

MEETING THE CHALLENGE

**A FOOD SYSTEMS
STRATEGY FOR
GROWTH
IN THE 1990's**

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**An Asia and Near East
Food Systems Strategy for Growth
in the 1990's**

**ANE/TR/ARD
Office of Technical Resources
Bureau for Asia, the Near East and Europe
AGENCY FOR INTERNATIONAL DEVELOPMENT**

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CREDITS

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LETTER FROM THE ASSISTANT ADMINISTRATOR

Dear Readers,

President Bush, in one of his first foreign policy statements, stressed the importance of economic growth, and talked of entrepreneurship as the most powerful engine for creating that growth. He noted that entrepreneurship is the product not of massive foreign aid transfers but of free and open societies. Open markets and open societies are inextricably intertwined; together they open up the realm of choice--of products, services and ideas--which is a vital element of peoples' freedom of expression.

ANE Bureau programs are being structured to reflect that **Open Markets** and **Open Societies** are critical to sustained development:

- **Open Markets** because they lead to the proliferation of trade, investment and jobs, and allow people to choose what they produce and consume, where they work, what to invest in and how much of their profits to retain;
- **Open Societies**, because they embody the rule of law and freedom of the press, speech and religion. Existence of these rights leads to the proliferation of political and economic interest groups (cooperatives, business and trade associations, PVOs, trade unions) which are essential to maintaining open markets and constitute an important counterweight to central government power.

Successful development requires individuals and nations to make choices in an environment of constant change. Nowhere is this truer than in the food sectors of the countries that make up AID's Asia, Near East and Europe Region. In almost all of these countries, incomes have risen over the past two decades, people are eating more and better, and many small farms have been transformed from subsistence to commercial enterprises. With these changes have come a new set of choices--environmental, institutional, economic and political.

New choices and changing economies will be met with changes in AID programs. The Food Systems Strategy for Growth is the first in a series of strategies being developed to address these issues. The ANE Bureau is using this process to prepare for the changing world we work in, and to set our programs on a sound developmental path leading into the next millennium. This strategy is fully consistent with the Bureau's open markets and open societies framework, directly addressing the need for a broader perspective on development. It moves the agricultural program emphasis beyond the farm to a systems context, integrating farm production, processing, marketing and trade, with special emphasis on the role of the private sector at each stage.

I believe that the ANE Food Systems Strategy for Growth makes a major contribution in rethinking how U.S. assistance to agriculture in ANE countries can contribute to broad-based, sustainable economic growth and the advancement of open markets and open societies.



Carol C. Adelman
Assistant Administrator
Bureau for Asia, Near East and Europe

PREFACE

Among the major conclusions reached by those who attended the 1987 Asia/Near East (ANE) Bureau, Agriculture and Rural Development Officers (ARDO) conference was the fact that the circumstances affecting development in the ANE region had dramatically changed over the past fifteen years. In the 1990s, ARDOs will be challenged to design and implement solutions to problems which do not fit the neat conceptual constructs which served to guide decisions in the 1970s and 1980s; they will have fewer resources to program, will program those resources in fewer sub-sectoral activities, and will have to work in areas which represent new intellectual challenges. The requirements for effectiveness and impact, however, will be greater.

The "Food Systems Growth Strategy for the 1990s" is the response to the major recommendation of the 1987 conference. Senior ARDOs requested that the Agriculture and Rural Development (ARD) Division of Technical Resources Office of ANE take the lead in developing a region-specific articulation of the Administrator's focus statement. This articulation would provide detailed programmatic guidance for implementing the statement's key objectives: increased income, increased food availability, and enhancement of the natural resources base. This strategy--the combined efforts of analysts within ARD and other offices of the Agency for International Development in Washington (AID/W)--attempts to provide that guidance while taking into account the tremendous diversity of development issues faced by ANE countries stretching from Morocco to Fiji.

The Strategy does not dictate a single set of precepts for every country or even every country-type, but does suggest a set of guidelines for making resource allocation decisions that depend on the performance of the country in achieving sustained, broad-based, economic growth. The Strategy broadens the range of factors normally considered in an agricultural development strategy to include consideration of income levels, trade, agribusiness and off-farm employment, gender issues, natural resources conservation, exchange rates, urban food consumption and food processing, and food aid as a development (not budgetary) resource.

In February 1989, senior AID Agricultural and Rural Development Officers and world class practitioners/researchers strongly endorsed a draft of this strategy and encouraged ANE/TR/ARD to make selected changes to tailor the analysis more precisely to ANE field realities. The final draft highlights more effectively the critical importance of agricultural sustainability and clarifies the relationship between the strategy and agriculture on marginal lands, modifies the role of cereals production to account more fully for Near East country experience, and attempts to portray human and institutional capital as a theme which cuts across all investment categories. Although we have not incorporated all of the reviewer comments, we are grateful for the intellectual dialogue which has contributed to the merits of the document.

Readers interested in the topics addressed in the Food Systems Growth Strategy will encounter expanded and complementary analysis in ANE/TR/ENR's Natural Resources Strategy (draft due in November 1989) and ANE/TR/ARD's Agribusiness Strategy (draft due in March 1990).

Jim Lowenthal, Chief
ANE/TR/ARD
October 2, 1989

EXECUTIVE SUMMARY

During the past two decades, countries in the ANE region have witnessed varying but significant changes in their economies, especially in agriculture. The changes and the problems associated with them, many of which transcend ANE's traditional agricultural orientation, dictate a reexamination of the Bureau's agricultural strategy. Such a review is timely, complementing the recent Congressional review of foreign assistance legislation and other evaluations initiated by the AID Administrator, the Board for International Food and Agricultural Development (BIFAD), Michigan State University, and AID's Bureau of Science and Technology (S&T).

This Strategy document:

describes major economic and agricultural changes that have occurred in the ANE region over the past decade;

aggregates ANE client countries into three groups based on these past growth trends;

discusses the major constraints to future growth in each group, and spells out possible investment options for each; and

recommends adjustments in the structure and operations of ANE that are required to implement the Strategy.

Based on the analysis, the Strategy recommends increasing incomes and employment as primary development objectives, subject to the need for sustainable use of the natural resource base. The Strategy analysis makes the following points:

1. The countries in the ANE region are economically very diverse. Per capita incomes range from \$150 per annum in Bangladesh to over \$6,700 in Oman.

2. As per capita incomes increase, the relative importance of the agricultural sector as a source of income declines and the strategic role of industry becomes increasingly apparent. The relationship between per capita income and

changes in economic structure suggests that strategic planning based on an economic typology rather than geographic location would be a more effective overall approach.

3. Based primarily on a macro-level structural analysis in ANE client countries, three groups of countries are identified as the basis of an ANE strategy. These groups are:

- Low Income Agricultural Economies (Bangladesh, Burma and Nepal), where per capita income is less than \$250 a year, and agriculture produces more than 50 percent of income and industry less than 20 percent;

- Middle Income Transitional Economies (India, Sri Lanka, Pakistan, Indonesia, Yemen, Morocco, the Philippines and Egypt), where per capita incomes range from \$251 to \$750 per year, and agriculture contributes less than 35 percent and industry more than 25 percent; and

- Middle Income Industrializing Economies (Thailand, Tunisia, Jordan and Oman), where per capita incomes are above \$751 per year, and agriculture provides less than 20 percent of income and industry more than 30 percent.

4. Countries within these groups are at different stages of development. The normal development path starts with the introduction of new, high yielding cereal varieties complemented by improved rural infrastructure (roads and irrigation) and supportive government input and output price policies. Productivity increases in the basic cereals and the associated grain surpluses find their way into other sectors through lower real food prices and increases in the demand for manufactured goods and services which result from higher agriculture incomes. As yield increases begin to slow, labor (particularly better educated, young labor) begins to move out of agriculture and into faster growing sectors. Higher urban and rural incomes, which continue to be supported by low food prices, increase rural demand for manufactured goods and lead to shifts in

consumer demand away from basic cereals and toward processed and higher quality food. During this process the source of growth within the agriculture sector shifts from production to processing, marketing, and transportation for both domestic and export markets. (Certain Near East and North African countries may constitute exceptions to this model, because a heavy cereals thrust may not be economically justifiable. In such countries, an earlier and stronger emphasis on commercial, cash crop agriculture may provide the same boost in productivity and domestic demand.)

5. Because these groups are at different stages of development, they face different constraints to future growth.

In Low Income Agricultural Economies, growth in cereals production, a major determinant in rural income, employment and nutrition, has failed to keep pace with population growth; per capita caloric consumption remains below recommended levels, the intensity of agriculture production is low and the agriculture sector continues to absorb new labor, but at a rate below that in transitional economies. Here the major developmental objectives are increasing basic cereals production and increasing the efficiency and effectiveness of the support services required for intensification. Investment in these countries would focus on:

- improving the development, testing, and diffusion of more productive cereals technologies;
- improving the availability and efficiency of input supply markets, irrigation, and transportation services; and
- strengthening governments' analytical capacity to design, implement, and monitor interventions and to determine the environmental consequences of production-related investments.

In Middle Income Transitional Economies, growth in overall agricultural cereal production exceeds population growth; per capita caloric intake is approaching recommended levels, labor absorption in agriculture has begun to slow, increased per capita incomes are leading to diversification in diets, and interest in development of the industrial sector as a new

source of income and employment is growing. Here, the major development objectives are maintenance of sustained growth in cereals production combined with rapid expansion of the industrial sector, especially agroprocessing, as an additional source of rural income and employment growth. Areas for emphasis in these countries are:

- strengthening government capacity to identify and change high cost policies which were adopted to increase cereal production but are no longer needed;
- improving watershed management to assure sustained growth in agricultural production;
- continuing support for agricultural research to increase the efficiency of the research system and assure continued sustainable growth in cereals production;
- helping governments to withdraw from direct involvement in agricultural markets in favor of the private sector;
- encouraging private sector investment in agroprocessing to meet changes in domestic demand;
- liberalizing domestic and international trade to lower the high costs regimes now faced by domestic agroprocessors;
- establishing human and institutional capital to provide the domestic skills and systems required to sustain the above initiatives.

In Middle Income Industrializing Economies, growth in non-cereal agriculture is growing rapidly, new employment in agriculture-related industries continues to expand and more people are leaving agriculture, per capita caloric consumption is above minimum recommended levels, and governments have redefined their position from controller of critical agricultural and food markets to facilitator of private sector investment and trade. Here, the major development objective is to assist domestic institutions involved in the agricultural sector to become self-sustaining and linked, domestically and internationally, to scientific and technical

networks for the interchange of information, ideas and technologies. Areas for support include:

- strengthening the links between domestic institutions involved in agricultural research, market management, agribusiness investment promotion, and international market promotion;
- strengthening contacts between domestic institutional networks and international centers of excellence in areas such as environmental protection and monitoring, international trade, and technology research and development.

6. The Strategy identifies the following primary investment opportunities:

- agricultural technology development and management;
- natural resources management in the context of sustaining agricultural productivity;
- agribusiness development;
- trade and market development;
- infrastructure management;
- agricultural planning and analysis; and
- sustained institutional and human capital development.

Each of these theme areas is discussed in more detail in the Strategy document, and specific investment options are suggested by theme and type of economy.

7. Effectively reorienting ANE program investments around these themes will require adjustments in program areas and funding levels, staffing patterns and skill areas, Mission and Bureau structure and organization, and in the program modalities utilized. Specific recommendations in each of these areas are presented and discussed in the final chapter of the Strategy. These include:

- some degree of program redirection to bring current Agency and Bureau resource allocation into accord with Strategy emphases;
- targeted recruitment (with possible limited assignments) and upgraded in-service training to prepare Agency personnel to work in such emerging areas as private sector, trade, and natural resources;
- some institutional restructuring in the Bureau and field missions to facilitate integrated rural sector and food systems analysis and program management;
- more flexible, innovative implementation, especially in the Middle Income Transitional and Middle Income Industrializing Economies, and clearer guidelines on responsibilities for financial accountability;
- stepped-up monitoring and evaluation to enable assessment of Strategy implementation and effectiveness and to facilitate communications between the Agency and Congress.

ASIA AND NEAR EAST FOOD SYSTEMS GROWTH STRATEGY FOR THE 1990s

I. INTRODUCTION

Since the mid-1970's, AID's financial and human resources have supported a basic human needs strategy of development. Agricultural programs have focused on improving agricultural production on land owned or operated by small or marginal farmers. This approach assumes that rapid increases in agricultural production lead to higher farm and rural based incomes, increased rural employment, better nutrition, and long-term national economic growth.

Over the past decade, AID has committed \$6.9 billion to increase small farm agricultural production in the poorest countries of the world. In Asia and the Near East, \$2.8 billion supported activities: to increase domestic and international capacity to develop and distribute new, more productive, agricultural technologies; to expand and stabilize the supply of critical farm inputs including irrigation water, fertilizer, and seed; to set and maintain farm prices at levels that encouraged adoption of the new technologies; and to strengthen the reservoir of human capital and the institutions that mobilize it for productive purposes.

This approach has resulted in substantial progress. The widespread adoption of more productive rice and wheat technologies has led to renewal of research interest in a variety of other crops--corn, cassava, soybeans, chick peas, and peanuts. Improvements in research facilities, irrigation infrastructure and input production and distribution systems are well along in many countries, and emphasis is turning to improving the management of the physical, biological, financial, and human resources associated with these capital investments. Many former subsistence farmers have progressed over the last decade to semi-commercial producers, and the timely supply of agricultural inputs, in the remotest parts of the

region at prices farmers can afford, is increasingly commonplace. The technological problems that limited major cereals production have in many places been alleviated, at least for the time being, and per capita consumption and nutrition have improved.

Experience gained in formulating and administering farm price policies has led to a more sophisticated understanding of the relationship between technological innovation, input availability and production on one hand, and macro economic policies on the other; there is a greater appreciation for the need to understand agriculture as a part of a larger economic system when formulating agricultural policy. Although pockets of poverty remain in countries throughout the region, average real per capita incomes in both rural and urban areas have improved, diets have diversified, and demand for higher quality and processed agricultural products is becoming manifest.

Despite significant progress, problems remain. Over the last five years, yield increases of major staples (rice and wheat) have slowed, slipping below population growth in many Asian and Near East countries. In some, increased application of agricultural chemicals, manufactured fertilizers and pesticides have raised production costs without proportionately increasing yields. Little is known of the causes for the decline in growth rates, but the clear implication is that maintenance of yields for these cereals will be a continuing challenge throughout the 1990s.

Also, past increases in average per capita consumption levels, while a significant accomplishment, mask the fact that millions of urban and rural residents in the region remain in the grip of poverty and malnutrition. Effective and cost-efficient strategies targeted to the needs of these minorities need to be

developed and implemented. It is somewhat ironic that a majority of the malnourished in countries such as India, Nepal, and Bangladesh live in or near areas of high agricultural productivity. Many, having no land, can only participate in the fruits of the "green revolution" through the provision of their daily labor, either on the farm or in the associated secondary processing and distribution systems. Many of the urban poor, who earn their meager livelihood from the processing and marketing of agricultural products, fall outside the "formal" industrial sector and are often neglected in government efforts to expand investment and employment.

Inward-looking trade policies, which pursue agricultural self-sufficiency, protect domestic agricultural input producers, maintain expensive and inefficient barriers to agricultural trade, and involve government at every step in the market chain, are also commonplace in the region. Subsidies associated with food, irrigation, fertilizer, and pesticide policies constitute major drains on national treasuries. The widespread acceptance of new technologies and the associated government cost increases call into question both the continued need for and the financial sustainability of current subsidy packages.

In another area, further intensification of agricultural production on prime land and the extension of production into marginal and fragile areas to meet self-sufficiency objectives calls into question the sustainability of current technologies and production levels. Attempts to create productive employment opportunities outside the more fragile, low-productivity areas have been inadequate to draw the next generation of marginal agriculturalists out of such areas.

Finally, productive employment for new entrants into the rural labor force is, and will continue to be, the overarching problem in the 1990s. The relatively limited demands that expanded agricultural production will place on future rural labor pools means that other sectors will have to absorb a major portion of this new labor. Basic education, which provides rural youth (male and female) with the skills needed for entry into the non-agricultural processing and manufacturing sectors, will be critical in promoting the needed out migration.

Although ANE country programs have shifted with changing conditions and the Agency's overall agricultural strategy has broadened, programs have largely remained focused on increased food supply and the conditions that constrain it. The appropriateness of this focus is increasingly questionable given the changes in economic structure underway in the region and the array of problems these changes pose in carrying out development assistance.

All this suggests the need to reexamine ANE's agricultural strategy. The time is right. The U.S. Government is entering a period of political adjustment and is rethinking its foreign policy and development assistance priorities. This strategy complements both the assessment of foreign assistance legislation currently underway in Congress and a number of other evaluations initiated by the AID Administrator, BIFAD, Michigan State University, and the S&T Bureau of AID. Last, but by no means least, the Strategy responds to requests voiced by the ARDOs of ANE at their 1987 conference for new ways of analyzing and responding to changing trends in policy, technology, and the social and political environment.

This Strategy represents the combined efforts of many AID and external experts, drawing heavily on the deliberations of the joint ANE-HIID (Harvard Institute of International Development) Strategy Symposium held in September, 1988. Chapter II explores the extent to which structural adjustments have occurred over the last two decades and how individual countries or groups of countries have been affected in the process. The Strategy proposes a three-stage typology for analysis of sectoral status and economic trends, and suggests specific development action or investments that will be required to sustain development. Chapter III examines AID's current strategy, explores areas in which AID may have a comparative advantage, and presents a set of principles that determine the parameters for a new strategy. Chapter IV lays out the basic components of the strategy for the different stages of the typology, and Chapter V explores some implications of the new strategy for Bureau and Agency implementation modalities, personnel and organizational structure.

II. TWENTY YEARS OF AGRICULTURAL GROWTH IN ASIA AND THE NEAR EAST

During the past two decades, countries in the ANE region have witnessed varying but significant adjustments in their economic structure. Some, former recipients of AID assistance, have graduated to full status as independent players in the world economy. Others have pursued steady programs of adjustment which have led to changes in income and employment and set the stage for eventual graduation. Finally, there is a small but significant group that has, for a variety of reasons, stagnated.

This section examines this growth and draws from the emerging mosaic a set of common themes for the region. The analysis in no way substitutes for the more detailed reviews which are required to guide program and project adjustments in specific countries. It does, however, allow for the verification of broad trends against which proposed adjustments in ANE regional strategy can be discussed. The analysis opens with an examination of overall economic growth and change, then explores specific adjustments that have occurred in the agricultural sector in three groups of countries, and closes with a discussion of common themes within each group.

A. Structural Adjustment

In analyzing economic structural adjustments, sixteen ANE countries--four in Southeast Asia, six in South Asia, six in the Near East--are considered. Support for programs in these countries accounted for 82 and 50 percent, respectively, of ANE's Development Assistance and Economic Support Funds in FY88. In increasing order of per capita income, as reported by the World Bank, the countries are: Burma, Indonesia, the Philippines, and Thailand in South East Asia; Bangladesh, Afghanistan, Nepal, India, Pakistan, and Sri Lanka in South Asia; and Yemen, Morocco, Egypt, Tunisia, Jordan, and Oman in the Near East and North Africa.

These countries are ecologically diverse, ranging from arid to tropical. Their populations range from 1 million in Oman to over 750 million in India. In 1985, average per capita incomes ranged from \$150 in Bangladesh to \$6,730 in Oman. Although significant economic variability also exists, the economic parameters in Table 1 suggest a definite relationship between economic structure and annual per capita GDP. As per capita income increases, the relative importance of the agricultural sector as the source of income declines and the strategic role of industry becomes increasingly apparent. For example, in 1985 annual per capita income in Bangladesh averaged \$150, with \$75 originating from agricultural activities. On the other hand, Thailand's per capita income during the same year was \$800. Only 17 percent, or \$136, originated from agriculture; the remainder came from the industrial and service sectors.

The relationships between per capita income and economic structure suggest that, for purposes of strategic planning, a functional rather than geographical grouping would be more meaningful in defining a new regional development strategy. Further analysis of data in Table 1 suggests the existence of three basic groupings: low income agricultural economies; middle income transitional economies; and middle income industrializing economies. The first includes countries with per capita incomes of less than \$250 per year, where agriculture produces more than 50 percent of income. The second group--middle income transitional economies--includes countries with per capita incomes ranging from \$251 to \$750 per year and where agriculture contributes less than 35 percent and industry and services more than 70 percent to national income. The last group--the middle income industrializing economies--includes countries with per capita incomes above \$751 per year, where agriculture provides less than 20 and the industrial and service sectors more than 80 percent of income.

TABLE 1 MACRO-ECONOMIC INDICATORS - ASIA AND THE NEAR EAST

COUNTRY	(Millions) NATIONAL POPULATION	GNP PER CAPITA 1985 (\$US)	(85 - 85) GNP ANNUAL GROWTH %	SECTORAL COMPOSITION (GDP)		
				% AGRICULTURE	% INDUSTRY	% SERVICES
Low Income Agricultural Economies						
	155	161	-	51	13	36
Bangladesh	101	150	2.4	50	14	36
Nepal	17	160	0.1	62	12	26
Burma	37	190	0.4	48	13	39
Middle Income Transitional Economies						
	1173	352	-	28	30	43
India	765	270	1.7	31	27	41
Sri Lanka	16	380	2.9	27	26	46
Pakistan	96	380	2.6	25	28	47
Indonesia	162	530	4.8	24	36	41
Arab Republic of Yemen	8	550	5.3	34	16	50
Morocco	22	560	2.2	18	32	50
Philippines	55	580	2.3	27	32	41
Egypt	49	610	3.1	20	30	53
Middle Income Industrializing Countries						
	64	975	-	15	35	50
Thailand	52	800	-	-	-	-
Tunisia	7	1190	4.0	17	35	46
Jordan	4	1430	5.8	8	28	64
Oman	1	6730	5.7	3	38	-

Source: *World Development Report 1987, The World Bank.*

The economic structure of countries in each group is different. For example, per capita incomes range from an average low of \$161 in the low income agricultural economies to \$962 in the middle income industrializing economies. These differences stem largely from the differential growth rates over the last twenty years as shown in column four of Table 1.

In addition, the rapid growth evident in the transitional and industrializing economies was accompanied by substantial adjustment in economic structure. In general, as growth took place the agricultural sector declined as a source of new income and growth, and was superseded by the industrial and services sectors. As the data in Table 2 indicate,

agriculture's share of GDP dropped from 51 percent in low income industrial economies to 15 percent in the middle income industrializing economies. This was accompanied by a doubling in the importance of the industrial sector and a 150 percent increase in the importance of the services sector as sources of GDP.

The rate of structural change also varies substantially. For example, from 1965 to 1985 the proportion of GDP originating from agricultural sector in the low income agricultural economies remained almost constant, changing only 1.5 percent. Over the

TABLE 2 ECONOMIC CHARACTERISTICS OF ANE SUB-REGIONS

<u>ECONOMIC PARAMETERS</u>	<u>LOW INCOME AGRICULTURAL</u>	<u>MIDDLE INCOME TRANSITIONAL</u>	<u>MIDDLE INCOME INDUSTRIALIZING</u>
Per capitaincomein 1985	\$161	\$321	\$978
Annualgrowthin GDP 1965-1985	1.6%	2.6%	4.3%
Compositionof GDP in 1985			
Agriculture*	51%	27%	15%
Industry	13%	30%	34%
Services	36%	43%	51%
Changein composition of GDP 1965-1985			
Agriculture	1.5%	-16.9%	-20.8%
Industry	1.9%	8.9%	10.9%
Services	-3.4%	7.7%	9.8%

*Includescrop and livestockproductionfisheriesforestryand mining.

same period, the middle income transitional and middle income industrializing economies saw significant changes, with agriculture's proportion of GDP declining 16.9 and 20.8 percent, respectively, and the industrial and service sectors showing corresponding increases.

Clearly, major changes in the role of agriculture occur as economies develop and transform. The pace and means by which countries make these transitions must be the focus of a development strategy. To develop such a strategy, an understanding of the adjustments which take place within the sector during growth is essential.

B. Agricultural Sector Adjustments

Over three decades of experience has provided a number of insights with respect to the nature of these sectoral adjustments. The first is that food availability is critical to the political stability of nations everywhere; those in Asia and the Near East are no exception. Governments that have not provided adequate

supplies of basic cereals at prices perceived as fair by both producers and consumers have undergone serious social disruption. Consequently, it is not surprising to find the majority of countries pursuing policies that aim to assure food security. In most cases, this has manifested itself initially in a drive for a cereals self-sufficiency. In addition to infrastructure and institutional investments in pursuit of this objective, governments have applied a variety of policy interventions, including input price subsidies and import restrictions.

A second insight is that governments in the region have followed generally similar investment paths. The introduction of new cereal varieties, improvements in rural infrastructure--notably irrigation and roads--and favorable government policies have led to increases in per hectare yields, increased employment, and rising per capita incomes. Surpluses generated in agriculture typically find their way into other sectors through lower urban food prices; lower urban labor costs and increases in the demand for manufactured goods and services.

As the rate of agricultural growth slows (this is inevitable given the physical limits placed on production), the demand for labor declines. New, better educated entrants into the rural labor force are compelled to look to the industrial and services sectors for employment. Expansion in these sectors to accommodate growing demand for non-agricultural goods and services leads to increased employment and to declines, first in the rate of growth and then in the relative size, of the agricultural labor force. As rural labor (predominantly male) leaves home to find jobs in urban areas, women begin playing a more active role in the rural labor force.

Increases in urban and rural sector incomes lead to shifts in consumer demand away from basic cereals and toward increased consumption of high quality protein in the form of meat, poultry, and dairy products. There is also an increasing dietary reliance on processed rather than bulk agricultural products. During this process, the source of growth in agricultural employment shifts from field production to processing, marketing and transportation, initially to meet domestic demand and later to service exports.

As the income data in Table 1 suggest, the agricultural sectors in ANE countries are at different levels in this development process. A more detailed look at the sector in each of the three groups of countries is provided in Table 3. These data suggest some very interesting relations supporting the descriptions provided above.

For example, in the low income agricultural economies, annual growth in overall agricultural production over the last 20 years has just managed to keep pace with population growth. Growth in cereals production--a major determinant in rural incomes, employment, and nutrition--has failed to keep pace with population growth, and per capita caloric consumption remains 9 percent below recommended levels. Fertilizer use and irrigated area, both proxies for the intensity of agricultural production, remain low. The sector continues to absorb labor, but at a rate below that in transitional economies where both total agricultural and cereal production exceed population growth. In such economies, low productivity represents the major constraint to further development. Unless productivity is

increased, employment growth will be limited, consumption of non-agricultural goods and services will be below required levels, and the transfer of excess resources to the industrial and services sectors will be nonexistent.

In the transitional economies, a more dynamic picture emerges. Here, growth in both total agricultural and cereal production exceed population growth, increased agricultural productivity has led to increased employment, and per capita caloric consumption has increased and is approaching recommended levels. Growth rates in agriculture suggest the development of a surplus, available for industrial and service sector growth.

The transfer of resources from agriculture to these other sectors and their consequent growth has already occurred in the middle income industrializing economies. Here, the data suggest a relative decline in cereal production but an overall increase in total agricultural production. Such adjustments would be expected as incomes rise and diets become more varied. Also, with the rapid increase in non-cereal production, daily per capita caloric intake has increased to 106 percent of recommended requirements and the growth in cereals has fallen behind population growth. A major portion of this population, however, is not employed in the agricultural sector; growth in the agricultural labor force in these countries has declined from 1.9 percent during the first five years of the decade to 0.7 percent during the second half. With the decline in the growth of the agricultural labor force and the generation of excess sectoral production, it is highly likely that a substantial number of rural residents are now employed in either industrial or service sector occupations on a part-time or full-time basis.

There clearly has been a change in the socio-economic composition of countries in the ANE region over the last decade. Currently, most of these countries enjoy surpluses in agricultural output, increasing employment in agricultural production and the beginnings of nonagricultural economic expansion. Only a limited number of countries continue to have serious problems with the production of major cereals, and the majority have begun to expand non-cereal production.

TABLE 3 CHANGES IN SELECTED AGRICULTURAL DEVELOPMENT INDICATORS BY TYPE OF ECONOMY - 1965 TO 1985

<u>INDICATORS</u>	<u>PERIOD</u>	<u>MEASURES</u>	<u>LOW INCOME AGRICULTURAL</u>	<u>MIDDLE INCOME TRANSITIONAL</u>	<u>MIDDLE INCOME INDUSTRIALIZING</u>
GROSS DOMESTIC PRODUCT	1985	\$Per Cap.	161	352	978
POPULATION	1965-85	Ann. Growth	2.6	2.3	2.5
AGRICULTURE					
Total Production	1965-85	Ann. Growth	2.5	3.3	3.8
Cereal Production	1965-85	Ann. Growth	2.4	2.7	1.1
Fertilizer Use	1985	Kg/Hectare	101	435	90
Irrigated Area	1985	% Arable Land	18	31	18
AGRICULTURAL LABOR FORCE	1965-85	Ann. Growth	1.3	1.4	1.5
CONSUMPTION					
Calories Per Day	1981	Calories	2057	2112	2327
% of Requirements	1981	percent	91	96	104

Source: *FAO and World Bank Data.*

Growth in non-cereal production responds to shifts in demand, because the relative importance of cereals tends to decline as incomes rise. Increasing daily caloric consumption and the relative declines in cereal consumption imply significant diversification in diets. These dietary adjustments are accompanied by shifts in the patterns of employment, wherein more and more new entrants into the labor force find employment outside agriculture. This, in turn, has three implications:

- Growth in income and employment in transitional and industrializing economies in the decade ahead will be dependent on growth outside the traditional agricultural sector. Although agriculture will remain important, it will not be the major source of new employment in a majority of countries in the region.
- As countries advance from low income and transitional agricultural economies, there is a clear trend toward out-migration of male labor from agricultural production. This changes the composition of the rural labor force towards higher female participation, as managers as well as laborers. (The

percentage of females in the rural labor force exhibits a striking increase as economies develop, from roughly 20 percent in the low income agricultural economies, to 50 percent or more in the middle income industrial economies).

- As employment shifts from agriculture to nonagricultural sectors, the importance of food processing and marketing increases. As people move from agriculture to other sectors their diets tend to change from cereals to higher protein and more processed foods. These changes may have special implications for women due to their traditional roles in food processing and vending.

These economic changes are paralleled by significant environmental, institutional, human capital, and political changes. As noted above, the sustainability of agricultural production gains is being called into question, both in terms of growing natural resource degradation and the relevance of institutions established to promote and support agricultural development. The human capital base has broadened significantly, and there has been a substantial increase in the number and complexity of

development institutions. The question at this point is how to respond to these changes and continue to influence and encourage economic development, while enhancing equity and conservation of the natural resource base.

C. Common Themes in the Development of ANE Economies

1. Low Income Agricultural Economies

These economies continue to grapple with the basic problem of feeding their citizens. Both donor and host country investments tend to follow traditional agricultural investment patterns, concentrating on increasing the per capita availability of basic food grains, either through increased domestic production or imports. Agricultural research and technology diffusion, agribusiness (primarily input supply) rural public services, policy analysis, human capital, and an increasing attention to natural resources are common development themes associated with these economies.

a. Research & Technology Diffusion: Improvement in agricultural research in low income economies is essential to: (i) more effectively use the scarce physical and human resources available; (ii) set in place and strengthen appropriate institutional mechanisms for defining and updating research agendas; and (iii) increase the capability of management structures to effectively identify key problems, allocate adequate resources to their solution and move on to new problems as old ones are resolved. Strengthening linkages between a country's research establishment and outside agencies or groups is important to facilitate research already underway, to assist in identifying new problems and required solutions, and to assist in marketing new solutions.

Given the overriding political importance and the widespread cultivation of cereals by small farmers in most of these economies, it is reasonable to focus research investments on cereals.² Returns to investments, however, in the form of increased production at reduced costs will take time. In the interim, these

economies must depend to some degree on imports, either concessional or commercial, to moderate imbalances between domestic cereal supply and demand. Foreign exchange, which is always in short supply, will be required to finance these imports. At this point, investments to identify and improve technologies for the production of high value agricultural exports can be an effective mechanism to increase foreign exchange earnings, encourage an alternate source of increased farm income and employment, and set the stage for future commercial agricultural production, processing, and marketing systems.

b. Natural Resources: Confronted by pressing problems of food security, limited budgets and scarce management resources, officials in developing countries tend to regard production and natural resource conservation objectives as conflicting, at least in the short run. Although such a position is understandable, given the political importance of cereals, agricultural growth at any cost cannot be supported even at this early stage in development. A major goal in these economies should be to ensure that the true net costs and benefits including environmental costs, of policy and program decisions are known and that public or private actions do not result in irreversible damage to the natural resource base.

c. Agribusiness: Comprehensive agricultural development programs in these economies must deal with two agribusiness problems--the provision of adequate supplies of key production inputs, when and where required by farmers, and the development of processing and marketing systems associated with high value agricultural production, especially for export.

Two aspects of the input supply system--the role of government and subsidies--deserve careful consideration. Recognition of the importance of input supply as a basis for expanding high-yielding varieties (HYV) cultivation has commonly led to direct government involvement and control over the production, importation and distribution of purchased inputs. In many cases, this involvement has persisted, even after it has become clear that the system is grossly inefficient and ineffective.

To encourage expanded distribution and farm level demand for inputs, subsidies are often used. In situations where basic input markets exist and input use is substantially below efficient levels, price subsidies have proven effective in encouraging more widespread and efficient use. Subsidies, however, need to be structured in such a way that as distribution and farm use approach efficient levels, the subsidy is systematically reduced until full cost pricing is achieved.

Expanded exports to provide a part of the foreign exchange required to finance cereal and other imports may be an element of agricultural strategies for the low income agricultural economies. For this to succeed, improved processing and marketing systems are needed. While there is a temptation for governments to involve themselves directly in these activities, experience is showing the advantages of leaving this primarily, if not exclusively, to the private sector. Investments in this area, in addition to expanding export earnings, can foster improved cooperation between the public and private sectors, lead to joint venture production and processing facilities, increase capital equipment imports, and provide the opportunity for increased private sector trade.

d. Public Services & Infrastructure:

Complementing purchased inputs is public infrastructure, particularly irrigation and transportation. The expansion of irrigation reduces risks associated with high input agriculture, encourages farmers to adopt new technologies, results in higher yields and cropping intensities, and leads to the expansion of production to new areas.

Improvements in transportation services (especially all-weather roads) minimize disruptions in input supply and facilitate the collection, processing, and distribution of basic staples. Good roads are a precondition to the subsequent generation and transfer of economic surpluses originating from the agricultural sector. But transportation services not only include an adequate physical network, but also cost-effective mechanisms for maintaining existing systems, policy environments that encourage the expansion of small scale private sector involvement in the sector, and effective mechanisms to assure adequate financing for expansion, operation, and maintenance.

e. Policy Analysis: Creating and then strengthening institutions (within governments at this point) to undertake policy formulation and analysis, and to establish and improve the data collection and personnel systems which support these efforts, is critical. Such capacity is needed in order to monitor key market performance indicators so that incidences of market failure can be identified and appropriate interventions initiated, and to provide the analytic basis for future policy decisions on, e.g., domestic cereal production objectives and means, the appropriate public sector role in input and output markets, and incentives to encourage increased private sector investment.

Of particular importance in achieving food security is the development of an effective food price stabilization program. Sound price stabilization policies can encourage continued adoption of new technologies and protect against rapid deterioration in the welfare of the urban and rural poor. Stabilization programs, if effective, can maintain cereal prices within bounds established by the government while allowing prices over time to mirror longer term adjustments in international prices by combining domestic and international market interventions, buying and selling grain as required to meet domestic consumer and producer price targets while maintaining sufficient stocks for use during times of national emergency.

f. Human and Institutional Capital:

Underlying development of ANE economies is the basic need for trained manpower at all levels, particularly in the research, analysis, and management fields. There is an urgent need to enhance and sustain the effective performance of key institutions, especially those involved in major cereals production. Considerations at this stage may include the appropriate mix of governmental and private entities, the financing of the increased costs that are associated with new or improved research programs, infrastructure-related services, appropriate governmental personnel systems, and the increasing role of women and youth in productive activities as development proceeds. Any development strategy in these economies will include substantial support for professional education and training.

2. Middle Income Transitional Economies

These economies have experienced limited success in their development efforts. Applied agricultural research and dissemination of high-yielding rice and wheat varieties has paid off, production has increased, per capita consumption is up, and the shift into the industrial and service sectors of the economy has begun. Within agriculture, diversification away from an emphasis on cereals is underway. Gains in agriculture are reflected in overall increases in per capita income, adjustments in food demand, the growing importance of the service and industrial sectors, and the increasing economic role of women outside the household.

These relative successes have led to the need for programmatic change. Major increases in value added from food-grain production have largely played out; new sources of rapid growth in the service and industrial sectors must be identified and promoted if the income and employment growth process, initiated in the agricultural sector, is to continue. Past development models that rely heavily upon government intervention, which have generally proven expensive and detrimental to formal and informal private sector participation, need to be changed if sustained growth in services and industrial production is to be achieved.

The transition from a low-productivity, largely agricultural economy with a weak commercial basis to a middle income, industrializing economy is a period where improvements in management of existing resources/infrastructure will provide the basis for growth. New approaches to development assistance, both programmatic and operational, appear warranted. Common themes in such a transformation are agricultural policy reform, technological innovation, natural resource conservation, agriculture-based industrial development, expanded trade, and continued human capital development.

a. Agricultural Policy: The policies established to achieve major increases in production need to be reviewed and adjusted to reflect current conditions. In these transitional economies, such programs as cereal self-sufficiency and market controls--commonly initiated to focus limited resources on key

problems and encourage the adoption of more productive agricultural technologies--while effective in increasing food production, have often led to production levels inconsistent with economic comparative advantage and to intrusive governmental involvement in the marketing and distribution system. Continuation and expansion of these programs has resulted in skyrocketing costs and growing concerns over program sustainability.

If nations are to develop a dynamic policy response capability, better ways to identify outdated policies, to measure the economic and social costs of existing or alternative policies, and to move economically preferred approaches through the political system are needed. Requirements include a well-articulated and up-to-date data base for monitoring current conditions and testing alternative policy options. Strong analytical units are needed in agencies having a major interest in agriculture--Ministries of Agriculture, Planning, Finance, and the Central Bank. While duplication of effort is a concern, comparable capacity in several organizations is needed to raise the level of debate and ensure full analysis and articulation of the options. Also, sustained growth of institutional capacity outside government needs to be encouraged to monitor longer term adjustments and to recommend alternative programs to meet employment and income objectives.

b. Technological Innovation: Innovation in agriculture continues to be a critical component in middle income transitional economies, especially in view of the recent evidence that suggests consistent declines in the rate of yield increase of basic cereals. There is general agreement that past yield increases, due largely to the widespread use of improved genetic material, irrigation, and the availability of adequate supplies of fertilizer and agrochemicals will be difficult to sustain. Increases over the next decade will likely result from improvements in crop management, including more effective irrigation, the widespread adoption of integrated pest management techniques, and the use of more optimal fertilizer mixes.

Development and dissemination of these improved management techniques may be more difficult and costly than previous interventions, because they will be more area-specific and,

thus, appropriate for a more limited number of farmers. In addition, they will have to be adapted to a changing labor force, including the increasing role of women as both laborers and managers. Although marginal, increases in cereal yields will be essential in the medium term to keep up with population and income growth and to buy time until longer range technological prospects, such as bio-technology, can generate the nonmarginal gains needed to assure the continued cost-competitiveness of domestic production.

Although the private sector is making substantial investments in bio-technology, public sector research in this area cannot be ignored. Current research, conducted by large, multinational seed production, research, and pharmaceutical conglomerates, can be expected to focus on commodities that promise the highest return and serve large stable markets. Such research may or may not be consistent with the need of poorer farmers in ANE countries. Investments are required to reposition and focus international agricultural research in order to identify and carry out basic research in this area. Private-sector research initiatives must be encouraged to focus on the needs of poorer, more diverse markets and to explore new forms of cooperation between public and private research organization--national, international, or multinational.

The heavy emphasis placed on cereals research reflects the social, macro-economic and political importance of these commodities. This does not, however, preclude additional research on high value, labor-intensive, secondary food crops, livestock, tree crops, or horticulture if such emphasis serves a country's present or potential comparative advantage. These crops can play an important role in increasing value added, employment and income, or in protecting downstream investments. Changes in cropping patterns may also affect labor and managerial roles in farm households. Research establishments need strong, integrated information and management systems to identify problems, concentrate effort on high-potential interventions, and monitor the application of resources, both human and financial, to the solution of key problems.

c. Natural Resources: Although the relative importance of the agriculture sector declines over time as industry grows, the

absolute size of the sector assures that it will continue to be an important component in national economic growth. Land, water, and vegetative resources come under increasing pressure as production intensifies on prime land, as population densities increase in upland and marginal areas, and as new areas are opened for agricultural exploitation. Sustained growth in agricultural employment and incomes will require careful management of the natural resource base which underlies agricultural productivity.

In conjunction with efforts to realize longer term food security, countries in this group can and must begin strengthening legislative, analytic, and administrative capacity to deal with sustained agricultural productivity and natural resource conservation. A clear understanding of the interdependence between long-term agricultural productivity and natural resource management must be developed and specific adjustments in government programs and policies made in order to assure the long-term sustainability of the more productive areas on which future income growth and employment depend.

d. Growth of Agribusiness: While growth in major cereal and secondary crop production will continue to employ new entrants into the rural labor force in the foreseeable future, the rate of increase in labor absorption will decline. Rising rural unemployment and underemployment appear likely unless alternative job opportunities can be created.

Adjustments in demand which accompany rising incomes in the transitional economies may provide a solution to this dilemma. Diets tend to change as incomes rise. Less is spent on cereals and more on high protein foods, processed and prepared food products, and canned and fresh fruits and vegetables. The collection, processing, and distribution of these products vis-a-vis other industries (e.g., textiles, shoes, electronics) generally is labor-intensive and rural-based. Lower capital investment is required, and relatively simple and easily maintained technologies are used.

Much of this initial growth will be in the informal sector, e.g. food processing and vending, where women's roles may be significant. The rapid expansion of

agroprocessing and secondary support facilities can provide productive employment opportunities (especially for women), expand and stabilize demand for selected secondary crops (fruits, vegetables, meat and dairy products), meet growing domestic demand, and lead to growing imports of processing equipment and complementary inputs (packaging material, artificial sweeteners, etc). At the same time, the technological and managerial base is set for future exports. Much of this labor force would normally be drawn from the more marginal agricultural areas. Out-migration from these areas, encouraged by appropriate natural resource management and educational policies, would in the medium- to long-term lead to adjustments in cropping patterns to reflect more limited, and increasingly female, labor availability.

To encourage the growth of agroprocessing, a variety of investments are required. Improvement in a government's ability to plan and implement infrastructure development in support of agroprocessing is essential. Promotional activities and services aimed at decreasing pre-investment and initial operating costs can also be effective in channeling investments toward designated locations or product lines. Consistent, clearly articulated and stable industrial policies, including pollution control and waste recycling, are important in reducing pre-investment uncertainties and supporting environmentally sound development. Initial costs could be further reduced by adjustments in policies which limit access to permits, credit, government investment, and inar.power development services. Investments could be further encouraged and targeted to specific areas through the use of tax policies. Finally, expansion of the capital markets to increase the supply and reduce the cost of domestic equity financing should be considered.

e. Trade Liberalization: A relatively open market trading regime is essential to development of an efficient, demand-driven production, processing, and marketing system. To move in this direction, adjustments in trade policies and regulatory agencies will likely be required. For example, countries in this group, having passed through a period of food scarcity, are often left with antiquated food and agriculture input supply agencies which continue to control basic agricultural and food markets. These agencies do this through direct

management of domestic production facilities, maintenance of monopoly import rights over key commodities and inputs, management of large subsidy programs, control of food procurement, and the maintenance of sole distribution rights over food and inputs--often down to the community level.

These agencies generally served an important function, but at the cost of developing strong vested interests in the maintenance of inefficient collection, processing, and distribution systems. In addition, many of the nations in this group have continued to follow monetary policies which isolate domestic financial markets from world markets. Overvalued exchange rates, credit rationing, and interest rate controls tend to constrain domestic resource mobilization, limit the availability of investment capital, and retard the growth of domestic processing industries. As an extension of this set of inward-looking policies, many countries have established artificial trade barriers, initially to protect infant industries. Once established, it has been difficult to rescind these barriers and to wean individual interest groups from the benefits they confer.

Liberalizing these systems is critical to establishing an efficient agroprocessing sector. A number of actions, which move toward opening domestic markets and linking them to international counterparts, could be considered. For example, at the macro level, reviews of exchange rate policy could assess the distorting effects of current policy on agricultural production and agroprocessing development. Similar reviews of banking policies could lead to interest rates more closely approaching real market rates and thus rationalize bank savings and lending policies and allow banks to provide the full range of services required by investors.

Improvements in basic import/export administration, import licensing requirements, and port procedures could also prove beneficial. Termination of import and export permit systems would eliminate the monopoly control they confer on individuals and agencies and result in the transfer of the accrued rents to governments via tariff or excise payments. Such a reformed system would also be more amenable to change if major distortions persisted. Finally, improvements in the management of port facilities which increase competition among cargo handlers and reduce

demurrage and warehousing fees could reduce the costs of inputs to agricultural processors.

The restructuring of state commodity trading operations so that they are actively involved in price stabilization rather than commodity supply management would be appropriate, if accompanied by improvements in domestic markets, increased sophistication of small to medium private traders and trading houses, and more effective banking services. Such a system would require the institution of a producer/consumer price target system through the active participation of trading companies in domestic and international markets. Price bands maintained by this system should be wide enough to allow for profitable private sector arbitrage in the overall food system, yet be closely parallel to longer-run international prices.

Trading companies, through the manipulation of domestic stocks purchased to protect floor prices, could encourage more efficient domestic production while buffering the domestic market from short-term international or national price fluctuations. In the long-term, such market operations should be self-financing. In the short-term, however, public financing would probably be required.

Effective price stabilization efforts need to be limited to major staples, like rice and wheat, in order to reduce logistical and financial burdens. Importation of other, non-staple commodities could then be picked up by private trading houses and, if necessary, monitored by a state trading agency. The adjustments suggested above would likely require substantial donor support to define problems, assess alternatives, implement decisions and structural adjustments, assure growing private sector participation, and underwrite a portion of the risk associated with these changes.

f. Human and Institutional Capital:

The middle income transitional economies require a greatly strengthened human and institutional base if they are to make the necessary policy and program adjustments discussed above. The major needs include: (1) more efficient interorganizational structures for analysis, research, and management of the adjustment process; (2) a strengthened institutional infrastructure of laws and rules at the central and local/urban levels; and (3)

upgraded technical and managerial personnel in transitional areas such as agroprocessing, export promotion, crop diversification, and natural resources planning. To support a demand-led strategy, enhanced and sustained institutions--many of them crosscutting one or more organizations--will be required to support policy analysis and implementation management.

With adjustments in agriculture will also come the need for special consideration of gender roles, minority concerns, and distribution issues. Specialized education outside the country will remain necessary, but with technical and managerial training provided in-country more frequently. Private and non-governmental institutions may play an expanded role in employment generation, natural resource conservation, and education.

3. Middle Income Industrializing Economies

These economies typically have solved their grain supply problem through intensified per capita production and/or food grain imports. They are well along on an industrialization policy and are beginning to draw a large share of new labor force entrants from agricultural areas into non-farm employment. Although problems remain, the institutional base has been created and is beginning to take an active part in identifying problems, articulating solutions, and marshalling domestic human and financial resources to get the job done. The basic commercial laws governing market functions and capital markets are in place to facilitate entry into and operation of modern markets. Trade policy has shifted from a protectionist posture to one of export promotion, and more transparent tariff structures, generally in line with international levels and equally applied to all market participants, have been adopted. Finally, middle income industrializing nations have developed the basic administrative, legal, and monitoring institutions required to implement environmental protection legislation.

Basically, countries in this group are managing the transition from a major dependence on agriculture as the prime source of growth to a more balanced growth pattern. Most of the countries, however, lack the sophisticated internal structures and external linkages which will allow them to accelerate and sustain a rapid development process, and some of them

are now confronting the consequences of past reckless exploitation of their natural resource base. As the agro-industry base expands and technology development becomes more capital intensive, new and more adaptive institutional structures and processes are needed to formulate and implement increasingly complex policies, to stay abreast of rapidly changing technologies in the biological and information sciences, and to respond to international trade opportunities.

Middle income industrializing economies are normally marked by major transformations in gender roles and increased female participation outside the household. Also, in selective, high payoff areas such as environmental protection and biotechnology, these countries require continuing support for new initiatives in the areas of industrial pollution control, toxic and solid waste management, and worker health and safety.

In these countries, it is essential to have high quality domestic institutions and networks which tie individuals and institutions together into systems of shared objectives and ideas

which energize the links between domestic institutions and centers of scientific and analytical excellence throughout the world. Strengthening domestic networks and linking them to existing international networks should encourage and sustain the plurality of ideas and institutions that a modern state needs to deal with a dynamically changing internal and external environment.

As economies expand and more women are drawn into the labor force (both on and off-farm), countries have an even greater need and opportunity to directly and effectively address gender and broader social equity issues.

Finally, there is a need and an opportunity for these countries (for political, technical, and financial reasons) to form institutional relationships with neighboring, lower income economies for the purposes of technical cooperation and education. The participation of a nation's professional, scientific, and managerial community in efforts to assist less developed neighbors, along with the use of domestic universities and other facilities to train third country nationals, can bring mutual benefits.

III. Proposed ANE Food Systems Growth Strategy

Over the past 20 years, ANE's strategy has focused on increasing basic cereal production in ways to ensure that the benefits of growth were shared by different income groups. Program investments have sought to improve basic cereals research and extension; to provide physical infrastructure and policies to assure adequate and efficient supply of required inputs such as water, fertilizer and credit; and to strengthen governments' capacity to manage a country's agricultural production system. These investments have in part been successful. Per capita caloric consumption, income, and employment have improved in the majority of ANE countries. But, problems of sustainable agriculture, and hard-core pockets of poverty and environmental degradation persist.

With growth has come new problems and the need to reassess ANE's regional agricultural strategy. Adjustments are required in order to: (1) ensure the current strategy is consistent with changing economic conditions and problems; (2) determine if strategic themes can be readily translated into specific field actions with measurable outputs; (3) rank themes so as to facilitate field level choices under conditions of declining resources; and (4) demonstrate to Congress and U.S. interest groups that development resources are being used efficiently and effectively to further U.S. interests while serving the needs of disadvantaged groups.

An ANE Bureau strategy cannot address all of the development problems. Selective programming must be based on: (1) the likely impact of assistance on income and employment, (2) AID's comparative advantage, (3) long-term U.S. political and economic interests, and (4) the chances of success. This is an argument for marshalling ANE's human, financial, and organizational resources to resolve key constraints to sustainable increases in income and employment and, if need be, making the necessary adjustments in program, staff, and process to operate more effectively in the 1990s.

A. The Development Programming Context

To continue economic growth already underway, ANE client countries will need to expand access to gainful employment and to increase incomes of populations living in both urban and rural areas. To accomplish this, private and public resources need to be committed to *sustaining and increasing the food sector employment base already established, expanding the use of high-yielding cereal technologies* where economically and environmentally justifiable, promoting growth in off-farm employment, and identifying and supporting public and private investments that *develop and promote environmentally sustainable sources of growth.*

Certainly, the maintenance of basic food security constitutes a priority claim on national attentions and resources. In the past, this has often taken the form of striving for self-sufficiency in basic cereals regardless of the economic merits. Of late, there is increasing recognition of the costs involved in such a strategy and acceptance of the idea of using the international market as a "balance wheel" in ensuring national food security. An effective strategy must recognize and accommodate food security as a priority objective, while remaining flexible on the means of achieving it.

Both efficiency criteria and historical evidence dictate the expansion of private enterprise in food security efforts as well as overall economic growth. In countless instances the private sector has proven that it can interpret market signals better, move faster and allocate scarce resources more efficiently if given the opportunity. The more active involvement of the private sector, however, requires a basic adjustment in the role of government, from a position of controller of economic development to the management and promotion of economic growth.

Open currency exchange and banking systems, stable investment and legal environments, selected subsidization of new technologies and programs to encourage adoption, and the capacity to detect and react to changing domestic and international market environments will be critical to development. Governments' ability to detect and avoid the mistakes of other industrializing nations, which have often neglected the environmental aspects of growth, will need to be addressed early in the transition process. Adjustments will be neither easy nor simple. External resources to encourage government policy adjustment in this direction, to identify the political and economic options available, and to absorb a portion of the associated risk and transition costs will be required.

The objective of increased income and employment through more efficient allocation and use of scarce resources leads to a number of key principles upon which a development strategy for the 1990s must stand.

First, in the decade ahead agricultural growth will continue to be a major source of new income and employment. Maintenance of economic gains will be dependent on continued growth and development in agriculture. Agricultural expansion alone, however, will not be sufficient to maintain acceptable rates of growth in per capita income as labor forces expand. Agriculture can be expected to decline in overall, relative importance as an economy develops.

Second, efforts to maintain and improve productivity in basic cereals will continue to be critical because:

- cereals production will provide the single largest source of income and employment in ANE countries;
- basic cereals will be essential for national food security, price stabilization, and the maintenance of government credibility and political stability;
- cereals will be the largest single source of protein and calories in the diets of poorer residents; and,
- cereals will, for the medium term, remain the basic wage good of the region and

continue to be important in maintaining low wage rates, critical to the expansion of private sector marketing, processing, and distribution.

Third, a sound natural resource management policy becomes increasingly important to ensure the long-term productivity and efficient use of a nation's land, water, and forest resources. This suggests the need for:

- a strengthened capacity within the public sector to identify the costs and benefits associated with public and private investments and take practical steps to stop or ameliorate the adverse environmental impacts of such investments;
- the adoption of long-term environmental and water resources policies which clearly delineate the relative roles of the state and the private sector in the ownership and management of land and water resources, and establish effective methods of arbitrating disputes between and among users;
- the resolution of tenurial uncertainties, including governments' recognition of the long-term tenurial rights of current users and the development of creative mechanisms which allow these users to benefit from the economic returns associated with sustained, improved management;
- more focused efforts to develop long-term, environmentally sound procedures for managing areas of high agricultural productivity;
- an understanding and consideration of gender-differentiated roles in natural resource management;
- the development of an information base to support and monitor the above.

Fourth, while food demand will continue to emphasize basic cereals, diets will change as incomes increase. To support these changes, appropriate agricultural research, extension and production programs must be encouraged. The allocation of scarce human and financial resources to these activities, however, must be based on the comparative cost of producing

locally or importing, the impact of increased production and processing on income and employment, and the compatibility of investments with changing demand. In short, consumer preference for least-cost food commodities, whether domestically produced or imported, must take precedence over the ability to produce at any cost as the basis for allocating research support. Application of this principle suggests:

- an increasing emphasis on domestic demand as a guide to the allocation of resources;
- an expansion of agricultural research beyond production to include problems faced by the food system as a whole--from farmer's field to consumer's table;
- constant or declining support for general cereals research and increasing support for improved identification of and response to specific areas of opportunity; and
- an increasing attention to the production, processing, and marketing problems associated with poultry and livestock production, fish production, and fruit and vegetable processing and marketing.

Fifth, growth in agricultural processing and marketing will be a prime source of expansion in rural employment, will lead to increasing incomes for underemployed rural residents (particularly women), and will provide an important stimulus to subsistence farmers to relocate away from environmentally fragile, low productive areas. Such growth will require:

- the capacity to identify product growth lines to meet domestic and foreign demand, analyze and implement selected policy changes, promote the expansion of agroprocessing investment, identify and minimize the environmental and social costs associated with agroprocessing, understand and effectively work with the informal sector, and plan and implement required public infrastructure development;
- the expansion of capital markets and provision of access to a wider range of investors, including the informal sector, to increase the sources and utility of equity

capital and facilitate expanded lending for a wider range of needs;

- the reduction in protectionist trade barriers and their replacement by tariff systems which increase and promote the use of least cost inputs by agroprocessors;
- the restructuring of internal trade policies and transportation services to reduce the cost of raw and processed agricultural goods from farm to factory to consumer table or port; and
- the dissemination of information about new technologies, identification of least cost foreign or domestic suppliers of agroprocessing equipment, linking of foreign suppliers with domestic investors, and simplifying procedures to facilitate rapid equipment purchase and delivery.

Sixth, a transformation in the role of government from controller to promoter of economic development will require substantial restructuring of development institutions and a complementary expansion in the role of the private sector. Governments throughout the region need to realize the importance and benefit of:

- targeting interventions only when private market performance falls below prescribed expectations;
- establishing up to date legal, banking, and contracting procedures which encourage the rapid and cost-effective expansion of market transactions, protect the rights of both buyers and sellers, and quickly and effectively arbitrate disputes;
- encouraging the development of more complex marketing systems, not only in terms of input supply and the processing and distribution of agricultural products, but also capital markets to provide for the expansion of processing facilities and commodity futures markets to absorb a portion of the risk that is associated with a modern agricultural production and processing system;

- identifying the participants (both male and female) and characteristics of the informal production and marketing system, assessing the constraints which inhibit expansion of these small and efficient entrepreneurs, and adjusting license, tax, trade, and information policies to assure their entrance into new markets and/or expanding current facilities; and
- increasing the effectiveness of taxation systems to increase public revenues required to carry out necessary infrastructure investments and provide incentives which channel private investment into desired geographic areas.

Seventh, increased trade will play an integral part in hastening the required transformation. Trade, however, is a two-way street. The exports of a developing country must provide the foreign exchange to finance imports. Export expansion not only requires the development of least cost production and processing facilities, but also a liberalization of trade barriers to allow the importation of capital equipment and processed inputs that a country cannot provide at reasonable cost.

Expansion will require:

- the development and widespread dissemination to domestic entrepreneurs of detailed information that outlines the structure and growth potential of key foreign markets, the identification of niches in those markets that could be competitively filled by domestic efforts, and the identification of special exemptions which may favor entry into these markets including the specific steps entrepreneurs must take to avail themselves of exemptions;
- the development of private sector production, processing, and trade associations to represent the interests of members, identify constraints to expansion, mediate complaints, and encourage and facilitate research to improve processing technologies; and,
- government investments and policies to encourage expansion of export industries, specifically government-supported market research, promotional activities and

technology adaption, streamlined import and export procedures, and the provision of venture capital and selected infrastructure investments.

Eighth, all of the adjustments suggested above will require a higher quality workforce in both the public and private enterprises. The expansion of governmental analysis, planning, and monitoring, and of private sector entrepreneurship will require:

- strengthening of governments' ability to identify specific skills in short supply, implement policies which encourage adjustments in public and private educational institutions and programs, and develop operational training plans to upgrade key skills of men and women;
- ensuring the expanded access of women and minorities to education and training opportunities; and
- establishing a wide range of new formal and informal training programs specifically to meet the needs of an expanding private sector. Areas likely to be in high demand include commercial law, business management, marketing (international and domestic), investment analysis, accountancy, transportation management, pollution control, and computer science.

B. Institutional and Political Considerations

An action agenda to facilitate and quicken the structural adjustments facing ANE client countries is both complex and far reaching. Choices have to be made which, (1) maximize the impact of scarce ANE resources on the expansion of incomes and employment, (2) meet realistic performance parameters imposed by the U.S. political and economic environment, and (3) coincide with the Agency's comparative advantage.

1. The Domestic Political Environment

Articulation of an effective strategy must consider the major economic and political

adjustments likely to influence programing options through the coming decade. The changing international position of the United States, its sustained fiscal deficits, its negative trade flows and the likely increased importance of trade policy in U.S. foreign policy, and the increasingly important role of special interest groups will influence the types of programs ANE will be able to pursue.

A number of changes need to be considered:

- the destabilization of the American dollar and the persistent U.S. budget deficit suggest the likelihood of constant or decreasing U.S. foreign assistance budgets and the need for AID to work in a cooperative rather than a unilateral mode;
- the growing interest in Congress in moving U.S. foreign assistance from a process to a product orientation will have implications for program management and implementation;
- the increased power of special interest groups in Congress will result in continued and possibly greater Congressional interest and oversight and in continued difficulties in generating the necessary political support for foreign assistance;
- the growing complexity of the world trading system and the increased role that developing countries play in it, concerns over the U.S. trade deficit, the slow pace of trade liberalization, and the resulting increase in protectionist tendencies could lead to trade conflicts between major trading nations, use of restrictive U.S. trade measures, and increased pressure on AID to promote U.S. markets and abstain from investments which might result in increased regional exports;
- more widespread scientific and public understanding of global environmental problems--acid rain, ozone depletion, the "greenhouse effect," destruction of tropical forests, degradation of major watersheds (the Himalayas, for example)--will result in greater pressure on AID to commit resources to these problems within countries and in the international arena.

While these trends will affect a broad range of U.S. programs and policies, they have particular relevance to AID and ANE's programming options. Specifically, these trends are likely to lead to:

- a reduction in the number and a scaling back of the scope of Missions' specific program objectives;
- a reduction of the number of AID program recipients;
- a reduction in personnel and program resources;
- efforts to restore greater trust and confidence between Congress and AID in the implementation of the U.S. foreign assistance program;
- an attempted strengthening of the Agency's capacity to monitor and analyze the commodity-specific issues that confront interest groups and Congress and to determine the most effective response consistent with the long-term strategy objectives of the Agency; and
- the development of new ways of doing business which more efficiently use the Agency's scarce human and financial resources and maximize the Agency's ability to encourage funding from the larger donors--e.g., Japan and the multi-national banks.

In other words, during the 1990s ANE will likely be working in fewer countries, have less staff and fewer programmable financial resources, and face greater oversight by Congressional and interest groups. There will be continuing pressure, especially early in the decade, to establish effective programs which enhance U.S. trade flows and encourage liberalization of client country trade and private sector investment policies. Also, there will be increasing pressure on ANE to step up the volume of the programming that addresses growing environmental problems. Finally, there will be increased attention within the Agency to more efficient operations, including ways of increasing staff effectiveness, of identifying and testing innovative, high payoff, long-term solutions to development problems, and of

persuading large donors to support promising solutions.

2. Comparative Strengths of AID

With over 30 years of experience in foreign assistance programming, AID--and more specifically, ANE--has developed recognized strengths relative to those of other multilateral and bilateral donors in dealing with the economic development problems faced by client countries. The long-term maintenance of a network of field offices with capable, in-country technical and administrative expertise provides an in-depth analytic capability combined with access to host country technicians and decision-makers. Through close, long-term involvement with the problems of productive agriculture, AID personnel have arrived at a thorough understanding of the production and administrative systems involved and have participated in vital policy decisions regarding these systems at host-countries' invitation. These close collegial relations with host-country decision makers generally are not enjoyed by other donors. Also, AID's long-term involvement in sustainable institutional development has led to the formulation of effective approaches to this issue which are being drawn on by other donors.

AID would not have been able to accomplish as much as it has without the unique strengths available in U.S. institutions. The U.S. agricultural research, extension, and training university system has been actively involved in international development efforts over three decades. Both as institutions and through their individual faculty members, the universities have contributed to the agricultural development process through research, extension, policy analysis, and training. The level of mutual trust and respect which characterize many of the relationships between these and host country institutions is a necessary condition for the difficult tasks of institutional restructuring and transformation that economic structures require as they adjust to contemporary conditions. Access to this university system remains one of the primary selling points for the research and human resource development programs of AID.

Private U.S. voluntary organizations provide another unique resource to assist in defining, testing, and monitoring innovative solutions to

critical private sector and rural development problems. These can be used to identify realistic approaches to rural problems and to demonstrate how broad policy adjustments will benefit target populations at the community and intra-household levels.

The strong U.S. technology base--especially in the advanced agricultural sciences, research management, communications, agroprocessing, and marketing--provides an unending array of proven technologies of value to client countries in their development efforts. Unique opportunities for ANE, especially in the middle income transitional and middle income industrializing economies, are available because of the growing interest of U.S. manufacturers and processors in joint-venture developing country investments, and the well-developed U.S. based international capital markets.

An often unrecognized and under-utilized source of talent available to AID can be found in other U.S. Government agencies. Over the past century, professionals in these agencies have tackled many of the same issues now confronting developing countries--anti-trust legislation, agricultural grades and standards, business licensing, environmental protection, public land management, labor relations, and safety and tax administration. Much of this experience and expertise is relevant in international development context.

Skills in the U.S. business sector are equally impressive. There are virtually hundreds of thousands of retired U.S. executives who have, during their careers, started new businesses and seen them grow into successful, large scale enterprises. The U.S. financial sector, a world leader, knows financial and commodity markets, and the institutions required for them to work efficiently. Tapping this pool of talent and focusing its creative problem solving skills on constraints faced by client countries may be one of the most important and productive activities ANE will undertake during the 1990s.

AID has access to a wider range of development assistance instruments and modalities than most other donors, including grants and concessional loans, the trade and development program, cash transfers, sector loans, and PL 480 in all its manifestations. These various options combine to provide significant

programmatic flexibility in responding to specific client country needs.

Although AID possesses or has access to many relative strengths, problems remain. Staff capabilities in such critical areas as macro-economic analysis and policy formulation, natural resources management, agroprocessing, trade, rural sociology (especially women in development), and capital market development are limited. Many of the important transitional issues which client countries face cut across thematic and organizational lines and are difficult to address. The urban-rural dichotomy which pervades much of AID's strategic thinking and the division between private enterprise and agricultural development are good cases in point. Finally, the ability of ANE and the Agency as a whole to formulate strategic issues and perform and/or manage first rate analysis is hampered by the absence of a strong analytical staff. Dedication of staff and financial resources to this task is essential to develop programs which will be relevant to problems faced by AID client countries.

3. Strategy Precepts

The ANE Food Systems Growth Strategy emphasizes:

1. food security interests;
2. real increases in client country income and employment for both men and women;
3. environmentally sustainable programs;

4. compliance with policy parameters established by the Agency and/or Congress; and
5. maximum use of special AID and ANE strengths.

Possible interventions will have different impacts relative to each of these criteria and will need to be tailored to the specific conditions faced by individual countries. For example, investments to increase or maintain staple cereal yields in middle income agricultural and transitional economies will have direct and indirect impacts on the work force. In the transitional economies, attainable rates of growth and labor absorption in agriculture will be lower, with implications for industrialization, trade policy, capital market development, and infrastructure planning and management. The impact of Agency and Congressional oversight is also important in the selection of strategy components. Certain investment activities directly affect these concerns; others are more neutral. Increases in domestic cereal production, for example, encourage political stability and expand the buying power of poorer urban and rural consumers, but they have limited impact on American producers and trade. On the other hand, investments in agribusiness based on changes in domestic demand and supported by appropriate and effective research could mean increased demand for such U.S. exports as feedstocks or production equipment--areas where the U.S. is a high-quality and low-cost producer. Efforts to encourage private sector participation in marketing and processing and an emphasis on natural resource management speak directly to U.S. interests and strengths.

IV. PROGRAM EMPHASES

Based on an analysis of conditions likely to be present in ANE client countries during the 1990s, and the Agency's comparative strengths, seven areas are suggested for ANE country programming:

- **Agricultural Technology Development and Management;**
- **Natural Resources Management;**
- **Agribusiness Development;**
- **Agricultural Planning and Analysis;**
- **Trade and Market Development;**
- **Infrastructure Management; and**
- **Sustained Institutional and Human Capital Development.**

Investments in each of these areas will address specific constraints that ANE client countries face over the decade ahead, build upon prevailing political and economic forces, and coincide with specific U.S. political interests and programmatic strengths. For example, improvements in the management of agricultural research systems encourage the more efficient and effective use of donor and domestic resources. When integrated with environmental concerns, a better understanding of the relationship between agricultural production and the environment, and the development and dissemination of new technologies which are both profitable to farmers and environmentally sustainable, should result.

Similarly, strengthening indigenous agricultural planning capabilities increases a country's ability to undertake environmental and social cost/benefit accounting, evaluate changes in consumer preference, identify areas of comparative advantage in production and processing, and target research and infrastructure investments to maximize income and employment benefits. Investments which encourage and support redefinition of

governments' role vis-a-vis the private sector can be instrumental in "priming the pump" of private sector investment growth and set the stage for more pluralistic and stable societies. Investments in this latter area also address U.S. policy concerns, because they require lower trade and tariff barriers, encourage increased imports of new and more productive technologies, and play to the unique strengths of the U.S. public and private sectors.

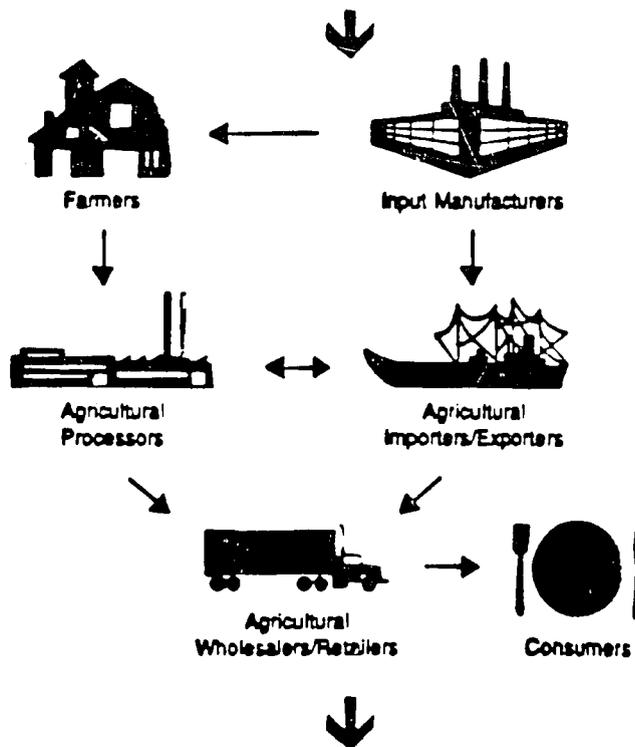
The expansion of the private sector, combined with a strong economic and environmental research and planning capacity, provide the basic components required to deal with the array of pollution problems which inevitably develop as populations concentrate around growing industrial centers. Also, efficient, low cost domestic production for export provides the financial resources needed for import expansion, develops new non-governmental links between nations, and opens sometimes closed societies to new ideas. Finally, the development of human capital and effective domestic institutions sets the stage for the eventual transformation of client countries from aid recipients to full-fledged collaborators and partners in the world economy. Figure 1 illustrates how the relationship of these factors might be conceptualized.

Not all the activities mentioned under each investment opportunity will be appropriate for a particular country. Missions will ultimately determine the form and content of their own program. To do this, they will need the analytical capacity and political acumen to monitor and assess political feasibility, the technical capability to explore feasible options to solving constraints if and when "windows of opportunity" present themselves, and the flexibility to move human and financial resources to take effective action within the limited time frame afforded for change. This section of the strategy explores specific investment areas, emphasizing projects or programs that Missions might consider in bringing their agricultural strategies more closely into accord with the broad income and employment objectives.

STRATEGY SCHEMATIC

Strategy Focus:

- Improved Agricultural Technologies
- Sound Management of Natural Resources
- Freer Markets
- Stronger Analytical Capabilities
- Faster Agrobusiness Development
- More Efficient Infrastructure Management
- Sustained Institutional and Human Capital Development



Strategy Impacts:

- Lower Food Costs
- Increased Incomes
- Increased Employment
- Diversified Rural Economies
- Enhanced Trade Flows
- Conservation of Agricultural Resource Base

A. Agricultural Technology Development and Management

Continued increases in population, rising incomes, and the slowdown in the yield increases of major cereals suggest that it will take considerable effort over the next decade to ensure the continued technological innovation needed to keep cereal (rice and wheat) production at least equal to demand. The very dramatic increases in rice yields recorded up to 1965 have slowed dramatically, and experiment station yields have actually declined since 1965. And although the new varieties mature faster and are more resistant to insects and diseases, they do not have higher yield potential. The picture for wheat is similar.

Considerable effort in the form of maintenance research is required just to keep ahead of pests, diseases, and other stresses. Newer techniques, such as biotechnology, have potential in helping alleviate some of the more difficult problems facing agriculture in the areas where physical, chemical, disease, and insect stresses limit production under existing technologies. Short of unexpected breakthroughs in yield potential, however, near-term rice and wheat production gains will come primarily through management--that is, agronomic--improvements.

Although a gap between potential and actual on-farm achievements in rice and wheat production remains, the prospects for closing it further are daunting. Fertilizer use is already fairly high in most ANE countries, and efficiency of fertilizer distribution and use is improving only slowly. Irrigation investment has almost halved in the past five years, and it remains questionable as a major source of accelerated growth. Price policies for cereals are generally good throughout the region; policy reforms cannot be counted upon as a major source for increased cereal production. Also, environmental stresses continue to undermine the production base.

There is scope for increasing productivity of other commodities, particularly feedgrains, livestock, and oilseeds. As income increases, the demand for animal protein and the feedgrains required to produce it will increase dramatically. Investments, however, must be

driven by a better appreciation of present and future consumption patterns and cost efficiency. Evidence from newly industrializing countries (NICs) in Asia suggests that the rapidly expanding demand for coarse grains that accompanies income growth generates substantial real returns to investment in research, field production, and processing of feedgrains. The accompanying expansion in supply, however, has often been insufficient to meet demand, and increasing imports, many supplied by the U.S., have been required.

On the other hand, results of investments in oilseeds, notably soybeans, have not been favorable. Low yields, soil problems and disease have resulted in production costs in excess of import prices, and there is little hope of a research-driven solution in the near term. The implication here is for limited domestic investments, and reliance on the international market instead as a future source of supply.

Regardless of the specific commodities in question, it is clear that development of new technologies will have to be sensitive to the changing composition of rural labor force. Similarly, the adaptation and transfer of technologies will need to give increasing consideration to the audience, its characteristics and capabilities. Examination of farm management decision-making and rural labor allocation and constraints, with an emphasis on gender issues, should precede the design of specific productivity-enhancing technologies.

It seems clear that future agricultural technology challenges will be at least as important as in the past. Funding levels for research must be maintained at current levels and focused more narrowly to take advantage of domestic comparative advantages, just to stay even. There will continue to be too little investment in agricultural research in the ANE countries, and targeted AID assistance in this area will be necessary at the international, regional, and most national research levels.

The regional strategy starts with the International Agricultural Research Centers (IARCs), as their mandates cut across all countries of the region. Regardless of the strengths of the National Agricultural Research Systems (NARSs), there is need for IARCs to do such things as germplasm collection and maintenance, basic genetic improvement, and

information exchange. Additional tasks, such as support to NARS, expanded training, or strengthened research efforts in natural resources management and basic tropical agro-ecological systems will require additional funding and, perhaps, new institutions.

Historically, national agricultural research in the ANE region has received strong and continuous support. Additional research infrastructure is a declining assistance priority, at least for AID. Several of the countries in the region have large numbers of trained researchers, although researchers risk becoming isolated due to limited opportunities for external networking. NARSs can carry out basic problem identification/adaptive research in a number of countries, primarily in South and Southeast Asia, but the need remains for sustained, steady assistance (not necessarily at large financial resource levels) to almost all NARSs. Most national systems can be characterized as follows:

- there are gaps in programs and trained staff in most;
- there is need for accelerated human resource development in all;
- biotechnology could be usefully promoted in many;
- organizational/management improvement is needed in all;
- site-specific adaptive research and extension is increasingly important, because future production gains are likely to come primarily from agronomic improvements;
- research is needed on effective and efficient extension methodologies--we do not know enough about alternatives to traditional extension programs and how to tailor messages to specific audiences;
- private sector agricultural research and extension capacity has generally been neglected, but may have considerable potential.

In the **low income agricultural economies**, basic institution-building is the primary task. The most effective way to achieve this is to concentrate on developing "critical masses" of

technological expertise to address production technologies for high-priority crops (in most instances, cereals). Research programming should focus on farm production problems. Human resource development and technical collaboration are the building blocks. Where basic research infrastructure is still needed, this might best be achieved by cooperating with other donors, such as the World Bank, for loan funds for buildings, library reference materials, and research equipment. Facilitating participation in collaborative research networks, of which the IARCs and Collaborative Research Support Programs (CRSPs) are active participants, can be an effective means of supplementing and reinforcing the NARS programs.

In some of the **middle income transitional economies**, the basic institution-building job is as yet unfinished. In all of these countries, NARS institutions are fragile. These systems are also often in need of selective opportunities to get researchers involved more actively in the broader international research community. Researchers can both contribute and learn from collaborative research networks. Technical assistance can still have an important role, but increasingly in a "collaborative" rather than an "assistance" mode. Research management (budgeting, planning, analysis) becomes increasingly important as progress is made in basic cereals production and future directions or objectives become less clear.

Post-harvest processing, and marketing will be increasingly important in such countries. A number of specific actions may be required in support of agroprocessing investment: analysis of domestic demand to identify ongoing adjustments and general classes of food products likely to be in demand in the future; identification of forward and backward market linkages which affect the cost of processed products; reduction of raw material, packaging, and/or distribution costs; and the development of effective organizational models that locate, implement, and manage facilities. Targeted investments in agricultural research, which link consumer demand for processed products, processing requirements, and farm level output, could lead to substantial returns and lay the basis for private/public sector research coordination.

The basic challenge in **middle income industrializing economies** is recognition of the maturity of their NAR systems and identification of the mutual benefit that could be realized from a more mature relationship. AID must explore ways to:

- maintain and intensify relationships, building on the large investments already made, in order to better serve broad U.S. political, economic, and commercial, as well as development, interests; and
- forge strong and sustainable ties between the commercial, scientific, and technological institutions of the U.S. and those in developing countries.

In order to develop more productive, collaborative relationships, AID could support activities primarily within four areas:

1. Technology exchange/networking and, where appropriate, scientific collaboration, through linkages to educational institutions, research labs, product development centers, U.S. state land-grant universities, and state-level technology incubators, and similar institutions which would yield important mutual dividends;
2. Education and training, including cooperative research, faculty exchange, joint participation in academic proceedings, and student seminars abroad;
3. Commercial investment in technology generation and diffusion, through facilitating analysis leading to policy reforms and serving as a broker for joint-venture private investments; and
4. Environmental protection.

Within these areas, AID's strategy would rely primarily on existing institutions and networks for program implementation. On the U.S. side, these institutions would include: U.S. Government agencies; business firms; private voluntary and other nongovernmental organizations; state governments; chambers of commerce and other associations of business firms; research and development laboratories; science and technology institutes; and both public and private universities. Stable institutions in client countries, supported over

the long term by their own resources, are essential to such relationships.

The development or strengthening of a series of independent research and development institutes, possibly tied to a national science foundation, could also provide an important mechanism for allocating indirect support to technological development through research and inter-institutional exchange and collaboration. Support of such networks would probably require substantial adjustment in the means of providing and allocating U.S. assistance.

A maturing relationship between the United States and the industrializing countries should be characterized by:

- joint decision-making, involving representatives who might be drawn from government, business, the university community, research institutes, private voluntary organizations, or other areas;
- simplified, straight-forward procedures. (Grants would be preferred, because they are simpler and more consistent with the concept of mutually beneficial support programs); and
- joint funding. (In the early stages, funding might come primarily from U.S. Government sources--direct grants and/or grants to endowments generated by PL 480 monetization. However, the goal of shared contributions should be established from the beginning.)

B. Natural Resources Management

Sound natural resource management is a fundamental and integral part of a food systems growth strategy. Concern for the natural resource base is inherent in the objectives of food security, income growth, and employment, and establishes parameters for the design of interventions in agricultural technology, human and institutional development, agricultural planning, and infrastructure development.

The integral role of natural resource management, however, is not always apparent in governments' short term investment

decisions. In efforts to meet short term food security or foreign exchange objectives, governments often neglect, either consciously or through ignorance, the longer term and possibly irreversible environmental costs of development decisions. For example, to increase foreign exchange earnings, governments often turn to harvesting their tropical forests. Thus opened, the forests become the home for increasing numbers of poor people. Increased slash and burn agriculture leads to the decline or collapse of the fragile forest ecosystem. This environmental instability breeds social instability, as new migrants displace indigenous forest dwellers.

The costs of poor forest policy are not confined to the uplands. Loss of forest cover and the resulting increase in runoff leads to soil erosion and increased sediment loads in rivers, destruction of riverain fisheries, increased incidence of floods and flood damage and higher food production costs. Rapid runoff also shortens the irrigation season on prime low land hectorage, limits irrigated area, and increases the cost of irrigation system maintenance and flood protection.

The above simplified example represents a generic problem faced by all ANE countries--the clash between short term production and long-term environmental goals. It is clear that governments themselves, through short term development policies, are often either direct or indirect contributors to environmental degradation, and that grinding poverty in both the rural and urban areas are forcing the poor to relocate in ecologically sensitive areas which are unable to sustain them and their families for an extended period. These demographic shifts and the environmental degradation that results represent a real cost to high value growth areas--i.e., irrigated agriculture. Effective government policies and programs relative to the causes--poverty--and the impact--environmental degradation--are required.

This paper focuses on a food systems and not an environmental strategy; it proposes that natural resource interventions be limited to those having a direct impact on sustainable agricultural productivity, namely:

- Ensuring the sustained productivity of high-potential agricultural areas in order to provide for future food supply and

expanded employment opportunities, the latter with the objective of encouraging migration out of ecologically fragile areas.

- Developing an indigenous institutional capability to analyze the environmental implications of specific public investments, establish and enforce rules and regulations which protect society from unacceptable environmental costs, and alert and educate the public to the need to consider environmental costs when making public and private investment decisions.
- Supporting interim measures which minimize the long-term costs of exploiting ecologically fragile areas in order to reduce the impacts on downstream agricultural production, including (1) measures to replace slash and burn agriculture with production systems which are ecologically sound, financially remunerative, and consistent with the resource constraints faced by poor farmers, and (2) testing and adopting new natural resource management arrangements which blend public and private rights and responsibilities and ensure adequate returns to poor forest residents to encourage their support and active involvement in management plans.

Also, as food producers and wood and water gatherers, women are the main natural resource managers throughout much of the ANE region, especially in areas where they already account for much of the subsistence food production. A sound strategy needs to emphasize the connection between women's roles and natural resource conservation in strategic policy-making, project design, and training initiatives.

A wide range of specific intervention options exists for implementing such a strategy, from data collection and monitoring to reforestation, pilot or demonstration projects, resettlement, policy reform, and public education. As countries move through the stages of structural transformation, the natural resource and environmental protection programs will change. For example, a program of natural resource monitoring to identify priority problems combined with conservation education could be introduced at relatively early stages of development, and watershed planning and protection measures could be integrated with

irrigation development or other infrastructure projects. Specific interventions aimed at resource conservation, such as policy analysis and reform, specialized institutional development, tenurial reform, resettlement, off-farm employment, and reforestation, could follow as more information became available and progress was made on the agricultural research and production fronts.

The orientation of the Strategy toward agricultural productivity and agribusiness development is not meant to suggest that fragile and rapidly degrading regions--hill agriculture and sloping land agriculture--be ignored. It is clear that, in many highly stressed areas, large-scale out-migration is not a viable option at this time. The need to protect major investments in irrigation from siltation may dictate the need for significant, near term investment in threatened upper watershed areas. The Strategy recognizes, however, that there are resource limitations and comparative strengths that must be factored into country agricultural strategies. Where major, direct involvement by AID may not be a feasible option, the Agency must continue to monitor and publicize the problems and undertake pilot or demonstration efforts to encourage other donor or host-country investments.

Experience to date has demonstrated conclusively that environmental and natural resource projects cannot succeed without the involvement and support of the local population. The "tragedy of the commons" is really more a "tragedy of unrestricted access" combined with the breakdown of local institutions and the effective vesting of tenure in remote institutions and agencies. Successful development interventions in natural resources and sustainable agriculture must consider the social arrangements and gender-differentiated roles as they interact with each other and with the natural resource base.

Finally, an effective strategy must not only deal with current problems, but must establish mechanisms to reduce natural resource degradation in the future. Population considerations as such do not fall within the purview of natural resource management, but without effective means to limit population growth in fragile areas the impact of other interventions will be undermined. The historical answer to the problems of fragile,

low-productivity areas has always contained elements of population control and migration. Growth of agro-industries to attract labor from low-return subsistence production in fragile areas, and female education, training, and off-farm employment can play a highly positive role in environmental stabilization.

In **low income agricultural economies**, environmentally sound programming suggests the following minimum set of activities: (1) assessing and monitoring of natural resource use by both men and women; (2) identifying of the environmental costs and benefits of policies and projects in order to promote improved cost accounting; (3) promoting the awareness of environmental issues, both in governmental policy circles and the wider public; and (4) ensuring the environmental soundness of specific interventions. All of these can be undertaken with a relatively minor commitment of resources and are compatible with Agency strengths. Where serious problems exist and other donor resources are available, AID may be able to play a valuable brokering role, by way of demonstration or pilot efforts.

Further, there are policy interventions that can have a major positive impact on the resource base that do not make great demands on indigenous implementation capacity. For example, reduction or elimination of subsidies on agrochemicals or other relative changes in the factor-product price relationships, unlike such things as tenure reform or reforestation, do not require any indigenous implementation, monitoring, or police capacities; rather, they directly affect producers' decisions and actions through altering the financial calculus. Analysis and policy dialogue in such contexts can be appropriate and effective.

Involvement in **middle income transitional economies** can be more overt and active. Because the more productive agricultural areas will be an important source of income and employment growth, the sustained productivity of such areas must be a paramount concern. In most cases, water resources will be the single most vital determinant of such sustained productivity. In order to limit soil erosion in vital watersheds and increase farmers' incomes, a number of specific actions are possible, from improved management of forest resources and forest leasing policies to direct reforestation programs. In areas where mixed upland

farming is prevalent, agroforestry promotion--including tenurial reform and the introduction of new, mixed farming and terracing systems--may be appropriate.

Watersheds typically do not follow established administrative boundaries; therefore, new models of organization, which integrate upstream and downstream interests, may be required to implement watershed-wide initiatives. To be effective, such institutions must be based on national water resources plans and institutions that clearly set out the various riparian rights, priorities, and mechanisms for resolving disputes.

Because irrigation represents the largest single user of water, programs which improve the efficient use of both surface and subsurface water and limit agriculture-based pollution and public health problems will be critical. Improved design and management (especially in areas of limited supply), and issues of ownership and control (among farmers, irrigation authorities, and the state), and long term financing (of operations and maintenance efforts) are vital. They represent areas of demonstrated AID interest and comparative advantage.

The continued development of indigenous capability to undertake natural resource-oriented policy analysis should also be an important program thrust in the transitional economies. In these countries, solid policy analysis capability is essential in highlighting the social and economic costs and benefits of specific policies, programs, and projects. Developing this capability may well take the form of expanding the scope of research and analysis units established earlier in order to provide them with an environmental viewpoint.

The set of environmental problems faced by **middle income industrializing economies** often resemble those confronted by developed countries. For example, as urban and industrial growth take place, air, water, and solid waste problems demand increased attention. The incidence of point-source pollution from agroprocessing and intensive livestock and field crop production becomes more prominent. New monitoring and enforcement legislation which focuses on minimizing downstream impacts is required.

Finally, as incomes grow, demand for leisure and recreational facilities increases; public investments in new parks, nature preserves, and shoreline recreational areas are called for. Mission programming in these countries should continue support for watershed planning and conservation programs. Use of innovative financing such as debt-equity or debt-nature swaps to expand these efforts can create a strong basis for an expanded park and recreational area program. Strengthening scientific and administrative manpower in specialized environmental monitoring and analysis fields may also be required to step-up enforcement of new environmental regulations. And finally, efforts are needed to support the various domestic conservation interests groups which are forming around research issues and resource uses. Tying viable, domestic environmental advocacy groups with international organizations would be an important component of an AID natural resource management program.

C. Agribusiness Development

Increased AID support for agroprocessing and related service industries can provide substantial returns in terms of increased income and employment. This program emphasis builds on AID's extensive knowledge of agricultural production systems, leads to portfolio diversification, and puts ANE programs directly in the forefront of Agency programming. Decisions on the activities and product lines to be included in a Mission's agribusiness program need to be guided by the following considerations:

1. Investment decisions must be based on real changes in domestic demand, not supply potential. Too many projects have ignored effective demand, only to be faced with limited markets, an excess supply, and rapidly declining prices and profit margins.
2. Agribusiness investment programs will not be possible in all ANE countries. Shifts in demand which signal increased consumption of higher protein foods and processed commodities take place as incomes rise. Thus, countries with very low incomes are not likely to find extensive private sector investment opportunities.

3. Agribusiness investment programs must involve both the public and private sectors--with the former, limiting involvement to market management and infrastructure investments and with the latter, targeting investment to key, high growth commodity areas.
4. The informal dimension of private agribusiness--food processing, transportation and vending--is an important element in all ANE economies. These enterprises employ large numbers of poor, including women and children. The importance of this sector dictates that it be taken into consideration in the design of country agribusiness policies and programs.
5. Agribusiness development will require a number of complementary strategic program decisions within Missions. Shifting agricultural research priorities to support an agribusiness thrust, modifying contract law and commodity specifications, easing import restrictions and country-specific production programs which affect the cost of inputs used by agroprocessors, and upgrading and expanding the infrastructure base are examples of potential areas of program support.

In the **low income agricultural countries**, low incomes and the predominance of cereals in domestic diets limit agribusiness investment opportunities. This does not mean, however, that Missions cannot begin to pursue a limited but active program to set the stage for future development. Missions may wish to initially concentrate on rationalizing the agricultural production input business, increasing opportunities for private involvement in production and distribution with the goals of decreasing costs and improving coverage.

Also, AID support to improve domestic capacity to conduct the detailed market analysis which underpins agroprocessing investment decisions will be needed, along with a thorough understanding of domestic cereal markets. This would lead to greater appreciation of: (1) countries comparative economic strengths; (2) the initial efforts required to improve commodity specifications; (3) the contract procedures required to facilitate transactions; and (4) the employment and income growth potential of agribusiness development for both

men and women. Finally, AID pilot support for a limited number of high value export processing options could provide the Mission and host governments with new insights into the real problems investors face in establishing new processing firms and practiced solution.

The **middle income transitional countries** are typically moving through a period of rapid adjustments in agricultural product demand. They represent prime targets for Mission agribusiness investment programs. Efforts to expand public and private sector capacity to analyze market demand down to the product line level will help define sector investment emphases and allow a thorough understanding of the agroprocessing subsector in both its formal and informal manifestations. The information generated from these analyses could then direct market testing of potential products and production/marketing options. Results would flag potential areas for growth, provide estimates of the scale of facilities required, identify areas of concentrated demand, and provide invaluable information to expand efforts to set domestic product standards. Missions could assist countries in establishing specific marketing institutions to define and maintain product standards, expand market volumes, reduce transaction costs and limit disputes.

Activities in other program related areas could support product decisions, for example: (1) a refocusing of agricultural research efforts to increase the quality and level of inputs used by the processing industry--e.g., feed production; (2) an adjustment in import restrictions which effect the price and availability of required inputs--production and processing machinery, high protein feed ingredients, medicines, and packaging materials; and (3) the establishment or development of quasi-public authorities which would oversee public infrastructure investments in trade free zones and manage area operations when completed.

Support could also be provided to establish or strengthen domestic promotional efforts to increase private investment, including the expansion and "legitimization" of informal enterprises. The options include increasing credit availability and reducing collateral and documentation requirements for small businesses. Another option in the development

of tax and tariff deferral policies and other efforts to encourage joint foreign and domestic investments.

AID efforts in the **middle income industrializing countries** would focus on expanding analytical capacity to identify and promote export sales of processed products. Missions involved in these countries could assist in efforts to examine and improve government export licensing procedures, and could promote links between domestic commodity processing groups and foreign counterparts. These would serve to identify mutually advantageous promotional activities, provide access to foreign expertise, and assist domestic processors in identifying implements and improvements in product quality, organization, production, and cost-control. Activities outlined in the section on Trade and Market Development would complement these efforts.

D. Agricultural Planning and Analysis

The ability of governments to adjust and respond in an appropriate and timely fashion to both domestic and external political and economic changes becomes critical as economies develop and become more complex. Although developing this response capability is a major goal of AID, resource limitations dictate carefully targeted involvement.

The main objective of Mission involvement in this area would be to strengthen analytical capabilities at key decision points in a governmental system in order to raise the level of substantive debate, thus increasing the likelihood that interventions or policy changes will be manageable and result in acceptable problem solutions. When considering such investments, Missions need to examine the institutional context within which planning and analysis takes place. Most of these are complex hierarchical systems, normally extending well beyond a single ministry, with numerous interrelated functions. The identification of key interest groups, points of access, and areas where programmatic interests coincide is essential.

In terms of the specific needs associated with agricultural policy and planning capabilities, the Strategy would focus on:

1. Strengthening the data collection, analysis, and planning capabilities associated with cereal production. Critical areas include the capacity to:

- identify commodity production and marketing systems which have a dynamic comparative advantage;
- track and analyze the changing characteristics of the rural labor force, including the out-migration of young male labor, the changing role of women, and the implications of this for agricultural planning;
- assess impacts of policy interventions on specific farm groups;
- determine the impacts of adjustments in subsidies on production, farm income and employment;
- determine the constraints to future cereal production and least cost steps to overcome them; and
- monitor the analytical output of other planning and analysis units (e.g., industry, finance, central banks, input/output supply agencies) and their impact on farm level production, income, and employment.

2. Strengthening the links between agencies which focus on micro- and macro-level analysis and planning. Of particular importance are the links between agricultural production and the exchange rate, trade and tax policies, infrastructure development, agroprocessing, human capital development, and market development.

3. Strengthening the relative position of analysis units within Ministries of agriculture as compared with those responsible for production. In the past, achievement of physical production targets has generally taken the lead in determining field programs. A more balanced perspective, which blends supply requirements with both production and trade options, will improve the efficiency of domestic production, and move countries toward a policy of agricultural self-reliance rather than self-sufficiency, and decrease program costs.

The following suggested interventions focus only on production agriculture and its link to agribusiness. Complementary actions are discussed in the sections that deal with agribusiness, trade and market development, and human and institutional capital development.

In the **low income agricultural** countries, where food security concerns are paramount, program emphasis needs to be placed on understanding how farm level decisions are made, the impact of uncertain input supplies--irrigation, seed, information, and fertilizer--on costs and production decisions, and how output markets are structured and influenced. Development of basic data generation systems and analytical capabilities to answer these questions will be essential to determine the impact of government-led interventions to increase production.

The resolution of basic grain supply and demand problems in the **middle income transitional** countries provides unique opportunities for restructuring the way policy is made or projects are designed and implemented. For example, as countries diversify their production focus, economic analysis rather than supply potential becomes increasingly important as a guide for public investment decisions. Efforts specifically focused on strengthening economic analysis and its influence in the decision-making process vis-à-vis production-oriented agencies can have high payoff, especially in pointing out ongoing inefficiencies. Expanding the agenda of these planning units to include consideration of the implications of macro-economic policies on agricultural production at the household level can help in developing a sound basis for considering and negotiating such policies.

For countries in the **middle income industrializing** phase, the basic analysis and planning capacity should exist within and outside of government. The focus should move to the selected training of key analysts, the involvement of individuals and institutions in international networks, and a collaborative, economic and policy research. Collaborative work on food policy issues, for example, would provide U.S. analysts with a better understanding of potential new markets for both U.S. imports and exports and lead to a greater degree of understanding between the

United States and client countries of the unique opportunities for cooperation in the future. An emphasis on these types of relationships could set the stage for a mutually-agreed reduction in other areas of program involvement and provide a basis for a lasting relationship after formal assistance activities are terminated.

E. Trade and Market Development

Efficient domestic and export marketing systems constitute a basic requisite for continued real growth in agricultural production and income, the expansion of domestic demand, and ultimate entry into selected international markets. As already noted, developing economies are often saddled with heavy direct government involvement in agriculture input and product marketing. With increased production and more assured cereal supplies, this role should change from control to facilitation and monitoring of private sector processing capacity. Measures which increase price stability for major cereals and facilitate exchange can effectively decrease the costs of further production and processing and encourage private sector involvement.

As experience in agro-processing leads to improvements in efficiency and constraints to domestic demand are addressed, export market identification, promotion of domestic products, and simplification of export procedures become critical. Access to foreign exchange to acquire advanced processing technologies is required to expand and take advantage of the economies of scale associated with modern low cost agro-processing. This transformation is not automatic or easy.

In the predominately cereal deficit **low income agricultural countries**, programs need to focus on strengthening two related areas: marketing systems which deliver inputs to producers and collect surplus output, and cereal price stabilization. To address the first, programs should focus on marketing efficiency and system monitoring. One option is for AID to support expansion or upgrading of basic agricultural input market facilities. Major efforts, however, should focus on increasing the efficiency of distribution systems, and encouraging price competition in local markets between government and private input

suppliers. Commodity import programs focusing on key inputs could be effectively used to lever greater involvement of the private sector in input distribution.

To facilitate the eventual removal of government controls over input markets, more effective market monitoring systems required. Such systems should provide management entities with real time estimates of stocks at points in the distribution system. The systems should monitor input prices and market structure at local and regional levels to identify where markets operate imperfectly, to pinpoint areas that require government intervention, and to track changes in farm level input use rates in order to better plan future offtake and permit analysis of the impact of subsidy adjustments.

Effective cereal price support systems must make maximum use of private sector traders.

To promote this, AID could:

- establish analytical units capable of monitoring market and cereal prices;
- assist in monitoring changes in domestic and international cereal markets which influence the timing, volume, and costs associated with required cereal imports;
- support the logistical systems required to backstop price stabilization programs;
- support establishment and maintenance of public buffer stocks at least-cost, thus encouraging the shift toward more market-driven systems (PL 480 commodity programs to build adequate stocks or to assure supplies during periods of rapid drawdown could be useful in absorbing a portion of the risk associated with this process); and
- support programs which encourage private sector investment in input and output storage and processing facilities as they relate to cereals supplies, e.g., adjustments in government licensing procedures, the provision of credit to finance private investments, and testing of new, low cost storage techniques.

In the **middle income transitional and middle income industrializing economies**, where domestically produced cereal supplies are roughly in equilibrium with domestic demand, the political support and economic justification for direct government involvement in agricultural input/output distribution systems diminishes. However, continuing government efforts to stabilize basic cereal prices remains an important issue because of the effect these prices have on overall welfare and on agricultural and non-agricultural wage structures. Adjustments in government ownership of agriculture-related industries, and trade and marketing policies which promote private sector growth and investment will, therefore, be required.

There are a number of potential areas for involvement. Building on previous efforts, AID could support continued reduction of government control and/or ownership of input production and distribution systems. To encourage appropriate private sector investment to meet adjustments in the domestic demand structure for food, changes in banking procedures, private sector investment promotion, and tax policy could be supported.

Establishing consistent real exchange rates, and investment and tax policies which favor growth in a domestic processing capacity could positively affect the costs and profits of private investors. The use of market interest rates would encourage the increased mobilization of domestic capital. The increased costs associated with such adjustments could be offset by tax breaks, which would allow governments to target incentives to specific types of industries where domestic demand is increasing rapidly or where the nation has a proven comparative advantage in processing.

Finally, adjustments in trade policies, or more specifically, adjustments in how nations can use trade policy to encourage expansion of domestic agroprocessing capacity will, in many instances, require major changes in the Ministry of Trade and ancillary trade-related agencies. Improved analytical capacity to explore the domestic implications of changes in policy, revised and streamlined administrative systems which license and monitor private sector trading activities and encourage investment, and strategies which identify and plan for growth in domestic trade will be required to develop the

necessary technical and political support. These are all areas for potential AID involvement.

The increased use of least cost domestic and/or imported items to support the expansion of the agroprocessing sector should eventually lead to expanding exports. Access to foreign markets and, consequently, to the foreign exchange earnings required to expand imports will depend in part on private sector capacity to tailor domestic production to meet foreign tastes and preferences. Also, access will depend in part on the ability of a country to participate fully and effectively in bilateral and multi-lateral trade negotiations. The capacity to monitor changes in the structure of foreign markets, to identify potential new markets, and to encourage appropriate adjustments in domestic production capacity is essential. AID efforts could focus on trade promotion and on developing a country's ability to analyze its needs and coordinate in-country responses.

F. Infrastructure Management

Improvements in transportation and public irrigation systems, many requiring large capital expenditures, will continue to be important--especially in support of priority investment activities (irrigation management as it affects cereal production or transportation and communications as they support agroprocessing or marketing). Rather than AID undertaking large capital expenditures, the Strategy suggests ANE concentrate on improving the planning and management of such systems. Modest construction investments, which provide the opportunity to introduce and test new technologies and management methods, should be considered. The overall mode of assistance, however, will move from construction to innovative/experimental systems management.

Expansion of irrigation, in particular, has been a primary factor in the growth of agricultural production over the past two decades. The principal investment focus has been on large, publicly subsidized and managed surface irrigation systems to bring new land under irrigation. As prime areas for irrigation have become scarcer and costs have risen, greater attention has been given to ground-water development, physical rehabilitation of existing irrigation systems, and improved operation and management of older systems. Ground-water

development has permitted rapid expansion of effectively irrigated areas and yielded quick returns, particularly the use of shallow tubewells to supplement surface supplies. Uncoordinated conjunctive use of surface and ground-water, however, has wasted both financial and water resources.

There is little argument about the critical role for government in major irrigation construction and rehabilitation. There is less unanimity regarding the operation and maintenance of an irrigation system. Preliminary evidence here suggests that irrigation can be made more efficient by increasing users' involvement. Although acceptable models of public and private participation in irrigation are known, these have not yet been widely applied.

In particular, the Strategy supports programs focused on improving the productivity and performance of existing systems. Such programs commonly incorporate one or more of the following measures: the introduction of new irrigation technologies--drip or sprinkler application or conjunctive ground and surface water use; the strengthening of irrigation organizations, both public and private; improvements in operation and maintenance--often accompanied by new investments; and increased participation by farmers in management and decisionmaking. Such efforts, largely confined thus far to pilot projects, now need to be expanded.

The Strategy continues to place a strong emphasis on improving and increasing farm level access to reliable irrigation by assisting irrigation agencies and user organizations to improve their analytical, planning, and management capabilities. In essence, the Strategy focuses on field applications of a program of human capital development and institutional strengthening--on the hardware applications of irrigation "software"--reflecting the predominant experience and comparative advantage of AID.

Although expanding the supply of irrigation services can open up to farmers a number of new production options, constraints on the movement of commodities and information between and among input manufacturers, farm producers, processors, and wholesalers often limits final demand for agricultural products and leads to suboptimal investment in

production and processing. The expansion and the improved maintenance of rural roads are critical to ensure that agricultural inputs are available and that farm outputs find their way to processors and consumers at minimum costs. To facilitate the communication function, besides roads, effective communication systems that bring information to farmers, inform producers and processors of current market conditions, and reduce the costs of transactions are critical to the formation and operation of modern markets.

To address the constraints inherent in the above, the Strategy suggests concentrating investments on five elements:

- Strengthening the capacity of infrastructure planning and development institutions to identify problems, assess remedies, appraise investment programs, and formulate long-term strategies;
- Improving the planning and design of new irrigation facilities, incorporating concepts of watershed planning, conjunctive use of surface and groundwater and the adaptation of new technologies, including pressure systems and water measurement regulation;
- Improving the efficiency of existing road and irrigation facilities by improving management and funding of operations and maintenance;
- Rehabilitating and modernizing existing road, irrigation and communication systems to overcome technical limits imposed by original designs, respond to new use patterns, and incorporate flexibility to accommodate future changes; and
- Re-defining public agency roles vis-à-vis users, involving the private sector in development and diffusion of new technologies and in system maintenance and operations, divesting responsibilities for operations and maintenance to the local level, and establishing a service orientation toward both male and female user "clients."

In **low income agricultural economies**, emphasis is needed on improving access to and reliability of irrigation and transport services at lowest cost. This will likely include planned

expansion and/or strategic rehabilitation of existing rural roads and surface irrigation systems, and experimentation with more decentralized operations and maintenance programs. Where ground-water exploitation is financially feasible, programs should promote private sector investment with appropriate public regulation. Both irrigation and rural road management institutions tend to be relatively weak in these countries. Clearly defined institutional strategies to promote increased efficiency and effectiveness are in order.

In the **middle income transitional economies**, as cereal production and corresponding infrastructure expand, there is a point where governments begin to feel the weight of operation and maintenance costs. The inability of governments to maintain these systems can lead to rapid depreciation of existing assets and a growing awareness that existing operation and maintenance procedures require modification. New tax and rate structures specially geared to system performance need to be implemented.

Other areas of particular importance at this stage of development are the expansion and upgrading of the rural road network to facilitate marketing functions, and the modification of surface irrigation systems in the direction of increased flexibility in order to accommodate a range of production broader than just cereals. Focused efforts which take advantage of these trends and build upon the results of pilot and demonstration efforts can play an important part in Mission programming during this period.

By the time countries move into the **middle income industrializing** phase, the basic planning and implementation systems and procedures for rural transportation, irrigation and communication should be in place. While AID's direct involvement is over, selected training of managers and researchers and flexible support, largely under the control of in-country institutions, can play an important role in strengthening effective links between the United States and client countries. For example, collaborative testing of new irrigation technologies, such as drip and sprinkler irrigation, could provide U.S. scientists and engineers with experience in adapting proven technologies to new conditions, lead to improved applications for U.S. farmers, and build longer

term collegial technology transfer and development networks. New techniques in institutional management, privatization of public services, and water-user organizations constitute additional areas for potentially fruitful collaboration.

G. Sustained Institutional and Human Capital Development

A recurrent theme in each of the substantive areas is the critical importance of a strong human and institutional base in each country's continuing ability to meet its development objectives. For each group of economies there is a fundamental need for responsive, flexible, public and private institutions that are supported by appropriate laws and guided by an educated and committed management. The key issue is how to appropriately select and pursue specific human and institutional development activities in light of expected resource limitations and the long time horizon involved.

ANE's strategy for human and institutional development is to incorporate these as integral dimensions of the other program areas and to structure the human and institutional development program for a particular country according to the three-stage typology. Several considerations can assist in selecting and implementing appropriate activities in this area.

First, the ultimate test for success is the extent to which such efforts support continued analysis, research, and management functions (e.g., the institutional sustainability). Second, the human and institutional development response should be appropriate to the type of economy and the nature of the specific problem. For example specific institutional development activities are more appropriate for low income agricultural economies, as compared to interorganizational development in transitional economies. Finally, considerable knowledge of the relative effectiveness and costs of human and institutional development approaches has been assembled over the last ten years which, if systematically applied, could greatly benefit these efforts.

For low income agricultural countries, ANE's human and institutional development strategy for the 1990s will undergo several shifts. These include:

- moving from the strengthening of the reservoir of human capital to an emphasis on the strengthening of organizational capital;
- moving from capacity building to an emphasis on enhancing and sustaining the performance of agricultural institutions; and
- moving from the pursuit of many human and institutional development objectives, mostly through the public sector, to a selected set of objectives in both public and private sector organizations.

The primary focal areas and associated approaches for these economies include:

- enhancing and sustaining the effectiveness of the range of institutions involved in cereal production, with emphasis on their research, analysis, and management functions and the legal and procedural institutions that facilitate agricultural transformation;
- developing the critical mass of technical and management skills in key research institutions by continuing to support education and training for scientists and administrators/managers both in the U.S. and in-country;
- upgrading basic skills for the rural labor force, with particular attention to the increasing number of females who are becoming farm workers and managers, and preparing the rural labor force for eventual off-farm employment; and
- upgrading the capacity to trace policy effects from the national or sectoral to the household level, with particular emphasis on responses of individual producers, both male and female, to alternative policies and resource availabilities and on the welfare impacts of policy change on specific household members.

The human and institutional development strategy for the **middle income transitional economies** will also see several major shifts in the 1990s. These include:

- moving from the strengthening of the reservoir of human capital to an emphasis on the strengthening of inter organizational linkages and capabilities;
- moving from a focus on agricultural institutions to a broader emphasis on program structures and processes; and
- moving from the "project" mode, accompanied by micromanagement at the field level, to the expanded use of "program" modes, with more removed, indirect management by AID.

Associated approaches would consist of:

- sustaining and enhancing the efficiency of the inter-organizational processes that deal with policy analysis, research, and management of the adjustment process;
- supporting those agricultural and rural sector institutions that can positively influence productivity and employment for both men and women, through such functions as systems management, service delivery, maintenance, cost recovery and interest articulation. This will require investments in "institutional infrastructure" at the central and sub-national levels, including information and financial management systems and infrastructure planning and maintenance; and
- upgrading specialized education in new technical and management fields, using both United States and in-country education and training institutions.

The strategy for the transitional economies involves a broader array of institutions than for the agricultural economies. To handle this increased complexity, AID will need to identify interests and institutional roles and capabilities more precisely and play a more indirect, facilitative role that permits major ownership for planning, implementation, and results to belong to the host country.

The human and institutional development strategy for **middle income industrializing economies** represents a major break from the current approach. Implementing the human and institutional development strategy in these economies will require a different, more collaborative posture on the part of missions. It will also involve a new set of networking roles with a range of highly competent individuals and organizations. Specifically, the directions move as follows:

- from a pursuit of the LDC graduate approach, where assistance is gradually phased out, to a long-range mutual benefits approach, where AID remains involved in a set of institutional relationships, albeit with a much reduced and reoriented in-country presence.
- from an emphasis on the strengthening of the reservoir of human capital to the strengthening of key scientific and executive leadership capital, in cooperation with major U.S. universities, corporations, and other international institutions.

The major focal areas encompassed by this shift in strategy include:

- providing long-term support for selective, mutually beneficial trans-national networks for technical and managerial exchange;
- providing selective, long-term support for high priority institutional development initiatives related to specific agricultural program areas--environmental protection, biotechnology, information systems, or trade liberalization; and
- developing technical assistance and training linkages with neighboring low income agricultural and transitional economies to support their development and the long term economic interests of the United States. In select cases, AID could provide program funding to strengthen a middle income country's performance and capacity to provide technical cooperation and training services for other countries on a cost recovery basis.

V. IMPLEMENTATION IMPLICATIONS

This strategy goes far beyond the traditional borders of the agricultural sector to include natural resources, trade, agribusiness, finance, and rural-urban linkages. The primary focus on employment, incomes, and "demand driven" adjustments in agriculture has significant implications for Agency program objectives, financial resource allocation, staffing patterns, organizational structure, and programming modalities.

A. Sector Development Objectives and Investment Patterns

In the FY 1988 Congressional Presentation, the Agency presented an agricultural, rural development, and nutrition focus statement calling for increases in the income of the poor majority, expansion of the availability and consumption of food, and maintenance and enhancement of a country's natural resource base. This focus statement and the suggested investment themes, although useful in explaining ANE's overall perspective, are broad and fall short of providing concrete guidance to field staff in making programming decisions. The result is a wide range of program emphases, both within and among countries of the region.

A recent analysis by ANE/TR/ARD of agricultural programs in 10 ANE countries found that five countries have programs in agribusiness, marketing, and private sector development; five are working in macro-economic policy formulation. All of these countries have programs to improve agricultural research capacity, rural development institutions, and agricultural input supply management, and all are implementing projects to improve policy dialogue associated with sector issues.

A more exhaustive analysis commissioned by the Tri-Sector Council suggests a much more traditional investment mix in both the ANE and the overall Agency ARD portfolio. The

results of an examination of over 1900 approved or planned investments for the period 1984 to 1989 are shown in tables 4A and 4B. Although this analysis suffers from a number of methodological problems, but it is the only comprehensive review of AID expenditure patterns available for the recent past. Critical interpretation reveals some valuable information. For example, construction programs continue to play an important role in ANE's program, absorbing 18 percent of 1989 obligations. The continued importance of agriculture-related infrastructure investments in the region suggests that AID is continuing its substantial involvement in building rather than in managing infrastructure.

Support for agriculture policy planning and analytical capacity building has been limited to six percent of the total budget, perhaps reflecting problems missions have had in developing sustainable agriculture planning and analysis capabilities. By way of comparison, the high level of funding for "sector support" reflects (1) the growing emphasis on policy adjustment, and (2) the commonly held belief that sector support programs place less demand on the Agency's scarcest resource, trained manpower.

Finally, the volume of agricultural credit programs, perhaps partially because of their rapid disbursing nature, is questionable given the growing evidence suggesting that credit--especially subsidized credit--is not achieving its objectives and may not be as important a constraint as previously supposed. Absorbing 25 percent of ANE 1989 obligations--13 times the 1984 figures--the growing volume of credit programs may offer a pool of future resources which could be redirected in support of areas suggested in this Strategy.

The data also indicate that some key areas may be currently under-funded. For example, the analysis underlying the Strategy suggests that the source of growth in many of the countries in the region is slowly but surely shifting away from agricultural production to processing and services. A comparable programming shift is not reflected in the data. If programs were focused more on supporting these adjustments,

TABLE 4 A PERCENT DISTRIBUTION OF OBLIGATIONS BY FOCUS STATEMENT GOAL - (1984-1989)

	<u>TOTAL</u> <u>AID</u>	<u>AFR</u>	<u>ANE</u>	<u>LAC</u>	<u>CENTRAL</u>
Income	24.7	17.3	15.9	27.0	40.8
Food	20.5	26.1	17.4	20.6	27.7
Natural Resources	11.9	8.4	13.5	8.0	22.4
Income and Food	.0	.0	.0	.0	.0
Income & Nat. Resources	.0	.0	.0	.0	.0
Food & Nat. Resources	.0	.0	.0	.0	.0
Income, Food, Nat. Resources	.0	.0	.0	.0	.0
All	42.9	48.3	53.3	4.4	9.1
Total	100.0	100.0	100.0	100.0	100.0

TABLE 4 B PERCENT DISTRIBUTION OF OBLIGATIONS BY PURPOSE CATEGORY - (1984-1989)

	<u>TOTAL</u> <u>AID</u>	<u>AFR</u>	<u>ANE</u>	<u>LAC</u>	<u>CENTRAL</u>
Construction	17.5	10	24	10	0
Credit	17.0	2	20	33	14
Education System Dev.	2.5	4	3	0	0
Human Resource Dev.	3.5	5	3	5	1
Input	2.0	5	3	0	0
Land Tenure	1.5	0	0	9	1
Marketing	2.5	2	0	11	0
Planning & Policy Analysis	6.0	7	6	5	5
Resource Development	4.5	3	4	4	13
Sector Support	16.0	35	12	4	0
Technology Development	11.5	14	6	7	64
Technology Transfer	15.5	15	18	10	2
Total	100.0	100	100	100	100

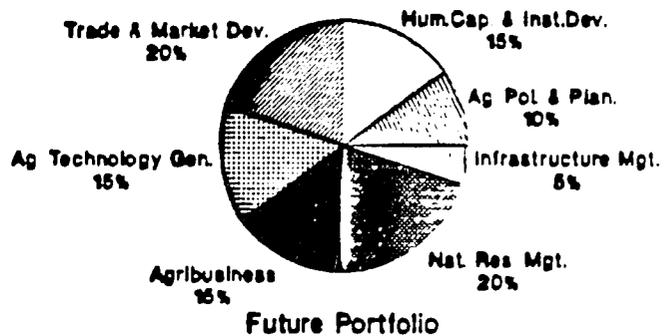
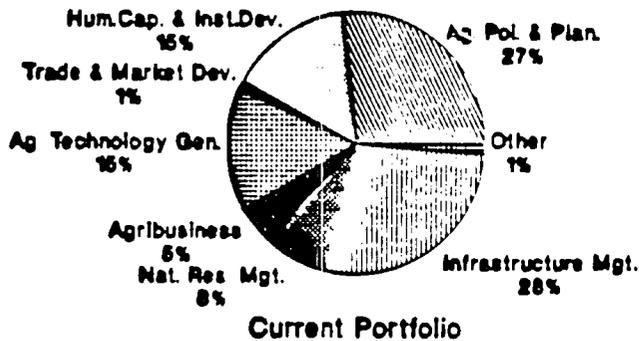
Source: "Agriculture, Rural Development and Nutrition Portfolio Review: Analysis and Recommendations";

obligations in areas such as marketing, human resources, educational systems, and natural resource management would be more prominent. These areas constitute only nine percent of 1989 obligations.

It is apparent from the limited analysis that adjustments will be needed in resource allocation if Strategy objectives are to be achieved. A proposed reallocation of Bureau resources is shown in Figure 2. As a first step, Country Development Strategy Statements (CDSS's) need to be carefully reviewed to assure the Mission development objectives are consistent with Strategy objectives. Reviewing consistency with the Strategy can become an integral part of the project and annual program review process.

Second, although adjustments in Mission programs are likely to take place as economies change and new problems arise, these adjustments will not be without costs. For example, movement away from agricultural production programs into agribusiness and the increased reliance on policy versus project mechanisms may be opposed by more traditional agricultural professionals. Missions that actively pursue adjustments in their program and take on the associated management problems should be rewarded. One way of doing this, now beginning to be applied in the Africa Bureau, is use or reserves set aside under a performance-based budgeting system to reward insightful and innovative Missions.

FIGURE 2
PROPOSED ADJUSTMENTS IN
ANE ARD PORTFOLIO



Third, PL 480 food resources are becoming increasingly important to the effective implementation of AID's programs. Over the last five years, the total value of these resources was approximately 20 percent of Development Assistance (DA) and 11 percent of total DA and Economic Support Fund (ESF) resources. Congress is currently reviewing PL 480 as part of the 1990 Farm Bill; AID needs to push for greater programming authority if the "development" goal of PL 480 is to be taken seriously.

ANE should lead in reviewing how PL 480 resources are programmed and used in the region. One option would be to treat them as financial transfers and program them the same

as other budget resources. Or, multiple year commitments, which blend financial and food resources for use in projects or programs could be considered. This approach would be extremely effective in pursuing policy adjustments, developing rural infrastructure, and establishing grain price stabilization programs.

Finally, ANE needs to develop a way of quickly and effectively monitoring and analyzing changes in the Agency's investment patterns in the region. The analysis that was conducted in developing the data discussed above is a start, but more needs to be done to establish and update an effective data base and the software required to use it.

B. Personnel Resource Considerations

Successful implementation of the Strategy will require significantly different skills on the part of ARDO's than those currently available. Many of the major thrusts outlined in the Strategy, such as the private sector, agribusiness, capital markets, natural resource conservation, and market management, have only recently become part of the AID portfolio and are not presently areas of strong technical staff capability. Of the more than 200 agricultural officers, 82 percent have advanced degrees in agricultural economics, general agriculture, agronomy, and soil science. These academic concentrations are consistent with ANE's past production focus, but they may not meet the challenges of the future, which will require the ability to identify and formulate solutions to problems that arise as economics experience the structural adjustments associated with growth. The development of staff capacity to work effectively in agribusiness and private sector expansion, trade, governmental restructuring, and natural resources management will be the most significant human resource management challenge in the decade ahead.

External and internal constraints on staff levels suggest that recruitment will have, at best, only a marginal impact on the Agency's direct-hire staff skills. Although a rapid increase in certain skill categories is necessary, continuing budget constraints preclude staff expansion. When combined with a relatively young staff and consequently low retirement rates (an average of seven persons per year), this means that there will be limited opportunity in the near future for altering the skill mix through recruitment of new, direct hire personnel.

In the medium to long-term, recruitment to meet the need for specific skills could make a significant difference in staff capabilities; however, this would require a change in Agency recruiting emphasis, away from the multi-skilled, "technical generalists" toward those having a specific skill. Even if a change in recruiting policy took place, there is no mechanism to translate Strategy directions into skill specifications for long-term targeted recruiting.

In-service training, if strengthened and rationalized, may provide a more effective mechanism for broadening the skill-base; however, a number of problems must be overcome. For example, the Agency does not currently have a systematic approach to employee career development and needs a better mechanism for defining training needs in terms of broader program and operational strategies. In addition, current in-service training does not include sufficient opportunities to update knowledge of development concepts and theories, keep current on technical innovations, and acquire solid management skills. Only 3 percent of the Agency's training budget is devoted to technical "state-of-the-art" courses which cover major program areas. Long-term training--one of the few in-depth training opportunities currently provided by the Agency--is not well focused on emerging issues and Agency program directions.

Finally, the limited training budget--a manifestation of overall operational expenses (OE) constraints--seriously limits the potential for in-service training, either through Agency-sponsored courses or private study. Increased "cross-training" and skill upgrading for the present cadre would appear to be the least cost means of expanding staff capabilities in the short-term if the Agency can find the OE funds.

The inadequacy of present in-service training is nowhere more evident than in the group of senior ARDOs who design and manage ANE's agricultural field programs. Of the 28 ARDOs who met recently in North Africa, only five (17 percent) had completed the Agency's premier in-service development theory course (the Development Studies Program), only three (10 percent) had benefited from long term training and nine (32 percent) had participated in shorter term technical update training.

The wide array of problems associated with recruitment and training suggest a number of options for action. Although recruitment will provide only limited scope for change, the formation of a work force planning unit in the Bureau of Personnel and Financial Management may offer some hope. The ANE Bureau needs to work closely with this new unit to translate the staff needs emerging from the Strategy into recruiting targets. One means of building up capability in the relatively short-term may be through limited career appointments (two to

TABLE 5 DEGREE ACHIEVED BY BACKSTOP 10, 14, 15, 30* EMPLOYEES

Field of Major Degree	Backstop			
	10	14	15	30
AGRICULTURAL FIELD				
Agri & Farm Mgmt.	5	0	0	0
Agri Business	1	0	0	0
Agri Economics	57	6	0	1
Agri General	23	1	0	0
Agronomy	18	0	0	0
Animal SCI (Husbandry)	11	0	0	0
Fish, Game & Wildlife	6	0	0	0
Forestry	7	0	1	0
Horticulture	4	0	0	1
Nat Resource Mgmt.	3	0	0	0
Other Agriculture	12	0	0	1
Poultry Science	1	0	0	0
Range Management	2	0	0	0
Soil Sci.	7	0	0	0
Sub-Total	157	7	1	3
NON-AGRICULTURAL FIELD				
Agricultural Eng.	3	0	0	0
Anthropology	4	5	0	0
Business Mgmt. & Admin.	3	0	4	1
Civil Eng.	0	0	0	2
Ecology	1	1	0	1
Economics	16	1	4	0
International Bus.	0	0	3	0
International Rel.	2	0	5	1
Nutrition, Scientif.	2	0	0	0
Plant Pathology	1	1	0	0
Plant Physiology	3	0	0	0
Political Sci.	4	1	6	0
Sociology	2	2	1	1
Public Admin	0	0	1	0
Public Health	0	0	1	1
Veterinary Medicine	1	0	0	0
Others	18	5	7	2
Sub-Total	60	16	32	9
TOTAL	217	23	33	12

*Backstop 10 - Agricultural Development
Backstop 14 - Rural Development

Backstop 15 - Food for Peace
Backstop 30 - Energy and Natural Resources

Source: Agricultural Personnel Analysis, Richard C. Meyer, September 6, 1988

five years) in key program areas. It may be possible to use program funds for such staff positions, as has been authorized in the case of child survival and AIDS.

The presence of a modest core of highly qualified, senior technical experts is essential in order to ensure sound analysis, effective management of agricultural and rural development programs, and maintenance of external technical credibility. Retention of such skills and capabilities, however, is threatened by

the limited career advancement opportunities posed by the current Senior Foreign Service (SFS) system.

Options for addressing this include establishing a dual track career system differentiated at the top levels between program management (handled by the SFS) and technical specialization or creating a pool of general schedule "super grades" to accommodate a small number of senior scientists and technical experts. Providing periodic overseas assignments for officers in this cadre might

provide sufficient incentives for retaining their services and at the same time provide the Agency the benefit of foreign service experience. A third option is the provision of premium pay for senior scientists, as is currently the case for medical doctors.

Options are also available for improving training. Essentially, more training is needed across the board. For example, the Agency is now offering a two week introductory program on Natural Resource Management. Open to only 30 participants per year, it would take over seven years just to meet the training needs of agricultural officers to the exclusion of other professionals. Also, the Office of Women in Development (PPC/WID) provides, on a demand-driven basis and at minimal cost, sector-specific training programs in gender issues. More of these programs in areas not currently taught (agribusiness, capital markets, foreign trade) are needed. In addition, the Training Division should explore the possibilities of regional follow-up workshops to tie initial training in with the job realities. The long run payoff in this endeavor warrants expenditures greater than the current 3 percent of the Agency's training budget.

Expanded opportunities and improved targeting are also required in the Agency's long term training program. Medium term training, of three- to six-months duration, at universities and in the private sector in substantive program areas is an option. Development of such courses, along with the provision of centrally managed funds to cover travel and per diem costs, would limit time away from jobs, encourage Mission support of training programs, and make training available to larger numbers of employees. Finally, concentrating long term training opportunities in high priority areas outlined in the Strategy would require greater substantive leadership on the part of the Training Office and greater staff cooperation. There is precedent for concentrating training in new areas, and there is no reason why this could not be attempted in areas critical to the current Strategy--agribusiness, trade, food processing, and natural resources.

C. Bureau Organization and Procedures

The Strategy marks a significant break from past ANE agricultural programming, focusing not on the physical production of food but rather on the socio-economic activities that shape food related activities. It views these activities within a dynamically changing systems context--as problems constraining a component in the system are solved or relieved, one moves on to new investment areas which are becoming constraints. This investment pattern is determined by successive problems, not process. Program direction and assessment of impact will require considerably more analysis and monitoring. An increased role for these functions in support of Bureau strategic programming will require adjustments.

The ANE Bureau is presently configured into five functional areas; senior management, general country program support, management, project operations and technical support. The substantive analysis and strategic planning--basic staff functions in support of Bureau policy formulation--is carried out in two units, the Offices of Development Programs (ANE/DP) and ANE/TR. The former carries out the macro-economic country analyses and establishes broad country and regional development objectives, participates in incorporating these objectives and programs into Bureau budgets, and is responsible for program and project evaluation. ANE/TR, in addition to sectoral technical backstopping, is responsible for carrying out sectoral analysis and planning in agriculture natural resources, health, population, and human resource development.

Capabilities and responsibilities tend to be highly fragmented, both in the field and in AID/W. In essence, the Agency is not structured to deal effectively with the integrated rural sector or food systems development that involve, in addition to traditional agricultural production interests and capabilities, macro-economics, agribusiness, trade, marketing, and natural resource and environmental concerns. In a situation often paralleled in field missions, the ANE Bureau divides natural resources, environment, private sector, and agriculture/rural development responsibilities among two offices and four divisions.

Maintenance of these administrative distinctions is counterproductive. Development in the future will require increased integration of talents and perspectives, not fragmentation. Institutional structures should begin to reflect this. At the minimum, one would expect to see integrated agricultural, rural development, and natural resource offices. In field missions, such an office might include Food for Peace. Because commercial agriculture and agribusiness will be important programmatic areas in many, if not most, programs, private sector expertise and familiarity with relevant Agency programs must also be effectively integrated into rural sector programming.

The Bureau will need to explore how its analytical units can be more effectively managed and utilized. The current structure, although adequate for project and program analysis, does not work well for longer term strategic planning. Innovative ways of combining skills warrant trial, possibly in a matrix management system to bring together disparate skills to work on specific problems. The Bureau should seriously consider adoption of an income growth organizational structure along the lines of the typology presented in this Strategy to replace the present geographical focus in its analytical and strategic planning activities. ANE/DP's capacity for analysis and strategic policy formulation requires higher priority, along with closer ties between ANE/DP's analytical activities and those of ANE/TR.

D. Program Modalities

Reductions in staff, decreases in budget, shifts from project to program focus and the increasing emphasis on sectoral and macro-adjustment suggest that the Bureau revise its current set of programming modalities to implement the programs outlined in the Strategy more effectively and efficiently. (Modalities in this case refers to the means by which the Bureau plans and implements its programs, from Country Development Strategy Statements to program and project design and implementation and, finally, impact evaluation. They include the various available resource transfer mechanisms: loan and grant funded projects, sector support programs that involve cash transfers, PL 480, commodity import

programs and cooperative agreements, and operational program grants with other institutions.)

When evaluating these options, a number of general underlying issues should be considered:

- Refocusing management emphasis on longer-term strategic objectives and program impact requires a reassessment of the CDSS and Action Week processes. AID is no longer building bridges, which requires linear planning, but rather building institutional capacity to solve complex food and natural resource problems, which requires longer term involvement by AID staff and lengthier time frames for achievement by the less developed countries (LDC). A more dynamic plan, which ties country strategy, specific project objectives, and action plans more tightly together, is essential.
- Resource limitations dictate that AID generally will no longer be able to finance major infrastructure and institutional development projects. Instead, the Agency will need to play increasingly the role of sectoral analyst, innovator, and catalyst, to influence the host country and other donor resources.
- AID as a whole, and ANE in particular, will require greater flexibility in program funding and financial accountability. Successful implementation of the employment-generating, natural resource-conserving thrusts of the Strategy will require innovative, risk-assuming programming--taking on interventions that the Bank and other donors cannot or will not. A clear understanding on this point, balancing the need for accountability with the need for flexibility and innovation, is essential.
- Good ideas and staff time, not financial resources, are the primary constraints to effectiveness. Unless field officers can be allowed to devote more time to substantive analysis and interaction with host country counterparts, the ideas and influence which characterize our best field work will continue to erode.

- Broader field authority and accountability will be needed to program assistance effectively and respond to opportunities and problems on a timely basis.
- A more effective, gender-disaggregated monitoring and evaluation system is needed to assure that mutually agreed upon Mission and AID/W program objectives are being achieved and that effective Missions are rewarded. Strengthened monitoring and evaluation will require better and more focused communications about program performance between Washington and field Missions. This will facilitate improved information flow between AID and Congress.
- Domestic U.S. agricultural interests will dictate that field officers work to integrate development and agricultural trade. AID/W, for its part, will need to move from attempting to respond to specific commodity group interests toward dealing regularly and effectively with representative groups that may be able to play a brokering role.

The above general comments provide the backdrop for more specific steps that can be taken to encourage and monitor program implementation. These are as follows:

- This Strategy suggests increased Mission focus on agribusiness-related activities. This will require expanded Mission involvement with client country and U.S. private sector interests, as well as the more traditional government to government activities. The Bureau needs to devise means to facilitate working with the private sector and to develop new implementation mechanisms as required. ANE's ability to move effectively in support of private sector initiatives and needs is crucial to effective strategy implementation.
- Missions are placing more and more emphasis on the use of sector support programs to encourage continued adjustments in client country agricultural policies. To remain an effective program tool, supportive, clear guidance is needed on the level of the financial oversight required to implement these programs.

Requiring detailed monitoring of cash transfers effectively changes them into projects and results in the loss of any economies this program modality affords.

- Food aid, because of both domestic U.S. market incentive and self-help considerations, will need to be fully integrated into sectoral programming and implementation at the mission level. The allocation and control of PL 480 resources will need to be coordinated more tightly with DA funds, possibly the context of multiple year agreements.
- The ANE Bureau will need to reassess the scope for regional projects and programs whereby it may be possible to achieve economies in the delivery of certain services for which discrete country projects may not be warranted--in agribusiness, trade, and research.
- In the Middle income industrializing economies, the Agency will need to further explore new modes of operation involving joint decision-making; for example, through joint commissions and foundations.

E. Strategy Monitoring and Evaluation

If the Strategy is of value, it will affect country and Bureau programs in a positive way. Assessing and communicating this impact will require development of an improved ANE agricultural information system. Such a system would assess the Strategy's implementation status and impact and would contain a set of procedures for assessing if Mission programming is consistent with the Strategy, the means to measure the impact of the Strategy on main objectives (i.e., income, employment, and resource conservation), and a mechanism to conduct in-depth analysis to test and expand the basic hypotheses, assumptions, and strategic emphases.

1. Monitoring Program Adjustments

Compliance monitoring would assess the practical value of the Strategy in guiding the programming of a mission and effecting

adjustments in ANE's structure and functions. Although this is a Bureau Strategy, it will be implemented almost totally through country programs. The existence of discrepancies between the two should serve to trigger questions regarding the Strategy's utility and relevance.

To determine the degree to which country programs accord with Strategy, a project/program data base is needed to monitor Mission portfolio composition and trends. PPC has already developed and promulgated a revised project coding structure. This will be further adapted to Strategy monitoring needs in TR/ARD, and relevant project data then entered and maintained. An informal system can be used for monitoring changes in Bureau structure and functions.

2. Monitoring Strategic Impact

Strategy impact can be monitored at two distinct levels: the overall economy and the specific program or project level. The first provides information on general economic performance and the degree to which the economy has integrated itself into international markets--its position on the development path discussed in the Strategy. A set of these indicators, developed by ANE/DP for its work in Thailand, appears in Annex 1. This suggested list needs to be reviewed from individual country perspectives, required adjustments made, and the basic data base constructed. All of these statistics are normally available from the International Monetary Fund

and the World Bank; therefore, this data base could be constructed and maintained in ANE/Washington.

A much more program-specific set of statistics is required to get at the impact of the Strategy on key performance indicators. In most cases, this will only be approachable through specific project and program design, which should accord with the Strategy and should specify impact indicators. At a basic minimum, this monitoring system should be able to answer basic questions on the number of jobs (broken down by gender), the amount of value added, and/or the level of new wages generated by specific Mission investments.

3. Further In-Depth Analysis

The current Strategy rests on a number of key assumptive relationships. Based on these, it lays out a set of specific program emphases that correspond to the economic development status of the countries. Throughout Strategy implementation, these analytic underpinnings need to be subjected to intensive review and reassessment.

An initial analytic agenda has been developed (Annex 2), and implementation is underway. Results of these analyses will be reviewed periodically against the basic assumptions laid out in the Strategy and will form the basis of necessary adjustments made as new information becomes available. In addition, the results will be distributed by ANE/TR/ARD through a professional publication series.

ANNEX 1.

MACRO ECONOMIC INDICATORS OF STRUCTURAL ADJUSTMENT

- I. **The Export Picture**
 - A. Per capita exports
 - B. Manufacturing evolution
 - (1) as percent of total exports
 - (2) product composition
 - C. The role of exports in GDP
- II. **International Linkages in Investment**
 - A. Balance of Payments
 - B. Direct foreign investment
 - C. Foreign investment (portfolio)
- III. **International Financial Markets**
 - A. Interbank transactions
 - B. Private commercial loans from international sources
- IV. **Domestic Economic Growth and Markets**
 - A. GDP growth
 - (1) levels
 - (2) rates
 - B. Evolution of economic structure
 - (1) manufacturing role (percent of GDP, employment)
 - (2) agriculture role (percent of GDP, employment)
 - (3) services (percent of GDP, employment)
 - C. Investment
 - (1) private investment as percent of total investment
 - (2) net foreign assets
 - D. Institutions
 - (1) actual tax collected (as percent of potential)
 - (2) money supply relative to GDP

V. Social Performance

A. Poverty incidence

B. Health

- (1) infant mortality
- (2) life expectancy (by gender)

C. Demographics

- (1) fertility
- (2) dependency ratio changes/incidence of female headed households
- (3) implications for savings/investment patterns

D. Education/human resource development (by sex)

- (1) primary
- (2) secondary
- (3) scientific

ANNEX 2.

ASIA AND NEAR EAST FOOD AND RESOURCE SYSTEMS RESEARCH AGENDA

During strategy development, a number of gaps were identified in our understanding of current conditions in ANE countries. For example, although official statistics suggest declining yields in major cereals, little is known about the causes. Also, food consumption trends are changing, but to what extent are they changing in and between countries in the region is not clear.

To find answers to these and other questions which have arisen, ANE has initiated a research agenda to focus resources and individual talent on answering key questions. As agenda items are resolved, new research areas will be added to the agenda and the strategy adjusted if necessary to accommodate the new insights gained from in-depth analysis. Currently, there are ten research areas on the agenda, six of them underway and four awaiting additional funding.

<u>Description</u>	<u>Status</u>
1. Adjustments--in food demand in selected ANE countries	underway
2. Successful price grain stabilization policy	underway
3. Yield declines of major staples	planned
4. The role of biotechnology in the ANE region	planned
5. The productivity of irrigation investments	underway
6. Trade adjustments--successful policies and implications for U.S. trade possibilities	underway
7. State of knowledge in natural resources	planned
8. Regional migration - recent trends in rural to rural and rural to urban migration	planned
9. The nature and extent of informal markets in the ANE region	underway
10. Effective uses of PL480 resources	underway

FOOTNOTES

1. **Low Income Agricultural Economies include: Bangladesh, Nepal, and Burma. Middle Income Transitional Economies include: India, Sri Lanka, Pakistan, Indonesia, Yemen, Morocco, Philippines and Egypt. Middle Income Industrializing Economies include: Thailand, Tunisia, Jordan and Oman.**
2. **There are a few economies, primarily in the Near East, where a priority focus on cereals may not be justified. In cases such as Yemen and Jordan, it may be appropriate to down play the cereals stage in terms of research emphasis and move instead to a cash crop horticultural emphasis.**

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