural Education, proposed as a shelf item in FY 83 would complete the AID assistance strategy in this field. This final project will under Title XII, with approximately 8 universities of southeastern Indonesia participating with an American institution over five years to achieve goals similar to those of the Western Universities project. With this project USAID will have provided assistance to all agriculture related faculties of all public institutions.

The second aspect of qualitative improvements in the education system has to do with new methodologies and techniques to enable Indonesia to maximize the impact of its educational expenditures. In this vein, USAID has supported the Self-Instructional Learning System project with sites in Central Java and on the island of Bali. The purpose is to help the Ministry of Education to apply the Project IMPACT/PAMONG programmed instruction technology on a kabupaten helping the Ministry of Education's educational technology center to produce effective programming for a variety of media employed at all levels of the education system.

As Indonesia's higher education and other development institutions are so relatively young, the country has not yet developed a strong technical information source based on indigenous research; nor have the burgeoning university enrollment and staff developed adequate English-language skills to be able to tap the vast world supply of technical knowledge stored for scientific reference in that language. Every university lists this as a major constraint to its development. Clearly, this is an area for an in-depth institution building project which will serve the national interests of both Indonesia and the United States.

Therefore, the third area in which quality improvements are possible and which lends itself particularly well to a US. contribution, is that of English-language training. A new project proposed to start in FY83 (or in FY82 if funds are available) will be designed to respond to the continuing need for the improvement of English skills of Indonesians going abroad for training, particularly to the United States and to unlock a major storehouse of technical information for university staff and students.

A new Indonesian center for English language training will have as its major purpose the strengthening of indigenous English language institutions, particularly the various English-training centers at government (and some private) universities. It will :

- upgrade the quality of English-language teaching at the post-secondary level;
- offer direct instruction to Indonesians selected for graduate level academic study in the United States;
- provide special technical assistance to university programs, of English language training utilizing its own resident staff as well as short and long-term experts;
- organize periodic seminars featuring experts from English-speaking countries;
- maintain a full library of publications, videotapes, films and other resources for use by the resident staff and associated Indonesian University English-language specialists;

- be the test center for Indonesia for the Test of English as a Foreign Language (TOEFL); and
- be able to offer fellowships for advanced study abroad in the field of TOESL (Teaching of English as a Second Language).

Addressing Leadership Development Problem : Indonesia must train an entire generation of leaders for the critical last two decades of this Century. Although the Indonesian university system is expanding and making important strides, it will be many years before it has reached the point where it can prepare the numbers of scientists, doctors, engineers, technologists and specialists of many kinds, at requisite advanced levels, to meet its needs. Although other nations are providing graduate training to Indonesians, the United States has unique capabilities to assist with this task. Moreover, Indonesia has made it clear repeatedly that it wants as much American training for its potential leaders as possible. While a considerable amount is available through projects in Development Administration, Family Planning, Agricultural Education and other sectors, there are many training needs to which it has not been possible for USAID to respond because they lie outside program areas in which project money has been earmarked for training.

The United States needs to be in a position to respond to these broader requirements, not only in view of the very important demands for special training for employees of the Indonesian Government, but also to respond to requests from private sector organizations and firms, private and voluntary agencies and multilateral agencies and others.

An FY82 initiated project, General Participant Training II will:

- provide for selection of trainees by other than GOI procedures;
- enable USAID to respond flexibly to important requests;
- permit training to be paid for by the GOI, the private sector, AID and other donors, or combinations of these. For example, AID may donate the time of its Mission-based staff for placement in U.S. universities of Indonesians whose education is being supported by the Asia Development Bank, the IBRD, and other sponsors.

## II. Development Administration

### A. The Setting

Widespread development will take place in Indonesia only when there is an adequate supply of skilled managers to conceive, mount, implement, evaluate, and replicate a general development effort. Most development experts agree that it is the shortage of well-trained indigenous managers more than any other constraint that retards development in Indonesia. The lack of managerial skills, the lack of organizational teamwork, and out dated organizational structures provide obstacles for development rather than creating a climate where maximum results can be achieved. USAID recognizes that every aspects of all project operations is limited by the competence, motivation, and general effectiveness of the human component within the GOI organization of each project. Therefore, managing the human element is the central and most important task of each project, because all else depends upon how well it is done.

The only really effective approach known which produces tangible management improvement results is that of concentrating training of all managers, from top to bottom, within one organization. A program, therefore, of literally "blanketing" the organization with management training is a necessity. This approach is now in process through three existing projects for seven ministries/agencies:

#### EXISTING PROGRAM

Project	Organization	Potential Managers to be trained
Professional Resources Dev. I	Ministry of Finance	3,000
	BAPPENAS	125
	LAN (Institute of Public Administration)	-
Professional Resources Dev. II	Ministry of Agriculture	1,935
	Ministry of Education	2,032
In-Country Management Dev. I	Ministry of Public Works	2,000
	Ministry of Manpower and Transmigration	2,500
	Total :	11,592

### B. GOI Efforts

This program is being enthusiastically accepted by the GOI and should produce the desired results. For example, in the Ministry of Finance, the training division of that Ministry has enthusiastically begun a course of working with USAID's Office of Development Administration to train all 3,000 managers in the organization.

The Ministry trainers have translated all training materials and are offering the management seminars in the Indonesian language. The Ministry of Education plans to do the same. In FY83 if additional funds are available this same approach could be expanded by a shelf project extending the In-Country Management Development Project to include the Ministry of Interior, the Ministry of Health and the Agency for National Family Planning Coordination. These are three key organizations whose impact upon the rural poor can, with good management, be widespread in improving their standard of living.

C. Donor Assistance

With the exception of general long-term training programs by the World Bank which in isolated cases are used for management training, no other donor assistance is available for the type of in-country management training which the Office of Development Administration is offering.

D. USAID Strategy

It is the USAID strategy to choose a central core of government ministries and private agencies or foundations which can significantly affect the development efforts of Indonesia and "blanket" them (train all managers in the organization) with management skills training which will lead to the productive output the country needs in order to insure its continued development.

The ten organizations to be included in the Office of Development Administration program employ over 280,000 people, 17,000 of whom are managers. With these ten major development oriented organizations blanketed with management skills training, a significant number of the key development implementors for the Republic of Indonesia will have been trained.

## SCIENCE AND TECHNOLOGY SECTOR STRATEGY STATEMENT

### I. Setting

During the colonial period, general industrialization was not encouraged, since the Netherlands itself was industrialized and needed only agricultural products and raw materials from its Colonies. For the limited non-agricultural industry which was located in the Netherlands East Indies (Indonesia), such as the mineral extractive industries, the design, methodology and management was in the hands of expatriate engineers and specialists, primarily Dutch. Local people were primarily used for menial labor, and supervised tasks at intermediate levels, and educational levels were kept low. The handicap of the resultant lack of indigenous highly-educated and experienced specialists and managers in Indonesia, and the weakness or lack of technical institutions in which they would operate, is severe, strongly inhibiting Indonesian development. These factors are the major reasons why experienced expatriates and "turn-key" industrial operations have been necessary for the first step of development, but it should not always be so. Indonesians educated abroad in the Sixties and Seventies in the U.S. and Europe are now organizing and leading new Indonesian institutions of development and management, but these "technocrat" new leaders are too few and spread too thinly to do it alone. They need our help.

### II. Definition of the Challenge

Indonesia is now on the threshold of economic development. It has the potential natural resources, the potential energy resources and the necessary manpower to achieve a major degree of self-sufficiency and its own development. But resources and raw manpower alone are not enough. Indonesia still lacks --at least in sufficient quantity and quality-- the management skills, the viable institutions, and the educated engineers and highly trained technicians to achieve modern development and industrialization. It also lacks basic experience and "know-how" for the industrialization process, and its energy resources are mostly located in remote areas, making access and economic extraction difficult. Its oil and gas are needed for exports in order to finance the bulk of its development program, rather than for its own industrialization\*. Nevertheless, the will and the drive are there to achieve self-reliance and self-capability through policy, management, institutional and manpower development by Indonesia for Indonesia.

\* A separate Energy Strategy Statement elaborates on the Energy Sector.

Applied science and technology is the heart of what we call "development". Whether it is scientific farming with new plant strains and fertilizers for more food, water purification technology for potable water, modern medicine for better health, development of "the Pill" for family planning, small and large industry for employment generation, industrial products for a better life, housing technology for better homes, fiber technology for clothes, or developing renewable energy sources to help drive the whole development process, one sooner or later comes down to "Science and Technology" as the basic building block in "Development".

The GOI has clearly recognized the importance of Science and Technology to its overall economic development, and has recently created new S&T institutions to promote and accelerate the process. The former Office of the State Minister for Research was reconstituted under a dynamic, German-trained Indonesian aeronautical engineer as the "State Minister for Research and Technology", thus emphasizing the practical nature and goal of the assignment. Under his leadership a national research and development priority council was organized, divided into: (1) Basic Human Needs, (2) Energy and Natural Resources, (3) Industrialization, (4) Defense and Security, and (5) Socio-Economic Aspects. A new Agency --now employing 800-- was created under the Minister's leadership only two years ago, the "Agency for Development and Application of Technology (BPP Teknologi)". The ten-year development plan and construction of a major national R&D center, a "science town" called by the acronym "PUSPIPTEK" is proceeding rapidly. It includes ten R&D institutions, including a large industrial and construction materials testing laboratory, an aerodynamics laboratory and wind tunnel, and an institution and laboratory devoted to instrumentation calibration and metrology, an energy resources laboratory, a nuclear research reactor and laboratory, etc. The Minister for Research and Technology has the direct support of the President of the Republic for this expansion, and will become more and more the primary counterpart for the USAID/Science and Technology Sector program, as he is interested in cooperative programs with the U.S. private sector to help him with Indonesian industrialization.

### III. Other Donor Activities

The Minister of State for Research and Technology has looked toward four industrialized nations as leaders in assisting Indonesia in the S&T Sector, through both governmental and private sector efforts and activities, and has now signed bilateral S&T cooperation agreements with all four Governments, the first being the U.S. in December, 1978.

To date, the German, French and Japanese Governments have been forthcoming with a variety of subsidized technical

projects and assistance, focused on training programs, equipment, joint projects, and advisors. For example, the French have offered a broad range of energy and marine resource assistance and have conducted a joint oceanographic project. The French will finance Ph.D-level training for 250 Indonesians in areas of science and technology; this is a long-term investment in relationships between Indonesia and France's technology sector. The Germans have supplied training (in Germany), advisors and equipment for the new PUSPIPTEK materials and construction testing laboratory, which will be inaugurated in the autumn of 1981, and have collaborated in a joint testing program for photovoltaic cell and other alternative energy applications in a rural village. The Japanese have given about \$8 million for an ethanol R&D facility in West Sumatra, which will help tie ethanol development as an alternative fuel to Japanese industrial know-how and companies, and help insure the continued flow of Indonesian oil as an export to Japan by having ethanol contributing to Indonesia's domestic liquid fuel needs.

The Netherlands has also contributed to the PUSPIPTEK complex by donating a multimillion dollar wind tunnel.

Other than PUSPIPTEK, it is difficult to itemize donor activities for such a broad sector as "Science and Technology". The World Bank has a loan for technical assistance and equipment to GOI mapping coordination agency, and is planning a major loan in the energy sector. The Asian Development Bank is making a loan of about \$18 million of technical equipment, advisors and training for the general development of the geological survey institutes in Bandung. Many nations (e.g. Germany, Australia, France) assist in the important sector of oil and mineral resource exploration and exploitation, all through scientific and technological assistance. Private foundations are active in the application of science and technology to rural development.

#### IV. USAID Strategy for the Science and Technology Sector

In FY 83, the Office of Science, Technology and Energy (STE) will continue its strategy and program of institution building, policy development, manpower development, management training, employment generation through appropriate technology, and stimulation of non-conventional (alternative) energy resources for the domestic needs. Working closely with forestry and environmental officers, we expect to integrate these subsectors into the basic STE program as well as to help other USAID offices with the integration of forestry and environmental concerns within their own programs, strategies and projects.

In summary, we are focused on helping Indonesia become self-reliant in these sectors, particularly by drawing upon the tremendous pool of scientific, technological and engineering knowledge, experience and skills found in the United States to teach, advise and train Indonesians. Also, by using U.S.-manufactured specialized instruments and equipment we can often accelerate the process of development in Indonesia, and at the same time assist our own private sector in export development.

The S&T strategy is primarily related to general technological institutional and manpower development. However, we have continued some activities more directly related to benefitting the common man, such as institutional and manpower development concerned with fishing, mitigating loss of life and property by volcanic eruption, earthquakes and landslides, job creation through selected appropriate technologies for rural areas, and assistance to land use planners.

The science and technology sector of the STE program currently includes specific projects or subprojects in assisting S&T policy development; improving indigenous management capability in the S&T sector; upgrading attention to development and management of the marine and coastal areas of Indonesia (especially fishing and marine environmental problems); mitigation of loss of life and property due to geologic hazards (volcanoes, earthquakes and landslides); improvement of geological information availability as a tool in land use planning; development of several appropriate technologies to stimulate job creation and village improvement; and assistance in the establishment of an environmental center at the Institute of Technology at Bandung (ITB).

With the newly added responsibilities for environment and forestry, STE plans to assist other USAID offices in those subjects. This may include activities to support USAID programs for soil stabilization and improvement by legumes, tree farms for fuelwood and fodder, watershed and erosion control, tree product development (nuts, oils, alcohols, latex, etc. as well as wood), trees for animal and plant habitats, utilization of wood waste, conversion technologies for wood-energy transport, new utilizations for wood for new products, small industry development, job generation and value-added exports related to wood, (e.g. wood handicrafts), wood processing technologies (e.g. prevention of termites and wood cracking), wood species improvement and distribution, and management of tropical forests and their utilization. All of the above are serious problems or opportunities for Indonesian development, and where U.S. scientific and technological expertise can provide key assistance.

The USAID/STE projects in the Energy Sector, that is, assistance in alternative energy development, energy training and education (manpower development), energy assessments, analyses and national policy development, and energy research and development are described in the separate energy sector strategy statement.

## ENERGY SECTOR STRATEGY STATEMENT

### I. Overview and Background

#### A. Status and Trends

The achievement of an adequate rate of economic growth in Indonesia requires the use of increasing amounts of energy. Current total energy consumption is growing at about 11%/year, with per capita consumption increasing at about 9%/year. Petroleum is the principal energy source that is being used to satisfy the increased energy demand, with domestic petroleum consumption growing at 11%/year. If oil production remains constant as it has for the past three years, maintaining this rate of growth of internal consumption (and neglecting the self limits imposed by exponential growth) would result in Indonesia becoming a net oil importer by the mid 1990's. Since petroleum exports are the primary earner of foreign exchange (76% of total in 1980), the growth in internal consumption poses potential serious problems for the economy as a whole. Since Indonesia is a major supplier of oil to the Southeast Asia region, the loss of Indonesian exports could adversely affect the economic situation throughout the region.

Currently household consumption of energy accounts for approximately 60% of all primary energy consumed in the country. Most of this is firewood or agricultural wastes used for cooking. With GDP growth and the resultant increase in commercial energy use, the fraction of total energy required by households will decrease significantly to perhaps 40% by the year 200 but will remain the largest energy consumption category. The use of firewood and agricultural wastes has resulted in the expected deforestation in the densely populated areas, particularly the islands of Java and Bali where 65% of the country's 147 million people live on only 7% of the nation's land area. Even though the percentage of energy used for cooking will decrease, the total amount will increase due primarily to population growth. With the current rate of population growth (2.0%/year), by the end of the century 60% more energy will be needed. This assumes no improvement in the efficiency with which fuel is burned for cooking and no change in cooking or eating habits.

A principal link between the two trend described above is the use of kerosene as a household fuel, principally for cooking. The GOI provides for the subsidized sale of kerosene; this is such an extensive program that the kerosene subsidy is one of the largest expenditures in the GOI budget. Steps have taken to reduce the subsidy and allow the prices of kerosene to rise. This can be expected to have two effects: political ramifications due to increased hardship for the poor majority and environmental effects due to increased cutting of already scarce fuelwood.

Unlike some countries, Indonesia has the natural resources available to alter significantly the above trends, to substitute other energy sources for petroleum for domestic consumption and to assure a continuous supply of firewood or firewood-substitute for household needs. In addition great potential exists for increasing petroleum production since only 20% of the prospective oil reservoir areas have been explored and for increasing exports of natural gas to compensate for possible reductions in petroleum exports.

## B. Energy Resources

In brief, Indonesia's potential energy resources may be summarized as follows:

Oil. Because oil is found in relatively small reservoirs and in scattered (off-shore, on-shore, jungle) locations, exploration and extraction costs are comparatively high. The low sulphur content results in generally high quality. Current national objectives are to maintain reserves at a constant level and allow oil production to continue at the current rate (1.6 million barrels per day) for the next 25 years.

Gas. Production and use of natural gas increased significantly during the late 1970's. Due primarily to the scales of LNG, natural gas is at the present an important source of foreign exchange. Prior to 1977, the gas was primarily either flared (60%) or used in the oilfields (22%, 1976 figures). The LNG trade started in 1977 and in 1980 accounted for 45% of gas production. The gas resource exists away from domestic markets, limiting its potential as a source for domestic energy needs.

Coal. Coal is the country's most abundant source of fossil fuel. Total reserves are currently estimated to be four times as great as oil reserves and seven times as great as gas reserves. Since the resources is primarily located in Sumatra and Kalimantan upgrading of the transportation infrastructure will be required to permit expanded coal use in Java. The largest reserve has a high water content and its development must be preceded by thorough study of the transport/utilization options.

Peat. It has been estimated that peat resources might prove to be even greater than coal. Peat is found over wide areas of Sumatra and Kalimantan. The extent and quality of the resource must be determined however.

Geothermal. For electricity generation, geothermal energy has good potential. Five areas in Java have been designated as ready for exploitation; the first geothermal electric power plant will come on line in 1982. The total estimated potential capacity on Java is greater than the installed generating capacity of the state electric company. In addition, geothermal energy could provide a source of generation in some remote areas.

Hydropower. Even on densely populated Java the hydropower potential has not been fully exploited. Further large hydropower development will be hampered by competitive uses of the land and water, environmental and financial constraints. On the outer islands the hydropower potential remains largely unused. Throughout the country small size hydro plants can provide service to remote areas and contribute to development.

Biomass. Plentiful in sparsely settled areas, biomass offers an interesting potential to provide the energy needed for the resettlement programs. A variety of conversion technologies are ready for field verification and/or further adaptation prior to wide replication. For the densely settled regions, carefully planned wood lots and improvements in the efficiency of utilization can assist to relieve the ecological pressure caused by collection of firewood and agricultural waste. Attractive processes would include alcohol production, pelletizing and briquetting of low density fuels and improved charcoal production.

Direct Solar. There are periods of intense sunlight nearly every day although the long rainy season and frequent overcast skies pose certain limits to the potential. Most obvious opportunities would seem to be low temperature heat for drying of various crops and photovoltaic generation for applications which require small amounts but a reliable source of electric power.

Nuclear. Indonesia has some uranium resources and has considered purchasing a nuclear power reactor but nuclear power is not anticipated before 1995 at the earliest.

### C. Constraints to Energy Development

Development of the proper energy program chosen from among the many possibilities inferred from such a wealth of potential resources will be constrained by the financial requirements, technical manpower requirements, need for planning and analysis to choose the proper path and the process of technology transfer.

Financial. Energy sector investments are always considerable. A recent analysis of possible energy strategies for Indonesia concluded that in the next 25 years, energy sector investment would have to increase five-fold even if no major emphasis is given to reducing internal oil consumption and eight-fold if a major program were launched to substitute for internal oil consumption to maximize oil exports. The foreign component of energy investment is about 70% at present. The increase of industrial self-reliance and transfer of technology are expected to reduce this to about 40% after 25 years.

Technical Manpower. It is quite likely that the ultimate restriction upon the country's ability to remain energy self sufficient will be training the necessary workforce. For the next 20 years, each year about a 1000 engineering graduates and 2000

supervisors and managers will be needed to be assigned to the energy sector. Technicians and skilled craftsmen comprise the largest group requiring advanced training. For the next five years alone, 2000-5000 graduates of technical and vocational training will be needed per year (with the largest number required for a program to minimize internal oil consumption by seeking alternatives).

Planning. With so much depending on the choice of the optimum energy program, there is clear need for thorough and careful planning for the development of the proper mix of energy resources and technologies. Although initial supply and demand analyses have been performed, these studies need to be reviewed regularly and updated as appropriate to reflect current economic and technological factors and implementation progress.

Technology Transfer/Technology Demonstration. Carefully designed and conducted demonstration of selected technologies need to be conducted. These will verify technical feasibility and prove the economic viability of the technology. They will identify the training needs of the professional and technical staff and plant the seed for future expansion and replication of the use of the technology.

## II. Indonesia's Objectives, Organization and Program for the Energy Sector

Objectives. 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.

Organization. The Ministry of Mines was reorganized in 1978 as the Ministry of Mines and Energy and now contains three Directorates General; 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). PLN is the State Electric Power Company and operates an Electric Power Research Institute. The Agency for the 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 energy industry development and planning 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 contributions 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. PERTAMINA has recently funded a program to provide academic training and technician training in gas technology, specifically LNG, required to manage and operate the LNG export facilities. 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. The Minister is particularly interested in acquiring commercially available energy technology from the industrialized countries for testing and demonstration. If proven appropriate, the approach would be to determine what portion of the technology could be assembled or manufactured in country to increase employment opportunities and reduce cost for further replication of the systems.

Interagency coordination is effected through the National Coordinating Board for Energy (BAKOREN). Chaired by the Minister of Mines and Energy and with heads of other ministries as members, the organization's objective is the formulation of government policies on integrated development and utilization of energy, formulation of national programs and coordination of inter-institutional implementation of the policies and program. The decisions and deliberations of the cabinet-level group are staffed out by the interagency Technical Committee of Energy Resources chaired by the Ministry of Mines and Energy and composed of twenty seven members.

Technology Program. 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 influenced. The first step 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. windmill, microhydro power, biomass conversion and direct solar energy utilization.

### III. 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 percent of the World Bank funds are being used to construct electric power generating facilities for Jakarta and East Java. Another twenty percent 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 where German biomass and photovoltaic technology is being demonstrated;
- France has recently signed an Agreement for broad and comprehensive technical cooperation in energy.

### IV. The USAID Energy Sector Strategy

General. The USAID Energy Sector Strategy is responsive to the Administrator's recent program and budget guidance on energy. Indonesia, although it is a principal member of OPEC, has major energy problems related to energy distribution and the need to diversify energy resources. However there is great scope for improved energy supply for internal consumption, the use of which will permit maintenance of required oil export levels while assuring fuel needed for improvements in the quality of life of the growing population. While the major investments in the energy sector will be the responsibility of the private sector, there is a great need for technical assistance to assist in planning future energy strategies, verifying the suitability of conversion and utilization technologies and developing the needed manpower and institutional capability to implement necessary energy programs. These three elements - planning, technology demonstration and transfer and manpower and institutional development - are the focus of the USAID energy program. Important groundwork in these three areas has already been laid and will form a firm base for future efforts.

In addition to specific energy programming, USAID will be giving increased emphasis to an examination of the energy aspects of the entire Mission program. to incorporating underused but available technologies in the range of projects undertaken and to making AID's experience available to private sector entities responsible or active in energy - and development - related activities. An example of the latter is the opportunity to work more closely with private forestry concessionaires who are required to replant the areas they have exploited. By drawing upon AID's experience in rural development, their required reforestation efforts can be enhanced and incorporate rural employment and self-sustaining economic development aspects that might otherwise be neglected. This idea will be further evolved during the next year. Also energy-related will be efforts to increase the productive uses of electricity in rural areas, drawing upon the extensive investment in rural electrification that has already been made in the country.

Specific The specific energy programming will emphasize strengthening existing institutions involved in planning, technology development and training. Maximum exposure to US approaches, institutions and technologies will be provided to enhance the cooperation between US and Indonesia and to increase the use of US products in Indonesia's energy development. The energy resources to be concentrated on are coal, biomass, selected aspects of direct solar and conservation (considered in this discussion as an effective "resource"). The oil and gas sector will certainly not be a prime concentration area but consideration will be given to technical assistance in developing the needed manpower, to the possibility of upgrading the small Indonesian private oil and gas exploration firms by establishing links to similar small US companies and to wider use of remote sensing techniques to assist in identifying potential resources. It is expected that the required AID funding for activities in these areas would principally derive from centrally funded projects and not from the USAID program.

Planning USAID support has provided assistance in demand analysis and technology assessment; pilot surveys of rural energy use; short-term training in energy planning and analysis, and design and development of an Energy Information System. The second phase, to be funded in FY82, will provide comparative analysis of various supply/demand scenarios and investigate financial needs and financing schemes for the exploration, exploitation, and use of indigenous energy resources. Future support to organization is very important and might emphasize long term training in strategic planning, energy resource management and economics.

Manpower Development. USAID support to the Institute of Technology at Bandung will assist in developing an interdisciplinary graduate level energy curriculum involving technical and economic aspects of energy development. Through graduate

education in the US, members of the ITB faculty and other Indonesian participants will increase their competence in energy areas.

ITB is the leading technical university in Indonesia and strengthening its capability for energy research and education is an important and long-term priority for the country. USAID recognized the long term nature of improving academic institutions and anticipates continuing involvement in this program.

Technology Development and Transfer. The focal point of USAID support for technology development and transfer will be the Agency of the Development and Application of Technology (BPPT) in particular the PUSPIPTEK Energy Laboratory. Efforts will be initiated in FY81 under funding made available in the ongoing Science and Technology Project (initiated in FY78) and from anticipated FY81/82 AID/W grant funds. These sources will provide technical assistance and training necessary to plan, organize and structure the Laboratory. The basic function of the Laboratory will be to support the development of energy technologies. Although applied research will be performed, a principal activity will focus on the demonstration of technologies commercially available from other countries and the adaptation of such technologies to optimize the Indonesian input to widen replication in country. The opportunities for increasing the role of the U.S. private sector and for expanding technical/commercial cooperation with the US through these efforts are obvious. The US has been singled out as the preferred donor to assist the GOI in this area. USAID anticipates continuing support to PUSPIPTEK. Loan funds in FY83 will be used principally to purchase US equipment required for the Laboratory and small scale pilot plants for field tests and demonstrations. At this point in time, it is expected that the US support will emphasize coal, biomass and selected solar technologies.

In addition to support to PUSPIPTEK with its interest in commercially available technologies, the USAID strategy will be to continue support to other institutions involved with the development of lower cost appropriate technology. Such technology has a valuable role to play in rural energy and small industry development efforts. A principal focus of this support will be ITB and its Development Technology Center (DTC). Within the Ministry of Education, the DTC has prime responsibility for development of appropriate technology and has received several AID grants for this work. Increasing attention will also be given to several PVOs active in dissemination of appropriate technology. The USAID PVO program will be closely associated with any energy activities which might involve PVOs.

USAID Involvement in Other AID Energy Activities. In addition to its own energy projects, USAID anticipates participation in other Agency energy projects, in particular TSB projects of training, technical assistance and technology demonstrations and ASIA regional projects in these subject areas. Central technology

demonstration projects can play a role in coordinating and disseminating the information gained from Agency experience with new technologies and field efforts and providing expertise to support field direct hire and contractor staff. USAID participation in central and regional projects will need to be carefully coordinated so that it fully supports the USAID program objectives in this sector.

In like manner USAID expects Indonesia to take part in energy-related activities of the new AID/w grant to NAS "Applying Science and Technology to Development".

Future Staffing Needs. Although the program is focused on a limited number of objectives and institutions, USAID anticipates and increasing workload on the limited Mission staff. USAID is aware of the need to consider future staffing needs in energy in the context of the overall Mission program portfolio and staffing ceiling. Special attention will be given to this matter and to management approaches which will assure proper and efficient control of the energy efforts while minimizing staffing requirements.

U.S. Private Sector Development Strategy Statement

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## U.S. Private Sector Development Strategy Statement

### I. Setting

Indonesia is a good place for the USG to begin a coordinated effort to promote U.S. private sector involvement in the development process.

U.S. business interests are growing. There are over 200 U.S. companies including joint venture U.S. - Indonesian firms operating in Indonesia. Between 1967 and 1980 the Indonesian Investment Coordinating Board approved 94 U.S. investment projects outside the petroleum sector with total capital authorization of \$706.5 million. In 1980 new U.S. investments totalling \$46 million were approved, while approved expansions of existing operations was even larger, \$70 million. U.S. oil companies expended over \$1.6 billion in 1980 alone for exploration, development, production and administration of their concerns in Indonesia.

Indonesia as a market for U.S. goods and services has already grown to over \$1.5 billion annually and the potential for further growth is strong due to the country large population and its growing per capita income which is taking an increasing number of the population out of the subsistence - poverty class and into the consumer oriented middle class.

Indonesia is an important source of vital resources for the U.S. economy. Its large and dispersed land area is rich in many mineral resources as well as having fertile volcanic soils in Java and Bali and undeveloped lands elsewhere suitable, for export crops. Indonesia currently provides five percent of the U.S. petroleum imports and is a major supplier of tin, rubber and wood to the U.S. Other products sold to the U.S. include copper, nickel, bauxite, vegetable oils, fish, shrimp, coffee, tea and spices. Wide areas of Indonesia have not been surveyed or remain to be developed.

The goal of the AID assistance program to Indonesia is a significant expansion of the institutional capacity of the government and the private community to use more of their own resources and those of development banks, U.S. companies, and other donors to meet the full range of needs of this developing nation, particularly in the areas of expanded employment opportunities, increased and more diverse agricultural supplies, improved health and family planning services, and energy. We will continue to design our AID assistance programs during the 1980s to improve the well-being of poorer groups in the Indonesian society. Because we believe our support for the

Indonesian Third Five Year Development Plan is an important U.S. foreign policy objective, and because equity-oriented programs are a specific purpose of AID, we will seek to encourage and support U.S. private sector interests consistent with the objectives of the Third Plan.

We believe that U.S. sales and investments, would benefit the Indonesian people directly through expanded public programs, and through private investment and market activities, on a regional sectoral or national basis. We envision for example, there are opportunities for the U.S. private sector in river basin and new lands development and in agricultural processing and marketing, and associated infrastructure development which would both meet Indonesian development objectives and be profitable to private sector participants. In broadest terms, the beneficiary test is one judged by whether the project will contribute to Indonesia's equity oriented growth process.

## II. Definition of the Challenge

Despite the promising picture painted above, the U.S. percentage of AID, trade and investment in Indonesia has been declining in recent years in relation to other industrialized nations active in S.E. Asia. For example, while U.S. total exports to Indonesia increased between 1969 - 1978 from \$155 million dollars to \$832 million dollars, our market share declined in the same period from 19.8% to 12.4%. Since 1973 the U.S. has incurred increasing trade deficits with Indonesia which in 1980 amounted to \$3.0 billion for the year. U.S. private sector non-oil investments have similarly grown but the percentage increase has not kept pace with that of our industrialized competitors.

As mentioned above, USAID in Indonesia has developed a large, successful, agricultural/rural development program which has focussed on the problems of poverty and equity. As important as this is, it should be clear that Indonesia is a large and diverse country with both enormous wealth and development potential, as well as abject poverty. Besides assistance in rural development and basic human needs projects, Indonesia needs and is actively seeking help in a number of other fields, such as in developing its natural resources and particularly its energy sector, i.e., geothermal, nuclear, hydro, coal, gas and oil resources as well as timber, tin, copper and other natural resources. Indonesia also needs to modernize and expand its basic infrastructure, i.e., roads, bridges, ports, inter-island shipping, urban water supply, communications and electric generation, transmission and distribution systems. It also needs to improve management and entrepreneur skills in both the public and private sector. These are all development activities for which America has the technology to offer and for which our assistance would be most appreciated by

Indonesia. They are also the type of projects which U.S. Government involvement would most benefit the U.S. private sector.

USAID's existing activities, while appropriate to the special and problems of the rural areas, leaves largely unfilled a major gap in the USG's bilateral economic/commercial relations with Indonesia, because we cannot be responsive to the broader range of assistance needs in the above mentioned developmental fields the way other donors are doing. Important as it is to help Indonesia cope with its agricultural/rural development and other basic needs, Indonesia's overall development needs, as well as U.S. strategic, commercial and political interests, require a broader based economic relationship. In short, U.S. trade and investment opportunities for U.S. business are abundantly available in Indonesia. USAID could play a vital role in consort with other USG agencies to promote them, both in our self interests as well as to promote Indonesian development and enhance our bilateral relationship with Indonesia.

### III. Other Donor Activities

Our AID program to date has been based on the rationale that Indonesia is an administratively weak and economically poor country which requires assistance for humanitarian as well as developmental concerns. Discussions with our other donor counterparts indicate they have a substantially different perception.. Seeing potential benefits for themselves, in more direct and immediate terms, Japan, West Germany, France, Canada, Australia, Italy, New Zealand and other nations are aggressively investing in highly visible, high technology, resources/energy development and major infrastructure projects that promote their own commercial interests and strengthen long-term, mutually rewarding relationships with Indonesia. These other countries view Indonesia as one of the few promising, relatively stable, developing countries in the world which has demonstrated both a commitment to a strong mixed economy, development leading to economic modernization and an ability to implement and achieve progress in major development projects. Consequently, Indonesia is the first or second aid recipient for each of these countries .

The other donors view Indonesia's status as an OPEC oil producer and it's growing financial strength as an opportunity rather than a basis for withdrawing from the development process in Indonesia. They look at Indonesia's natural resources and wealth as an enhancement to Indonesia's ability to repay its debts and consider economic assistance to Indonesia as a good investment.

The other donors have developed sophisticated, integrated approaches that combine their commercial promotion programs with

their developmental assistance programs in ways which allow them to be more responsive to a broader range of development needs and makes their private sector more competitive. These bilateral, comprehensive, economic cooperation programs commonly include not only financing or government guarantees for private sector financing of major projects but also mixed credit financing of rural development projects such as heavy equipment on commercial terms mixed with technical assistance and training for rural roads or transmigration projects. The other donors also make good use of feasibility studies, tailored participant training, grant financing of consultants in key GOI Ministries and the funding of travel of their own as well as selected Indonesian businessmen on investment surveys. The Japanese have financed a project with ASEAN specifically to promote joint ventures. This project besides the financing of the standard investment surveys and feasibility studies, will actually provide startup loans or guarantee loans to approved Japanese joint ventures with either Indonesian or ASEAN partners.

#### IV. Opportunities for US Private Sector Involvement In Indonesia

Indonesia is now enjoying a greater degree of economic stability and prosperity than at any time since independence. Prior to 1966 inflation was rampant, the country's economy was stagnant and foreign exchange reserves were virtually non-existent. Over the past 15 years, primarily under the leadership of the U.S. trained civilian technocrats, who have been given a substantially free rein in managing the economy, inflation has been reduced to more operable levels, development has become a priority focus of the government's budget and foreign exchange reserves have climbed to over \$11 billion. Indonesia now has a \$60 billion GDP which is growing by between 7% and 8% per year, a government budget of \$20 billion, exports of \$21 billion of which \$6 billion are non-oil exports and imports of \$15 billion per year. Nevertheless, with a population of over 147 million people, GDP per capita, while growing, still is only \$400.

Its large market, rapidly increasing exports and reserves, conservative monetary and fiscal policy and possibly the highest rate of growth in ASEAN this year, aside from Singapore, make Indonesia increasingly attractive for U.S. businessmen. The GOI's ambitious program to upgrade the country's basic infrastructure, develop its enormous resources and many planned major industrial projects, including the construction of oil refineries, LNG plants, petrochemical, cement, plywood, paper factories, sugar, rubber and palm oil processing facilities etc., have generated interest in the entire foreign business community. The total value of the major industrial expansion planned over the next few years will exceed U.S. \$10 billion

and the GOI is still seeking joint venture arrangements and export credits from foreign partners.

Within the non-oil mining sector tin, nickle and copper development are potential investment areas. Low labor costs make labor intensive industries profitable in Indonesia. Besides basic component assembly, other non-farm industries which show good prospects in Indonesia include agricultural equipment, cement, brass, aluminum, pipes, lamps, valves, sewer grids, cars, bus and truck assembly, ship building, airplanes, railway cars and parts, diesel engines, furniture, shoe and clothes manufacturing and handicrafts are only a partial list.\*

Agrobusiness includes many opportunities in the processing and marketing of such diverse crops as poultry, vegetables, apples, oranges and other fruits for canning and juicing, mungbeans, soy beans, mushrooms, peanuts, cashew nuts, cloves and other spices, cassava, coconuts, sugar, palm oil, rubber, fish, tobacco, beverages, citric acid, fertilizer and gasahol.

The GOI's Investment Coordinating Board (BKPM) acts as a central point of contact for foreign investors. The BKPM has issued new guidelines and has made some progress in clarifying priorities and procedures for potential foreign investors. Some firms find ambivalence in the Indonesian Investment Coordinating Board as well as lack of clear-cut government policy and procedures, in spite of the fact that the Board is now promoted as a "one stop" investment service. Other constraints are lack of physical and business infrastructure, bureaucratic inefficiency, and corruption, all of which add to operating costs.

Nevertheless, most American firms already operating in Indonesia have found business highly profitable and a number have substantial expansion plans on the drawing boards or underway.

Active encouragement by the U.S. Government to U.S. firms to invest in Indonesia involves both risks and opportunities. The U.S. Government could subject itself to criticism for encouraging U.S. firms to enter into losing propositions. On the other hand, the provision of investment missions and feasibility studies should assist prospective investors in assessing the realistic prospects for profitable investments, while OPIC insurance and EXIM guarantees should assist them in hedging some of the risks. At the same time, our active support of GOI investment objectives and participation in project development, should provide us with the opportunity to

\*From S. Mintz report of Private Enterprise Consultant, Arnold Packer's March visit to Indonesia.

influence GOI policies in a favorable and constructive way, perhaps assisting the Indonesians to become more realistic in their efforts to attract U.S. investment, and in resolving some of the bureaucratic obstacles.

#### V. GOI Response to a More Aggressive USG Posture Re U.S. Private Sector Participation

To date only a few contacts have been made by USAID staff with responsible GOI officials regarding this topic. But the response has been warm and enthusiastic. One well placed Ministry of Finance official has stated that such an attitude was long overdue on our part and that he would welcome the opportunity to sit down and discuss the mutual advantages to be gained. This kind of approach is regular practice with the other donors.

The GOI also has made public its desire to promote foreign trade and investments with countries other than Japan. They are concerned that Indonesia may become too dependent upon a single nation's technology and markets. Indonesian foreign investment officials are currently on an investment promotion tour of Europe and North America where they are actively seeking investors for joint ventures.

#### VII. USAID Strategy

Since issuance of the Congressional Mandate in 1973, USAID has developed a number of programs which are largely administered through the public sector and which direct assistance to the rural poor through a basic human needs strategy. Our program has consequently concentrated on building up particular government institutions and programs which provide goods and services to the rural poor in a direct manner. Examples of such activities have been our support for family planning, small-scale irrigation systems and local government rural development efforts. Our experiences in these areas have been positive and our FY 1983 CDSS and ABS strategy continues such programs but on a more focused and sustained basis which emphasizes upgrading government institutional capacities and deemphasizes financial resources transfers.

At the same time, commencing with this FY 1983 CDSS and ABS planning period, USAID seeks to integrate a private sector approach to such development efforts for a number of reasons. For one, the Indonesian private sector has been relatively neglected by both the Government and donor institutions and remains weak to the point where further general development is inhibited. For example, attempts to alleviate the severe employment problems on Java, Bali, Lombok and Madura require an active, vigorous private sector to seek out commercial opportunities which take advantage of Indonesia's factor endowments and consequently absorbs excess labor. The same can

be said of the outer-islands with have tremendous potentials that are largely unrealized. Secondly, in our own commercial interests, a strong Indonesian private sector is advantageous in seeking capable business partnerships and facilitating trade between nations. Thirdly, Indonesia is rapidly approaching middle-income status and a strong relationship between Indonesian and U.S. businessmen in the years to come bodes well for official U.S. and Indonesian government relationships, particularly as our official government-to-government and program continues to decline in real terms. And finally, there are numerous business opportunities which the U.S. private sector could participate in as Indonesia's national economy grows and prospers.

For these and other reasons, USAID is attempting to weave a private sector thread into our development strategy in Indonesia. We see a number of ways in which this can be undertaken. Within existing projects, we seek ways in which the Indonesian private sector can be more involved and benefitted. The Central Java Enterprise Development Project is one clear example of this. A second example is in our proposed new General Participant Training Project where a number of training opportunities will be reserved solely for the Indonesian private sector. A third example is with our PVO, co-financing activities where we will seek to develop relationships between Indonesian and U.S. business associations. A fourth example is attempting to identify U.S. business investment opportunities within AID geographical concentrations. We see a clear role for the U.S. private sector in these projects to help upgrade the Indonesian private sector.

The above will be complemented by separate projects to further intensify U.S. private sector participation in our development program in Indonesia.

USAID plans to begin its new program to support increased U.S. private sector involvement in Indonesia's development process in FY 82 through a \$5 million exploratory project. This exploratory Private Sector Development project is planned to be complementary to USAID's BHN program in Indonesia and to AID's Trade and Development program (TDP).

Under this project USAID would work with four or five key GOI Departments or Agencies (e.g., Agriculture, Industry, Public Works, Communications, Trade and Cooperatives, The Investment Coordinating Board and Research and Technology) to identify areas and projects important to the GOI development effort where the U.S. Private Sector can profitably contribute. These subprojects would then be developed with the loan and/or the TDP to the point where the private sector can logically take over. This seems more attractive to the Mission than the

traditional public sector feasibility study approach, where experience in two previous projects has shown that they did not generate significant amounts of U.S. private sector participation.

We have held preliminary discussions with several of the above named GOI Departments regarding this project proposal and the response has been enthusiastic. However, since we do not know at this time which Departments will generate the most attractive subprojects, we want to maintain flexibility and a simple project structure. Therefore, we plan to develop the project with BAPPENAS or the Director General of Foreign Economic Cooperation in the Ministry of Foreign Affairs as an umbrella project which would be available to all other GOI Departments as agreed upon by BAPPENAS and USAID.

For example, the Ministry of Agriculture has under the Secretary General, a Bureau for Agrobusiness Investments (BAI). Through the proposed project, with BAI and BAPPENAS approval, USAID could possibly recruit a consultant to work with the BAI to identify attractive agrobusiness activities. After approval of an investment idea such as a joint venture sugar refinery or estate crop plantation, e.g. rubber, cocoa, coffee, tea, etc., we could notify Commerce and other USG Agencies, i.e., OPIC. They in turn could notify the appropriate U.S. Private Sector firms which conceivably would be interested in a possible investment opportunity and perhaps even sponsor a survey mission. If the other USG agencies cannot be responsive for some reason, then the project loan funds would be used to finance the survey mission and possibly some return plant inspection trips to the U.S. by Indonesian Private Sector entrepreneurs.

When the idea reaches the feasibility study phase we will call on TDP for further assistance. Again, if TDP for some reason cannot help, the project loan funds would be used to fund the study and otherwise support the project up to the appropriate point where the U.S. Private Sector firm involved can take over.

Under similar arrangements, project loan funds would be used to work with the Director Generals of Water Resources Development on a regional water resources development project. See page 16 of the Agricultural and Rural Development Strategy Statement for details. The technical assistance and training components of this regional water resources development project may be provided in FY 83 or FY 84 depending on the progress of project development. The TA would be provided in conjunction with a packaged arrangement to be worked out, hopefully with EXIM participation or U.S. commercial bank participation supported with loan guarantees to finance the capital costs which we would estimate to be approximately \$150 million. Project funds will also similarly be used to develop a transport project with the Director General of Bina Marga and a rural electrification

project with the Director General of Power. These projects will also be proposed as "packaged" arrangements with EXIM and/or the U.S. private banking sector whereby AID finances the technical assistance and training and EXIM or the banks finances the materials and equipment.

The individual sub-project criteria will be further refined during the project paper design stage, in consultation with BAPPENAS, other GOI public and perhaps private agencies. At this point in the project's development the overall project criteria by which sub-projects will be selected are the: (a) contribution of the sub-project to the achievement of the GOI's and AID's development priorities as expressed in the GOI Development Plan and the CDSS; (b) degree to which the beneficiaries of the sub-project and possible follow-on project are among Indonesia's poor; (c) potential for economic growth derived from the sub-project and any follow-on project; (d) possibility of financing for the follow-on project; and (e) potential for participation by U.S. private sector in the follow-on project. It is expected that each sub-project will meet each criterion in some measure, and that in total, the sub-project's criteria assessment will indicate that the activity will clearly contribute to the promotion of equitable growth in Indonesia.

In summary, then the FY 82, \$5 million exploratory project will finance (a) consultants in key GOI Departments, (b) Private Sector Missions as a last resort and (c) feasibility studies as a last resort to develop project ideas up to the point where the U.S. private sector can reasonably be expected to take them over. The project will also be used to develop certain public sector projects which fall under the AID mandate and have a high potential for future U.S. private sector participation, i.e., water resources development, rural electrification, alternate energy and transport projects.

In FY 83 we plan to build upon the experience gained from the FY 82 exploratory project. Additional FY 83 or FY 84 funds might be required to continue the same type of project identification, project development and marriage broker relationship between the GOI and/or Indonesian private sector entrepreneurs and the U.S. private sector. If we can develop one of the three above proposed public sector "packaged" projects by FY 83, then we will require the full \$15 million requested in the FY 83 CDSS as the incremental program to support increased participation by the U.S. private sector in Indonesia development.